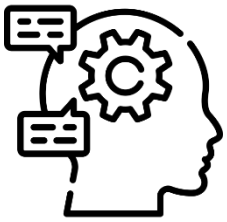
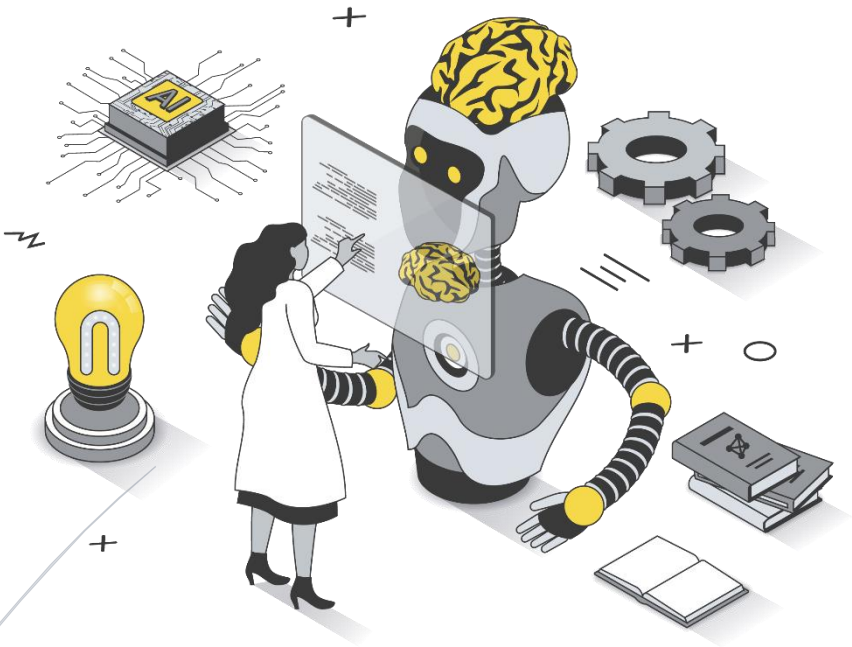


Programming In C

For Beginners



created by
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Ch1. Basics of c programs.

Structure of c programming

1) **#include<stdio.h> :** standard input/output header file
   It includes functions like
   - **printf()**
   - **scanf() etc.**
2) **#include<conio.h> :** console input/output header file
   It includes functions like
   - **clrscr()**
   - **getch() etc.**
3) **void main(){ :** To start the execution of the program
4) **clrscr(); :** to clear screen of previous program
5) **printf(" "); :** to printf something on output screen
6) **getch(); :** to get user screen (output window)
7) **} :** end of the main() function

```
Eg. #include<stdio.h>
   #include<conio.h>
   void main(){
      clrscr();
      printf("\nHello World");
      getch();
   }
Output :
Hello World
```

➢ **Primitive data types :-**

Data type	**Format specifier**	**Bytes occupies**	**Example**
int , long int	%d,%ld	2 bytes	int a=32;
float , double	%f,%lf	4 bytes	float a=8.14;
char	%c	1 byte	char ch='a';

- **Shortcut keys**

➢ Compile	Alt + F9
➢ Run	Ctrl + F9
➢ User screen/ Output screen	Alt + F5
➢ Save	F2
➢ Open	F3
➢ Quit	Alt + x
➢ Copy	Ctrl + insert
➢ Cut	Shift + Delete
➢ Past	Shift + insert
➢ Undo	Alt + Backspace
➢ Redu	Shift + Alt +Backspace
➢ Full screen	F5
➢ Full window	Alt + Enter

Q1. Addition

```
#include<stdio.h>

#include<conio.h>

void main(){
    int no1,no2,sum;
      clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    sum=no1+no2;
    printf("\nAddiion Is %d",sum);
      getch();
}
Output :
Enter Number 1 : 12
Enter Number 2 : 2
Addiion Is 14
```

Q2. Subtraction

```
#include<stdio.h>
#include<conio.h>
void main(){
    int no1,no2,sub;
      clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    sub=no1-no2;
    printf("\nSubtraction Is %d",sub);
      getch();
}
Output :
Enter Number 1 : 12
Enter Number 2 : 2
Subtraction Is 10
```

Q3. Multipliction

```
#include<stdio.h>
#include<conio.h>
void main(){
    int no1,no2,mul;
      clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    mul=no1*no2;
    printf("\nMultiplication Is %d",mul);
      getch();
}
```

```
Output :
Enter Number 1 : 12
Enter Number 2 : 2
Multiplication Is 24
```

Q4. Division

```
#include<stdio.h>
#include<conio.h>
void main(){
    int no1,no2,div;
      clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    div=no1/no2;
    printf("\nDivision Is %d",div);
      getch();
}
```

```
Output :
Enter Number 1 : 12
Enter Number 2 : 2
Division Is 6
```

Q5. Modulation

```
#include<stdio.h>
#include<conio.h>
void main(){
    int no1,no2,mod;
      clrscr();
```

```
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    mod=no1%no2;
    printf("\nModulation Is %d",mod);
      getch();
}
```

Q6. Area Of Rectangle

```
#include<stdio.h>

#include<conio.h>
void main(){
    float l,b,area;
      clrscr();
    printf("\nEnter Length : ");
    scanf("%f",&l);
    printf("\nEnter Breadth : ");
    scanf("%f",&b);
    area=l*b;
    printf("\nArea Of Rectangle Is %f",area);
      getch();
}
Output :
Enter Length : 50
Enter Breadth : 25
Area Of Rectangle Is 1250.0000
```

Q7. Area Of Circle

```
#include<stdio.h>
#include<conio.h>
void main(){
    float r,area;
      clrscr();
    printf("\nEnter Radius : ");
    scanf("%f",&r);
    area=r*r*3.14;
    printf("\nArea Of Circle Is %f",area);
      getch();
}
Output :
Enter Radius : 5
Area Of Circle Is 78.500000
```

Q8. Area Of Triangle

```
#include<stdio.h>

#include<conio.h>
void main(){
    float h,b,area;
      clrscr();
    printf("\nEnter Height : ");
    scanf("%f",&h);
    printf("\nEnter Base : ");
    scanf("%f",&b);
    area=h*b*0.5;
    printf("\nArea Of Triangle Is %f",area);
      getch();
}
Output :
Enter Height : 25
Enter Base : 5
Area Of Triangle Is 62.500000
```

Q9. Area Of Square

```
#include<stdio.h>
#include<conio.h>
void main(){
    float s,area;
      clrscr();
    printf("\nEnter Side : ");
    scanf("%f",&s);
    area=s*s;
    printf("\nArea Of Square Is %f",area);
      getch();
}
Output :
Enter Side : 5
Area Of Square Is 25.000000
```

Q10. Simple Interest

```
#include<stdio.h>
#include<conio.h>
void main(){
    float pa,roi,d,si;
      clrscr();
    printf("\nEnter Principle Amount : ");
    scanf("%f",&pa);
```

```
    printf("\nEnter Rate Of Interest : ");
    scanf("%f",&roi);
    printf("\nEnter Duration : ");
    scanf("%f",&d);
    si=pa*roi*d/100;
    printf("\nSimple Interest Is %f",si);
      getch();
}
```

Output :

```
Enter Principle Amount : 1200
Enter Rate Of Interest : 5.4
Enter Duration : 2
Simple Interest Is 129.600006
```

Q11. Net Salary

```
#include<stdio.h>
#include<conio.h>
void main(){
    float hra,da,ta,bs,ns;
      clrscr();
    printf("\nEnter Basic Salary : ");
    scanf("%f",&bs);
    hra=bs*10/100;
    da=bs*5/100;
    ta=bs*15/100;
    ns=bs+hra+da+ta;
    printf("\nBasic Salary Is %f",bs);
    printf("\nHouse Rent Allowance Is %f",hra);
    printf("\nDearness Allowance Is %f",da);
    printf("\nTravalling Allowance Is %f",ta);
    printf("\nNet Salary Is %f",ns);
      getch();
}
```

Output :

```
Enter Basic Salary : 50000
Basic Salary Is 50000.000000
House Rent Allowance Is 5000.000000
Dearness Allowance Is 2500.000000
Travalling Allowance Is 7500.000000
Net Salary Is 65000.000000
```

Q12. Swapping (Interchange)

```
#include<stdio.h>
#include<conio.h>
```

```c
void main(){
    int no1,no2,temp;
      clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    temp=no1;
    no1=no2;
    no2=temp;
    printf("\nNumber 1 After Swapping Is %d",no1);
    printf("\nNumber 2 After Swapping Is %d",no2);
      getch();
}
```

Output :

Enter Number 1 : 10
Enter Number 2 : 20
Number 1 After Swapping Is 20
Number 2 After Swapping Is 10

Ch2. Conditional Statement.

1) **If**
2) **If…..else**
3) **If…..else if ladder**
4) **Nested if……else**

- if…..else **:** An if statement can be followed by an optional else statement, which executes when the Boolean expression is false. If the Boolean expression evaluates to true, then the if block will be executed, otherwise, the else block will be executed.

syntax :-

```
if(condition){
    true statement ;
}
else{
    false statement ;
}
```

Q1. Write a program to enter any two number from keyboard and check weather the number is greater or not using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num1,num2;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&num1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&num2);
    if(num1>num2){
        printf("\nNumber 1 Is Greater");
    }
    else{
        printf("\nNumber 2 Is Greater");
    }
    getch();
}
Output :
Enter Number 1 : 20
Enter Number 2 : 10
Number 1 Is Greater
```

Q2. Write a program to enter age of a person from keyboard and check weather he/she is eligible for voting or not using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int age;
    clrscr();
    printf("\nEnter Age : ");
    scanf("%d",&age);
    if(age>=18){
        printf("\nHe/She Is Eligible For Voting");
    }
    else{
        printf("\nHe/She Is Not Eligible For Voting");
    }
    getch();
}
Output :
Enter Age : 20
```

```
He/She Is Eligible For Voting
```

Q3. Write a program to enter marks of a student from keyboard and check weather students are pass/fail using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks;
    clrscr();
    printf("\nEnter Student Mark : ");
    scanf("%d",&marks);
    if(marks>=33){
        printf("\nPass");
    }
    else{
        printf("\nFail\nBetter Luck Next Time");
    }
    getch();
}
Output :
Enter Student Mark : 98
Pass
```

Q4. Write a program to enter age number from keyboard and check weather number is positive/negative using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    if(num>0){
        printf("\nNumber Is Positive");
    }
    else{
        printf("\nNumber Is Negative");
    }
    getch();
}
Output :
Enter Number : 12
Number Is Positive
```

Q5. Write a program to enter number from keyboard and check weather the number is odd/even using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    if(num%2==0){
        printf("\nIt Is An Even Number");
    }
    else{
        printf("\nIt Is An Odd Number");
    }
    getch();
}
Output :
Enter Number : 12
It Is An Even Number
```

Q6. Write a program to enter year from keyboard and check weather the year is leap year or not using if…..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int year;
    clrscr();
    printf("\nEnter Year : ");
    scanf("%d",&year);
    if(year%4==0){
        printf("\nIt Is An Leap Year");
    }
    else{
        printf("\nIt Is An Not Leap Year");
    }
    getch();
}
Output :
Enter Year : 2004
It Is An Leap Year
```

- **if…else if…else ladder :** An if statement can be followed by an optional else if...else statement, which is very useful to test various conditions using single if...else if statement.

Syntax :

```
If(condition 1){
        Printf(“statement”);
}
else if(condition 2){
        printf(“statement”);
}
.
.
.
.
else if(condition n){
        Printf(“statement n”);
}
else{
        printf(“default statement”);
}
```

Q1. Write a program to enter choice from keyboard and print day on the basis of choice using if…else if…else ladder.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int ch;
    clrscr();
    printf("\n1-Monday");
    printf("\n2-Tuesday");
    printf("\n3-Wednesday");
    printf("\n4-Thursday");
    printf("\n5-Friday");
    printf("\n6-Saturday");
    printf("\n7-Sunday");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    if(ch==1){
        printf("\nMonday");
    }
    else if(ch==2){
        printf("\nTuesday");
    }
    else if(ch==3){
        printf("\nWednesday");
    }
    else if(ch==4){
        printf("\nThursday");
    }
    else if(ch==5){
        printf("\nFriday");
    }
    else if(ch==6){
        printf("\nSaturday");
    }
    else if(ch==7){
        printf("\nSunday");
    }
    else{
        printf("\nInvalid Choice");
    }
    getch();
}
```

```
Output :
1-Monday
2-Tuesday
3-Wednesday
4-Thursday
5-Friday
6-Saturday
7-Sunday
Enter Your Choice : 4
Thursday
```

Q2. Write a program to enter choice from keyboard and print month on the basis of choice using if…else if…else ladder.

