WEEK 2

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

2) #include <stdio.h>

```
struct Subject {
    int CIE;
    int SEE;
    int total;
    char grade;
};

int main() {
    int i=0;
    struct Subjects subjects[5];
    for (i=0; i<6; i++) {
    printf("Enter CIE marks for student %d: ",
            i+1) student
    scanf("%d",&students[i].CIE);
    printf("Enter SEE marks: ");
    scanf("%d", &students[i].SEE);
    students[i].total = students[i].CIE +
                        students[i].SEE;
```

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```
if (students[i].total < 0){
    printf ("Error: marks below 0");
} else if (students[i].total<40){
    students[i].grade = 'F';
} else if ( students[i].total >40 && students[i].total<51){
    students [i]. grade = 'E';
}else if(students [i]. total >50 && students[i].total<61){
    students [i]. grade = 'D';
} else if (students [i]. total >60 && students [i]. total<71){
    students [i]. grade = 'C';
} else if (students [i]. total>70 && students [i]. total< 81){
    students [i]. grade = 'B';
} else if( students [i]. total>80 && students[i].total<91){
    students [i]. grade = 'A';
} else {
    students [i]. grade = 'S';
}
}
```

```
for (i=0; i<6 ; i++){
  printf("grade of student %d is %c", i+1,
          student [i].grade);
}
return 0;
}
```

3) int #includ <stdio.h>

```
int main(){
    int a, b, i, j, flag;
    printf("Enter lower bound:");
    scanf("%d", &a);
    printf("Enter upper bound:");
    scanf("%d", &b);
    printf("Prime numbers between %d and %d are",
            a, b);
for (i=a; i<=b; i++){
    if (i==1 || i==0)
        continue;
flag=1;
for (j=2; j<=i/2; j++){
        if(i % j ==0){
            flag=0;
            break;
        }
}
if (flag==1)
    print "%d ", i);
}
return 0;
```

1)

```
#include <math.h>
#include <stdio.h>
#include <stdlib.h>
# define PI 3.14
void main (){
    int ran = 1;
while (ran = 1){
    int area, volume, r, choice, h;
    float area, volume;
printf ("Enter radius: ");
scanf ("%d", &r);
printf ("Enter heigh: ");
scanf ("%d", &h);
printf("1- Cylinder\n2- Cone\n 3- Sphere\n4- Exit\n");
scanf ("%d", &choice);
switch (choice){
case 1: {
        area = (2*PI*r*h)+(2*PI*(r*r));
        volume = PI*(r*r)*h;
    printf("Area of Cylinder is %f, Volume of
            Cylinder is %f", area, volume");
}
case 2: {
        area = PI*r*(r+sqrt((h*h)+(r*r)));
        volume = (PI*r*r*h)/3;
```

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        printf("Area of cone : %f and Volume of
                Cone : %f", area, volume);
    }

case 3: {
        area = 4 * PI * r * r;
        volume = (4/3) * PI * r * r * r;
    printf("Area of Sphere is %f and Volume of
            Sphere is %f", area, volume);
    }

Case 4:
        run = 0;
        exit(0);
default:
        printf("Wrong Input");
        exit(0);
    }
}
}
```

5) #include <stdio.h>

```
struct Student {
    char name[40];
    int elective;
};

int main(){
    int i, j, choice, n;
    int count[3] = {0,0,0};
    char electives[3][40] = {"IOT", "Advanced Java",
                             "J2EE"};
    printf("Enter number of students: ");
    scanf("%d", &n);
    struct Student student[n];
    for(i=0; i<3; i++){
        printf("\n%d-%s", i+1, electives[i]);
}
```

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```
for(i=0; i< n; i++){
    printf("\n Enter the name of the student : ");
    scanf("%s", student[i].name);
    printf("\n Enter the choice: ");
    scanf("%d", &student[i].elective);
}

for (i=0 ; i<n ; i++){
        if (student[i].elective == 1){
                count[0]++ ;
        } else if (student[i].elective == 2){
                count[1]++;
        } else {
                count[2]++;
    }
  }
 printf("operation 1\n");
 printf("Enter the choice of elective you want to get
         list of for :\n");
 int x;
 scanf("%d, &x);
```

```
for(i=0; i<n ;i++){
    if(student[i].elective == x){
        printf("> %s \n", student[i].nome);
    }
}

printf("Operation 2\n");
printf("Number of students in %s elective: %d \n",
        electives[0], count[0]);
printf("Number of students in %s elective: %d \n",
        electives[1], count[1]);
printf("Number of students in %s elective: %d\n",
        electives[2], count[2]);

printf("Operation 3\n");
if(count[0] < 30){
    printf("%s students must choose another
        elective due to less number\n", electives[0]);
    printf("choose between Advanced Java (2) and
        J2EE (3) \n");
    scanf("%d", &choice);
```

```
for(i=0; i<n ; i++){
    if (student[i].electuie==1){
        student[i].electuie = choice;
        count[0]--;
        count[choice-1]++;
    }
  }
}
if (count[1] <30){
    printf("%.s students must choose onother
        electuie due to less nemuer", electues[1]);
    printf("chose between IOT(1) and J2EE(3)\n");
    scanf("%d;&choice);
    for(i=0; i<n ; i++){
        if(student[i].electuie==2){
            student[i].electuie = choice;
        }
      count[1]--;
      count[choice-1]++;
    }
  }
```

```
if(count[2]<3){
        printf("%.s students must choose another
                electuie due to less nemlier \n";}
                electuis[2]);
    printf("choose leetween ~~Advanced Java~~
                IOT(1) and Advanced Java(2)\n");
    sconf("%d", &choice);
    for(i=0; i<n; i++){
        if(student[i], electuie == 3){
            student[i]:electuie = choice;
            count[2]--;
            count[choice-1]++;
        }
    }
}

printf("Number of students in %.s electuie is %.d\n",
        electuis[0], count[0]);
printf("Number of students in %.s electuis is %.d\n",
        electuis[1], count[1]);
printf("Numleer of students in %.s electuis is %.d\n",
        electuis[2], count[2]);
```

```
printf("Operation 4\n");

for(i=0; i<3; i++){
    printf("\n Students in %s: \n", electeurs[i]);
    for(j=0; j<n; j++){
        if(student[j].electeur == (i+1)){
            printf("-> %s \n", student[j].nom
        }
    }
}

return 0;
}
```