Lab Record

of

Introduction to Java Programming

(CSF203)

Submitted to:

Mr. Ajay Kumar
Assistant Professor
School of Computing
DIT University

Submitted by:

SATYAM RAJ
Roll No- 200102581
Section: CSE - E
2nd Year (3rd Sem)

Session 2021-22

Index

S.No	Title of Experiment/Objective	Date of Conduction	Signature of Faculty
1	Write a program in java to calculate simple interest using command line arguments.	09-08-2021	
2	Input character and check, it is vowel or consonant **without using if-else statement.**	16-08-2021	
3	Write a program to print Fibonacci series for first 100 values- Do not print the value if divided by 5;	23-08-2021	
4	Write a Java program that reads in two decimal numbers and check whether they are the same up to four decimal places or not. **Hint**- Math.round() function can be used	06-09-2021	
5	Write a program to find maximum number among 10 numbers.	13-09-2021	
6	Write a program to sort 10 names in ascending order using the String array.	20-09-2021	
7	Write a program to create a class teacher with teacherid and name. There are two types of teachers in college. 1. Programming teacher and 2. Theory teacher. Every type of teacher has the subject allocated to them in a semester. Display details of minimum two teachers with their id, name and subject	27-09-2021	
8	Write a program to the concept of Method overloading by designing functions to sum different type of numbers (Minimum 3 functions).	11-10-2021	
9	Write a program to create an interface for simple calculator to perform +, - , *, / and %. Implement this interface in a class.	18-10-2021	
10	WAP to create user defined exception to check university name and course of the student. If course name is not “Java” then raise an exception.	25-10-2021	

Date – 09-08-2021

Practical -1

Objective –

Write a program in java to calculate simple interest.

Code:

```
package LAB_FILE;
import java.util.Scanner;
public class simple_intrest
{
    public static void main(String args[])
    {
        System.out.println("\t\t\nGraded Lab 5 -Section
E\n*************************************************"
                + "\n\t\tName : SATYAM RAJ \n\t\tRollNo: 200102581 "
                + "\n\t\tSAP ID: 1000015607 \n\t\tSection: E
\n*************************************************\n");
        float p, r, t, sinterest;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter the Principal : "); p
            = scan.nextFloat();
        System.out.print("Enter the Rate of interest : "); r
            = scan.nextFloat();
        System.out.print("Enter the Time period : ");
        t = scan.nextFloat();
        scan.close();
        sinterest = (p * r * t) / 100;
        System.out.print("Simple Interest is: " +sinterest);
    }
}
```

Output-

```
        LAB FILE -Section E
*************************************************
        Name : SATYAM RAJ
        RollNo: 200102581
        SAP ID: 1000015607
        Section: E
*************************************************

Enter the Principal : 10000
Enter the Rate of interest : 10
Enter the Time period : 10
Simple Interest is: 10000.0
Process finished with exit code 0
```

Practical -2

Objective-
Input character and check, it is vowel or consonant without using if else statement.

Code :

```
package LAB_FILE;

import java.util.Scanner;
class check
{
    public static void main(String[] A)
{
    System.out.println("\n\n\t************************************");
       System.out.println("\t     ::::: Practical_3 :::::::");
       System.out.println("\t\t\t Name: SATYAM RAJ ");
       System.out.println("\t\t\t SAP ID: 1000015607 ");
       System.out.println("\t\t\t Roll No: 200102581 ");
       System.out.println("\t************************************\n\n");


    Scanner S=new Scanner(System.in); char ch;
    System.out.println("Enter the character you want to check:");
ch=S.next().charAt(0);
    String C=(ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U' ||
ch=='a' || ch=='e' || ch=='i' ||
             ch=='o' || ch=='u')?"vowel":"consonant";
    System.out.println("It is:"+C);
}
 }
```

OUTPUT -

```
        LAB FILE - Section E
**************************************************
        Name : SATYAM RAJ
        RollNo: 200102581
        SAP ID: 1000015607
        Section: E
**************************************************

Enter the character you want to check:
satyam
It is:consonant

Process finished with exit code 0
```

Practical -3

OBJECTIVE :

Write a program to print Fibonacci series for first 100 values- Do not print the value if divided by 5.

