

UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

END OF SEMESTER EXAMINATIONS

DEPARTMENT : ICT

YEAR OF STUDY : TWO

SEMESTER : TWO

PROGRAMME : DIPLOMA IN COMPUTER SCIENCE

COURSE : GRAPHICAL USER INTERFACE

COURSE CODE : CSC 2203

DATE : 30/6/2024

TIME : 2:00 PM - 5:00PM

DURATION : 3 HOURS

INSTRUCTIONS:

- i) Section A is compulsory**
- ii) Attempt Any three (3) questions in section B**
- iii) All questions carry equal marks**
- iv) Credit will be given for use of relevant examples**
- v) Begin each section b number on a new page of the answer sheet**

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SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

Question 1

1. Which heuristic criterion relates to allowing users to undo and redo their actions easily?

- A. User control and freedom
- B. Error prevention
- C. Consistency and standards
- D. Flexibility and efficiency of use

2. How is A/B testing conducted?

- A. By developing a hypothesis and testing two variations of a web page or app against each other to see which performs better.
- B. By conducting surveys with two groups of users to gather feedback on different designs.
- C. By creating two completely different products and launching them in the market to see which one sells more.
- D. By analyzing the usability of a single design with two different user groups.

3. What is the function of the `echo` command in both Windows and Unix/Linux CLIs?

- A. To list files and directories
- B. To display a line of text or variables
- C. To move files and directories
- D. To delete files

4. What is one major disadvantage of using high fidelity prototypes?

- A. They are quick and inexpensive to create.
- B. They require more time and resources to develop.
- C. They are less effective in conveying basic ideas.
- D. They cannot be used for user testing.

5. Which of the following is a basic command used to change directories in a CLI?

- A. `cd`
- B. `mkdir`
- C. `ls`
- D. `rm`

6. Which of the following best describes a low fidelity prototype?

- A. A fully interactive, detailed simulation of the final product.
- B. A basic, rough representation of the product using simple sketches or wireframes.
- C. A digital mockup with high visual accuracy but no interactivity.
- D. A detailed, interactive version of the product using real content and data.

7. Why is 'visibility of system status' an important heuristic evaluation criterion?

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- A. It ensures that the system uses familiar terms and concepts.
 - B. It provides users with timely and appropriate feedback about what is happening in the system.
 - C. It ensures that users have the flexibility to perform actions in multiple ways.
 - D. It minimizes the amount of information that users need to remember.
8. **Which GUI element is typically used for entering text by the user?**
- A. Button
 - B. Label
 - C. Text box
 - D. Icon
9. **What is the difference between synchronous and asynchronous testing?**
- A. Synchronous testing involves users performing tasks at the same time, whereas asynchronous testing involves users performing tasks independently at different times.
 - B. Synchronous testing uses automated tools, while asynchronous testing relies on manual testing.
 - C. Synchronous testing focuses on real-time interaction, while asynchronous testing focuses on delayed feedback.
 - D. Synchronous testing is conducted in person, while asynchronous testing is conducted remotely.
10. **Which of the following is NOT one of Jakob Nielsen's heuristic evaluation criteria for usability?**
- A. Visibility of system status
 - B. Match between system and the real world
 - C. Consistency and standards
 - D. High fidelity in prototyping
11. **What is the primary goal of Human-Computer Interaction (HCI)?**
- A. To develop new computer hardware.
 - B. To understand how humans interact with computers and to design technology that fits human needs.
 - C. To create more complex user interfaces.
 - D. To increase the processing speed of computers.
12. **What is an 'icon' in a GUI?**
- A. A text input field
 - B. A small graphical representation of a program, file, or function
 - C. A command-line tool
 - D. A window that displays text
13. **Which of the following is a primary characteristic of a Graphical User Interface (GUI)?**
- A. Command-line interactions

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- B. Use of visual elements like windows, icons, and buttons
 - C. Speech-based interactions
 - D. Text-only displays
14. **What is a major advantage of Command Line Interfaces (CLI)?**
- A. Easier for novice users
 - B. More visually appealing
 - C. Faster for experienced users to execute complex commands
 - D. Requires less technical knowledge
15. **What is a primary disadvantage of a Voice User Interface (VUI)?**
- A. It cannot be used hands-free
 - B. It has a steep learning curve
 - C. It may struggle with accurately interpreting user input
 - D. It lacks visual feedback
16. **Which of the following is used to display non-editable text or information to the user in a GUI?**
- A. Text box
 - B. Label
 - C. Button
 - D. Icon
17. **Which of the following is the first phase of the Design Thinking process?**
- A. Ideate
 - B. Define
 - C. Prototype
 - D. Empathize
18. **During the Prototype phase of Design Thinking, what is typically created?**
- A. Final product
 - B. Detailed technical documentation
 - C. Low-fidelity models or mockups of the solution
 - D. Market analysis report
19. **Which GUI element provides users with options that they can select one at a time?**
- A. Checkbox
 - B. Radio button
 - C. Dropdown menu
 - D. Slider
20. **Which phase is crucial in both Task-Centered Design and User-Centered Design?**
- A. Prototyping

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- B. Marketing
- C. Coding
- D. Deployment

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 2

- a) Explain what is meant by command line User Interface (2 marks)
- b) Explain any **four** limitations of using Command line interfaces. (4 marks)
- c) You are tasked with developing a reservation system for a library management software using Visual Basic. The system aims to streamline the process of borrowing and returning books for library patrons. You are provided with the following requirements:
 - Users will input their library card number.
 - Users can select their preferred book category from options such as 'Fiction,' 'Non-Fiction,' or 'Reference.'
 - Users should have the option to specify the due date for the borrowed book using a date picker control.
 - The system should display the current availability status of the selected book.
 - Users must confirm the book checkout by clicking a button.

