26/7/24

Assignment-02

CSA-0993 Java

Sanjeevi.R
192324096

1) Write a program for matrix addition?

```
Public class matrix addition {
    Public Static void main (String [] args) {
    Scanner input = new Scanner(System.in);
    int mat1 [][] = {{1, 2}, {5, 3}};
    int mat2 [][] = {{2, 3}, {4, 1}};
    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();
    }
  }
}
```

output :-

Mat Sum = 3 5

9 4

2) Write a program to print rectangle Symbol 2
Pattern. Get the System 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 of
                          Pattern:");
        Char Symbol = Scanner.next().CharAt(0);

        System.Out.Print("Enter the num of rows:");
        int rows = Scanner.nextInt();
        System.out.print("Enter the num of Columns:");
        int Columns = Scanner.nextInt();

        for (int i=0; i<rows; i++){
            for(int j=0; j< Columns; j++){
                System.out.Print(Symbol+" ");
            }
            System.out.println();
        }
    }
}
```

Output :- Enter the Symbol of Pattern : &
Enter the num of rows : 3
Enter the num of Columns : 3

3 3 3
3 3 3

3) write a program the would sort a list of names in alphabetical order Ascending or Descending. choice get from the user?

```
Public class Sort{
    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+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(Arrays.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(Arrays.toString(arr));
}
}
```

Input :

Banana
Carrot
Radish
Apple
Jack

Output :-

Apple
Banana
Carrot
Jack
Radish

4) Write a Program for matrix multiplication?

```
Public class matrix{
Public static void main(String[] args){

Scanner input=new Scanner(System.in);
int r=input.nextInt();
int c=input.nextInt();
int mat1[][]=new int[r][c];
int mat2[][]=new int[r][c];

for (int i=0;i<r;i++)
{
   for(int j=0;j<c;j++)
   {
     mat1[i][j]=input.nextInt();
   }
}
for(int i=0;i<r;i++)
{
  for(int j=0;j<c;j++)
  {
    mat2[i][j]=input.nextInt();
  }
}
int sum[][]=new int[r][c];
for(int i=0;i<r;i++)
{
  for(int j=0;j<c;j++)
  {
    sum[i][j]=0;
    for(int k=0;k=c;k++)
    {
     sum[i][j]=sum[i][j]+(mat1[i][k]*
                          mat2[k][j]);
    }
```

```
        System.out.print(sum[i][j]+"\t");
    }
    System.out.println();
}
}
```

Output :-

```
Mat Sum = 10  5
          22  18
```

45) Write a program to print the following Pattern.

```
Public class pattern{
    Public static void main(String[] args)
    Scanner input = new Scanner(System.in);
    System.out.print("Enter the num to be
                      Printed:");
    int x = input.nextInt();
    System.out.print("Enter the num of
                      time Printed:");
    int n = input.nextInt();
    for(int i=1; i<=n; i++)
    {
      for(int j=1; j<=i; j++)
      {
        System.out.print(x);
      }
      System.out.println();
}
```

```
for(int i=n-1;i>=1;i--)
{
  for(int j=1;j<=i;j++)
  {
    System.out.print(x);
  }
  System.out.println();
 }
}
}
```

Output :- Enter the num to be printed : 1
Enter num of time printed : 3

```
1
11
111
11
1
```

16) Write a program to print the special character separately and print number of special characters in the line?

```
Public class Char {
  Public Static void main(String[] args){
  Scanner input = 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.println("In"+sp);
}
}
```

7) Write a program to print all the composite numbers b/w a & b?

```
Public Class Compositenum{
    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+" ");
    }
}
```

Input

A = 12
B = 19

Output

14, 15, 16, 18

8) Full Pyramid pattern

```
Public class Pattern {
    Public Static void main(String[] args){
    Scanner input=new Scanner(System.in);
    int n=input.nextInt();
    for(int i=n; i>=1; i--)
    {
      for(int j=0; j<n-i; j++)
      {
        System.out.print(" ");
      }
      for(int k=1; k<=i; k++)
      {
        System.out.print("* ");
      }
      System.out.println();
    }
```

O/P

```
* * * * * * * * *
  * * * * * * *
    * * * * *
      * * *
        *
```

9) Find the Mean, Median, Mode of the array of numbers?

```
Public class array {
    Public Static void Main(String[] args){
    Scanner input = new Scanner(System.in);
    int a[] = [16, 18, 27, 16, 23, 21, 19];
    int len = a.length;
    int Sum = 0;
    for(int i=0; i<len; i++)
```

```
{
    Sum = Sum+a[i];
}
int mean = Sum/len;
System.out.println("mean:"+mean);
for(int i=0;i<len;i++)
{
  for(int j=i+1;j<len;j++)
  {
    if(a[i]>a[j])
    {
      int temp=a[i];
      a[i]=a[j];
      a[j]=temp;
    }
  }
}
for(int i=0;i<len;i++)
{
  if(len%2==0)
  {
    int mid=len/2;
    System.out.print("median:"+a[mid-1]);
    break;
  }
  else
  {
    int mid=(len+1)/2;
    System.out.print(mid);
    System.out.println("median:"+a[mid-1]);
  }
}
for(int i=0;i<len;i++)
{
  for(int j=i+1;j<len;j++)
  {
```

```
        if(a[i]==a[j])
        {
          System.out.println("mode :"+a[i]);
          break;
        }
      }
    }
  }
```

o/p :-

Array of Element = {16, 18, 27, 16, 23, 21, 19}
Mean = 20
Median = 19
Mode = 16

20) Find the factorial of n?

```
Public class fact{
    Public Static void main(String[] args){
    Scanner input = new Scanner(System.in);
      int n=input.nextInt();
      int fact=1;
     for(int i=1;i<=n;i++)
      {
        fact=fact*i;
      }
      System.out.print(fact);
    }
  }
}
```

o/p : N=4
Fact = 24