CODE-

```
package LAB_FILE;

public class Fibonacci_series
{
    //Function to print N Fibonacci Number
    static void Fibonacci(int N){
        int num1=0,num2=1;
        int counter=0;
    //IteratetillcounterisN
        while(counter<N)
        {
            //Printthenumbe
    //Printthenumber
            System.out.print(num1+"" );
//Swap
            int num3=num2+num1;
            num1=num2;
            num2=num3;
            counter=counter+1;
        }
    }
    public static void main(String[] args)
    {
        System.out.println("\n\n\t************************************");
        System.out.println("\t     ::::: Practical_3 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");

        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");
        System.out.println("\t************************************\n\n");



    //GivenNumberN
        int N=10;
     //FunctionCall
        Fibonacci(N);

    }
}
```

```
    ************************************
         ::::: Practical_3 :::::::
             Name: SATYAM RAJ
             SAP ID: 1000015607
             Roll No: 200102581
    ************************************


0112358132134
Process finished with exit code 0
```

Practical -4

Write a Java program that reads in two decimal numbers and check whether they are the same up to four decimal places or not.

Hint- Math.round() function can be used

CODE-

```
package LAB_FILE;
import java.util.Scanner;
class Decimal
{
    public static void main(String[] A)
    {

System.out.println("\n\n\t************************************");
        System.out.println("\t     ::::: Practical_3 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t************************************\n\n");

        Scanner s=new Scanner(System.in); double a,b;
    System.out.println("Enter two numbers:");
    a=s.nextDouble();
    b=s.nextDouble();
    a=(Math.round(a*10000));
        a=a/10000;
    b=(Math.round(b*10000));
    b=b/10000;
    if(a==b)
        System.out.println("Same");
    else
        System.out.println("Different");
}
 }
```

OUTPUT----→

```
        LAB FILE - Section E
**************************************************
        Name : SATYAM RAJ
        RollNo: 200102581
        SAP ID: 1000015607
        Section: E
**************************************************

Enter two numbers:
5.5698
6.7892
Different

Process finished with exit code 0
```

Practical – 5

Objective-

Write a program to find maximum number among 10 numbers.

Code-

```
package LAB_FILE;

import java.util.Scanner; import
        java.util.Scanner;
class Max {
    public static void main(String[] A) {

System.out.println("\n\n\t*************************************");
        System.out.println("\t     ::::: Practical_5 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t*************************************\n\n");

        Scanner s = new Scanner(System.in);
        int a[] = new
                int[10];
        System.out.println("Enter elements:");
        int
                i, max = 0;
        for (i = 0; i < 10; i++) {
            System.out.print("Value:");
            a[i] = s.nextInt();
        }
        max = a[0];
        for (i = 0; i < 10; i++) {
            if (max < a[i])
                max = a[i];
        }
System.out.println("Maximum:" + max);
    }
}
```

OUTPUT -→

```
    *************************************
        ::::: Practical_5 :::::::
            Name: SATYAM RAJ
            SAP ID: 1000015607
            Roll No: 200102581
    *************************************


Enter elements:
Value:45
Value:69
Value:88
Value:97
Value:99
Value:48
Value:36
Value:12
Value:02
Value:18


Maximum:99

Process finished with exit code 0
```

Practical – 6

Objective-

Write a program to sort 10 names in ascending order using the String array.

Code –

```
package LAB_FILE;

import java.util.Scanner; class
Sort {
    public static void main(String[] A)
    {

System.out.println("\n\n\t************************************");
        System.out.println("\t     ::::: Practical_5 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t************************************\n\n");
        Scanner input = new Scanner(System.in);
        int i, j;
        String B;
        String S[] = new String[10];
        for (i = 0; i < 10; i++) {
            System.out.print("Value" + i + ":");
            S[i] = input.nextLine();
        }
        for (i = 0; i < S.length; i++)
            for (j = i + 1; j < S.length; j++) {
                if ((S[j].compareTo(S[i])) < 0) {
                    B = S[i];
                    S[i] = S[j];
                    S[j] = B;
                }
            }
        for (i = 0; i < 10; i++) {
            System.out.println("Value:" + S[i]);
        }

    }
}
```

