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Experiment No.	1

AIM:	<i>Write a program to demonstrate classes and objects</i>
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Program 1

PROBLEM STATEMENT :	Write a program showing your 1st sem result
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PROGRAM:	<pre> class Student1 { float rollno; String name; float ECL, BEE, ACL, PSIPL; float ans; void insertRecord(int r, String n, float ECL, float BEE, float ACL, float PSIPL){ rollno = r; name = n; ans = (ECL + BEE + ACL + PSIPL)/4; } void displayInformation(){ System.out.println(rollno + " " + name); System.out.println("Result is:- " + ans + "%"); } } import java.util.Scanner; class TestStudent { public static void main (String args[]){ Student1 s1 = new Student1(); Scanner sc = new Scanner(System.in); System.out.print("Enter Roll no. :-"); int rollno = sc.nextInt(); </pre>
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	<pre> System.out.print("Enter Name :-"); String sname = sc.next(); System.out.print("Enter marks for ECL BEE ACL PSIPL:-"); float ECL = sc.nextFloat(); float BEE = sc.nextFloat(); float ACL = sc.nextFloat(); float PSIPL = sc.nextFloat(); s1.insertRecord(rollno, sname, ECL, BEE, ACL, PSIPL); s1.displayInformation(); } } </pre>
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RESULT:

```

Activities  Terminal
[+]
psipl@psipl-OptiPlex-3000:~$ javac Student1.java
psipl@psipl-OptiPlex-3000:~$ javac Test
Testaccount.java  TestRectangle.java  TestStudent.java
psipl@psipl-OptiPlex-3000:~$ javac TestStudent.java
psipl@psipl-OptiPlex-3000:~$ java TestStudent
Enter Roll no. :-68
Enter Name :-LEkh
Enter marks for ECL BEE ACL PSIPL:-80 80 90 90
68.0 LEkh
Result is:- 85.0%
psipl@psipl-OptiPlex-3000:~$ 

```

Program 2

PROBLEM STATEMENT :

Write a program which contains a class for simulating a simple calculator. The Calculator class must contain five operations (+,-,*,/). Create a menu driven main to test all the operations, the program will stop when user chooses exit.

PROGRAM:

```
import java.util.*;

class cal{
    int result;
    Scanner sc = new Scanner(System.in);

    int add(int num1, int num2){
        result = num1 + num2;
        return result;
    }

    int diff(int num1, int num2){
        result = num1 - num2;
        return result;
    }

    int mul(int num1, int num2){
        result = num1*num2;
        return result;
    }

    int divide(int num1, int num2){
        result = num1/num2;
        return result;
    }

    void display(){
        System.out.println("The result of your calculation is " +
result);
    }

    void closeScanner() {
        sc.close();
    }

}

public class Calculator {
    public static void main(String[] args) {
```

```

Scanner sc = new Scanner(System.in);
cal a1 = new cal();
int a, b;

System.out.println("Enter 1st number:-");
a = sc.nextInt();
System.out.println("Enter 2nd number:-");
b = sc.nextInt();

int option;

while(true) {

    System.out.println("Calculator\n1.ADD\n2.Subtract\n3.Multipl
y\n4.Divide\n5.Exit\nEnter the Menu number option");
    option = sc.nextInt();
    switch (option){
        case 1:
            a1.add(a,b);
            a1.display();
            break;
        case 2:
            a1.diff(a,b);
            a1.display();
            break;
        case 3:
            a1.mul(a,b);
            a1.display();
            break;
        case 4:
            a1.divide(a,b);
            a1.display();
            break;
        case 5:
            a1.closeScanner();
            sc.close();
            return;
        default:
            System.out.println("please enter
proper option");

```

	<pre> } } }</pre>
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```

psipl@psipl-OptiPlex-3000: ~/2023800068 ... x    psipl@psipl-OptiPlex-3000: ~/2023800068 ... x    v
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ javac Calculator.java
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ java Calculator
Enter 1st number:-
4
Enter 2nd number:-
2
Calculator
1.ADD
2.Subtract
3.Multiply
4.Divide
5.Exit
Enter the Menu number option
4
The result of your calculation is 2
Calculator
1.ADD
2.Subtract
3.Multiply
4.Divide
5.Exit
Enter the Menu number option
5
Exiting Calculator thank you
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ █

```

RESULT:

Program 3	
PROBLEM STATEMENT:	Write a program which contains a class called Rectangle with data members length and breadth. Define methods perimeter and area. Create a Tester class which creates objects of Rectangle classes in the main() method and calls the methods of rectangle class.
PROGRAM:	<pre> import java.util.*; class Rectangle { double length, breadth; double area() { double result = length * breadth; </pre>

```

        return result;
    }

    double perimeter() {
        double result = 2 * (length + breadth);
        return result;
    }
}

