

Shree M.M.Ghodasara Mahila College
Junagadh

Computer Science Department
B.C.A.
Lab Manual

C-Programs



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How To Run ??

- On the desktop you will find one icon like below.




- Double click on above icon.
- The Turbo C will open in blue Screen.
- Press F3 to Open File
- Now you can open/run files only with .C/ .C++ extension
- Compile Program Using Alt+F9
- Run Program using Ctrl+F9 [if Program is error free]

Chapter-1

Logic Development Tools

```
/* 1.1 Program to print name and address.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    clrscr();  
    printf("\n Name:  ABC XYZ");  
    printf("\n address: Talav gate, Junagadh.");  
    getch();  
}
```


🚩 Output:-

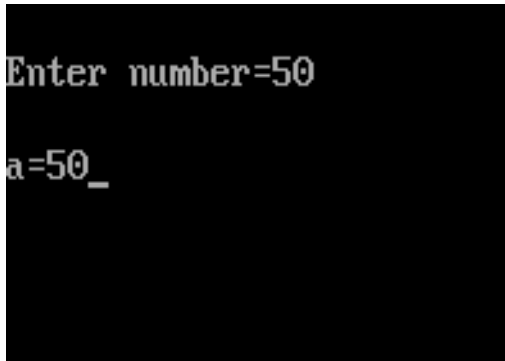
A screenshot of a terminal window with a black background and white text. The text displays the output of the C program: "Name: ABC XYZ" on the first line and "address: Talav gate, Junagadh." on the second line.

```
Name: ABC XYZ  
address: Talav gate, Junagadh.
```



```
/* 1.2 To display number which is entered by keyboard. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int a;  
    clrscr();  
    printf("\nEnter number=");  
    scanf("%d",&a);  
    printf("\na=%d",a);  
    getch();  
}
```

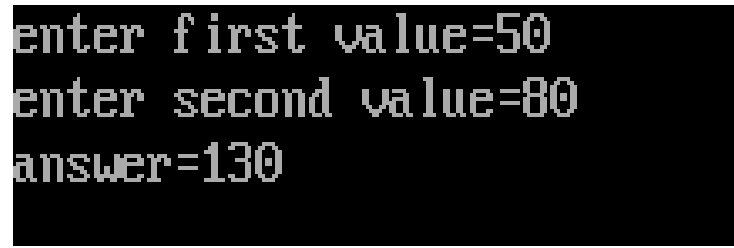
 **Output:**



```
Enter number=50  
a=50_
```

```
/* 1.3 Program to print sum of two numbers. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int a,b,sum;  
    clrscr();  
    printf("enter first value=");  
    scanf ("%d",&a);  
    printf("enter second value=");  
    scanf ("%d",&b);  
    sum=a+b;  
    printf("answer=%d",sum);  
    getch();  
}
```

 **Output:**

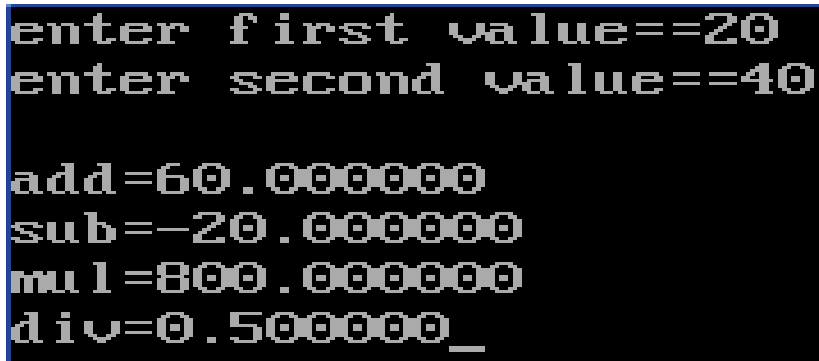


```
enter first value=50  
enter second value=80  
answer=130
```

```
/* 1.4 program for addition, subtraction, multiplication, division of two
numbers.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    float a,b,add,sub,mul,div;
    clrscr();
    printf("enter first value==");
    scanf("%f",&a);
    printf("enter second value==");
    scanf("%f",&b);
    add=a+b;
    sub=a-b;
    mul=a*b;
    div=a/b;
    printf("\nadd=%f",add);
    printf("\nsub=%f",sub);
    printf("\nmul=%f",mul);
    printf("\ndiv=%f",div);
    getch();
}
```

Output



```
enter first value==20
enter second value==40

add=60.000000
sub=-20.000000
mul=800.000000
div=0.500000_
```

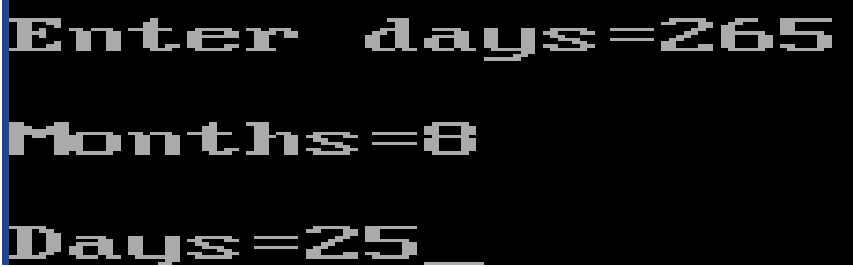
```
/* 1.5 write a program to find area of rectangle. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int l=12,h=7,a;  
    clrscr();  
    a=l*h;  
    printf("\nArea of rectangle=%d",a);  
    getch();  
}
```

🚩 Output:

A screenshot of a terminal window with a black background and white text. The text displayed is "Area of rectangle=84".

```
/* 1.6 write a program to convert given no.of days into months & days.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int m,d;  
    clrscr();  
    printf("\nEnter days=");  
    scanf("%d",&d);  
    m=d/30;  
    d=d%30;  
    printf("\nMonths=%d \n\nDays=%d",m,d);  
    getch();  
}
```

 **Output:**

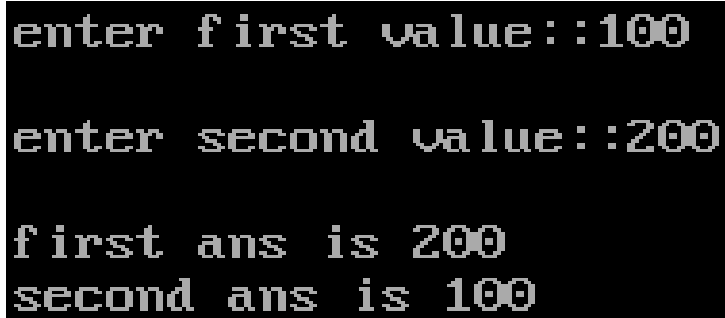


```
Enter days=265  
Months=8  
Days=25
```

```
/* 1.7 Program to swap two values. */

#include<stdio.h>
#include<conio.h>
void main()
{
    int a,b,temp;
    clrscr();
    printf("\n enter first value::");
    scanf("\n %d",&a);
    printf("\n enter second value::");
    scanf("\n %d",&b);
    temp=a;
    a=b;
    b=temp;
    printf("\n first ans is %d",a);
    printf("\n second ans is %d",b);
    getch();
}
```

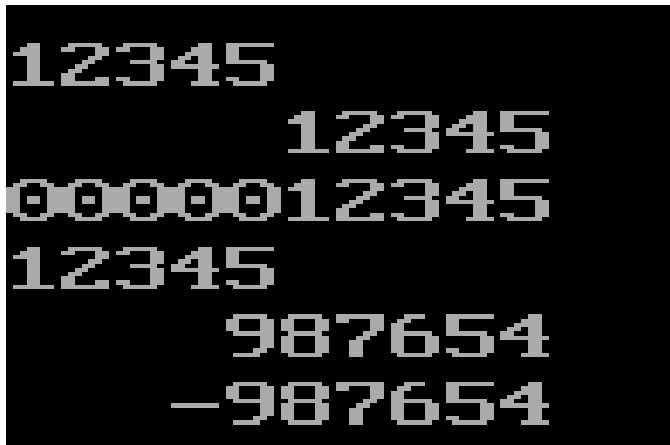
 Output:



```
enter first value::100
enter second value::200
first ans is 200
second ans is 100
```

```
/* 1.8 The output of integer numbers under various formats. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int m=12345;  
    long n=987654;  
    clrscr();  
    printf("\n%d",m);  
    printf("\n%10d",m);  
    printf("\n%010d",m);  
    printf("\n%-10d",m);  
    printf("\n%10ld",n);  
    printf("\n%10ld",-n);  
    getch();  
}
```

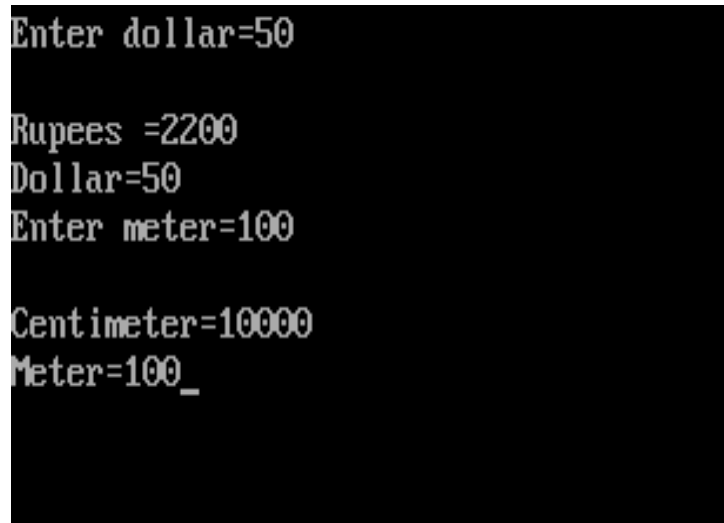
 Output:



```
12345  
          12345  
0000012345  
12345  
          987654  
        -987654
```

```
/* 1.9 Conversion from one unit to another unit. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int dl,rs,m,cm;  
    clrscr();  
    //dollar-ruppee  
    printf("\nEnter dollar=");  
    scanf("%d",&dl);  
    rs=dl*44;  
    printf("\nRupees =%d",rs);  
    dl=rs/44;  
    printf("\nDollar=%d",dl);  
    //meter-centimeter  
    printf("\nEnter meter=");  
    scanf("%d",&m);  
    cm=m*100;  
    printf("\nCentimeter=%d",cm);  
    m=cm/100;  
    printf("\nMeter=%d",m);  
    getch();  
}
```

 **Output:**

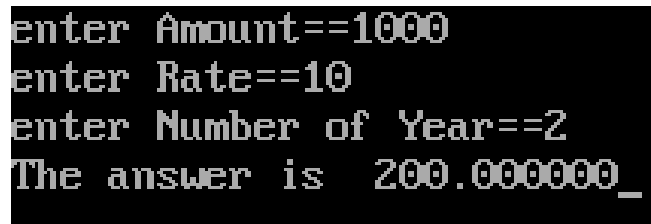


```
Enter dollar=50  
  
Rupees =2200  
Dollar=50  
Enter meter=100  
  
Centimeter=10000  
Meter=100_
```




```
/* 1.10 Program to find simple interest. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    float p,r,n,si;  
    clrscr();  
    printf("enter Amount==");  
    scanf("%f",&p);  
    printf("enter Rate==");  
    scanf("%f",&r);  
    printf("enter Number of Year==");  
    scanf("%f",&n);  
    si=(p*r*n)/100;  
    printf("The answer is  %f",si);  
    getch();  
}
```

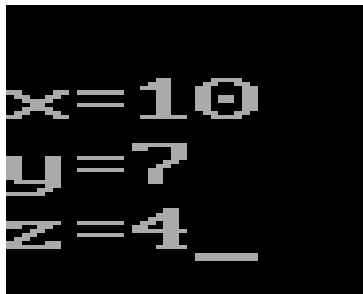
 Output:



```
enter Amount==1000  
enter Rate==10  
enter Number of Year==2  
The answer is  200.000000_
```

```
/* 1.11 Use of variables in expression. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int a=9,b=12,c=3;  
    int x,y,z;  
    clrscr();  
    x=a-b/3+c*2-1;  
    y=a-b/(3+c)*(2-1);  
    z=a-(b/(3+c)*2)-1;  
    printf("\nx=%d",x);  
    printf("\ny=%d",y);  
    printf("\nz=%d",z);  
    getch();  
}
```

 **Output:**



Subject :- C-Programs

/* 1.12 Accept basic salary of employee & calculate net salary according to following rules:

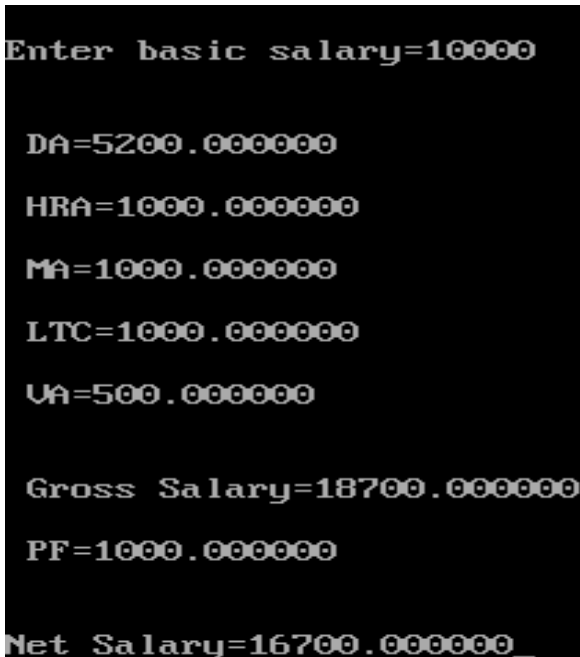
```
Rules ::      DA=52%
             HRA=10%
             MA=10%
             LTC=10%
             VA=5%

             LOAN=1000
             PF=10%

*/

#include<stdio.h>
#include<conio.h>
void main()
{
    float loan=1000,bs,da,hra,ma,ltc,va,gs,pf,ns;
    clrscr();
    printf("\nEnter basic salary=");
    scanf("%f",&bs);
    da=0.52*bs;
    printf("\n\n DA=%f",da);
    hra=0.1*bs;
    printf("\n\n HRA=%f",hra);
    ma=0.1*bs;
    printf("\n\n MA=%f",ma);
    ltc=0.1*bs;
    printf("\n\n LTC=%f",ltc);
    va=0.05*bs;
    printf("\n\n VA=%f",va);
    gs=bs+da+hra+ma+ltc+va;
    printf("\n\n\n Gross Salary=%f",gs);
    pf=0.1*bs;
    printf("\n\n PF=%f",pf);
    ns=gs-(loan+pf);
    printf("\n\n\nNet Salary=%f",ns);
    getch();
}
```

Output:



```
Enter basic salary=10000

DA=5200.000000
HRA=1000.000000
MA=1000.000000
LTC=1000.000000
VA=500.000000

Gross Salary=18700.000000
PF=1000.000000

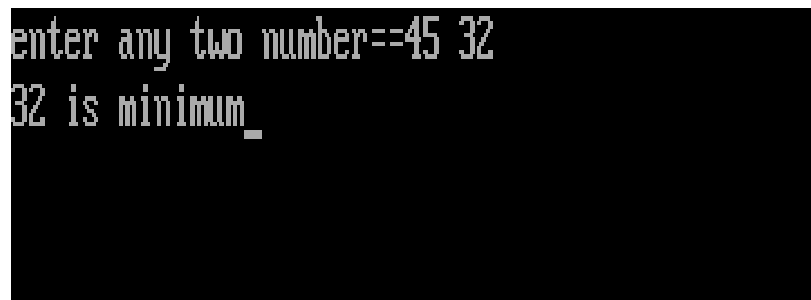
Net Salary=16700.000000_
```

Chapter-2

Various Control Structures

```
/*2.1 Program to find minimum number from given two numbers. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int n1,n2;  
    clrscr();  
    printf("enter any two number==");  
    scanf("%d %d",&n1,&n2);  
  
    if(n1<n2)  
    {  
        printf("%d is minimum",n1);  
    }  
    else  
    {  
        printf("%d is minimum",n2);  
    }  
    getch();  
}
```

 **Output:**



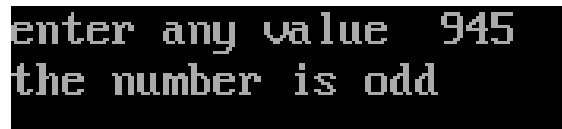
The screenshot shows a terminal window with a black background and white text. The first line of text is "enter any two number==45 32", where "45 32" represents the user input. The second line of text is "32 is minimum_", where "32" is the output of the program and "_" is the cursor.

```
/* 2.2 Program to find number is odd or even. */

#include<stdio.h>
#include<conio.h>
void main()
{
    int n;
    clrscr();
    printf("enter any value");
    scanf("%d",&n);

    if(n%2==0)
    {
        printf("the number is even");
    }
    else
    {
        printf("the number is odd");
    }
    getch();
}
```

 Output:



```
enter any value 945
the number is odd
```

```
/*2.3 Program to find maximum number from given 3 numbers.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int n1,n2,n3;
    clrscr();
    printf("enter any three value==");
    scanf("%d %d %d",&n1,&n2,&n3);

    if(n1>n2)
    {
        if(n1>n3)
        {
            printf("no1 is max");
        }
        else
        {
            printf("no3 is max");
        }
    }
    else
    {
        if(n2>n3)
        {
            printf("no2 is max");
        }
        else
        {
            printf("no3 is max");
        }
    }
    getch();
}
```

