

TollBooth Assignment - Java Implementation

File: Truck.java

```
public interface Truck {  
    int getAxles();  
    int getWeight();  
    String getMake();  
}
```

File: TollBooth.java

```
public interface TollBooth {  
    void calculateToll(Truck t);  
    void displayData();  
    void collectReceipts();  
}
```

File: FordTruck.java

```
public class FordTruck implements Truck {  
    private int axles;  
    private int weight; // in kilograms  
    private final String make = "Ford";  
  
    public FordTruck(int axles, int weight) {  
        this.axles = axles;  
        this.weight = weight;  
    }  
  
    @Override  
    public int getAxles() {  
        return axles;  
    }  
  
    @Override  
    public int getWeight() {  
        return weight;  
    }  
  
    @Override  
    public String getMake() {  
        return make;  
    }  
}
```

File: NissanTruck.java

```
public class NissanTruck implements Truck {  
    private int axles;  
    private int weight;  
    private final String make = "Nissan";  
  
    public NissanTruck(int axles, int weight) {  
        this.axles = axles;  
        this.weight = weight;  
    }  
  
    @Override  
    public int getAxles() {
```

```

        return axles;
    }

    @Override
    public int getWeight() {
        return weight;
    }

    @Override
    public String getMake() {
        return make;
    }
}

```

File: DaewooTruck.java

```

public class DaewooTruck implements Truck {
    private int axles;
    private int weight;
    private final String make = "Daewoo";

    public DaewooTruck(int axles, int weight) {
        this.axles = axles;
        this.weight = weight;
    }

    @Override
    public int getAxles() {
        return axles;
    }

    @Override
    public int getWeight() {
        return weight;
    }

    @Override
    public String getMake() {
        return make;
    }
}

```

File: AlleghenyTollBooth.java

```

public class AlleghenyTollBooth implements TollBooth {
    private int totalTrucks;
    private int totalReceipts;

    public AlleghenyTollBooth() {
        totalTrucks = 0;
        totalReceipts = 0;
    }

    @Override
    public void calculateToll(Truck t) {
        int axles = t.getAxles();
        int weight = t.getWeight();
        int tollDue = (axles * 5) + ((weight / 500) * 10);

        System.out.println("Arrival of " + t.getMake() + " Truck");
        System.out.println("Truck arrival - Axles: " + axles +
            " Total weight: " + weight +
            " Toll due: $" + tollDue);

        totalTrucks++;
        totalReceipts += tollDue;
    }
}

```

```

@Override
public void displayData() {
    System.out.println("Totals since last collection - Receipts: $"
        + totalReceipts + " Trucks: " + totalTrucks);
}

@Override
public void collectReceipts() {
    System.out.println("*** Collecting receipts ***");
    displayData();
    totalReceipts = 0;
    totalTrucks = 0;
    System.out.println("***** Reset Receipts *****");
    displayData();
}
}

```

File: TestTollBooth.java

```

public class TestTollBooth {
    public static void main(String[] args) {
        TollBooth booth = new AlleghenyTollBooth();

        Truck ford = new FordTruck(5, 12500); // 5 axles, 12500kg
        Truck nissan = new NissanTruck(2, 5000); // 2 axles, 5000kg
        Truck daewoo = new DaewooTruck(6, 17000); // 6 axles, 17000kg

        booth.calculateToll(ford);
        booth.calculateToll(nissan);
        booth.calculateToll(daewoo);

        booth.collectReceipts(); // show totals + reset
    }
}

```