Practice Programs WEEK-2

PROGRAM 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

```
class pattern
{
   public static void main(String[] args) {
      int i, j, k = 1;
      for (i = 1; i <= 4; i++) {
         for (j = 1; j< i + 1; j++) {
            System.out.print(k++ + " ");

         }
System.out.println();

      }

   }
}
```

PROGRAM-4

Write 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… else if ladder

PROGRAM 4

```
#include<stdio.h>
void main() {
   int marks1,marks2,marks;
   printf("Enter your SEE  marks ");
   if(marks<0 || marks>50)
   {
      printf("Wrong Entry");
   }
```

```
 else {
scanf("%d",&marks1);
 }
printf("Enter your CIE marks");
scanf("%d",&marks2);
marks= marks1+(marks2/2);
    if(marks<50)
{ printf("Grade F");

} else if(marks>=50 && marks<60)
{ printf("Grade D");

} else if(marks>=60 && marks<70)
{ printf("Grade C");

} else if(marks>=70 && marks<80)
{ printf("Grade B");

} else if(marks>=80 && marks<90)
{ printf("Grade A");

} else
{
   printf("Grade A+");

}

}
```

OUTPUT:

PROGRAM 5

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

```
public class Main
```

```
{
public static void main(String[]args)
{
int m=0,n=0,i=1,j=1;
while(n<25)
{
j=1;
m=0;
while(j<=i)
{
if(i%j==0)
m++;
j++;
}
if(m==2)
{
System.out.printf("%d \n",i);
n++;
}
i++;
}
}
}
```

OUTPUT:

PROGRAM 6

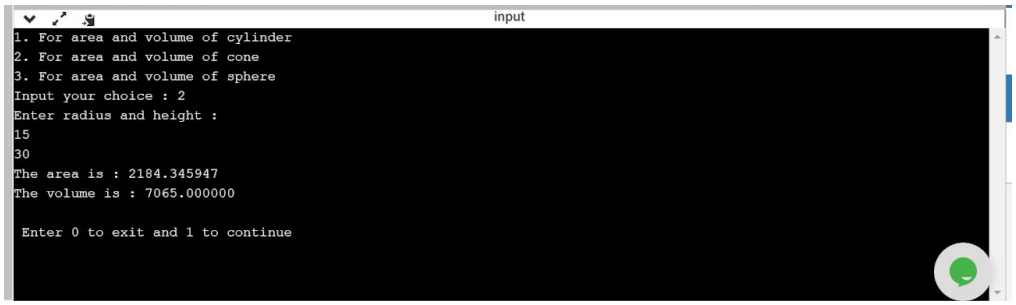
Write a C/Java program which prints the area and volume of any one of the given shapes given below. Accept the choice of the shape, appropriate inputs from the user,

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+2πr 2 Volume: V=πr 2 h
Cone: Area: A=πr(r+ √(h 2 +r 2)) Volume: V= πr 2 h/3
Sphere: Area: A= 4πr 2 Volume: V= (4/3) πr 3

```
#include <stdio.h>
#include<math.h>
void main ()
{
     float area,volume,h,rad;
     int choice,i=0,a;
     while(i==0)
    {
     printf("1. For area and volume of cylinder\n");
     printf("2. For area and volume of cone\n");
     printf("3. For area and volume of sphere\n");
     printf("Input your choice : ");
     scanf("%d",&choice);
     switch(choice)
     {
         case 1:
              printf("Enter radius and height : \n");
              scanf("%f",&rad);
              scanf("%f",&h);
              area=2*3.14*rad*(rad+h);
              volume=3.14*rad*rad*h;
              break;
          case 2:
              printf("Enter radius and height : \n");
              scanf("%f",&rad);
              scanf("%f",&h);
              volume=(3.14*rad*rad*h)/3;
              area=(22 / 7) * rad * (rad + sqrt(rad * rad + h * h));
              break;

          case 3:
              printf("Enter radius and height : \n");
              scanf("%f",&rad);
              scanf("%f",&h);
              volume=(4*3.14*rad*rad*rad)/3;
              area=4*3.14*rad*rad;
```

```
            break;

        default:
            printf("option not available\n");
            break;
    }

     printf("The area is : %f\n",area);
     printf("The volume is : %f\n",volume);

printf("\n Enter 0 to exit and 1 to continue\n");
     scanf("%d",&a);
     if(a==0)
     {
        i=1;
     }
     else if(a==1)
     {
        i=0;
     }
}
}
```

THE OUTPUT:



PROGRAM 7:

Write a C program to count the number of students registered for three elective courses. Accept the names of n students, their choice of the elective (Say, the electives courses offered are Internet of Things, Advanced Java and J2EE and Advanced Data Structures).

