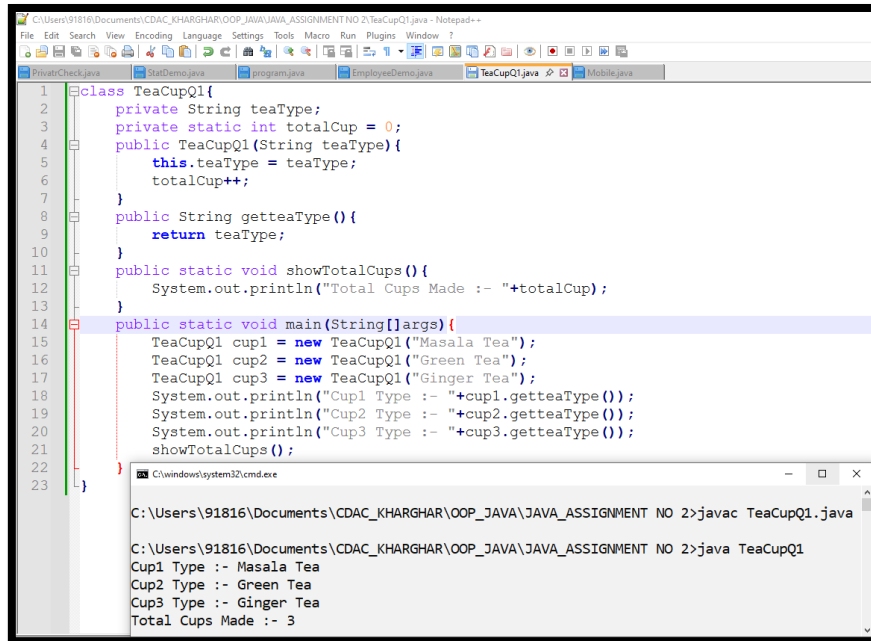


CDAC MUMBAI

OOPJ Lab Assignment

Name – Vedant Vishwanath Padave.

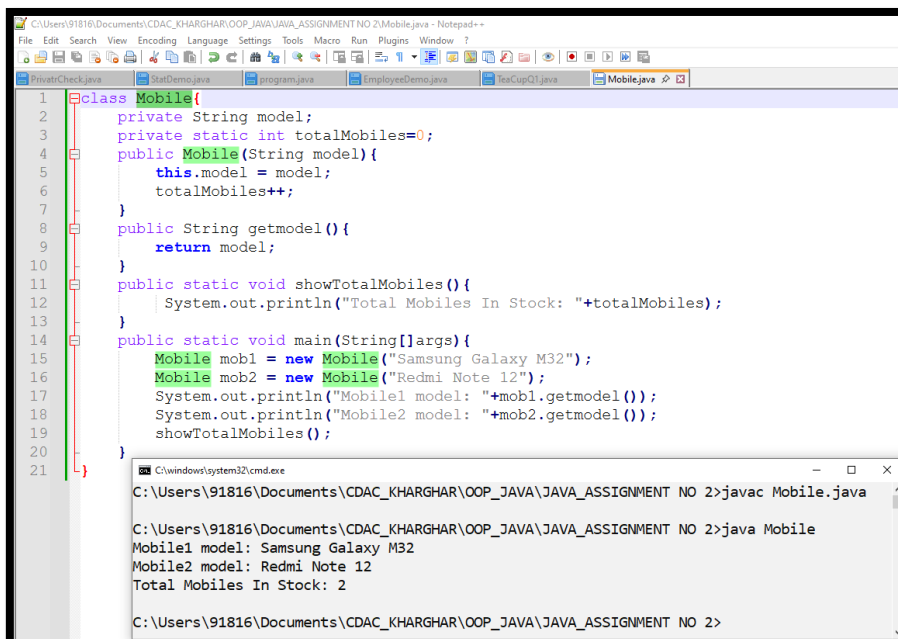
Problem 1: Counter for Cups Scenario: You are keeping track of how many cups of tea are prepared in your home.



```
1 class TeaCupQ1{
2     private String teaType;
3     private static int totalCup = 0;
4     public TeaCupQ1(String teaType){
5         this.teaType = teaType;
6         totalCup++;
7     }
8     public String getteaType(){
9         return teaType;
10    }
11    public static void showTotalCups(){
12        System.out.println("Total Cups Made :- "+totalCup);
13    }
14    public static void main(String[] args){
15        TeaCupQ1 cup1 = new TeaCupQ1("Masala Tea");
16        TeaCupQ1 cup2 = new TeaCupQ1("Green Tea");
17        TeaCupQ1 cup3 = new TeaCupQ1("Ginger Tea");
18        System.out.println("Cup1 Type :- "+cup1.getteaType());
19        System.out.println("Cup2 Type :- "+cup2.getteaType());
20        System.out.println("Cup3 Type :- "+cup3.getteaType());
21        showTotalCups();
22    }
23 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac TeaCupQ1.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java TeaCupQ1
Cup1 Type :- Masala Tea
Cup2 Type :- Green Tea
Cup3 Type :- Ginger Tea
Total Cups Made :- 3
```