 **Output:**



```
enter any three value==100 50 25
no1 is max
```

```
/* 2.4 Program for use of CONDITIONAL OPERATOR. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int n1=10,n2=25,x;  
    clrscr();  
    x=(n1>n2)?n1:n2;  
    printf("x=%d",x);  
    getch();  
}
```

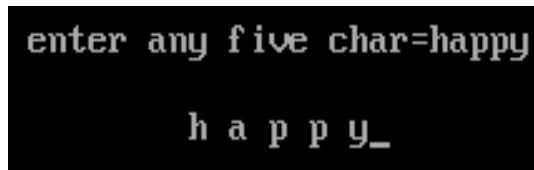
🚩 Output:



x=25


```
/* 2.5 Program to scan and print. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    char a,b,c,d,e;  
    clrscr();  
    printf("\n enter any five char=");  
    scanf("%c%c%c%c%c",&a,&b,&c,&d,&e);  
    printf("\n \t %c %c %c %c %c",a,b,c,d,e);  
    getch();  
}
```

 Output:



```
enter any five char=happy  
  
h a p p y_
```

```
/* 2.6 Program for use of Arithmetic Operator using switch case. */

#include<stdio.h>
#include<conio.h>
void main()
{
    char opr;
    float a,b,res;
    clrscr();
    printf("enter two number::");
    scanf("%f%f",&a,&b);
    printf("\n enter +,-,*,/ operator::");
    fflush(stdin);
    scanf("%c",&opr);

    switch(opr)
    {
        case '+':res=a+b;
            printf("result=%f",res);
            break;
        case '-':res=a-b;
            printf("result=%f",res);
            break;
        case '*':res=a*b;
            printf("result=%f",res);
            break;
        case '/':res=a/b;
            printf("result=%f",res);
            break;
        default:
            printf("Invalid choice");
    }
    getch();
}
```

🚩 Output:

```
enter two number::250 150  
  
enter +,-,*,/ operator::+  
result=400.000000
```

```
enter two number::250 150  
  
enter +,-,*,/ operator::-  
result=100.000000
```

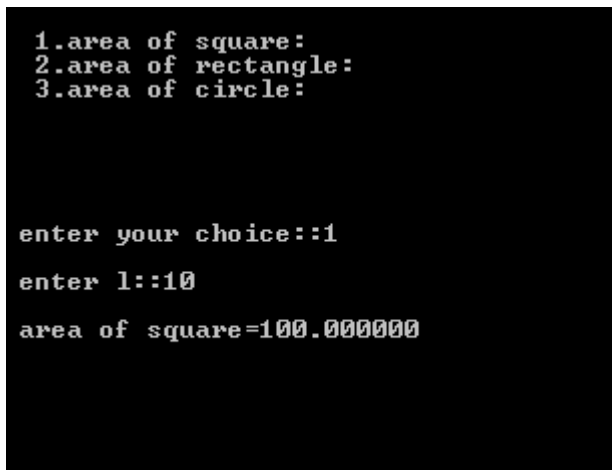
```
enter two number::25 4  
  
enter +,-,*,/ operator::*  
result=100.000000
```

```
enter two number::100 5  
  
enter +,-,*,/ operator::/  
result=20.000000
```

```
/* 2.7 Program to print area of square, circle or rectangle.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int n;
    float l,b,r,a;
    clrscr();
    printf("\n 1.area of square:");
    printf("\n 2.area of rectangle:");
    printf("\n 3.area of circle:");
    printf("\n \n \n");
    printf("\n enter your choice::");
    scanf("%d",&n);
    switch(n)
    {
        case 1:
            printf("\n enter l::");
            scanf("%f",&l);
            a=l*l;
            printf("\n area of square=%f",a);
            break;
        case 2:
            printf("\n enter l&b=");
            scanf("%f%f",&l,&b);
            a=l*b;
            printf("\n area of rectangle %f",a);
            break;
        case 3:
            printf("\n enter r=");
            scanf("%f",&r);
            a= 3.14*r*r;
            printf("\n area of circle=%f",a);
            break;
    }
    getch();
}
```

🚩 Output:



```
1.area of square:
2.area of rectangle:
3.area of circle:

enter your choice::1
enter l::10
area of square=100.000000
```

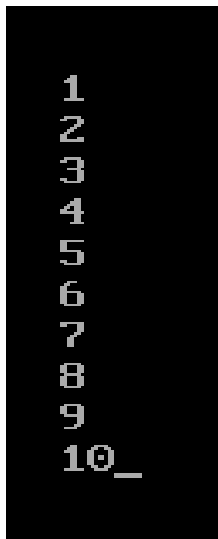
```
/* 2.8 Program to print name 5 times.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    char name[4]="MMG";  
    int i=0;  
    clrscr();  
    while(i<5)  
    {  
        printf("\n%s",name);  
        i++;  
    }  
    getch();  
}
```

🚩 Output:




```
/* 2.9 Program to print 1 to 10.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
  
    for(i=1;i<=10;i++)  
    {  
        printf("\n %d",i);  
    }  
    getch();  
}
```

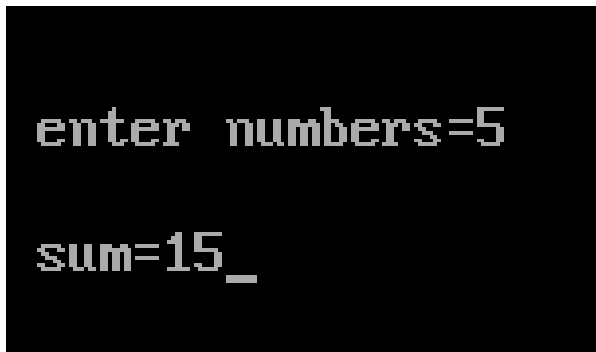
🚦 Output:



1
2
3
4
5
6
7
8
9
10_

```
/* 2.10 Program to print sum of 1 to n */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i, n, sum=0;  
    clrscr();  
    printf("\n enter numbers=");  
    scanf("%d",&n);  
  
    for(i=1;i<=n;i++)  
    {  
        sum+=i;//sum=sum+i;  
    }  
    printf("\n sum=%d",sum);  
    getch();  
}
```

 Output:



```
enter numbers=5  
sum=15_
```

```
/* 2.11 Program to print odd numbers from 1 to 100. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
    for(i=1;i<=100;i++)  
    {  
        if(i%2!=0)  
        {  
            printf(" %4d",i);  
        }  
    }  
    getch();  
}
```

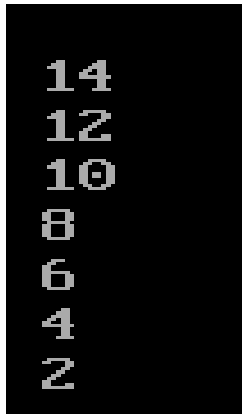
 **Output:**

```
1  3  5  7  9 11 13 15 17 19 21 23 25 27 29 31  
33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63  
65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95  
97 99
```




```
/* 2.12 Program to print even numbers from 15 to 1.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
  
    for(i=15;i>1;i--)  
    {  
        if(i%2==0)  
  
    }  
    getch();  
}
```

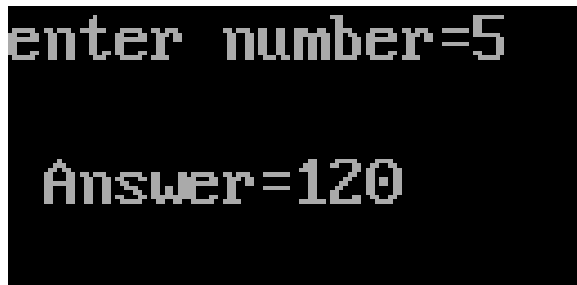
🚩 Output:



14
12
10
8
6
4
2

```
/* 2.13 Program to print factorial numbers using for loop.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,n,fact=1;  
    clrscr();  
    printf("enter number=");  
    scanf("%d",&n);  
  
    for(i=1;i<=n;i++)  
    {  
        fact=fact*i;  
    }  
    printf("\n Answer=%d",fact);  
    getch();  
}
```

 **Output :**



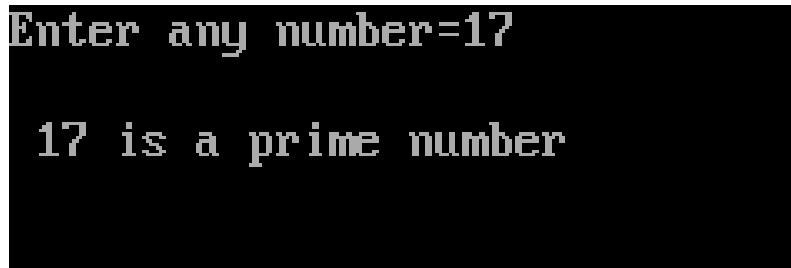
```
enter number=5  
  
Answer=120
```

```
/* 2.14 Program to check number is prime or not. */

#include<stdio.h>
#include<conio.h>
void main()
{

    int i,n,flag=0;
    clrscr();
    printf("enter any number=");
    scanf("%d",&n);
    for(i=2;i<n;i++)
    {
        if(n%i==0)
        {
            flag=1;
            break;
        }
    }
    if(flag==0)
    {
        printf("\n %d is a prime number",n);
    }
    else
    {
        printf("\n %d is not a prime number",n);
    }
    getch();
}
```

🚩 Output:



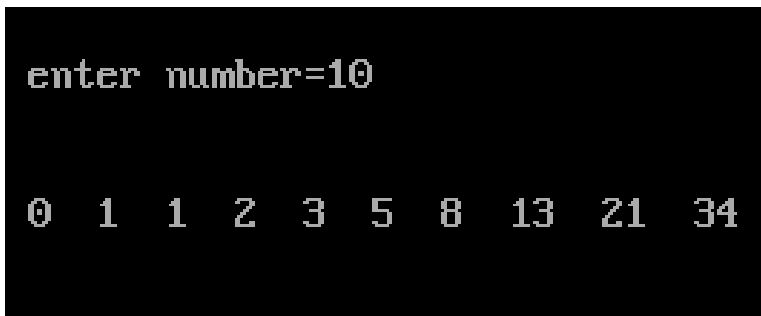
```
Enter any number=17
17 is a prime number
```

```
/* 2.15 A program to print fibonacci series. */

#include<stdio.h>
#include<conio.h>
void main()
{

    int f1=0,f2=1,f3,n,i;
    clrscr();
    printf("\n enter number=");
    scanf("%d",&n);
    printf("\n \n");
    printf(" %d %d",f1,f2);
    for(i=1;i<=n-2;i++)
    {
        f3=f1+f2;
        f1=f2;
        f2=f3;
        printf(" %d ",f3);
    }
    getch();
}
```

 Output:



```
enter number=10
0 1 1 2 3 5 8 13 21 34
```

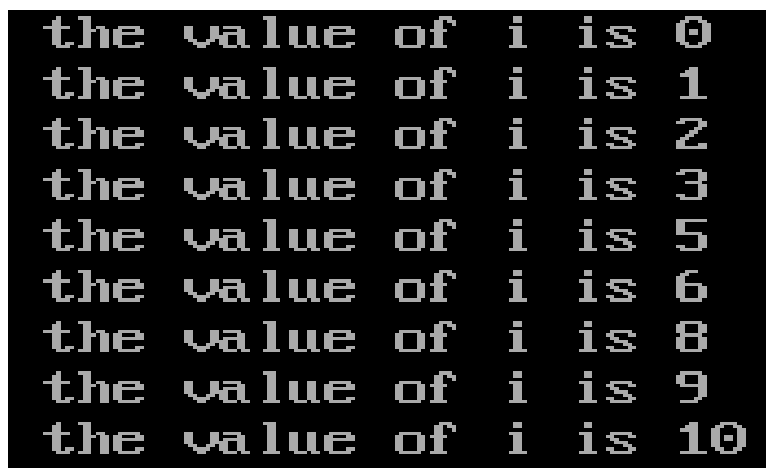
```
/* 2.16 Program for use of Break. */  
  
#include<stdio.h>  
void main()  
{  
    int i = 0;  
    clrscr();  
    while (1)  
    {  
        i = i + 1;  
        printf(" the value of i is %d\n",i);  
        if (i>5)  
        {  
            break;  
        }  
    }  
    getch();  
}
```

🚩 Output:

```
the value of i is 1  
the value of i is 2  
the value of i is 3  
the value of i is 4  
the value of i is 5  
the value of i is 6
```

```
/* 2.17 Program for use of Continue. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
    for(i = 0; i < 11; i++)  
    {  
        if ((i == 4) || (i == 7))  
        {  
            continue;  
        }  
        printf(" the value of i is %d\n", i);  
    }  
    getch();  
}
```

 Output:




```
the value of i is 0  
the value of i is 1  
the value of i is 2  
the value of i is 3  
the value of i is 5  
the value of i is 6  
the value of i is 8  
the value of i is 9  
the value of i is 10
```

```
/* 2.18 Program to input maximum 100 no & calculate how many numbers are
divisible by 3 using break & continue.
```

```
    Note:Enter 0 to break the program.
```


```
*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int n,i,c=0;
    clrscr ();
    for (i=1;i<=100;i++)
    {
        printf ("\nEnter no=");
        scanf ("%d",&n);
        if(n!=0)
        {
            if(n%3==0)
            {
                c++;
                continue;
            }
            else
                break;
        }
        printf("\nTotal divisible by 3 no=%d",c);
        getch();
    }
}
```

 **Output:**

```
Enter no=12
Enter no=15
Enter no=3
Enter no=67
Enter no=19
Enter no=9
Enter no=11
Enter no=0
Total number divisible by 3 are ::4_
```

```
/* 2.19 Program for print series 1 4 9 16 ..... n2. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,n;  
    clrscr();  
    printf("\n enter number=");  
    scanf("%d",&n);  
    for(i=1;i<=n;i++)  
    {  
        printf("\t %d",i*i);  
    }  
    getch();  
}
```


 Output:

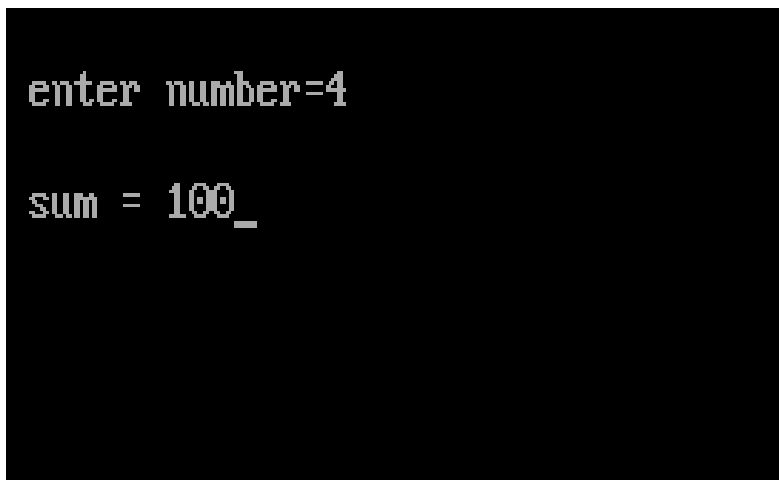


```
enter number=8  
    1    4    9    16   25   36   49   64
```



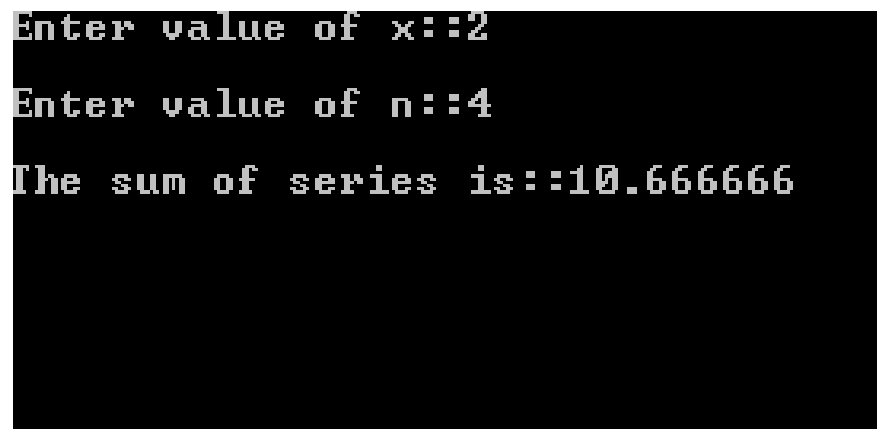
```
/* 2.20 A program to print sum of series 1^3+2^3+ ..... +n^3.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,n,sum=0;  
    clrscr();  
    printf("\n enter number=");  
    scanf("%d",&n);  
  
    for(i=1;i<=n;i++)  
    {  
        sum=sum+(i*i*i);  
    }  
    printf("\n sum = %d",sum);  
    getch();  
}
```

 **Output:**




```
/* 2.21 Program to print sum of series  $x + x^2/2 + x^3/3 \dots x^n/n$  */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int n,i;  
    float sum=0.0,x,k;  
    clrscr();  
    printf("Enter value of x::");  
    scanf("%f",&x);  
    printf("\nEnter value of n::");  
    scanf("%d",&n);  
    k=x;  
    for(i=1;i<=n;i++)  
    {  
        //printf("%f/%d+ ",k,i);  
        sum+=k/i;  
        k=k*x;  
    }  
    printf("\nThe sum of series is::%f",sum);  
    getch();  
}
```

