



## **Software Engineer Trainee 2023 – Task**

**Instruction: You must complete the task below and present it during the interview session if asked.**

### **Question:**

Suppose we are building an online shopping system, where customers can browse and purchase products. We need to model the different components of the system using Object-Oriented Programming (OOP) principles. The components are:

Product: each product has a name, price, and description.

Shopping Cart: a customer can add multiple products to their shopping cart, which can be reviewed and edited before checkout. The shopping cart also displays the total cost of all the items.

Order: after checkout, an order is created, which includes the list of products and the total cost.

Order Details: an order can have multiple order details, each representing a product from the order and its quantity.

The goal is to design and implement these components in a way that follows OOP principles, such as encapsulation, abstraction, inheritance, and polymorphism, as appropriate. The implementation should also be easy to maintain and extend in the future.

The expected output of the problem is a program that implements these components in a way that meets these requirements.