```c
#include<stdio.h>
#include<conio.h>
void main(){
    int ch;
    clrscr();
    printf("\n1-January");
    printf("\n2-February");
    printf("\n3-March");
    printf("\n4-April");
    printf("\n5-May");
    printf("\n6-June");
    printf("\n7-July");
    printf("\n8-August");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    if(ch==1){
        printf("\nJanuary");
    }
    else if(ch==2){
        printf("\nFebruary");
    }
    else if(ch==3){
        printf("\nMarch");
    }
    else if(ch==4){
        printf("\nApril");
    }
    else if(ch==5){
        printf("\nMay");
    }
    else if(ch==6){
```

```
        printf("\nJune");
    }
    else if(ch==7){
        printf("\nJuly");
    }
    else if(ch==8){
        printf("\nAugust");
    }
    else{
        printf("\nInvalid Choice");
    }
    getch();
}
Output :
1-January
2-February
3-March
4-April
5-May
6-June
7-July
8-August
Enter Your Choice : 8
August
```

Q3. Write a program to enter any two number from keyboard and calculate addition , subtraction , multiplication , division and modulation of two number on the base of choice using if….else if…else ladder.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int ch,num1,num2,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&num1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&num2);
    printf("\n1-Addition");
    printf("\n2-Subtraction");
    printf("\n3-Multiplication");
    printf("\n4-division");
    printf("\n5-Modulation");
```

```
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    if(ch==1){
    ans=num1+num2;
    printf("\nAddition Is %d",ans);
    }
    else if(ch==2){
        ans=num1-num2;
        printf("\nSubtraction Is %d",ans);
    }
    else if(ch==3){
        ans=num1*num2;
        printf("\nMultipliaction Is %d",ans);
    }
    else if(ch==4){
        ans=num1/num2;
        printf("\nDivision Is %d",ans);
    }
    else if(ch==5){
        ans=num1%num2;
        printf("\nModulation Is %d",ans);
    }
    else{
        printf("\nInvalid Choice");
    }
    getch();
}
Output :
Enter Number 1 : 12
Enter Number 2 : 2
1-Addition
2-Subtraction
3-Multiplication
4-division
5-Modulation
Enter Your Choice : 1
Addition Is 14
```

Q4. Write a program to enter choice for area of rectangle , area of circle , area of triangle , area of square from keyboard and calculate necessary operation on the base of choice using if….else if…else ladder.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int ch,r,s,h,b,l,area;
    clrscr();
    printf("\n1-Area Of Rectangle");
    printf("\n2-Area Of Triangle");
    printf("\n3-Area Of Circle");
    printf("\n4-Area Of Square");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    if(ch==1){
        printf("\nEnter Length : ");
        scanf("%d",&l);
        printf("\nEnter Breadth : ");
        scanf("%d",&b);
        area=l*b;
        printf("\nArea Of Rectangle Is %d",area);
    }
    else if(ch==2){
        printf("\nEnter Height : ");
        scanf("%d",&h);
        printf("\nEnter Base : ");
        scanf("%d",&b);
        area=h*b*0.5;
        printf("\nArea Of Triangle Is %d",area);
    }
    else if(ch==3){
        printf("\nEnter Radius : ");
        scanf("%d",&r);
        area=r*r*3.14;
        printf("\nArea Of Circle Is %d",area);
    }
    else if(ch==4){
        printf("\nEnter Side : ");
        scanf("%d",&s);
        area=s*s;
        printf("\nArea Of Square Is %d",area);
    }
    else{
```

```
        printf("\nInvalid Choice");
    }
    getch();
}
Output :
1-Area Of Rectangle
2-Area Of Triangle
3-Area Of Circle
4-Area Of Square
Enter Your Choice : 3
Enter Radius : 5
Area Of Circle Is 78
```

Q5. Write a program to enter a number from keyboard and check weather the number is negative , positive or zero.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    if(num>0){
        printf("\nNumber Is Positive");
    }
    else if(num<0){
        printf("\nNumber Is Negative");
    }
    else{
        printf("It Is An Zero");
    }
    getch();
}
Output :
Enter Number : -12
Number Is Negative
```

Q6. Write program to enter marks of five subject from keyboard and calculate total and percentage on the basis of percentage decide the grade of the student.

```
#include<stdio.h>
#include<conio.h>
void main(){
    float acc,eco,ba,state,eng,total,per;
    clrscr();
    printf("\nEnter Account Marks : ");
    scanf("%f",&acc);
    printf("\nEnter Economic Marks : ");
    scanf("%f",&eco);
    printf("\nEnter Business Administration Marks : ");
    scanf("%f",&ba);
    printf("\nEnter Statistics Marks ");
    scanf("%f",&state);
    printf("\nEnter English Marks : ");
    scanf("%f",&eng);
    total=acc+eco+ba+state+eng;
    printf("\nTotal Marks is %f",total);
    per=total/5;
    printf("\nPercentage Is %f",per);
    if(per>90 && per<=100){
        printf("\nYour Grade Is A+");
    }
    else if(per>=80 && per<=89 ){
        printf("\nYour Grade Is A");
    }
    else if(per>=70 && per<=79){
        printf("\nYour Grade Is B");
    }
    else if(per>=60 && per<=69){
        printf("\nYour Grade Is c");
    }
    else if(per>=35 && per<=59){
        printf("\nYour Grade Is E");
    }
    else if(per>=0 && per<=34){
        printf("\nYour Are Fail");
    }
    else{
        printf("Enter a valid score between 0 and 100");
    }
    getch();
```

```
}
Output :

Enter Account Marks : 90
Enter Economic Marks : 99
Enter Business Administration Marks : 98
Enter Statistics Marks 95
Enter English Marks : 91
Total Marks is 473.000000
Percentage Is 94.599998
Your Grade Is A+
```

- **Nested if…else**

Syntax :-

```
if (condition 1) {
        if (condition 2) {
                True statements of 2nd condition;
        }
        else {
                False statements of 2nd condition;
        }
}
else {
        if(condition 3){
                True statements of 3rd condition;
        }
        else{
                False statement of 3rd condition;
        }
}
```

Q1. Write a program to enter any three number from keyboard and find out the maximum digit using nested if..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num1,num2,num3;
    clrscr();

    printf("\nEnter Number 1 : ");
    scanf("%d",&num1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&num2);
    printf("\nEnter Number 3 : ");
    scanf("%d",&num3);
    if(num1>num2){
        if(num1>num3){
            printf("\nNumber 1 Is Greater");
        }
        else{
            printf("\nNumber 2 Is Greater");
        }
    }
    else{
        if(num2>num3){
            printf("\nNumber 2 Is Greater");
        }
        else{
            printf("\nNumber 3 Is Greater");
        }
    }
    getch();
}
Output :
Enter Number 1 : 12
Enter Number 2 : 13
Enter Number 3 : 14
Number 3 Is Greater
```

Q2. Write a program to enter age , gender from keyboard and find out that he/she is eligible for marriage or not using nested if..else.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int age;
    char gender;
    clrscr();
    printf("\nEnter Gender : ");
    scanf("%c",&gender);
    printf("\nEnter Age : ");
    scanf("%d",&age);
    if(gender=='m' || gender=='M'){
        if(age>21){
            printf("\nYou Are Male And Eligible For Marriage");
        }
        else{
            printf("\nYou Are Male And Not Eligible For Marriage");
        }
    }
    else{
        if(age>18){
            printf("\nYou Are Female And Eligible For Marriage");
        }
        else{
            printf("\nYou Are Female And Not Eligible For Marriage");
        }
    }
}
Output :
Enter Gender : M
Enter Age : 23
You Are Male And Eligible For Marriage
```

- **Switch case :-** Switch case statements follow a selection-control mechanism and allow a value to change control of execution. They are a substitute for long if statements that compare a variable to several integral values.

Syntax :-

```
switch(expression) {
        case value1:
        statement_1;
        break;
        case value2:
        statement_2;
        break;
        .
        .
        .
        .
        .
        .
        .
        .
        .
        case value_n:
        statement_n;
        break;
        default:
        default statement;
}
```

Q1. Write a program to enter choice from keyboard and print day on the basis of choice using switch case.

```c
#include<stdio.h>
#include<conio.h>
void main(){
    int day;
    printf("\n1-Monday");
    printf("\n2-Tuesday");
    printf("\n3-Wednesday");
    printf("\n4-Thursday");
    printf("\n5-Friday");
    printf("\n6-Saturday");
    printf("\n7-Sunday");
    printf("\nenter Your Choice : ");
    scanf("%d",&day);
    switch (day){
        case 1:
        printf("\nMonday");
        break;
        case 2:
        printf("\nTuesday");
        break;
        case 3:
        printf("\nWednesday");
        break;
        case 4:
        printf("\nThursday");
        break;
        case 5:
        printf("\nFriday");
        break;
        case 6:
        printf("\nSaturday");
        break;
        case 7:
        printf("\nSunday");
        break;
        default:
        printf("\nInvalid Choice");
    }
    getch();
}
```

```
Output :
1-Monday
3-Wednesday
4-Thursday
5-Friday
6-Saturday
7-Sunday
enter Your Choice : 1
Monday
```

Q2. Write a program to enter choice from keyboard and print month on the basis of choice using switch case.

```c
#include<stdio.h>
#include<conio.h>
void main(){
    int month;
    clrscr();
    printf("\n1-January");
    printf("\n2-February");
    printf("\n3-March");
    printf("\n4-April");
    printf("\n5-May");
    printf("\n6-June");
    printf("\n7-July");
    printf("\n8-Augest");
    printf("\n9-September");
    printf("\n10-October");
    printf("\n11-November");
    printf("\n12-December");
    printf("\nEnter Your Choice : ");
    scanf("%d",&month);
    switch(month){
        case 1:
        printf("\nJanuary");
        break;
        case 2:
        printf("\nFebruary");
        break;
        case 3:
        printf("\nMarch");
        break;
        case 4:
```

```
        printf("\nApril");
        break;
        case 5:
        printf("\nMay");
        break;
        case 6:
        printf("\nJune");
        break;
        case 7:
        printf("\nJuly");
        break;
        case 8:
        printf("\nAugest");
        break;
        case 9:
        printf("\nSeptember");
        break;
        case 10:
        printf("\nOctober");
        case 11:
        printf("\nNovember");
        break;
        case 12:
        printf("\nDecember");
        break;
        default:
        printf("\nInvalid Choice");
    }
    getch();
}
Output :
1-January
2-February
3-March
4-April
5-May
6-June
7-July
8-Augest
9-September
10-October
11-November
12-December
Enter Your Choice : 8
```

Augest

Q3. Write a program to enter any two number from keyboard and calculate addition , subtraction , multiplication , division and modulation of two number on the base of choice using switch case.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num1,num2,ch,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&num1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&num2);
    printf("\n1-Addition");
    printf("\n2-Subtraction");
    printf("\n3-Multiplication");
    printf("\n4-Division");
    printf("\n5-Modulation");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    switch(ch){
        case 1:
        ans=num1+num2;
        printf("\nAdditio is %d",ans);
        break;
        case 2:
        ans=num1-num2;
        printf("\nSubtraction Is %d",ans);
        break;
        case 3:
        ans=num1*num2;
        printf("\nMultiplication Is %d",ans);
        break;
        case 4:
        ans=num1/num2;
        printf("\nDivision Is %d",ans);
        break;
        case 5:
        ans=num1%num2;
        printf("\nModulation Is %d",ans);
        default:
        printf("\nInvalid Choice");
    }
```

```
    getch();
}
Output :
Enter Number 1 : 12
Enter Number 2 : 2
1-Addition
2-Subtraction
3-Multiplication
4-Division
5-Modulation
Enter Your Choice : 1
Additio is 14
```

Q4. Write a program to enter choice for area of rectangle , area of circle , area of triangle , area of square from keyboard and calculate necessary operation on the base of choice using switch case.

```
#include<stdio.h>
#include<conio.h>
void main(){
    float l,b,r,h,s,area;
    int ch;
    clrscr();
    printf("\n1-Area Of Rectangle");
    printf("\n2-Area Of Triangle");
    printf("\n3-Area Of Circle");
    printf("\n4-Area Of Square");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    switch(ch){
        case 1:
        printf("\nEnter Length : ");
        scanf("%f",&l);
        printf("\nEnter Breadth : ");
        scanf("%f",&b);
        area=l*b;
        printf("\nArea Of Rectangle Is %f",area);
        break;
        case 2:
        printf("\nEnter Height : ");
        scanf("%f",&h);
        printf("\nEnter Base : ");
        scanf("%f",&b);
        area=h*b*0.5;
        printf("\nArea Of Triangle Is %f",area);
```

```
        break;
        case 3:
        printf("\nEnter Radius : ");
        scanf("%f",&r);
        area=r*r*3.14;
        printf("\nArea Of Circle Is %f",area);
        break;
        case 4:
        printf("\nEnter Side : ");
        scanf("%f",&s);
        area=s*s;
        printf("\nArea Of Square Is %f",area);
        break;
        default:
        printf("\nInvalid Choice");
        }
    getch();
}
Output :
1-Area Of Rectangle
2-Area Of Triangle
3-Area Of Circle
4-Area Of Square
Enter Your Choice : 3
Enter Radius : 5
Area Of Circle Is 78.500000
```

Q5. Write a program to enter the marks of five subjects of student from keyboard and calculate total and percentage on the basis of percentage decide the grade of student using switch case.

```
#include<stdio.h>
#include<conio.h>
void main(){
    float acc,eco,ba,state,eng,total;
    int per;
    clrscr();
    printf("\nEnter Account Marks : ");
    scanf("%f",&acc);
    printf("\nEnter Economic Marks : ");
    scanf("%f",&eco);
    printf("\nEnter Business Administration Marks : ");
    scanf("%f",&ba);
    printf("\nEnter Statistics Marks ");
    scanf("%f",&state);
    printf("\nEnter English Marks : ");
    scanf("%f",&eng);
    total=acc+eco+ba+state+eng;
    printf("\nTotal Marks is %f",total);
    per=total/5;
    printf("\nPercentage Is %d",per);
    switch(per/10){
        case 10:
        case 9:
        printf("\nYour Grade Is A+");
        break;
        case 8:
        case 7:
        printf("\nYour Grade Is A");
        break;
        case 6:
        printf("\nYour Grade Is B");
        break;
        case 5:
        printf("\nYour Grade Is c");
        break;
        case 4:
        printf("\nYour Grade Is E");
        break;
        break;
        default:
```

```
        printf("\n your Grade Is F and You Are Fail");

    }
    getch();
}
Output :
Enter Account Marks : 90
Enter Economic Marks : 99
Enter Business Administration Marks : 87
Enter Statistics Marks 89
Enter English Marks : 97
Total Marks is 462.000000
Percentage Is 92
Your Grade Is A+
```

Q6. Write a program to enter character from keyboard and check weather the character is vowel or consonant .