Problem 2: Simple Mobile Tracker Scenario: A shop wants to count how many mobiles are added to their inventory.



```
1 class Mobile{
2     private String model;
3     private static int totalMobiles=0;
4     public Mobile(String model){
5         this.model = model;
6         totalMobiles++;
7     }
8     public String getmodel(){
9         return model;
10    }
11    public static void showTotalMobiles(){
12        System.out.println("Total Mobiles In Stock: "+totalMobiles);
13    }
14    public static void main(String[] args){
15        Mobile mob1 = new Mobile("Samsung Galaxy M32");
16        Mobile mob2 = new Mobile("Redmi Note 12");
17        System.out.println("Mobile1 model: "+mob1.getmodel());
18        System.out.println("Mobile2 model: "+mob2.getmodel());
19        showTotalMobiles();
20    }
21 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac Mobile.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java Mobile
Mobile1 model: Samsung Galaxy M32
Mobile2 model: Redmi Note 12
Total Mobiles In Stock: 2
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```

Problem 3: Library Book Tracker Scenario: A library in Delhi wants to track how many books are issued in total and details of each book.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\LibraryMain.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
DateApp.java DateDemo.java Calender.java LibraryMain.java Mobile.java
1 class Book {
2     private String title;
3     private String author;
4     private boolean issued;
5     private static int totalIssuedBooks = 0;
6     public Book(String title, String author) {
7         this.title = title;
8         this.author = author;
9         this.issued = false;
10    }
11    public String getTitle() {
12        return title;
13    }
14
15    public void setTitle(String title) {
16        this.title = title;
17    }
18
19    public String getAuthor() {
20        return author;
21    }
22
23    public void setAuthor(String author) {
24        this.author = author;
25    }
26
27    public boolean isIssued() {
28        return issued;
29    }
30
31    public void setIssued(boolean issued) {
32        if (!this.issued && issued) {
33            totalIssuedBooks++;
34        }
35    }
36 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\LibraryMain.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
DateApp.java DateDemo.java Calender.java LibraryMain.java Mobile.java TestEmployee.java
30
31    public void setIssued(boolean issued) {
32        if (!this.issued && issued) {
33            totalIssuedBooks++;
34        }
35        this.issued = issued;
36    }
37    public static void showTotalIssued() {
38        System.out.println("Total books issued: " + totalIssuedBooks);
39    }
40    public void displayDetails() {
41        System.out.println(getTitle() + " issued? " + isIssued());
42    }
43 }
44
45 public class LibraryMain {
46     public static void main(String[] args) {
47         Book book1 = new Book("Harry Potter", "J.K. Rowling");
48         Book book2 = new Book("Five Point Someone", "Chetan Bhagat");
49         Book book3 = new Book("Rich Dad Poor Dad", "Robert Kiyosaki");
50         book1.setIssued(true);
51         book2.setIssued(false);
52         book3.setIssued(true);
53         book1.displayDetails();
54         book2.displayDetails();
55         book3.displayDetails();
56         Book.showTotalIssued();
57     }
58 }
59
60
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac LibraryMain.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java LibraryMain
Harry Potter issued? true
Five Point Someone issued? false
Rich Dad Poor Dad issued? true
Total books issued: 2
```

Problem 4: Employee Salary Manager Scenario: A company in Bengaluru wants to maintain employee details and give a bonus to employees who have worked more than 5 years.

```
1 class Employees{
2     private String name;
3     private double salary;
4     private int yearsOfService;
5     private static int totalEmployees = 0;
6     public Employees(String name,double salary, int yearsOfService){
7         this.name = name;
8         this.salary = salary;
9         this.yearsOfService = yearsOfService;
10        totalEmployees++;
11    }
12    public String getName(){
13        return name;
14    }
15    public void setName(String name){
16        this.name = name;
17    }
18    public double getSalary(){
19        return salary;
20    }
21    public void setSalary(double salary){
22        this.salary = salary;
23    }
24    public int getYearsOfService(){
25        return yearsOfService;
26    }
27    public void setYearsOfService(int yearsOfService){
28        this.yearsOfService = yearsOfService;
29    }
30    public double calculateBonus(){
31        if (yearsOfService>5){
32            return 0.05*salary;
33        }
34    }
35 }
```

```
30 public double calculateBonus(){
31     if (yearsOfService>5){
32         return 0.05*salary;
33     }
34     else{
35         return 0;
36     }
37 }
38 public static void showTotalEmployees(){
39     System.out.println("Total Employees :"+totalEmployees);
40 }
41 }
42 class TestEmployee{
43     public static void main(String[]args){
44         Employees e1 = new Employees("Ravi", 150000, 6);
45         Employees e2 = new Employees("Anita", 120000, 3);
46         Employees e3 = new Employees("Suresh", 100000, 5);
47         System.out.println("Employee Ravi Bonus: "+e1.calculateBonus());
48         System.out.println("Employee Anita Bonus: "+e2.calculateBonus());
49         System.out.println("Employee Suresh Bonus: "+e3.calculateBonus());
50         Employees.showTotalEmployees();
51     }
52 }
53 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac TestEmployee.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java TestEmployee
Employee Ravi Bonus: 7500.0
Employee Anita Bonus: 0.0
Employee Suresh Bonus: 0.0
Total Employees :3
```

Problem 5: Student Marks Calculator Scenario: A school in Mumbai wants to calculate marks of students and also maintain total students in the class.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\StudentsMarks.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

TestEmployee.java StudentsMarks.java
1 class Student{
2     private String name;
3     private int marks;
4     private static int totalStudents = 0;
5     public Student(String name, int marks){
6         this.name = name;
7         this.marks = marks;
8         totalStudents++;
9     }
10
11
12     public int getMarks(){
13         return marks;
14     }
15     public void setMarks(int marks){
16         this.marks = marks;
17     }
18     public boolean isPassed(){
19         if(marks >= 35){
20             return true;
21         }
22         else{
23             return false;
24         }
25     }
26     public static void TotalStudents(){
27         System.out.println("Total Students: "+totalStudents);
28     }
29 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\StudentsMarks.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

TestEmployee.java StudentsMarks.java
25 }
26 public static void TotalStudents(){
27     System.out.println("Total Students: "+totalStudents);
28 }
29 }
30 class StudentsMarks{
31     public static void main(String[] args){
32         Student s1 = new Student("Rahul", 78);
33         Student s2 = new Student("Pooja", 34);
34         Student s3 = new Student("Amit", 65);
35         System.out.println("Student Rahul Passed? "+s1.isPassed());
36         System.out.println("Student Pooja Passed? "+s2.isPassed());
37         System.out.println("Student Amit Passed? "+s3.isPassed());
38         Student.TotalStudents();
39     }
40 }
```

```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java StudentsMarks
Student Rahul Passed? true
Student Pooja Passed? false
Student Amit Passed? true
Total Students: 3