OUTPUT-

```
    ************************************
         ::::: Practical_5 :::::::
              Name: SATYAM RAJ
              SAP ID: 1000015607
              Roll No: 200102581
    ************************************


Value0:SATYAM
Value1:SUDHANSHU
Value2:BHARTI
Value3:DHANRAJ
Value4:SUMIT
Value5:SONAKSHI
Value6:PRIYANKA
Value7:AMRA
Value8:AKSHITA
Value9:UJJAWAL
Value:AKSHITA
Value:AMRA
Value:BHARTI
Value:DHANRAJ
Value:PRIYANKA
Value:SATYAM
Value:SONAKSHI
Value:SUDHANSHU
Value:SUMIT
Value:UJJAWAL
```

Practical – 7

Objective-

Write a program to create a class teacher with teacherid and name. There are two types of teachers in college. 1. Programming teacher and 2. Theory teacher. Every type of teacher has the subject allocated to them in a semester. Display details of minimum two teachers with their id, name and subject

Code-

```
package LAB_FILE;

import java.util.Scanner;
class teacher
{
    String name; int
            teacher_id;
    String subject;

    teacher()
    {
        Scanner sc = new Scanner(System.in);

        System.out.print("\nEnter the name: "); name=sc.nextLine();
        System.out.print("\nEnter teacher id: "); teacher_id=sc.nextInt();
        System.out.print("\nChoose the type\n1. Programming\n2.Theory\n");
int
            opt=sc.nextInt(); if(opt==1) subject="Java";
    else
        subject="Discrete Mathematics";
    }
    void output()
    {
        System.out.println("Name: "+name);
        System.out.println("Teacher ID: "+teacher_id);
        System.out.println("Subject: "+subject);
    }
    public static void main(String args[]){
        System.out.println("\n\n\t************************************");
        System.out.println("\t     ::::: Practical_7 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");
        System.out.println("\t************************************\n\n");
        Scanner sc = new Scanner(System.in); teacher
                t[]=new teacher[100];
        System.out.println("Enter number of teachers (maximum 100): ");
        int n=sc.nextInt(); for(int i=0;i<n;i++) t[i]=new teacher();
        for(int i=0;i<n;i++) t[i].output();
```

```
    }
}
```

OUTPUT –

```
    ************************************
        ::::: Practical_7 :::::::
            Name: SATYAM RAJ
            SAP ID: 1000015607
            Roll No: 200102581
    ************************************


Enter number of teachers (maximum 100):
2

Enter the name: GARIMA VERMA

Enter teacher id: 2001022

Choose the type
1. Programming
2.Theory
1

Enter the name: AJAY KUMAR

Enter teacher id: 2001023

Choose the type
1. Programming
2.Theory
2
```

```
Name: GARIMA VERMA
Teacher ID: 2001022
Subject: Java
Name: AJAY KUMAR
Teacher ID: 2001023
Subject: Discrete Mathematics
```

Practical – 8

Objective-

Write a program to the concept of Method overloading by designing functions to sum different type of numbers (Minimum 3 functions).

Code-

```
package LAB_FILE;

import java.util.Scanner;
class MethOver
{
    void Sum(float A,float B)
    {
        System.out.println("First Method!!");
        System.out.println("Sum of first two numbers:"+(A+B));
    }
    float Sum(float A,float B,float C)
    {
        System.out.println("Second Method!!"); return
            (A+B+C);
    }
    void Sum()
    {
        System.out.println("Third Method!!");
        Scanner input=new Scanner(System.in);
System.out.println("Enter two numbers:");
        float a=input.nextFloat(); float b=input.nextFloat();
        System.out.println("Sum:"+(a+b));
    }
    public static void main(String[] A)
    {

System.out.println("\n\n\t*************************************");
        System.out.println("\t     ::::: Practical_8 :::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t*************************************\n\n");
        Scanner input=new Scanner(System.in);
        System.out.println("Enter three numbers(decimal):"); float
            a=input.nextFloat(); float b=input.nextFloat();
        float c=input.nextFloat();
        MethOver A1=new MethOver();
```

```
        A1.Sum(a,b); float d=A1.Sum(a,b,c);
        System.out.println("Sum of Three numbers:"+d); A1.Sum();
    }
}
```

