Usability Testing M33121

Booking.com

UP891784

School of Computing

2023

Abstract

This report presents a comprehensive usability study of Booking.com's online platform, focusing on UK-based, English-speaking users. Amid the post-COVID-19 travel surge and ongoing cost of living crisis, the study evaluates the platform's current performance, sets three usability goals pertaining to finding value-for-money holidays and listing accommodations, and investigates challenges and limitations. The findings highlight key areas of improvement, especially in pricing clarity and filter functionality. Suggestions include potential integration of large language models for a more user-friendly experience. The report concludes that further investigation is essential for achieving set usability goals and improving Booking.com's overall performance.

Contents

List of Tables

List of Figures

Chapter 1

Introduction

This chapter provides an overview of the usability testing report for the online travel agency, Booking.com. It details the platform's current status and sets usability goals for this study based on the context of UK-based, English-speaking users. The chapter also includes the methodology of the usability study and identifies potential challenges that might arise during the course of the study.

1.1 Booking.com Overview

Booking.com is an established online platform offering travel services, including accommodation, flights, car rentals, and more, operating globally (Booking.com, n.d.). Understanding its usability strengths and challenges provides valuable insights that can contribute to its continued success.

1.2 COVID-19 Pandemic

As of 2023, Booking.com has faced various challenges due to the COVID-19 pandemic, including reduced travel demand and changes in user behaviour as a result of lockdowns and travel restrictions imposed by Governments.

However, the recent end of the COVID-19 health emergency, as documented by the World Health Organization (2023), gives way to a reliable prediction of a summer 2023 a surge in overseas travel among UK holidaymakers. Residents will be likely to plan and book their summer holidays abroad, due to the recent pandemic worries creating a large motivation in UK households, driven by the desire to experience new environments, as backed up by Crompton (1979), continuing the follow the trend show by Statista (2022).

1.2.1 Cost of Living Crisis

Concurrently, the current cost of living crisis in the UK (Parliament UK Commons Library, 2023) is however very likely to influence the preferences and priorities of UK holidaymakers, leading to UK households having smaller disposable incomes and thus ability

to spend money on a holiday. This factor will likely lead to a higher demand for more cost-effective holiday options.

1.2.2 Relevance to Study

As the UK enters a period of heightened travel, the usability of Booking.com will be critical in facilitating and encouraging bookings.

The usability testing goals for this study are informed by the implications of the post-pandemic landscape, the ongoing cost of living crisis, and the specific behaviours and needs of UK-based users. They also directly consider Booking.com's business model, which heavily relies on tourism to generate profit.

1.3 Study Scope and Methodology

This usability testing study exclusively concentrates on the UK version of Booking.com, targeting specifically to individuals aged between 20 and 30 years whose first language is British English. This has been decided due to the likely increase in this age groups use of booking.com to find a holiday.

1.4 Table of Goals

Three usability testing goals are set, each with a detailed rationale and relevance to the scenario described, (see Table 1.1, p10).

Usability Goals	Rationale	Relevance
Goal 1: Find a value for money holiday in a hot climate abroad	Rising travel demand post-pandemic and the current cost of living crisis necessitate Booking.com to be usable in the search for value for money accommodations for summer holidays abroad.	Enhancing the usability of finding cost-effective bookings abroad can drive customer satisfaction and encourage greater bookings through Booking.com in wake of the increasing demand.
Goal 2: Find a holiday in the UK for a lower cost than traveling abroad	The economic impact of the cost of living crisis might push UK customers towards affordable holiday options within the UK rather than abroad.	Enhancing the ease of finding affordable UK holiday accommodations on the Booking.com website could cater to customers' financial constraints and offer a practical alternative to travelling abroad. It is crucial for Booking.com to optimise its usability to capitalise on this rising demand.
Goal 3: List a room to offer holiday accommodations in the UK	In order for holidays to be booked, they must be available for the user in the first place.	Enhancing the usability of the listing process benefits both vendors, through user satisfaction, and customers will be provided with a greater supply of holidays, which will aid the impact of the cost of living crisis by driving prices down of holidays due to the laws of supply and demand.

Table 1.1: Usability Goals, Rationales, and Relevance

Chapter 2

Study Design

This chapter presents the study design for conducting the usability testing of Booking.com in accordance with the goals outlined in Section 1.4.

The design includes the methodology, user personas and ethical considerations related to the study. The next chapter will provide design of the procedure, Chapter 3, to execute the study.

2.1 Methodology

The methodology for this study involves identifying relevant usability concepts and defining multiple metrics to measure each concept. Accurate and reliable metrics are essential for evaluating the usability goals identified in Chapter 1, as otherwise the study will provide invalid and unreliable data to which conclusions for Booking.com will struggle to be made.

The following concepts and their associated multiple metrics have been selected based on their significance and relevance to the usability goals and the user profiles of UK residents aged 20 - 30:

2.1.1 Concept 1: Efficiency

Efficiency is a crucial aspect of evaluating the usability of Booking.com. By measuring the efficiency of the booking process, we can assess how quickly and conveniently users can complete their bookings. This concept is important because users value a seamless and time-efficient experience when making travel arrangements. Improving efficiency can lead to higher user satisfaction and increased conversion rates.

Metric 1: Task Completion Time

Measuring the time taken to book a hotel or complete a specific task provides insights into the efficiency of the booking process. By reducing the time required, we aim to enhance the overall user experience and make the booking process more efficient.

Metric 2: Number of Clicks

The number of clicks required to complete a task directly affects the user's perception of efficiency. By minimising the number of clicks needed to navigate the website and perform actions, the study can unveil how to potentially streamline the user journey and improve the overall efficiency of the booking process.

Metric 3: Navigation Steps

Evaluating the number of steps or interactions needed to navigate the website provides insights into the ease of finding information and completing tasks. By reducing unnecessary navigation steps, the user process can be simplified, improving the overall efficiency of the booking process.

2.1.2 Concept 2: User Satisfaction

User satisfaction is a critical factor in evaluating the usability of Booking.com. By assessing user satisfaction, we can understand how well the website meets users' needs, expectations, and preferences. Improving user satisfaction can lead to increased customer loyalty and positive word-of-mouth and thus greater profit for Booking.com.

Metric 4: Likert Scale Survey

The Likert scale survey is employed to quantitatively gauge users' subjective perceptions, thereby assessing their satisfaction level. Participants in the survey indicate their degree of agreement or disagreement with a series of statements associated with the website's usability. The aggregated responses provide valuable insights into the overall satisfaction of users and their perceived ease of use of the website.

Metric 5: Net Promoter Score (NPS)

The Net Promoter Score (NPS) is a crucial metric utilised to evaluate the likelihood of users recommending Booking.com to others. Participants are asked to rate on a scale of 0 to 10 how likely they are to recommend the service. Based on their responses, users are categorised as promoters (score 9-10), passives (score 7-8), or detractors (score 0-6). The NPS is then derived by subtracting the percentage of detractors from the percentage of promoters. This methodology is of vital importance in assessing user satisfaction and loyalty as it reflects not only the overall satisfaction of the users with the platform, but also their likelihood of promoting the platform to others.

Metric 6: Customer Feedback

Gathering qualitative feedback through open-ended questions in post-task surveys provides rich insights into users' specific pain points, satisfaction factors, and suggestions for improvement. This metric helps identify areas for enhancement and provides a deeper understanding of user satisfaction.

2.1.3 Concept 3: Ease of Use

Ensuring ease of use is essential for the usability of Booking.com. By focusing on the ease of use, we aim to provide a user-friendly interface and streamline the user experience. Improving the ease of use can lead to increased user engagement, satisfaction, and successful task completion.

Metric 7: Error Rate

Measuring the frequency of user errors during task completion helps evaluate the ease of use. A low error rate indicates a user-friendly interface and a smooth user experience.

Metric 8: Task Success Rate

Assessing the proportion of users who successfully complete tasks without errors or assistance provides insights into the overall usability and effectiveness of the website's design and functionalities.

Metric 9: System Usability Scale (SUS)

The System Usability Scale (SUS) is a standardized questionnaire consisting of multiple Likert scale items that evaluate the perceived ease of use. It provides a validated and reliable measurement of users' perceived usability and user-friendliness.

2.1.4 Data Collection Methodology

To collect data for these metrics, the following methods will be employed:

User Testing:

Participants will be asked to perform specific tasks on the Booking.com website. The time taken to complete each task, the number of clicks, and the navigation steps will be measured, providing quantitative data for evaluating efficiency. See Section 3.2 for the full task breakdown.

Surveys:

Participants will be given pre-task and post-task surveys that include Likert scale questions, NPS ratings, and open-ended questions to gather feedback on satisfaction and ease of use. These surveys will provide both quantitative and qualitative data to evaluate user satisfaction and perceived usability. See Section 3.1.1 and Section 3.3 for further detail of the surveys imposed.

Think-Aloud Protocol:

Participants will be encouraged to verbalise their thoughts and express any difficulties or frustrations they encounter during the testing session, comments will be noted to provide qualitative data which will provide additional insights into usability issues and user perceptions, complementing the quantitative metrics.

Debriefing:

Participants will have an opportunity to ask questions or provide additional comments during the debriefing session. This session will help gather further qualitative feedback and address any concerns or observations raised by the participants around the study overall. It will also serve as an opportunity to reinforce the connection between the usability goals, concepts, metrics, and the participants' experiences.

Data Collection Conclusion

These methods, coupled with the use of multiple metrics, ensure a comprehensive and detailed list of data to which just evaluation of the usability of Booking.com can be made against the test goals, enabling valuable insights for improvement.

2.2 User Profiling

To ensure the study represents the target demographic of UK residents between the ages of 20 - 30, who are seeking cheap holidays for their summer vacations, precise user profiles will be defined.

These user profiles will include hypothetical user characteristics such as age, occupation and technological proficiency. The chosen user profiles align with the usability goals defined in Chapter 1 and the specific context of targeting young adults and addressing their needs in light of the end of COVID-19 and the recent cost of living crisis.

It is important to note that ethical considerations will be strictly followed throughout the study. Participants' privacy, confidentiality, and informed consent will be prioritised. The user profiles presented here are hypothetical and will not disclose any personal information or violate the privacy rights of real individuals.

The following user profiles have been carefully selected to provide insights into the usability of Booking.com for young adults, mainly students, and their specific requirements:

- User Profile 1: Budget-Conscious Student
  - Age: 20
  - Occupation: University Student
  - Travel Preferences: Seeks affordable holiday options, prioritizes cost-effective accommodations and transportation.
  - Technological Proficiency: Proficient with digital tools, frequently uses online platforms for booking and research.

Justification: Including a budget-conscious student profile represents the target demographic of young adults seeking cheap holidays for their summer vacations. This user profile allows us to focus on the specific needs and preferences of students, who often have limited financial resources but still want to enjoy their holidays.

- User Profile 2: Adventure-Seeking Traveler
  - Age: 24
  - Occupation: Recent Graduate
  - Travel Preferences: Interested in unique and adventurous travel experiences, seeks affordable options for exploring new destinations.
  - Technological Proficiency: Proficient with digital tools, uses online platforms for research and booking.

  Justification: Including an adventure-seeking traveler profile represents young adults who are eager to explore new destinations and engage in adventurous activities. This user profile allows us to consider the usability of Booking.com for users with specific travel preferences and the importance of affordability in their decision-making process.

