1) WAP to print Fibonacci series.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a=0,b=1,c,i,number;

clrscr();

printf("Enter the value:");

scanf("%d",&number);

for(i=2;i<number;i++)

{

c=a+b;

printf("%d\n",c);

a=b;

b=c;

}

getch();

}
```

Output:

```
Enter the value:8
1
2
3
5
8
13
```

2) <u>WAP to check prime number.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,c=0;

clrscr();

printf("Enter any number a:");

scanf("%d",&a);

for(b=1; b<=a; b++)

{

if(a%b==0)

{

c++;

}

}

if(c==2)

{

printf("n is a prime number");

}

else

{

printf("n is not a prime number");

}

getch();

}
```

<u>Output:</u>

```
Enter any number a:8
m is not a prime number_
```

3) <u>WAP to check Palindrome Number.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int n,r,sum=0,temp;

clrscr();

printf("Enter the number=");

scanf("%d",&n);

temp=n;

while(n>0)

{

r=n%10;

sum=(sum*10)+r;

n=n/10;

}

if(temp==sum)

printf("Palindrome number");

else

printf("Not palindrome");

getch();

}
```

<u>Output:</u>

```
Enter the number=66
Palindrome number
```

4) WAP to print Factorial of a number.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a,i,factorial=1;

clrscr();

printf("Enter the number for factorial");

scanf("%d",&a);

for(i=1; i<=a; i++)

{

factorial=factorial*i;

}

printf("Factorial of number %d and %d",a,factorial);

getch();

}
```
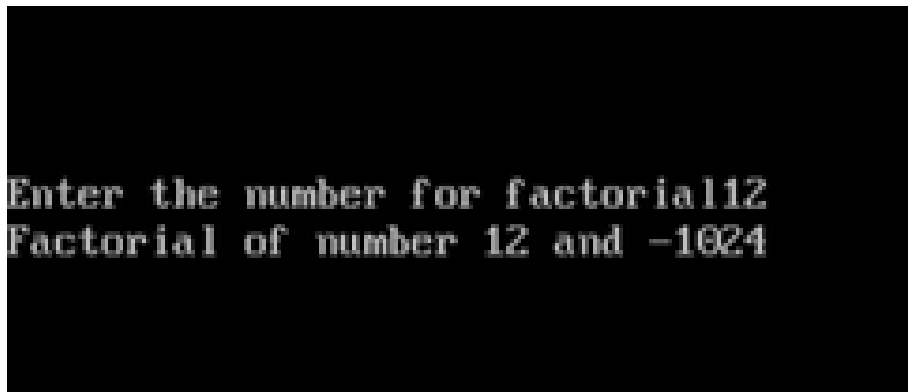

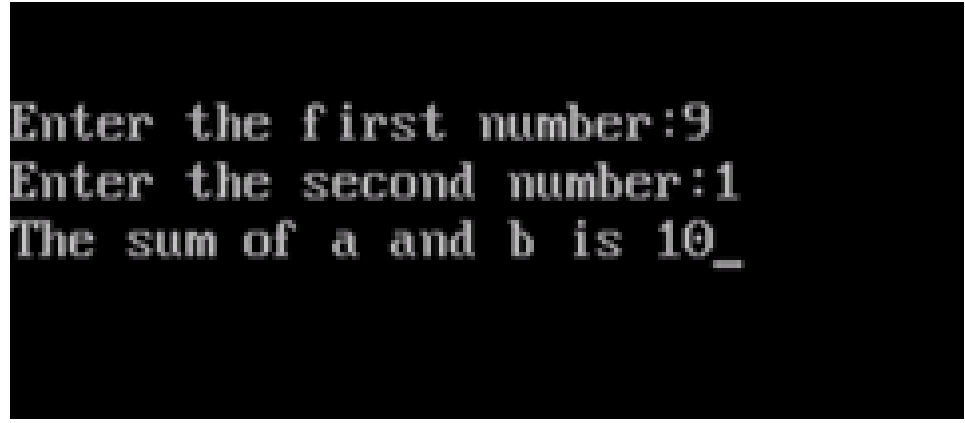**Output:**

5) WAP to print sum of digits.

```c
#include<stdio.h>

#include<conio.h>

void main()
```

```c
{
int a,b,c;
clrscr();
printf("Enter the first number:");
scanf("%d",&a);
printf("Enter the second number:");
scanf("%d",&b);
c=a+b;
printf("The sum of a and b is %d",c);
getch();
}
```

```
Enter the first number:9
Enter the second number:1
The sum of a and b is 10_
```

Output:

6) WAP to find the largest number among n input Numbers.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int i,num,n,large=0;
clrscr();
printf("How many numbers:");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("\n Enter number %d:",i+1);
scanf("%d",&num);
if(num>large)
large=num;
}
printf("\n\n The largest number is %d",large);
getch();
}
```

Output:

```
How many numbers:2

 Enter number 1:34

 Enter number 2:56


 The largest number is 56
```

7) WAP to check if input number is int or float.