Create a paper mockup(s) of the book reservation system, incorporating the appropriate Visual Basic controls to fulfil the specified conditions. Ensure that the design is user-friendly, with meaningful labels and instructions to guide patrons through the book reservation process. (14 marks)

Question 3

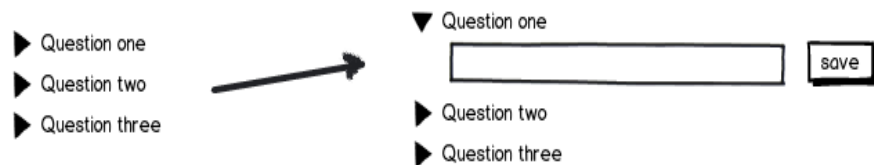
Three different interfaces are displayed below. The aim is to determine which interface offers the best user experience through A/B testing.

- Each interface allows users to answer one question at a time.
- Once answered, the response is displayed and can potentially be edited.

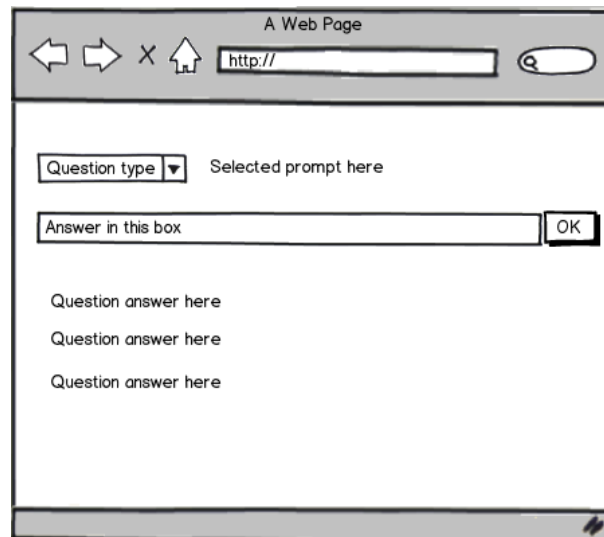
Assess each interface based on usability, ease of use, and overall user experience. (20 Marks)

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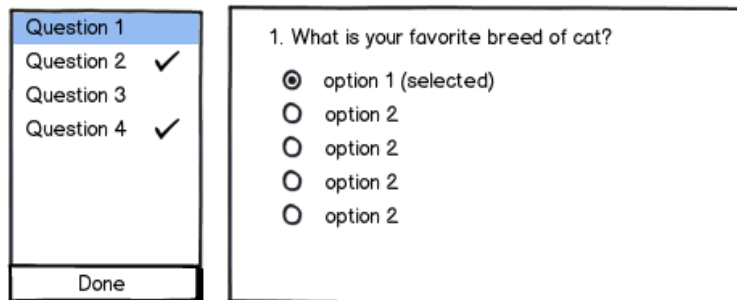
Interface 1:



Interface 2:



Interface 3:



Question 4

As a student studying Graphical User Interface (GUI) design, you are tasked with creating paper mockups for a Hostel Booking Mobile App. The app should help users search for and book hostel accommodation conveniently. Your mockups should include onboarding screens, sign up/login, a home screen with search functionality, search and filter options, detailed hostel information, a booking process, booking confirmation, and a user profile for managing personal information and booking history. Ensure your designs are clear, logical, not congested and include all necessary information.

Question 5

- Explain the difference between qualitative and quantitative usability testing methods
4 marks
- Describe how split testing works
4 marks

c) Explain the process of design thinking

12 marks

Question 6

The Electronic Fiscal Receipting and Invoicing Solution (EFRIS) is a system created by the Uganda Revenue Authority (URA) to make tax administration easier. EFRIS helps businesses issue invoices electronically, ensuring all transactions are recorded and reported instantly. Recently, traders in Kampala protested against EFRIS, arguing that it should not apply to small businesses but only to large suppliers and manufacturers.

As a student studying Graphical User Interface (GUI) design, you are tasked with creating paper mockups for a Receipt Scanner Mobile App. This app is intended for small businesses to capture receipts and upload them to the EFRIS server. Your mockups should not focus on what happens after the upload button is tapped.

Include the following screens and features in your mockups:

1. **Onboarding Screens:** Welcome and tutorial screens to help new users understand how to use the app.
2. **Phone Number Verification:** A screen where users verify their phone numbers to access the app.
3. **Home Screen:** An overview screen with access to different functions like scanning receipts, viewing recent receipts, and checking monthly statements.
4. **Scan Receipt Screen:** A screen where users can take photos of receipts to be uploaded to the EFRIS server.
5. **Recent Receipts:** A screen showing a list of recently scanned and uploaded receipts.
6. **Monthly Statements:** A screen displaying summaries of receipts and transactions for the current month.
7. **Additional Features:** Any other features you think would be helpful for small businesses using the app

20 marks

END