- User Profile 3: Internationally Curious Student
  - Age: 27
  - Occupation: Full Time Employed
  - Travel Preferences: Interested in international travel experiences, seeks cost-effective accommodations and flights for summer vacations abroad.
  - Technological Proficiency: Proficient with digital tools, relies on online platforms for researching and booking international trips.

  Justification: Including an internationally curious fully employed profile addresses the desire of young adults to experience international travel and explore different cultures. This user profile allows us to assess the usability of Booking.com for users who are specifically interested enjoy luxuries in a value for money mindset.

These precise user profiles align with the target demographic, as discussed in Section 1.3, and their specific needs in finding cheap holidays for their summer vacations. By considering these user characteristics, the study aims to provide valuable insights into the usability of Booking.com for this particular user group within the given context of the end of COVID-19 and the recent cost of living crisis.

To ensure the credibility of the data collected from participants, a survey will be conducted as part of the study. The survey will include questions related to participants' demographics, travel preferences, and experiences with Booking.com. By gathering this information, the study will have a comprehensive understanding of the participants' background and ensure that the data collected accurately represents the target demographic. The survey responses will be anonymous and treated with strict confidentiality to protect participants' privacy.

By combining precise user profiling and a well-designed survey, the study aims to gather credible and insightful data on the usability of Booking.com for young adults, mainly students, seeking affordable holidays for their summer vacations.

2.3 Sampling Method

identified high travel areas of the demographic of users will be utilised to gain participants for the study, face to face communication will be used in order to gain interest, to which potential candidates will be sent an information sheet, to which 24 hours must pass; so that they can digest its content, to which a test slot can then be booked.

2.3.1 Setting

Two potential methods will be used to conduct the tests. In person and over the application Zoom which allows to share screens on a remote call. The procedure of the test is detailed in, Chapter 3.

Pre-Requisites for Participants

- For remote tests Participants should have access to computers with internet connectivity. Clear instructions and guidelines, including the recommended operating system, browser type, and minimum internet speed, will be communicated to participants.
- For the in person tests a control laptop will be provided, which will setup the environment for the tests to be completed.

A Booking.com account will be created to complete the tasks. Also any pre-existing knowledge requirements, if any, will also be clearly outlined to ensure the participants' preparedness for the testing session.

Chapter 3

Procedure

The testing session will follow a detailed and clear procedure designed to address the usability goals, Table 1.1, concepts, and metrics, Section 2.1, identified in the previous sections.

3.1 Introduction and Consent:

- Provide participants with an overview of the study's purpose and objectives through the provision of an information sheet. The information sheet used can be found in the Appendix, Appendix A.
- Obtain informed consent from participants to participate in the study through the completion of a google form 24 hours prior to the test.

3.1.1 Pre-Test Questionnaire:

Once the 24 hours have passed, a pre-test questionnaire will be completed to provide user profiling. The form used can be found in the Appendix, Appendix B. Before starting the task-based testing, participants will complete a brief questionnaire that captures relevant demographic information and user characteristics. The questionnaire will include quantitative questions such as:

- Age:
- Occupation:
- Technological proficiency: (scale from 1 to 5, with 1 being novice and 5 being expert)
- Number of bookings made in 2022 using Booking.com

The collected quantitative data will be used to form precise user profiles, as described in Section 2.2.

3.2 Task Breakdown

Once the pre-test form is completed, the tasks can be completed. To complete the tasks a slideshow was designed to make sure that participants could remind themselves of the task at hand. These slides can be viewed in the Appendix, Appendix D.

The tasks designated for this study are designed to test specific a key usability concept, however by nature of the procedure, each concept is addressed in each task regardless, it then aligns with one of the goals set in Section 1.4. Each task will provide both qualitative and quantitative data by measuring a set of relevant metrics.

3.2.1 Task 1: Value for Money Holiday Abroad

Participants will search for a week-long hotel deal for two in Barcelona, Spain, in June, July or August, with the accommodation requirements of a private bathroom, free Wi-Fi, breakfast, and a pool, all for under £1000.

- Usability Goal: Book a value for money holiday in a hot climate abroad.
- Key Concept: Efficiency (Section 2.1.1).
- Metrics:
  - Metric 1: Task Completion Time (Section 2.1.1).
  - Metric 2: Number of Clicks (Section 2.1.1).

This task will measure the efficiency of the search and booking tools on the Booking.com website, particularly in relation to finding value-for-money holidays in hot climates abroad.

3.2.2 Task 2: Affordable UK Holiday

Participants will search for a bed and breakfast in York, UK, for a week-long stay for 2 people sharing one room in June, 2023. The accommodation should include a private bathroom, free Wi-Fi, and breakfast, all under £500.

- Usability Goal: Book a holiday in the UK for a lower cost than traveling abroad.
- Concept: User Satisfaction (Section 2.1.2).
- Metrics:
  - Metric 1: Task Completion Time (Section 2.1.1).
  - Metric 2: Number of Clicks (Section 2.1.1).

This task will gauge user satisfaction when searching for affordable holiday options within the UK. It will test the usability of filters and sorting options that enable users to customise their search according to their needs.

3.2.3 Task 3: Listing a Room

Participants will list a two-bedroom apartment in Portsmouth, UK, for £100 per night with the following requirements: a minimum stay of 3 nights, free Wi-Fi, a kitchen, and self-check-in.

- Usability Goal: List a room to offer holiday accommodations in the UK.
- Concept: Ease of Use (Section 2.1.3).
- Metrics:
  - Metric 7: Error Rate (Section 2.1.3).
  - Metric 8: Task Success Rate (Section 2.1.3).

This task assesses the ease of use of the listing process, focusing on simplifying procedures for vendors to list their properties on the Booking.com website.

3.3 Post-Test Survey

This post-test will take the form of a Google form, which can be found in the Appendix, Appendix F.

After completing the tasks, participants are requested to provide feedback through this post-test survey. These will test for:

- Metric 4: Likert Scale Survey (Section 2.1.2).
- Metric 5: Net Promoter Score (NPS) (Section 2.1.2).
- Metric 6: Customer Feedback (Section 2.1.2).
- Metric 9: System Usability Scale (SUS) (Section 2.1.3).

Feedback on Task 1: Value for Money Holiday Abroad

- On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long hotel deal for two in Barcelona, Spain, under £1000?
- How would you rate the efficiency of the search tool on the Booking.com website when finding value-for-money holidays in hot climates abroad? (1: Very Inefficient, 5: Very Efficient)
- Were you satisfied with your ability to complete Task 1? (1: Very Unsatisfied, 5: Very Satisfied)
- Any additional comments about Task 1?

Feedback on Task 2: Affordable UK Holiday

- On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long bed and breakfast stay in June 2023 in York, UK, under £800?
- How would you rate the usability of the filters and sorting options when searching for affordable holiday options within the UK? (1: Very Inefficient, 5: Very Efficient)
- Were you satisfied with your ability to complete Task 2? (1: Very Unsatisfied, 5: Very Satisfied)
- Any additional comments about Task 2?

Feedback on Task 3: Listing a Room

- On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to list a two-bedroom apartment in London for £100 per night with a minimum stay of 3 nights?
- How would you rate the efficiency of the listing process on the Booking.com website? (1: Very Inefficient, 5: Very Efficient)
- Were you satisfied with your ability to complete Task 3? (1: Very Unsatisfied, 5: Very Satisfied)
- Any additional comments about Task 3?

Debriefing

Participants will have an opportunity to ask questions or provide additional comments during the debriefing session. This session will help gather further qualitative feedback and address any concerns or observations raised by the participants. It will also serve as an opportunity to reinforce the connection between the usability goals, concepts, metrics, and the participants' experiences. The questions asked in this will be:

- How likely are you to recommend Booking.com to others? (0: Not likely at all, 10: Extremely likely) (Metric
- Please provide any additional comments or suggestions for improving the usability of Booking.com.

3.4 Study and Procedure Summary

In summary, the study design and procedure chapters (Chapter 2, Chapter 3) outlines a detailed procedure that directly links to the usability goals, concepts, and metrics identified. The tasks, data collection methods, and post-test survey are designed to capture relevant data that aligns with the objectives of the research. The next chapter will present

the results and implications of the usability evaluation study, providing insights into the effectiveness of Booking.com in achieving the goals set in Table 1.1.

Chapter 4

Results and Implications

This chapter will take the raw data, apply defined data analysis protocols from Section 4.1, it will then evaluate the results of the protocols to draw interpretations from the metrics, in reference to concepts tested against, outlined in Section 2.1, and the report goals, outlined in Section 1.4.

4.1 Methodology of Data Analysis

4.1.1 Qualitative Data

Qualitative data, which includes non-numerical information and subjective insights, was collected primarily through participant feedback, the post-test survey, and observation during the tasks. This type of data helps us to understand the user's experience, perceptions, and opinions about the usability of Booking.com.

The protocols to analyze the qualitative data include Thematic Analysis and Content Analysis.

- Thematic Analysis is used to identify, analyse and report patterns (themes) within the data. It provides a detailed and nuanced account of data and illuminates the participants' perceptions and experiences on Booking.com in their own words as gathered from the "Speak out Loud" method as explained in Section 2.1.
- Content Analysis is used to classify and interpret text data from participant feedback and open-ended survey responses. It is particularly effective in analysing and making inferences about the contextual meanings of the responses, which helps in understanding the users' satisfaction and ease of use of Booking.com.

4.1.2 Quantitative Data

Quantitative data, which includes numerical data that can be subjected to statistical analysis, was collected from task completion time, number of clicks, navigation steps, error rate, and task success rate. This type of data provides objective measurements of the

usability of Booking.com.

The protocols to analyze the quantitative data are Descriptive Statistics and Inferential Statistics.

- Descriptive Statistics is used to provide simple summaries about the sample and about the observations that have been made. Such summaries may be either quantitative, i.e., summary statistics, or visual, i.e., simple-to-understand graphs. These summaries present the data in a meaningful way, providing an overview of the data's main characteristics and indicating trends in task completion times, click rates, and other metrics.
- Inferential Statistics is used to make inferences about the larger population from the sample data. This method to understand whether the differences and relationships observed in the data are statistically significant. Helping to draw conclusions about the effects of design changes on user performance and satisfaction.

4.2 Data Analysis Visualisation

This section provides visualisations of graphs and diagrams, providing results to interpret. The visualisations for this section where formed from the tables of raw data, of which can be found in the Appendix:

- **Pre-Test Table of Results** Appendix C.
- **Task Table of Results** Appendix E.
- **Post-Test Table of Results** Appendix G.

Each tasks analysis will be divided into two main categories: Quantitative and Qualitative. Quantitative analysis will focus on metrics such as task completion time, technological proficiency, and task ease, efficiency, and satisfaction ratings. On the other hand, the qualitative analysis will focus on the themes and sentiments expressed by the participants in their comments.

4.3 Task 1 Visualisations and Interpretations

4.3.1 Quantitative Visualization

Technological Proficiency vs Task Completion Time

This scatter plot will visualise the relationship between technological proficiency and task completion time. By plotting these two variables, we can identify if there is a correlation between them.

Interpretation of Figure 4.1 The scatter plot shows no clear pattern, suggesting that technological proficiency does not necessarily correlate with faster task completion times.