C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```

Problem 6: Indian Railway Ticket Booking Scenario: You are building a mini ticket booking system. A passenger can book a ticket either by giving name and age or name, age, and seat type. The system should also count the total tickets booked using a static counter.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\RailwayTicketBook.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
TestEmployee.java StudentsMarks.java RailwayTicketBook.java LibraryMain.java TeaCupQ1.java
1 class Passenger{
2     private String name;
3     private int age;
4     private String seatType;
5     private static int counter = 0;
6     public Passenger(String name, int age){
7         this.name = name;
8         this.age = age;
9         this.seatType = "General";
10        counter++;
11    }
12    public Passenger(String name, int age, String seatType){
13        this.name = name;
14        this.age = age;
15        this.seatType = seatType;
16        counter++;
17    }
18    public String getName(){
19        return name;
20    }
21    public int getAge(){
22        return age;
23    }
24    public String getSeatType(){
25        return seatType;
26    }
27    public static void Totalpassengersbooked(){
28        System.out.println("Total Passengers Booked: "+counter);
29    }
}
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\RailwayTicketBook.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
TestEmployee.java StudentsMarks.java RailwayTicketBook.java LibraryMain.java TeaCupQ1.java
29 }
30 }
31 class RailwayTicketBook{
32     public static void main(String[] args){
33         Passenger p1 = new Passenger("Ravi", 25);
34         Passenger p2 = new Passenger("Anita", 30, "AC Sleeper");
35         Passenger p3 = new Passenger("Suresh", 40);
36         System.out.println("Passenger1: Name: "+p1.getName()+" , Age: "+p1.getAge()+" , Seat: "+p1.getSeatType());
37         System.out.println("Passenger2: Name: "+p2.getName()+" , Age: "+p2.getAge()+" , Seat: "+p2.getSeatType());
38         System.out.println("Passenger3: Name: "+p3.getName()+" , Age: "+p3.getAge()+" , Seat: "+p3.getSeatType());
39         Passenger.Totalpassengersbooked();
40     }
41 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac RailwayTicketBook.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java RailwayTicketBook
Passenger1: Name: Ravi, Age: 25, Seat: General
Passenger2: Name: Anita, Age: 30, Seat: AC Sleeper
Passenger3: Name: Suresh, Age: 40, Seat: General
Total Passengers Booked: 3
```

Problem 7: Indian Movie Ticket Booking Scenario: A cinema hall offers Normal and Premium tickets. A customer can book just name or name with ticket type. Keep track of total tickets sold using a static counter.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\MovieTicket.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
RailwayTicketBook.java MovieTicket.java
1 class Customer{
2     private String name;
3     private String ticketType;
4     private static int counter = 0;
5     public Customer(String name){
6         this.name = name;
7         this.ticketType = "Normal";
8         counter++;
9     }
10    public Customer(String name, String ticketType){
11        this.name = name;
12        this.ticketType = ticketType;
13        counter++;
14    }
15    public String getName(){
16        return name;
17    }
18    public String getticketType(){
19        return ticketType;
20    }
21    public static void totalTicketsSold(){
22        System.out.println("Total Ticket Sold: "+counter);
23    }
24 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\MovieTicket.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
RailwayTicketBook.java MovieTicket.java
25 class MovieTicket{
26     public static void main(String[] args){
27         Customer c1 = new Customer("Rahul");
28         Customer c2 = new Customer("Pooja", "Premium");
29         Customer c3 = new Customer("Amit");
30         System.out.println("Customer1: Name: "+c1.getName()+" , Ticket: "+c1.getticketType());
31         System.out.println("Customer2: Name: "+c2.getName()+" , Ticket: "+c2.getticketType());
32         System.out.println("Customer3: Name: "+c3.getName()+" , Ticket: "+c3.getticketType());
33         Customer.totalTicketsSold();
34     }
35 }
```

```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac MovieTicket.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java MovieTicket
Customer1: Name: Rahul, Ticket: Normal
Customer2: Name: Pooja, Ticket: Premium
Customer3: Name: Amit, Ticket: Normal
Total Ticket Sold: 3
```

Problem 8: Bank Account Initialization Scenario: A bank wants to initialize the interest rate for all accounts once when the system starts. Each account has account holder name, balance, and interest rate. Students should practice static blocks for initialization and setters/getters to modify and access account details.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\BankAccountInitialization.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
RailwayTicketBook.java MovieTicket.java BankAccountInitialization.java TestEmployee.java

1 class BankAccount{
2     private static double interestrate;
3     static{
4         interestrate = 4.0;
5     }
6     public static double getInterestrate(){
7         return interestrate;
8     }
9     private String name;
10    private double balance;
11    public BankAccount(String name, double balance){
12        this.name = name;
13        this.balance = balance;
14    }
15    public String getName(){
16        return name;
17    }
18    public void setName(String name){
19        this.name = name;
20    }
21    public double getBalance(){
22        return balance;
23    }
24    public void setBalance(double balance){
25        this.balance = balance;
26    }
27 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\BankAccountInitialization.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
RailwayTicketBook.java MovieTicket.java BankAccountInitialization.java TestEmployee.java

27 }
28 class BankAccountInitialization{
29     public static void main(String[] args){
30         BankAccount b1 = new BankAccount("Rohit",5000);
31         BankAccount b2 = new BankAccount("Priya",15000);
32         System.out.println("Bank Interest Rate Initialized: "+BankAccount.getInterestrate());
33         System.out.println("Account1: Name= "+b1.getName()+" , Balance= "+b1.getBalance()+" , Interest Rate= "+b1.getInterestrate());
34         System.out.println("Account2: Name= "+b2.getName()+" , Balance= "+b2.getBalance()+" , Interest Rate= "+b2.getInterestrate());
35     }
36 }

C:\windows\system32\cmd.exe

C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac BankAccountIntialization.java

