

Terminal Exam

Solution

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Terminal Examination Fall-2020

Solution

1. Question

Explain the Heuristic evaluation method in detail

1.1 Answer

Heuristic evaluation is a process where specialists use thumb rules to measure the usability of user interfaces in self-determining walkthroughs and report issues. Evaluators use recognized heuristics (e.g., Nielsen-Molich's) and reveal visions that can help design teams enhance product usability early in development.

The Nielsen-Molich heuristics state that a scheme should:

1. **Retain users informed about its status** *appropriately and promptly.*
2. **Show info in ways users understand** how the actual world functions and *the users' linguistic.*
3. **Offer users control** and let them undo errors *simply.*
4. **Be consistent**, so users aren't confused over what dissimilar words, icons, etc., mean.
5. **Prevent errors** – a system should either *avoid conditions where errors arise* or *warn users before they take risky actions.*
6. **Have visible information, instructions, etc., to let users recognize options, actions, etc.,** in its place of forcing them to rely on memory.
7. **Be flexible**, so knowledgeable 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 straightforward steps in lean, searchable documentation** for overcoming problems.

2. Question

The following messages have been taken from different websites and tools. Your task is to evaluate it by using Nielsen's and Molich's design guidelines. Clearly explain whether the messages follow the design guidelines or not? Also, specifically, mention the design guidelines that have been followed or no?

2.1 Image 1

Following Rules are Followed

- ✓ Keep users informed about its status appropriately and promptly.
- ✓ Show information in ways users understand how the real world operates and in the users' language.
- ✓ Be consistent, so users aren't confused over what different words, icons, etc., mean.
- ✓ Have visible information, instructions, etc., to let users recognize options, actions, etc., instead of forcing them to rely on memory.
- ✓ Be flexible, so experienced users find faster ways to attain goals.
- ✓ Have no clutter, containing only relevant information for current tasks.
- ✓ Provide plain-language help regarding errors and solutions.
- ✓ List straightforward steps in lean, searchable documentation for overcoming problems.

2.2 Image 2

Following Rules are Followed

- ✓ Keep users informed about its status appropriately and promptly.
- ✓ Show information in ways users understand how the real world operates and in the users' language.
- ✓ Offer users control and let them undo errors easily.
- ✓ Prevent errors – a system should either avoid conditions where errors arise or warn users before they take risky actions
- ✓ Have visible information, instructions, etc., to let users recognize options, actions, etc., instead of forcing them to rely on memory.
- ✓ Be flexible, so experienced users find faster ways to attain goals.
- ✓ Have no clutter, containing only relevant information for current tasks.
- ✓ Provide plain-language help regarding errors and solutions.

- ✓ List straightforward steps in lean, searchable documentation for overcoming problems.

3. Question

What are the seven stages of action? Provide examples of the seven stages of action.

3.1 Answer

Seven stages of action are a term coined by the usability consultant Donald Norman. He explains this phrase in chapter two of his book *The Design of Everyday Things*, in the context of explaining the psychology of a person behind the task performed by him or her.

Seven Stages of Action constitute four stages of execution, three stages of evaluation, and our goals.

1. Forming the target

This is what you want. For example, I might want a place where I can relax outside that won't get muddy and that I don't have to move my outdoor furniture around to mow.

2. Forming the intention

This is what would satisfy the goal. A deck would satisfy my goal of relaxing outdoors that won't get muddy or be in the way of mowing.

3. Specifying an action

What do I have to do to achieve the intention? I would need to build a deck to meet the requirement set in my goal.

4. Executing the action

Here I would do the steps of the action. I would build the deck

5. Perceiving the state of the world

I am using the senses to gather information. My finished deck would be off the ground and have my outdoor furniture on it.

6. Interpreting the state of the world

What has changed? My furniture is off the ground, away from the mud, and no longer has to be moved to mow the lawn.

7. Evaluating the outcome

Did I achieve my goal? I can relax outdoors now without worrying about mud or moving furniture. I achieved my goal.

4. Question

What can a system designer do to minimize the memory load of the user?