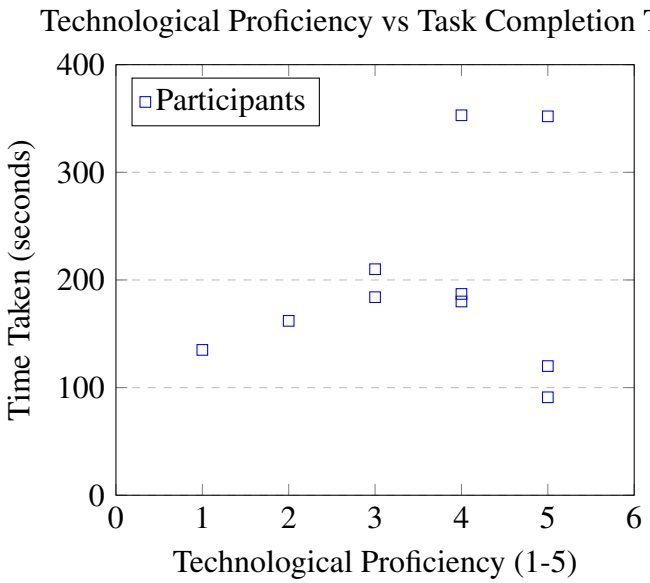

Figure 4.1: Scatter plot of technological proficiency versus time taken for task 1 completion.

Participants with both high and low technological proficiency levels completed the task in various times, demonstrating that the task's complexity might have influenced the time taken more than technological proficiency.

Age vs Task Completion Time

This scatter plot aims to analyse if age influences the time taken to complete the task. This can provide insights into whether the platform's user interface and functionalities are friendly across all age groups.

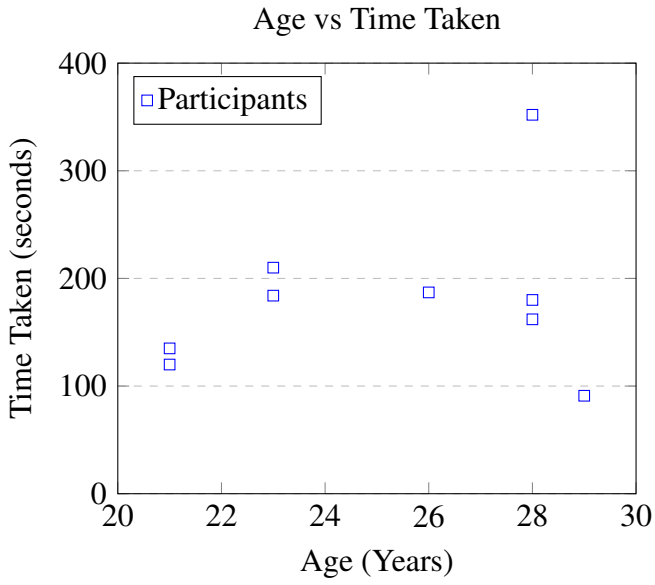

Figure 4.2: Scatter plot of Age vs Time Taken for Task 1 Completion

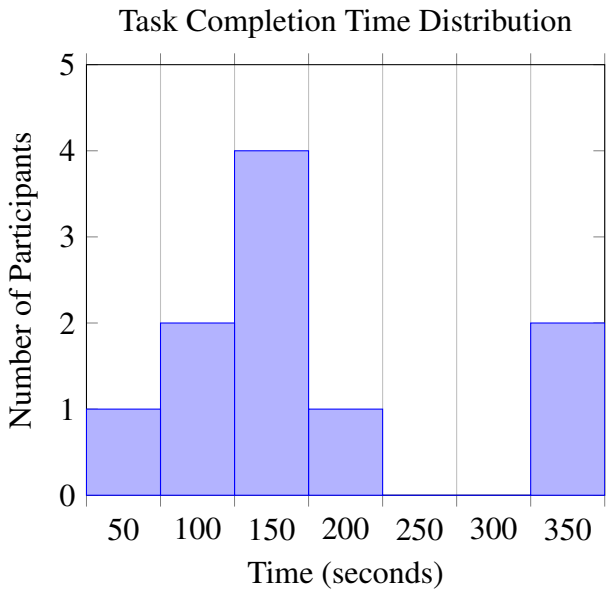

Figure 4.3: Histogram illustrating the distribution of task completion times among participants in Task 1.

Interpretation of Figure 4.2 Similar to the previous plot, this scatter plot also lacks a discernible pattern, indicating that age does not have a significant effect on the time taken to complete the task. The variation in completion times is seen across all age groups, implying that the task's complexity might be more influential than the age of the participants.

Task Completion Time Distribution

This histogram will illustrate the distribution of task completion time. It will help us understand the spread and skewness of the data and identify if there are any outliers.

Interpretation of Figure 4.3 The histogram shows the distribution of task completion times among participants. The majority completed the task within 150-200 seconds. However, a considerable number took 350-400 seconds, indicating potential inefficiencies in the task process. Few participants completed the task under 150 seconds, suggesting this speed may require greater platform familiarity or expertise. These patterns offer insights into user experience on the Booking.com platform and suggest areas for further investigation.

Task 1 Task Ease Ratings

This section shows a distribution of the data from the Google Form on the "Ease of Use" concept detailed in Section 2.1

Interpretation of Figure 4.4 and Table 4.1 The histogram and table depict the distribution and summary statistics for task ease ratings. The distribution suggests a leaning towards higher ratings, with most participants finding the task at least moderately easy

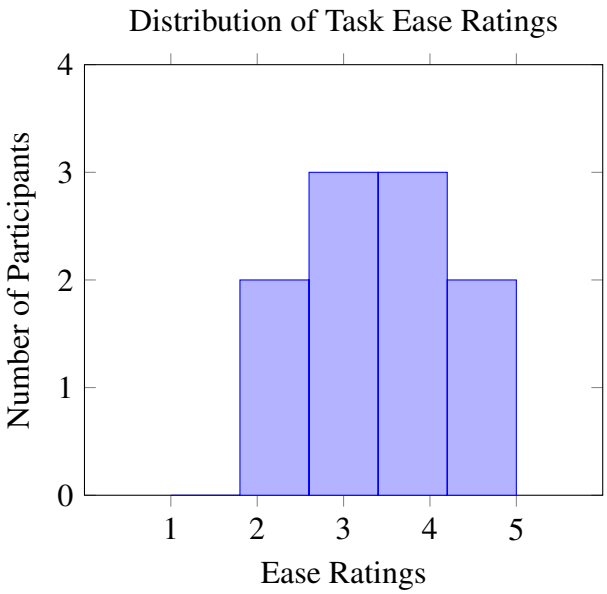

Figure 4.4: Histogram of task ease ratings for Task 1.

Box Plot	Value
Minimum (Min)	2
First Quartile (Q1)	3
Median (Q2)	3.5
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.1: Task 1 Box Plot Data for Ease of Use Ratings

(ratings of 3 and above).

This finding is also reflected in the boxplot summary statistics. The median rating (3.5) is above the scale's midpoint, suggesting that at least half of the participants found the task somewhat to very easy. The first quartile (Q1) at a rating of 3 indicates that 75% of participants rated the task's ease at least a 3 or higher.

However, the presence of ratings as low as 2 (minimum value) indicates that some participants did experience difficulties. Conversely, the maximum rating of 5 shows that some participants found the task very easy.

In summary, while the task was generally viewed as moderately easy to very easy, there was a significant minority of participants who found it more challenging. This suggests that while the task design was effective for most participants, it may need refinement to improve accessibility for others.

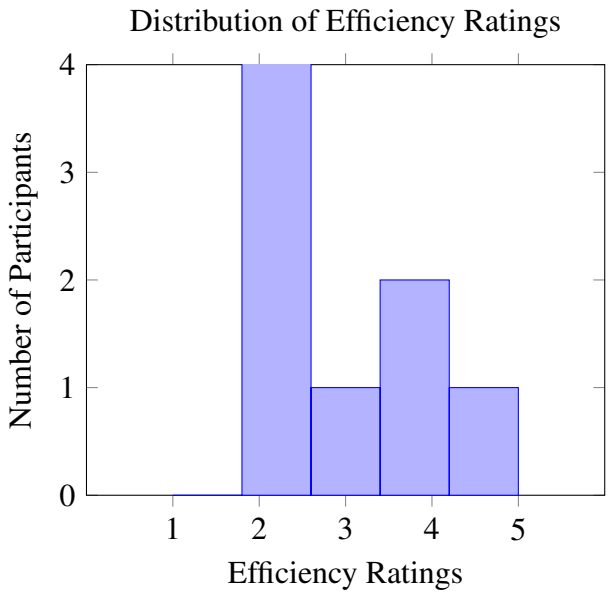

Figure 4.5: Histogram of efficiency ratings for Task 1.

Task 1 Efficiency Ratings

This section shows a distribution of the data from the Google Form on the "Efficiency" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	2
First Quartile (Q1)	2
Median (Q2)	2
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.2: Task 1 Box Plot Data for Efficiency Ratings

Interpretation of Figure 4.5 and Table 4.2 The histogram and table depict the distribution and summary statistics for the efficiency ratings. The distribution suggests that the majority of participants found the search tool on the Booking.com website somewhat inefficient, as indicated by the high frequency of the rating of 2.

This observation is supported by the boxplot summary statistics. The minimum, first quartile (Q1), and median (Q2) ratings all stand at 2, showing that at least half of the participants rated the efficiency of the tool as 2. This indicates a perception of inefficiency among a significant portion of participants.

However, the upper quartile (Q3) rating of 4 and the maximum rating of 5 indicate that some participants found the tool efficient. This might suggest a disparity in the user experience, where some users are able to utilize the tool effectively, while others struggle.

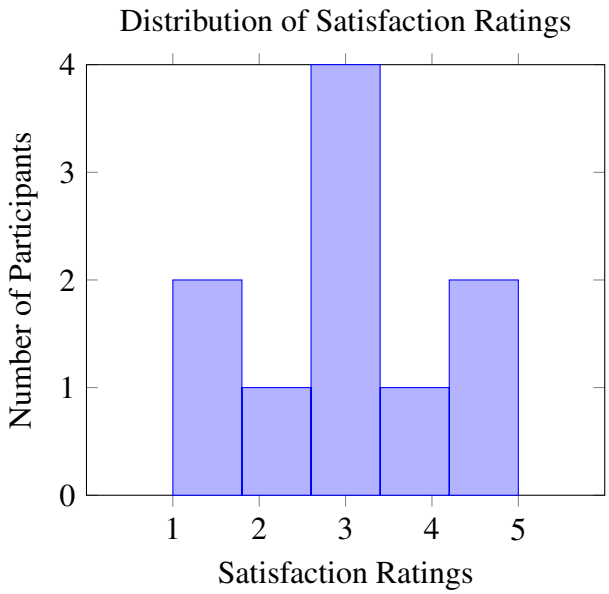

Figure 4.6: Histogram of satisfaction ratings for Task 1.

In conclusion, while the search tool on Booking.com was viewed as somewhat inefficient by many participants, there were others who had a positive experience. This calls for a more in-depth exploration into the factors contributing to the diverse experiences.

