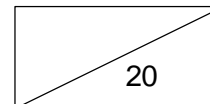


## Assignment 2: Interface Design



<b>Instructors:</b>	Madam Norhanim binti Selamat
<b>Duration:</b>	2 hours
<b>Tools/Software:</b>	Computer/Microsoft Word
<b>References:</b>	<ol style="list-style-type: none"> <li>Lecture note.</li> <li>Budgen, D. (2003) <i>Software Design</i>. 2nd Edition. Pearson Education Limited, Addison-Wesley. Call Number: QA76.76.D47 .B82 2003.</li> <li>Otero, Carlos E. (2012) <i>Software Engineering Design: Theory and Practice</i>. CRC Press. Taylor &amp; Francis Group. Call Number: QA76.758 .O83 2012.</li> <li>Any online/offline related sources.</li> </ol>
<b>Report</b>	<p><b>Part 1</b></p> <ol style="list-style-type: none"> <li>Report is done <b>individually</b>.</li> </ol> <p><b>Part 2</b></p> <ol style="list-style-type: none"> <li>The report is done <b>in a group of 4-5 students</b>.</li> </ol> <ul style="list-style-type: none"> <li>Students are not allowed to upload BIE20203 slide presentations or lab sheets to other websites or platforms.</li> <li>Please adhere the <b>Rules</b> and <b>Due date submission</b> stated.</li> </ul>
<b>ATTENTION!</b>	<b>NO MARKS FOR LATE SUBMISSION.</b>

**Task:** Do exercise during lab session. Read each of the questions carefully then answer it.

**MUHAMMAD LUQMAN BIN BAHRIN AI230278**

### Part 1

- Explain why it may be necessary to design the system architecture before the specifications are written.

Think of the architecture as the blueprint of a house. You wouldn't start installing light fixtures or painting rooms until you know where the walls, pipes and wiring go. In software, nailing down the big-picture structure what components you need, how they talk to each other, where data lives—lets you spot potential roadblocks (say, performance or security limits) before you get lost in the weeds. It also makes sure everyone's on the same page about what's possible, so your detailed specs don't end up clashing with the underlying platform or deployment plan.

2. Do you design software when you write a program? What makes software design different from coding?

-You do make choices in code—pick a sorting algorithm here, a particular data structure there—but true software design happens a layer up. It's about modeling the system: mapping out modules and their interfaces, thinking about how loosely or tightly coupled they'll be, weighing different approaches against your requirements. Writing code is translating one chosen path into syntax and handling low-level details like error cases and memory handling. Design asks "What are the pieces and how do they fit?" while coding asks "How do I make that happen in Java, Dart, PHP or whatever language I'm using?"

3. Based on the statement in Figure 1, answer the following questions.

High school students can watch video courses, take quizzes, and monitor their progress in a variety of disciplines with LearnMate, an e-learning platform. Despite the app's extensive instructional content, user reviews frequently pointed out that changing between courses and course modules was confusing.

- The navigation menus in the "Math," "Science," and "English" portions of the program operated and appeared differently.
- The locations of the buttons and icons differed between modules, according to feedback from teachers and students.
- Many Users thought they had left the program since the color themes changed between courses.
- Each course has a different quiz format and feedback style.

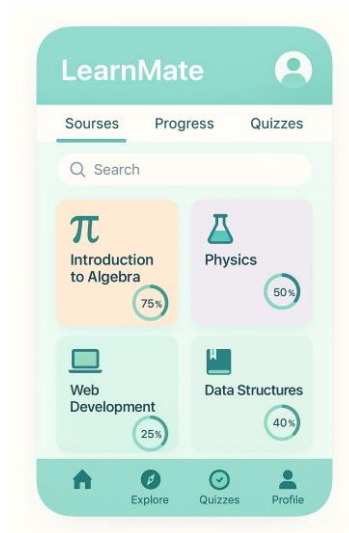
a) Why is consistency important in UI design?

When buttons, colors and layouts behave predictably, learners don't waste time relearning how each screen works. They build a mental model and can focus on the content instead of hunting for the next button.

b) Determine **FOUR (4)** types of consistency applied in UI design.

- **Visual consistency** such as same colors, fonts, icons.
- **Functional consistency** which means same actions behave similarly.
- **Internal consistency** which is within the app or the system.
- **External consistency** which basically means that it matches with other familiar systems.

c) Design a new version of the home screen to improve users understanding their e-learning platform.



4. Consider one of the following interactive applications:

- A desktop publishing system
- A word processing system
- A library management system

Develop a user model, design model, mental model, and an implementation model, for **ONE (1)** of these systems.

Library management System

Model Type	Explanation
User Model	Who's using the app and why students who want to jump straight back into their lesson, librarians of content recommending next steps, and so on.

Design Model	The blueprints for developers wireframes of screens, use-case diagrams for checkout or progress tracking, data-flow sketches showing how user searches hit the server and come back.
Mental model	What users expect a search bar at the top, results listed by relevance, a clear “Check Out” button next to available items. If your app breaks those expectations, they'll get confused.
Implementation	The actual code-level setup an MVC structure with a JavaFX front end, a service layer handling the rules (due dates, availability), and a MySQL database holding books, members and transactions.

5. Define interface objects and actions for the application you have chosen in **Q3**. Identify each object type.

Interface Object	Type	Action
Header bar	Container / Display	Visually anchors the top of the screen; groups title and profile icon
App title (“LearnMate”)	Display object	Brand identity; non-interactive
Profile icon (top-right)	Navigation object	Tapping opens the user’s Profile & Settings screen
Tab items (“Courses”, “Progress”, “Quizzes”)	Selection object	Tapping switches the main content pane between the three views
Search field	Input object	Lets the user type to filter the visible course cards in real time
Course card	Selection/display object	Displays course icon, title and progress; tap anywhere on the card to enter it
Progress ring (donut) on each card	Display object	Visualizes percent complete for that course; non-interactive
Bottom nav icons (“Home”, “Explore”, “Quizzes”, “Profile”)	Navigation object	Tapping jumps to the corresponding main area of the app



### Rubric Psychomotor CLO 2

Domain of learning	Item	Marks
P1	1. Able to describe a problem solving correctly.	/4
P2	2. Able to develop a report as required.	/5
P3	3. Able to use appropriate methodology to explain the computer problem solving.	/6
<b>Total</b>		<b>/15</b>

### Rubric Affective CLO 3

Domain of learning	Item	Marks
A3	1. Shows the ability to solve problems given	/3
A4	2. Able to analyze and design computer problem solving using selected methodology.	/2
<b>Total</b>		<b>/5</b>