# Rajalakshmi Engineering College

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## 2024_28_III_OOPS Using Java Lab

## 2028_REC_OOPS using Java_Week 5_Q4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

## Section 1 : Coding

1.   Problem Statement

You are working as a developer for CityCab, a taxi service company that wants to build a ride fare management system.

Each customer booking has:

A Booking ID (integer)A Customer Name (string)A Distance Travelled in km (double)

The fare calculation rules are:

Base Fare = 50 units (flat charge for every ride).Per km charge = 10 units/ km.If the distance is greater than 20 km, a 10% discount is applied on the total fare.

You are required to implement this system using:

A class with attributes for booking details. A constructor to initialize booking details. Setter methods to update details if needed. Getter methods to retrieve details. Objects of the class to represent customer rides.

Finally, display each booking's details and final fare.

*Input Format*

The first line of input contains an integer N, representing the number of bookings.

For each booking:

- The next line contains the booking ID (integer).
- The following line contains the customer's name (string).
- The next line contains the distance travelled (double).

*Output Format*

For each booking, print the details in the following format:

1. Booking ID: <booking_id>
2. Customer Name: <customer_name>
3. Final Fare: <final_fare> (rounded to one decimal place)

Refer to the sample output for formatting specifications.

*Sample Test Case*

Input: 1
1234
Rahul Sharma
15

Output: Booking ID: 1234
Customer Name: Rahul Sharma
Final Fare: 200.0

*Answer*

import java.util.Scanner;
import java.text.DecimalFormat;

```java
class Booking {
    private int bookingId;
    private String customerName;
    private double distanceTravelled;

    private static final double BASE_FARE = 50.0;
    private static final double PER_KM_CHARGE = 10.0;
    private static final double DISCOUNT_THRESHOLD = 20.0;
    private static final double DISCOUNT_RATE = 0.10;

    public Booking(int bookingId, String customerName, double distanceTravelled)
    {
        this.bookingId = bookingId;
        this.customerName = customerName;
        this.distanceTravelled = distanceTravelled;
    }

    public int getBookingId() {
        return bookingId;
    }

    public String getCustomerName() {
        return customerName;
    }

    public double getDistanceTravelled() {
        return distanceTravelled;
    }

    public void setBookingId(int bookingId) {
        this.bookingId = bookingId;
    }

    public void setCustomerName(String customerName) {
        this.customerName = customerName;
    }

    public void setDistanceTravelled(double distanceTravelled) {
        this.distanceTravelled = distanceTravelled;
    }

    public double calculateFinalFare() {
```

```java
        double totalFare = BASE_FARE + (distanceTravelled * PER_KM_CHARGE);

        if (distanceTravelled > DISCOUNT_THRESHOLD) {
            totalFare = totalFare - (totalFare * DISCOUNT_RATE);
        }

        return totalFare;
    }

    public void displayBookingDetails() {
        double finalFare = calculateFinalFare();
        DecimalFormat df = new DecimalFormat("#0.0");

        System.out.println("Booking ID: " + bookingId);
        System.out.println("Customer Name: " + customerName);
        System.out.println("Final Fare: " + df.format(finalFare));
        System.out.println();
    }
}

class CityCabFareSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        int n = scanner.nextInt();

        Booking[] bookings = new Booking[n];

        for (int i = 0; i < n; i++) {
            int bookingId = scanner.nextInt();
            scanner.nextLine();
            String customerName = scanner.nextLine();
            double distanceTravelled = scanner.nextDouble();

            bookings[i] = new Booking(bookingId, customerName, distanceTravelled);
        }

        for (int i = 0; i < n; i++) {
            bookings[i].displayBookingDetails();
        }

        scanner.close();
```

```
        }
    }
```

**Status :** <span style="color:green">Correct</span>                                                                      **Marks : 10/10**