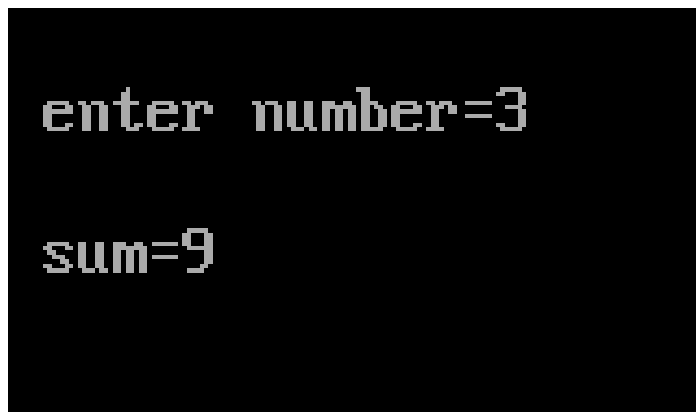
 Output:



```
Enter value of x::2  
Enter value of n::4  
The sum of series is::10.666666
```

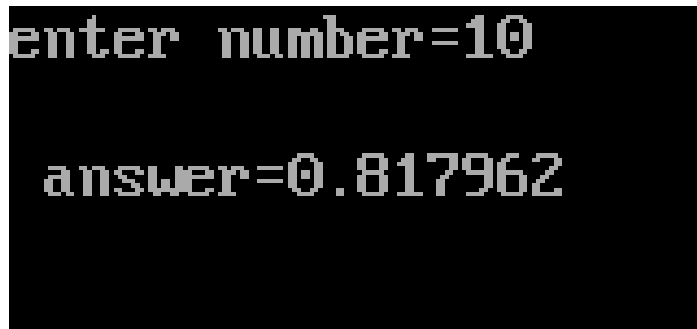
```
/* 2.22 A program for print series 1!+2!+3!+ ..... +n! */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,n,sum=0,fact=1;  
    clrscr();  
    printf("\n enter number=");  
    scanf("%d",&n);  
    for(i=1;i<=n;i++)  
    {  
        fact=fact*i;  
        sum+=fact;  
    }  
    printf("\n sum=%d",sum);  
    getch();  
}
```

 Output:



```
/* 2.23 Program for print sum of series 1/1-1/4+1/9-1/16+-----1/n^2. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,n;  
    float sum=0;  
    clrscr();  
    printf("enter number=");  
    scanf("%d",&n);  
    for(i=1;i<=n;i++)  
    {  
        if(i%2!=0)  
            sum+=(1.0/(i*i));  
        else  
            sum-=(1.0/(i*i));  
    }  
    printf("\n answer=%f",sum);  
    getch();  
}
```


 Output:



```
enter number=10  
  
answer=0.817962
```


```
/* 2.24 Program to print Series: 0 1 -2 3 -4 5 -6 _____ -20. */
#include<stdio.h>
#include<conio.h>
void main()
{
    int n=1,i=0;
    clrscr();
    while(i<21)
    {
        printf("%5d",i);

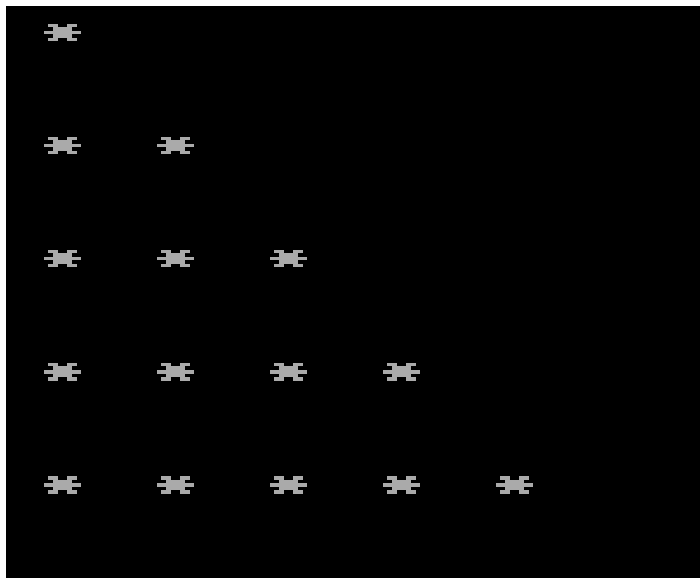
        if(n%2==0)
        {
            i=n*(-1);
        }
        else
            i=n*1;
        n++;
    }
    getch();
}
```

 Output:

```
0 1 -2 3 -4 5 -6 7 -8 9 -10 11 -12 13 -14 15
-16 17 -18 19 -20
```

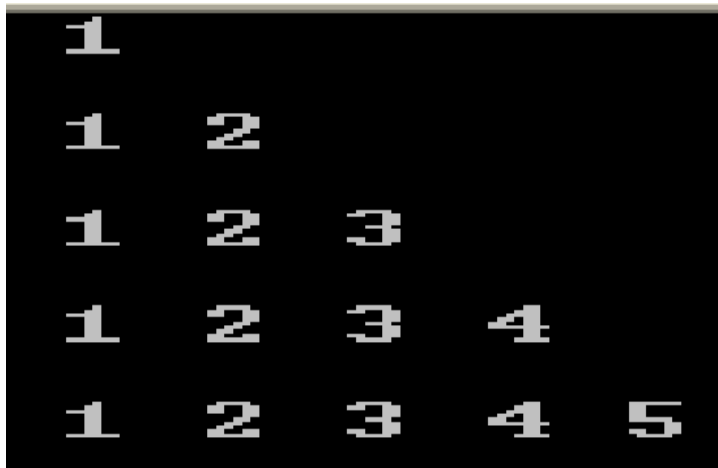
```
/* 2.25 Program to print pyramid. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf(" * ");  
        }  
        printf("\n\n");  
    }  
    getch();  
}
```

 Output :



```
/* 2.26 Program to print pyramid. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int i,j;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("%2d",j);  
        }  
        printf("\n \n");  
    }  
    getch();  
}
```

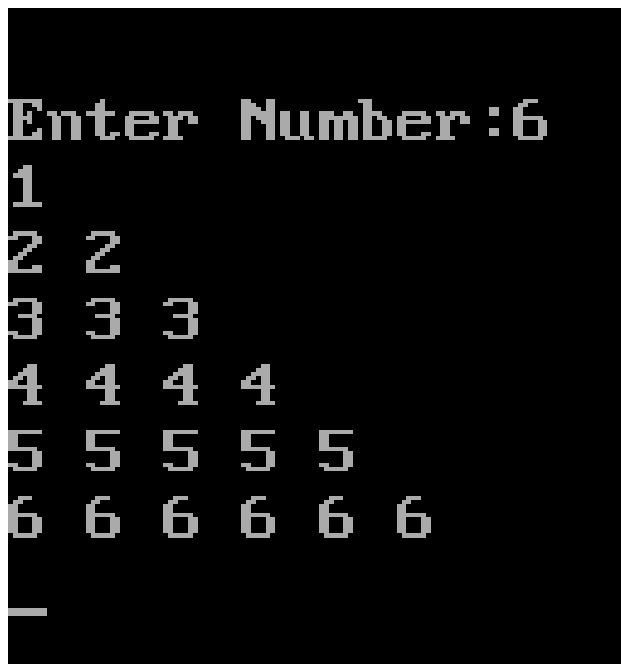
🚩 Output:



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

```
/* 2.27 Program to print pyramid of 1 to n. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j,n;  
    clrscr();  
  
    printf("Enter Number:");  
    scanf("%d",&n);  
  
    for(i=1;i<=n;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("%d ",i);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

 Output:

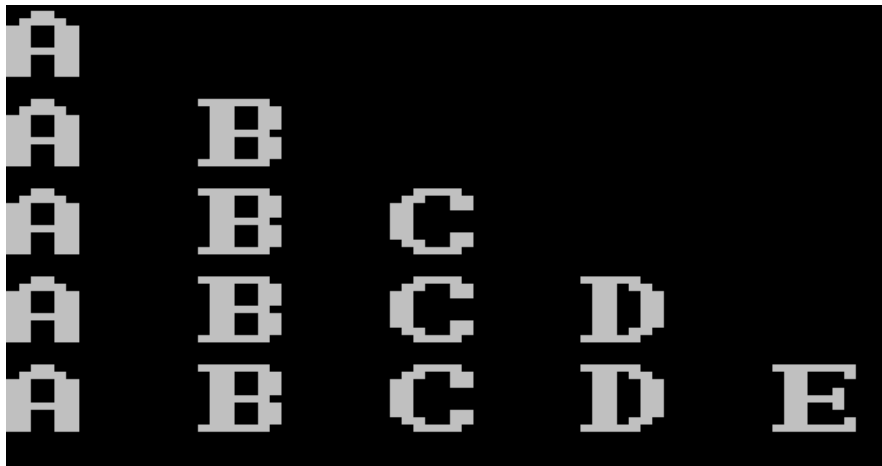


```
Enter Number:6  
1  
2 2  
3 3 3  
4 4 4 4  
5 5 5 5 5  
6 6 6 6 6 6  
_
```



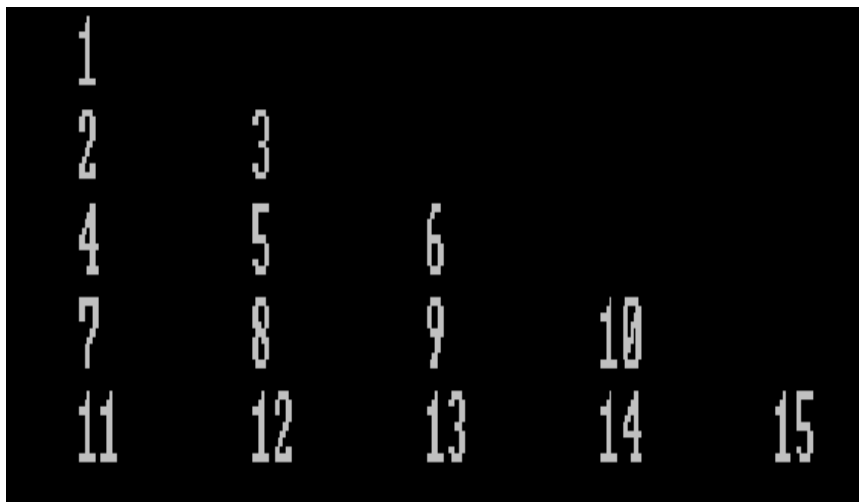
```
/* 2.28 Program to print pyramid of A to E. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j;  
    clrscr();  
    for(i=65;i<=69;i++)  
    {  
        for(j=65;j<=i;j++)  
        {  
            printf("%c ",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

🚩 Output:



```
/* 2.29 Program to print pyramid of 1 to 15. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j,k=1;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("\t%d ",k);  
            k++;  
        }  
        printf("\n");  
    }  
    getch();  
}
```

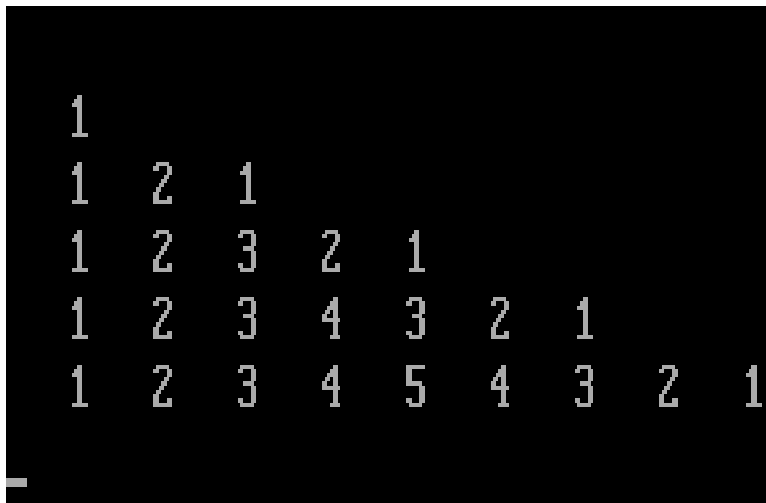
🌈 Output:



```
1  
2   3  
4   5   6  
7   8   9   10  
11  12  13  14  15
```

```
/* 2.30 Program to print pyramid. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int i,j,k;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("%4d",j);  
        }  
        if(i>1)  
        {  
            for(k=j-2;k>=1;k--)  
            {  
                printf("%4d",k);  
            }  
        }  
        printf("\n");  
    }  
    getch();  
}
```

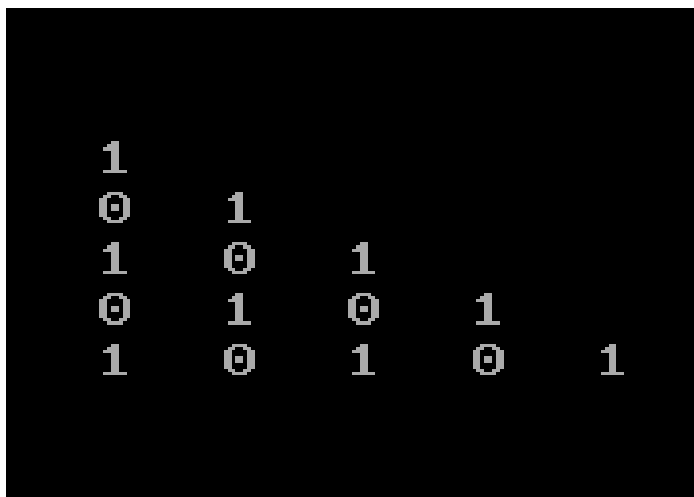
 **Output:**



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

```
/* 2.31 Program to print pyramid of 1 and 0. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j;  
    clrscr();  
    for(i=5;i>=1;i--)  
    {  
        for(j=i;j<=5;j++)  
        {  
            printf("%4d",j%2);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

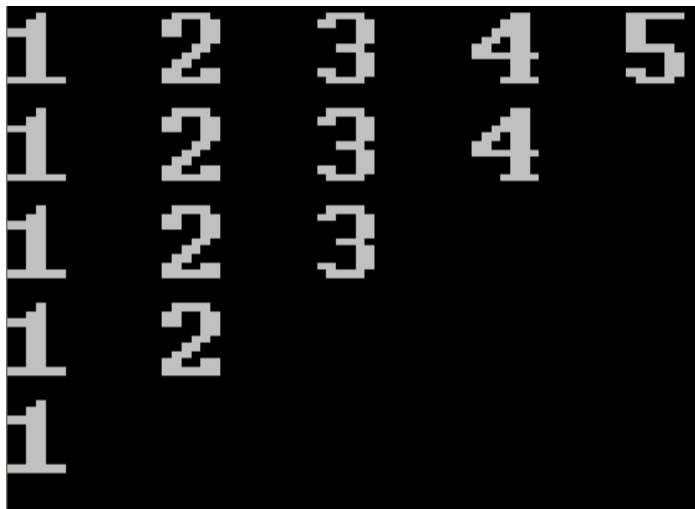
Output:



```
  1  
 0  1  
 1  0  1  
 0  1  0  1  
 1  0  1  0  1
```

```
/* 2.32 Program to print pyramid of 1 to 5 in opposite direction. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j;  
    clrscr();  
    for(i=5;i>=1;i--)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("%d ",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

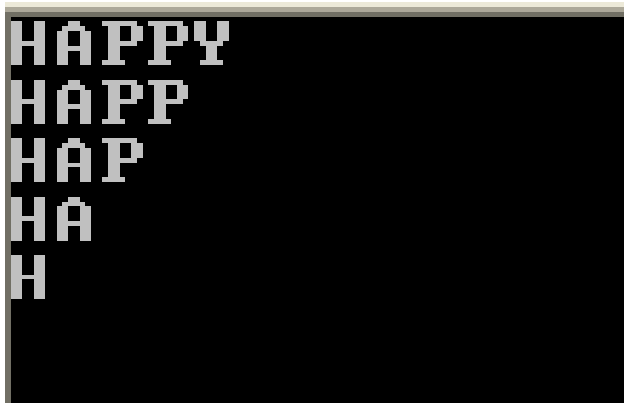
🚩 Output:



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

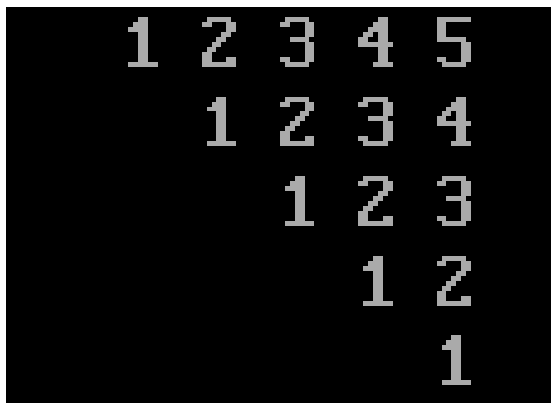
```
/* 2.33 Program to print pyramid of name. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int i,j;  
    static char s[]="HAPPY";  
    clrscr();  
    for(i=5;i>=0;i--)  
    {  
        for(j=0;j<i;j++)  
        {  
            printf("%c",s[j]);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

🚩 Output:



```
/* 2.34 Program to print pyramid. */  
  
#include<conio.h>  
#include<stdio.h>  
void main()  
{  
    int i,j,k;  
    clrscr();  
    for(i=5;i>=1;i--)  
    {  
        for(k=5;k>=i;k--)  
        {  
            printf("  "); //2 spaces  
        }  
        for(j=1;j<=i;j++)  
        {  
            printf("%2d",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