C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java BankAccountIntialization
Bank Interest Rate Initialized: 4.0
Account1: Name= Rohit, Balance= 5000.0, Interest Rate= 4.0
Account2: Name= Priya, Balance= 15000.0, Interest Rate= 4.0
```

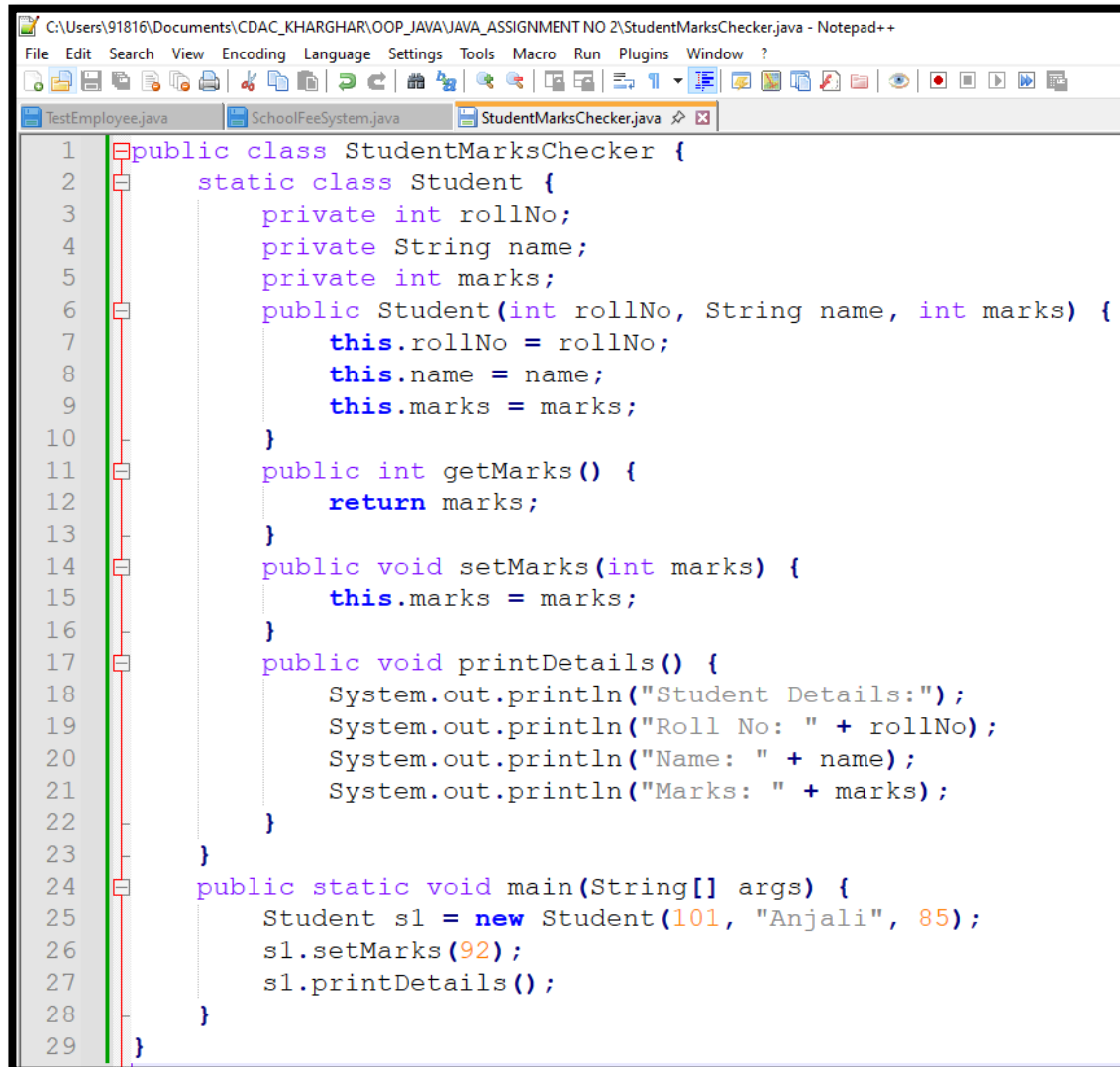

Problem 9: School Fee System Scenario: A school wants to initialize the tuition fee for all students once at program start. Each student has name and class. Use static blocks to set the fee and setters/getters to update/access student information.

```
1 class Student{
2     private static int tuitionFee;
3     static{
4         tuitionFee = 30000;
5     }
6     public static int getTuitionFee (){
7         return tuitionFee;
8     }
9     private String name;
10    private String className;
11    public Student(String name, String className){
12        this.name = name;
13        this.className = className;
14    }
15    public String getName(){
16        return name;
17    }
18    public void setName(){
19        this.name = name;
20    }
21    public String getClassName(){
22        return className;
23    }
24    public void setClassName(String className){
25        this.className = className;
26    }
27 }
```

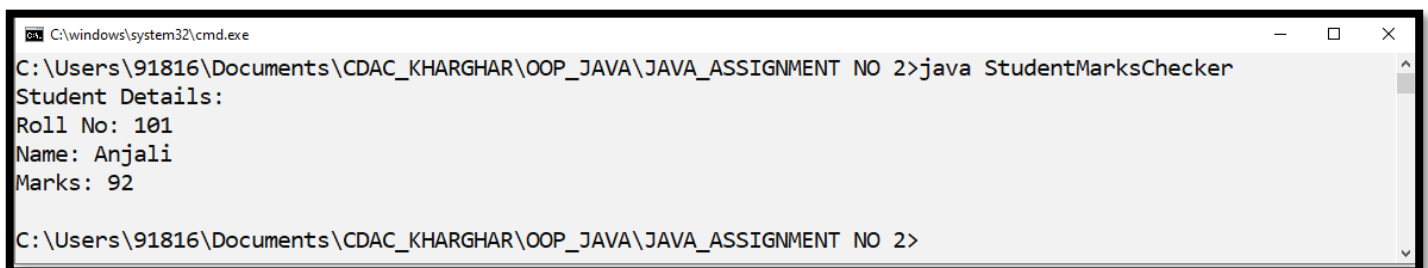
```
26 }
27 }
28 class SchoolFeeSystem{
29     public static void main(String[] args){
30         Student s1 = new Student("Anjali", "10th"); Student s2 = new Student("Vikram", "12th");
31         System.out.println("School Tuition Fee initialized: "+Student.getTuitionFee());
32         System.out.println("Student1: Name="+s1.getName()+"", Class="+s1.getClassName()+"", Tuition Fee =" +Student.getTuitionFee());
33         System.out.println("Student1: Name="+s2.getName()+"", Class="+s2.getClassName()+"", Tuition Fee =" +Student.getTuitionFee());
34     }
35 }
36 }
```

```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java SchoolFeeSystem
School Tuition Fee initialized: 30000
Student1: Name=Anjali, Class=10th, Tuition Fee =30000
Student1: Name=Vikram, Class=12th, Tuition Fee =30000
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```


