

Assignment-3

Total marks=10x5=40

No Plagiarisms will be accepted.

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1. Write a Java program to create a class called Employee with methods called work() and getSalary(). Create a subclass called HRManager that overrides the work() method and adds a new method called addEmployee().
2. Write a Java program to create a class known as Person with methods called getFirstName() and getLastName(). Create a subclass called Employee that adds a new method named getEmployeeId() and overrides the getLastName() method to include the employee's job title.
3. Write a Java program to create a vehicle class hierarchy. The base class should be Vehicle, with subclasses Truck, Car and Motorcycle. Each subclass should have properties such as make, model, year, and fuel type. Implement methods for calculating fuel efficiency, distance traveled, and maximum speed.
4. Write a Java program to create an abstract class Employee with abstract methods calculateSalary() and displayInfo(). Create subclasses Manager and Programmer that extend the Employee class and implement the respective methods to calculate salary and display information for each role.
5. Write a Java program to create an abstract class GeometricShape with abstract methods area() and perimeter(). Create subclasses Triangle and Square that extend the GeometricShape class and implement the respective methods to calculate the area and perimeter of each shape.
6. Write a Java program to create an interface Playable with a method play() that takes no arguments and returns void. Create three classes Football, Volleyball, and Basketball that implement the Playable interface and override the play() method to play the respective sports.
7. Write a java program to implement multiple inheritance through interface.

8. Write a Java program to create a class called Car with private instance variables company_name, model_name, year, and mileage. Provide public getter and setter methods to access and modify the company_name, model_name, and year variables. However, only provide a getter method for the mileage variable.

9. Write a Java program to create a class called Student with private instance variables student_id, student_name, and grades. Provide public getter and setter methods to access and modify the student_id and student_name variables. However, provide a method called addGrade() that allows adding a grade to the grades variable while performing additional validation.

10. Write a Java program to create a base class Shape with methods draw() and calculateArea(). Create three subclasses: Circle, Square, and Triangle. Override the draw() method in each subclass to draw the respective shape, and override the calculateArea() method to calculate and return the area of each shape.