```
#include<stdio.h>
#include<conio.h>
void main(){
    char str;
    clrscr();
    printf("\nEnter Your Character In Lower Case : ");
    scanf("%c",&str);
    switch(str){
        case 'a':
        printf("\nIt Is An Vowel");
        break;
        case 'e':
        printf("\nIt Is An Vowel");
        break;
        case 'i':
        printf("\nIt Is An Vowel");
        break;
        case 'o':
        printf("\nIt Is An Vowel");
        break;
        case 'u':
        printf("\nIt Is An Vowel");
        break;
        default:
        printf("\nIt Is An Consonants");
```

```
    }
    getch();
}
Output :
Enter Your Character In Lower Case : u
It Is An Vowel
```

Ch3. Loops.

- **Types of loops**
  - **for loop**
  - **while loop**
  - **do while loop**
- **for loop :-** A for loop is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times. This is called entry controlled loop.

Syntax :-

```
for(initialization ; condition ; increment / decrement){
        statement;
}
```

Q1. Write a program to print 1 to n numbers using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        printf("\n%d",i);
    }
    getch();
}
Output :
Enter Number : 5
1
2
3
4
5
```

Q2. Write a program to print n to 1 numbers using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        printf("\n%d",i);
    }
    getch();
}
Output :
Enter Number : 5

5
4
3
2
1
```

Q3. Write a program to print odd number using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i+=2){
        printf("\n%d",i);
    }
    getch();
}
Output :
Enter Number : 10
1
3
5
7
9
```

Q4. Write a program to print even number using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=2;i<=n;i+=2){
        printf("\n%d",i);
    }
    getch();
}
Output :
Enter Number : 10
2
4
6
8
10
```

Q5. Write a program to print square of n numbers using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        printf("\n%d",i*i);
    }
    getch();
}
Output :
Enter Number : 5
1
4
9
16
25
```

Q6. Write a program to print cube of n number using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        printf("\n%d",i*i*i);
    }
    getch();
}
Output :
Enter Number : 5
1
8
27
64
125
```

Q7. Write a program to print series given below using for loop.

11,21,31,41,51,61,… … … n

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=11;i<=n;i+=10){
        printf("\n%d",i);
    }
    getch();
}
Output :
Enter Number : 60
11
21
31
41
51
```

Q8. Write a program to find factorial of given number using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n,fact=1;
    clrscr();
    printf("\nEnter Number Whose Factorial You Want : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        fact=fact*i;
    }
    printf("\nFactorial Of %d is %d",n,fact);
    getch();
}
Output :
Enter Number Whose Factorial You Want : 5
Factorial Of 5 is 120
```

Q9. Write a program to find Fibonacci series using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    int f1=1,f2=0,f3=0;
    clrscr();
    printf("\nEnter Number For fibonacci series : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        printf("\n%d",f3);
        f3=f1+f2;
        f1=f2;
        f2=f3;
    }
    getch();
}
Output :
Enter Number For fibonacci series : 8
0
1
1
2
3
5
8
```

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Q10. Write a program to find multiplication table using for loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number for Multiplication table : ");
    scanf("%d",&n);
    for(i=1;i<=10;i++){
        printf("\n%d*%d=%d",n,i,n*i);
    }
    getch();
}
Output :
Enter Number for Multiplication table : 5
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50
```

- **while loop :-** A while loop is used for executing a statement repeatedly until a given condition returns false. This is called entry controlled loop.

Syntax :-

Initialization;

While(condition){

Statement;

Inc/dec;

.

.

}

Q1. Write a program to print 1 to n numbers using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i);
        i++;
    }
    getch();
}
Output :
Enter Number : 5
1
2
3
4
5
```

Q2. Write a program to print n to 1 numbers using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);i=n;
    while(i>=1){
        printf("\n%d",i);
        i--;
    }
    getch();
}
Output :
Enter Number : 5
5
4
3
2
1
```

Q3. Write a program to print odd number using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i);
        i+=2;
    }
    getch();
}
Output :
Enter Number : 10
1
3
5
7
9
```

Q4. Write a program to print even number using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=2,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i);
        i+=2;
    }
    getch();
}
Output :
Enter Number : 10
2
4
6
8
10
```

Q5. Write a program to print square of n numbers using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i*i);
        i++;
    }
    getch();
}
Output :-
Enter Number : 5
1
4
9
16
25
```

Q6. Write a program to print cube of n number using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i*i*i);
        i++;
    }
    getch();
}
Output :
Enter Number : 5
1
8
27
64
125
```

Q7. Write a program to print series given below using while loop.

11,21,31,41,51,61,… … … n

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=11,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",i);
        i+=10;
    }
    getch();
}
Output :
Enter Number : 60
11
21
31
41
51
```

Q8. Write a program to find factorial of given number using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n,fact=1;
    clrscr();
    printf("\nEnter Number Whose Factorial You Want : ");
    scanf("%d",&n);
    while(i<=n){
        fact=fact*i;
        i++;
    }
    printf("\nFactorial Of %d is %d",n,fact);
    getch();
}
Output :
Enter Number Whose Factorial You Want : 5
Factorial Of 5 is 120
```

Q9. Write a program to find Fibonacci series using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n,f1=1,f2=0,f3=0;
    clrscr();
    printf("\nEnter Number For Fibonacci Serise: ");
    scanf("%d",&n);
    while(i<=n){
        printf("\n%d",f3);
        f3=f1+f2;
        f1=f2;
        f2=f3;
        i++;
    }
    getch();
}
Output :
Enter Number For Fibonacci Serise: 8
0
1
1
2
3
5
8
13
```

Q10. Write a program to find multiplication table using while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number For Multipliction Table : ");
    scanf("%d",&n);
    while(i<=10){
        printf("\n%d*%d=%d",n,i,n*i);
        i++;
    }
    getch();
}
Output :
Enter Number For Multipliction Table : 5
```

```
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50
```

Q11. Count number of digits in a numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=digit+1;
        num=num/10;
    }
    printf("\nNumber Of Digits Are %d",digit);

    getch();
}
Output :
Enter Any Number : 12345
5
```

Q12. Sum of digit of numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        sum=sum+digit;
        num=num/10;
```

```
    }
    printf("\nSum Of Digits Are %d",sum);

    getch();
}
Output :
Enter Any Number : 12345
15
```

Q13. Sum of even digits of numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        if(digit%2==0)
        sum=sum+digit;
        num=num/10;
    }
    printf("\nSum Of Even Digits Are %d",sum);
    getch();
}
Output :
Enter Any Number : 12345
Sum Of Even Digits Are 6
```

Q14. Sum odd digits of numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        if(digit%2!=0)
        sum=sum+digit;
        num=num/10;
```

```
    }
    printf("\nSum Of Odd Digits Are %d",sum);
    getch();
}
Output :
Enter Any Number : 12345
Sum Of Odd Digits Are 9
```

Q15. Sum of square digits of numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        sum=sum+digit*digit;
        num=num/10;
    }
    printf("\nSum Of Square Digits Are %d",sum);
    getch();
}
Output :
Enter Any Number : 12345
Sum Of Square Digits Are 55
```

Q16. Find the maximum digit from numbers .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,max=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        if(digit>max)
        max=digit;
        num=num/10;
    }
    printf("\nMaximum Digits Is %d",max);
```

```
    getch();
}
Output :
Enter Any Number : 54321
Maximum Digits Is 5
```

Q17. Write a program to enter number from keyboard and print them in reverse order .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        sum=sum*10+digit;
        num=num/10;
    }
    printf("\nNumber In Reverse Order Is %d",sum);
    getch();
}
Output :
Enter Any Number : 12345
Number In Reverse Order Is 54321
```

Q18. Check weather the number is palindrome or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int temp,num;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    temp=num;
    while(num>0){
        digit=num%10;
        sum=sum*10+digit;
        num=num/10;
    }
    if(temp==sum){
```

```
        printf("\nIt Is An Palindrome Number");
    }
    else{
        printf("\nIt Is Not An Palindrome Number");
    }
    getch();
}
Output :
Enter Any Number : 12321
It Is An Palindrome Number
```

Q19. Check weather the number is perfect or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num,mul=1;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    while(num>0){
        digit=num%10;
        sum=sum+digit;
        mul=mul*digit;
        num=num/10;
    }
    if(sum==mul){
        printf("\nIt Is An Perfect Number");
    }
    else{
        printf("\nIt Is Not An Perfect Number");
    }
    getch();
}
Output :
Enter Any Number : 123
It Is An Perfect Number
```

Q20. Check weather the number is armstrong or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int digit=0,sum=0;
    int num,temp;
    clrscr();
    printf("\nEnter Any Number : ");
    scanf("%d",&num);
    temp=num;
    while(num>0){
        digit=num%10;
        sum=sum+digit*digit*digit;
        num=num/10;
    }
    if(temp==sum){
        printf("It Is An Armstrong Number");
    }
    else{
        printf("It Is Not An Armstrong Number");
    }
    getch();
}
Output :
Enter Any Number : 153
It Is An Armstrong Number
```

Q21. Check weather the number is prime or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num,sum=0;
    int digit=0,flag=0;
    int i=2;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    while(i<=num/2){
        if(num%i==0){
            flag=1;
            break;
        }
        i++;
    }
```

```
    if(flag==0){
        printf("\nIt Is An Prime Number");
    }
    else{
        printf("\nIt Is Not An Prime Number");
    }
    getch();
}
Output :
Enter Number : 9
It Is Not An Prime Number
```

Q22. Check weather the number is binary or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num,sum=0;
    int digit=0,flag=0;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    while (num>0){
        digit=num%10;
        if(digit>=2){
            flag=1;
            break;
        }
        num=num/10;
    }
    if(flag==0){
        printf("\nIt Is An Binary Number");
    }
    else{
        printf("\nIt Is Not An Binary Number");
    }
    getch();
}
Output :
Enter Number : 1010
It Is An Binary Number
```

Q23. Check weather the number is octal or not .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num,sum=0;
    int digit=0,flag=0;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    while (num>0){
        digit=num%10;
        if(digit>=8){
            flag=1;
            break;
        }
        num=num/10;
    }
    if(flag==0){
        printf("\nIt Is An Octal Number");
    }
    else{
        printf("\nIt Is Not An Octal Number");
    }
    getch();
}
Output :
Enter Number : 12345
It Is An Octal Number
```

- **do while :-** The do while loop is a post tested loop. The do-while loop is mainly used in the case where we need to execute the loop at least once. The do-while loop is mostly used in menu-driven programs where the termination condition depends upon the end user. It is called exit control loop.

Syntax :-

```
Initialization;
do{
        //code to be executed
        Statements;
        Inc/dec;
}while(condition);
```

Q1. Write a program to print 1 to n numbers using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();

    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i);
        i++;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 5
1
2
3
4
5
```

Q2. Write a program to print n to 1 numbers using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    i=n;
    do{
        printf("\n%d",i);
        i--;
    }while(i>=1);
    getch();
}
Output :
Enter Number : 5
5
4
3
2
1
```

Q3. Write a program to print odd number using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i);
        i+=2;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 10
1
3
5
7
9
```

Q4. Write a program to print even number using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=2,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i);
        i+=2;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 10
2
4
6
8
10
```

Q5. Write a program to print square of n numbers using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i*i);
        i++;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 5
1
4
9
16
25
```

Q6. Write a program to print cube of n number using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i*i*i);
        i++;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 5
1
8
27
64
125
```

Q7. Write a program to print series given below using do while loop.

11,21,31,41,51,61,… … … n

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=11,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    do{
        printf("\n%d",i);
        i+=10;
    }while(i<=n);
    getch();
}
Output :
Enter Number : 60
11
21
31
41
51
```

Q8. Write a program to find factorial of given number using for do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n,fact=1;
    clrscr();
    printf("\nEnter Number Whose Factorial You Want : ");
    scanf("%d",&n);
    do{
        fact=fact*i;
        i++;
    }while(i<=n);
    printf("\nFactorial Of %d Is %d",n,fact);
    getch();
}
Output :
Enter Number Whose Factorial You Want : 5
Factorial Of 5 Is 120
```

Q9. Write a program to find Fibonacci series using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n,f1=1,f2=0,f3=0;
    clrscr();
    printf("\nEnter Number For Fibonacci Serise : ");
    scanf("%d",&n);
    do{
        printf("\n%d",f3);
        f3=f1+f2;
        f1=f2;
        f2=f3;
        i++;
    }while(i<=n);
    getch();
}
Output :
Enter Number For Fibonacci Serise : 8
0
1
1
2
3
5
```

```
8
13
```

Q10. Write a program to find multiplication table using do while loop.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int i=1,n;
    clrscr();
    printf("\nEnter Number For multiplication table : ");
    scanf("%d",&n);
    do{
        printf("\n%d*%d=%d",n,i,i*n);
        i++;
    }while(i<=10);
    getch();
}
Output :
Enter Number For multiplication table : 5
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50
```

- **Nested for loop:** The nested for loop means any type of loop which is defined inside the 'for' loop.

Syntax :-

```
for(initialization; condition; update) {
        for(initialization; condition; update) {
                // inner loop statements.
        }
// outer loop statements.
}
```