Problem 10: Student Marks Checker Scenario: Create a Student class with rollNo, name, and marks.



```
1 public class StudentMarksChecker {
2     static class Student {
3         private int rollNo;
4         private String name;
5         private int marks;
6         public Student(int rollNo, String name, int marks) {
7             this.rollNo = rollNo;
8             this.name = name;
9             this.marks = marks;
10        }
11        public int getMarks() {
12            return marks;
13        }
14        public void setMarks(int marks) {
15            this.marks = marks;
16        }
17        public void printDetails() {
18            System.out.println("Student Details:");
19            System.out.println("Roll No: " + rollNo);
20            System.out.println("Name: " + name);
21            System.out.println("Marks: " + marks);
22        }
23    }
24    public static void main(String[] args) {
25        Student s1 = new Student(101, "Anjali", 85);
26        s1.setMarks(92);
27        s1.printDetails();
28    }
29 }
```



```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java StudentMarksChecker
Student Details:
Roll No: 101
Name: Anjali
Marks: 92
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```

Problem 11: Student Grade Calculator Scenario: Extend previous problem. Add method `calculateGrade()` which returns:

- "A" if marks ≥ 80
- "B" if marks ≥ 60
- "C" if marks ≥ 40
- "Fail" otherwise
- Create 2 students, print marks and grades.

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\StudentGradeCalculator.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
TestEmployee.java SchoolFeeSystem.java StudentMarksChecker.java StudentGradeCalculator.java
1 public class StudentGradeCalculator {
2     static class Student {
3         private int rollNo;
4         private String name;
5         private int marks;
6         public Student(int rollNo, String name, int marks) {
7             this.rollNo = rollNo;
8             this.name = name;
9             this.marks = marks;
10        }
11        public int getMarks() {
12            return marks;
13        }
14        public void setMarks(int marks) {
15            this.marks = marks;
16        }
17        public String calculateGrade() {
18            if (marks >= 80) {
19                return "A";
20            } else if (marks >= 60) {
21                return "B";
22            } else if (marks >= 40) {
23                return "C";
24            } else {
25                return "Fail";
26            }
27        }
28    }
29 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\StudentGradeCalculator.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
TestEmployee.java SchoolFeeSystem.java StudentMarksChecker.java StudentGradeCalculator.java
28 public void printDetails() {
29     System.out.println("Student Details:");
30     System.out.println("Roll No: " + rollNo);
31     System.out.println("Name: " + name);
32     System.out.println("Marks: " + marks);
33     System.out.println("Grade: " + calculateGrade());
34     System.out.println();
35 }
36 }
37 public static void main(String[] args) {
38
39     Student s1 = new Student(10, "Virat", 92);
40     Student s2 = new Student(12, "Rohit", 58);
41     s1.printDetails();
42     s2.printDetails();
43 }
44 }
45 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java StudentGradeCalculator
Student Details:
Roll No: 10
Name: Virat
Marks: 92
Grade: A

Student Details:
Roll No: 12
Name: Rohit
Marks: 58
Grade: C
```

Problem 12: Bank Account Basic Info

```
1 class Account{
2     private String name;
3     private int balance;
4     public Account(String name, int balance){
5         this.name = name;
6         this.balance = balance;
7     }
8     public String getName(){
9         return name;
10    }
11    public void setName(String name){
12        this.name = name;
13    }
14    public int getBalance(){
15        return balance;
16    }
17    public void setBalance(int balance){
18        this.balance = balance;
19    }
20    public void printDetails(){
21        System.out.println("Name : "+name);
22        System.out.println("Balance : "+balance);
23    }
```

```
20    public void printDetails(){
21        System.out.println("Name : "+name);
22        System.out.println("Balance : "+balance);
23    }
24 }
25 class BankAccountInfo{
26     public static void main(String[] args){
27         Account a1 = new Account("Ravi", 100000);
28         Account a2 = new Account("Shyam", 200000);
29         a1.printDetails();
30         a2.printDetails();
31     }
32 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac BankAccountInfo.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java BankAccountInfo
Name : Ravi
Balance : 100000
Name : Shyam
Balance : 200000
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```

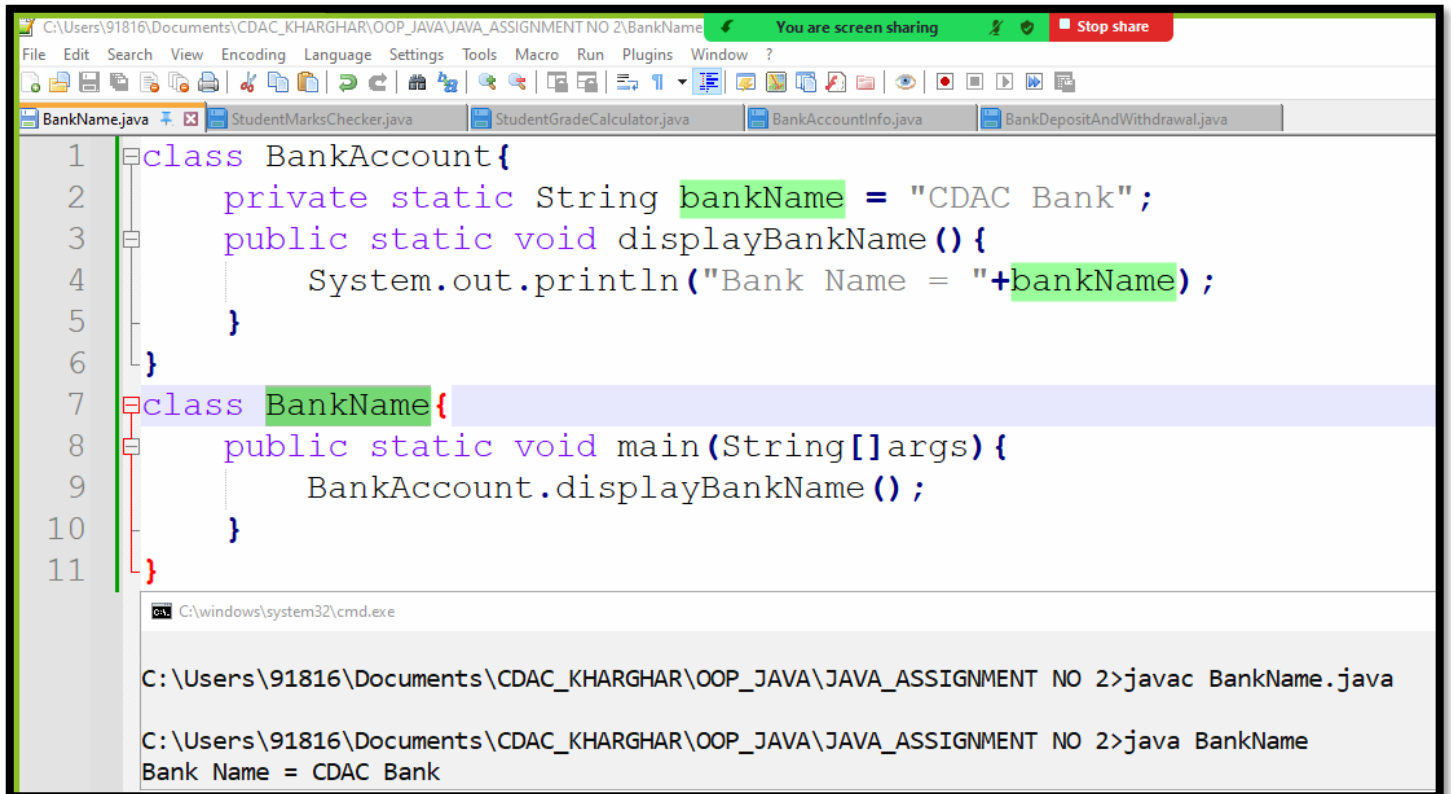
Problem 13: Bank Deposit & Withdrawal

