B.Sc. (Computer Science) – V Sem

Programming in Java

Lab Programs

1. Write a program to find the largest of n numbers.

```java
import java.util.*;
class Prog1
{
  public static void main(String[] args)
  {
   Scanner s=new Scanner(System.in);
   System.out.println("Enter the value of n:");
   int n=s.nextInt();
   int a[]=new int[n];
   System.out.println("Enter " + n + " values");
   for (int i=0;i<n;i++)
         a[i]=s.nextInt();
   int large=a[0];
   for (int i=0;i<n;i++)
       if(a[i]>large)
               large=a[i];
   System.out.println("Largest Element = " + large);

  }
}
```

Output:

```
C:\windows\system32\cmd.exe

C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog1.java

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog1
Enter the value of n:
5
Enter 5 values
34
78
56
90
12
Largest Element = 90
```

2. Write a program to find whether a given number is prime or not.

```
import java.util.*;
class Prog2
{
  public static void main(String[] args)
  {
   int count=0;
   Scanner s=new Scanner(System.in);
   System.out.print("Enter a number:");
   int n=s.nextInt();

   for(int i=1;i<=n;i++)
    if(n%i==0)
          count++;
   if(count==2)
          System.out.println(n + " is a prime number");
    else
          System.out.println(n + " is not a prime number");
  }
}
```

Output:


```
Select C:\windows\system32\cmd.exe

C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog2.java

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog2
Enter a number:27
27 is not a prime number

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog2
Enter a number:29
29 is a prime number
```

3. Write a menu driven program for following:
    a. Display a Fibonacci series b. Compute Factorial of a number

```
import java.util.*;
class Prog3
{
  public static void main(String[] args)
  {
   Scanner s=new Scanner(System.in);
```

```
System.out.print("Enter a number:");
int n=s.nextInt();
int choice;
do
    {
    System.out.print("Enter your choice:  1.Fibonacci Series  2.Factorial   3.Exit: ");
    choice=s.nextInt();
    switch(choice)
    {
        case 1: int n1=0,n2=1,n3;
                    System.out.println(n1);
                    System.out.println(n2);
                    for(int i=2;i<n;++i)
                    {
                            n3=n1+n2;
                            System.out.println(n3);
                            n1=n2;
                            n2=n3;
                    }
                break;
        case 2: int i,fact=1;
                for(i=1;i<=n;i++)
                {
                    fact=fact*i;
                }
                System.out.println("Factorial of "+n+" ="+fact);
                break;
    }
    }while(choice!=3);
 }
}
```
Output:

```
C:\windows\system32\cmd.exe
C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog3.java

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog3
Enter a number:5
Enter your choice:  1.Fibonacci Series  2.Factorial   3.EXIT: 1
0
1
1
2
3
Enter your choice:  1.Fibonacci Series  2.Factorial   3.EXIT: 2
Factorial of 5 =120
Enter your choice:  1.Fibonacci Series  2.Factorial   3.EXIT: 1
0
1
1
2
3
Enter your choice:  1.Fibonacci Series  2.Factorial   3.EXIT: 3
```

4. Write a program to check whether a given number is odd or even

```java
import java.util.*;
class Prog4
{
  public static void main(String[] args)
  {
   int count=0;
   Scanner s=new Scanner(System.in);
   System.out.print("Enter a number:");
   int n=s.nextInt();
   if(n%2==0)
        System.out.println(n + " is an Even number");
   else
        System.out.println(n + " is an Odd number");
  }
}
```

Output:

```
C:\windows\system32\cmd.exe
C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog4.java

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog4
Enter a number:6
6 is an Even number

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog4
Enter a number:7
7 is an Odd number
```

5. Write a program to check whether a given string is palindrome or not.

```java
import java.util.*;
class Prog5
{
public static void main(String[] args)
{
Scanner s=new Scanner(System.in);
System.out.println("Enter the String:");
String str=s.next();
System.out.println("String is:" + str);
String reversestring="";
for (int i = str.length() - 1; i >= 0; i--)
reversestring = reversestring + str.charAt(i);
System.out.println("Reversed String is:" + reversestring);
```

```
if (str.equals(reversestring))
System.out.println("The string is a palindrome.");
else
System.out.println("The string isn't a palindrome.");
}
}
```

Output:

6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.

```
import java.util.*;
class Prog6
{
  public static void main(String[] args)
  {
   int i,k,sum=0,prod=1,rem,rev=0;
   Scanner s=new Scanner(System.in);
   System.out.print("Enter a number:");
   int n=s.nextInt();
   while(n>0)
       {
               rem=n%10;
               sum=sum+rem;
               prod=prod*rem;
               rev=rev*10+rem;
               n=n/10;
```

```
        }
        System.out.println("Sum of the digits:" + sum);
        System.out.println("Product of the digits:" + prod);
    System.out.print("Reversed Number=" + rev);
    }
}
```