Patterns

```
//pattern 1
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
*
**
***
****
*****
//pattern 2
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("%d",j);

        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
```

```
1
12
123
1234
12345
//pattern 3
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("$");
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
$$$$$
$$$$
$$$
$$
$
//pattern 4
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
12345
1234
123
12
1
//pattern 5
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=i;j>=1;j--){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
1
21
321
4321
54321
//pattern 6
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=i;j>=1;j--){
            printf("%d",j);
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
54321
4321
321
21
1
//pattern 7
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=n;j>=i;j--){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
54321
5432
543
54
5
//pattern 8
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=n;j>=i;j--){
            printf("%d",j);
        }
```

```
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
5
54
543
5432
54321
//pattern 9
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=i;j<=n;j++){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
12345
2345
345
45
5
//pattern 10
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=i;j<=n;j++){
```

```
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
5
45
345
2345
12345
//pattern 11
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
55555
4444
333
22
1
//pattern 12
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
```

```
    for(i=n;i>=1;i--){
        for(j=n;j>=i;j--){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
5
44
333
2222
11111
//pattern 13
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
1
22
333
4444
55555
```

```c
//pattern 14
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("%d ",j*j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
1
1 4
1 4 9
1 4 9 16
1 4 9 16 25
//pattern 15
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=n;j>=i;j--){
            printf("%c",i+64);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
AAAAA
BBBB
CCC
DD
E
//pattern 16
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=i;j<=n;j++){
            printf("%c",i+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
E
DD
CCC
BBBB
AAAAA
//pattern 17
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=1;j<=i;j++){
            printf("%c",j+64);
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
ABCDE
ABCD
ABC
AB
A
//pattern 18
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=i;j++){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
A
AB
ABC
ABCD
ABCDE
```

```c
//pattern 19
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=n;j>=i;j--){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
EDCBA
EDCB
EDC
ED
E
```

```c
//pattern 20
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(j=n;j>=i;j--){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
E
ED
EDC
EDCB
EDCBA
//pattern 21
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=1;j<=i;j++){
            printf("*");
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     *
    **
   ***
  ****
 *****
```

```c
//pattern 22
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=1;j<=i;j++){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     1
    12
   123
  1234
 12345
```

```c
//pattern 23
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=1;j<=i;j++){
            printf("$");
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
 $$$$$
  $$$$
   $$$
    $$
     $
//pattern 24
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=1;j<=i;j++){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 12345
  1234
   123
    12
     1
```

```c
//pattern 25
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=i;j>=1;j--){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     1
    21
   321
  4321
 54321
```

```c
//pattern 26
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=i;j>=1;j--){
            printf("%d",j);
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
 54321
  4321
   321
    21
     1
//pattern 27
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space

        }
        for(j=n;j>=i;j--){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 54321
  5432
   543
    54
     5
```

```c
//pattern 28
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space

        }
        for(j=n;j>=i;j--){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     5
    54
   543
  5432
 54321
```

```c
//pattern 29
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space

        }
        for(j=i;j<=n;j++){
            printf("%d",j);
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
 12345
  2345
   345
    45
     5
//pattern 30
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space

        }
        for(j=i;j<=n;j++){
            printf("%d",j);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     5
    45
   345
  2345
 12345
```

```
//pattern 31
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 55555
  4444
   333
    22
     1
//pattern 32
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space

        }
        for(j=n;j>=i;j--){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
```

```
}
Output :
Enter Number : 5
     5
    44
   333
  2222
 11111
//pattern 33
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space

        }
        for(j=1;j<=i;j++){
            printf("%d",i);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     1
    22
   333
  4444
 55555
```

```c
//pattern 34
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d",j*j);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
          1
       1  4
     1 4  9
   1 4 9  16
 1 4 9 16 25
```

```c
//pattern 35
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%c",i+64);
        }
        printf("\n");
    }
    getch();
```

```
}
Output :
Enter Number : 5
 AAAAA
  BBBB
   CCC
    DD
     E
//pattern 36
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j<=n;j++){
            printf("%c",i+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     E
    DD
   CCC
  BBBB
 AAAAA
//pattern 37
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
```

```
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 ABCDE
  ABCD
   ABC
    AB
     A
//pattern 38
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     A
    AB
   ABC
  ABCD
 ABCDE
//pattern 39
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 EDCBA
  EDCB
   EDC
    ED
     E
//pattern 40
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
```

```
        }
        for(j=n;j>=i;j--){
            printf("%c",j+64);
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     E
    ED
   EDC
  EDCB
 EDCBA
//pattern 41
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("* ");//leave 1 space after *
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     *
    * *
   * * *
  * * * *
 * * * * *
//pattern 42
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     1
    1 2
   1 2 3
  1 2 3 4
 1 2 3 4 5
//pattern 43
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
```

```
        }
        for(j=1;j<=i;j++){
            printf("$ ");//leave 1 space after $
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 $ $ $ $ $
  $ $ $ $
   $ $ $
    $ $
     $
//pattern 44
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j); //leave 1 space after %d

        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 1 2 3 4 5
  1 2 3 4
   1 2 3
    1 2
     1
```

```c
//pattern 45
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j>=1;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     1
    2 1
   3 2 1
  4 3 2 1
 5 4 3 2 1
//pattern 46
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j>=1;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
```

```
}
Output :
Enter Number : 5
 5 4 3 2 1
  4 3 2 1
   3 2 1
    2 1
     1
//pattern 47
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 5 4 3 2 1
  5 4 3 2
   5 4 3
    5 4
     5
//pattern 48
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
```

```
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     5
    5 4
   5 4 3
  5 4 3 2
 5 4 3 2 1
//pattern 49
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j<=n;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 1 2 3 4 5
  2 3 4 5
   3 4 5
    4 5
     5
```

```c
//pattern 50
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j<=n;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
     5
    4 5
   3 4 5
  2 3 4 5
 1 2 3 4 5
```

```c
//pattern 51
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",i);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
```

```
}
Output :
Enter Number : 5
 5 5 5 5 5
  4 4 4 4
   3 3 3
    2 2
     1

//pattern 52
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",i);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     5
    4 4
   3 3 3
  2 2 2 2
 1 1 1 1 1
//pattern 53
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
```

```
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",i);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     1
    2 2
   3 3 3
  4 4 4 4
 5 5 5 5 5
//pattern 54
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j*j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
          1
        1   4
      1   4   9
    1   4   9   16
  1   4   9   16  25
```

```c
//pattern 55
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%c ",i+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
 A A A A A
  B B B B
   C C C
    D D
     E
```

```c
//pattern 56
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    //clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j<=n;j++){
            printf("%c ",i+64);//leave 1 space after %d
        }
        printf("\n");
    }
```

```
    getch();
}
Output :
Enter Number : 5
     E
    D D
   C C C
  B B B B
 A A A A A
//pattern 57
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%c ",j+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 A B C D E
  A B C D
   A B C
    A B
     A
//pattern 58
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
```

```
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%c ",j+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     A
    A B
   A B C
  A B C D
 A B C D E

//pattern 59
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%c ",j+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
 E D C B A
  E D C B
   E D C
    E D
     E
```

```c
//pattern 60
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%c ",j+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
     E
    E D
   E D C
  E D C B
 E D C B A
//pattern 61
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("* ");//leave 1 space after *
        }
        printf("\n");
    }
```

```
    for(i=n-1;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("* ");//leave 1 space after *
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
    *
   * *
  * * *
 * * * *
* * * * *
 * * * *
  * * *
   * *
    *
//pattern 62
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%c ",i+64);//leave 1 space after %c
        }
        printf("\n");
    }

    for(i=n-1;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
```

```
        for(j=1;j<=i;j++){
            printf("%c ",i+64);//leave 1 space after %c
        }
        printf("\n");
    }
    getch();
}
Output :
Enter Number : 5
    A
   B B
  C C C
 D D D D
E E E E E
 D D D D
  C C C
   B B
    A
//pattern 63
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }

    for(i=1-(-1);i<=n;i++){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
```

```
    }
    getch();
}
Output :
Enter Number : 5
     5
    5 4
   5 4 3
  5 4 3 2
 5 4 3 2 1
  5 4 3 2
   5 4 3
    5 4
     5
//pattern 64
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }

    for(i=n-1;i>=1;i--){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
    1
   1 2
  1 2 3
 1 2 3 4
1 2 3 4 5
 1 2 3 4
  1 2 3
   1 2
    1
```

```c
//pattern 65
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=n;j>=i;j--){
            printf("%d ",i);//leave 1 space after %d
        }
        printf("\n");
    }

        for(i=1-(-1);i<=n;i++){
            for(k=1;k<=i;k++){
                printf(" ");//leave 1 space
            }
        for(j=n;j>=i;j--){
            printf("%d ",i);//leave 1 space after %d
        }
        printf("\n");
        }
    getch();
}
```

```
Output :
Enter Number : 5
     5
    4 4
   3 3 3
  2 2 2 2
 1 1 1 1 1
  2 2 2 2
   3 3 3
    4 4
     5
```

```c
//pattern 66
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--){
        for(k=1;k<=i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j<=n;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }

        for(i=1-(-1);i<=n;i++){
            for(k=1;k<=i;k++){
                printf(" ");//leave 1 space
            }
        for(j=i;j<=n;j++){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
        }
    getch();
}
```

```
Output :
Enter Number : 5
     5
    4 5
   3 4 5
  2 3 4 5
 1 2 3 4 5
  2 3 4 5
   3 4 5
    4 5
     5
```

```c
//pattern 67
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j>=1;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
    }

        for(i=n-1;i>=1;i--){
            for(k=1;k<=n-i;k++){
                printf(" ");//leave 1 space
            }
        for(j=i;j>=1;j--){
            printf("%d ",j);//leave 1 space after %d
        }
        printf("\n");
        }
    getch();
}
```

```
Output :
Enter Number : 5
    1
   2 1
  3 2 1
 4 3 2 1
5 4 3 2 1
 4 3 2 1
  3 2 1
   2 1
    1
```

```c
//pattern 68
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=1;j<=i;j++){
            printf("%d ",j%2);//leave 1 space after %d
        }
        printf("\n");
    }

        for(i=n-1;i>=1;i--){
            for(k=1;k<=n-i;k++){
                printf(" ");//leave 1 space
            }
        for(j=1;j<=i;j++){
            printf("%d ",j%2);//leave 1 space after %d
        }
        printf("\n");
        }
    getch();
}
```

```
Output :
Enter Number : 5
    1
   1 0
  1 0 1
 1 0 1 0
1 0 1 0 1
 1 0 1 0
  1 0 1
   1 0
    1
```

```c
//pattern 69
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,k,n,r=1;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(k=1;k<=n-i;k++){
            printf(" ");//leave 1 space
        }
        for(j=i;j>=1;j--){
            printf("%d ",(r++)%2);//leave 1 space after %d
        }
        printf("\n");
    }

        for(i=n-1;i>=1;i--){
            for(k=1;k<=n-i;k++){
                printf(" ");//leave 1 space
            }
        for(j=i;j>=1;j--){
            printf("%d ",(r++)%2);//leave 1 space after %d
        }
        printf("\n");
        }
    getch();
}
```

```
Output :
Enter Number : 5
    1
   0 1
  0 1 0
 1 0 1 0
1 0 1 0 1
 0 1 0 1
  0 1 0
   1 0
    1
```

```c
//pattern 70
#include<stdio.h>
#include<conio.h>
void main(){
    int i,j,n;
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        for(j=1;j<=n;j++){
            if(i==1 || j==1 || j==5 || i==5){
            printf("* ");//leave 1 space after *
            }
            else{
                printf("  ");//leave 2 space
            }
        }
        printf("\n");
    }
    getch();
}
```

```
Output :
Enter Number : 5
* * * * *
*       *
*       *
*       *
* * * * *
```

Ch4. Array

- **Array :-** An array is defined as the collection of similar type of data items stored at contiguous memory locations. Arrays are the derived data type in C programming language which can store the primitive type of data such as int, char, double, float, etc The array is the simplest data structure where each data element can be randomly accessed by using its index number

- ## 1-D Array

Q1. Write a program to enter 10 elements in 1D array and print tham on screen.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
4
5
Elements In Array Are :
1
2
3
4
5
```

Q2. Write a program to enter 10 elements in 1D array and calculate total of all element .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,total=0;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    total=total+marks[i];
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    printf("\nTotal Of Elements Is %d",total);
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
4
5
Elements In Array Are :
1
2
3
4
5
Total Of Elements Is 15
```

Q3. Write a program to enter 10 element in 1D array and find out the maximum element from them .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,max=0;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    if(marks[i]>max){
        max=marks[i];
    }
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    printf("\nMaximum Elements Is %d",max);
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
4
5
Elements In Array Are :
1
2
3
4
5
Maximum Elements Is 5
```

Q4. Write a program to enter 10 elemetnt in 1D array and calculate total number of odd element and total number of even element from tham .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,even=0,odd=0;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    if(marks[i]%2==0){
        even++;
    }
    else{
        odd++;
    }
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    printf("\nTotal Even Elements Are %d",even);
    printf("\nTotal Odd Elements Are %d",odd);
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
4
5
Elements In Array Are :
1
2
3
4
5
Total Even Elements Are 2
```

```
Total Odd Elements Are 3
```

Q5. Write a program to enter 10 years in 1D array and calculate total number of leap year and total number of non leap year from tham .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,ly=0,nly=0;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    if(marks[i]%4==0){
        ly++;
    }
    else{
        nly++;
    }
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    printf("\nTotal Leap Years Are %d",ly);
    printf("\ntotal Non Leap Years Are %d",nly);
    getch();
}
Output :
Enter Number Of Element You Want To Enter :
4
Enter 4 Element :
2004
2005
2006
2007
Elements In Array Are :
2004
2005
2006
2007
Total Leap Years Are 1
```

```
total Non Leap Years Are 3
```

Q6. Write a program to enter 10 elemetnt in 1D array and calculate total number of positive element and total number of negative element from tham .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,neg=0,pos=0;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    if(marks[i]>0){
        pos++;
    }
    else{
        neg++;
    }
    }
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    printf("\nTotal Positive Elements Are %d",pos);
    printf("\ntotal Negative Elements Are %d",neg);
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
-4
-5
Elements In Array Are :
1
2
3
-4
-5
```

```
Total Positive Elements Are 3
total Negative Elements Are 2
```

Q7. Write a program to enter 10 elements in 1D array and replace old elements with new elements .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,old,new;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    printf("\nEnter Old Element : ");
    scanf("%d",&old);
    printf("\nEnter New Element : ");
    scanf("%d",&new);
    for(i=0;i<n;i++){
        if(marks[i]==old){
            marks[i]=new;
        }
    }
    printf("\nElements In Array After Replacing Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
getch();

}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
30
4
5
Enter Old Element : 30
Enter New Element : 3
Elements In Array After Replacing Are :
```

```
1
2
3
4
5
```

Q8. Write a program to enter 10 elements in 1D array and sort tham in assending order .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,j,n,temp;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    for(i=0;i<n;i++){
        for(j=i+1;j<=n;j++){
            if(marks[i]>marks[j]){
                temp=marks[i];
                marks[i]=marks[j];
                marks[j]=temp;
            }
        }
    }
    printf("\nArray In Assending Order Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
5
4
3
2
1
Array In Assending Order Are :
```

```
1
2
3
4
5
```

Q9. Write a program to insert element in 1D array .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n,pos,ele;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    printf("\nEnter Position Where You Want To Insert : ");
    scanf("%d",&pos);
    printf("\nEnter Element : ");
    scanf("%d",&ele);
    for(i=n;i>=pos;i--){
        marks[i]=marks[i-1];
    }
    marks[pos-1]=ele;
    n++;
    printf("\nArray After Inserting Element Is : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
4
5
6
Enter Position Where You Want To Insert : 3
Enter Element : 3
Array After Inserting Element Is :
```

```
1
2
3
4
5
6
```

Q10. Write a program to delete element from 1D array .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,j,n,del;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    printf("\nEnter Element You Want To Delete : ");
    scanf("%d",&del);
    for(i=0;i<=n;i++){
        if(marks[i]==del){
            break;
        }
    }
    for(j=i;j<n;j++){
        marks[j]=marks[j+1];
    }
    n--;
    printf("\nArray After Deleting Element Is : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1
2
3
30
4
Enter Element You Want To Delete : 30
```

```
Array After Deleting Element Is :
1
2
3
4
```

Q11. Write a program to enter 5--5 element in 1D array and store their addition in third array.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int a[10],b[10],c[10];
    int i,n;
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For A : \n",n);
    for(i=0;i<n;i++){
        scanf("%d",&a[i]);
    }
    printf("\nEnter %d Element For B : \n",n);
    for(i=0;i<n;i++){
        scanf("%d",&b[i]);
    }
    for(i=0;i<n;i++){
        c[i]=a[i]+b[i];
    }
    printf("\nAddition Of Array Is : \n");
    for(i=0;i<n;i++){
        printf("\n%d",c[i]);
    }
    getch();
}
Output :
Enter Number Of Element You Want To Enter : 5
Enter 5 Element For A :
1
2
3
4
5
Enter 5 Element For B :
1
2
```

```
3
4
5
Addition Of Array Is :
2
4
6
8
10
```

Q12. Write a c program to search element from the 1-d array. Count the no of occurrences of search element in array with position .

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[10];
    int i,n,ser,flag=0;
    clrscr();
    printf("\nEnter Size Of Array : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements For Array\n",n);
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("Enter Element You Want To Search : ");
    scanf("%d",&ser);
    for(i=0;i<n;i++)
    {
        if(a[i]==ser)
        {
            printf("\n%d Element Is Found At %d Position In A Array",ser,i+1);
            flag=1;
        }
    }
    if(flag==0){
        printf("\nElement Not Found !!");
    }
    getch();
}
Output:-
Enter Size Of Array : 5
Enter 5 Elements For Array
1
2
3
4
5
Enter Element You Want To Search : 3
3 Element Is Found At 3 Position In A Array
```

➢ 2-D Array

The two-dimensional array can be defined as an array of arrays. The 2D array is organized as matrices which can be represented as the collection of rows and columns

Q1. Write a c program to create 2-d array of N*N elements and print the value of that array.

```
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
        printf("\n");
    }
    getch();
}
Enter Row : 2
Enter Column : 2
Enter 4 Elements For [2,2] Matrix :
1
2
3
4
Elements In Matrix Form
        1       2
        3       4
```

