## Learning outcomes covered

LO1: Explain the fundamentals of Object-Oriented Programming concepts

LO2: Design Object-Oriented based applications

LO3: Develop Object-Oriented applications

## Scenario and the Task

**"Apple iStore"** planning to automate stock details of their latest product range. They are providing variety of Apple products, selling in different range and category. (iPhone, Apple Watch, iPad, AirPods, Mac etc)

**User levels and functionalities of Smart Phone Lab as follows**

**Cashier**

1. View all the product details
2. Search for stock details of different product
3. Search product details based on category, Name, Price etc

**Manager**: (can perform all the functionality as cashier plus the following)

1. Create a new account (can have different account types, ex: Cashier)
2. Add new products for different range and category

***You are required to apply OOP concepts for the above scenario. Data need to be saved and retrieved from a database***

**Part A: Report**

**Task 1**.Provide design solution (UML diagrams) for the above mention Scenario. Provide clear explanation for all the diagrams mentioned below. (Provide assumptions if necessary)

**(30 marks) (LO2)**

1. **UML diagrams**
    a. Use case Diagram
    b. Class Diagram
2. **ER Diagram**

**Task 2:** Develop a suitable system for the above scenario based on the design. Required to use Object Oriented concepts (Object, Class, Abstraction, Inheritance, Encapsulation and Polymorphism) for the development. Document the main functionalities and Object Oriented concepts applied with proper explanation and source code. **(Marks 20) (LO1, LO3)**

**Task 3:** Provide a user manual for the developed solution **(Marks 10) (LO3)**

**Guidelines for the report format**

Paper A4

Margins 1.5" left, 1" right, top and bottom

Page numbers – bottom, right

Line spacing 1.5

Font

Headings 14pt, Bold

Normal 12pt

Font face- Times New Roman

**Part B: Demonstration**

**Task 4:** System demonstration. System should work according to the expected functionalities. Should be able to demonstrate Object Oriented concepts (Object, Class, Abstraction, Inheritance, Encapsulation, and Polymorphism) applied to the given scenario. **(Marks 40) (LO1, LO3)**

**Submission Details**

**Any assessments submitted after the deadline will not be marked and will be recorded as a Non-Attempt.**

Report must be submitted to the as a MS word file.

**You must submit a .zip file. It must contain** report with project files (contain all the project elements)

Your .zip should be titled with your Student ID Number.