26.4.24.

Samyuktha.S.S
192311056

Assignment - 2

JAVA PROGRAMMING.

1) Write a program for matrix addition.

```
Import java.util.scanner;
class Hello world {
Public static void main[String[] args]{
scanner input = new scanner(system.in);
int mat1[][] = {{1,2}, {5,3}}
int mat2[][] = {{2,3}, {4,3}}
int mat_sum[][] = new int[2][2];
int len = mat1.length;
For(int i=0; i<len; i++)
{
 For(int j=0; j<len; j++)
{
mat_sum[i][j] = mat1[i][j] + mat2[i][j];
system.out.Print(mat_sum[i][j] + "\t");
}
system.out.println();
}
```

2) Write a program to print rectangle symbol pattern. Get the symbol as input from user.

```
import java.util.scanner;
Public class rectanglePattern {
    Public static void main(String[] args) {
     scanner scanner = new scanner(system.in);
```

```
system.out.Print("Enter the symbol you want to use for
                                the rectangular pattern:");
char symbol = scanner.next().charAt(0);

int rows = 5;
int columns = 5;

for (int i = 0; i < rows; i++) {
    for (int j = 0; j < columns; j++) {
      System.out.print(symbol + " ");
    }
    system.out.print();
    }
  }
}
```

3) sort a list of names in alphabetical order.

```
import java.util.scanner;

class name {

Public static void main(string[] args)
{
scanner input = new scanner(system.in);
string arr[] = {"Banana", "Apple", "carrot", "Radish", "Jack"};
int len = .arr.length;
char order = input.next().charAt(0);
If (order = 'A')
{
  for (int i = 0; i<len; i++)
{
   for (int j = i++; j< arr.length; j++)
   {
```

```
if (arr[i].compareTo(arr[i]) <0) {
    String temp = arr[i];
    arr[i] = arr[j]
    arr[j] = temp;
  }
 }
System.out.println(Array.toString(arr));
 }
 else if (order == "D")
 {
 for(int i=0; i<len; i++)
 {
 for (int j=i+1; j< arr.length; j++)
 {
 if (arr[i].compareTo(arr[j] <0)
 {
String temp = arr[i];
 arr[i] = arr[j]
  arr[j] = temp;
}}}
System.out.println(Array.toString(arr));
}
```

(4) Write a program to matrix multiplication.

```
Public class matrixmultiplication {
    Public static void main (String [] args) {
      int [][] firstMatrix = {{1,2,3}, {4,5,6}};
```

```
int [][] secondMatrix = {{7,8},{9,10},{11,12}};

int rowsFirst = firstMatrix.length;
int columnsFirst = firstMatrix[0].length;
int columnsSecond = secondMatrix[0].length;

int [][] result = new int [rowsFirst][columnsSecond];

for (int i=0; i< rowsFirst; i++) {
  for (int j =0; j< columnsSecond; j++) {
    for (int k=0; k< columnsFirst; k++) {
      result[i][j] += firstMatrix[i][k] * secondMatrix[k][j];
    }
  }
}

for (int i=0; i< rowsFirst; i++) {
  for (int j=0; j< columnsSecond; j++) {
    System.out.print(result[i][j]+ " ");
  }
  System.out.println();
 }
}
```

5) write a program to print the following pattern.

```
1
1 1
1 1 1
1 1
1
```

```
import java.util.scanner;

Public class Patternprinting {
   Public static void main (string[] args) {
     Scanner scanner = new scanner (system.in);
     System.out.print("Enter the number to be printed :");
     int num = scanner.nextInt();
     System.out.print("Max num of times printed :");
     int max = scanner.nextInt();

    For (int i = 1; i <= max; i++) {
      For (int j = 1; j <= i; j++) {
        system.out.print(num);
      }
        system.out.println();
      }
      For (int i = max - 1; i >= 1; i--) {
         For (int j = 1; j <= i; j++) {
           system.out.print(num);
         }
          system.out.println();
       }
     }
   }
```

6) Write a program to print the special characters seperately and print num of special characters in the line.

```
import java.util.scanner;
Public class specialcharacterscounter {
   Public static void main (string[] args) {
      string line = new scanner (system.in);
      string s = input.nextline();
      int len = s.length();
      char a[] = new char[len];
      int sp = 0;
      For (int i = 0; i < len; i++)
      {
         a[i] = s.charAt(i);
         If (a[i] >= 65 && a[i] <= 90 || a[i] >= 97 && a[i] <= 122
                                    || a[i] >= 48 && a[i] <= 57 )
        {
        }
        else
        {
          sp++;
          system.out.print(a[i]);
        }
        }
        system.out.print("\n" + sp);
```

7) Write a program to print all the composite numbers between a and b?

```
import java.util.scanner;
Public class compositenumbers {
    Public static void main (string[] args) {
        scanner input = new scanner (system.in)
        int a = input.nextInt();
```

```
int b = input.nextInt();
for (int i = a+1; i<=b; i++)
{
 int c = 0;
 for(int j = 1; j<=b; j++)
 {
    if (i%j==0)
       c++;
  }
  if (c>2)
    System.out.Print(i+" ");
  }
 }
}
```

18) Write a program to print the inverted full pyramid pattern?

```
Public class invertedFullPyramid {
      Public static void main(String[] args) {
            int rows = 5;

      for(int i = rows; i>=1; --i) {
         for(int space=0; space<rows-i; ++space) {
           System.out.Print("  ");
         }
         for(int j=0; j<i-1; ++j) {
            System.out.Print("* ");
         }
         System.out.println();
      }
   }
}
```

19) Find mean, median and mode of the array of numbers.

```
import java.util.scanner;
Rublic class main {
        Rublic Static Void main(String[] args) {
        int [] numbers = {16, 18, 27, 16, 23, 21, 19};
        int sum = 0;
        For (int num : numbers) {
        sum+ = num;
        }
        double mean = (double) sum/numbers.length;
        system.out.Println("Mean =" + mean);

        Array.sort (numbers);
        double median;
        If (numbers.length %.2 ==0) {
          meadian = (double) (number[numbers.length /2-1] +
                    numbers[numbers.length/2]) /2;
          } else {
            median = (double) numbers [numbers.length / 2];
          }
        system.out.Println("Median =" + median);
        }
        int mode = numbers [0];
        int max frequency = 0;
        If (entry.getvalue () > max Frequency) {
        max Frequency = entry.getvalue ();
      }
      }
      system.out.println ("Mode =" + mode);
    }
}
```

20) Find the factorial of n?

```
Public class factorial {
    Public static void main (String [] args) {
        int n = 4 ;
        int factorial = 1;
        For (int i = 1 ; i <= n ; i++) {
            factorial *= i;
        }
        System.out.println (n + " Factorial = " + factorial);
    }
}
```