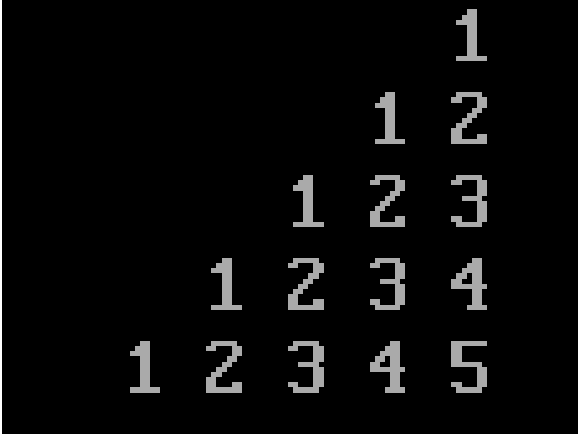
🚩 Output:



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

```
/* 2.35 Program to print pyramid. */  
  
#include<conio.h>  
#include<stdio.h>  
void main()  
{  
    int i,j,k;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(k=5;k>=i;k--)  
        {  
            printf("  "); //2 space  
        }  
        for(j=1;j<=i;j++)  
        {  
            printf("%2d",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

 Output:

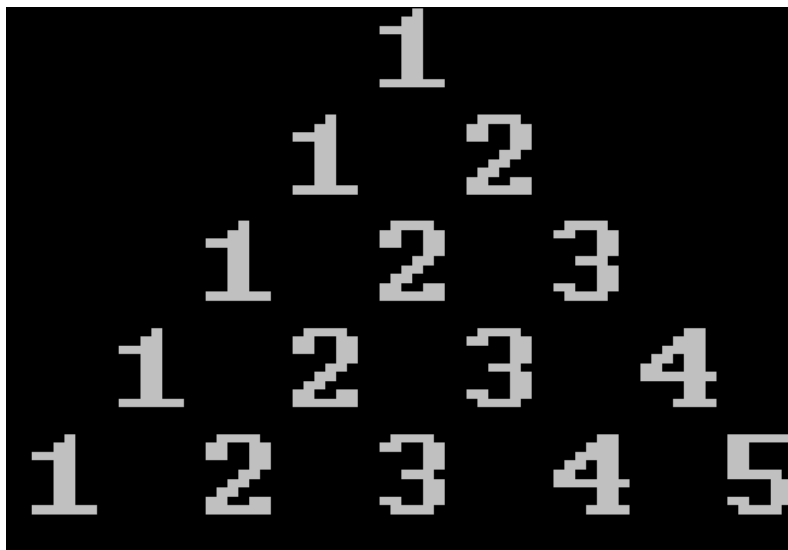


```
      1  
     1 2  
    1 2 3  
   1 2 3 4  
  1 2 3 4 5
```



```
/* 2.36 Program to print pyramid. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int i,j,k;  
    clrscr();  
    for(i=1;i<=5;i++)  
    {  
        for(k=5;k>=i;k--)  
        {  
            printf(" "); //1 space  
        }  
        for(j=1;j<=i;j++)  
        {  
            printf("%d ",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

 Output:



```
/* 2.37 Program to print pyramid. */
```

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,k,s;
    clrscr();
    for(i=1;i<=5;i++)
    {
        for(k=5;k>=i;k--)
        {
            printf(" ");    //2 spaces
        }
        for(j=1;j<=i;j++)
        {
            printf("%2d",j);
        }
        for(s=j-2;s>=1;s--)
        {
            printf("%2d",s);
        }
        printf("\n");
    }

    for(i=4;i>=1;i--)
    {
        for(k=5;k>=i;k--)
        {
            printf(" ");    //2 spaces
        }
        for(j=1;j<=i;j++)
        {
            printf("%2d",j);
        }
        for(s=i-1;s>=1;s--)
        {
            printf("%2d",s);
        }
        printf("\n");
    }
    getch();
}
```

Output :

```

      1
    1 2 1
  1 2 3 2 1
1 2 3 4 3 2 1
  1 2 3 4 3 2 1
    1 2 3 2 1
      1 2 1
        1

```

```
/* 2.38 Program to print pyramid. */

#include<conio.h>
#include<stdio.h>
void main()
{
    int i,j,k,s;
    clrscr();
    for(i=5;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("%2d",j);
        }
        for(k=4;k>=i;k--)
        {
            printf(" "); //4 spaces
        }
        for(s=i;s>=1;s--)
        {
            printf("%2d",s);
        }
        printf("\n");
    }

    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%2d",j);
        }
        for(k=4;k>=i;k--)
        {
            printf("");//4 spaces
        }
        for(j=i;j>=1;j--)
        {
            printf("%2d",j);
        }
        printf("\n");
    }
    getch();
}
```

Output :

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


```
/* 2.39 Program to print pyramid. */

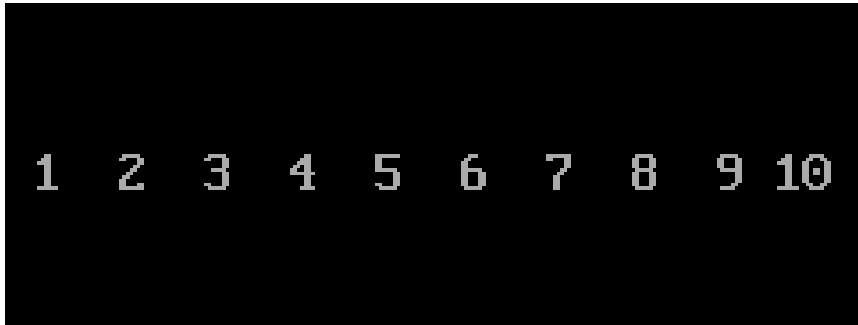
#include <stdio.h>
#include <conio.h>
void main()
{
    char ch1, ch2, ch3;
    clrscr();
    for(ch1='A' ; ch1<='C' ; ++ch1)
    {
        for(ch2='A' ; ch2<='C' ; ++ch2)
        {
            for(ch3='A' ; ch3<='C' ; ++ch3)
            {
                printf(" %c%c%c", ch1, ch2, ch3);
            }
        }
    }
    getch();
}
```

 Output:

```
AAA AAB AAC ABA ABB ABC ACA ACB ACC BAA BAB BAC BBA BBB BBC BCA BCB BCC CAA CAB
CAC CBA CBB CBC CCA CCB CCC
```

```
/* 2.40 Program to print 1 to 10 using while loop. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
    i=1;  
    while(i<=10)  
    {  
        printf("%2d ",i);  
        i++;  
    }  
    getch();  
}
```

 **Output:**



1 2 3 4 5 6 7 8 9 10

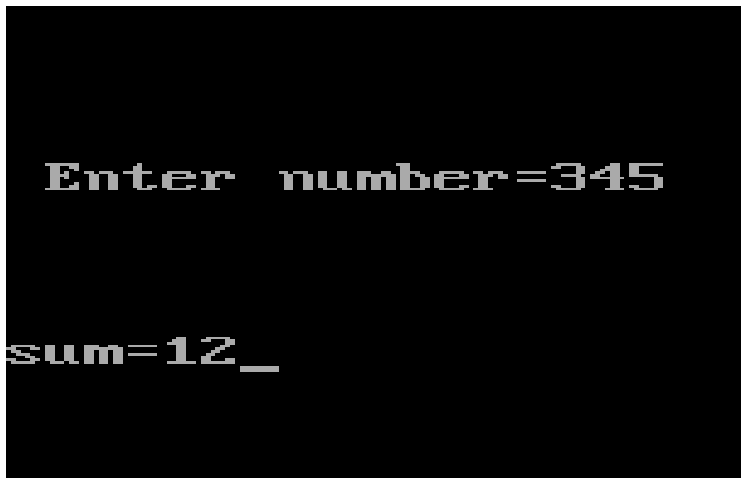
```
/* 2.41 Program for sum of odd numbers (1 to 25) using while loop. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int i,sum=0;  
    clrscr();  
    i=1;  
    while(i<=25)  
    {  
        if(i%2!=0)  
        {  
            sum+=i;  
        }  
        i++;  
    }  
    printf("\n sum=%d",sum);  
    getch();  
}
```

 **Output:**




```
/* 2.42 Program for print sum of individual digit. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int n,d,sum=0;  
    clrscr();  
    printf("\n Enter number=");  
    scanf("%d",&n);  
    printf("\n \n \n");  
  
    while(n>=1)  
    {  
        d=n%10;  
        sum+=d;  
        n=n/10;  
    }  
    printf("sum=%d",sum);  
    getch();  
}
```

 Output:

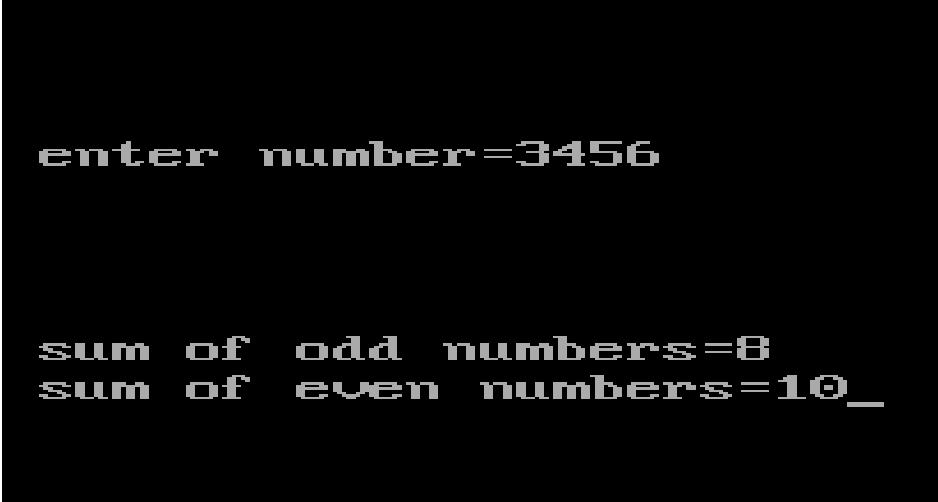


```
/* 2.43 Program to print sum of odd or even individual digit. */

#include<stdio.h>
#include<conio.h>
void main()
{

    int n,d,sum=0,sum1=0;
    clrscr();
    printf("\n enter number=");
    scanf("%d",&n);
    printf("\n \n \n ");
    while(n>=1)
    {
        d=n%10;
        if(d%2!=0)
        {
            sum+=d;
        }
        else
        {
            sum1+=d;
        }
        n=n/10;
    }
    printf("\n sum of odd numbers=%d",sum);
    printf("\n sum of even numbers=%d",sum1);
    getch();
}
```

 **Output:**



```
enter number=3456

sum of odd numbers=8
sum of even numbers=10_
```

```
/* 2.44 Program to check number is Palindrome or not. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int n,sum=0,t,d;  
    clrscr();  
    printf("\n enter number=");  
    scanf("%d",&n);  
    t=n;  
    while(n>0)  
    {  
        d=n%10;  
        sum=(sum*10)+d;  
        n=n/10;  
    }  
    if(sum==t)  
        printf("\n %d is a palindrome number",t);  
    else  
        printf("\n %d is a palindrome not number",t);  
    getch();  
}
```

 Output:

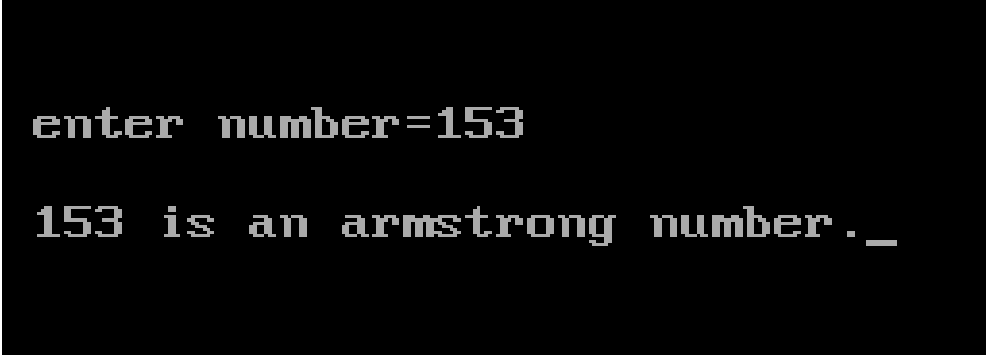
```
enter number=12321  
  
12321 is a palindrome number
```

```
enter number=123  
  
123 is not a palindrome number_
```

```
/* 2.45 Program for check no is armstrong or not. */


#include<stdio.h>
#include<conio.h>
void main()
{
    int n,sum=0,t,d;
    clrscr();
    printf("\n enter number=");
    scanf("%d",&n);
    t=n;
    while(n>0)
    {
        d=n%10;
        sum+=(d*d*d);
        n=n/10;
    }
    if(sum==t)
        printf("\n %d is an armstrong number.",t);
    else
        printf("\n %d is not an armstrong number.",t);
    getch();
}
```

 **Output:**



```
enter number=153
153 is an armstrong number._
```


```
/* 2.46 Program for print 1 to 10 using do__while. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i;  
    clrscr();  
    i=1;  
  
    do  
    {  
        printf("%d\t",i);  
        i++;  
    }  
    while(i<=10);  
    getch();  
}
```

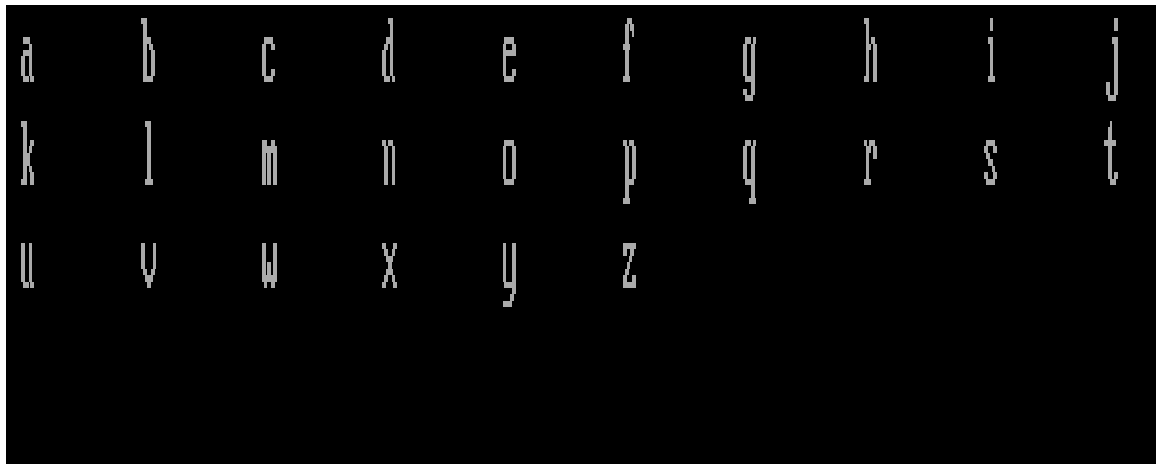
 Output:



1 2 3 4 5 6 7 8 9 10

```
/* 2.47 Program to print: a b c d ..... z. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    char ch='a';  
    clrscr();  
    do  
    {  
        printf("%c ",ch);  
        ch++;  
    }while(ch<='z');  
    getch();  
}
```

 **Output:**



```
a   b   c   d   e   f   g   h   i   j  
k   l   m   n   o   p   q   r   s   t  
u   v   w   x   y   z
```

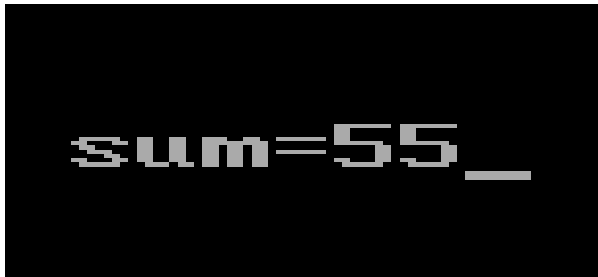
```
/* 2.48 Program for sum of 1 to 10 using goto label. */

#include<stdio.h>
#include<conio.h>
void main()
{

    int i=1,add=0;
    clrscr();
    sum:
    add+=i;
    i++;

    if(i<=10)
    {
        goto sum;
    }
    printf("\n sum=%d",add);
    getch();
}
```

 **Output :**




The screenshot shows a terminal window with a black background and white text. The text displayed is "sum=55_" followed by a cursor. This indicates that the program has successfully calculated the sum of integers from 1 to 10, which is 55.

Chapter-3

Header Files And Library Functions


```
/* 3.1 Program to store the string "United Kingdom" in the array & display the string under various format specifications. */
```

```
#include<stdio.h>
#include<conio.h>
void main()
{
    char c[15]="United Kingdom";
    clrscr();
    printf("\n");
    printf("\n*123456789012345*");
    printf("\n-----");
    printf("\n%15s",c);
    printf("\n%5s",c);
    printf("\n%15.6s",c);
    printf("\n%-15.6s",c);
    printf("\n%15.0s",c);
    printf("\n%.3s",c);
    printf("\n%s",c);
    printf("\n-----");
    getch();
}
```

 Output:



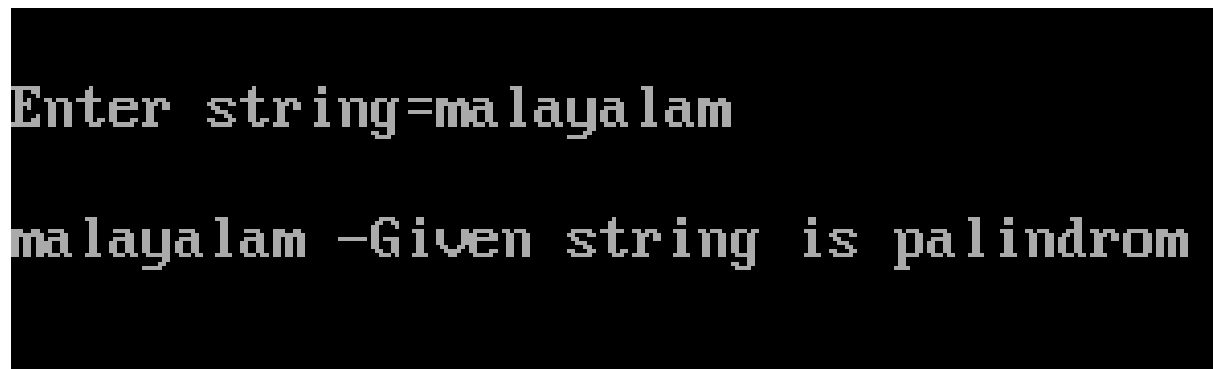
```
*123456789012345*
-----
United Kingdom
United Kingdom
      United
United
Uni
United Kingdom
-----
```