class rectangle {
    public static void main(String[] args) {

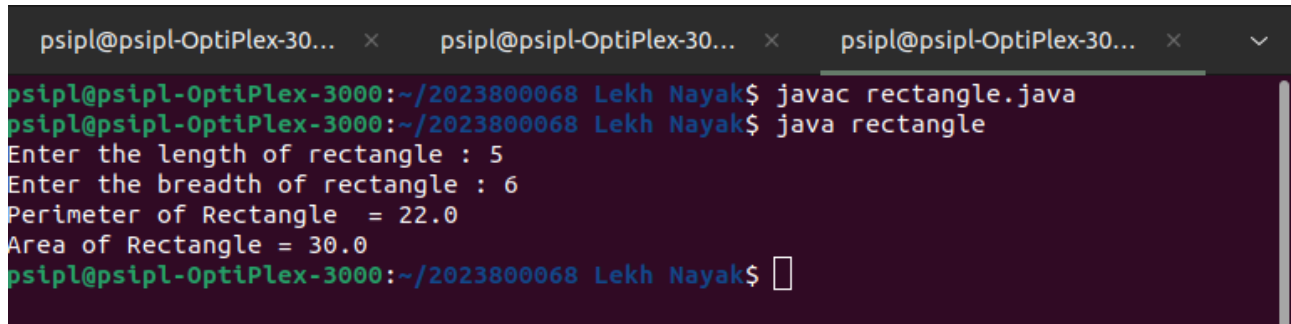
        Scanner sc = new Scanner(System.in);
        Rectangle r1 = new Rectangle();

        System.out.print("Enter the length of rectangle : ");
        r1.length = sc.nextDouble();
        System.out.print("Enter the breadth of rectangle : ");
        r1.breadth = sc.nextDouble();

        double peri = r1.perimeter();
        double area = r1.area();
        System.out.println("Perimeter of Rectangle = " + peri);
        System.out.println("Area of Rectangle = " + area);
        sc.close();
    }
}

```

RESULT:



```

psipl@psipl-OptiPlex-30... x    psipl@psipl-OptiPlex-30... x    psipl@psipl-OptiPlex-30... x    v
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ javac rectangle.java
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ java rectangle
Enter the length of rectangle : 5
Enter the breadth of rectangle : 6
Perimeter of Rectangle = 22.0
Area of Rectangle = 30.0
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ █

```

Program 4

PROBLEM

Define a class to represent a bank account. Include the following members:

STATEMENT:	<p>Data members</p> <ol style="list-style-type: none"> Name of the depositor Account number Type of account Balance amount in the account <p>Member functions</p> <ol style="list-style-type: none"> To assign initial value To deposit an amount To withdraw an amount after checking the balance To display name and balance <p>Write a menu-driven main program to test the program, read the data from the user.</p>
PROGRAM:	<pre>import java.util.*; class AccInfo { String name; long accno; String acctype; double accbalance; Scanner sc = new Scanner(System.in); void initialize() { System.out.print("Enter Account holder name:"); name = sc.nextLine(); System.out.print("Enter Account number:"); accno = sc.nextLong(); while (true) { System.out.print("Enter account type (saving/current):"); acctype = sc.next().toLowerCase(); if (acctype.equals("savings") acctype.equals("current")) { break; } else {</pre>

```

        System.out.println("Please enter a valid account type (savings or
current)");
    }
}

    System.out.println("Enter initial Account Balance: ");
    accbalance = sc.nextDouble();
}

void checkbalance() {
    System.out.println("Account Holder name: " + name);
    System.out.println("Account Balance: " + accbalance + "\n");
}

void deposit() {
    System.out.print("Enter the Deposit amount:");
    double amount = sc.nextDouble();
    accbalance = accbalance + amount;
    System.out.println("Amount deposited successfully.\n");
    checkbalance();
}

void withdraw() {
    System.out.print("Enter the withdrawal Amount:");
    double amount = sc.nextDouble();
    if (amount <= accbalance) {
        accbalance = accbalance - amount;
        System.out.println("Withdrawal Successful. Please collect the
amount.\n");
        checkbalance();
    } else {
        System.out.println("Insufficient balance. Withdrawal not
allowed\n");
    }
}

void closeScanner() {

```



```
        sc.close();
    }
}

public class Account {
    public static void main(String[] args) {

        AccInfo a1 = new AccInfo();
        Scanner sc = new Scanner(System.in);
        int option;

        System.out.print("Welcome to Indian Bank\nHow Do you want to get
started today?\n");

        System.out.println("Please Initialize the account");
        a1.initialize();

        while (true) {
            System.out.println(
                "Menu:\n1. Check Balance\n2. Withdraw Amount\n3. Deposit
Amount\n4. Exit\nEnter the Menu number option");
            option = sc.nextInt();

            switch (option) {
                case 1:
                    a1.checkbalance();
                    break;
                case 2:
                    a1.withdraw();
                    break;
                case 3:
                    a1.deposit();
                    break;
                case 4:
                    a1.closeScanner();
                    sc.close();
                    System.out.println("Exiting program. Thank you!");
            }
        }
    }
}
```

	<pre> return; default: System.out.println("Please enter a valid option"); break; } } } } } </pre>
--	---

RESULT:

```

psipl@psipl-OptiPlex-30... x    psipl@psipl-OptiPlex-30... x    psipl@psipl-OptiPlex-30... x    v
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ javac Account.java
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ java Account
Welcome to Indian Bank
How Do you want to get started today?
Please Initialize the account
Enter Account holder name:Lekh
Enter Account number:2023800068
Enter account type (saving/current):Savings
Enter initial Account Balance:
6969
Menu:
1. Check Balance
2. Withdraw Amount
3. Deposit Amount
4. Exit
Enter the Menu number option
3
Enter the Deposit amount:2000
Amount deposited successfully.

Account Holder name: Lekh
Account Balance: 8969.0

Menu:
1. Check Balance
2. Withdraw Amount
3. Deposit Amount
4. Exit
Enter the Menu number option
4
Exiting program. Thank you!
psipl@psipl-OptiPlex-3000:~/2023800068 Lekh Nayak$ █

```

CONCLUSION:	In this experiment i learnt how to implement <i>classes and objects</i>
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