

Logic Building Assignment : 73

1. java program to print pyramid of characters using class

Enter Number : 5

```
  A
 A B A
A B C B A
A B C D C B A
A B C D E D C B A
```

```
import java.util.Scanner;
```

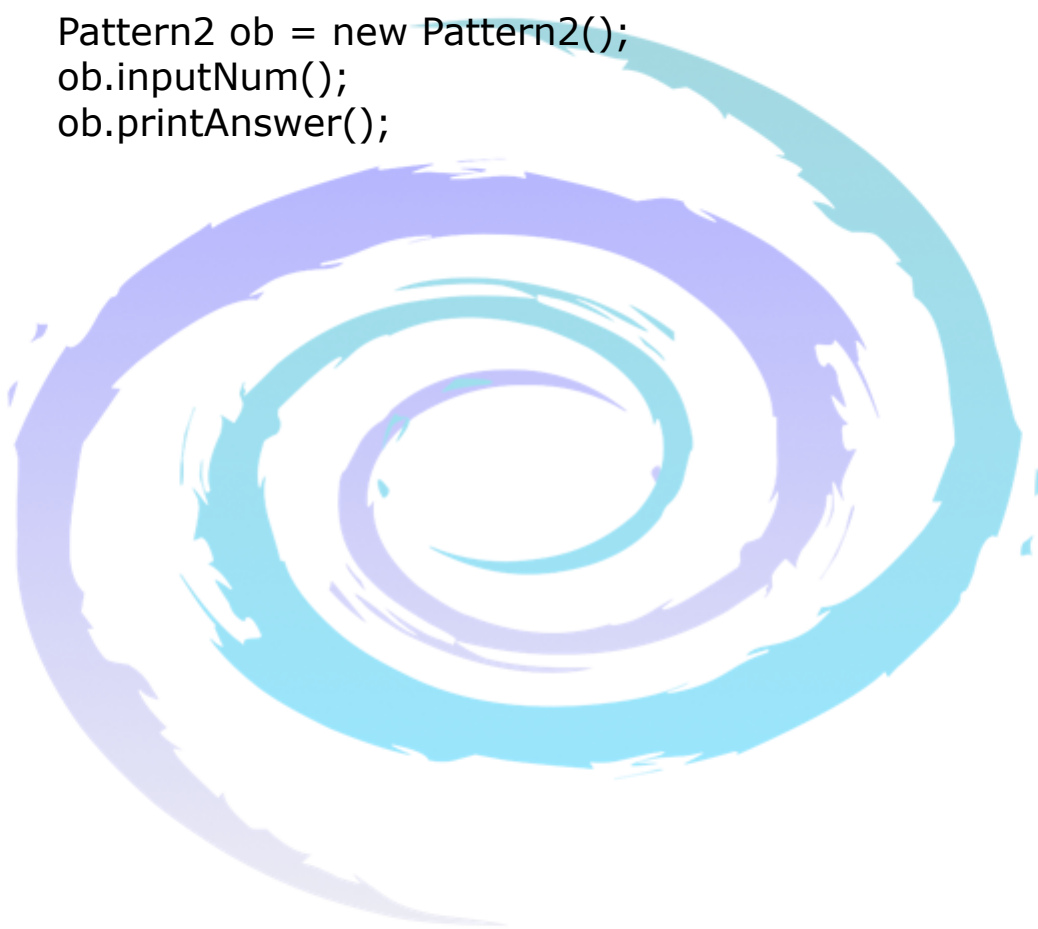
```
class Pattern2
```

```
{
    private int num;

    public void setNum(int num)
    {
        this.num=num;
    }
    public int getNum()
    {
        return this.num;
    }

    public void printAnswer()
    {
        for(int i=1;i<=getNum();i++)
        {
            for(int j=1;j<=getNum()-i+1;j++)
            {
                System.out.print(" ");
            }
            for(int j=1;j<=i;j++)
            {
                System.out.print((char)(64+j)+" ");
            }
            for(int j=i-1;j>=1;j--)
            {
                System.out.print((char)(64+j)+" ");
            }
            System.out.println();
        }
    }
}
```

```
}  
public void inputNum()  
{  
    Scanner sc = new Scanner(System.in);  
    System.out.print("Enter Number : ");  
    int num = sc.nextInt();  
    setNum(num);  
}  
  
public static void main(String[] ar)  
{  
    Pattern2 ob = new Pattern2();  
    ob.inputNum();  
    ob.printAnswer();  
}  
}
```