Task 1 User Satisfaction Ratings

This section shows a distribution of the data from the Google Form on the "User Satisfaction" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	2
Median (Q2)	3
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.3: Box Plot Data for User Satisfaction Ratings

Interpretation of Figure 4.6 and Table Table 4.3 . The histogram and the table illustrate the distribution and key statistics for the satisfaction ratings. A wide range of ratings from 1 to 5 indicates a mixed response from participants regarding their satisfaction with task completion.

Looking at the histogram, we observe that the most frequent satisfaction ratings are 5, 3 and 1 resulting in a broad range of ratings, focusing on 3, showing that users were generally satisfied.

The boxplot summary statistics provide more insights. The median (Q2) rating of 3 suggests that half of the participants were neutral regarding their satisfaction with task completion. However, the minimum rating of 1 and the first quartile (Q1) rating of 2 indicate that at least a quarter of participants were dissatisfied with their ability to complete the task. On the other hand, the upper quartile (Q3) rating of 4 and the maximum rating of 5 show that some participants were satisfied with task completion, indicating a more positive experience.

In conclusion, there is a significant variation in participant satisfaction with completing Task 1, ranging from dissatisfaction to satisfaction. This could imply that there are areas in the task or the system used which some participants found more challenging or less user-friendly, thereby affecting their satisfaction levels.

4.3.2 Qualitative Visualization

Thematic and Content Analysis Table

The table, Table 4.4, presents the themes derived from the participants' comments. It will consist of participant information and their corresponding comments made and themes. This can give us insights into common issues or positive experiences shared by users.

4.4 Task 2 Visualisations and Interpretations

This section will apply the same data analysis visualisations used for task 1 as shown in Section 4.3 for task 2.

4.4.1 Quantitative Visualisation

Technological Proficiency vs Task Completion Time

Same brief as Section 4.4.1

Interpretation of Figure 4.7 The scatter plot depicts the relationship between technological proficiency and time taken to complete Task 2.

Unlike in Task 1, we observe a general trend of shorter task completion times across different levels of technological proficiency. This trend suggests that participants may have become more proficient in using the system after completing Task 1, thus leading to faster task completion times in Task 2, regardless of their reported technological proficiency level.

Some participants with higher technological proficiency (ratings 4 and 5) were able to complete the task in a shorter amount of time (under 60 seconds), demonstrating an advantage of their skills in this task. However, it's also notable that participants across all levels of technological proficiency were able to complete the task within a reasonable

Theme	Quotations	Interpretation	Frequency
Pricing Clarity:	"issue with budget being 'per night' instead of total price", "per night issue arising again instead of providing total price", "all im concerned with is total cost!"	Participants found the 'per night' pricing format confusing and preferred to see the total cost of their stay.	3
Filter Functionality:	"Unable to sort by price obviously and struggled to categorise price", "Can't immediately see how to change from the working week default to 7 days", "the im flexible for month selection is not obvious", "Manually changed weeks to find a cheap price, not obvious to use the sort or flexible month option", "The filters should have been in all one area rather than further down the screen"	Participants struggled with using and finding filter options, suggesting a need for more clear and accessible filter functions.	5
Website Layout and Usability:	"it jumps up to the top with every filter selection, so i have to scroll down and find my place each time, annoying!", "lost the filter options everytime they changed the filters", "Messy Website a lot of information to digest", "kept scrolling back up to page, options were in confusing subheadings."	Comments indicated frustration with the website layout, such as difficulty in navigating and finding options due to scrolling and potentially confusing organization of options.	4

Table 4.4: Task 1 Qualitative Table

time frame, showing that the task was approachable even for less technologically proficient users.

This data indicates that the learning effect from Task 1 likely contributed to faster Task 2 completion times, suggesting that the system's user interface is conducive to learning and becoming more efficient over time. Further studies could explore this learning effect more systematically and assess how the interface design and functionality contribute to this improvement.

Age vs Task Completion Time

Interpretation of Figure 4.8 Similar to Task 1, the scatter plot of Age vs Time Taken for Task 2 shows no clear relationship between age and task completion time. Participants of different age groups exhibit a wide range of completion times, indicating that age alone is not a determining factor in the time taken to complete the task.

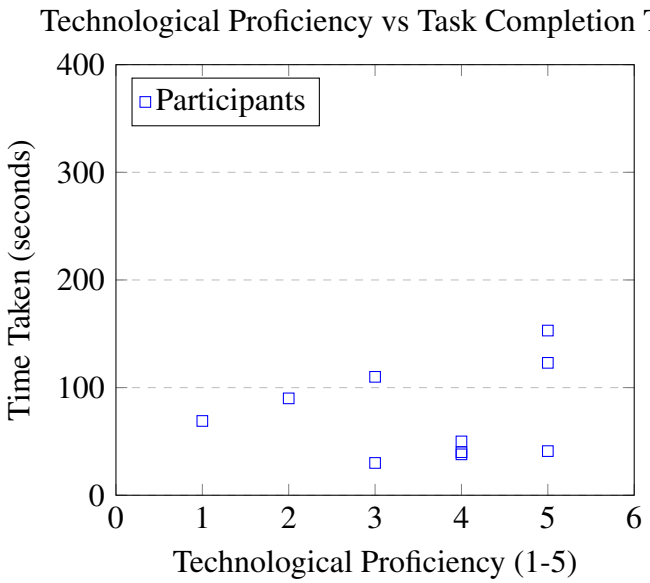

Figure 4.7: Scatter plot of technological proficiency versus time taken for task 2 completion.

It is worth noting that the average completion time for Task 2 appears to be faster compared to Task 1, as observed in the previous scatter plot. This suggests that participants may have learned from their experience in Task 1, leading to increased efficiency and faster completion times in Task 2.

The absence of a significant correlation between age and task completion time in both tasks suggests that factors such as prior experience, task complexity, and individual user proficiency may have a more substantial impact on completion times. Further investigation is needed to explore these factors and their influence on task performance.

Task Completion Time Distribution

Interpretation of Figure 4.9 The histogram displays the distribution of task completion times among participants in Task 2. Similar to Task 1, the majority of participants completed the task within a specific time range, in this case, 100-150 seconds. However, there is a notable decrease in the number of participants taking longer than 250 seconds compared to Task 1. This suggests that participants may have become more efficient in completing the task as they gained familiarity with the system and improved their search strategies.

The reduction in the number of participants with longer completion times indicates that participants have learned from their experience in Task 1 and were able to complete Task 2 more quickly. This improvement in task completion time may indicate increased efficiency and effectiveness in utilising the Booking.com website and its search functionalities.

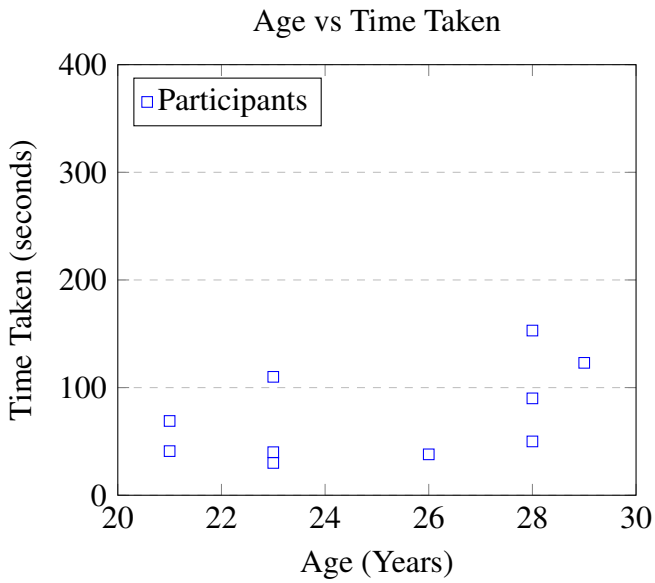

Figure 4.8: Scatter plot of Age vs Time Taken for Task 2 Completion

Overall, the histogram provides insights into the distribution of task completion times in Task 2 and highlights the potential impact of user familiarity and learning on task performance.

Task 2 Task Ease Ratings

This section shows a distribution of the data from the Google Form on the "Ease of Use" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	2
Median (Q2)	3.5
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.5: Task 2 Box Plot Data for Ease of Use Ratings

Interpretation of Figure 4.10 and Table 4.5 The histogram displays the distribution of task ease ratings for Task 2. The majority of participants rated the task with ease ratings ranging from 3 to 5, indicating a generally positive experience in terms of ease of use. The highest frequency occurs at ratings 4 and 5, suggesting that a significant number of participants found the task quite easy to complete.

The box plot provides additional information on the distribution of ease ratings. The median rating of 3.5 indicates that the average participant perceived the task as moderately easy. The interquartile range (IQR) spans from the first quartile (Q1) of 2 to the third quartile (Q3) of 4, indicating that most ratings fall within this range. The minimum rating

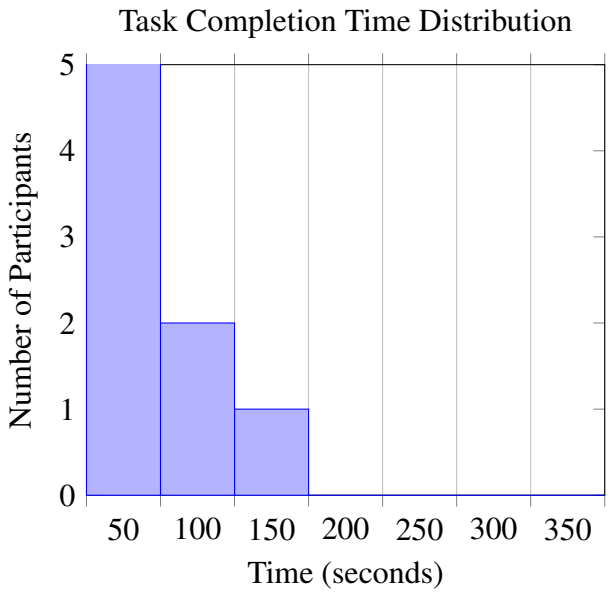

Figure 4.9: Histogram illustrating the distribution of task completion times among participants in Task 2.

of 1 and maximum rating of 5 show the range of perceived ease of use among participants.

Overall, the histogram and box plot highlight that Task 2 received higher ease ratings compared to Task 1. This improvement suggests that participants became more familiar with the Booking.com website and its search functionalities after completing Task 1. The increase in ease ratings indicates a positive learning effect and improved user experience in navigating and utilising the platform for searching bed and breakfast accommodations in York, UK.

Task 2 Efficiency Ratings

This section shows a distribution of the data from the Google Form on the "Efficiency" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	3
Median (Q2)	3
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.6: Task 2 Box Plot Data for Efficiency Ratings

Interpretation of Figure 4.11 and Table 4.6 The histogram illustrates the distribution of task efficiency ratings for Task 2. The majority of participants provided ratings between 3 and 4, indicating a generally positive perception of the search tool's efficiency.

