

# Rajalakshmi Engineering College

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

### 2028\_REC\_OOPS using Java\_Week 10\_Q1

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : COD

##### 1. Problem Statement

A city traffic management system needs to track vehicles entering a toll booth. Each vehicle is uniquely identified by its registration number. The system should allow adding vehicles to a record, ensuring that no duplicate registration numbers exist. The vehicles should be stored in a HashSet, which does not guarantee any specific order.

Your task is to implement a program using a HashSet that allows adding vehicle details and displaying the records.

##### ***Input Format***

The first line of input contains an integer N - the number of vehicles.

The next N lines contain details of each vehicle in the format: "RegNumber

OwnerName VehicleType"

1. RegNumber (String) - A unique registration number (Alphanumeric).
2. OwnerName (String) - The name of the vehicle owner.
3. VehicleType (String, Car, Bike, or Truck) - The type of vehicle.

If a vehicle with the same registration number is already present, ignore the duplicate entry.

### **Output Format**

The output prints the unique vehicle records in any order (since HashSet does not maintain order).

Output format: "RegNumber OwnerName VehicleType"

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 5

KA01AB1234 John Car

MH02CD5678 Alice Bike

DL03EF9012 Bob Truck

TN04GH3456 Mike Car

KA01AB1234 John Car

Output: TN04GH3456 Mike Car

KA01AB1234 John Car

MH02CD5678 Alice Bike

DL03EF9012 Bob Truck

### **Answer**

```
import java.util.HashSet;
```

```
import java.util.Scanner;
```

```
import java.util.Objects;
```

```
class Vehicle {
```

```
    private String regNumber;
```

```
    private String ownerName;
```

```
    private String vehicleType;
```

```
public Vehicle(String regNumber, String ownerName, String vehicleType) {
    this.regNumber = regNumber;
    this.ownerName = ownerName;
    this.vehicleType = vehicleType;
}
```

```
public String getRegNumber() {
    return regNumber;
}
```

```
@Override
public boolean equals(Object obj) {
    if (this == obj) return true;
    if (!(obj instanceof Vehicle)) return false;
    Vehicle other = (Vehicle) obj;
    return regNumber.equals(other.regNumber);
}
```

```
@Override
public int hashCode() {
    return Objects.hash(regNumber);
}
```

```
@Override
public String toString() {
    return regNumber + " " + ownerName + " " + vehicleType;
}
```

```
}
class TollBoothSystem {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        sc.nextLine();
```

```
        HashSet<Vehicle> vehicles = new HashSet<>();
```

```
        for (int i = 0; i < n; i++) {
            String line = sc.nextLine();
            String[] parts = line.split(" ", 3);
            String regNumber = parts[0];
            String ownerName = parts[1];
            String vehicleType = parts[2];
```

```
        Vehicle vehicle = new Vehicle(regNumber, ownerName, vehicleType);
        vehicles.add(vehicle);
    }

    for (Vehicle v : vehicles) {
        System.out.println(v);
    }

    sc.close();
}
}
```

**Status :** Correct

**Marks : 10/10**