VIT
Vellore Institute of Technology
CHENNAI

Reg. Number:	

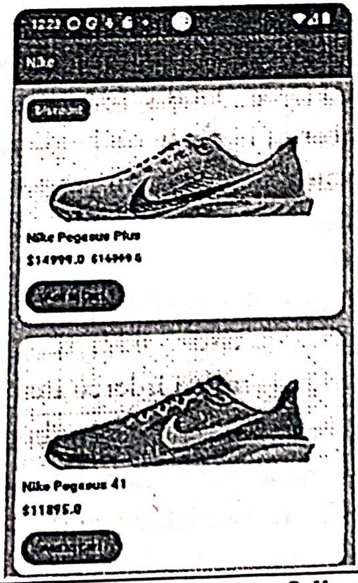
Continuous Assessment Test (CAT) – II – MAR 2025

Programme	:	MCA	Semester	WINTER 2024-25
Course Code & Course Title	:	**PMCA603L** **Mobile Application Design and Development**	Class Number	CH2024250501742
Faculty	:	**Dr. Christy Jackson J**	Slot	C1+TC1
Duration	:	90 mins	Max. Mark	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use scale and pencil, draw diagrams and give illustrations whenever necessary

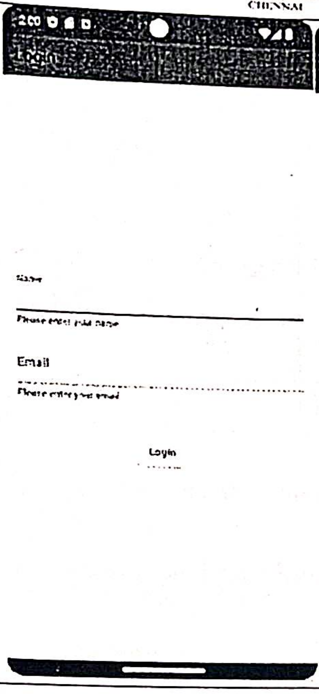
Answer all questions

Q. No	Description	Marks
1	Your task is to design a reusable ProductCard widget that effectively displays product details such as the product name, product price, product image, and an "Add to Cart" button. The implementation should focus on ensuring modularity and reusability. Additionally, analyse and explain how the widget can be enhanced to include a badge indicating "Out of Stock" status and a discount label for products with discounted prices. Provide the complete code for the widget along with a clear description of the modifications required to implement these new features. Following are sample output images of the ideal Product Card which is expected.  Nike Nike Pegasus Plus $14999.0 $14999.6 Nike Pegasus 41 $11895.0	10
2	Design a Flutter application that adheres to the following theme requirements: The primary color should be Teal, the card background color should be Light Grey, and the text color should automatically adjust to ensure proper contrast and visibility. As part of the task, you are required to: a. Apply your knowledge of Flutter's ThemeData to implement the specified theme structure.	10

	b. Analyze potential challenges developers may face when maintaining consistent theme implementation across multiple screens.	
3	You are tasked with designing a Navigation App that manages different vehicle types and their properties efficiently. The app requires an enhanced enum called VehicleType with the following attributes: • maxSpeed (int) — Maximum speed the vehicle can achieve. • fuelEfficiency (double) — Fuel consumption rate (km per liter). • vehicleCategory (String) — Category of the vehicle such as Heavy, Light, or Compact. Implement the enhanced enum with sample vehicle types such as Car, Truck, and Bike. Evaluate the benefits of using an enhanced enum over traditional conditional statements, focusing on improved code maintainability, reduced redundancy, and enhanced readability. **A sample output is given below** Vehicle: Car, Max Speed: 200 km/h, Fuel Efficiency: 15.0 km/L, Category: VehicleCategory.Light Vehicle: Truck, Max Speed: 120 km/h, Fuel Efficiency: 6.0 km/L, Category: VehicleCategory.Heavy Vehicle: Bike, Max Speed: 180 km/h, Fuel Efficiency: 40.0 km/L, Category: VehicleCategory.Compact Selected Vehicle: Car Max Speed: 200 km/h Fuel Efficiency: 15.0 km/L Category: VehicleCategory.Light	10

4	You are tasked with implementing a solution for managing customer orders in a **Food Delivery App**. The customer orders are stored in a structured format as shown below:
	{
	"Order_001": {"Pizza": 2, "Burger": 1, "Pasta": 3},
	"Order_002": {"Pizza": 1, "Sandwich": 2}
	}
	Your task is to:
	• **Implement** a class called OrderDetails that utilizes **getters** to:
	• **Calculate** the total number of items in each order.
	• **Identify** the most frequently ordered item across all orders.
	• Compare getters and functions in terms of memory usage, execution speed, and ease of debugging in Dart.
	Sample output is given below
	Total Items Per Order: {Order_001: 6, Order_002: 3}
	Most Frequently Ordered Item: Pasta
		10

5	You are tasked with designing a **User Profile App** that incorporates essential user input and navigation functionality. The app should fulfil the following requirements: • **Implement a Login Screen** that collects the user's **name** and **email** using text fields. Ensure both fields are validated using Flutter's **Form Validation** to prevent submission of incomplete or invalid data. • **Develop a Profile Screen** that displays the user's details upon successful submission. Use **Named Routes** for navigation to improve code organization and scalability.	10



2:00

Login

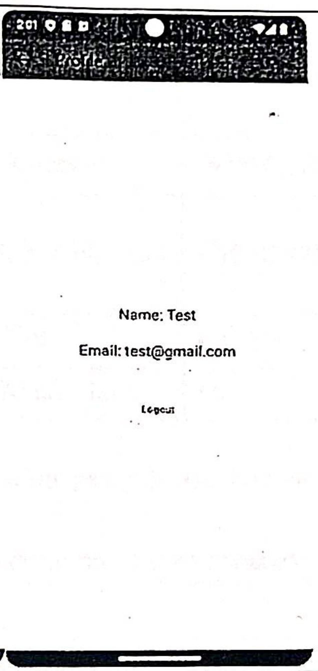
Name

Please enter your name

Email

Please enter your email

Login



2:01

Profile

Name: Test

Email: test@gmail.com

Logout