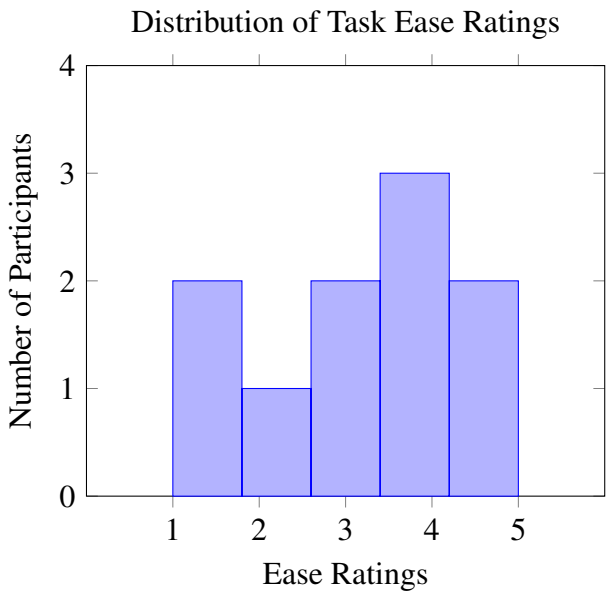

Figure 4.10: Histogram of Task Ease Ratings for Task 2.

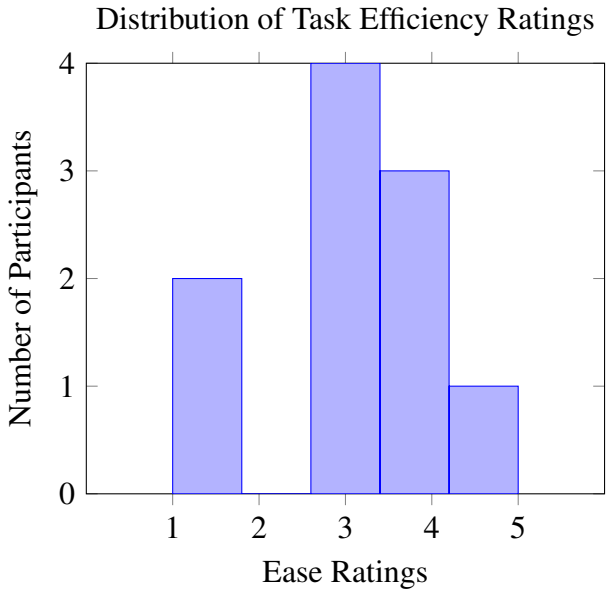

Figure 4.11: Histogram of Task Efficiency Ratings for Task 2.

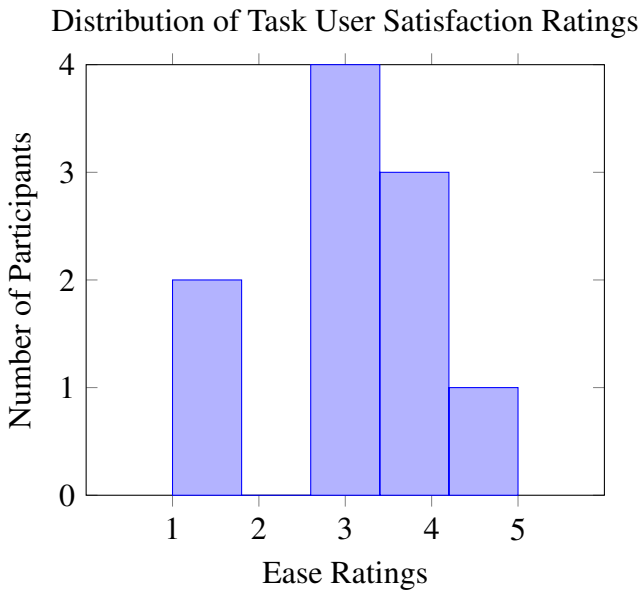

Figure 4.12: Histogram of Task Satisfaction Ratings for Task 2.

The box plot further reveals insights into the distribution of efficiency ratings. The median rating of 3 suggests that the average participant perceived the search tool's efficiency as moderate. The interquartile range (IQR) spans from the first quartile (Q1) of 3 to the third quartile (Q3) of 4, indicating that most ratings fall within this range. The minimum rating of 1 and maximum rating of 5 demonstrate the range of perceived efficiency among participants.

Comparing Task 2 to Task 1, there is a noticeable improvement in efficiency ratings. Participants found the search tool on Booking.com for finding bed and breakfast accommodations in York, UK, more efficient in Task 2 compared to Task 1. This improvement suggests that participants learned from their previous experience and became more proficient in using the platform. The higher ratings for efficiency indicate an enhanced user experience and increased satisfaction with the search tool's performance in facilitating the search process.

Task 2 User Satisfaction Ratings

This section shows a distribution of the data from the Google Form on the "User Satisfaction" concept detailed in Section 2.1

Interpretation of Figure 4.12 and Table 4.7 The histogram illustrates the distribution of task satisfaction ratings for Task 2. The majority of participants provided ratings between 3 and 4, indicating a generally positive level of satisfaction with the overall task completion experience.

The box plot further reveals insights into the distribution of satisfaction ratings. The median rating of 4 suggests that the average participant was quite satisfied with their

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	3
Median (Q2)	4
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.7: Task 2 Box Plot Data for Satisfaction Ratings

ability to complete Task 2. The interquartile range (IQR) spans from the first quartile (Q1) of 3 to the third quartile (Q3) of 4, indicating that most ratings fall within this range. The minimum rating of 1 and maximum rating of 5 demonstrate the range of satisfaction levels among participants.

Comparing Task 2 to Task 1, there is a notable improvement in satisfaction ratings. Participants expressed higher levels of satisfaction with their ability to complete Task 2 compared to Task 1. This improvement suggests that participants found the search process for a bed and breakfast in York, UK, more satisfactory, potentially indicating increased user familiarity with the platform and improved task efficiency. The higher ratings for satisfaction reflect an enhanced user experience and greater fulfillment with the task outcomes.

4.4.2 Qualitative Visualisation

Thematic and Content Analysis Table

This table will present the themes derived from the participants' comments. It will consist of participant information and their corresponding comments made and themes. This can give us insights into common issues or positive experiences shared by users.

Interpretation of Table 4.8 The qualitative table presents themes derived from participants' comments during Task 2. The table includes participant quotations, an interpretation of the theme, and the frequency of occurrence for each theme.

Pricing Clarity: Participants expressed confusion and dissatisfaction with the "per night" pricing format. They preferred to see the total cost of their stay instead. This indicates a need for clearer and more transparent pricing information to meet users' expectations.

Filter Functionality: Participants encountered difficulties in sorting and categorising prices, changing the default settings, and using flexible month options. They also emphasised the need for a price filter that considers the entire budget rather than just the price per night. These comments highlight the importance of improving filter functionality to enhance user experience and facilitate more efficient search processes.

Theme	Quotations	Interpretation	Frequency
Pricing Clarity:	"issue with budget being 'per night' instead of total price", "per night issue arising again instead of providing total price", "all I'm concerned with is the total cost!"	Participants found the 'per night' pricing format confusing and preferred to see the total cost of their stay.	3
Filter Functionality:	"Unable to sort by price obviously and struggled to categorize price", "Can't immediately see how to change from the working week default to 7 days", "the im flexible for month selection is not obvious", "Manually changed weeks to find a cheap price, not obvious to use the sort or flexible month option", "The filters should have been in all one area rather than further down the screen", "Price filter of price per night is not good, most people book with an entire budget in mind and this is not available as a feature on the website.", "They really need a price filter for the whole thing, not just per night, that's wild, but I guess it's hard to program that, as it's going to have to compare all the features you got too."	Participants struggled with using and finding filter options, suggesting a need for more clear and accessible filter functions.	7
Website Layout and Usability:	"it jumps up to the top with every filter selection, so I have to scroll down and find my place each time, annoying!", "lost the filter options every time they changed the filters", "Messy Website a lot of information to digest", "kept scrolling back up to the page, options were in confusing subheadings."	Comments indicated frustration with the website layout, such as difficulty in navigating and finding options due to scrolling and potentially confusing organisation of options.	4

Table 4.8: Task 2 Qualitative Table

Website Layout and Usability: Participants experienced challenges with the website layout and usability. They expressed frustration with the website's scrolling behaviour, the loss of filter options, and the organisation of information under confusing subheadings. These comments underscore the significance of improving the website's layout, navigation, and overall usability to provide a smoother and more intuitive user experience.

Considering participants' comments from Task 1, there are similarities and carryover effects in the challenges they faced. However, participants generally found Task 2 easier to complete, indicating that they were able to apply their learnings from Task 1 to navigate the website more effectively. Despite the improvements in task completion ease, there were still areas where users encountered difficulties, particularly related to pricing clarity, filter functionality, and website layout. These findings highlight the importance of addressing these aspects to enhance the user experience on the Booking.com platform.

4.5 Task 3 Visualisations and Interpretations

This section will apply the same data analysis visualisations used for task 1 as shown in Section 4.3 and Section 4.4 for Task 3.

4.5.1 Quantitative Visualisation

Technological Proficiency vs Percentage of Task Completed

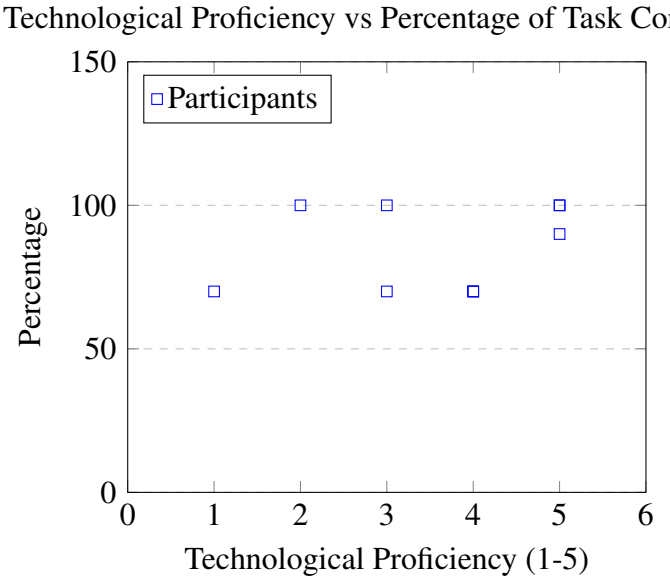

Figure 4.13: Scatter plot of technological proficiency versus percentage of task completed for task 3.

Interpretation of Figure 4.13 The scatter plot in Figure 4.13 shows no clear correlation between participants' technological proficiency and the percentage of the task completed within the designated time frame. Participants with varying technological proficiency levels achieved a range of task completion percentages. This suggests that technological proficiency alone does not determine task completion success, and other factors such as task complexity and platform familiarity play significant roles

Task 3 Task Ease Ratings

This section shows a distribution of the data from the Google Form on the "Ease of Use" concept detailed in Section 2.1

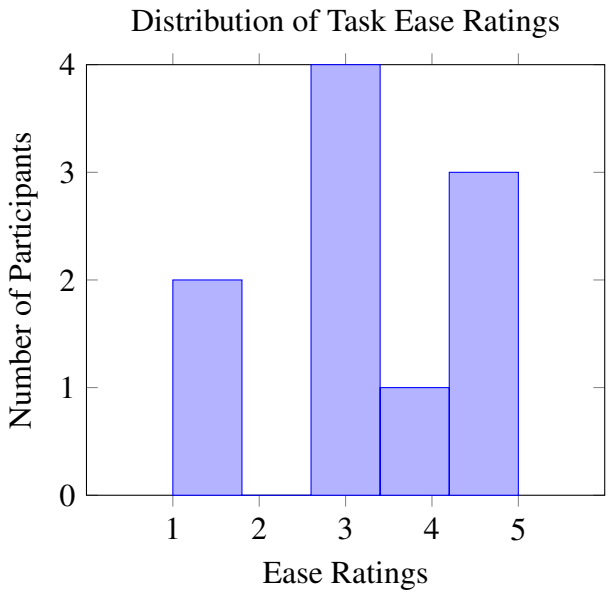

Figure 4.14: Histogram of Task Ease Ratings for Task 3.

