# Practice Problem Inheritance

## **Shape Area Calculator**

A program needs to calculate the area of different shapes. Each shape has a **name**, and different shapes have different ways to calculate their area.

* **Circle**: Area = π × radius²
* **Rectangle**: Area = width × height
* **Triangle**: Area = 0.5 × base × height

Write a program that allows the user to create different shapes and calculate their areas.

**Example Input:**

circle = Circle (5)

rectangle = Rectangle (4, 6)

triangle = Triangle (3, 8)

print(circle.area())

print(rectangle.area())

print(triangle.area())

**Example Output:**

78.54

24

12

## **Employee Management System**

A company maintains records of its employees. Each employee has a **name, employee ID, and salary**. The company has two types of employees:

* **Full-Time Employees** are paid a fixed monthly salary.
* **Contract Employees** are paid per project they complete.

Write a program to calculate the total salary paid to each employee.

### ****Example Input:****

e1 = FullTimeEmployee("Alice", 101, 5000)

e2 = ContractEmployee("Bob", 102, 2000, 3) # Paid per project, completed 3 projects

print(e1.calculate\_salary())

print(e2.calculate\_salary())

### ****Example Output:****

5000

6000

## **Online Shopping System:**

An online store sells products, and customers can add items to their cart. Each product has a **name, price, and stock quantity**. When a customer places an order, the system should:

1. Calculate the total cost.
2. Reduce the stock of purchased items.

Write a program that allows customers to add items to their cart and place an order.

### ****Example Input:****

p1 = Product("Laptop", 1000, 5)

p2 = Product("Phone", 500, 10)

customer = Customer("John")

customer.add\_to\_cart(p1, 2)

customer.add\_to\_cart(p2, 1)

print(customer.checkout())

print(p1.stock)

print(p2.stock)

### ****Example Output:****

Total cost: $2500

3

9