Q2. Write a c program to create 2-d array of N*N elements and calculate sum of all element and print it on screen.

```
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c,total=0;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
            total=total+marks[i][j];
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
        printf("\n");
    }
    printf("\nSum Of Elements Is %d",total);
    getch();
}
Output:-
Enter Row : 3
Enter Column : 3
Enter 9 Elements For [3,3] Matrix :
1 2 3 4 5 6 7 8 9
Elements In Matrix Form
        1       2       3
        4       5       6
        7       8       9
Sum Of Elements Is 45
```

Q3. Write a c program to create 2-d array of N*N elements and print the value of that array and find out maximum element from them and print it on screen .

```
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c,max=0;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
            if(marks[i][j]>max){
                max=marks[i][j];
            }
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
        printf("\n");
    }
    printf("\nMaximum Elements Is %d",max);
    getch();
}
Output:-
Enter Row : 3
Enter Column : 3
Enter 9 Elements For [3,3] Matrix :
1 2 3 4 5 6 7 8 9
Elements In Matrix Form
        1       2       3
        4       5       6
        7       8       9
Maximum Elements Is 9
```

Q4. Write a c program to create 2-d array of N*N elements and print the value of that array and calculate total number of odd and even elements and print it on screen .

```
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c,odd=0,even=0;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
            if(marks[i][j]%2==0){
                even++;
            }
            else{
                odd++;
            }
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
        printf("\n");
    }
    printf("\nTotal Odd Elements are %d",odd);
    printf("\nTotal even Elements are %d",even);
    getch();
}
Output:-
Enter Row : 3
Enter Column : 3
Enter 9 Elements For [3,3] Matrix :
1 2 3 4 5 6 7 8 9
```

```
Elements In Matrix Form

        1       2       3
        4       5       6
        7       8       9
Total Odd Elements are 5
Total even Elements are 4
```

Q5. Write a c program to create 2-d array of N*N elements and print the value of that array and calculate total number of negative and positive elements and print it on screen .

```c
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c,neg=0,pos=0;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
            if(marks[i][j]>0){
                pos++;
            }
            else{
                neg++;
            }
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
        printf("\n");
    }
    printf("\nTotal Positive Elements are %d",pos);
    printf("\nTotal Negative Elements are %d",neg);
    getch();
}
```

```
Output:-
Enter Row : 3
Enter Column : 3
Enter 9 Elements For [3,3] Matrix :
1 -2 3 -4 5 -6 7 -8 -9
Elements In Matrix Form
        1       -2      3
        -4      5       -6
        7       -8      -9
Total Positive Elements are 4
Total Negative Elements are 5
```

Q6. Write a c program to create 2-d array of N*N elements and print the value of that array and calculate total number of leap year and not leap year and print it on screen .

```c
#include <stdio.h>
#include <conio.h>
void main(){
    int marks[10][10];
    int i, j, n, r, c,ly=0,nly=0;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            scanf("%d", &marks[i][j]);
            if(marks[i][j]%4==0){
                ly++;
            }
            else{
                nly++;
            }
        }
    }
    printf("\nElements In Matrix Form \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("\t%d", marks[i][j]);
        }
```

```
        printf("\n");
    }
    printf("\nTotal Leap Year Elements are %d",ly);
    printf("\nTotal Not Leap Year Elements are %d",nly);
    getch();
}
Output:-
Enter Row : 2
Enter Column : 2
Enter 4 Elements For [2,2] Matrix :
2001 2002 2004 2003
Elements In Matrix Form
        2001    2002
        2004    2003
Total Leap Year Elements are 1
Total Not Leap Year Elements are 3
```

Q7. Write a c program to create two matrix of N*N elements and calculate total of both matrix into the third matrix .

```
#include <stdio.h>
#include <conio.h>
void main(){
    int a[10][10],b[10][10],c[10][10];
    int i, j, n, r, cl;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &cl);
    printf("\nEnter %d Elements For [%d,%d] Matrix A : \n", r * cl, r, cl);
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            scanf("%d", &a[i][j]);
        }
    }
    printf("\nEnter %d Elements For [%d,%d] Matrix B : \n", r * cl, r, cl);
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            scanf("%d", &b[i][j]);
        }
    }
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
```

```
            c[i][j] =a[i][j]+b[i][j];
        }
    }
    printf("\nAddition Of Two Matrix Is  \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            printf("\t%d", c[i][j]);
        }
        printf("\n");
    }
    getch();
}
Output:-
Enter Row : 2
Enter Column : 2
Enter 4 Elements For [2,2] Matrix A :
1 3 2 4
Enter 4 Elements For [2,2] Matrix B :
5 7 6 8
Addition Of Two Matrix Is
        6       10
        8       12
```

Q8. Write a c program to create two matrix of N*N elements and calculate multiplication of both matrix into the third matrix .

```
#include <stdio.h>
#include <conio.h>
void main(){
    int a[10][10],b[10][10],c[10][10];
    int i, j, k ,n, r, cl;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &cl);
    printf("\nEnter %d Elements For [%d,%d] Matrix A : \n", r * cl, r, cl);
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            scanf("%d", &a[i][j]);
        }
    }
    printf("\nEnter %d Elements For [%d,%d] Matrix B : \n", r * cl, r, cl);
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            scanf("%d", &b[i][j]);
        }
    }
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            c[i][j]=0;
            for(k=0;k<cl;k++){
                c[i][j]+=a[i][j]*b[i][j];
            }
        }
    }
    printf("\nMultiplication Of Two Matrix Is  \n ");
    for (i = 0; i < r; i++){
        for (j = 0; j < cl; j++){
            printf("\t%d", c[i][j]);
        }
        printf("\n");
    }
    getch();
}
Output:-
Enter Row : 3
```

```
Enter Column : 3
Enter 9 Elements For [3,3] Matrix A :
1 2 3 4 5 6 7 8 9
Enter 9 Elements For [3,3] Matrix B :
10 11 12 13 14 15 16 17 18
Multiplication Of Two Matrix Is
        30      66      108
        156     210     270
        336     408     486
```

Q9. Write a c program to create 2-d array of N*N elements and Display this in column major order.

```c
#include <stdio.h>
#include <conio.h>
void main()
{
    int marks[10][10];
    int i, j, n, r, c;
    clrscr();
    printf("\nEnter Row : ");
    scanf("%d", &r);
    printf("\nEnter Column : ");
    scanf("%d", &c);
    printf("\nEnter %d Elements For [%d,%d] Matrix : \n", r * c, r, c);
    for (i = 0; i < r; i++)
    {
        for (j = 0; j < c; j++)
        {
            scanf("%d", &marks[i][j]);
        }
    }
    printf("\n Elements In Column Major Order \n ");
    for (i = 0; i < c; i++)
    {
        for (j = 0; j < r; j++)
        {
            printf("\t%d", marks[j][i]);
        }
        printf("\n");
    }
    getch();
}
```

```
Enter Row : 3
Enter Column : 3
Enter 9 Elements For [3,3] Matrix :
1 2 3 4 5 6 7 8 9
Elements In Column Major Order
        1       4       7
        2       5       8
        3       6       9
```

Ch5. Function

A function is a block of code that performs a specific task. C allows you to define functions according to your need. These functions are known as user-defined functions(UDF).

A user-defined function has three important components:

1) Function declaration

2) Function definition

3) Function call

Q1. Write a c program to create UDF ADD() and calculate addition of two number and return answer to main function.

```c
#include <stdio.h>
#include <conio.h>
int add(int ,int);//function declaration
void main(){
    int no1,no2,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    ans=add(no1,no2);//function calling
    printf("\nAddition Is %d",ans);
    getch();
}
//function definition
int add(int x,int y){
    int sum;
    sum=x+y;
    return sum;
}
Output:-
Enter Number 1 : 12
Enter Number 2 : 2
Addition Is 14
```

Q2. Write a c program to create UDF SUB() and calculate subtraction of two number and return answer to main function.

```
#include <stdio.h>
#include <conio.h>
int sub(int ,int);//function declaration
void main(){
    int no1,no2,ans;
    clrscr();

    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    ans=sub(no1,no2);//function calling
    printf("\nSubtraction Is %d",ans);
    getch();
}
//function defination
int sub(int x,int y){
    int sub;
    sub=x-y;
    return sub;
}
Output:-
Enter Number 1 : 12
Enter Number 2 : 2
Addition Is 10
```

Q3. Write a c program to create UDF MUL() and calculate multiplication of two number and return answer to main function.

```
#include <stdio.h>
#include <conio.h>
int mul(int ,int);//function declaration
void main(){
    int no1,no2,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    ans=mul(no1,no2);//function calling
    printf("\nMultiplication Is %d",ans);
```

```
    getch();
}
//function defination
int mul(int x,int y){
    int mul;
    mul=x*y;
    return mul;
}
Output:-
Enter Number 1 : 12
Enter Number 2 : 2
Multiplication Is 24
```

Q4. Write a c program to create UDF div() and calculate division of two number and return answer to main function.

```
#include <stdio.h>
#include <conio.h>
int div(int ,int);//function declaration
void main(){
    int no1,no2,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    ans=div(no1,no2);//function calling
    printf("\nDivision Is %d",ans);
    getch();
}
//function defination
int div(int x,int y){
    int div;
    div=x/y;
    return div;
}
Output:-
Enter Number 1 : 12
Enter Number 2 : 2
Division Is 6
```

Q5. Write a c program to create UDF MOD() and calculate modulation of two number and return answer to main function.

```
#include <stdio.h>
#include <conio.h>
int mod(int ,int);//function declaration
void main(){
    int no1,no2,ans;
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&no1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&no2);
    ans=mod(no1,no2);//function calling
    printf("\nModulation Is %d",ans);
    getch();
}
//function defination
int mod(int x,int y){
    int mod;
    mod=x%y;
    return mod;
}
Output:-
Enter Number 1 : 12
Enter Number 2 : 2
Modulation Is 0
```

Q6. Write a c program to create UDF to find the numbers is odd or even .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num;
    void oddeven(int);
    clrscr();
    printf("\n Enter Number : ");
    scanf("%d",&num);
    oddeven(num);
    getch();
}
void oddeven(int x)
{
    if(x%2==0)
```

```
    {
    printf("\n Number Is Even");
    }
    else
    {
    printf("\n Number Is Odd");
    }
}
Output:-
Enter Number : 4
Number Is Even
```

Q6. Write a c program to create UDF to find the numbers is negative or positive.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num;
    void negpos(int);
    clrscr();
    printf("\nEnter Number : ");
    scanf("%d",&num);
    negpos(num);
    getch();
}
void negpos(int x)
{
    if(x>0)
    {
    printf("\nNumber Is Poitive");
    }
    else
    {
    printf("\nNumber Is Negative");
    }
}
Output:-
Enter Number : 45
Number Is Poitive
```

Q7. Write a c program to create UDF to find the max value from 2 numbers. Return result to main function.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int num1,num2,ans;
    int greater(int,int);
    clrscr();
    printf("\nEnter Number 1 : ");
    scanf("%d",&num1);
    printf("\nEnter Number 2 : ");
    scanf("%d",&num2);
    ans=greater(num1,num2);
    printf("\n%d Is Greate",ans);
    getch();
}
int greater(int x,int y)
{
    if(x>y)
    {
    return x;
    }
    else
    {
    return y;
    }
}
Output:-
Enter Number 1 : 123
Enter Number 2 : 2
123 Is Greate
```

Q9. Write a c program to create UDF to find the factorial of the given number. Return result to main function.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int n,ans;
    int factorial(int);
    clrscr();
    printf("\nEnter Numbers:");
    scanf("%d",&n);
    ans=factorial(n);
    printf("\nFactorial Of %d Is %d",n,ans);
    getch();
}
int factorial(int n){
    int i;
    int fact=1;
    for(i=1;i<=n;i++){
        fact=fact*i;
    }
    return fact;
}
Output:-
Enter Numbers:5
Factorial Of 5 Is 120
```

Q10. Write a function program to pass array and number of element and calculate total of element .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n;
    void arr(int [],int);
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    arr(marks,n);
    getch();
}
void arr(int marks[],int n){
    int i,total=0;
    printf("\nElements In Array Are : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    total=total+marks[i];
    }
    printf("\nAddition Of Element Is %d",total);
    getch();
}
Output:-
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1 2 3 4 5
Elements In Array Are :
1
2
3
4
5
Addition Of Element Is 15
```

Q11. Write a function program to pass array and number of element and insert element in array element .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n;
    void arr(int [],int);
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    arr(marks,n);
    getch();
}
void arr(int marks[],int n){
    int i,pos,ele;
    printf("\nEnter Position Where You Want To Insert : ");
    scanf("%d",&pos);
    printf("\nEnter Element : ");
    scanf("%d",&ele);
    for(i=n;i>=pos;i--){
        marks[i]=marks[i-1];
    }
    marks[pos-1]=ele;
    n++;
    printf("\nArray After Inserting Element Is : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    getch();
}
Output:-
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1 2 3 4 5
Enter Position Where You Want To Insert : 2
Enter Element : 22
Array After Inserting Element Is :
1 22 2 3 4 5
```

Q11. Write a function program to pass array and number of element and delete element from array .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int marks[10];
    int i,n;
    void arr(int [],int);
    clrscr();
    printf("\nEnter Number Of Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element : \n",n);
    for(i=0;i<n;i++){
    scanf("%d",&marks[i]);
    }
    arr(marks,n);
    getch();
}
void arr(int marks[],int n){
    int i,del;
    printf("\nEnter Element You Want To Delete : ");
    scanf("%d",&del);
    for(i=0;i<=n;i++){
        if(marks[i]==del){
            break;
        }
    }
    for(j=i;j<n;j++){
        marks[j]=marks[j+1];
    }
    n--;
    printf("\nArray After Deleting Element Is : ");
    for(i=0;i<n;i++){
        printf("\n%d",marks[i]);
    }
    getch();
}
Output:-
Enter Number Of Element You Want To Enter : 5
Enter 5 Element :
1 2 3 4 5
Enter Element You Want To Delete : 2
```

```
Array After Deleting Element Is :
1
3
4
5
```

Programs done by your self

Q .Write a c program to create UDF to find the multiplication table of the given number.

Q. Write a c program to create UDF to find fibonacii series .

Q. Write a function program to pass array and number of element and find out maximum element from array.

Q. Write a function program to pass array and number of element and sort elements in assending order.

Ch5. String

Q1. Write a program to enter any string from keyboard and calculate number of letters.

```
#include<stdio.h>
#include<conio.h>
void main(){
    char ch[30];
    int len=0;
    clrscr();
    printf("\nEnter String : ");
    scanf("%[^\n]",ch);
    while(ch[len]!='\0'){
        len++;
    }
    printf("\nLength Of String Is %d",len);
    getch();
}
Output:-
Enter String : hello
Length Of String Is 5
```

Q2. Write a program to enter any string from keyboard and calculate number of words.