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	3
Median (Q2)	3
Third Quartile (Q3)	5
Maximum (Max)	5

Table 4.9: Task 3 Box Plot Data for Ease of Use Ratings

Interpretation of Figure 4.14 and Table 4.9 It can be observed that the number of participants who rated the task as 1 (lowest ease) and 2 is quite low, indicating that these participants encountered significant difficulties during the task.

The majority of participants rated the task's ease of completion as 3 or 5. It's important to note that the highest count was for the rating of 5 (highest ease), implying that many users found the process relatively easy to navigate and complete.

Moving to the box plot, the minimum rating was 1, which signifies that there was at least one user who found the task very difficult to perform. However, the first quartile (Q1) is at 3, which means that 25% of the users gave a rating of 3 or less. This indicates that a quarter of the users had some degree of difficulty with the task.

The median (Q2) is also 3, indicating that half of the users rated the task with a 3 or less. The third quartile (Q3) is at 5, showing that 75% of users gave a rating of 5 or less. This suggests that most of the users found the task from moderate to very easy.

The maximum rating is 5, showing that there were users who found the task very easy to

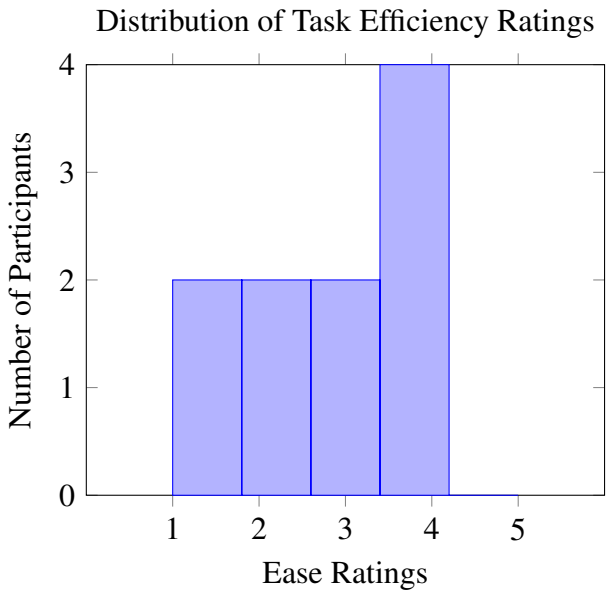

Figure 4.15: Histogram of Task Efficiency Ratings for Task 3.

perform.

In conclusion, while a significant number of users found the process easy (rating of 5), there is a notable number of users who had a moderate difficulty (rating of 3) with the task. This suggests that improvements might be required to make the listing process easier, particularly for the users who rated the task's ease as 3.

Task 3 Efficiency Ratings

This section shows a distribution of the data from the Google Form on the "Efficiency" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	2
Median (Q2)	3
Third Quartile (Q3)	4
Maximum (Max)	4

Table 4.10: Task 3 Box Plot Data for Efficiency Ratings

Interpretation of Figure 4.11 and Table 4.6 The histogram shows a moderate number of users rating the task's efficiency as 1 and 2, and a significant number rating it as 4. Only a few rated it as 3.

The box plot reveals that 25% of users found the task relatively inefficient (rating of 2 or less), and half of the users rated the efficiency as 3 or less. However, 75% of users rated it as 4 or less, suggesting a moderate to high level of efficiency.

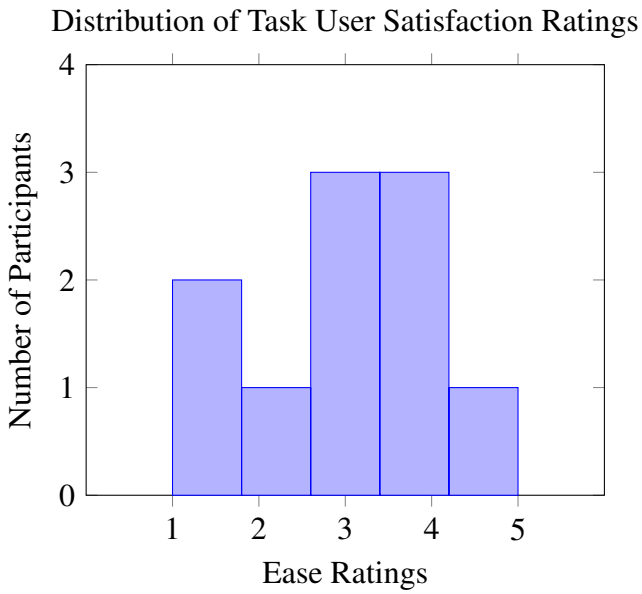

Figure 4.16: Histogram of Task Satisfaction Ratings for Task 3.

In summary, while most users found the process somewhat to highly efficient, there is still room for improvement, particularly for those users who found the task less efficient.

Task 3 User Satisfaction Ratings

This section shows a distribution of the data from the Google Form on the "User Satisfaction" concept detailed in Section 2.1

Box Plot	Value
Minimum (Min)	1
First Quartile (Q1)	2
Median (Q2)	3
Third Quartile (Q3)	4
Maximum (Max)	5

Table 4.11: Task 3 Box Plot Data for Satisfaction Ratings

Interpretation of Figure 4.12 and Table 4.7 The histogram displays a broad spread in satisfaction ratings, with a moderate number of users rating their satisfaction as 1, 2, and 3, and a notable number rating it as 4 or 5.

The box plot data shows a minimum satisfaction rating of 1 and a maximum of 5. The first quartile (Q1) is 2, the median (Q2) is 3, and the third quartile (Q3) is 4, showing a spread in satisfaction across the rating scale.

In summary, user satisfaction varies, with most users moderately to highly satisfied but some experiencing significant dissatisfaction. This suggests potential areas of improvement in user experience for those less satisfied.

4.5.2 Qualitative Visualisation

Theme	Quotations	Interpretation	Frequency
Option Clarity:	"Could not find option for self check in or self check out.", "where the self check in option?", "the bedroom detailing option is confusing"	Participants found difficulty finding certain options such as self check-in/out and bedroom details, suggesting these options may need to be more prominently displayed.	3
Interface Simplicity:	"Liked the simplicity and emptiness of page, some questions were confusing though", "Too many pages for little amounts of information, this could of been grouped together to reduce the amount of required pages.", "why not one page instead of loads", "feels vert tedious, a lot of the options can be inferred or selected in one page, instead of having a silly amount of navigation steps!", "Very long winded, some of the preferences could have been on the same page, there was definitely some information that I don't think that needed to be included."	Users commented on the dispersal of information across multiple pages and a preference for grouping related options together. This indicates a need for a more concise, user-friendly interface.	5
Ease of Deletion:	"was very difficult to delete the listing as a result of the error!"	Difficulty in deleting a listing indicates a potential area of improvement in the website's functionality.	1
Content Validation:	"Exceptionally easy to list a property, not even any vetting carried out, it could easily be a scam or some crack den uploaded on there. watch out!", "this house is a meth lab", "not a meth lab its a dodgy nursery"	Users noted a lack of vetting for content, raising concerns about the potential for inappropriate or fraudulent listings.	3

Table 4.12: Task 3 Qualitative Table

Interpreting the table, users found the option clarity lacking for certain features, and thought the interface could be simpler with less page transitions. They also had difficulty deleting listings and raised concerns about the lack of content validation in the

listing process. Addressing these issues may enhance user satisfaction and efficiency in the future.

4.6 Implications of Data Interpretations

This section will evaluate the data analysis protocols and the results they have presented, providing data for a discussion of the implications in accordance with their effect on the goals outlined in Chapter 1, Section 1.4.

4.6.1 Quantitative and Qualitative Data: A Comparative Review

The analysis conducted on the usability of the Booking.com platform offered interesting insights. While the quantitative data obtained was helpful to a certain extent, it did not reveal clear trends or definitive conclusions. However, this should not detract from the importance of the observations made. Quantitative data often provides a high-level view of user behaviour, but it may not explain the specific factors influencing this behaviour.

Conversely, the qualitative data gathered from participant comments proved significantly more informative, presenting a more detailed picture of user experience. This emphasises the importance of utilising both types of data to understand user experience comprehensively, and as demonstrated, qualitative data can sometimes yield more actionable insights.

4.6.2 Impact on Usability Goals

A deep-dive into the qualitative findings revealed consistent themes across tasks, indicating areas that require improvement. Specifically, themes revolving around "Pricing Clarity", "Filter Functionality", and "Website Layout and Usability" were highlighted, each of which has different implications for the stated goals.

Pricing Clarity

Regarding Pricing Clarity, feedback indicated confusion with the 'per night' pricing format and a desire to see the total cost of their stay. This lack of clear and comprehensive pricing information might deter potential users from using Booking.com to find value for money holidays, thereby affecting Goal 1 and potentially leading to a decrease in bookings.

Filter Functionality

Filter Functionality was another area of concern for users. Difficulty in sorting and categorising prices, changing the default settings, and using flexible month options were common issues. The lack of an intuitive filtering system can hinder users from finding affordable accommodations effectively, both abroad and within the UK (Goals 1 and 2). This difficulty could discourage users from using Booking.com and push them towards competitor platforms.

Website Layout and Usability

User feedback suggested that improvements could be made in the Website Layout and Usability. Users found the website layout to be confusing and difficult to navigate. This frustration could discourage potential property vendors from listing their properties on the platform, directly affecting Goal 3.

4.6.3 Consequences of Unaddressed Issues

If Booking.com does not address these issues, the user base may not grow as fast as those of other platforms, which could lead to a loss of profit. It's important to note, as mentioned by test participants, that there are alternatives that may achieve these goals to a more usable standard than Booking.com.

Given the qualitative nature of these findings, it's critical for Booking.com to continue to collect and analyze qualitative data. The insights gained can inform strategic decision-making, helping to drive improvements that align with the platform's usability goals and enhance overall user satisfaction.

Chapter 5

Limitations and Recommendations

This chapter provides a nuanced examination of the limitations inherent in this usability testing study before drawing comprehensive conclusions and suggesting future research directions. These reflections aim to offer detailed insights that guide the recommendations for reliable future studies, as well as improvements to the web platform to enhance its efficiency, user satisfaction, and ease of use.

5.1 Threats to Validity

Any research study, including this usability testing study, can face threats to its validity. One such potential pitfall stems from the participant selection. Given the relatively small sample size, there's a possibility that the participants may not fully represent the diverse user base of Booking.com, casting doubts over the external validity of the findings.

Furthermore, it appeared that two participants (namely Participant 2 and Participant 3) did not seem to take the test as seriously as others. This might have resulted in data anomalies. While the general trends and conclusions held even when these participants' results were excluded, such behaviour can potentially compromise the credibility of the findings.

The time constraints of the tasks might have also influenced user behaviour, prompting rushed interactions with the platform. Under real-world conditions, users may take more time to explore and comprehend the website, leading to varied experiences and feedback that our study might not capture.