4.1 Answer

To "minimize user memory load," computers should take over the burden of memory from the user as much as possible. They are very good at remembering things very precisely, whereas humans are not. This can be accomplished by promoting recognition over recall. In general, people have a much easier time recognizing something that is shown to them rather than recalling the same information from memory without help.

Displaying dialogue elements allows users to select items through recognition. Graphical user interfaces (GUIs) such as menus and icons, achieve this goal, as opposed to command lines. It is also more comfortable for the user to modify information displayed by the computer than to generate all of the desired results from scratch. For example, when users want to rename a file, the text field should be prepopulated with the old name allowing users to make modifications instead of typing a new name.

Visibility of the objects of interest to the user also helps to promote recognition. Unfortunately, displaying too many objects will result in contradiction with the 'less is more' rule. Therefore, a compromise must be made to match object visibility as much as possible with the user's needs.

Whenever users are asked to provide input, the system should describe the required format and, if possible, provide an example of standard input, such as default value. For example, a system asking the user to enter a date should do it as follows: 'Enter the date (DD-MMM-YY, e.g., 2-Aug-93)'.

The system should be based on a small number of rules that apply universally throughout the user interface to minimize the user's memory load. The use of generic commands is one way to let a few rules govern a complex system. Generic commands make similar things happen in different circumstances; therefore, users only need to learn a few commands to work with many different data types. They support learning from one application to the next since users do not need to relearn those commands they already know.

5. Question

What is onboarding, and why is it so crucial for mobile design?

5.1 Answer

The term originates from the HR sphere: it marks techniques and approaches to help newcomers quickly adapt to the new conditions to perform well. The area of user experience design took the idea together with the term. In UX design, onboarding is a set of techniques and interactions aimed at comforting users and giving the product's initial introduction. As the Material Design guide states: "Onboarding is one point in a long journey that begins in the app store and ends with the user taking the first key retention-correlated action in your app."

When you work on an app onboarding, your task sets a clear visual hierarchy on the screen. Keep in mind that users are rarely ready to devote much of their precious time to learning a new product before real interactions start. What's more, working memory capacities are also limited, so it's vital to prioritize information thoughtfully for this stage of interaction with the product.

The role of onboarding is well-checked in practice. For example, in one of the articles in Adobe Creative Cloud Blog, UX researcher and cognitive psychologist Rob Youmans, YouTube's Head of UX Research Sciences, says, "When it comes to design, the place that I see primacy and recency, in particular, is in terms of onboarding. When you start to learn about a new product, there's often a tutorial, wizard, instructions, or something. It's wise for designers to consider primacy and recency in this context because you're going to want to put the most important information first or last if you're hoping that someone is going to remember them later as they use your product or system."

6. Question

What is Attention? And what are the factors affecting attention?

6.1 Answer

Attention could be defined as generating, selecting, managing, and maintaining an adequate level of stimulation to process the relevant information. Said in another way, attention is a process that takes place on a cognitive level (cognitive process), allowing us to orientate ourselves towards the stimuli that are relevant, ignoring those that are not, to act in consequence.

External factors (external determiners): come from surroundings and make concentration on relevant stimuli easier or more difficult. Some examples are:

- **Intensity:** the more intense a stimulus is (strength of stimulus), the more likely you are to give attention resources to it.
- **Size:** the more significant a stimulus is, the more attention resources it captures.
- **Movement:** moving stimuli capture more attention than ones that remain static.
- **Novelty:** newer or strange stimuli attract more of our attention.
- **Change:** If a different stimulus appears that breaks the dynamic, our attention will be directed to the new stimulus.
- **Colour:** colorful stimuli are more attention-grabbing than black and white ones.
- **Contrast:** stimuli that contrast against a group attract more of our attention.
- **Emotional burden:** positive just as much as negative stimuli attract our attention more than neutral ones.

Internal factors (internal determiners): come from the individual and depend on each person. Some examples are:

- **Interests:** we concentrate more on stimuli that interest us.
- **Emotion:** stimuli that provoke stronger emotions attract more attention. However, it must be kept in mind that positive moods contribute to focusing attention resources, but negative moods make concentration more difficult.