```
#include<stdio.h>
#include<conio.h>
void main(){
    char ch[30];
    int len=0,word=1;
    clrscr();
    printf("\nEnter String : ");
    scanf("%[^\n]",ch);
    while(ch[len]!='\0'){
        if(ch[len]==' '){
            word++;
        }
        len++;
    }
    printf("\nThere Are %d Words",word);
    getch();
}
Output:-
Enter String : hello world
There Are 2 Words
```

Q3. Write a program to enter any string from keyboard and calculate number of vowals.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int len=0,c=0;
    char ch[30];
    clrscr();
    printf("\nEnter String:");
    scanf("%[^\n]",ch);
    while(ch[len]!='\0'){
        if(ch[len]=='A'|| ch[len]=='E'||ch[len]=='I'||
ch[len]=='O'||ch[len]=='U'||ch[len]=='a'|| ch[len]=='e'||ch[len]=='i'||
ch[len]=='o'||ch[len]=='u'){
            c++;
        }
        len++;
    }
    printf("\nTotal Vowals Are %d ",c);
    getch();
}
Output:-
Enter String:hello world
Total Vowals Are 3
```

Q4. Write a program to enter any string from keyboard and print their ASCII((AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE) value .

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main(){
    int i;
    char ch[20];
    clrscr();
    printf("\nEnter String : ");
    scanf("%s",ch);
    for(i=0;i<strlen(ch);i++){
        printf("%c\t%d\n",ch[i],ch[i]);
    }
    getch();
}
Output:-
Enter String : hello
```

```
h       104
e       101
l       108
l       108
o       111
```

Q5. Write a program to enter any string from keyboard and find how many times particular characater occurs in string .

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
    char ch[20],ser;
    int i,c=0;
    clrscr();
    printf("\nEnter String : ");
    scanf("%[^\n]",ch);
    fflush(stdin);
    printf("\nEnter Chracater You Want To Find : ");
    scanf("%c",&ser);
    for(i=0;i<strlen(ch);i++){
        if(ch[i]==ser){
            c++;
        }
    }
    printf("\n%c Occurs %d Times In Above String",ser,c);
    getch();
}
Output:-
Enter String : hello
Enter Chracater You Want To Find : l
l Occurs 2 Times In Above String
```

Q6. Write a program to enter any string from keyboard and find at which position particular occurs .

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main(){
    int i,flag=0;
    char ch[40],ser;
    clrscr();
    printf("\nEnter String:");
    scanf("%[^\n]",ch);
    fflush(stdin);
    printf("\nWhich Character You Want To Search:");
    scanf("%c",&ser);
    for(i=0;i<strlen(ch);i++){
        if(ch[i]==ser){
            flag=1;
            printf("%c Found At %d Position\n",ser,i+1);
        }
    }
    if(flag==0)
    {
        printf("\nNot Found....!");
    }
    getch();
}
Output:-
Enter String:hello
Which Character You Want To Search:l
l Found At 3 Position
l Found At 4 Position
```

Q7. Write a program to enter any string from keyboard and replace old character with new character .

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main(){
    char ch[40],old,new;
    int i;
    clrscr();
    printf("\nEnter Original String : ");
    scanf("%[^\n]",ch);
    fflush(stdin);
    printf("\nEnter Character Which You Want To Replace : ");
    scanf("%c",&old);
    fflush(stdin);
    printf("\nEnter New Charcater : ");
    scanf("%c",&new);
    for(i=0;i<strlen(ch);i++){
        if(ch[i]==old)
        {
            ch[i]=new;
        }
    }
    printf("%s",ch);
    getch();
}
Output:-
Enter Original String : hello
Enter Character Which You Want To Replace : l
Enter New Charcater : e
heeeo
```

Q8. Write a program to enter any string from keyboard and delete particular character from string.

```
#include<stdio.h>
#include<conio.h>
void main(){
    char s[40],d,store[40];
    int len=0,i,k=0;
    clrscr();
    printf("\nEnter Original string:");
    scanf("%[^\n]",s);
    while(s[len]!='\0'){
        len++;
    }
    fflush(stdin);
    printf("\nEnter Character You Want To Delete:");
    scanf("%c",&d);
    for(i=0;i<=len;i++){
    if(s[i]!=d){
        store[k++]=s[i];}
    }
    printf("%s",store);
    getch();
}
Output:-
Enter Original string:hello
Enter Character You Want To Delete:l
heo
```

Q9. Toggle string.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char original[40],toggled[40];
    int len=0,i;
    clrscr();
    printf("\nEnter Original String:");
    scanf("%[^\n]",original);
    while(original [len]!='\0'){
        len++;
    }
    for(i=0;i<=len;i++){
        if(original[i]>='A' && original[i]<='Z'){
            toggled[i]=original[i]+32;
        }
        else if(original[i]>='a' && original[i]<='z'){
            toggled[i]=original[i]-32;
        }
        else{
            toggled[i]=original[i];
        }
    }
    printf("Toggled String : %s",toggled);
    getch();
}
Output:-
Enter Original String:hello
Toggled String : HELLO
```

Q10. Encode decode string.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char original[40];
    char encoded[40],decoded[40];
    int len=0,i,key;
    clrscr();
    printf("\nEnter Original String:");
    scanf("%[^\n]",original);
    while(original[len]!='\0'){
        len++;
    }
    printf("\nEnter key Of Encryption(1 to 5):");
    scanf("%d",&key);
    for(i=0;i<len;i++){
        encoded[i]=original[i]+key;
    }
    encoded[i]='\0';
    printf("\nEncoded String Is %s",encoded);
    for(i=0;i<len;i++){
    decoded[i]=encoded[i]-key;
    }
    decoded[i]='\0';
    printf("\nDecoded String Is %s",decoded);
    getch();
}
Output:-
Enter Original String:hello
Enter key Of Encryption(1 to 5):3
Encoded String Is khoor
Decoded String Is hello
```

Q11. Reverse string .

```
#include<stdio.h>
#include<conio.h>
void main()
    {
    char s1[20],s2[20];
    int len=0,i,j;
    printf("\nEnter String:");
    scanf("%[^\n]",s1);
    while(s1[len]!='\0'){
        len++;
    }
    for(i=0,j=len-1;i<len;i++,j--){
        s2[j]=s1[i];
    }
    s2[len]='\0';
    printf("\nReverse String Is %s",s2);
    getch();
}
Output:-
Enter String:hello
Reverse String Is olleh
```

Q12. Convert string into upper case .

```
#include<stdio.h>
#include<conio.h>
void main(){
    char s1[20],s2[20];
    int i=0;
    clrscr();
    printf("\nEnter String:");
    scanf("%[^\n]",s1);
    while(s1[i]!='\0')
    {
        if(s1[i]>=97 && s1[i]<=122){
            s2[i]=s1[i]-32;
        }
        else{
            s2[i]=s1[i];}
            i++;
        }
    s2[i]='\0';
```

```
    printf("\nString In Upper Case  %s",s2);
    getch();
}
Output:-
Enter String:hello
String In Upper Case  HELLO
```

Q13. Convert string into lower case .

```
#include<stdio.h>
#include<conio.h>
void main(){
    char s1[20],s2[20];
    int i=0;
    clrscr();
    printf("\nEnter String:");
    scanf("%[^\n]",s1);
    while(s1[i]!='\0')
    {
        if(s1[i]>=65 && s1[i]<=90){
            s2[i]=s1[i]+32;
        }
        else{
            s2[i]=s1[i];
        }
        i++;
    }
    s2[i]='\0';
    printf("\nString In Lower Case  %s",s2);
    getch();
}
Output:-
Enter String:Hello
String In Lower Case  hello
```

Q14. Append string .

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char s1[40],s2[40];
    int len1=0,len2=0,i,j;
```

```
    clrscr();
    printf("\nEnter First String:");
    scanf("%[^\n]",s1);
    fflush(stdin);
    printf("\nEnter Second String:");
    scanf("%[^\n]",s2);
    while(s1[len1]!='\0'){
        len1++;
    }
    while(s2[len2]!='\0'){
        len2++;
    }
    for(j=0,i=len1;j<=len2;i++,j++){
        s1[i]=s2[j];
    }
    printf("\nFirst String After Append Is %s",s1);
    getch();
}
Output:-
Enter First String:hello
Enter Second String:world
First String After Append Is helloworld
```

Q15. Copy string .

```
#include<stdio.h>
#include<conio.h>
void main(){
    char source[40],dest[40];
    int len=0,i;
    clrscr();
    printf("\n Enter The Source String:");
    scanf("%[^\n]",source);
    while(source[len]!='\0'){len++;}
    for(i=0;i<=len;i++){
        dest[i]=source[i];
    }
    printf("\nDestinationn String : %s",dest);
    getch();
}
Output:
Enter The Source String:hello
Destinationn String : hello
```

Ch6. Structure

Q1. Write a program to create a structure student use variable rollno,name,course,marks and read and display the details of student.

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1;
    clrscr();
    printf("\nEnter Rollno:");
    scanf("%d",&s1.rollno);
    fflush(stdin);
    printf("\nEnter Name:");
    scanf("%[^\n]",s1.name);
    fflush(stdin);
    printf("\nEnter Course:");
    scanf("%[^\n]",s1.course);
    printf("\nEnter Marks:");
    scanf("%f",&s1.marks);
    printf("\nRollno Is %d",s1.rollno);
    printf("\nName Is %s",s1.name);
    printf("\nCourse Is %s",s1.course);
    printf("\nMarks Is %f",s1.marks);
    getch();
}
Output:-
Enter Rollno:1
Enter Name:om
Enter Course:c
Enter Marks:98

Rollno Is 1
Name Is om
Course Is c
Marks Is 98.000000
```

Q2. Write a program to create a structure employee use variable id ,name , designation,salary and read and display the details of student.

```
#include<stdio.h>
#include<conio.h>
struct employee {
    int id;
    char name[20];
    float sallary;
    char designation[30];
};
void main(){
    struct employee e1;
    clrscr();
    printf("\nEnter Employee Id:");
    scanf("%d",&e1.id);
    fflush(stdin);
    printf("\nEnter Employee Name:");
    scanf("%[^\n]",e1.name);
    fflush(stdin);
    printf("\nEnter Employee Designation:");
    scanf("%[^\n]",e1.designation);
    printf("\nEnter Employee Sallary:");
    scanf("%f",&e1.sallary);
    printf("\n Employee Id Is %d",e1.id);
    printf("\n Employee Name Is %s",e1.name);
    printf("\n Designation of Employee Is %s",e1.designation);
    printf("\n Sallary Is %f",e1.sallary);
    getch();
}
Output:-
Enter Employee Id:1
Enter Employee Name:ok
Enter Employee Designation:manager
Enter Employee Sallary:20000
Employee Id Is 1
Employee Name Is ok
Designation of Employee Is manager
Sallary Is 20000.000000
```

Q3. Write a program to create a structure employee use variable code,name,quantity,price.

```
#include<stdio.h>
#include<conio.h>
struct item {
    int code;
    char name[20];
    float prize;
    int quantity;
};
void main(){
    struct item i1;
    clrscr();
    printf("\nEnter Item Code : ");
    scanf("%d",&i1.code);
    fflush(stdin);
    printf("\nEnter Item  Name : ");
    scanf("%[^\n]",i1.name);
    fflush(stdin);
    printf("\nEnter Item price : ");
    scanf("%f",&i1.prize);
    printf("\nEnter Quantity : ");
    scanf("%d",&i1.quantity);
    printf("\n ITEM CODE is %d",i1.code);
    printf("\n NAME OF ITEM IS %s",i1.name);
    printf("\n PRIZE OF ITEM IS %f",i1.prize);
    printf("\n QUANTITY IS %d",i1.quantity);
    getch();
}
Output:-
Enter Item Code : 1
Enter Item  Name : jam
Enter Item price : 123
Enter Quantity : 3
ITEM CODE is 1
NAME OF ITEM IS jam
PRIZE OF ITEM IS 123.000000
QUANTITY IS 3
```

Q4. Write a program to create a array of structure student use variable rollno,name,course,marks and read and display the details of student.

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1[10];
    int n,i;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Rollno:");
        scanf("%d",&s1[i].rollno);
        fflush(stdin);
        printf("\nEnter Name:");
        scanf("%[^\n]",s1[i].name);
        fflush(stdin);
        printf("\nEnter Course:");
        scanf("%[^\n]",s1[i].course);
        printf("\nEnter Marks:");
        scanf("%f",&s1[i].marks);
    }
    for(i=0;i<n;i++){
        printf("\nRollno Is %d",s1[i].rollno);
        printf("\nName Is %s",s1[i].name);
        printf("\nCourse Is %s",s1[i].course);
        printf("\nMarks Is %f",s1[i].marks);
    }
    getch();
}
Output:-
How Many Records You Want To Enter : 2
Enter Rollno:1
Enter Name:alien
Enter Course:c++
Enter Marks:98
Enter Rollno:2
```

```
Enter Name:riya
Enter Course:c
Enter Marks:78

Rollno Is 1
Name Is alien
Course Is c++
Marks Is 98.000000

Rollno Is 2
Name Is riya
Course Is c
Marks Is 78.000000
```

Q5. Write a program to create a array of structure employee use variable id ,name , designation,salary and read and display the details of student.

```c
#include<stdio.h>
#include<conio.h>
struct employee {
    int id;
    char name[20];
    float sallary;
    char designation[30];
};
void main(){
    struct employee e1[10];
    int n,i;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Employee Id:");
        scanf("%d",&e1[i].id);
        fflush(stdin);
        printf("\nEnter Employee Name:");
        scanf("%[^\n]",e1[i].name);
        fflush(stdin);
        printf("\nEnter Employee Designation:");
        scanf("%[^\n]",e1[i].designation);
        printf("\nEnter Employee Sallary:");
        scanf("%f",&e1[i].sallary);
    }
```

```
    for(i=0;i<n;i++){
        printf("\n Employee Id Is %d",e1[i].id);
        printf("\n Employee Name Is %s",e1[i].name);
        printf("\n Designation of Employee Is %s",e1[i].designation);
        printf("\n Sallary Is %f",e1[i].sallary);
    }
    getch();
}
Output:- How Many Records You Want To Enter : 2
Enter Employee Id:1
Enter Employee Name:jon
Enter Employee Designation:manager
Enter Employee Sallary:12000
Enter Employee Id:2
Enter Employee Name:salman
Enter Employee Designation:ceo
Enter Employee Sallary:20000

Employee Id Is 1
Employee Name Is jon
Designation of Employee Is manager
Sallary Is 12000.000000

Employee Id Is 2
Employee Name Is salman
Designation of Employee Is ceo
Sallary Is 20000.000000
```

Q6. Write a program to create a array of structure employee use variable code,name,quantity,price and read and display the details of item.