```
1 class Account{
2     private String name;
3     private double balance;
4     private double amount;
5     public Account(String name, double balance){
6         this.name = name;
7         this.balance = balance;
8     }
9     public String getName(){
10        return name;
11    }
12    public void setName(String name){
13        this.name = name;
14    }
15    public double getBalance(){
16        return balance;
17    }
18    public void setBalance(double balance){
19        this.balance = balance;
20    }
21    public void deposit (double amount){
22        if (amount>0){
23            balance += amount;
24            System.out.println("Updated Balance = "+balance);
25        }
26        else {
27            System.out.println("The Amount Should be More Than 0");
28        }
29    }
30    public void withdraw (double amount){
```

```
31    public void withdraw (double amount){
32        if (0<amount && amount<=balance){
33            balance -= amount;
34            System.out.println("Updated Balance = "+balance);
35        }
36        else{
37            System.out.println("Invalid Amount Is Entered");
38        }
39    }
40    public void printDetails(){
41        System.out.println("Name : "+name);
42        System.out.println("Balance : "+balance);
43    }
44 }
45 class BankDepositAndWithdrawal{
46     public static void main(String[] args){
47         Account a1 = new Account("Ravi", 100000);
48         Account a2 = new Account("Shyam", 200000);
49         a1.printDetails();
50         a2.printDetails();
51         a1.deposit(100000);
52         a2.withdraw(50000);
53     }
54 }
```

```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java BankDepositAndWithdrawal
Name : Ravi
Balance : 100000.0
Name : Shyam
Balance : 200000.0
Updated Balance = 200000.0
Updated Balance = 150000.0
```

Problem 14: Bank Name Display Scenario: Add a static variable `bankName = "CDAC Bank"` and static method `displayBankName()` to `BankAccount`.



```
1 class BankAccount{
2     private static String bankName = "CDAC Bank";
3     public static void displayBankName() {
4         System.out.println("Bank Name = "+bankName);
5     }
6 }
7 class BankName{
8     public static void main(String[] args){
9         BankAccount.displayBankName();
10    }
11 }
```

C:\windows\system32\cmd.exe

C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac BankName.java

C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java BankName

Bank Name = CDAC Bank

Problem 15: Employee Auto-ID Generator

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\EmployeeIdGenerate.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
EmployeeIdGenerate.java TeaCupQ1.java
1 class Employee {
2     private static int counter = 1000;
3     private int id;
4     private String name;
5     private int basicSalary;
6     public Employee() {
7         this.name = "Unknown";
8         this.basicSalary = 20000;
9         counter++;
10        this.id = counter;
11    }
12    public Employee(String name, int basicSalary){
13        this.name = name;
14        this.basicSalary = basicSalary;
15        counter++;
16        this.id = counter;
17    }
18    public String getName() {
19        return name;
20    }
21    public int getId() {
22        return id;
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\EmployeeIdGenerate.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
EmployeeIdGenerate.java TeaCupQ1.java
22        return id;
23    }
24    public int getBasicSalary(){
25        return basicSalary;
26    }
27    /*public void printdetails(){
28        System.out.println("Name = "+name);
29        System.out.println("Id = "+counter);
30        System.out.println("Basic Salary = "+basicSalary);
31    }*/
32
33    class EmployeeIdGenerate{
34        public static void main(String[] args){
35            Employee e1 = new Employee();
36            Employee e2 = new Employee("Vedant", 100000);
37            //e1.printdetails();
38            //e2.printdetails();
39            System.out.println("Name = "+e1.getName()+" , Id = "+e1.getId()+" , Basic Salary = "+e1.getBasicSalary());
40            System.out.println("Name = "+e2.getName()+" , Id = "+e2.getId()+" , Basic Salary = "+e2.getBasicSalary());
41        }
42    }
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java EmployeeIdGenerate
Name = Unknown, Id = 1001, Basic Salary = 20000
Name = Vedant, Id = 1002, Basic Salary = 100000
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>
```