OUTPUT—

```
*************************************
     ::::: Practical_8 :::::::
          Name: SATYAM RAJ
          SAP ID: 1000015607
          Roll No: 200102581
*************************************


Enter three numbers(decimal):
1.2656
4.3689
3.4593
First Method!!
Sum of first two numbers:5.6344995
Second Method!!
Sum of Three numbers:9.0938
Third Method!!
Enter two numbers:
1.2654
5.368
Sum:6.6334

Process finished with exit code 0
```

Practical – 9

Objective-

Write a program to create an interface for simple calculator to perform +, -
, *, / and %. Implement this interface in a class.

Code-

```
package LAB_FILE;

import java.util.Scanner;
class Cal
{
    public static void main(String[] A)
    {

System.out.println("\n\n\t**********************************
****");
        System.out.println("\t     ::::: Practical_9
:::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t**********************************
\n\n");
        Scanner input=new Scanner(System.in); int
            a,b; char c;
        System.out.println("Enter two numbers:");
        a=input.nextInt();
        b=input.nextInt();
        System.out.println("Enter the operation you want to
perform:");
        c=input.next().charAt(0); switch(c)
    {
        case '+':System.out.println("Sum:"+(a+b)); break;
        case
                '-':if(a>b)
            System.out.println("Difference:"+(a-b));
        else
```

```
        System.out.println("Difference:"+(b-a)); break;
    case

'*':System.out.println("Multiplication:"+(a*b)); break;
        case '/':System.out.println("Division:"+(a/b));
break; case
                '%':System.out.println("Remainder:"+(a%b));
break;
        default:System.out.println("Enter valid value!!");
    }
      }
}
```

OUTPUT-

```
    ****************************************
         ::::: Practical_9 :::::::
             Name: SATYAM RAJ
             SAP ID: 1000015607
             Roll No: 200102581
    ****************************************


Enter two numbers:
200
50
Enter the operation you want to perform:
/
Division:4

Process finished with exit code 0
```

Practical – 10

Objective-

WAP to create user defined exception to check university name and course of the student. If course name is not “Java” then raise an exception.

Code-

```
package LAB_FILE;

import java.util.*;
class excep { String name;
    static String univ = "DIT UNIVERSITY";
    String course; void
    input()
    {
        Scanner sc = new Scanner(System.in);
System.out.print("ENTER NAME : ");
        name = sc.next();
        while(true) {
            System.out.print("ENTER COURSE : "); course =
                    sc.next();
            if( !course.equalsIgnoreCase("Java") ) {
                System.out.println("Invalid course, Enter
again");
            }
            else break;
        }
    }
    void display() {
        System.out.println();
        System.out.println("Name : " + name);
        System.out.println("Course : " + course);
        System.out.println("University : " + univ);
    }
    public static void main(String[] args) {

System.out.println("\n\n\t**********************************
****");
        System.out.println("\t     ::::: Practical_10
```

```
:::::::");
        System.out.println("\t\t\t Name: SATYAM RAJ ");
        System.out.println("\t\t\t SAP ID: 1000015607 ");
        System.out.println("\t\t\t Roll No: 200102581 ");

System.out.println("\t**************************************
\n\n");
        excep o1 = new excep();
        o1.input();
        o1.display();
    }
}
```

OUTPUT-

```
    ************************************
         ::::: Practical_10 :::::::
              Name: SATYAM RAJ
              SAP ID: 1000015607
              Roll No: 200102581
    ************************************


ENTER NAME : Discrete
ENTER COURSE : Graphics
Invalid course, Enter again
ENTER COURSE : java

Name : Discrete
Course : java
University : DIT UNIVERSITY

Process finished with exit code 0
```

SATYAM RAJ
1000015607 SEC-E

Satyam Raj