```
/* 3.2 Program to enter any string & check whether the given string is
palindrom or not. */

#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
    char a[50],b[50];
    int t=0;
    clrscr();
    printf("\nEnter string=");
    gets(a);
    strcpy(b,a);
    strrev(a);
    t=strcmp(b,a);

    if(t==0)
        printf("\n%s -Given string is palindrom",b);
    else
        printf("\n%s -Given string is not palindrom",b);
    getch();
}
```

 **Output:**



```
Enter string=malayalam
malayalam -Given string is palindrom
```

```
/* 3.3 Program for the use of various String operations. */

#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{

    char *s1="hello";
    char *s2=" world"; // give one space before world word
    char *s3;
    char *s4;
    char *p;
    char *s5="1234567890";
    char *s6="1234ABC";
    char *s7="747Abc";
    char *s8="abc,d";
    int len;

    clrscr();
    strcpy(s3,s1);
    printf("\n with the use of strcpy:- %s",s3);

    len=strlen(s1);
    printf("\n with the use of strlen:- %d",len);

    strcat(s3,s2);
    printf("\n with the use of strcat:- %s",s3);

    strncat(s1,s2,3);
    printf("\n with the use of strncat:- %s",s1);

    p=strchr(s2,'o');
    printf("\n with the use of strchr:- %d",p-s2);

    p=strrchr(s2,'o');
    printf("\n with the use of strrchr:- %d",p-s2);

    len=strspn(s5,s6);
    printf("\n with the use of strspn:- %d",len);

    len=strcspn(s5,s7);
    printf("\n with the use of strcspn:- %d",len);

    p=strpbrk(s5,s7);
    printf("\n with the use of strpbrk:- %c",*p);

    p=strstr(s1,"e");
    printf("\n with the use of strstr:- %s",p);

    p=strtok(s8,",");
    printf("\n with the use of strtok:- %s",p);

    if(strcmp(s5,s6)==0)
        printf("\n both are same");
    else
        printf("\n both are not same");
    getch();
}
```

 Output :

```
with the use of strcpy:- hello
with the use of strlen:- 5
with the use of strcat:- hello world
with the use of strncat:- hello wo
with the use of strchr:- 1
with the use of strrchr:- 1
with the use of strstr:- 4
with the use of strcspn:- 3
with the use of strpbrk:- 4
with the use of strstr:- ello wo
with the use of strtok:- abc
both are not same
```

```
/* 3.4 Program for the use of Mathematical Operations. */

#include<stdio.h>
#include<conio.h>
#include<math.h>
#include <stdlib.h>

div_t x;

void main()
{
    double fraction, integer;
    double number = 100000.567;

    clrscr();

    printf("\n with the use of acos() %f",acos(0.5));
    printf("\n with the use of asin() %f",asin(0.5));
    printf("\n with the use of atan() %f",atan(5));

    printf("\n with the use of ceil() %f",ceil(5.3));
    printf("\n with the use of floor() %f",floor(5.3));

    printf("\n with the use of cos() %f",cos(5));
    printf("\n with the use of sin() %f",sin(5));
    printf("\n with the use of tan() %f",tan(5));

    printf("\n with the use of pow() %f",pow(5,2));
    printf("\n with the use of sqrt() %f",sqrt(4));
    printf("\n with the use of exp() %f",exp(5.0));

    printf("\n with the use of fabs() %f",fabs(-5));
    printf("\n with the use of fmod() %f",fmod(5,2));
    printf("\n with the use of log() %f",log(5));

    x = div(10,3);

    printf("\n10 div 3 = %d remainder %d\n",x.quot, x.rem);
    fraction = modf(number, &integer);
    printf("\nThe whole and fractional parts of are %lf and
        %lf\n",integer, fraction);

    getch();
}
```

 Output :

```
with the use of acos() 1.047198
with the use of asin() 0.523599
with the use of atan() 1.373401
with the use of ceil() 6.000000
with the use of floor() 5.000000
with the use of cos() 0.283662
with the use of sin() -0.958924
with the use of tan() -3.380515
with the use of pow() 25.000000
with the use of sqrt() 2.000000
with the use of exp() 148.413159
with the use of fabs() 5.000000
with the use of fmod() 1.000000
with the use of log() 1.609438
10 div 3 = 3 remainder 1

The whole and fractional parts of are 100000.000000 and 0.567000_
```

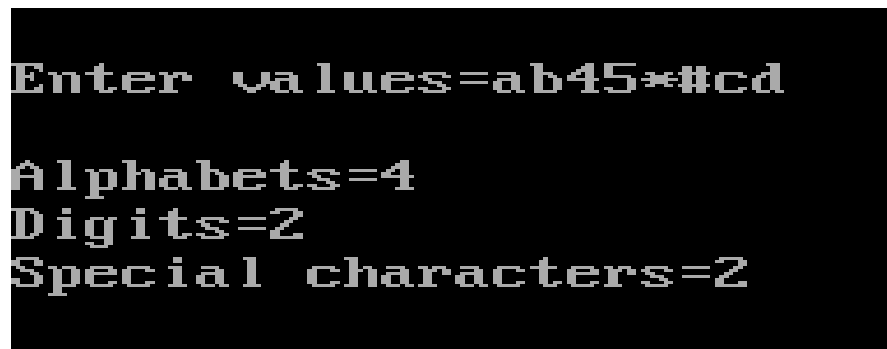
```
/* 3.5 Program to enter values & check how many alphabets, digits & special
characters. */

#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<ctype.h>
void main()
{
    int i,n,c=0,c1=0,c2=0;
    char a[50];
    clrscr();

    printf("\nEnter values=");
    gets(a);
    n=strlen(a);

    // printf("\nLength of the string=%d",n);
    for(i=0;i<n;i++)
    {
        if(isalpha(a[i]))
            c++;
        else if(isdigit(a[i]))
            c1++;
        else
            c2++;
    }
    printf("\nAlphabets=%d",c);
    printf("\nDigits=%d",c1);
    printf("\nSpecial characters=%d",c2);
    getch();
}
```

🚩 Output:



```
Enter values=ab45*#cd
Alphabets=4
Digits=2
Special characters=2
```

```
/* 3.6 Program to calculate frequency of vowels in a string. */


#include<stdio.h>
#include<conio.h>
void main()
{
    int j,a=0,e=0,i=0,o=0,u=0,sum=0;
    char strf[100];
    clrscr();

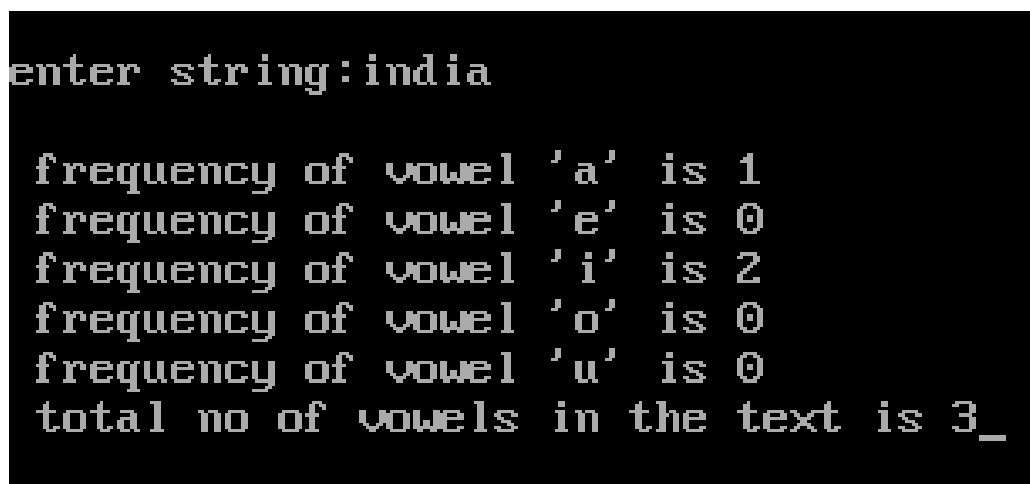
    printf("enter string:");
    gets(strf);

    for(j=0;strf[j]!='\0';j++)
    {
        if(strf[j]=='a' || strf[j]=='A')
            a=a+1;
        if(strf[j]=='e' || strf[j]=='E')
            e=e+1;
        if(strf[j]=='i' || strf[j]=='I')
            i=i+1;
        if(strf[j]=='o' || strf[j]=='O')
            o=o+1;
        if(strf[j]=='u' || strf[j]=='U')
            u=u+1;
    }

    sum=a+e+i+o+u;

    printf("\n frequency of vowel 'a' is %d",a);
    printf("\n frequency of vowel 'e' is %d",e);
    printf("\n frequency of vowel 'i' is %d",i);
    printf("\n frequency of vowel 'o' is %d",o);
    printf("\n frequency of vowel 'u' is %d",u);
    printf("\n total no of vowels in the text is %d",sum);
    getch();
}
```

 **Output:**



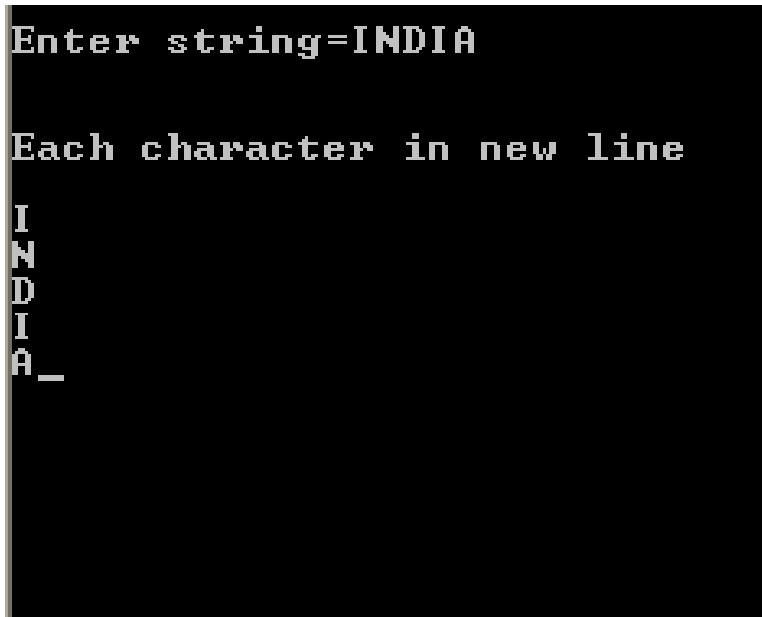
```
enter string:india

frequency of vowel 'a' is 1
frequency of vowel 'e' is 0
frequency of vowel 'i' is 2
frequency of vowel 'o' is 0
frequency of vowel 'u' is 0
total no of vowels in the text is 3_
```



```
/* 3.7 Program to enter string & display each character in new line. */  
  
#include<stdio.h>  
#include<conio.h>  
#include<string.h>  
void main()  
{  
  
    int len,i;  
    char a[50];  
    clrscr();  
  
    printf("\nEnter string=");  
    gets(a);  
  
    len=strlen(a);  
    printf("\n\nEach character in new line\n");  
  
    for(i=0;i<len;i++)  
    {  
        printf("\n%c",a[i]);  
    }  
    getch();  
}
```

 Output:



```
Enter string=INDIA  
  
Each character in new line  
  
I  
N  
D  
I  
A  
_
```

```
/* 3.8 Program to enter string & count how many words in the string. */

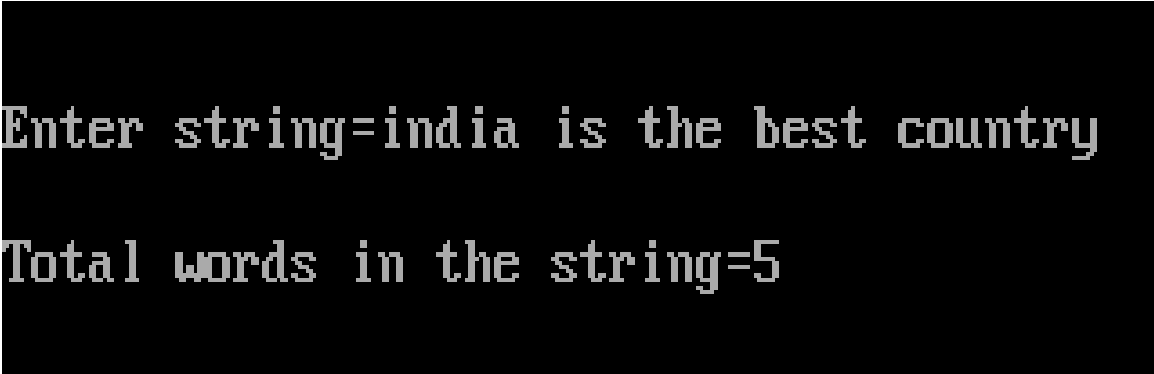
#include<stdio.h>
#include<conio.h>
#include<ctype.h>
#include<string.h>
void main()
{
    int len,i,c=1;          /* count start with one */
    char a[50];
    clrscr();

    printf("\nEnter string=");
    gets(a);

    len=strlen(a);

    for(i=0;i<len;i++)
    {
        if(isspace(a[i]))
        {
            c++;
        }
    }
    printf("\nTotal words in the string=%d",c);
    getch();
}
```

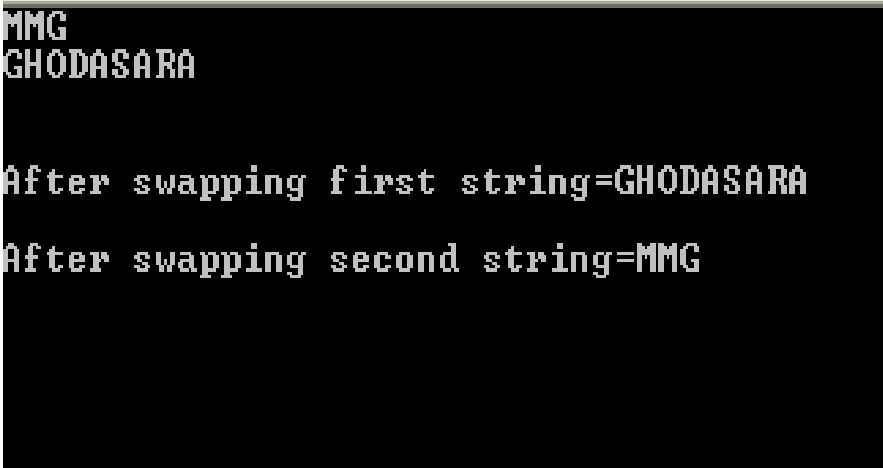
 **Output:**



Enter string=india is the best country
Total words in the string=5

```
/* 3.9 Program to swap two strings. */  
  
#include<stdio.h>  
#include<conio.h>  
#include<string.h>  
void main()  
{  
    char s1[20]="MMG",s2[20]="GHODASARA",s3[20];  
    clrscr();  
  
    puts(s1);  
    puts(s2);  
  
    strcpy(s3,s1);  
    strcpy(s1,s2);  
    strcpy(s2,s3);  
  
    printf("\n\nAfter swapping first string=%s",s1);  
    printf("\n\nAfter swapping second string=%s",s2);  
    getch();  
}
```

 **Output:**

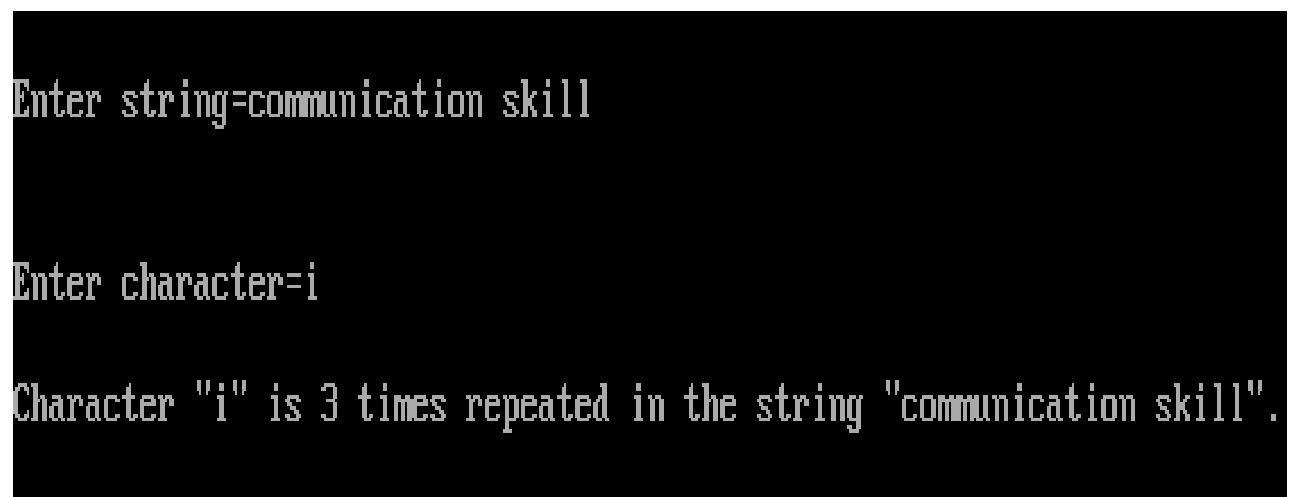