Problem 16: Employee Net Salary

```
*C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\EmployeeNetSalary.java You are screen sharing
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
EmployeeIdGenerate.java EmployeeNetSalary.java StudentGradeCalculator.java

1 class Employee {
2     private static int counter = 1000;
3     private int id;
4     private String name;
5     private int basicSalary;
6     public Employee() {
7         this.name = "Unknown";
8         this.basicSalary = 20000;
9         counter++;
10        this.id = counter;
11    }
12    public Employee(String name, int basicSalary) {
13        this.name = name;
14        this.basicSalary = basicSalary;
15        counter++;
16        this.id = counter;
17    }
18    public String getName() {
19        return name;
20    }
21    public int getId() {
22        return id;
23    }
24    public int getBasicSalary() {
25        return basicSalary;
26    }
```

```
*C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\EmployeeNetSalary.java You are screen sharing Stop share
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
EmployeeIdGenerate.java EmployeeNetSalary.java StudentGradeCalculator.java

27 public int calculateNetSalary() {
28     int a = basicSalary + (int) (basicSalary*0.1);
29     int b = (int) (a*0.05);
30     int c = (int) (b-b*0.02);
31     basicSalary = c;
32     return basicSalary;
33 }
34 }
35 class EmployeeNetSalary {
36     public static void main(String[] args) {
37         Employee e1 = new Employee();
38         Employee e2 = new Employee("Vedant", 100000);
39         //e1.printDetails();
40         //e2.printDetails();
41         System.out.println("Name = "+e1.getName()+", Id = "+e1.getId()+", Basic Salary = "+e1.getBasicSalary());
42         System.out.println("Net Salary = "+e1.calculateNetSalary());
43         System.out.println();
44         System.out.println("Name = "+e2.getName()+", Id = "+e2.getId()+", Basic Salary = "+e2.getBasicSalary());
45         System.out.println("Net Salary = "+e2.calculateNetSalary());
46     }
47 }
48 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac EmployeeNetSalary.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java EmployeeNetSalary
Name = Unknown, Id = 1001, Basic Salary = 20000
Net Salary = 22638

Name = Vedant, Id = 1002, Basic Salary = 100000
Net Salary = 113190
```


Problem 17: Library Book Addition

```
1 public class LibraryBookAddition {
2
3     static class Book {
4         private int bookId;
5         private String title;
6         private String author;
7
8         public Book(int bookId, String title, String author) {
9             this.bookId = bookId;
10            this.title = title;
11            this.author = author;
12        }
13
14        public int getBookId() {
15            return bookId;
16        }
17
18        public String getTitle() {
19            return title;
20        }
21
22        public String getAuthor() {
23            return author;
24        }
25
26        public void setBookId(int bookId) {
27            this.bookId = bookId;
28        }
29    }
```

```
28    }
29
30    public void setTitle(String title) {
31        this.title = title;
32    }
33
34    public void setAuthor(String author) {
35        this.author = author;
36    }
37
38    static class Library {
39        private String libraryName;
40        private static int totalBooks = 0;
41
42        public Library(String libraryName) {
43            this.libraryName = libraryName;
44        }
45
46        public void addBook(Book b) {
47            totalBooks++;
48            System.out.println("Book added: " + b.getTitle() + " by " + b.getAuthor());
49        }
50
51        public void displayTotalBooks() {
52            System.out.println("Total books in " + libraryName + ": " + totalBooks);
53        }
54    }
55 }
```

```
56
57     public static void main(String[] args) {
58         Library myLibrary = new Library("City Central Library");
59         Book book1 = new Book(101, "To Kill a Mockingbird", "Harper Lee");
60         Book book2 = new Book(102, "1984", "George Orwell");
61         myLibrary.addBook(book1);
62         myLibrary.addBook(book2);
63         myLibrary.displayTotalBooks();
64     }
65 }
66
```

```
C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac LibraryBookAddition.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java LibraryBookAddition
Book added: To Kill a Mockingbird by Harper Lee
Book added: 1984 by George Orwell
Total books in City Central Library: 2
```

Problem 18: Vehicle Registration – Static Counter

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\VehicleRegistration.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
LibraryBookAddition.java EmployeeNetSalary.java StudentGradeCalculator.java VehicleRegistration.java x

1 class Vehicle{
2     private String regNo;
3     private String ownerName;
4     private String vehicleType;
5     private static int vehicleCount = 0;
6     public Vehicle(String ownerName, String vehicleType){
7         this.regNo = "MH-2025";
8         this.ownerName = ownerName;
9         this.vehicleType = vehicleType;
10        vehicleCount++;
11    }
12    public String getName(){
13        return ownerName;
14    }
15    public String getVehicleType(){
16        return vehicleType;
17    }
18    public String getRegNo(){
19        return regNo;
20    }
21 }
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\VehicleRegistration.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
LibraryBookAddition.java EmployeeNetSalary.java StudentGradeCalculator.java VehicleRegistration.java x