- **The effort required by the task:** people make a prior evaluation of the effort required to do a task, and depending on this, it will attract more or less attention.
- **The organic state** depends on the physical state that the person is in. So, states of tiredness, discomfort, fever, etc., will make mobilizing attention more difficult. If, on the other hand, a person is in a state relating to survival, for example, thirst or hunger, stimuli related to the satiation of these needs will attract more attention resources.
- **Trains of thought:** when thoughts follow a determined course, based on concrete ideas, the appearance of stimuli related to these will capture more of our attention.

7. Question

Your task is to design an icon for a company that deals with mobile games. The company is developing a new game. The name of the game is "War Game." Sketch the icon of "War Game" with a pencil and provide the logic behind the design. The sketch will be evaluated by using the "best principles of icon design."

7.1 Sketch



8. Question

The following screenshots have been taken from different ~~android apps~~ Windows apps. Your task is to evaluate it by using Ben Schneiderman's interface design. Clearly explain whether the screenshot follows the interface design guidelines or not?

8.1 Image 1

Following guidelines are obeyed

- ✓ **Strive for consistency**

Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.

- ✓ **Enable frequent users to use shortcuts**

As the frequency of use increases, so do the user's desires to reduce the number of interactions and increase interaction pace. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

✓ **Offer informative feedback**

For every operator action, there should be some system feedback. For frequent and minor actions, the response can be modest, while for infrequent and significant actions, the response should be more substantial.

✓ **Permit easy reversal of actions**

This feature relieves anxiety since the user knows that errors can be undone; it encourages exploration of unfamiliar options. The reversibility units may be a single action, a data entry, or an entire group of actions.

✓ **Support internal locus of control**

Experienced operators strongly desire the sense that they are in charge of the system and respond to their actions. Design the system to make users the initiators of actions rather than the responders.

✓ **Reduce short-term memory load**

The limitation of human information processing in short-term memory requires that displays be kept simple, multiple page displays are consolidated, window-motion frequency be reduced, and sufficient training time is allotted for codes, mnemonics, and sequences of actions.

8.2 Image 2

Following guidelines are obeyed

✓ **Strive for consistency**

Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout.

✓ **Enable frequent users to use shortcuts**

As the frequency of use increases, so do the user's desires to reduce the number of interactions and increase interaction pace. Abbreviations, function keys, hidden commands, and macro facilities are very helpful to an expert user.

✓ **Offer informative feedback**

For every operator action, there should be some system feedback. For frequent and minor actions, the reply can be modest, while for rare and significant actions, the response should be more substantial.

✓ **Support internal locus of control**

Experienced operators strongly desire the sense that they are in charge of the system and respond to their movements. Design the system to make users the initiators of actions rather than the respondents.

✓ **Reduce short-term memory load**

The restriction of human information dispensation in short-term memory requires that displays be kept simple, multiple page displays are consolidated, window-motion frequency be reduced, and sufficient training time is selected for codes, mnemonics, and categorisations of actions.

9. Question

What is a smart notification? And what are the factors to make the best notification design?

9.1 Answer

Smart Notifications are a comparatively new concept used to define the various techniques designed to make real-time, push-style messaging (such as push notifications) more relevant, useful, and appropriate for individual users.

The concept involves designing a notification or messaging system in such a way as to:

- Reduce message clutter and avoid information overload, as in the case of blind duplicates of the same notification across multiple personal devices (e.g., mobile, tablet, desktop).
- Improve the chances of a notification being received well and in context. In other words, it is personalized to the user's habits, location, time zone, and other factors that may influence whether the user appreciates the notification or not.
- Enable the user to take immediate action in flow with the idea of real-time notifications, rather than dismiss the notification until later.

The followings factors are essential in this aspect:

- Better Usability Through Better Notification Design
- Establishing a Helpful Notification Framework
- Designing Great Notification UX
- Notification Best Practices for Great UX
- Best Practices for Error Messages
- Start notification design early, not as an afterthought.
- Classify notifications by the three attention levels: high, medium, and low.
- Color-code, assign icons and determine placements.
- Categorize them by type: persistent or non-persistent, pop-up, banner, dialog, etc.
- Incorporate them into a design system.

In essence, Smart Notifications aims to unify and make coherent all the real-time communications that a user is exposed to in their typical day-to-day.