Practice programs for OOJ lab - Week - 2

[JAVA programs]

3) Write a java program to accept a number n from the user and print n rows of output as given below if n=4.

```
1
2 3
4 5 6
7 8 9 10
```

→

```
import java.util.Scanner;
class Program1{
public static void main(String args[]){
Scanner ss= new Scanner(System.in);
int i, j, n, k=1;
System.out.println("Enter number of rows");
n=ss.nextInt();
System.out.println("Pattern:");
for(i=1; i<=n; i++)
{
 for(j=1; j<=i; j++)
 {
```

```
            System.out.print(k+" ");
            k++;
            }
            System.out.println();
            }
        }
    }
```

④ Write a java program to accept the CIE marks (out of 50) and SEE marks (Out of 100) of a student and print his/her grade. Use if...elseif ladder.

→

```
import java.util.Scanner;
class Program2{
public static void main(String args[]){
Scanner ss=new Scanner(System.in);
int CIE, SEE;
double tot;
System.out.println("Enter the CIE (50) and
SEE (100) marks of the student respectively");
```

```
        CIE = ss.nextInt();
        SEE = ss.nextInt();

tot = (SEE/2.0) + (double)CIE;
if (CIE >=20 && SEE >=40)
{
 if (tot >89 && tot <=100)
 System.out.println("Grade : S");
 else if (tot >79 && tot <=89)
 System.out.println("Grade : A");
 else if (tot >69 && tot <=79)
 System.out.println("Grade : B");
 else if (tot >59 && tot <=69)
 System.out.println("Grade : C");
 else if (tot >49 && tot <=59)
 System.out.println("Grade : D");
 else
 System.out.println("Grade : E");
}
else if (CIE >=20 && SEE <40)
System.out.println("Grade : F");
```

```
else
System.out.println("Not eligible, grade
    not applicable");
    }
}
```

⑤ Write a JAVA program to print the prime numbers between given two integers (inclusive). Accept these two integers from the user.

→

```
import java.util.Scanner;
class Program3 {
public static void main (String args[]){
Scanner ss= new Scanner(System.in);
int low, high, i, flag;
System.out.println("Enter two numbers
(intervals): ");
low= ss.nextInt();
high= ss.nextInt();
System.out.println("Prime numbers
between "+low+" and "+high+" are: ");
```

```
while (low <= high)
{
    flag = 0;
    if (low <= 1)
    {
        low++;
        continue;
    }
    for (i=2; i<= low/2; i++)
    {
        if (low % i == 0)
        {
            flag = 1;
            break;
        }
    }
    if (flag == 0)
    System.out.print(low + " ");
    low++;
}
}
}
```

(6) Write a JAVA program which prints the area and volume of any one of the given shapes given below. Accept the choice of the shape, appropriate inputs from the user, calculate & and display the area and the volume of the same. Repeat this with different shapes till the user wishes to stop.

Cylinder : Area = $A = 2\pi rh + 2\pi r^2$ Volume : $V = \pi r^2 h$

Cone : Area = $A = \pi r(r + \sqrt{h^2 + r^2})$ Volume : $V = \pi r^2 h/3$

Sphere : Area = $A = 4\pi r^2$ Volume : $V = (4/3)\pi r^3$

→

```
import java.util.Scanner;
import static java.lang.Math.sqrt;
class Program4{
public static void main(String args[]){
Scanner ss = new Scanner(System.in);
int c=4;
double a, v, r, h;
while(true)
{
  System.out.println("Enter the choice of shape:");
System.out.println("1. Cylinder\n2. Cone\n3. Sphere\n
                    0. Exit");
```

```
c = ss.nextInt();
switch (c)
{
case 1: System.out.println("Enter radius: ");
    r = ss.nextDouble();
System.out.println("Enter height: ");
h = ss.nextDouble();
a = (2*3.14*r*h)+(2*3.14*r*r);
V = (3.14*r*r*h);
System.out.println("Area: "+a+"\n Volume: "+V);
break;
case 2: System.out.println("Enter radius: ");
r = ss.nextDouble();
System.out.println("Enter height:");
h = ss.nextDouble();
a = (3.14*r)*(r+sqrt((h*h)+(r*r)));
V = (3.14*r*r*h)/3.0;
System.out.println("Area:" +a+"\n Volume: "+V);
break;
case 3: System.out.println("Enter radius: ");
r = ss.nextDouble();
a = 4*3.14*r*r;
V = (4*3.14*r*r*r)/3.0;
```

```
System.out.println("Area : "+a+" \n Volume : "
                                    +v);
break;
case 0: System.out.println ("Exit");
System.exit(0);
default : System.out.println ("Invalid choice");
}
}
}
}
```