```
MMG  
GHODASARA  
  
After swapping first string=GHODASARA  
After swapping second string=MMG
```

```
/* 3.10 Program to enter string & any one character & find how many times  
that character is repeated in the string. */
```

```
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int len,c=0,i;  
    char ch,a[50];  
    clrscr();  
  
    printf("\nEnter string=");  
    gets(a);  
  
    printf("\n\nEnter character=");  
    scanf("%c",&ch);  
  
    len=strlen(a);  
  
    for(i=0;i<len;i++)  
    {  
        if(a[i]==ch)  
        {  
            c++;  
        }  
    }  
    printf("\nCharacter \"%c\" is %d times repeated in the string  
    \"%s\".",ch,c,a);  
    getch();  
}
```

 **Output:**



```
Enter string=communication skill  
  
Enter character=i  
  
Character "i" is 3 times repeated in the string "communication skill".
```

```
/* 3.11 Program to print the string in reverse order
w/o using any built-in function. */

#include<stdio.h>
#include<conio.h>
void main()
{
    int i,len;
    char a[50];

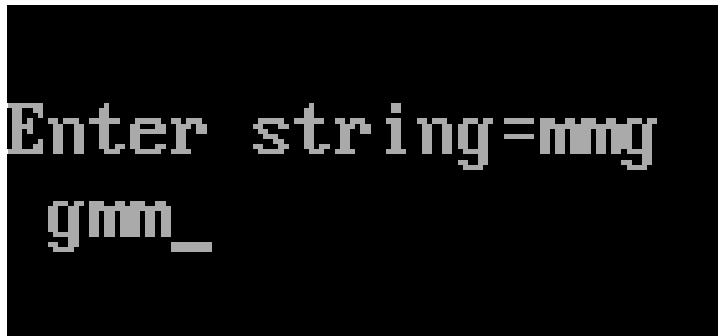
    clrscr();

    printf("\nEnter string=");
    gets(a);

    len=strlen(a);

    for(i=len;i>=0;i--)
    {
        printf("%c",a[i]);
    }
    getch();
}
```

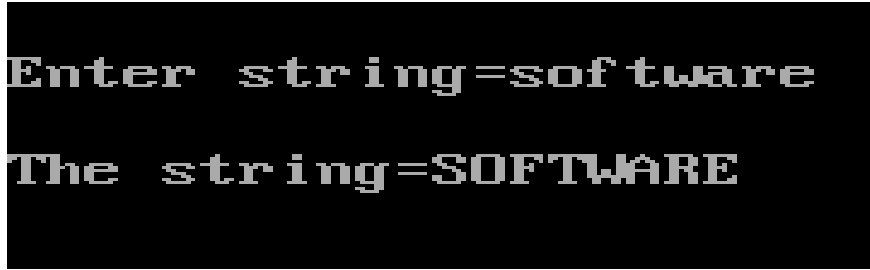
🚩 Output:



```
Enter string=mmg
gmm_
```

```
/* 3.12 Program to convert uppercase char to lowercase & vice versa. */
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=0;
    char s[100];
    clrscr();
    printf("\nEnter string=");
    gets(s);
    while(s[i]!='\0')
    {
        if(s[i]>=65 && s[i]<=90)
            s[i]+=32;
        else if(s[i]>=97 && s[i]<=122)
            s[i]-=32;
        i++;
    }
    printf("\nThe string=%s",s);
    getch();
}
```

 **Output:**



```
Enter string=software
The string=SOFTWARE
```

```
/* 3.13 Program for the use of various Date & time Operations. */

#include <time.h>
#include <stdio.h>
#include <dos.h>
#include <string.h>
#include <conio.h>

void main()
{
    struct tm t1;
    struct tm *tblock;
    char str[80];

    time_t t;
    time_t first, second;
    clock_t start, end;

    start = clock();
    delay(2000);
    end = clock();

    printf("The time was: %f\n", (end - start) / CLK_TCK);
    t = time(NULL);
    printf("The number of seconds since January 1, 1970 is %ld",t);

    first = time(NULL); /* Gets system time */
    delay(2000); /* Waits 2 secs */
    second = time(NULL); /* Gets system time again */
    printf("The difference is: %f seconds\n",difftime(second,first));

    /* sample loading of tm structure */

    t1.tm_sec = 1; /* Seconds */
    t1.tm_min = 30; /* Minutes */
    t1.tm_hour = 9; /* Hour */
    t1.tm_mday = 22; /* Day of the Month */
    t1.tm_mon = 11; /* Month */
    t1.tm_year = 56; /* Year - does not include century */
    t1.tm_wday = 4; /* Day of the week */
    t1.tm_yday = 0; /* Does not show in asctime */
    t1.tm_isdst = 0; // Is Daylight SavTime; does not show in asctime

    /* converts structure to null terminated string */

    strcpy(str, asctime(&t1));
    printf("%s\n", str);
    time(&t);
    printf("Today's date and time: %s\n", ctime(&t));

    /* gets time of day */
    t = time(NULL);

    /* converts date/time to a structure */
    tblock = localtime(&t);

    printf("Local time is: %s", asctime(tblock));
    getch();
}
```

🚩 Output:

```
The time was: 1.978022
The number of seconds since January 1, 1970 is 1446734515
The difference is: 2.000000 seconds
Thu Dec 22 09:30:01 1956
Today's date and time: Thu Nov 05 09:41:57 2015
Local time is: Thu Nov 05 09:41:57 2015
-
```



```
/* 3.14 Program to find sum of two values using UDF
(no argument no return value). */

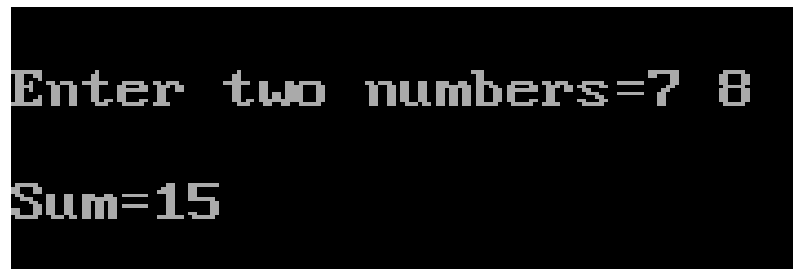
#include<stdio.h>
#include<conio.h>

void sum();

void main()
{
    clrscr();
    sum();
    getch();
}

void sum()
{
    int a,b,c;
    printf("\nEnter two numbers=");
    scanf("%d%d",&a,&b);
    c=a+b;
    printf("\nSum=%d",c);
}
```

 Output:



```
Enter two numbers=7 8
Sum=15
```

```
/* 3.15 Program to find factorial of n number using UDF
(with return value no argument). */

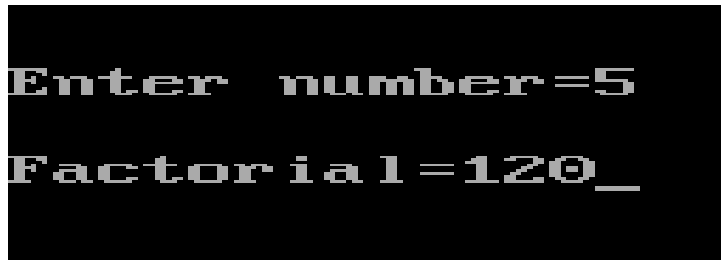
#include<stdio.h>
#include<conio.h>

int fact();

void main()
{
    int a;
    clrscr();
    a=fact();
    printf("\nFactorial=%d",a);
    getch();
}

int fact()
{
    int i,fact=1,n;
    printf("\nEnter number=");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        fact=fact*i;
    }
    return fact;
}
```

 **Output:**



```
Enter number=5
Factorial=120_
```

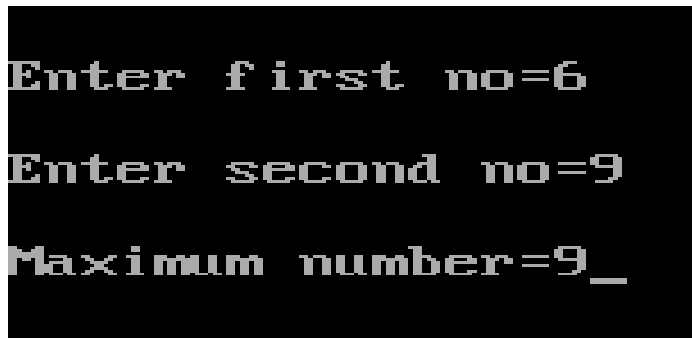
```
/* 3.16 Program to find maximum no from two numbers using UDF
(with argument with return value). */

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

int max(int,int);
void main()
{
    int a,b,c;
    clrscr();
    printf("\nEnter first no=");
    scanf("%d",&a);
    printf("\nEnter second no=");
    scanf("%d",&b);
    c=max(a,b);
    printf("\nMaximum number=%d",c);
    getch();
}

int max(int x,int y)
{
    if(x>y)
        return x;
    else
        return y;
}
```

 Output:



```
Enter first no=6
Enter second no=9
Maximum number=9_
```

```
/* 3.17 Program to find Simple Interest using UDF
(with argument no return value). */

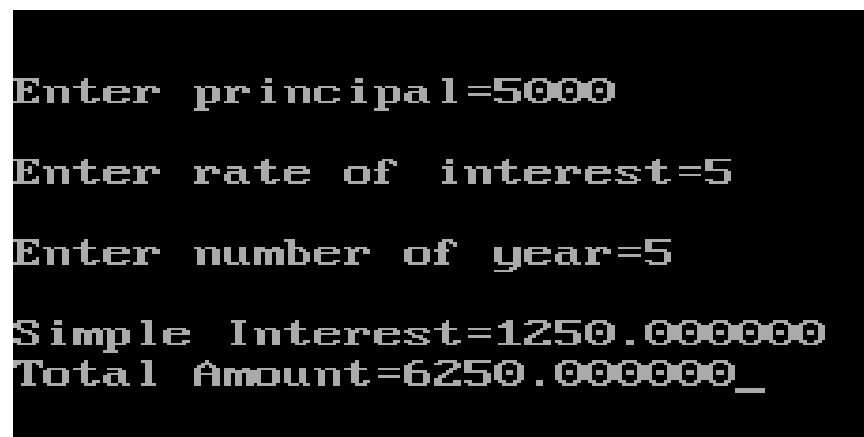
#include<stdio.h>
#include<conio.h>

void interest(float, float, float);

void main()
{
    float p,r,n;
    clrscr();
    printf("\nEnter principal=");
    scanf("%f",&p);
    printf("\nEnter rate of interest=");
    scanf("%f",&r);
    printf("\nEnter number of year=");
    scanf("%f",&n);
    interest(p,r,n);
    getch();
}

void interest(float p, float r, float n)
{
    float si,t;
    si=(p*r*n)/100;
    t=si+p;
    printf("\nSimple Interest=%f",si);
    printf("\nTotal Amount=%f",t);
}
```

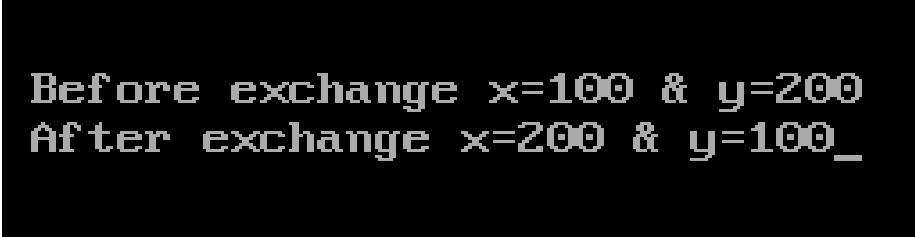
🚩 Output:



```
Enter principal=5000
Enter rate of interest=5
Enter number of year=5
Simple Interest=1250.000000
Total Amount=6250.000000_
```

```
/* 3.18 Program to interchange values using call by reference. */  
  
#include<stdio.h>  
#include<conio.h>  
void exchange(int *,int *);  
void main()  
{  
    int x=100,y=200;  
    clrscr();  
    printf("\n Before exchange x=%d & y=%d",x,y);  
    exchange(&x,&y);  
    printf("\n After exchange x=%d & y=%d",x,y);  
    getch();  
}  
  
void exchange(int *a,int *b)  
{  
    int t;  
    t=*a;  
    *a=*b;  
    *b=t;  
}
```

 **Output:**



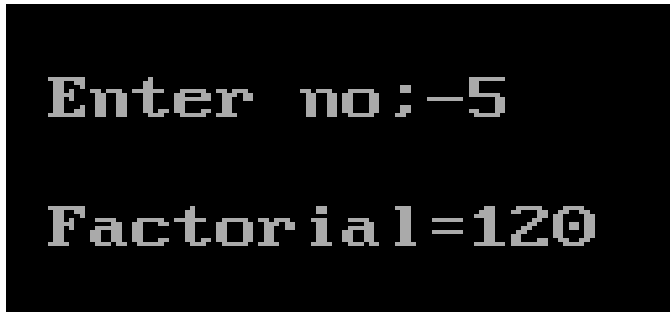
```
Before exchange x=100 & y=200  
After exchange x=200 & y=100_
```

```
/* 3.19 Program to find factorial of given number using recursion. */

#include<stdio.h>
#include<conio.h>
int rec(int);
void main()
{
    int n,fact;
    clrscr();
    printf("\n Enter no;-");
    scanf("%d",&n);
    fact=rec(n);
    printf("\n Factorial=%d",fact);
    getch();
}

int rec(int n)
{
    int f;
    if(n==1)
        return 1;
    else
        f=n*rec(n-1);
    return f;
}
```

🚩 Output:



```
Enter no;-5
Factorial=120
```

Chapter-4

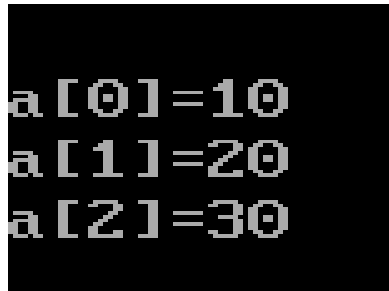
Arrays

&

Structure

```
/* 4.1 Program to display array elements */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int a[3]={10,20,30};  
    clrscr();  
    printf("\na[0]=%d",a[0]);  
    printf("\na[1]=%d",a[1]);  
    printf("\na[2]=%d",a[2]);  
    getch();  
}
```

 Output:

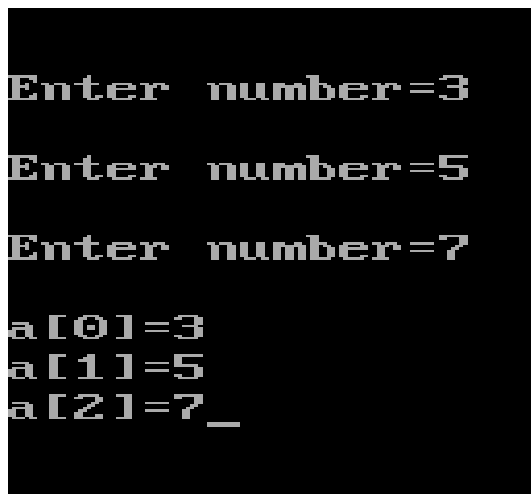


```
a[0]=10  
a[1]=20  
a[2]=30
```



```
/* 4.2 Program to display array elements. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int a[3],i;  
    clrscr();  
    for(i=0;i<3;i++)  
    {  
        printf("\nEnter number=");  
        scanf("%d",&a[i]);  
    }  
    for(i=0;i<3;i++)  
    {  
        printf("\na[%d]=%d",i,a[i]);  
    }  
    getch();  
}
```

 Output:



```
Enter number=3  
Enter number=5  
Enter number=7  
  
a[0]=3  
a[1]=5  
a[2]=7_
```

```
/* 4.3 Program to count no. of positive, negative & zero values from 5 different values.*/
```

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[5],i,c=0,c1=0,c2=0;
    clrscr();
    printf("\nEnter five values:\n");
    for(i=0;i<=4;i++)
    {
        printf("\nEnter value=");
        scanf("%d",&a[i]);
    }
    for(i=0;i<=4;i++)
    {
        if(a[i]>0)
        {
            c++;
        }
        else if(a[i]<0)
        {
            c1++;
        }
        else
        {
            c2++;
        }
    }

    printf("\nPositive values=%d",c);
    printf("\nNegative values=%d",c1);
    printf("\nZero values=%d",c2);
    getch();
}
```