Lastly, there may have been some confusion among participants regarding the definitions of efficiency, difficulty, or satisfaction used in this study. Misunderstanding these key terms could have affected their responses and interpretations of tasks.

5.2 Limitations of the Study Performed

Another significant limitation pertains to the subjective nature of the data collected. User experiences are inherently individual and can be influenced by numerous factors, including their tech-savviness and familiarity with similar platforms. This subjectivity might affect the reliability of the results and its generalizability to a broader user base.

The study could also have benefited from a larger participant pool to collect more diverse feedback and insights. A more extensive sample would allow us to discern whether the issues raised are one-off incidents or systemic problems within the user interface of Booking.com.

5.3 Limitations in the Analysis Helping to Achieve the Goals

The analysis was heavily focused on task completion time and qualitative feedback, with the number of clicks being largely overlooked. Although the number of clicks data was found to be relatively consistent across tasks, a more nuanced analysis of this data in future studies could yield invaluable insights into user behaviour and task complexity.

The lack of focus on click data might have limited our ability to identify potential areas of confusion or inefficient navigation. A more thorough examination of these aspects in future studies would be vital for improving the user interface and the overall user experience on Booking.com.

This chapter has endeavoured to shed light on the limitations of this study. The aim is to provide a stepping stone for future work, enabling subsequent research to learn from these limitations and devise more reliable and valid methodologies for testing the usability of web platforms such as Booking.com.

Chapter 6

Conclusion

6.1 Summary

This project aimed to assess the usability of the Booking.com website, focusing on young, English-speaking users in the UK. The study defined the scope, set the goals, and designed a comprehensive study that utilized key metrics and concepts. A robust procedure for data collection was developed, and detailed user profiling was implemented. The data gathered was subjected to rigorous analysis, and the findings were presented via clear visualisations. Finally, the data and its visualisations were evaluated, yielding insightful interpretations.

6.2 Conclusion of Study

This study evaluated the usability of Booking.com based on three critical goals:

- **Goal 1:** Users found it challenging to locate value-for-money holiday options abroad due to unclear pricing information and inefficient filtering functionality, impacting Booking.com's usability for this goal.
- **Goal 2:** The difficulties in identifying cost-effective holidays within the UK mirror those experienced in Goal 1, suggesting improvements to the site's filtering system and pricing clarity could better serve this goal.
- **Goal 3:** The process of listing rooms for UK holiday accommodations was hindered by the platform's confusing layout and navigation, which could discourage vendors from using the site and negatively affect the diversity of offerings available to users.

6.3 Future Work

Future research, as detailed in Chapter 5, should take into account the limitations and findings of this study and explore alternative methodologies for more valid and reliable data collection.

6.3.1 Future Usability Testing of Booking.com

For future usability tests, increasing the sample size, diversifying the test parameters, and implementing strategies to incentivise participation are suggested. This study found qualitative data to be more informative; thus, prioritising its collection in future work is recommended, though quantitative data should also be utilised for supporting visualisations.

6.3.2 Future Design Work

Based on the findings of this study, several recommendations for improving Booking.com's usability are offered:

- Enhancing the clarity of pricing information and refining the filtering system could help users find value-for-money holidays more effectively (Goals 1 and 2).
- Improving the platform's layout and navigation could make the process of listing rooms easier and more efficient for vendors (Goal 3).

6.4 Future Design Work AI Recommendation

Exploring the potential of large language models could prove highly advantageous, especially in developing an interface where users can express their preferences in natural language. This approach may bolster user satisfaction, efficiency, and ease of use, which, in turn, could escalate user retention, enhance the platform's reputation, and potentially drive profit.

This method could offer a significantly more user-friendly avenue for achieving all the set Goals. For example, a chatbot could ensure all necessary criteria are established before listing a hotel (Goal 3), steering the user conversationally through the steps necessary for successful task completion.

A user might type something like "room for 2 in Spain, cheapest you got mate," replete with spelling and grammar errors. The large language model, however, would easily be able to interpret this prompt and provide the relevant information from the Booking.com databases.

Furthermore, this feature could easily be implemented in various languages given the increasingly sophisticated capabilities of artificial intelligence. Therefore, this report strongly recommends further investigation into this area to boost the efficiency, user satisfaction, and ease of use of Booking.com, enabling it to more fully realise the set goals.

References

Booking.com. (n.d.). Booking.com. *Booking.com*. Retrieved May 22, 2023, from https://www.booking.com/index.en-gb.html

Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research*, *6*(4), 408–424. https://doi.org/10.1016/0160-7383(79)90004-5

Parliament UK Commons Library. (2023). Research briefing cbp-9428. *Parliament UK Commons Library*. Retrieved May 22, 2023, from https://commonslibrary.parliament.uk/research-briefings/cbp-9428/

Statista. (2022). Share of britons going on holiday abroad. *Statista*. Retrieved May 22, 2023, from https://www.statista.com/statistics/480160/share-of-britons-going-on-holiday-abroad/

World Health Organization. (2023). Who director-general's opening remarks at the media briefing - 5 may 2023. *World Health Organization*. Retrieved May 22, 2023, from https://www.who.int/news-room/speeches/item/who-director-general-s-opening-remarks-at-the-media-briefing---5-may-2023

Appendix A

Information Sheet for Study Participants

PARTICIPANT INFORMATION SHEET

Title of Project: Usability Testing of Booking.com

Name and Contact Details of Researcher(s): Jack Simms, UP891784@myport.ac.uk

Name and Contact Details of Supervisor: Dr Claudia Iacob, claudia.iacob@port.ac.uk

Ethics Committee Reference Number:

1. **Invitation**

   I would like to invite you to take part in my research study. Joining the study is entirely up to you, before you decide I would like you to understand why the research is being done and what it would involve for you. I, will go through this information sheet with you, to help you decide whether or not you would like to take part and answer any questions you may have. I would suggest this should take about 5 minutes. Please feel free to talk to others about the study if you wish. Do ask if anything is unclear.

   I am a final year student completing my level 6 module, usability testing.

2. **Study Summary**

   This study is concerned with of which requires human testing to analysis and evaluation the usability of Booking.com. which is important because the study scope is targeted at English birth speaking students and young people. Participation in the research would require you sit with me in person, or attend a zoom video call, first, you will fill out a short pre-quiz Google form, and then you will be given three tasks to complete on Booking.com on control laptop or your own computer/laptop. After completion, another google form will be completed to rate the task difficulties and provide comments. This will take approximately 10-30 minutes of your time, depending on task completion speed.

   Students and young people have been chosen for this study as they are likely to be impacted by the cost-of-living crisis in the UK in 2023. The website used is in English, so native speakers only will be tested as a control variable. Young people and students will also be likely to want to go on holiday, because of the WHO ending the COVID-19 global health emergency in May 2023.

3. **What is the purpose of the study?**

   To provide data to perform qualitative and quantitative data analysis on for the usability testing of Booking.com

4. **Why have I been invited?**

   You fit the scope of the study, falling into the category of student/young person and English is your first language.

5. **Do I have to take part?**

   No, taking part in this research is entirely voluntary. It is up to you to decide if you want to volunteer for the study. We will describe the study in this information sheet. If you agree to take part, we will then ask you to sign the attached consent form, dated 24/05/2023, version number, 1.

6. **What will happen to me if I take part?**

   You will be given a link to a google form, you will sign a consent to participate form. The study starts with providing details of only your age, occupation and technological proficiency. This data is designed to not

impose any issues and satisfy the Data Protection Act 2018, which includes anonymity. No personal data will be taken to tie you to these fields provided.

During the tasks, I will record the time taken to complete the task, the number of clicks made during the task, and the number of navigated web pages required to complete the first two tasks. The third tasks will provide a task to be completed in 5 minutes, and will only count errors made, and make note of where progress stopped at the end of the 5 minutes.

The google form at the end of task completion will take qualitative data responses, such as ranking from 1-5 of how easy and efficient the website was for the completion of the task. Responses given will be then used to perform analysis and evaluation of the website, of which they may be included and referenced directly in the study report.

7. Expenses and payments

No expenses required.

8. What are the possible disadvantages, burdens and risks of taking part?

Loss of time. This study will take between 10-30 minutes to complete.

9. Will my data be kept confidential?

The raw data, which identifies you, will be kept securely by the researcher. Responses and data recorded will be stored securely in a private google drive folder.

Only I, will have access to the research, the supervisor will mark this study and thus observe the analysis formed which will include statistics provided from your participation.

Extra Details/Help:

if you have any general queries about how your data will be processed, please contact the University's Data Protection Officer, Samantha Hill, using any of the following contact details:

Samantha Hill, 023 9284 3642 or information-matters@port.ac.uk
University House, Winston Churchill Avenue, Portsmouth, Hampshire, PO1 2UP, UK

We ask for your consent to process the data we ask for in the study so that we can conduct the research as described in the participant information sheet.

Your personal data will be held securely on University servers, (we will not] store your data outside the EU) for and will be securely destroyed after the analysis report has been submitted.

You also have the right to lodge a complaint about the use of your personal data to initially the University (email information-matters@port.ac.uk) and then, if you are unhappy with our response, to the Information Commissioner's Office (ICO) – for more information please see https://ico.org.uk/your-data-matters/raising-concerns/ .

13. What will happen if I don't want to carry on with the study?

As a volunteer you can stop the tasks procedure at any time, or withdraw from the study at any time during it completion, without giving a reason if you do not wish to. If you do withdraw from a study after some data have been collected, you will be asked if you are content for the data collected thus far to be retained and included in the study. If you prefer, the data collected can be destroyed and not included in the study. Once the research has been completed, and the data analysed, it will not be possible for you to withdraw your data from the study.

14. What if there is a problem?

If you have a query, concern, or complaint about any aspect of this study, in the first instance you should contact the researcher(s) if appropriate. If the researcher is a student, there will also be an academic member of staff listed as the supervisor whom you can contact. If there is a complaint and there is a supervisor listed, please contact the Supervisor with details of the complaint. The contact details for both the researcher and any supervisor are detailed on page 1.

If your concern or complaint is not resolved by the researcher or their supervisor, you should contact the Head of Department:

The Head of Department	Dr Petronella Beukman
School of Computing	023 9284 3462
University of Portsmouth	petronella.beukman@port.ac.uk
Portsmouth	
PO1 3HF	

If the complaint remains unresolved, please contact:

The University Complaints Officer

023 9284 3642 complaintsadvice@port.ac.uk

Thank you

Thank you for taking time to read this information sheet and for considering volunteering for this research.

Appendix B

Pre Test Form

Usability Testing: Pre-Test

Before starting the task-based testing, participants will complete a brief questionnaire that captures relevant demographic information and user characteristics. The questionnaire will include quantitative questions that do not break anonymity.

Name
and Contact Details of Researcher(s): Jack Simms, UP891784@myport.ac.uk

Name and Contact Details of Supervisor (if relevant): Dr Claudia Iaocb, claudia.iacob@port.ac.uk

University
Data Protection Officer: Samantha Hill, 023 9284 3642 or information-matters@port.ac.uk

* Indicates required question

1. 1. I confirm that I have read and understood the information sheet dated 24/05/2023, version 1. For the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. *

   Mark only one oval.

   - ◯ Yes
   - ◯ No

2. 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. *

   Mark only one oval.

   - ◯ Yes
   - ◯ No

3. 3. I understand that data collected during this study will be processed in accordance with data protection law as explained in the Participant Information Sheet. *

Mark only one oval.

