Practice Programs for OOJ Lab - Week 2

[C programs]

③ Write a C program to accept number 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
```

→

```
#include<stdio.h>
int main()
{
 int i,j,n,k=1;
 printf("Enter the number of rows\n");
 scanf("%d",&n);
 for(i=1;i<=n;i++)
 {
   for(j=1;j<=i;j++)
     {
       printf("%d",k);
       k++;
     }
   printf("\n");
 }
} return 0;
```

④ Write a c 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.

```
#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");
  return 0;
}
```

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

```
#include <stdio.h>
int main()
{
    int low, high, flag, i;
    printf ("Enter two numbers [intervals]: ");
    scanf ("%d %d", &low, &high);
  printf ("Prime numbers between %d and %d
are: ", low, high);
```

```
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)
 printf("%d",low);
 low++;
}
return 0;
}
```

(6) Write a c 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 : $V = \frac{\pi r^2 h}{3}$

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

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
int main()
{
  int c=4;
  float a,v,r,h;
  while(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\n Volume:%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\n Volume:%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 \n Volume : %f \n", a, V);
        break;
    case 0: printf("Exit \n");
        exit(0);
    default: printf("Invalid choice \n");
    }
  }
  return 0;
}
```