Practice programs for OOJ lab-Week-2(Java programs)

3. Write a C/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();
}
}
}
```

Output:

```
C:\Users\win10\Documents\Java lab programs>javac Program1.java

C:\Users\win10\Documents\Java lab programs>java Program1
Enter number of rows
4
Pattern:
1
2 3
4 5 6
7 8 9 10
```

```
C:\Users\win10\Documents\Java lab programs>javac Program1.java

C:\Users\win10\Documents\Java lab programs>java Program1
Enter number of rows
5
Pattern:
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

4. Wriite a C/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");
}
}
```

Output:

```
C:\Users\win10\Documents\Java lab programs>javac Program2.java

C:\Users\win10\Documents\Java lab programs>java Program2
Enter the CIE(50) and SEE(100) marks of the student respectively
17 43
Not eligible, grade not applicable
```

```
C:\Users\win10\Documents\Java lab programs>javac Program2.java

C:\Users\win10\Documents\Java lab programs>java Program2
Enter the CIE(50) and SEE(100) marks of the student respectively
32 30
Grade: F
```

```
C:\Users\win10\Documents\Java lab programs>javac Program2.java

C:\Users\win10\Documents\Java lab programs>java Program2
Enter the CIE(50) and SEE(100) marks of the student respectively
47 96
Grade: S
```

5.Write a C/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++;
}
}
}
```

Output:

```
C:\Users\win10\Documents\Java lab programs>javac Program3.java

C:\Users\win10\Documents\Java lab programs>java Program3
Enter two numbers(intervals):
3 20
Prime numbers between 3 and 20 are:
3 5 7 11 13 17 19
```

6. Write a C/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=2πrh+2πr2 Volume: V=πr2h
Cone: Area: A=πr(r+ √(h2+r2)) Volume: V= πr2h/3
Sphere: Area: A= 4πr2 Volume: V= (4/3) πr3

```
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\n0.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+"\nVolume: "+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+"\nVolume: "+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+"\nVolume: "+v);
break;
case 0:System.out.println("Exit");
System.exit(0);
```

```
default:System.out.println("Invalid choice");
}
}
}
}
```

Output:

```
C:\Users\win10\Documents\Java lab programs>javac Program4.java

C:\Users\win10\Documents\Java lab programs>java Program4
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
1
Enter radius:
3
Enter height:
5
Area: 150.72
Volume: 141.29999999999998
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
2
Enter radius:
6
Enter height:
9
Area: 316.82575808922473
Volume: 339.11999999999995
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
3
Enter radius:
4
Area: 200.96
Volume: 267.94666666666666
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
0
Exit
```