

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE

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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.*;  
class Vehicle {  
    String regNumber;  
    String ownerName;  
    String vehicleType;  
    private static HashSet<Vehicle> vehicleSet = new HashSet<>();  
    public Vehicle(String regNumber, String ownerName, String vehicleType) {  
        this.regNumber = regNumber;  
        this.ownerName = ownerName;
```

```
this.vehicleType = vehicleType;
}
public static void addVehicle(String regNumber, String ownerName, String
vehicleType) {
    vehicleSet.add(new Vehicle(regNumber, ownerName, vehicleType));
}
public static void displayVehicles() {
    for (Vehicle v : vehicleSet) {
        System.out.println(v);
    }
}
public boolean equals(Object obj) {
    if (this == obj) return true;
    if (obj == null || getClass() != obj.getClass()) return false;
    Vehicle vehicle = (Vehicle) obj;
    return regNumber.equals(vehicle.regNumber);
}
public int hashCode() {
    return Objects.hash(regNumber);
}
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();
    for (int i = 0; i < n; i++) {
        String regNumber = sc.next();
        String ownerName = sc.next();
        String vehicleType = sc.next();
        Vehicle.addVehicle(regNumber, ownerName, vehicleType);
    }
    Vehicle.displayVehicles();
    sc.close();
}
}
```

Status : Correct

Marks : 10/10