Programming Paradigms Laboratory

B.Tech. 4th Semester

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Faculty	Engineering & Technology
Programme	B. Tech. in Computer Science and Engineering
Year/Semester	2nd Year / 4th Semester
Name of the Laboratory	Programming Paradigms Laboratory
Laboratory Code	19CSL217A

Laboratory 1

Title of the Laboratory Exercise: Introduction to Java programming environment with variables, data types and arithmetic operators

1. **Questions**

   a. Develop a Java program to check the input number is positive or negative.
   b. Develop a Java program to reverse the input number using for and while loop.
   c. Develop a program to compute the factorial of the input number.
   d. Develop a Java program to check whether the input year is leap or not.

2. **Calculations/Computations/Algorithms**

   a. **Program to Develop a Java program to check the input number is positive or negative.**

```
package lab1pp;
import java.util.Scanner;
public class Lab1pp {

 public static void main(String[] args) {

     Scanner Sc =new Scanner(System.in);
     System.out.printf("enter the number = ");
     float number= Sc.nextFloat();
     if (number<0)
        System.out.println("The given number is negative number");
     else if(number==0)
        System.out.println("The given number is neither negative nor positive
number");
     else
        System.out.println("The given number is positive number");

   }

}
```

b. 1. Program to Develop a Java program to reverse the input number using for loop.

```
package reverse;
import java.util.Scanner;
public class Reverse {
  public static void main(String[] args) {
        Scanner Sc =new Scanner(System.in);
    System.out.printf("enter the number = ");
    int number= Sc.nextInt();
    int reverse=0;
    int digit;
    for ( ;number!=0;number=number/10 ){
       digit=number%10;
       reverse=reverse*10 + digit;

    }
    System.out.println("Reverse of the Given number is "+reverse);
  }
}
```

2. Program to Develop a Java program to reverse the input number using while loop.

```
package reverse;
import java.util.Scanner;
public class Reverse {
  public static void main(String[] args) {
        Scanner Sc =new Scanner(System.in);
    System.out.printf("enter the number = ");
    int number= Sc.nextInt();
    int reverse=0;
    int digit;
    while (number!=0 ){
       digit=number%10;
       reverse=reverse*10 + digit;
       number=number/10;
    }
    System.out.println("Reverse of the Given number is "+reverse);
  }
}
```

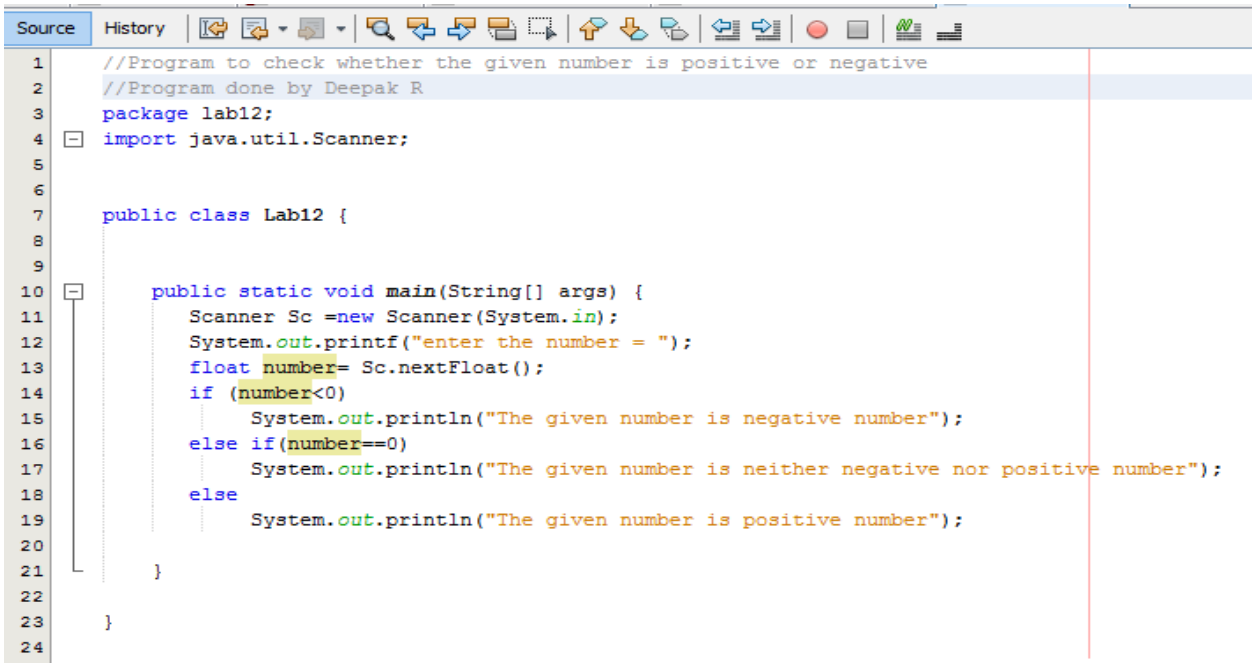
c. Program to Develop a program to compute the factorial of the input number.

```
package factorial;
import java.util.Scanner;
public class Factorial {
   public static void main(String[] args) {
      int fact=1,i;
     Scanner Sc =new Scanner(System.in);
     System.out.printf("enter the number = ");
     int number= Sc.nextInt();
     if (number==0 | number==1){
        System.out.println("Factorial of the Given number is 1");}

     else {
        for(i=2;i<=number;i++)
        {fact=fact*i;
        }
         System.out.println("Factorial of the Given number is "+fact);}
   }
}
```