```
#include<stdio.h>
#include<conio.h>
struct item {
    int code;
    char name[20];
    float prize;
    int quantity;
};
void main(){
    struct item i1[10];
    int n,i;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Item Code : ");
        scanf("%d",&i1[i].code);
        fflush(stdin);
        printf("\nEnter Item  Name : ");
        scanf("%[^\n]",i1[i].name);
        fflush(stdin);
        printf("\nEnter Item price : ");
        scanf("%f",&i1[i].prize);
        printf("\nEnter Quantity : ");
        scanf("%d",&i1[i].quantity);
    }
    for(i=0;i<n;i++){
        printf("\n ITEM CODE is %d",i1[i].code);
        printf("\n NAME OF ITEM IS %s",i1[i].name);
        printf("\n PRIZE OF ITEM IS %f",i1[i].prize);
        printf("\n QUANTITY IS %d",i1[i].quantity);
    }
    getch();
}
Output:-
Enter Item Code : 1
Enter Item  Name : jam
Enter Item price : 123
Enter Quantity : 3
Enter Item Code : 2
Enter Item  Name : bread
```

```
Enter Item price : 143
Enter Quantity : 3

ITEM CODE is 1
NAME OF ITEM IS jam
PRIZE OF ITEM IS 123.0000
QUANTITY IS 3

ITEM CODE is 2
NAME OF ITEM IS bread
PRIZE OF ITEM IS 143.0000
QUANTITY IS 3
```

Q7. Write a program to create a array of structure student use variable rollno,name,course,marks and read and display the details of student and calculate total marks of students.

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1[10];
    int n,i;
    float total=0;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Rollno:");
        scanf("%d",&s1[i].rollno);
        fflush(stdin);
        printf("\nEnter Name:");
        scanf("%[^\n]",s1[i].name);
        fflush(stdin);
        printf("\nEnter Course:");
        scanf("%[^\n]",s1[i].course);
        printf("\nEnter Marks:");
        scanf("%f",&s1[i].marks);
        total=total+s1[i].marks;
    }
    for(i=0;i<n;i++){
        printf("\nRollno Is %d",s1[i].rollno);
        printf("\nName Is %s",s1[i].name);
        printf("\nCourse Is %s",s1[i].course);
        printf("\nMarks Is %f",s1[i].marks);
    }
    printf("\nTotal Marks Is %f",total);
    getch();
}
```

Q8. Write a program to create a array of structure employee use variable id ,name , designation,salary and read and display the details of student and find out maximum salary.

```
#include<stdio.h>
#include<conio.h>
struct employee {
    int id;
    char name[20];
    float sallary;
    char designation[30];
};
void main(){
    struct employee e1[10];
    int n,i,max=0;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Employee Id:");
        scanf("%d",&e1[i].id);
        fflush(stdin);
        printf("\nEnter Employee Name:");
        scanf("%[^\n]",e1[i].name);
        fflush(stdin);
        printf("\nEnter Employee Designation:");
        scanf("%[^\n]",e1[i].designation);
        printf("\nEnter Employee Sallary:");
        scanf("%f",&e1[i].sallary);
        if(e1[i].sallary>max){
            max=e1[i].sallary;
        }
    }
    for(i=0;i<n;i++){
        printf("\n Employee Id Is %d",e1[i].id);
        printf("\n Employee Name Is %s",e1[i].name);
        printf("\n Designation of Employee Is %s",e1[i].designation);
        printf("\n Sallary Is %f",e1[i].sallary);
    }
    printf("\nMaximum Salary Is %d",max);
    getch();
}
```

Q9. Write a program to create a array of structure employee use variable code,name,quantity,price and read and display the details of item and count number off negative quantity and even quantity.

```
#include<stdio.h>
#include<conio.h>
struct item {
    int code;
    char name[20];
    float prize;
    int quantity;
};
void main(){
    struct item i1[10];
    int n,i,pos=0,neg=0;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Item Code : ");
        scanf("%d",&i1[i].code);
        fflush(stdin);
        printf("\nEnter Item  Name : ");
        scanf("%[^\n]",i1[i].name);
        fflush(stdin);
        printf("\nEnter Item price : ");
        scanf("%f",&i1[i].prize);
        printf("\nEnter Quantity : ");
        scanf("%d",&i1[i].quantity);
        if(i1[i].quantity>0){
            pos++;}
        else{
            neg++;}
    }
    for(i=0;i<n;i++){
        printf("\n ITEM CODE is %d",i1[i].code);
        printf("\n NAME OF ITEM IS %s",i1[i].name);
        printf("\n PRIZE OF ITEM IS %f",i1[i].prize);
        printf("\n QUANTITY IS %d",i1[i].quantity);
    }
    printf("\nPositive Quantity are %d",pos);
    printf("\nNegative Quantity are %d",neg);
    getch();
}
```

Q10. Write a program to create a array of structure student use variable rollno,name,course,marks and read and display the details of student and calculate total number off odd rollno and even rollno.

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1[10];
    int n,i,odd=0,even=0;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Rollno:");
        scanf("%d",&s1[i].rollno);
        fflush(stdin);
        printf("\nEnter Name:");
        scanf("%[^\n]",s1[i].name);
        fflush(stdin);
        printf("\nEnter Course:");
        scanf("%[^\n]",s1[i].course);
        printf("\nEnter Marks:");
        scanf("%f",&s1[i].marks);
        if(s1[i].rollno%2==0){
            even++;}
        else{
            odd++;}
    }
    for(i=0;i<n;i++){
        printf("\nRollno Is %d",s1[i].rollno);
        printf("\nName Is %s",s1[i].name);
        printf("\nCourse Is %s",s1[i].course);
        printf("\nMarks Is %f",s1[i].marks);
    }
    printf("\nTotal Odd Rollno Are %d",odd);
    printf("\nTotal Even Rollno Are %d",even);
    getch();
}
```

Q11. Write a program to create a array of structure student use variable rollno,name,course,marks and read and display the details of student and sort tham in assending order.

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1[10],temp;
    int n,i,j;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Rollno:");
        scanf("%d",&s1[i].rollno);
        fflush(stdin);
        printf("\nEnter Name:");
        scanf("%[^\n]",s1[i].name);
        fflush(stdin);
        printf("\nEnter Course:");
        scanf("%[^\n]",s1[i].course);
        printf("\nEnter Marks:");
        scanf("%f",&s1[i].marks);
    }
    for(i=0;i<n;i++){
        for(j=i+1;j<n;j++){
            if(s1[i].rollno>s1[j].rollno){
                temp=s1[i];
                s1[i]=s1[j];
                s1[j]=temp;
            }
        }
    }
    for(i=0;i<n;i++){
        printf("\nRollno Is %d",s1[i].rollno);
        printf("\nName Is %s",s1[i].name);
        printf("\nCourse Is %s",s1[i].course);
        printf("\nMarks Is %f",s1[i].marks);
```

```
    }
    printf("\nTotal Odd Rollno Are %d",odd);
    printf("\nTotal Even Rollno Are %d",even);
    getch();
}
```

Q12 Write a program to create a array of structure student use variable rollno, name,course,marks and read data and search a particular rollno and display the details of that student

```
#include<stdio.h>
#include<conio.h>
struct student {
    int rollno;
    char name[20];
    char course[30];
    float marks;
};
void main(){
    struct student s1[10],temp;
    int n,i;
    int flag=0,ser;
    clrscr();
    printf("\nHow Many Records You Want To Enter : ");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("\nEnter Rollno:");
        scanf("%d",&s1[i].rollno);
        fflush(stdin);
        printf("\nEnter Name:");
        scanf("%[^\n]",s1[i].name);
        fflush(stdin);
        printf("\nEnter Course:");
        scanf("%[^\n]",s1[i].course);
        printf("\nEnter Marks:");
        scanf("%f",&s1[i].marks);
    }
    for(i=0;i<n;i++){
        for(j=i+1;j<n;j++){
            if(s1[i].rollno>s1[j].rollno){
                temp=s1[i];
                s1[i]=s1[j];
                s1[j]=temp;
```

```
            }
        }
    }
    printf("\nEnter Rollno Which You Want :");
    scanf("%d",&ser);
    for(i=0;i<n;i++){
        if(s1[i].rollno=ser){
            flag=1;
            printf("\n ROLLNO IS %d",s1[i].rollno);
            printf("\n NAME IS %s",s1[i].name);
            printf("\n COURSE IS %s",s1[i].course);
            printf("\n MARKS IS %f",s1[i].marks);
            break;
        }
    }
    if(flag==0){
        printf("\nNot Found...!");
    }
    getch();
}
```

Ch7. Pointer

Q1. Print address of variable pointer.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int a=5;
    float b=10.20;
    char c='A';
    clrscr();
    printf("\nAddress Of a=%u",&a);
    printf("\nAddress Of b=%u",&b);
    printf("\nAddress Of c=%u",&c);
    getch();
}
Output:-
Address Of a=1730149484
Address Of b=1730149480
Address Of c=1730149479
```

Q2. Accessing element using pointer.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int a=5;
    int *p=&a;
    clrscr();
    printf("\nAddress Of a=%u",&a);
    printf("\nContents Of p=%u",p);
    printf("\nValue Of a=%d",a);
    printf("\nValue Being Pointed By p=%d",*p);
    getch();
}
Output:-
Address Of a=740293508
Contents Of p=740293508
Value Of a=5
Value Being Pointed By p=5
```

Q3. Change element using pointer.

```
#include<stdio.h>
#include<conio.h>
void main(){
    int a=5;
    int *p=&a;
    clrscr();
    printf("\na=%d",a);
    (*p)++;
    printf("\nAfter *p++ a=%d",a);
    a++;
    printf("\nAfter a++ *p=%d",*p);
    getch();
}
Output:-
a=5
After *p++ a=6
After a++ *p=7
```

Q4. Pointer and expressions .

```
#include<stdio.h>
#include<conio.h>
void main(){
    int a,b,*p1,*p2,x,y,z;
    clrscr();
    a=10;b=20;
    p1=&a;p2=&b;
    x=*p1* *p2-6;
    printf("\na=%d\tb=%d\tx=%d",a,b,x);
    *p1=*p1+20;
    *p2=*p2+10;
    z=*p1* *p2-6;
    printf("\na=%d\tb=%d\tz=%d",a,b,z);
    getch();
}
Output:-
a=10    b=20    x=194
a=30    b=30    z=894
```

Q5. Exchange (swapping).

```
#include<stdio.h>
#include<conio.h>
void main(){
    void swap(int *,int *);
    int a=10,b=20;
    clrscr();
    printf("\nBefore Calling Function a=%d,b=%d",a,b);
    swap(&a,&b);
    printf("\nAfter Calling Function a=%d,b=%d",a,b);
    getch();
}
void swap(int *a,int *b){
    int temp;
    temp=*a;
    *a=*b;
    *b=temp;
}
Output:-
Before Calling Function a=10,b=20
After Calling Function a=20,b=10
```

Q6. Odd even.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void oddeven(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    oddeven(p,n);
    getch();
}
void oddeven(int *p,int n){
    int i,odd=0,even=0;
    for(i=0;i<n;i++){
        if(*(p+i)%2==0){
            even++;
        }
        else{
            odd++;
        }
    }
    printf("\nElements In Array\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
    printf("\nTotal Even Elements Are %d",even);
    printf("\nTotal odd Elements Are %d",odd);
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
1 2 3 4 5
Elements In Array
1 2 3 44 5
Total Even Elements Are 2
Total odd Elements Are 4
```

Q7. Leapyear non leapyear.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void year(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    year(p,n);
    getch();
}
void year(int *p,int n){
    int i,ly=0,nly=0;
    for(i=0;i<n;i++){
        if(*(p+i)%4==0){
            ly++;
        }
        else{
            nly++;
        }
    }
    printf("\nElements In Array\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
    printf("\nTotal Leap Year Are %d",ly);
    printf("\nTotal Non Leap Year Are %d",nly);
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
2001 2002 2003 2004 2005
Elements In Array
2001 2002 2003 2004 2005
Total Leap Year Are 2
Total Non Leap Year Are 4
```

Q8. Negative positive.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void negpos(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    negpos(p,n);
    getch();
}
void negpos(int *p,int n){
    int i,neg=0,pos=0;
    for(i=0;i<n;i++){
        if(*(p+i)>0){
            pos++;
        }
        else{
            neg++;
        }
    }
    printf("\nElements In Array\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
    printf("\nTotal Positive Elements Are %d",pos);
    printf("\nTotal Negative Elements Are %d",neg);
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
1 2 -3 -4 5
Elements In Array
1 2 -3 -4 5
Total Positive Elements Are 3
Total Negative Elements Are 2
```

Q9. Sorting.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void sort(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    sort(p,n);
    getch();
}
void sort(int *p,int n){
    int i,j,temp;
    for(i=0;i<n;i++){
        for(j=i+1;j<n;j++){
            if(*(p+i)>*(p+j)){
                temp=*(p+i);
                *(p+i)=*(p+j);
                *(p+j)=temp;
            }
        }
    }
    printf("\nElements In Assending Order\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
12 4 -2 1 -8
Elements In Assending Order
-8 -2 1 4 12
```

Q10. Insert element

```c
#include<stdio.h>
#include<conio.h>
void main(){
    void insert(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    insert(p,n);
    getch();
}
void insert(int *p,int n){
    int i,pos,ele;
    printf("\nEnter Position : ");
    scanf("%d",&pos);
    printf("\nEnter Element you Want To Enter : ");
    scanf("%d",&ele);
    for(i=n;i>=pos;i--){
        *(p+i)=*(p+i-1);
    }
    *(p+pos)=ele;
    n++;
    printf("\nArray After Inserting Element\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
1 2 4 5 6
Enter Position : 2
Enter Element you Want To Enter : 3
Array After Inserting Element
1 2 3 4 5 6
```

Q11. Delete element.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void insert(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    insert(p,n);
    getch();
}
void insert(int *p,int n){
    int i,del,j;
    printf("\nEnter Element You Want To Delete : ");
    scanf("%d",&del);
    for(i=0;i<n;i++){
        if(*(p+i)==del){
            break;
        }
    }
    for(j=i;j<n;j++){
        *(p+j)=*(p+j+1);
    }
    n--;
    printf("\nArray After Deleting Element\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
1 2 3 4 5
Enter Element You Want To Delete : 2
Array After Deleting Element
1 3 4 5
```

Q12. Replace element.

```
#include<stdio.h>
#include<conio.h>
void main(){
    void insert(int *,int);
    int *p,n,i;
    clrscr();
    printf("\nHow Many Elements You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Element For Array\n",n);
    for(i=0;i<n;i++){
        scanf("%d",p+i);
    }
    insert(p,n);
    getch();
}
void insert(int *p,int n){
    int i,old,new;
    printf("\nEnter Old Element : ");
    scanf("%d",&old);
    printf("\nEnter New Element : ");
    scanf("%d",&new);
    for(i=0;i<n;i++){
        if(*(p+i)==old){
            *(p+i)=new;
        }
    }
    printf("\nArray After Replacing Element\n");
    for(i=0;i<n;i++){
        printf("%d ",*(p+i));
    }
}
Output:-
How Many Elements You Want To Enter : 5
Enter 5 Element For Array
1 2 3 4 5
Enter Old Element : 2
Enter New Element : 22
Array After Replacing Element
1 22 3 4 5
```

Ch8. File Management.

Q1. Writing a string into the file .

