1.**Write a Java program to calculate the final grade of a student based on their scores in assignments, midterm, and final exam.**

Variables: String studentName, int assignmentScore, int midtermScore, int finalExamScore, String finalGrade

Test case

// Input

studentName = "Alice";

assignmentScore = 85;

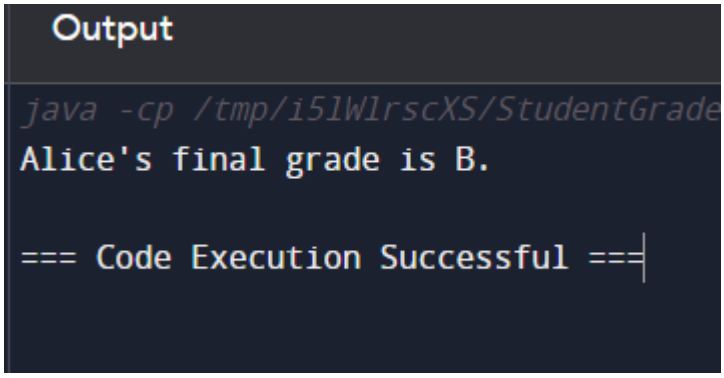
midtermScore = 78;

finalExamScore = 92;

// Expected Output: Alice's final grade is B.

```
public class StudentGradeCalculator {
    public static void main(String[] args) {
        String studentName = "Alice";
        int assignmentScore = 85;
        int midtermScore = 78;
        int finalExamScore = 92;

        String finalGrade = calculateFinalGrade(assignmentScore, midtermScore, finalExamScore);

        System.out.println(studentName + "'s final grade is " + finalGrade + ".");
    }

    public static String calculateFinalGrade(int assignmentScore, int midtermScore, int finalExamScore)
{
        double totalScore = (assignmentScore * 0.2) + (midtermScore * 0.3) + (finalExamScore * 0.5);

        if (totalScore >= 90) {
            return "A";
        } else if (totalScore >= 80) {
```

```
            return "B";
        } else if (totalScore >= 70) {
            return "C";
        } else if (totalScore >= 60) {
            return "D";
        } else {
            return "F";
        }
    }
}
```



Write a Java program to calculate the mileage of a car given the distance traveled and fuel consumed.

Variables: String carModel, double distanceTraveled, double fuelConsumed, double mileage

Test Case:

// Input

carModel = "Toyota Camry";

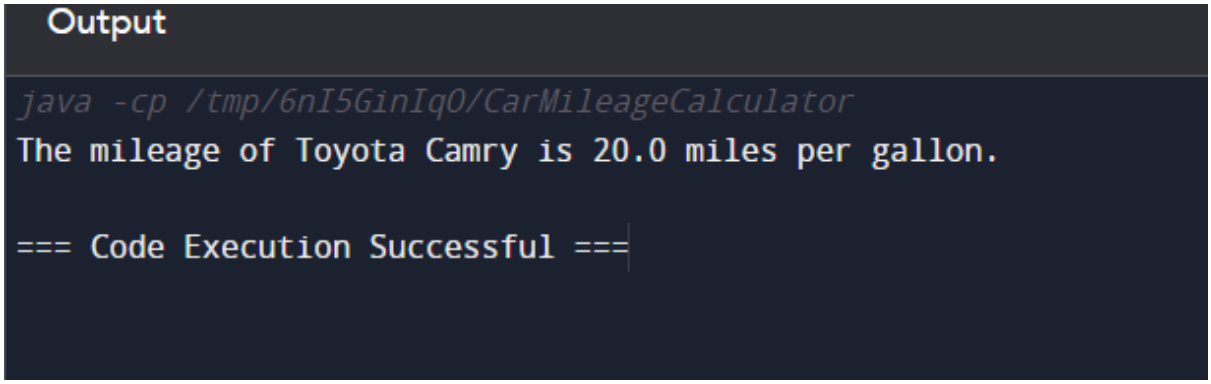
distanceTraveled = 300;

fuelConsumed = 15;

// Expected Output: The mileage of Toyota Camry is 20.0 miles per gallon.

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

```
        String carModel = "Toyota Camry";
        double distanceTraveled = 300;
        double fuelConsumed = 15;

        double mileage = calculateMileage(distanceTraveled, fuelConsumed);

        System.out.println("The mileage of " + carModel + " is " + mileage + " miles per gallon.");
    }

    public static double calculateMileage(double distanceTraveled, double fuelConsumed) {
        if (fuelConsumed == 0) {
            return 0;
        } else {
            return distanceTraveled / fuelConsumed;
        }
    }
}
```



Write a Java program to calculate the fine for overdue books in a library. The fine is calculated based on the number of days overdue.

Variables: String bookTitle, int daysOverdue, double finePerDay, double totalFine

Test Case:

// Input

bookTitle = "Harry Potter";

daysOverdue = 5;

finePerDay = 0.50;

// Expected Output: The fine for Harry Potter is $2.50.

```
public class LibraryFineCalculator {
    public static void main(String[] args) {
        String bookTitle = "Harry Potter";
        int daysOverdue = 5;
        double finePerDay = 0.50;

        double totalFine = calculateFine(daysOverdue, finePerDay);

        System.out.println("The fine for " + bookTitle + " is $" + totalFine + ".");
    }

    public static double calculateFine(int daysOverdue, double finePerDay) {
        return daysOverdue * finePerDay;
    }
}
```