Include the following operations:

1. Accept say x from the user. Display the names of the students who have opted for elective x

2. Count and display the total number of students present in each elective.

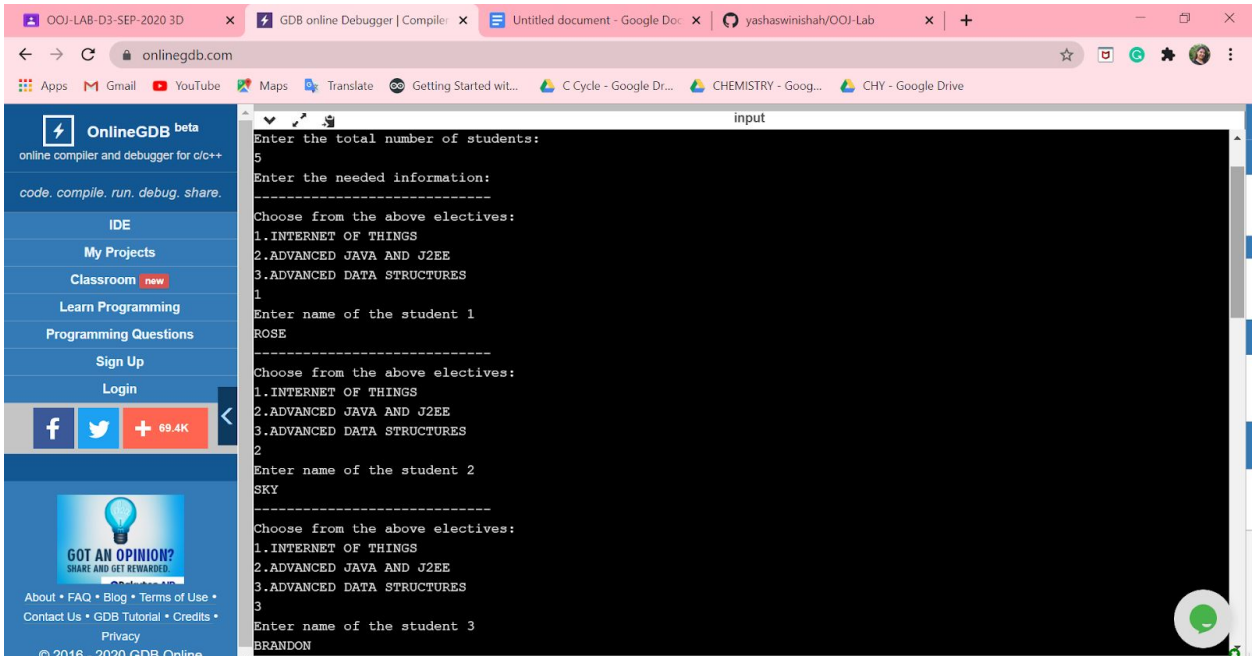
3. If count is less than 30, inform that the course will not be floated and ask

the students who have opted the course to reselect their electives from the other two. Count and display the counts again.
4. Display the name of the students in each elective.

```
#include<stdio.h>
struct course
{
   char name[20];
};
int main()
{
struct course s[3][100];
int n,i,j,c[3]={0,0,0},choice;
char cn[3][10]={"IOT","JAVA","DS"};
printf("Enter the total number of students:\n");
scanf("%d",&n);
printf("Enter the needed information:\n");
for(i=0;i<n;i++)
{
printf("----------------------------\n");
printf("Choose from the above electives: ");
printf("\n1.INTERNET OF THINGS\n2.ADVANCED JAVA AND J2EE\n3.ADVANCED DATA
STRUCTURES\n");
scanf("%d",&choice);

if(choice<0||choice>3)
{
printf("Invalid choice!\n");
continue;
}
printf("Enter name of the student %d\n",i+1);
scanf("%s",&s[choice-1][c[choice-1]].name);
c[choice-1]++;
}
disp:
for(i=0;i<3;i++)
{
   if(c[i]>=0)
   {
      printf("List of the students in the course %s:\n",cn[i]);
      for(j=0;j<c[i];j++)
```

```
        {
            printf("%d) %s \n",j+1,s[i][j].name);
        }
        printf("Number of students in the course %s is %d\n",cn[i],j);
    }
}

for(i=0;i<3;i++)
{
    if(c[i]<3&&c[i]!=-1)
    {
        printf("The number of people is less than 3 in course %s,so the students in the course %s
please change the course:\n",cn[i],cn[i]);
        for(j=0;j<c[i];j++)
        {
            printf("Enter the course code:\n");
            scanf("%d",&choice);
            if(choice==i+1){
                printf("Enter other option of course!\n");
                continue;
            }
            printf("Enter students's name:\n");
            scanf("%s",&s[choice-1][c[choice-1]].name);
            c[choice-1]++;

        }

        n=c[i];
        c[i]=-1;
        goto disp;
    }
}

return 0;
}
```