```c
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *fp;
    char str[10];
    clrscr();
    printf("\nEnter String : ");
    scanf("%s",str);
    fflush(stdin);
    fp=fopen("char.txt","w");
    fprintf(fp,"%s",str);
    fclose(fp);
    getch();
}
```

OR

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main(){
    FILE *fp;
    int i;
    char str[10];
    clrscr();
    printf("\nEnter String : ");
    scanf("%s",str);
    fp=fopen("char.txt","w");
    for(i=0;i<strlen(str);i++){
        putw(str[i],fp);
    }
    fclose(fp);
    getch();
}
```

Q2. Reading a string from the file.

```c
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *fp;
    char str[10];
    clrscr();
    fp=fopen("char.txt","r");
    while(fscanf(fp,"%s",str)!=EOF){
        printf("%s",str);
    }

    getch();
}
```

OR

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main(){
    FILE *fp;
    char str;
    clrscr();
    fp=fopen("char.txt","r");
    while((str=getw(fp))!=EOF){
        printf("%c",str);
    }
    fclose(fp);
    getch();
}
```

Q3. write a program to read n integer number from keyboard and store them in all.txt from the file all.txt seprate even and odd number and store them in Odd.txt and even.txt and display the content of all files on the screen.

```c
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,a[10];
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&a[i]);
        fprintf(f1,"%d\n",a[i]);
    }
    fclose(f1);
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("even.txt","w");
    f3=fopen("odd.txt","w");
    for(i=0;i<n;i++){
        while(fscanf(f1,"%d",&a[i])!=EOF){
            if(a[i]%2==0){
                fprintf(f2,"%d\n",a[i]);
            }
            else{
                fprintf(f3,"%d\n",a[i]);
            }
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f1,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f1);
```

```
    printf("\nContents Of File even.txt\n");
    f2=fopen("even.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f2,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f2);
    printf("\nContents Of File odd.txt\n");
    f3=fopen("odd.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f3,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f3);
    getch();
}
```

OR

```
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,num;
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&num);
        putw(num,f1);
    }
    fclose(f1);
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("even.txt","w");
    f3=fopen("odd.txt","w");
    for(i=0;i<n;i++){
        while((num=getw(f1))!=EOF){
            if(num%2==0){
                putw(num,f2);
            }
            else{
```

```
                putw(num,f3);
            }
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f1))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f1);
    printf("\nContents Of File even.txt\n");
    f2=fopen("even.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f2))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f2);
    printf("\nContents Of File odd.txt\n");
    f3=fopen("odd.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f3))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f3);
    getch();
}
```

Q4. write a program to read n years from keyboard and store them in all.txt from the file all.txt seprate leapyear and non leapyear and store them in leapyear.txt and nonleapyear.txt and display the content of all files on the screen.

```
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,a[10];
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&a[i]);
        fprintf(f1,"%d\n",a[i]);
    }
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("leapyear.txt","w");
    f3=fopen("notleapyear.txt","w");
    for(i=0;i<n;i++){
        if(fscanf(f1,"%d",&a[i])!=EOF){
            if(a[i]%4==0){
                fprintf(f2,"%d\n",a[i]);
            }
            else{
                fprintf(f3,"%d\n",a[i]);
            }
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        if(fscanf(f1,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f1);
```

```
    printf("\nContents Of File leapyear.txt\n");
    f2=fopen("leapyear.txt","r");
    for(i=0;i<n;i++){
        if(fscanf(f2,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f2);
    printf("\nContents Of File notleapyear.txt\n");
    f3=fopen("notleapyear.txt","r");
    for(i=0;i<n;i++){
        if(fscanf(f3,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f3);
    getch();
}
                                        OR
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,num;
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&num);
        putw(num,f1);
    }
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("leapyear.txt","w");
    f3=fopen("notleapyear.txt","w");
    for(i=0;i<n;i++){
        if((num=getw(f1))!=EOF){
            if(num%4==0){
                putw(num,f2);
            }
            else{
                putw(num,f3);
```

```
            }
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        if((num=getw(f1))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f1);
    printf("\nContents Of File leapyear.txt\n");
    f2=fopen("leapyear.txt","r");
    for(i=0;i<n;i++){
        if((num=getw(f2))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f2);
    printf("\nContents Of File notleapyear.txt\n");
    f3=fopen("notleapyear.txt","r");
    for(i=0;i<n;i++){
        if((num=getw(f3))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f3);
    getch();
}
```

Q5. write a program to read n integer number from keyboard and store them in all.txt from the file all.txt seprate positive and negative number and store them in pos.txt and neg.txt and display the content of all files on the screen.

```
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,a[10];
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&a[i]);
        fprintf(f1,"%d\n",a[i]);
    }
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("pos.txt","w");
    f3=fopen("neg.txt","w");
    for(i=0;i<n;i++){
        while(fscanf(f1,"%d",&a[i])!=EOF){
            if(a[i]>0){
                fprintf(f2,"%d\n",a[i]);
            }
            else{
                fprintf(f3,"%d\n",a[i]);
            }
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f1,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f1);
    printf("\nContents Of File pos.txt\n");
```

```
    f2=fopen("pos.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f2,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f2);
    printf("\nContents Of File neg.txt\n");
    f3=fopen("neg.txt","r");
    for(i=0;i<n;i++){
        while(fscanf(f3,"%d",&a[i])!=EOF){
            printf("%d ",a[i]);
        }
    }
    fclose(f3);
    getch();
}
```

OR

```
#include<stdio.h>
#include<conio.h>
void main(){
    FILE *f1,*f2,*f3;
    int i,n,num;
    clrscr();
    printf("\nHow Many Element You Want To Enter : ");
    scanf("%d",&n);
    printf("\nEnter %d Elements : ",n);
    f1=fopen("all.txt","w");
    for(i=0;i<n;i++){
        scanf("%d",&num);
        putw(num,f1);
    }
    fclose(f1);
    f1=fopen("all.txt","r");
    f2=fopen("pos.txt","w");
    f3=fopen("neg.txt","w");
    for(i=0;i<n;i++){
        while((num=getw(f1))!=EOF){
            if(num>0){
                putw(num,f2);
            }
            else{
                putw(num,f3);
            }
```

```
        }
    }
    fclose(f1);
    fclose(f2);
    fclose(f3);
    printf("\nContents Of File all.txt\n");
    f1=fopen("all.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f1))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f1);
    printf("\nContents Of File pos.txt\n");
    f2=fopen("pos.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f2))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f2);
    printf("\nContents Of File neg.txt\n");
    f3=fopen("neg.txt","r");
    for(i=0;i<n;i++){
        while((num=getw(f3))!=EOF){
            printf("%d ",num);
        }
    }
    fclose(f3);
    getch();
}
```

Q6. write a program to read n integer number from keyboard and store them in unsort.txt and sort tham in assending order and store tham in sort.txt and display the content of all files on the screen.

```c
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], b[10],temp;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("unsort.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        fprintf(f1, "%d\n", a[i]);
    }
    fclose(f1);
    f1 = fopen("unsort.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f1, "%d", &b[i]) == EOF) {
            break;
        }
    }
    fclose(f1);
    for(i=0;i<n;i++){
        for(j=i+1;j<n;j++){
            if(b[i]>b[j]){
                temp=b[i];
                b[i]=b[j];
                b[j]=temp;
            }
        }
    }
    f2 = fopen("sorted.txt", "w");
    for (i = 0; i < n; i++) {
        fprintf(f2, "%d\n", b[i]);
    }
    fclose(f2);
    printf("\nContents Of File sorted.txt\n");
    f2 = fopen("sorted.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f2, "%d", &b[i]) == EOF) {
```

```
            break;
        }
        printf("%d ", b[i]);
    }
    fclose(f2);
    getch();
}
                                        OR
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], data,temp;
//    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("unsort.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        putw(a[i],f1);
    }
    fclose(f1);
    f1 = fopen("unsort.txt", "r");
    i=0;
    while ((data=getw(f1)) != EOF) {
        a[i++]=data;
    }
    fclose(f1);
    for(i=0;i<n;i++){
        for(j=i+1;j<n;j++){
            if(a[i]>a[j]){
                temp=a[i];
                a[i]=a[j];
                a[j]=temp;
            }
        }
    }
    f2 = fopen("sorted.txt", "w");
    for (i = 0; i < n; i++) {
        putw(a[i],f2);
    }
    fclose(f2);
    printf("\nContents Of File sorted.txt\n");
```

```
    f2 = fopen("sorted.txt", "r");
        while ((data=getw(f2)) != EOF) {
            printf("%d ", data);
        }
    fclose(f2);
    getch();
}
```

Q7. write a program to read n integer number from keyboard and store them in all.txt and insert element and store tham in insert.txt and display the content of all files on the screen.

```
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], b[10],temp;
    int pos,ele;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        fprintf(f1, "%d\n", a[i]);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f1, "%d", &b[i]) == EOF) {
            break;
        }
    }
    fclose(f1);
    printf("\nEnter Position Where You Want To Insert : ");
    scanf("%d",&pos);
    printf("\nEnter Element : ");
    scanf("%d",&ele);
    for(i=n;i>=pos;i--){
        b[i]=b[i-1];
    }
    b[pos-1]=ele;
```

```
    n++;
    f2 = fopen("insert.txt", "w");
    for (i = 0; i < n; i++) {
        fprintf(f2, "%d\n", b[i]);
    }
    fclose(f2);
    printf("\nContents Of File insert.txt\n");
    f2 = fopen("insert.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f2, "%d", &b[i]) == EOF) {
            break;
        }
        printf("%d ", b[i]);
    }
    fclose(f2);
    getch();
}
```

OR

```
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], data,temp;
    int pos,ele;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        putw(a[i],f1);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    i=0;
    while ((data=getw(f1)) != EOF) {
        a[i++]=data;
    }
    fclose(f1);
    printf("\nEnter Position Where You Want To Insert : ");
    scanf("%d",&pos);
    printf("\nEnter Element : ");
    scanf("%d",&ele);
```

```
    for(i=n;i>=pos;i--){
        a[i]=a[i-1];
    }
    a[pos-1]=ele;
    n++;
    f2 = fopen("insert.txt", "w");
    for (i = 0; i < n; i++) {
        putw(a[i],f2);
    }
    fclose(f2);
    printf("\nContents Of File insert.txt\n");
    f2 = fopen("insert.txt", "r");
        while ((data=getw(f2)) != EOF) {
            printf("%d ", data);
        }
    fclose(f2);
    getch();
}
```

Q8. write a program to read n integer number from keyboard and store them in all.txt and delete element and store tham in delete.txt and display the content of all files on the screen.

```c
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], b[10],temp;
    int del;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        fprintf(f1, "%d\n", a[i]);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f1, "%d", &b[i]) == EOF) {
            break;
        }
    }
    fclose(f1);
    printf("\nEnter Element You Want To Delete : ");
    scanf("%d",&del);
    for(i=0;i<=n;i++){
        if(b[i]==del){
            break;
        }
    }
    for(j=i;j<n;j++){
        b[j]=b[j+1];
    }
    n--;
    f2 = fopen("delete.txt", "w");
    for (i = 0; i < n; i++) {
        fprintf(f2, "%d\n", b[i]);
    }
    fclose(f2);
    printf("\nContents Of File delete.txt\n");
```

```
    f2 = fopen("delete.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f2, "%d", &b[i]) == EOF) {
            break;
        }
        printf("%d ", b[i]);
    }
    fclose(f2);
    getch();
}
```

OR

```
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], data,temp;
    int del;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        putw(a[i],f1);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    i=0;
    while ((data=getw(f1)) != EOF) {
        a[i++]=data;
    }
    fclose(f1);
    printf("\nEnter Element You Want To Delete : ");
    scanf("%d",&del);
    for(i=0;i<=n;i++){
        if(a[i]==del){
            break;
        }
    }
    for(j=i;j<n;j++){
        a[j]=a[j+1];
    }
    n--;
```

```
    f2 = fopen("delete.txt", "w");
    for (i = 0; i < n; i++) {
        putw(a[i],f2);
    }
    fclose(f2);
    printf("\nContents Of File delete.txt\n");
    f2 = fopen("delete.txt", "r");
        while ((data=getw(f2)) != EOF) {
            printf("%d ", data);
        }
    fclose(f2);
    getch();
}
```

Q9. write a program to read n integer number from keyboard and store them in all.txt and replace the element and store tham in replace.txt and display the content of all files on the screen.

```
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], b[10],temp;
    int old,new;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        fprintf(f1, "%d\n", a[i]);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f1, "%d", &b[i]) == EOF) {
            break;
        }
    }
    fclose(f1);
    printf("\nEnter Old Element : ");
    scanf("%d",&old);
```

```
    printf("\nEnter New Element : ");
    scanf("%d",&new);
    for(i=0;i<n;i++){
        if(b[i]==old){
            b[i]=new;
        }
    }
    f2 = fopen("replace.txt", "w");
    for (i = 0; i < n; i++) {
        fprintf(f2, "%d\n", b[i]);
    }
    fclose(f2);
    printf("\nContents Of File replace.txt\n");
    f2 = fopen("replace.txt", "r");
    for (i = 0; i < n; i++) {
        if (fscanf(f2, "%d", &b[i]) == EOF) {
            break;
        }
        printf("%d ", b[i]);
    }
    fclose(f2);
    getch();
}
```

OR

```
#include <stdio.h>
#include <conio.h>
void main() {
    FILE *f1, *f2;
    int i, j, n, a[10], data,temp;
    int old,new;
    clrscr();
    printf("\nHow Many Elements You Want To Enter: ");
    scanf("%d", &n);
    printf("\nEnter %d Elements: ", n);
    f1 = fopen("all.txt", "w");
    for (i = 0; i < n; i++) {
        scanf("%d", &a[i]);
        putw(a[i],f1);
    }
    fclose(f1);
    f1 = fopen("all.txt", "r");
    i=0;
    while ((data=getw(f1)) != EOF) {
        a[i++]=data;
```

```
    }
    fclose(f1);
    printf("\nEnter Old Element : ");
    scanf("%d",&old);
    printf("\nEnter New Element : ");
    scanf("%d",&new);
    for(i=0;i<n;i++){
        if(a[i]==old){
            a[i]=new;
        }
    }
    f2 = fopen("replace.txt", "w");
    for (i = 0; i < n; i++) {
        putw(a[i],f2);
    }
    fclose(f2);
    printf("\nContents Of File replace.txt\n");
    f2 = fopen("replace.txt", "r");
        while ((data=getw(f2)) != EOF) {
            printf("%d ", data);
        }
    fclose(f2);
    getch();
}
```