

OOPS,Collection,Exception Handling Assessment

Sure, here's a practical set of questions based on a shopping cart scenario, focusing on object-oriented programming principles, collections, and exception handling in C#:

1. Define a class for an item in the shopping cart. Include properties for the item name, price, and quantity. Implement proper encapsulation. (5 marks)
2. Create a ShoppingCart class that uses a collection to store items. Include methods to add items to the cart, remove items, and calculate the total price of all items in the cart. (8 marks)
3. Implement a method in the ShoppingCart class that handles the scenario where a user tries to remove an item that is not in the cart. Use exception handling to deal with this situation. (4 marks)
4. Extend the ShoppingCart class to include a method that applies a discount to the total price. The discount should be specified as a percentage. Ensure that the discount is applied correctly and that the total price cannot be negative. (7 marks)

5. Create a Console Application that allows users to interact with the shopping cart. Provide options to add items, remove items, apply a discount, and display the total price. Handle user input and any potential exceptions gracefully. (6 marks)

These questions cover various aspects of object-oriented programming, including encapsulation, inheritance, and polymorphism, as well as the use of collections and exception handling in C#. They assess the ability to design and implement practical solutions to real-world scenarios.