

# Rajalakshmi Engineering College

Name: Kiruthick SM

Email: 240701263@rajalakshmi.edu.in

Roll no: 240701263

Phone: 8122868914

Branch: REC

Department: CSE - Section 4

Batch: 2028

Degree: B.E - CSE

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 2\_Q4

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Amit wants to evaluate the depreciation of his car over time to understand its current value and categorize it based on that value.

Write a program that helps him determine the current value of his car after a certain number of years of depreciation and classify it into one of three categories:

High: If the current value is greater than 10,000.  
Medium: If the current value is between 5,000 and 10,000, both inclusive.  
Low: If the current value is less than 5,000.

The depreciation rate of the car is 15% per year. The program should calculate the current value of the car after applying this depreciation over the given number of years and print the current value along with the category.

### ***Input Format***

The first line of input consists of an integer, representing the initial cost of the car.

The second line consists of an integer, representing the number of years the car has been depreciating.

### ***Output Format***

The first line of output prints a double value, representing the current value of the car, rounded off to two decimal places "Current Value: <value>".

The second line prints its category "Category: <categories>".

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 20000

5

Output: Current Value: 8874.11

Category: Medium

### ***Answer***

```
import java.math.BigDecimal;
import java.math.RoundingMode;
import java.util.Scanner;

class CarDepreciation {
    private static final BigDecimal DEPRECIATION_RATE = new BigDecimal("0.15");
    private static final BigDecimal ONE = BigDecimal.ONE;
    private static final BigDecimal TEN_THOUSAND = new BigDecimal("10000");
    private static final BigDecimal FIVE_THOUSAND = new BigDecimal("5000");
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        BigDecimal initialCost = new BigDecimal(sc.nextLine().trim());
        int age = Integer.parseInt(sc.nextLine().trim());
        BigDecimal factor = ONE.subtract(DEPRECIATION_RATE).pow(age);
        BigDecimal currentValue = initialCost.multiply(factor);
        currentValue = currentValue.setScale(2, RoundingMode.HALF_UP);
```

```
String category;
if (currentValue.compareTo(TEN_THOUSAND) > 0) {
    category = "High";
} else if (currentValue.compareTo(FIVE_THOUSAND) >= 0 &&
currentValue.compareTo(TEN_THOUSAND) <= 0) {
    category = "Medium";
} else {
    category = "Low";
}
System.out.println("Current Value: " + currentValue);
System.out.println("Category: " + category);

sc.close();
}
}
```

**Status :** Correct

**Marks :** 10/10