Task-1

Code:

```
public class Product {
   protected  int id;
   protected String title;
   protected int price;
   public Product(int id, String title,int price){
           this.id=id;
           this.title=title;
           this.price=price;
   }

   public String get_id_title_price(){
       return (
               "ID:"
                       + String.valueOf(this.id)
                       + " Title:"
                       + this.title
                       + " Price:"
                       + String.valueOf(this.price)
       );
   }
}
class Book extends Product{

   public Book(){
     //complete this method
   }

   public String printDetail(){
     //complete this method
   }
}

class CD extends Product{
     public CD(){
     //complete this method

     }
```

```
    public String printDetail(){
     //complete this method
    }
}
```

Tester:

```
public class ProductTester {
   public static void main(String[] args) {
       Book book = new Book(1, "The Alchemist", 500, 97806,
"HarperCollins");
       System.out.println(book.printDetail());
       System.out.println("======================");
       CD cd =new CD(2, "Shotto", 300, "Warfaze", 50, "Hard
Rock");
       System.out.println(cd.printDetail());
       System.out.println("======================");
   }
}
```

Output:

ID: 1 Title: The Alchemist Price: 500
ISBN: 97806 Publisher: HarperCollins
==========
ID: 2 Title: Shotto Price: 300
Band: Warfaze Duration: 50 minutes Genre: Hard Rock
==========

Task-2

Code:

```
public class Football {
   protected  String name;
   protected String team_name;
   protected String role;

   int earning_per_match=0;
   public Football(String team_name,String name, String role){
       this.team_name=team_name;
       this.name=name;
       this.role=role;
       this.earning_per_match=0;
   }

   public String get_name_team(){
       return "Name: "+this.name+", Team Name: "+this.team_name;
   }
}

class Player extends Football{

   public Player(){
       //complete this method
   }

   public void calculate_ratio(){
      //complete this method
   }


   public void print_details(){
       //complete this method
   }
}
```

Tester:

```
public class FootballTester {
   public static void main(String[] args) {

       Player player_one = new Player("Al-Nassr", "Ronaldo",
"Striker", 25, 32);
       player_one.calculate_ratio();
       player_one.print_details();
       System.out.println("========================");

   }
}
```

Output:

Name: Ronaldo, Team Name: Al-Nassr
Team Role: Striker
Total Goal: 25
Goal Ratio: 0
Match Earnings: 25320
==========

Task-3

Code:

```
class Vehicle {

   protected String brand;
   protected int speed;

   public Vehicle(String brand, int speed) {
       this.brand = brand;
       this.speed = speed;
   }


   public void displayInfo() {
       System.out.println("Brand: " + brand);
       System.out.println("Speed: " + speed + " km/h");
   }


   public void start() {
       System.out.println("Vehicle started.");
   }
}


class Car extends Vehicle {
   private int numberOfDoors;

   // Constructor
   public Car() {
     //complete this method
   }

   public void honk() {
      //complete this method
   }
```

```
    public void displayInfo() {
        //complete this method
    }
}

// Subclass Bike inheriting from Vehicle
class Bike extends Vehicle {
    private boolean hasCarrier;

    // Constructor
    public Bike() {
      //complete this method
    }

    public void ringBell() {
        //complete this method
    }

    public void displayInfo() {
        //complete this method
    }
}
```

Tester:

```
public class VehicleTester {
    public static void main(String[] args) {
        // Create a Car object
        Car myCar = new Car("Toyota", 180, 4);
        System.out.println("Car details:");
        myCar.displayInfo();
        myCar.start();
        myCar.honk();

        System.out.println();
```

```
        // Create a Bike object
        Bike myBike = new Bike("Yamaha", 80, true);
        System.out.println("Bike details:");
        myBike.displayInfo();
        myBike.start();
        myBike.ringBell();
    }
}
```

Output:

Car details:
Brand: Toyota
Speed: 180 km/h
Number of doors: 4
Vehicle started.
Car horn: Beep beep!

Bike details:
Brand: Yamaha
Speed: 80 km/h
Has carrier: Yes
Vehicle started.
Bike bell: Ring ring!