20 }
21 }
22 class VehicleRegistration{
23     public static void main(String[] args){
24         Vehicle v1 = new Vehicle("Vedant", "SUV");
25         Vehicle v2 = new Vehicle("Shashwat", "Sedan");
26         System.out.println("Name = "+v1.getName()+" , RegNo. = "+v1.getRegNo()+" , Vehicle Type = "+v1.getVehicleType());
27         System.out.println("Name = "+v2.getName()+" , RegNo. = "+v2.getRegNo()+" , Vehicle Type = "+v2.getVehicleType());
28     }
29 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac VehicleRegistration.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java VehicleRegistration
Name = Vedant, RegNo. = MH-2025, Vehicle Type = SUV
Name = Shashwat, RegNo. = MH-2025, Vehicle Type = Sedan
```

Problem 19: Vehicle Registration – Static Block

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\VehicleRegistrationWithStaticBlock.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
StudentGradeCalculator.java VehicleRegistration.java VehicleRegistrationWithStaticBlock.java TicketBookingSystem.java

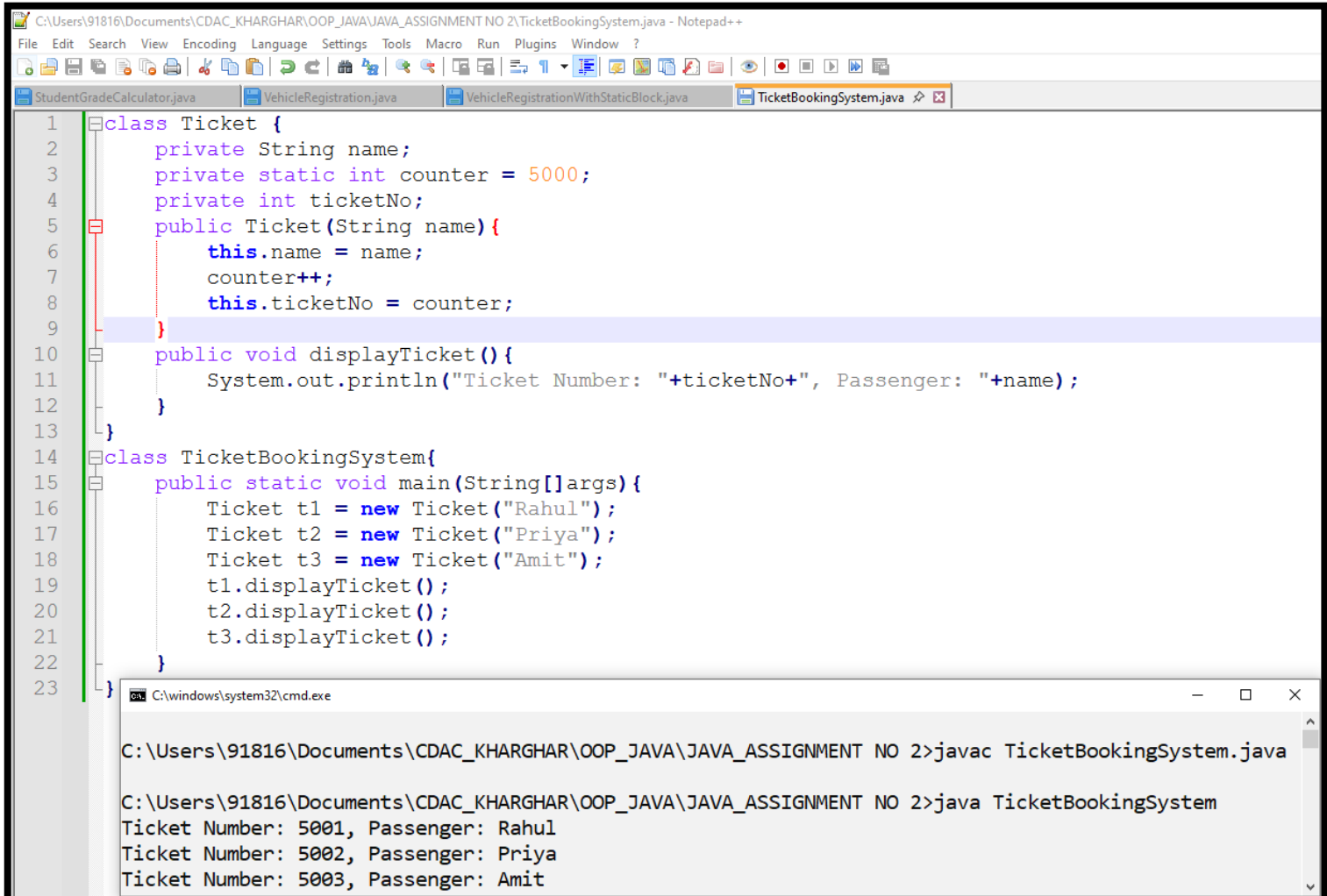
1 class Vehicle{
2     private String regNo;
3     private String ownerName;
4     private String vehicleType;
5     private static int vehicleCount = 0;
6     private static String vehicleName = "Welcome to CDAC Vehicle Registration Portal";
7     public static void displayName() {
8         System.out.println(vehicleName);
9     }
10    public Vehicle(String ownerName, String vehicleType){
11        this.regNo = "MH-2025";
12        this.ownerName = ownerName;
13        this.vehicleType = vehicleType;
14        vehicleCount++;
15    }
16    public String getName() {
17        return ownerName;
18    }
19    public String getVehicleType() {
20        return vehicleType;
21    }
22    public String getRegNo() {
23        return regNo;
24    }
}
```

```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\VehicleRegistrationWithStaticBlock.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
StudentGradeCalculator.java VehicleRegistration.java VehicleRegistrationWithStaticBlock.java TicketBookingSystem.java

22    public String getRegNo() {
23        return regNo;
24    }
25 }
26 class VehicleRegistrationWithStaticBlock{
27     public static void main(String[] args){
28         Vehicle v1 = new Vehicle("Vedant", "SUV");
29         Vehicle v2 = new Vehicle("Shashwat", "Sedan");
30         Vehicle.displayName();
31         System.out.println("Name = "+v1.getName()+" , RegNo. = "+v1.getRegNo()+" , Vehicle Type = "+v1.getVehicleType());
32         System.out.println("Name = "+v2.getName()+" , RegNo. = "+v2.getRegNo()+" , Vehicle Type = "+v2.getVehicleType());
33     }
34 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac VehicleRegistrationWithStaticBlock.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java VehicleRegistrationWithStaticBlock
Welcome to CDAC Vehicle Registration Portal
Name = Vedant, RegNo. = MH-2025, Vehicle Type = SUV
Name = Shashwat, RegNo. = MH-2025, Vehicle Type = Sedan
```

Problem 20: Ticket Booking System



```
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2\TicketBookingSystem.java - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
StudentGradeCalculator.java VehicleRegistration.java VehicleRegistrationWithStaticBlock.java TicketBookingSystem.java x
1 class Ticket {
2     private String name;
3     private static int counter = 5000;
4     private int ticketNo;
5     public Ticket(String name) {
6         this.name = name;
7         counter++;
8         this.ticketNo = counter;
9     }
10    public void displayTicket() {
11        System.out.println("Ticket Number: "+ticketNo+", Passenger: "+name);
12    }
13 }
14 class TicketBookingSystem{
15     public static void main(String[] args) {
16         Ticket t1 = new Ticket("Rahul");
17         Ticket t2 = new Ticket("Priya");
18         Ticket t3 = new Ticket("Amit");
19         t1.displayTicket();
20         t2.displayTicket();
21         t3.displayTicket();
22     }
23 }

C:\windows\system32\cmd.exe
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>javac TicketBookingSystem.java
C:\Users\91816\Documents\CDAC_KHARGHAR\OOP_JAVA\JAVA_ASSIGNMENT NO 2>java TicketBookingSystem
Ticket Number: 5001, Passenger: Rahul
Ticket Number: 5002, Passenger: Priya
Ticket Number: 5003, Passenger: Amit
```