d. Program Develop a Java program to check whether the input year is leap or not.

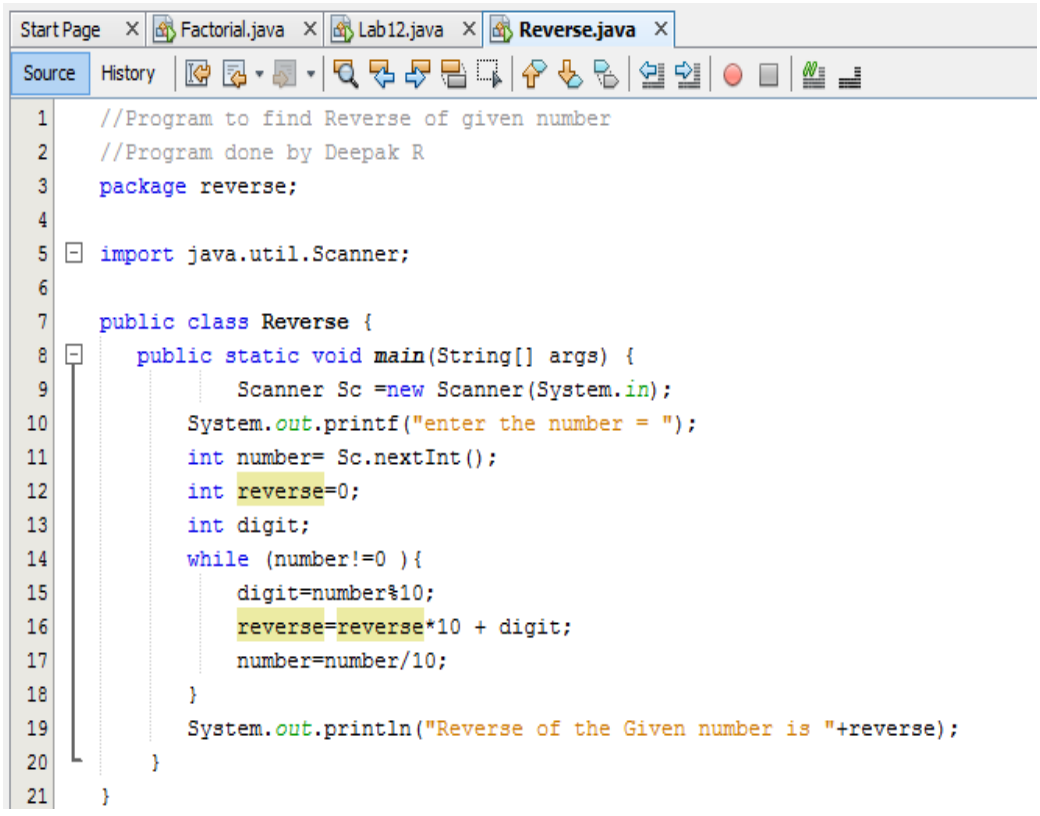
```
package leapyear;
import java.util.Scanner;
public class Leapyear {
   public static void main(String[] args) {
      Scanner Sc =new Scanner(System.in);
     System.out.printf("Enter the year to find whether it is leap year or not = ");
     int year= Sc.nextInt();
     if (((year %4 ==0) && (year%100 !=0)) || (year%400==0))
         System.out.println(+year+" is a leap year");
     else
         System.out.println(+year+" is not a leap year");

   }

}
```

