

United International University

CSE 1116 - Coding Test 2 - Set B

Write your name and ID on the question paper. Marks are on the right. Return question.

Q1. Online Learning Platform (20 Marks)

An e-learning company wants to model its platform using abstraction and interfaces.

Requirements

1. **Interface: Enrollable [5]**
 - Method: void enroll(String courseName)
 - Method: void drop(String courseName)
2. **Abstract Class: User [5]**
 - Fields: String username, String email
 - Constructor: (String username, String email)
 - Method: abstract void showProfile()
3. **Class: Student subclass of User and uses Enrollable [5]**
 - Field: int completedCourses
 - Implement methods to print enrollment/drop messages (e.g. Enrolled to the given course etc.)
 - Override showProfile() → show name, email, and completed courses
 - Add void completeCourse() → increment completedCourses
4. **Main Class: LearningApp [5]**
 - Create 2 objects of Student
 - Demonstrate: enrolling, dropping, completing courses
 - Call showProfile() after each operation to show the changes

Q2. Online Order Processing (10 Marks)

Simulate a simple online order system that demonstrates exception handling.

Requirements

1. **Class: InvalidQuantityException** (user-defined, unchecked) [2]
 - Extend RuntimeException
 - Constructor: (String message)
2. **Class: Order** [5]
 - Fields: String item, int quantity, double pricePerItem
 - Constructor: (String item, int quantity, double pricePerItem)
 - Method:
 - double calculateTotal()
 - If quantity ≤ 0 , throw InvalidQuantityException
 - Return total = quantity * pricePerItem
 - void checkItemPrice(double price)
 - If price ≤ 0 , throw Exception
 - Else print a message that price is valid
3. **Main Class: OrderApp** [3]
 - Create 2 Order objects with both valid and invalid quantities
 - Call the calculateTotal() methods
 - Call the checkItemPrice() method with valid and invalid price
 - Handle exceptions gracefully using try-catch for the above code
 - Add a finally block that prints "Order processed."