- ◯ Yes
- ◯ No

4. 4. I agree to take part in the study. *

Mark only one oval.

- ◯ Yes
- ◯ No

Task Completion Pre-Requisites Control Variables.

5. What is your age? *

_____

6. What is your current occupation? *

_____

7. How technologically proficient would you say you are? (1 being novice and 5 being expert) *

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

8. What is the number of hotels you directly booked using booking.com in 2022 (give an exact integer). *

Appendix C

Pre Test Results

Particpent	1. I confirm that I have read and understood the information sheet dated 24/05/2023, version 1. For the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.	3. I understand that data collected during this study will be processed in accordance with data protection law as explained in the Participant Information Sheet.	4. I agree to take part in the study.	What is your age?	What is your current occupation?	How technologically proficient would you say you are? (1 being novice and 5 being expert)	What is the number of hotels you directly booked using booking.com in 2022 (give an exact integer).
1	Yes	Yes	Yes	Yes	23	Student	4	0
2	Yes	Yes	Yes	Yes	29	god of computers	5	0
3	Yes	Yes	Yes	Yes	21	Pope Francis	1	35
4	Yes	Yes	Yes	Yes	23	Student	3	0
5	Yes	Yes	Yes	Yes	21	Student	5	1
6	Yes	Yes	Yes	Yes	26	Student	4	0
7	Yes	Yes	Yes	Yes	28	Student (ITH)	5	0
8	Yes	Yes	Yes	Yes	28	student	4	3
9	Yes	Yes	Yes	Yes	23	Ticketing Operations Executive	3	0
10	Yes	Yes	Yes	Yes	28	Illustrator	2	0

Appendix D

Task Slides

Task 1

find a week-long hotel deal for two people sharing one room in Barcelona, Spain in June July or August 2023, with the accommodation requirements of a private bathroom, free Wi-Fi, breakfast, and a pool, all under £1000.

Task 2

Search for a bed and breakfast in York, UK, for a week-long stay for 2 people sharing 1 bedroom in June, 2023. The accommodation should include a private bathroom, free Wi-Fi, and breakfast, all under £800.

Task 3

List a two-bedroom apartment, named “Sunflower House”, Use the address of “University of Portsmouth, Portsmouth, UK” for £100 per night with the following requirements: Check in 0800 till 2000, check out 0800 till 2000, free Wi-Fi, a kitchen, heating and self-check-in.

Sign in with google using
bookingtest2405@gmail.com
password: Sunflower14

Appendix E

Task Results

Particpate Number	Task 1			Task 2			Task 3		
	Time Taken	**Number of Clicks**	**Comments**	**Time Taken**	**Number of Clicks**	**Comments**	**Number of Errors**	**Point of Progression Reached**	Comments
1	353s	16	issue with budget being "per night" instead of total price	40s	5		0	70% Upload Photos	
2	91s	13		123s	9		1 times wrong	90% reached last property setup before photos	
3	135s	14		69s	9		1 photo upload error	70% Upload photos	
4	210s	18	Unable to sort by price obviously and struggled to categorise price	110s	9	Again not clear how to show cheapest, the graph seems like the only way	0	100% finished just in time	where the self check in option?
5	120s	13	Can't see WiFi option	41s	11		0	100% fiished 90s left	the bedroom detailing option is confusing
6	187s	16	Can't immediately see how to change from the working week default to 7 days, it jumps up to the top with every filter selection, so i have to scroll down and find my place each time, annoying!	38s	9	Learnt to change it to 7 nights straight away	0	70% upload photos	why not one page instead of loads
7	352s	22	the im flexible for month selection is not obvious, lost the filter options everytime they changed the filters	153s	11	5 nights is not a week!	1 accidently uploaded the listing, even though it was full of untruthful data	100% with 20s to spare	was very difficult to delete the listing as a result of the error!
8	180s	16	per night issue arising again instead of providing total price	50s	9		0	70% upload photos	
9	184s	14	Manually changed weeks to find a cheap price, not obvious to use the sort or flexible month option	30s	6		0	70% upload photos	
10	140s	13	confusing amount of filters	50s	10	Easier since doing the previous	0	100% with 10s left	

Appendix F

Post Test Form

Post Usability Testing Quiz

* Indicates required question

Task 1

Value for Money Holiday Abroad

1. On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long holiday package for two in Barcelona, Spain, under £1000? *

   Mark only one oval.

   - ◯ 1
   - ◯ 2
   - ◯ 3
   - ◯ 4
   - ◯ 5

2. How would you rate the efficiency of the search tool on the Booking.com website when finding value-for-money holidays in hot climates abroad? (1: Very Inefficient, 5: Very Efficient) *

   Mark only one oval.

   - ◯ 1
   - ◯ 2
   - ◯ 3
   - ◯ 4
   - ◯ 5

3. Were you satisfied with your ability to complete Task 1? (1: Very Unsatisfied, 5: Very Satisfied) *

Mark only one oval.

- 1
- 2
- 3
- 4
- 5

4. Any additional comments about Task 1?

Task 2

Affordable UK Holiday

5. On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long bed and breakfast stay in York, UK, under £800?

Mark only one oval.

- 1
- 2
- 3
- 4
- 5

6. How would you rate the efficiency of the search tool on the Booking.com website when finding
affordable holiday options within the UK? (1: Very Inefficient, 5: Very Efficient)

Mark only one oval.

- 1
- 2
- 3
- 4
- 5

7. Were you satisfied with your ability to complete Task 2? (1: Very Unsatisfied, 5: * Very Satisfied)

Mark only one oval.

- 1
- 2
- 3
- 4
- 5

8. Any additional comments about Task 2?

Task 3

Listing a Room

9. On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to list a two-bedroom apartment in London for £100 per night with a minimum stay of 3 nights?

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

10. How would you rate the efficiency of the listing process on the Booking.com web- * site? (1: Very Inefficient, 5: Very Efficient)

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ Other: _____

11. Were you satisfied with your ability to complete Task 3? (1: Very Unsatisfied, 5: * Very Satisfied)

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

12. Any additional comments about Task 3?

Final De-Brief

13. How likely are you to recommend Booking.com to others? (0: Not likely at all, 10: Extremely likely) *

Mark only one oval.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

14. Please provide any additional comments or suggestions for improving the usability of Booking.com

15. Did you enjoy this test and survey? What was good/bad, be brutal! Please! It will aid in evaluation of this study as a whole :)

Appendix G

Post Test Results

Particpent	On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long holiday package for two in Barcelona, Spain, under £1000?	How would you rate the efficiency of the search tool on the Booking.com website when finding value-for-money holidays in hot climates abroad? (1: Very Inefficient, 5: Very Efficient)	Were you satisfied with your ability to complete Task 1? (1: Very Unsatisfied, 5: Very Satisfied)	Any additional comments about Task 1?	On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to search for a week-long bed and breakfast stay in York, UK, under £800?	How would you rate the efficiency of the search tool on the Booking.com website when finding affordable holiday options within the UK? (1: Very Inefficient, 5: Very Efficient)	Were you satisfied with your ability to complete Task 2? (1: Very Unsatisfied, 5: Very Satisfied)	Any additional comments about Task 2?	On a scale of 1 to 5, where 1 is very difficult and 5 is very easy, how easy was it to list a two-bedroom apartment in London for £100 per night with a minimum stay of 3 nights?	How would you rate the efficiency of the listing process on the Booking.com web-site? (1: Very Inefficient, 5: Very Efficient)	Were you satisfied with your ability to complete Task 3? (1: Very Unsatisfied, 5: Very Satisfied)	Any additional comments about Task 3?	How likely are you to recommend Booking.com to others? (0: Not likely at all, 10: Extremely likely)	Please provide any additional comments or suggestions for improving the usability of Booking.com	Did you enjoy this test and survey? What was good/bad, be brutal! Please! It will aid in evaluation of this study as a whole :)
1	3	2	2	took me ages to figure out you could sort by lowest price, not obvious at all	3	3	4	this was easier, task 1 was a struggle, but task 2 was easy since i knew how to deal with the style of the website	3	2	3	covered everything needed, apart from self check!	7	consider alternative websites to find budget holidays like airbnb! But if i must, make it much more simple, group filters together maybe i dont know haha	was fun
2	2	2	1	this sucks	1	1	1	redbull please	1	1	1	this house is a meth lab	1		
3	5	5	1	Made me sad	1	1	1	double it and give it to the next person	1	1	1	not a meth lab its a dodgy nursery	1	no	it was awful and i hate it
4	5	4	4	The price range setting is not efficient	5	4	4	Same issue, otherwise quite detailed and clear	5	4	4	Could not find option for self check in or self check out.	8	Increase price range bar	All in all a good survey and test, might have needed more testing beforehand especially when it comes to details such as available prices on the market
5	4	2	3	Messy Website a lot of information to digest	4	4	4	Pretty easy	4	4	4	Liked the simplicity and emptiness of page, some questions were confusing though	6	more simply less clicking, less scrolling, less thinking	Clear and simple what was being tested / surveyed
6	4	4	5		4	4	5	Price filter of price per night is not good, most people book with an entire budget in mind and this is not available as a feature on the website.	5	4	5	Too many pages for little amounts of information, this could of been grouped together to reduce the amount of required pages.	7	Let users select filters before searching instead of after searching. I would recommend skyscanner and airbnb or lastminute.com to students for a cheap holiday.	Short and simple, instructions were clear :)
7	2	2	3	Not the best website, but I like the idea of it letting you host your own listnings, kinda like spareroom.com	2	3	3	They really need a price filter for the whole thing, not just per night, thats wild, but I guess its hard to program that, as its going to have to compare all the features you got too.	5	4	4	Exceptionally easy to list a property, not even any vetting carried out, it could easily be a scam or some crack den uploaded on there. watch out!	8	Please add a poor person optoin, or at the very least an appropriate filter for the length of time and combined nightly price, as a "customer" i dont want to have to manually calculate how much a week of nights will have to be to stay wihtin my budget.	I enjoyed it, I hope the click count was accurate, because we got interupted a few times, I did not think id ever be using that website but I have now so thats cool.
8	3	2	3	Why does it jump the page when a filter option is selected and why does it only provide a budget per night, I had to whip out a calculator, all im concerned with is total cost!	4	3	4	This was easier, as i half knew where to look for the filter options because of the first tasks completion	3	2	3	feels vert tedious, a lot of the options can be inferred or selected in one page, instead of having a silly amount of navigation steps!	6	make it easier to specify filters!	the tests were specific so i knew what to do, the study didn't create frustration... just the website and its incredible amount of filters to read through
9	4	3	5	The filters should have been in all one area rather than further down the screen	5	5	5	This was much easier as you could select all the previous filters that you selected before	3	3	2	Very long winded, some of the preferences could have been on the same page, there was definitely some information that I don't think that needed to be included. I found it difficult to understand at some points what info was exactly required.	6	Being able to filter by a specific price rather than just a range, have the filters all in one area	Yessir I did, I preferred it was mainly multiple choice but allows you to analyse your answers further
10	3	2	3	kept scrolling back up to page, options were in confusing subheadings. took me a while to find all the check boxes	3	3	3	same problems as the last task	3	3	3	quite long but I suppose all the information is necessary.	1	needs updating. Scrolling is annoying.	It was fine