3. **Program Screenshots**



```
1  //Program to check whether the given number is positive or negative
2  //Program done by Deepak R
3  package lab12;
4  import java.util.Scanner;
5
6
7  public class Lab12 {
8
9
10     public static void main(String[] args) {
11        Scanner Sc =new Scanner(System.in);
12        System.out.printf("enter the number = ");
13        float number= Sc.nextFloat();
14        if (number<0)
15             System.out.println("The given number is negative number");
16        else if(number==0)
17             System.out.println("The given number is neither negative nor positive number");
18        else
19             System.out.println("The given number is positive number");
20
21     }
22
23 }
24
```

Fig 1 Program to Develop a Java program to check the input number is positive or negative.



```
1  //Program to find Reverse of given number
2  //Program done by Deepak R
3  package reverse;
4
5  import java.util.Scanner;
6
7  public class Reverse {
8     public static void main(String[] args) {
9             Scanner Sc =new Scanner(System.in);
10       System.out.printf("enter the number = ");
11       int number= Sc.nextInt();
12       int reverse=0;
13       int digit;
14       while (number!=0 ){
15           digit=number%10;
16           reverse=reverse*10 + digit;
17           number=number/10;
18       }
19       System.out.println("Reverse of the Given number is "+reverse);
20    }
21 }
```

Fig 2 Program to Develop a Java program to reverse the input number using while loop.

Start Page | Factorial.java | Lab12.java | Reverse.java | Leapyear.java

Source | History

```java
//Program to find Reverse of given number
//Program done by Deepak R
package reverse;

import java.util.Scanner;

public class Reverse {
   public static void main(String[] args) {
            Scanner Sc =new Scanner(System.in);
        System.out.printf("enter the number = ");
        int number= Sc.nextInt();
        int reverse=0;
        int digit;
        for ( ;number!=0;number=number/10 ){
            digit=number%10;
            reverse=reverse*10 + digit;

        }
        System.out.println("Reverse of the Given number is "+reverse);
    }
}
```

Fig 3 Program to Develop a Java program to reverse the input number using for loop.

```java
//Program to find Factorial of given number
//Program done by Deepak R
package factorial;
import java.util.Scanner;
public class Factorial {
    public static void main(String[] args) {
        int fact=1,i;
        Scanner Sc =new Scanner(System.in);
        System.out.printf("enter the number = ");
        int number= Sc.nextInt();
        if (number==0 | number==1){
            System.out.println("Factorial of the Given number is 1");}

        else {
            for(i=2;i<=number;i++)
            {fact=fact*i;
            }
             System.out.println("Factorial of the Given number is "+fact);}
    }
}
```

fig 4 Program to Develop a program to compute the factorial of the input number.

```java
//Program to find whether given year is leap year or not
//Program done by Deepak R
package leapyear;

import java.util.Scanner;


public class Leapyear {


    public static void main(String[] args) {
        Scanner Sc =new Scanner(System.in);
       System.out.printf("Enter the year to find whether it is leap year or not = ");
       int year= Sc.nextInt();
       if (((year %4 ==0) && (year%100 !=0)) || (year%400==0))
            System.out.println(+year+" is a leap year");
       else
            System.out.println(+year+" is not a leap year");

    }

}
```

Fig 5 Program Develop a Java program to check whether the input year is leap or not.

4. Presentation of Results

```
Output - lab12 (run)   run.xml
run:
enter the number = 0
The given number is neither negative nor positive number
BUILD SUCCESSFUL (total time: 2 minutes 58 seconds)
```

```
Output - lab12 (run)   run.xml
run:
enter the number = 1
The given number is positive number
BUILD SUCCESSFUL (total time: 3 seconds)
```

```
Output - lab12 (run)   run.xml
run:
enter the number = -1
The given number is negative number
BUILD SUCCESSFUL (total time: 4 seconds)
```

Fig 6 Result of Program to Develop a Java program to check the input number is positive or negative.

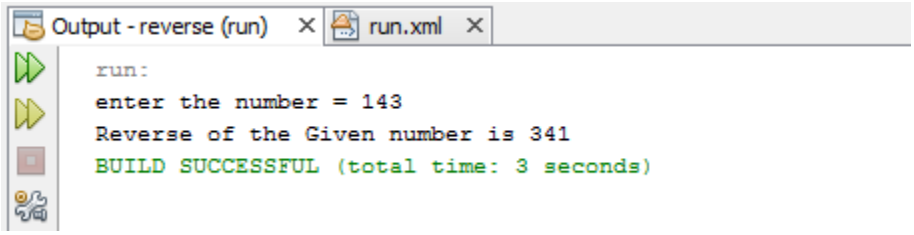


Fig 7 Result of Program to Develop a Java program to reverse the input number using while loop.

