**Test Plans**

**6 Methods to be Used**

**6.1 Non-empirical Mothods**

**6.1.1 Heuristic Evaluation**

Heuristic evaluation is a process where experts use rules of thumb to measure the usability of user interfaces in independent walkthroughs and report issues.​

* **Testing Procedure**

The testing procedure of heuristic evaluation is listed below.

1. **Know what to test and** **how**

Whether it’s the entire product or one procedure, clearly define the parameters of what to test and the objective.

1. **Know your users** **and have clear definitions of the target audience’s goals, contexts, etc.**

User personas can help evaluators see things from the users’ perspectives.

1. **Select 3-5 evaluators**

Ensure the evaluators' expertise in usability and the relevant industry.

1. **Define the heuristics**

This will depend on the nature of the system. Consider adopting Nielsen heuristics or using others.

1. **Brief evaluators on what to cover in a selection of tasks**

To suggest a scale of severity codes (e.g., critical) to flag issues.

1. **1(st) Walkthrough**

Have evaluators use the product freely so they can identify elements to analyze.

1. **2(nd) Walkthrough**

Evaluators scrutinize individual elements according to the heuristics. They also examine how these fit into the overall design, clearly recordingall issues encountered.

1. **Debrief evaluators**

Debrief evaluators in a session so they can collate results for analysis and suggest fixes.

* ***Nielson’s 10 Principles of Heuristic***

The principles of heuristic evaluation are listed below.

1. **Keep users informed** about its status appropriately and promptly.
2. **Show information in ways users understand** from how the real world operates, and in the users’ language.
3. **Offer users control** and let them undo errors easily.
4. **Be consistent** so users aren’t confused over what different words, icons, etc. mean.
5. **Prevent errors**. A system should either avoid conditions where errors arise or warn users before they take risky actions (e.g., “Are you sure you want to do this?” messages).
6. **Have visible information**, instructions, etc. to let users recognize options, actions, etc. instead of forcing them to rely on memory.
7. **Be flexible,** so experienced users find faster ways to attain goals.
8. **Have no clutter**, containing only relevant information for current tasks.
9. **Provide plain-language help** regarding errors and solutions.
10. **List concise steps** in lean, searchable documentation for overcoming problems.

According to the aforementioned procedure and principles of heuristic evaluation, we have designed a plan of heuristic evaluation for usability testing of *booking.com*.

* **Plan of Heuristic Evaluation for *booking.com***

|  |  |
| --- | --- |
| **Procedure** | **Plan** |
| **Know what to test and how** | Choose「hotel booking」as the use case to test |
| **Know the users and their goals** | Define a user story on hotel booking |
| **Choosing participants** | Invite 3 expert usability evaluators who have experience in the travelling industry |
| **Define the heuristics** | Adopt Nielson’s 10 heuristics to the procedure, which are shown below |
| **Debrief of test tasks** | A simple debrief of test tasks for evaluators and determine levels of issues |
| **1st walkthrough** | Let the evaluators freely browse the website of *booking.com* and get familiar with functions relevant to hotel booking |
| **2nd walkthrough** | Let the evaluators test the functions of hotel booking on *booking.com* with defined heuristics in the aforementioned procedure step「**Define the heuristics」**, and record the issues they have encountered. |
| **Debrief of participants** | Let the evaluators report the issues by filling in the output template |

The template of output of each participant is a sheet of issues with levels of each issue. We plan to divide the issues into 3 levels: Major, Medium, and Minor. The template of output is shown below:

* **Output Template**

|  |  |  |  |
| --- | --- | --- | --- |
| **Issue** | **Reference** | **Heuristic** | **Level** |
| (A textual description of the issue) | (A screenshot or link of the issue) | (Among the 10 heuristics above) | (Major / Medium / Minor) |
| ... | ... | ... | ... |

**6.1.2 Cognitive walkthrough**

A cognitive walkthrough is a structured approach to evaluating usability of certain product. The process entails the tester, who is distinct from the user, posing four uncomplicated inquiries regarding the execution of a particular user journey. They will document their subjective evaluations of the responses and utilize these insights to enhance the product.

* **Testing Procedure**

The testing procedure is listed below.

1. **Define the tasks to test:**

According to the use case, define and let the evaluator know what to test.

1. **Decompose tasks into processes**

For each task, clarify the process to the evaluators by means of flow charts etc.

1. **Evaluators test and answer questions**

Evaluators are expected to test according to the process of each task and answer 4 questions displayed in the next part.

1. **Debrief of evaluators**

Evaluators show the issues they met and prioritize them.

* **Four Questions to Answer in Cognitive Walkthrough**

The questions about cognitive walkthrough are listed below.

**Question 1:** **Did you try and achieve the right outcome?**

This question is trying to examine whether the interface is making assumptions about a user’s level of experience or knowledge that aren’t accurate.

**Question 2:** **Did you notice that the correct action is available?**

This question is trying to examine if there are any hidden or obscured controls are a problem for users.

**Question 3: Did you associate the correct action with the outcome you expected to achieve?**

This question is trying to examine if there are overly complex explanations of an action.

**Question 4: Did you see the progress is being made towards your intended outcome after the correct action is made?**

This will help investigate when feedback in the system is missing, badly worded, easy to miss or plain old ambiguous.

According to the testing procedure and questions of cognitive walkthrough mentioned above, we have designed the plan of cognitive walkthrough for usability testing of *booking.com*.

* **Plan of Cognitive Walkthrough for *booking.com***

|  |  |
| --- | --- |
| **Procedure** | **Plan** |
| **Define the tasks to test** | Choose the main functions of hotel booking of *booking.com* as tasks to test |
| **Decompose tasks into processes** | Draw flow charts of each task and show them to the evaluators |
| **Evaluators test and answer questions** | Let the evaluators finish the tasks according to the flow charts, and answer the 4 questions they have encountered |
| **Debrief of evaluators** | Let the evaluators report the issues by filling in the output template |

The template of output of each participant is a sheet of issues with the level of each issue and answers to the 4 questions. We plan to divide the issues into 3 levels: Major, Medium and Minor. The template of output is shown below:

* **Output Template**

|  |  |  |
| --- | --- | --- |
| **Function** |  |  |
| (The name of the tested function) |  |  |
| **Your answers to the 4 questions** |  |  |
| Did you try and achieve the right outcome? |  | (Yes / No) |
| Did you notice that the correct action is available? |  | (Yes / No) |
| Did you associate the correct action with the outcome you expected to achieve? |  | (Yes / No) |
| Did you see the progress is being made towards your intended outcome after the correct action is made? |  | (Yes / No) |
| **Issue** | **Reference** | **Level** |
| (A textual description of the issue) | (A screenshot or link of the issue) | (Major / Medium / Minor) |
| ... | ... | ... |