



National University
of computer and emerging sciences

Course: CS2007 Human Computer Interaction.

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Assignment no 01

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Question No. 1:

Fitt's Law states that the time it takes to acquire a target is a function of the size of the target and the distance to the target. This Law is beneficial for evaluating the usability of a graphical user interface.

For example, a scenario where a user wants to click a button on a webpage. If the switch is small and located far from the user's current cursor position, it will take the user more time to move the cursor and click the button. On the other hand, if the switch is large and close to the cursor's current position, the user can click the button more quickly.

The time required for the user to move the mouse cursor to the target can be calculated using Fitt's Law equation:

$$ID = \log_2(D/S + 1)$$

ID is the difficulty index, D is the distance from the starting point to the center of the target, and S is the size of the target.

Question No. 2:

To conduct a usability testing session for an e-commerce website, the following steps can be taken:

- Define the objectives of the usability test. This could include identifying areas of the website that users find difficult to navigate or determining whether users can complete critical tasks such as finding a product and completing a purchase.
- Recruit participants who represent the website's target user base. This could include a mix of people with different levels of familiarity with e-commerce websites.
- Create a test plan outlining the tasks participants will be asked to complete during the usability test. These tasks should reflect real-world scenarios users might encounter when using the website.
- Conduct the usability test. This could involve observing participants using the website and asking them to think aloud so you can understand their thought process.
- Collect specific metrics and feedback during the usability test. This could include the time it takes participants to complete each task, the number of errors they make, their satisfaction ratings, and their comments and suggestions.
- Analyze the results to identify patterns and trends. This could involve calculating averages and percentages, creating visualizations, and categorizing qualitative feedback.

- The results of the usability test can be used to make improvements to the website's usability.

For example, if many participants struggled to find a product, the website's search function or categorization could be improved. If participants made many errors when completing a purchase, the checkout process could be simplified.

Question No. 3

Fitts's Law states that the time it takes to acquire a target is a function of the size of the target and the distance to the target. When designing a mobile game that involves tapping various marks on the screen, you can apply Fitts's Law principles to optimize the game's user interface in the following ways:

- **Target Size:** Increase the size of the targets that the users need to tap on. Larger targets are easier and faster to tap, which would make the game more enjoyable and accessible. However, striking a balance is essential, as huge marks may clutter the screen and make the game visually unappealing.
 - **Target Spacing:** Ensure there is adequate spacing between the targets. When targets are too close together, users may accidentally tap the wrong one, leading to frustration.
 - **Target Placement:** Place the targets within the natural reaching range of the thumb, especially for one-handed use. For two-handed use, distribute targets evenly across the screen to promote engagement of both hands.
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Question No. 4

To improve the user experience of its Electronic Health Record (EHR) system for healthcare professionals, a hospital can adopt a user-centered design approach. User-centered design involves understanding and addressing end users' needs, wants, and limitations at each stage of the design process.

The steps are as follows:

- **User Interviews:** Conduct in-depth interviews with the different user groups (doctors, nurses, and administrators). Ask about their experiences with the current EHR system, their needs, and the challenges they face. This will help you understand their workflows, usage patterns, and pain points.

- **Surveys and Questionnaires:** Use surveys and questionnaires to gather quantitative data from a larger group of users. This can provide statistical insights into user preferences and behaviors.
- **User Testing:** Observe users as they interact with the current EHR system. This can provide first-hand insights into usability issues and areas for improvement.
- **Prototyping and Iterative Testing:** Create wireframes and new EHR system design prototypes based on the feedback and insights gathered. Conduct iterative testing with users and refine the design based on their feedback.

Regarding the layout designs for different user groups, it's important to note that each group will have different needs and workflows. For example, doctors might need quick access to patient medical histories, nurses might need efficient scheduling and task management tools, and administrators might require robust reporting and administrative agencies.

Question No. 5

To ensure that users can easily understand and use the new live video content feature on a social networking platform, you can follow these design principles:

- **Simplicity:** Keep the interface as simple and intuitive as possible. Use familiar icons and terminology to reduce cognitive load. The more intuitive the interface, the easier it is for users to learn how to use the feature.
 - **Guided Tour:** Provide a guided tour or tutorial when users first encounter the new feature. This can help them understand how to create and share live video content.
 - **Feedback Mechanisms:** Implement precise feedback mechanisms, such as success messages or visual cues, to let users know when they've successfully started a live video or when viewers join or interact with their video.
 - **Consistency:** Ensure that the design of the live video feature is consistent with the rest of the platform. This includes using the same color scheme, typography, and design elements.
 - **User Testing:** Conduct user testing to identify potential usability issues before launching the feature. This could involve A/B testing different designs or conducting user interviews and surveys.
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