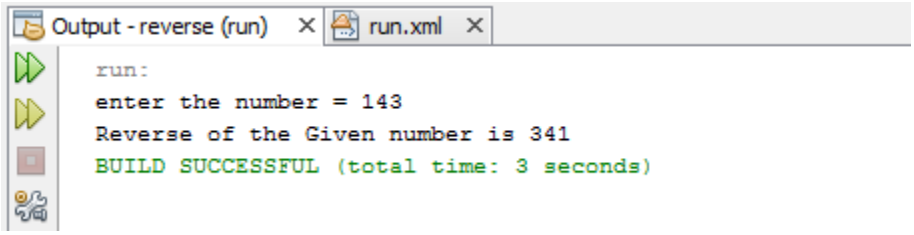


Fig 8 Result of Program to Develop a Java program to reverse the input number using for loop.

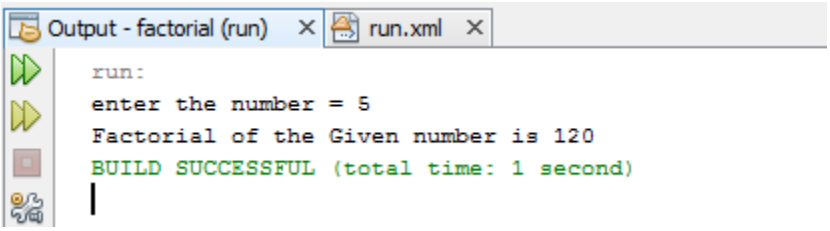


fig 9 Result of Program to Develop a program to compute the factorial of the input number.

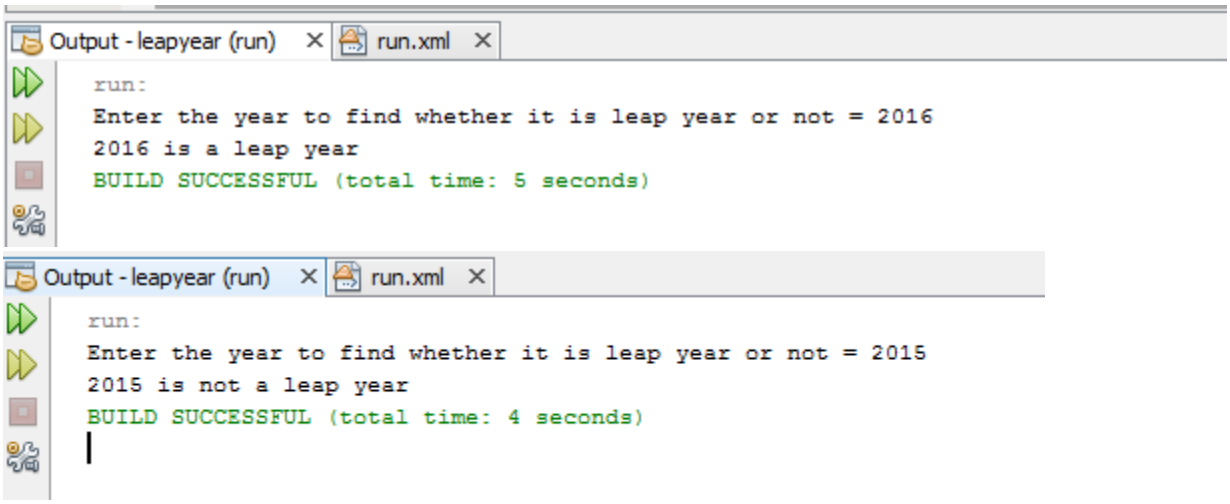


Fig 10 Result of Program Develop a Java program to check whether the input year is leap or not.

5. Conclusions

In this Lab we were Introduced to Java language which is object oriented Programming language .Then we applied the Control and looping conditions to solve the given problems like to Develop a Java program to check the input number is positive or negative , to reverse the input number using for and while loop,To compute the factorial of the input number and at last to Develop a Java program to check whether the input year is leap or not.By doing above experiment we came to know that java is easy to write, compile, debug, and learn than other programming languages.Java is object-oriented. This allows you to create modular programs and reusable code.Java is platform-independent.

6. Limitations of Experiments and Results

- Cannot access local data
- Can only download data from the site where the applet is located
- Cannot make system calls
- Cannot access local data
- Can only download data from the site where the applet is located
- Cannot make system calls
- The java code running time is slower than C