OUTPUT: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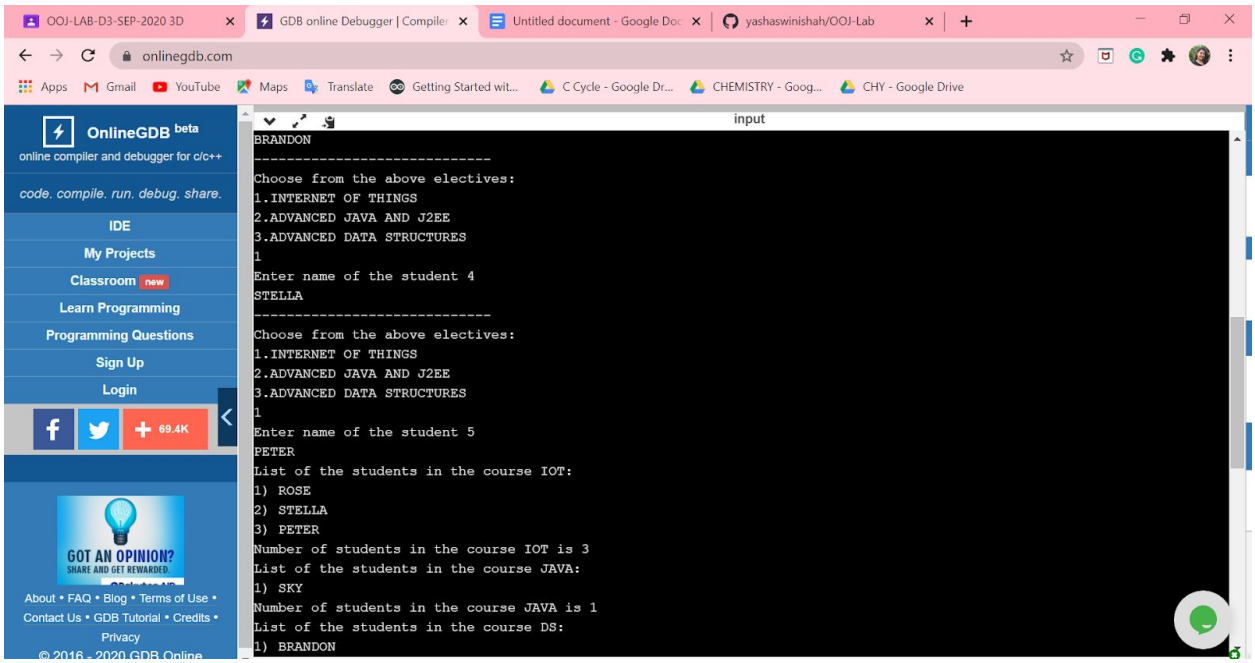
input
Enter the total number of students:
5
Enter the needed information:
Choose from the above electives:
1.INTERNET OF THINGS
2.ADVANCED JAVA AND J2EE
3.ADVANCED DATA STRUCTURES
1
Enter name of the student 1
ROSE
Choose from the above electives:
1.INTERNET OF THINGS
2.ADVANCED JAVA AND J2EE
3.ADVANCED DATA STRUCTURES
2
Enter name of the student 2
SKY
Choose from the above electives:
1.INTERNET OF THINGS
2.ADVANCED JAVA AND J2EE
3.ADVANCED DATA STRUCTURES
3
Enter name of the student 3
BRANDON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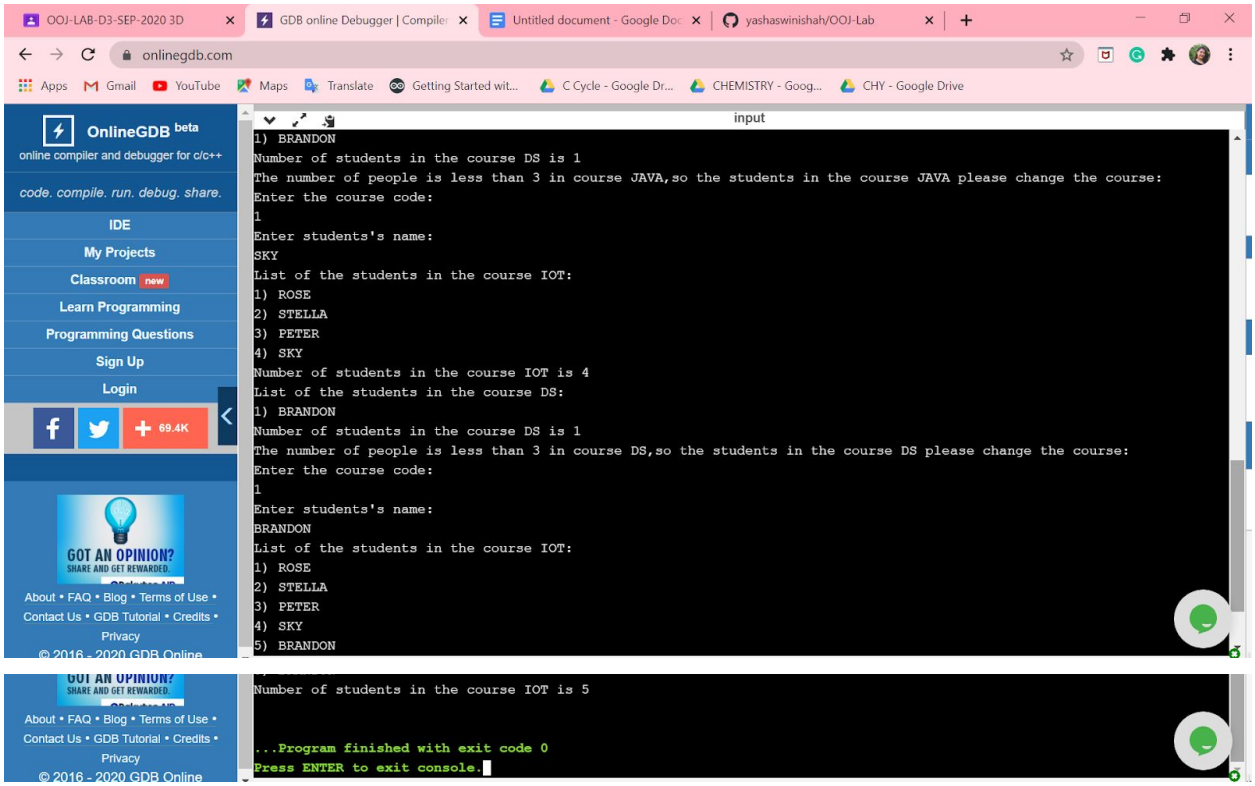
input
BRANDON
Choose from the above electives:
1.INTERNET OF THINGS
2.ADVANCED JAVA AND J2EE
3.ADVANCED DATA STRUCTURES
1
Enter name of the student 4
STELLA
Choose from the above electives:
1.INTERNET OF THINGS
2.ADVANCED JAVA AND J2EE
3.ADVANCED DATA STRUCTURES
1
Enter name of the student 5
PETER
List of the students in the course IOT:
1) ROSE
2) STELLA
3) PETER
Number of students in the course IOT is 3
List of the students in the course JAVA:
1) SKY
Number of students in the course JAVA is 1
List of the students in the course DS:
1) BRANDON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CHEMISTRY - Goog...
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input
1) BRANDON
Number of students in the course DS is 1
The number of people is less than 3 in course JAVA,so the students in the course JAVA please change the course:
Enter the course code:
1
Enter students's name:
SKY
List of the students in the course IOT:
1) ROSE
2) STELLA
3) PETER
4) SKY
Number of students in the course IOT is 4
List of the students in the course DS:
1) BRANDON
Number of students in the course DS is 1
The number of people is less than 3 in course DS,so the students in the course DS please change the course:
Enter the course code:
1
Enter students's name:
BRANDON
List of the students in the course IOT:
1) ROSE
2) STELLA
3) PETER
4) SKY
5) BRANDON

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Number of students in the course IOT is 5
...Program finished with exit code 0
Press ENTER to exit console.