2. Program to check given strings are Anagram or not

This java program will read two strings and check whether they are anagram strings or not.

```
import java.util.Arrays;
import java.util.Scanner;

class AnagramString
{
    static boolean isAnagrams(String str1,String str2)
    {
        // step 1
        if(str1.length()!=str2.length())
        {
            return false;
        }
        // step 2
        char[] strArray1 = str1.toCharArray();
        char[] strArray2 = str2.toCharArray();

        // step 3
        Arrays.sort(strArray1);
        Arrays.sort(strArray2);

        // step 4
        String sortedStr1 = new String(strArray1);
        String sortedStr2 = new String(strArray2);

        // step 5
        if(sortedStr1.equals(sortedStr2))
        {
            return true;
        }
        else
        {
            return false;
        }
    }

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter String1 : ");
        String str1 = sc.next();
```

```
System.out.println("Enter String2 : ");
String str2 = sc.next();

if(isAnagrams(str1,str2))
{
    System.out.println("Anagram Strings !!");
}
else
{
    System.out.println("Strings are not Anagram !!");
}
}
```



3. Java program to input a string from user and reverse each word of given string

```

import java.util.Scanner;

class ReverseEachWord
{
    //ABC XY PQ
    String reverseWord(String inputString)
    {
        String[] strarray = inputString.split(" "); // Spilt String by
        Space

        StringBuilder sb = new StringBuilder();
        for(String s : strarray)
        {
            if(!s.equals("")) // if there is a word
            {
                StringBuilder strB = new StringBuilder(s);
                String rev = strB.reverse().toString();
                sb.append(rev+" ");
            }
        }
        return sb.toString();
    }

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);

        System.out.println("Enput String : ");
        String str = sc.nextLine();

        System.out.println("Input String : "+str);
        System.out.println("String with Reverese Word :
        "+reverseWord(str)); //reverseWord("ABC XY PQ")
    }
}

```

4. Java program to read and add two distances using class

In this java program, we will read two distances in feet and inches and find their sum, here program is implementing using class and objects concept.

Given program is used to read two distances (in feet and inches) and print their sum in feet and inches, note that if total inches are more than 12 then it would be consider as 1 feet.

Example:

Input:

Enter first distance:

Enter feet: 20

Enter inches: 10

Enter second distance:

Enter feet: 20

Enter inches: 10

Output:

Total distance is:

Feet: 41 Inches: 8

```
import java.util.*;
```

```
class Distance
```

```
{
```

```
    private int feet;
```

```
    private int inches;
```

```
    public void getDistance()
```

```
    {
```

```
        Scanner sc=new Scanner(System.in);
```

```
        System.out.print("Enter feet: ");
```

```
        feet=sc.nextInt();
```

```
        System.out.print("Enter inches: ");
```

```
        inches=sc.nextInt();
```

```
    }
```

```
    public void showDistance()
```

```
    {
```

```
        System.out.println("Feet: "+ feet + "\tInches: "+ inches);
```

```
    }
```

```
public void addDistance(Distance D1, Distance D2)
{
    inches=D1.inches+D2.inches;
    feet=D1.feet+D2.feet+(inches/12);
    inches=inches%12;
}
}

public class AddTwoDistance
{
    public static void main(String []s)
    {
        try
        {
            Distance D1=new Distance();
            Distance D2=new Distance();
            Distance D3=new Distance();

            //read first distance
            System.out.println("Enter first distance: ");
            D1.getDistance();

            //read second distance
            System.out.println("Enter second distance: ");
            D2.getDistance();

            //add distances
            D3.addDistance(D1,D2);
            //print distance
            System.out.println("Total distance is: " );
            D3.showDistance();
        }
        catch (Exception e)
        {
            System.out.println("Exception occurred :"+ e.toString());
        }
    }
}
```

5. Write Java program to Transpose a Matrix.

```
import java.util.*;

public class TransposeMatrix
{
    public static void main(String args[])
    {
        int row,col;

        Scanner sc=new Scanner(System.in);

        //Read number of rows and cols
        System.out.print("Input number of rows: ");
        row=sc.nextInt();
        System.out.print("Input number of cols: ");
        col=sc.nextInt();

        //declare two dimensional array (matrices)
        int a[][]=new int[row][col];

        //Read elements of Matrix a
        System.out.println("Enter elements of matrix a:");
        for(int i=0; i<row; i++)
        {
            for(int j=0; j<col; j++)
            {
                System.out.print("Element [" + (i+1) + "," + (j+1) + "] ? ");
                a[i][j]=sc.nextInt();
            }
        }

        //print matrix a
        System.out.println("Matrix a:");
        for(int i=0; i<row; i++){
            for(int j=0; j<col; j++){
                System.out.print(a[i][j] + "\t");
            }
            System.out.print("\n");
        }

        //print matrix b
```



```
System.out.println("::: Transpose Matrix ::: ");
for(int i=0; i<col; i++){
    for(int j=0; j<row; j++){
        System.out.print(a[j][i] + "\t");
    }
    System.out.print("\n");
}
}
```