Output:

```
C:\windows\system32\cmd.exe

C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog6.java

C:\Users\prasa\Desktop\JavaLabPrograms>java Prog6
Enter a number:1234
Sum of the digits:10
Product of the digits:24
Reversed Number=4321
C:\Users\prasa\Desktop\JavaLabPrograms>
```

7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.

```
import java.util.*;
class Prog7
{
  public static void main(String[] args)
  {
   int countequal=0,countgreater=0,countless=0;
   Scanner s=new Scanner(System.in);
   int a[]=new int[10];
   System.out.println("Enter 10 integers");
   for (int i=0;i<10;i++)
         a[i]=s.nextInt();
   System.out.println("Enter another num");
   int num=s.nextInt();
   for(int i=0;i<10;i++)
   if(a[i]>num)
         countgreater++;
   else if(a[i]<num)
         countless++;
   else
         countequal++;
   System.out.println("No. of elements greater than " + num +"=" +
countgreater);
```

```
        System.out.println("No. of elements less than " + num +"=" + countless);
        System.out.println("No. of elements equal to " + num +"=" + countequal);

    }
}
```

Output:

```
C:\windows\system32\cmd.exe

C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog7.java

C:\Users\prasa\Desktop\JavaLabPrograms>java   Prog7
Enter 10 integers
23
67
45
98
34
66
51
49
70
67
Enter another num
50
No. of elements greater than 50=6
No. of elements less than 50=4
No. of elements equal to 50=0
```

8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.

```java
import java.util.*;
class Prog8
{
  public static void main(String[] args)
  {
   int sum=0;
   double avg;
   Scanner s=new Scanner(System.in);
   int a[]=new int[5];
   System.out.println("Enter List of 5 integers");
   for (int i=0;i<5;i++)
```

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```
    {
        a[i]=s.nextInt();
        sum=sum+a[i];
    }
    avg=sum/5.0;
    System.out.println("Average of the prices=" + avg);
    System.out.println("Prices that are higher than average");

    for(int i=0;i<5;i++)
    if(a[i]>avg)
        System.out.println(a[i]);
  }
}
```

Output:

```
C:\windows\system32\cmd.exe
C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog8.java

C:\Users\prasa\Desktop\JavaLabPrograms>java   Prog8
Enter List of 5 integers
22
33
44
55
66
Average of the prices=44.0
Prices that are higher than average
55
66
```

9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.

```
import java.util.*;
class Prog9
{
  public static void main(String[] args)
  {
   Scanner s=new Scanner(System.in);
   System.out.println("Enter the value of n:");
   int n=s.nextInt();
   int a[]=new int[n];
   System.out.println("Enter " + n + " values");
   for (int i=0;i<n;i++)
```

```
        a[i]=s.nextInt();
   for (int i=0;i<n;i++)
   {
        int temp=a[i],r,sum=0;
   while(a[i]>0)
        {

        r=a[i]%10;
        sum=sum+(r*r*r);
        a[i]=a[i]/10;
        }
        if(temp==sum)
        System.out.println(temp + " is an armstrong  number ");
   }
  }
}
```

Output:

C:\windows\system32\cmd.exe

```
C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog9.java

C:\Users\prasa\Desktop\JavaLabPrograms>java   Prog9
Enter the value of n:
5
Enter 5 values
123
370
371
153
23
370 is an armstrong   number
371 is an armstrong   number
153 is an armstrong   number
```

10. Write java program for the following matrix operations:
a. Addition of two matrices
b. Transpose of a matrix

```
import java.util.Scanner;
class Prog10
{
public static void main(String args[])
{
Scanner s=new Scanner(System.in);
```

```
int m1[][]=new int[3][3];
int m2[][]=new int[3][3];
int m3[][]=new int[3][3];
int m4[][]=new int[3][3];
int i,j;
System.out.println("Enter elements of first matrix (3 x 3 Matrix) ");
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
m1[i][j]=s.nextInt();
}
}
System.out.println("Enter elements of second matrix (3 x 3 Matrix) ");
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
m2[i][j]=s.nextInt();
}
}
/*Matrix addition*/
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
m3[i][j]=0;
m3[i][j]=m1[i][j]+m2[i][j];
}
}

System.out.println("Matrix Addition result is ");
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
System.out.print(m3[i][j] +" ");
}
System.out.println();
}


/*Matrix Transpose*/
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
m4[i][j]= m3[j][i];
```

```
}
}

System.out.println("Matrix Transpose result is ");
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
System.out.print(m4[i][j] +" ");
}
System.out.println();
}


}
}
```

Output:

```
C:\windows\system32\cmd.exe

C:\Users\prasa\Desktop\JavaLabPrograms>javac Prog10.java

C:\Users\prasa\Desktop\JavaLabPrograms>java  Prog10
Enter elements of first matrix (3 x 3 Matrix)
1 2 3
4 5 6
7 8 9
Enter elements of second matrix (3 x 3 Matrix)
1 2 3
4 5 6
7 8 9
Matrix Addition result is
2 4 6
8 10 12
14 16 18
Matrix Transpose result is
2 8 14
4 10 16
6 12 18
```