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
```
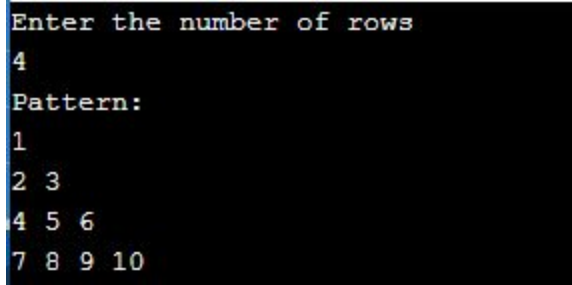
CODE:
```c
#include <stdio.h>

int main()
{
   int n,k=1;
   printf("Enter the number of rows\n");
   scanf("%d",&n);
   printf("Pattern:\n");
   for(int i=1;i<=n;i++)
   {
      for(int j=1;j<=i;j++)
      {
         printf("%d ",k);
         k++;
      }
      printf("\n");
   }

   return 0;
}
```

OUTPUT:

```
Enter the number of rows
4
Pattern:
1
2 3
4 5 6
7 8 9 10
```

```
Enter the number of rows
2
Pattern:
1
2 3
```

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

CODE:

```c
#include <stdio.h>
int main()
{
    int CIE,SEE;
    float tot;
    printf("Enter the CIE(50) and SEE(100) marks of the student respectively\n");
    scanf("%d%d",&CIE,&SEE);
    tot = (SEE/2.0) + CIE;
    if(CIE>=20 && SEE>=40)
    {
        if(tot>89 && tot<=100)
        printf("Grade: S");
        else if(tot>79 && tot<=89)
        printf("Grade: A");
        else if(tot>69 && tot<=79)
        printf("Grade: B");
        else if(tot>59 && tot<=69)
        printf("Grade: C");
        else if(tot>49 && tot<=59)
        printf("Grade: D");
        else
        printf("Grade: E");

    }
    else if(CIE>=20 && SEE<40)
    printf("Grade: F");
    else
    printf("Not eligible, grade not applicable");
}
```

OUTPUT:

```
Enter the CIE(50) and SEE(100) marks of the student respectively
40
92
Grade: A
```

```
Enter the CIE(50) and SEE(100) marks of the student respectively
23
35
Grade: F
```

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

CODE:

```c
#include <stdio.h>
int checkPrime(int n);
int main() {
    int n1, n2, i, f;
    printf("Enter two positive integers: ");
    scanf("%d %d", &n1, &n2);
    printf("Prime numbers between %d and %d (inclusive) are: ", n1, n2);
    for (i = n1 ; i <= n2; ++i) {

        f = checkPrime(i);

        if (f == 1)
            printf("%d ", i);
    }
    return 0;
}

int checkPrime(int n) {
    int j, f = 1;
    for (j = 2; j <= n / 2; ++j) {
        if (n % j == 0) {
```

```
          f = 0;
          break;
       }
   }
   return f;
}
```

OUTPUT:

```
gcc -o /tmp/E2jlLGWYCK.o /tmp/E2jlLGWYCK.c -lm
/tmp/E2jlLGWYCK.o
Enter two positive integers: 5 15
Prime numbers between 5 and 15 (inclusive) are: 5 7 11 13 |
```

```
gcc -o /tmp/E2jlLGWYCK.o /tmp/E2jlLGWYCK.c -lm
/tmp/E2jlLGWYCK.o
Enter two positive integers: 1 13
Prime numbers between 1 and 13 (inclusive) are: 1 2 3 5 7 11 13 |
```

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.

CODE:
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
int main() {
   int c=4;
   float a,v,r,h;
   while(c)

```c
{
printf("Enter the choice of shape:\n");
printf("1.Cylinder\n2.Cone\n3.Sphere\n0.Exit\n");
scanf("%d",&c);
switch(c)
{
    case 1:printf("Enter radius:\n");
        scanf("%f",&r);
        printf("Enter height:\n");
        scanf("%f",&h);
        a=(2*3.14*r*h)+(2*3.14*r*r);
        v=(3.14*r*r*h);
        printf("Area: %f\nVolume: %f\n",a,v);
        break;
    case 2:printf("Enter radius:\n");
        scanf("%f",&r);
        printf("Enter height:\n");
        scanf("%f",&h);
        a=(3.14*r)*(r+sqrt((h*h)+(r*r)));
        v=(3.14*r*r*h)/3.0;
        printf("Area: %f\nVolume: %f\n",a,v);
        break;
    case 3:printf("Enter radius:\n");
        scanf("%f",&r);
        a=4*3.14*r*r;
        v=(4*3.14*r*r*r)/3.0;
        printf("Area: %f\nVolume: %f\n",a,v);
        break;
    case 0:printf("Exit\n");
        exit(0);
    default:printf("Invalid choice\n");

}
}
return 0;
}
```

OUTPUT:

```
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
1
Enter radius:
2
Enter height:
3
Area: 62.799999
Volume: 37.680000
```

```
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
2
Enter radius:
3
Enter height:
4
Area: 75.360001
Volume: 37.680000
```

```
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
3
Enter radius:
5
Area: 314.000000
Volume: 523.333313
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
0
Exit
```

```
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
5
Invalid choice
Enter the choice of shape:
1.Cylinder
2.Cone
3.Sphere
0.Exit
0
Exit
```