 **Output:**

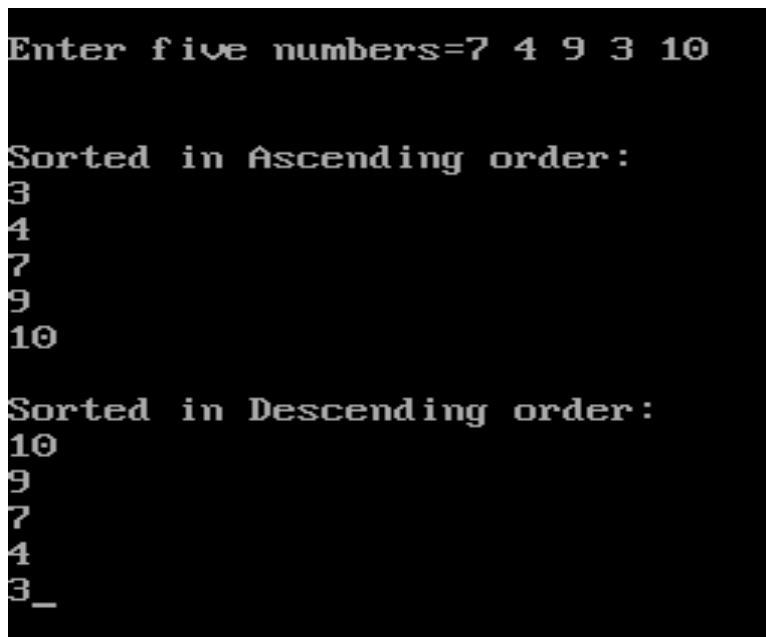
```
Enter five values:
Enter value=10
Enter value=-20
Enter value=50
Enter value=-1
Enter value=0

Positive values=2
Negative values=2
Zero values=1_
```

```
/* 4.4 Program of Ascending & Descending Order.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int a[5],i,j,k,temp;
    clrscr();
    printf("\nEnter five numbers=");
    for(i=0;i<=4;i++)
    {
        scanf("%d",&a[i]);
    }
    for(j=0;j<=4;j++)
    {
        for(k=j+1;k<i;k++)
        {
            if(a[j]>a[k])
            {
                temp=a[j];
                a[j]=a[k];
                a[k]=temp;
            }
        }
    }
    printf("\n\nSorted in Ascending order:");
    for(i=0;i<=4;i++)
    {
        printf("\n%d",a[i]);
    }
    printf("\n\nSorted in Descending order:");
    for(i=4;i>=0;i--)
    {
        printf("\n%d",a[i]);
    }
    getch();
}
```

 **Output:**



```
Enter five numbers=7 4 9 3 10

Sorted in Ascending order:
3
4
7
9
10

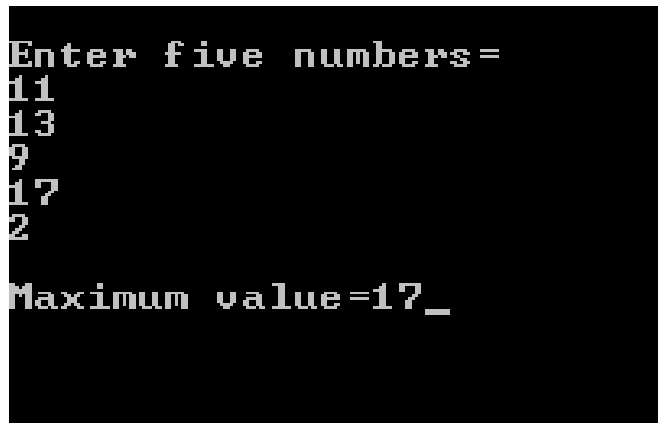
Sorted in Descending order:
10
9
7
4
3_
```

```
/* 4.5 Program to find maximum value from any 5 numbers.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int a[5],i,max=0;
    clrscr();

    printf("\nEnter five numbers=\n");
    for(i=0;i<5;i++)
    {
        scanf("%d",&a[i]);
    }
    for(i=0;i<5;i++)
    {
        if(a[i]>max)
        {
            max=a[i];
        }
    }
    printf("\nMaximum value=%d",max);
    getch();
}
```

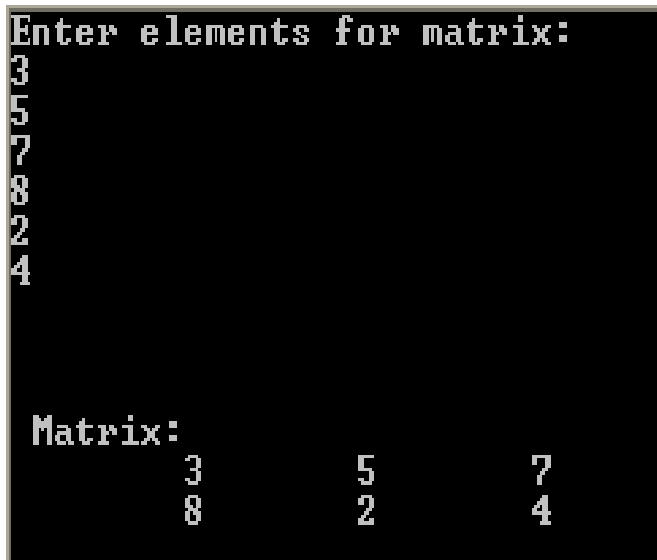
🚩 Output:



```
Enter five numbers=
11
13
9
17
2
Maximum value=17_
```

```
/* 4.6 Program to print a matrix of 2 rows & 3 cols.*/  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int a[2][3],i,j;  
    clrscr();  
    printf("Enter elements for matrix:\n");  
    for(i=0;i<2;i++)  
    {  
        for(j=0;j<3;j++)  
        {  
            scanf("%d",&a[i][j]);  
        }  
    }  
    printf("\n\n\n Matrix:\n");  
    for(i=0;i<2;i++)  
    {  
        for(j=0;j<3;j++)  
        {  
            printf("\t%d",a[i][j]);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

 **Output:**



```
Enter elements for matrix:  
3  
5  
7  
8  
2  
4  
  
Matrix:  
    3    5    7  
    8    2    4
```

```
/* 4.7 Program to print addition of two matrix.*/

#include<stdio.h>
#include<conio.h>
void main()
{
    int a[2][2],i,j,b[2][2],sum[2][2];
    clrscr();
    printf("Enter elements for first matrix:\n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<2;j++)
        {
            scanf("%d",&a[i][j]);
        }
    }
    printf("\nFirst matrix is:\n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<2;j++)
        {
            printf("\t%d",a[i][j]);
        }
        printf("\n");
    }
    printf("\nEnter elements for second matrix:");
    for(i=0;i<2;i++)
    {
        for(j=0;j<2;j++)
        {
            scanf("%d",&b[i][j]);
        }
    }
    printf("\nSecond matrix is:\n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<2;j++)
        {
            printf("\t%d",b[i][j]);
        }
        printf("\n");
    }
    printf("\nAddition of two Matrix is:\n\n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<2;j++)
        {
            sum[i][j]=a[i][j]+b[i][j];
            printf("\t%d",sum[i][j]);
        }
        printf("\n");
    }
    getch();
}
```

🌈 Output:

```
Enter elements for first matrix:
1 2 3 4

First matrix is:
      1      2
      3      4

Enter elements for second matrix:
5 6 7 8

Second matrix is:
      5      6
      7      8

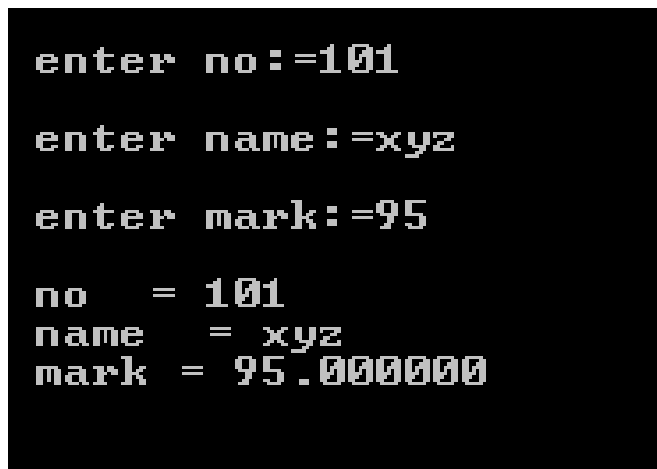
Addition of two Matrix is:
      6      8
     10     12
```

```
/*4.8 Program to get information of student using structure variable.*/

#include<stdio.h>
#include<conio.h>
struct stud
{
    int no;
    char name[30];
    float mark;
}s1;

void main()
{
    clrscr();
    printf("\n enter no:=");
    scanf("%d",&s1.no);
    printf("\n enter name:=");
    scanf("%s",&s1.name);
    printf("\n enter mark:=");
    scanf("%f",&s1.mark);
    printf("\n no = %d ",s1.no);
    printf("\n name = %s",s1.name);
    printf("\n mark = %f",s1.mark);
    getch();
}
```

 Output:



```
enter no:=101
enter name:=xyz
enter mark:=95

no = 101
name = xyz
mark = 95.000000
```



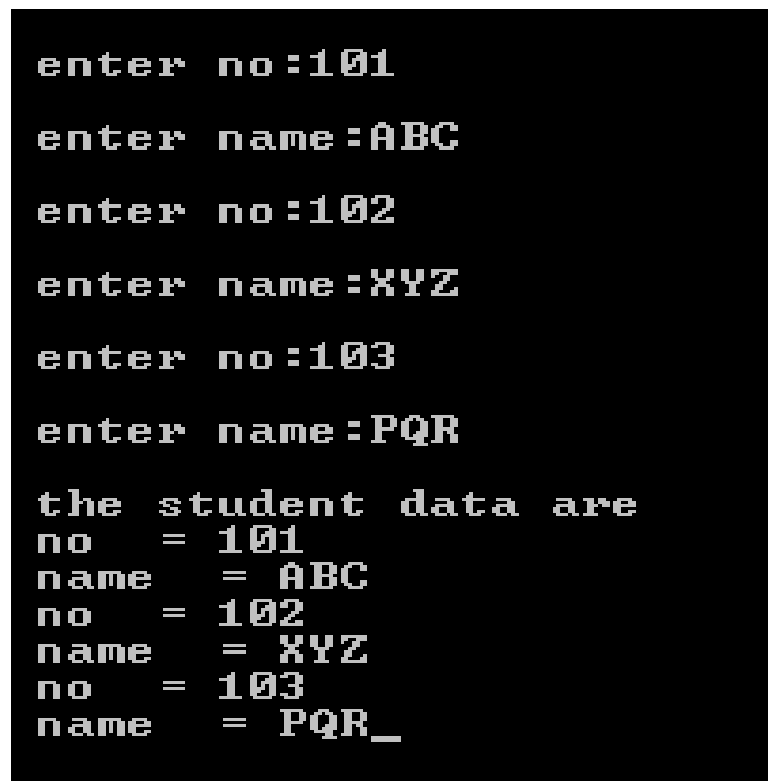
```
/* 4.9 Program to get information of student using Array with structure. */

#include<stdio.h>
#include<conio.h>
struct stud
{
    int no;
    char name[30];
}s1[3];

void main()
{
    int i;
    clrscr();
    for(i=0;i<3;i++)
    {
        printf("\n enter no:");
        scanf("%d",&s1[i].no);
        printf("\n enter name:");
        scanf("%s",&s1[i].name);
    }
    printf("\n the student data are");
    for(i=0;i<3;i++)
    {
        printf("\n no = %d ",s1[i].no);
        printf("\n name = %s",s1[i].name);

    }
    getch();
}
```

 **Output:**



```
enter no:101
enter name:ABC
enter no:102
enter name:XYZ
enter no:103
enter name:PQR

the student data are
no = 101
name = ABC
no = 102
name = XYZ
no = 103
name = PQR_
```

```
/* 4.10 Program to create a structure book which have members like no,
   name,prize & display it. Using input and output function. */

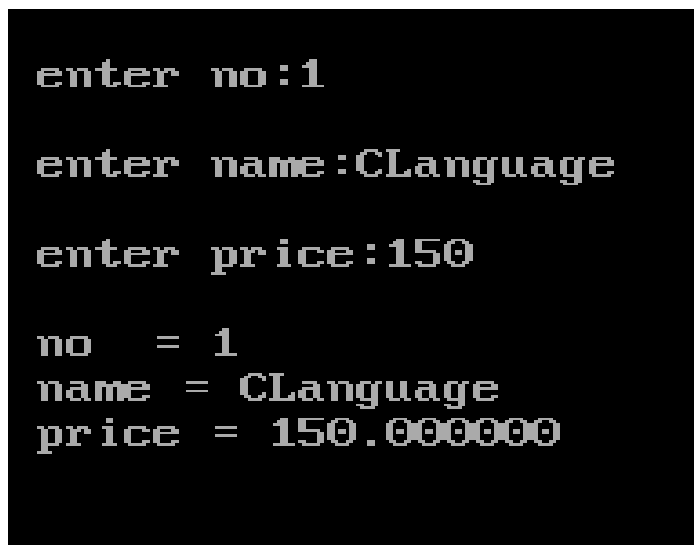
#include<stdio.h>
#include<conio.h>
void input();
void output();
struct book
{
    int no;
    char name[30];
    float price;
}b1;

void main()
{
    clrscr();
    input();
    output();
    getch();
}

void input()
{
    printf("\n enter no:");
    scanf("%d",&b1.no);
    printf("\n enter name:");
    scanf("%s",&b1.name);
    printf("\n enter price:");
    scanf("%f",&b1.price);
}

void output()
{
    printf("\n no = %d",b1.no);
    printf("\n name = %s",b1.name);
    printf("\n price = %f",b1.price);
}
```

Output:



```
enter no:1
enter name:CLanguage
enter price:150

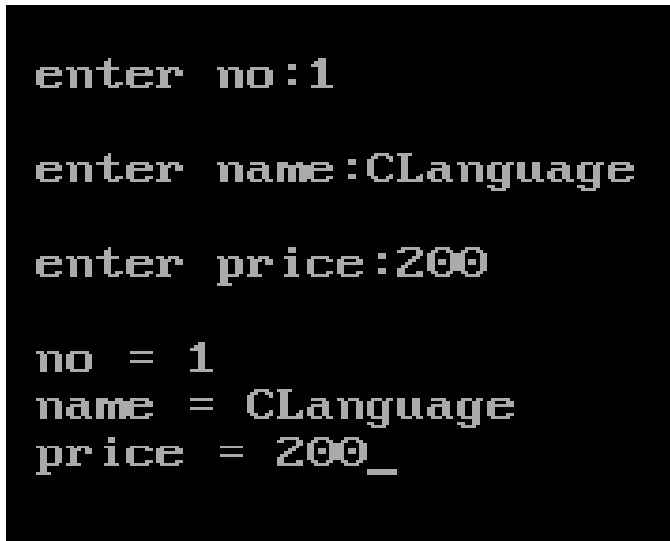
no = 1
name = CLanguage
price = 150.000000
```

```
/* 4.11 Program to create a structure book which have members like
no,name,prize & display it. Using pointer with structure. */

#include<stdio.h>
#include<conio.h>
struct book
{
    int no;
    char name[30];
    int price;
}b1;

void main()
{
    struct book *p;
    clrscr();
    p=&b1;
    printf("\n enter no");
    scanf("%d",&p->no);
    printf("\n enter name");
    scanf("%s",&p->name);
    printf("\n enter price");
    scanf("%d",&p->price);
    printf("\n no = %d",p->no);
    printf("\n name = %s",p->name);
    printf("\n price = %d",p->price);
    getch();
}
```

 **Output:**



```
enter no:1
enter name:CLanguage
enter price:200

no = 1
name = CLanguage
price = 200_
```

Chapter-5
Pointer
&
File Handling

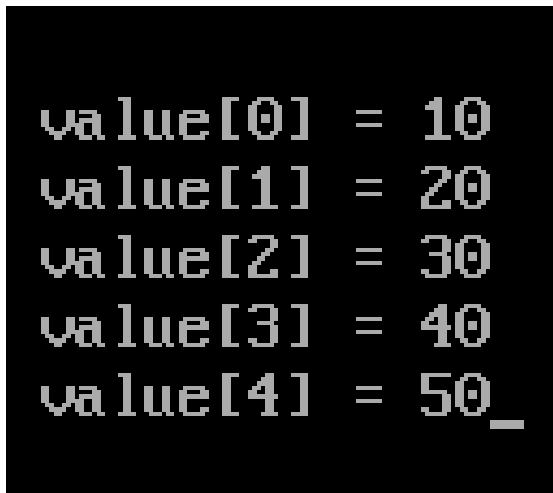
```
/* 5.1 Program to print array value using pointer. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int A[5],*p,i;  
    clrscr();  
    for(i=0;i<5;i++)  
    {  
        printf("\n enter array");  
        scanf("%d",&A[i]);  
    }  
    p=A;  
    for(i=0;i<5;i++)  
    {  
        printf("\n the address of %d is %u",A[i],p);  
        p++;  
    }  
    getch();  
}
```

 Output:

```
enter element:4  
  
enter element:6  
  
enter element:7  
  
enter element:8  
  
enter element:3  
  
the address of 4 is 65516  
the address of 6 is 65518  
the address of 7 is 65520  
the address of 8 is 65522  
the address of 3 is 65524_
```

```
/* 5.2 Program to print array value using pointer. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int A[5]={10,20,30,40,50};  
    int i,*p;  
    clrscr();  
    p=A;  
    for(i=0;i<5;i++)  
    {  
        printf("\n value[%d] = %d",i,*p);  
        p++;  
    }  
    getch();  
}
```

🚩 Output:

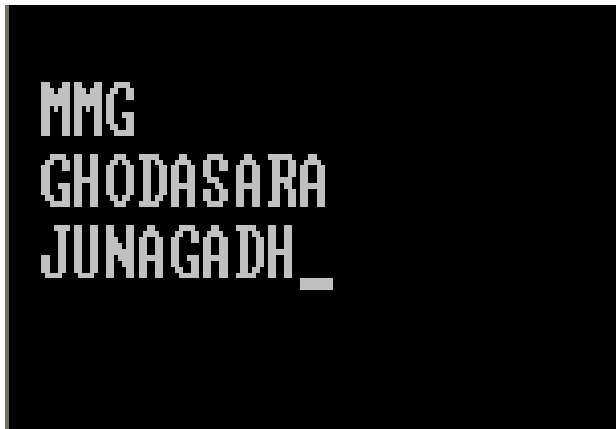


A screenshot of a terminal window with a black background and white text. The output shows five lines of text, each representing an element of the array: value[0] = 10, value[1] = 20, value[2] = 30, value[3] = 40, and value[4] = 50. The text is displayed in a monospaced font.

```
value[0] = 10  
value[1] = 20  
value[2] = 30  
value[3] = 40  
value[4] = 50_
```

```
/* 5.3 Program to print char array value using pointer. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    char *A[10]={"MMG", "GHODASARA", "JUNAGADH"};  
    int i;  
    clrscr();  
    for(i=0;i<3;i++)  
    {  
        printf("\n %s",A[i]);  
    }  
    getch();  
}
```

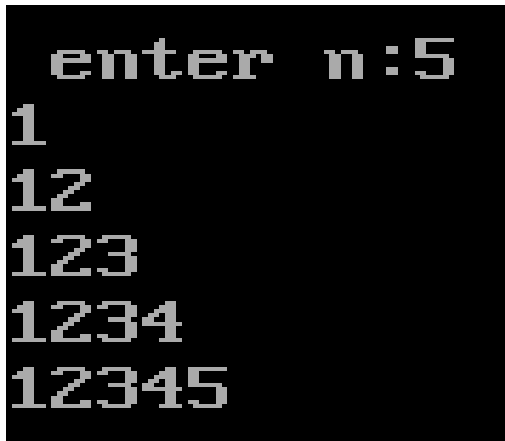
 **Output:**



```
MMG  
GHODASARA  
JUNAGADH_
```

```
/* 5.4 Program to print pyramind according to user input. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
  
    int i,j,n;  
    int *p;  
    clrscr();  
    printf("\n enter n:");  
    scanf("%d",&n);  
    p=&n;  
    for(i=1;i<=*p;i++)  
    {  
        for(j=1;j<=i;j++)  
        {  
            printf("%d",j);  
        }  
        printf("\n");  
    }  
    getch();  
}
```

 Output:



```
enter n:5  
1  
12  
123  
1234  
12345
```



```
/* 5.5 Program to print " HELLO " and address. */

#include<stdio.h>
#include<conio.h>
void main()
{
    char *name;
    char *p;
    clrscr();
    name="HELLO";
    p=name;
    printf("\n name = %s",name);
    while(*p != '\0')
    {
        printf("\n the address of %c is %u",*p,p);
        p++;
    }
    getch();
}
```

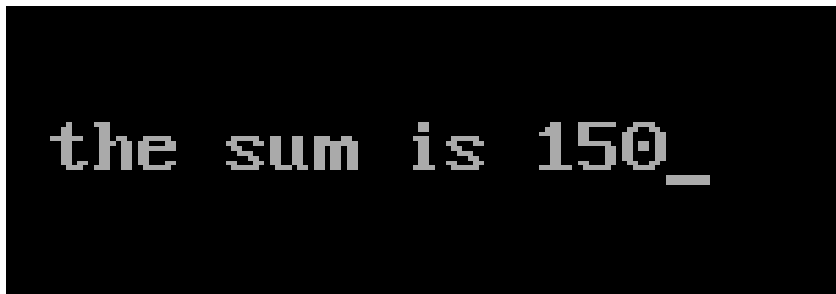
 Output:



```
name = HELLO
the address of H is 170
the address of E is 171
the address of L is 172
the address of L is 173
the address of O is 174
```

```
/* 5.6 Program to print sum of array using pointer. */  
  
#include<stdio.h>  
#include<conio.h>  
void main()  
{  
    int A[5]={10,20,30,40,50};  
    int *p,i,sum=0;  
    clrscr();  
    p=A;  
    for(i=0;i<5;i++)  
    {  
        sum=sum+*p;  
        p++;  
    }  
    printf("\n the sum is %d",sum);  
    getch();  
}
```

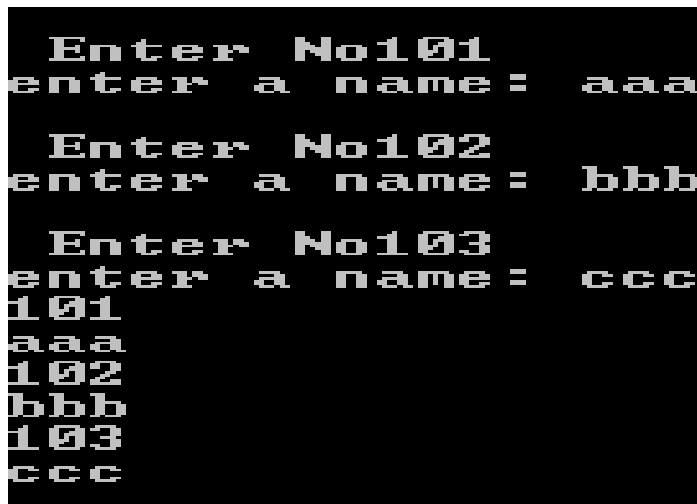
🚩 Output:



the sum is 150_

```
/* 5.7 Program for the use of fopen and fclose function. */  
  
#include <stdio.h>  
void main ()  
{  
    FILE * fp;  
    int n,no;  
    char name [100];  
    clrscr();  
    fp = fopen ("d:\\myfile.txt", "w");  
    for(n=0;n<3;n++)  
    {  
        printf(" \n Enter No:");  
        scanf("%d",&no);  
        printf("enter a name: ");  
        scanf("%s",name);  
        fprintf (fp, "%d\t%s\n",no,name);  
    }  
    fclose (fp);  
    fp = fopen ("d:\\myfile.txt", "r");  
    for (n=0 ; n<6 ; n++)  
    {  
        fscanf(fp,"%s\n",name);  
        printf("%s\n",name);  
    }  
    fclose (fp);  
    getch();  
}
```

📌 Output:



```
Enter No101  
enter a name: aaa  
  
Enter No102  
enter a name: bbb  
  
Enter No103  
enter a name: ccc  
101  
aaa  
102  
bbb  
103  
ccc
```

```
/* 5.8 Program for the use of fgets and fputs function. */

#include<stdio.h>
#include<conio.h>
void main()
{
    FILE *fp;
    char nm[5],nm1[5];
    clrscr();

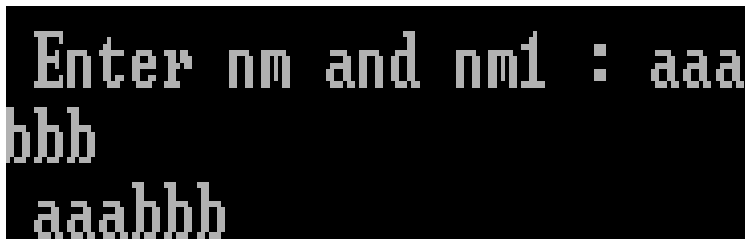
    printf(" \n Enter nm and nm1 : ");
    scanf("%s%s",&nm,&nm1);
    fp=fopen("d:\\demofgetput.txt","w");

    fputs(nm,fp);
    fputs(nm1,fp);

    fclose(fp);
    fp=fopen("d:\\demofgetput.txt","r");

    while(feof(fp) == 0)
    {
        fgets(nm,5,fp);
        printf("%s",nm);
    }
    fclose(fp);
    getch();
}
```

🚩 Output:



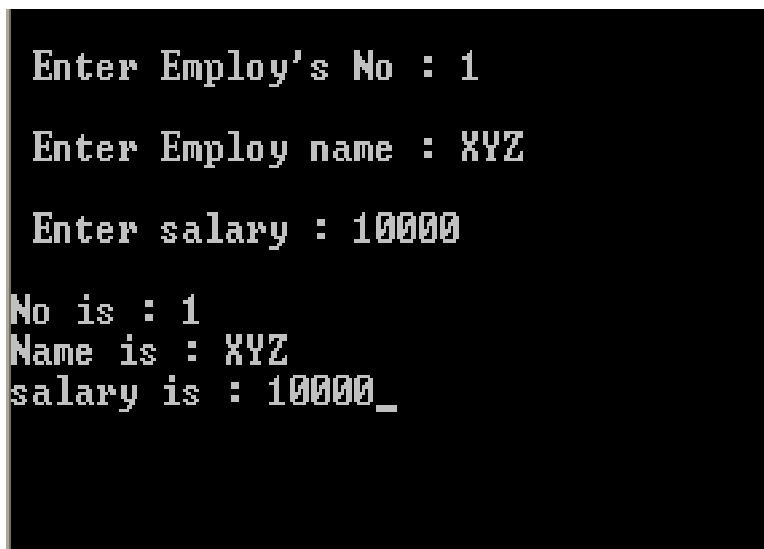
```
Enter nm and nm1 : aaa
bbb
aaabbb_
```

```
/* 5.9 Program for structure with file. */

#include<stdio.h>
#include<conio.h>
struct em
{
    int emno;
    char nm[20];
    int salary;
}s;

void main()
{
    FILE *fp;
    clrscr();
    printf(" \n Enter Employ's No : ");
    scanf("%d",&s.emno);
    printf(" \n Enter Employ name : ");
    scanf("%s",s.nm);
    printf(" \n Enter salary : ");
    scanf("%d",&s.salary);
    fp=fopen("d:\\emp.txt","wb");
    fwrite(&s,sizeof(s),1,fp);
    fclose(fp);
    fp=fopen("d:\\emp.txt","rb");
    fread(&s,sizeof(s),1,fp);
    printf("\nNo is : %d",s.emno);
    printf("\nName is : %s",s.nm);
    printf("\nsalary is : %d",s.salary);
    getch();
}
```

 Output:



```
Enter Employ's No : 1
Enter Employ name : XYZ
Enter salary : 10000
No is : 1
Name is : XYZ
salary is : 10000_
```

```
/* 5.10 Program for the use of command line argument. */

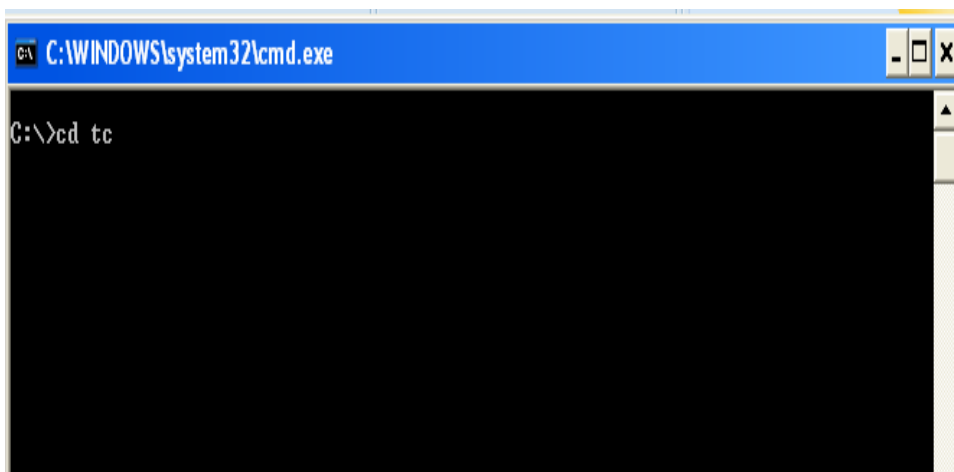
#include<stdio.h>
#include<stdlib.h>
void main(int argc,char *argv[])
{
    char a;
    FILE *fp,*fp1;
    int i;
    printf("\n\ntotal no of argument are %d",argc);

    if(argc!=3)
    {
        printf("Not sufficient argument \n minimum 3 arg required");
        exit(0);
    }
    fp=fopen(argv[1],"r");
    fp1=fopen(argv[2],"w");

    while(feof(fp)==0)
    {
        a=getc(fp);
        putc(a,fp1);
    }
    printf("\n\n(1) files copied");
    fclose(fp);
    fclose(fp1);
}
```

Steps to run program:-

1. Compile and run the program in tc.
2. Open cmd from start->run->cmd
3. Set your path in cmd.(for example your program is in folder d:\c then first write d: and press enter then write cd c and press enter your screen look like below.)

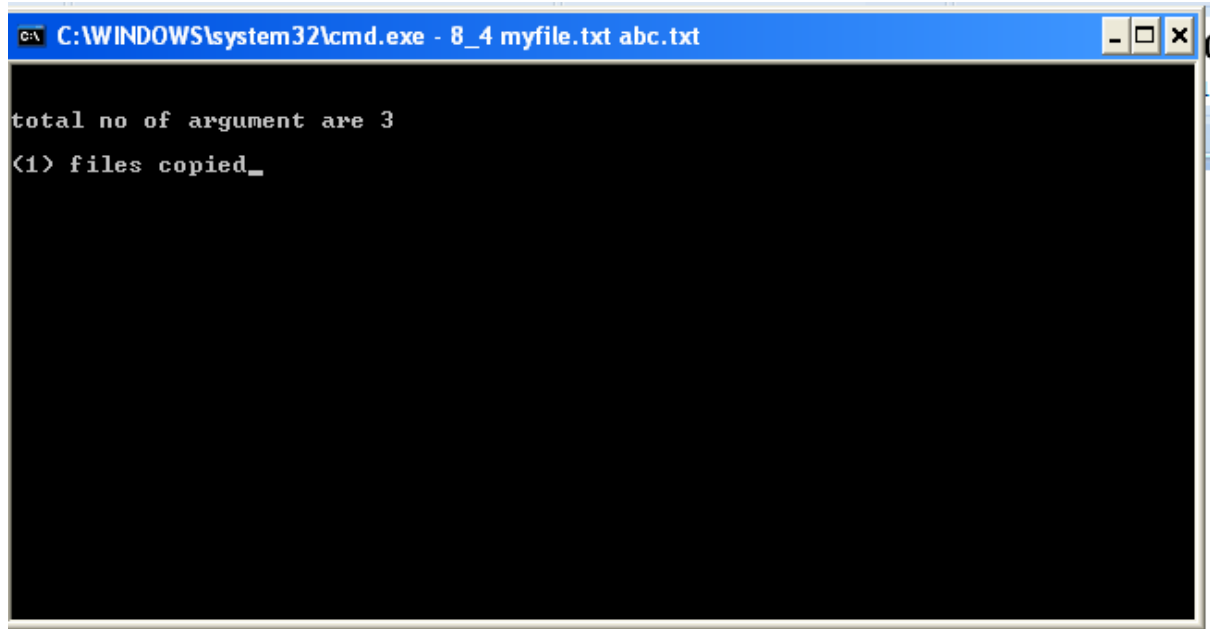


4. Then write 8_4 myfile.txt abc.txt
(Note :- you have to first create myfile.txt in notepad)

Note :-

If this steps does not work then put the programs(5_10,myfile.txt) into your tc folder.

Output:

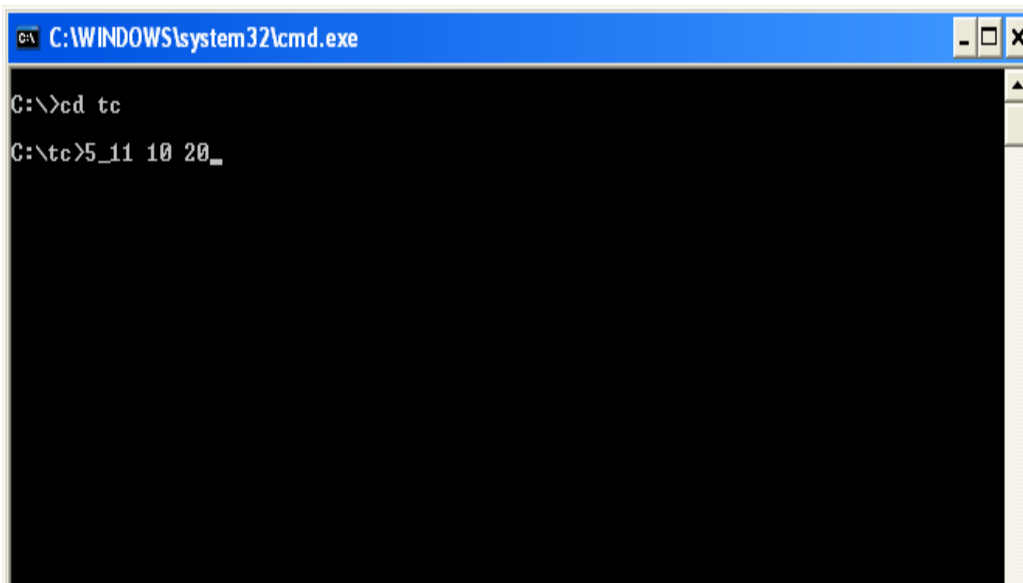


```
C:\WINDOWS\system32\cmd.exe - 8_4 myfile.txt abc.txt
total no of argument are 3
<1> files copied_
```

```
/* 5.11 Program for the use of command line argument.*/  
  
#include<stdio.h>  
#include<stdlib.h>  
void main(int argc,char *argv[])  
{  
    char a;  
    FILE *fp,*fp1;  
    int i;  
    printf("\n\ntotal no of argument are %d",argc);  
  
    if(argc!=3)  
    {  
        printf("Not sufficient argument \n minimum 3 arg required");  
        exit(0);  
    }  
  
    for(i=0;i<argc;i++)  
        printf("\n%s\n",argv[i]);  
    printf("sum is %d",atoi(argv[1])+atoi(argv[2]));  
}
```

Output:

Follow the stpes as above program



```
C:\WINDOWS\system32\cmd.exe  
C:\>cd tc  
C:\tc>5_11 10 20_
```


**Lab Manual
Developed at
Computer Science Laboratory
Of
Shree M.M.Ghodasara Mahila College
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~ There is no alteration of Hardwork. ~