```c
#include<stdio.h>

#include<conio.h>

#include<math.h>

void main()

{

float n;

int x;

clrscr();

printf("Enter the number:-->");

scanf("%f",&n);

x= floor(n);

if(x==n)

{

printf("The entered number is an integer\n");

}

else

{

printf("The entered number is float\n");

}

getch();

}
```

Output:

```
Enter the number:-->6.8
The entered number is float
```

8) WAP to Multiply two floating point numbers.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

float number1,number2,product;

clrscr();

printf("Enter the first number:");

scanf("%f",&number1);

printf("Enter the second number:");

scanf("%f",&number2);

product=number1*number2;

printf("The product of the number is:%.3f",product);

getch();

}
```
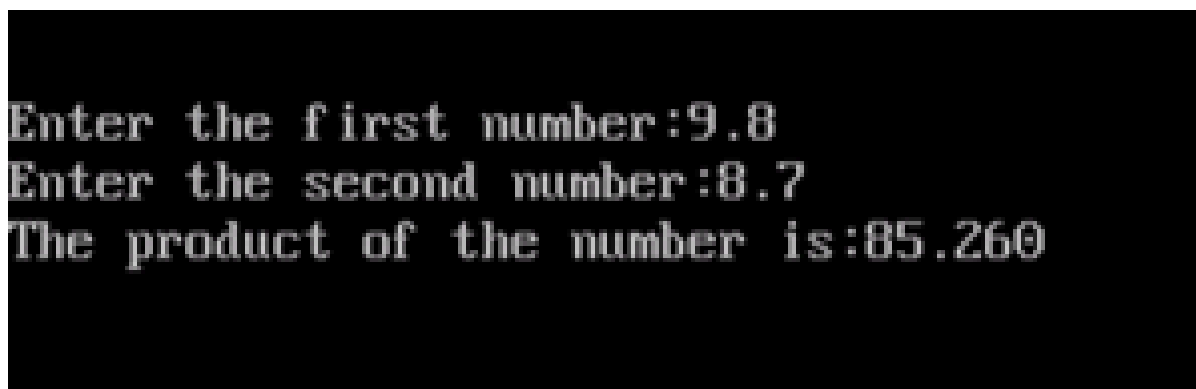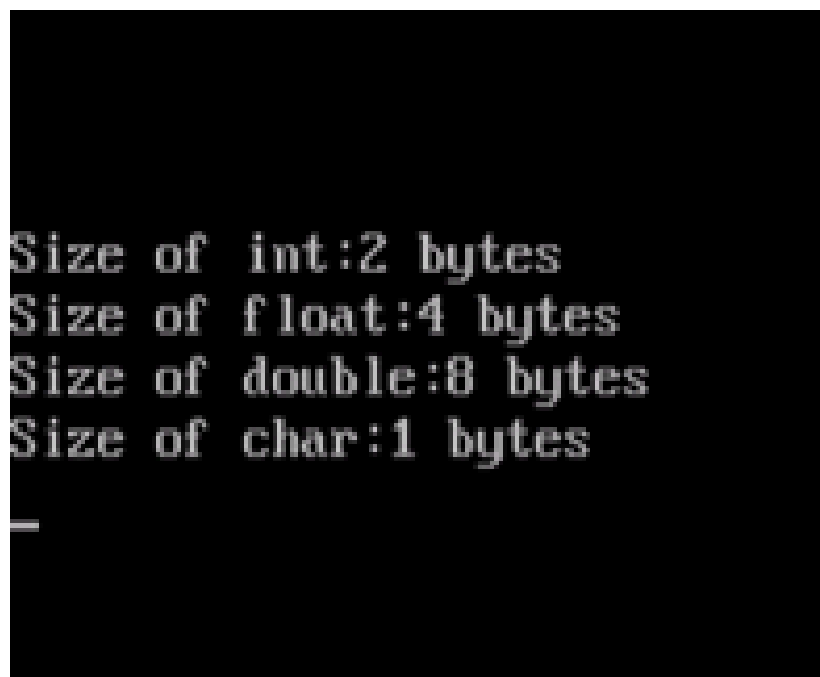
Output:

9) WAP to find the Size of int,float,double and char.

```c
#include<stdio.h>

#include<conio.h>

void main()
```

```c
{
clrscr();
printf("Size of int:%d bytes\n",sizeof(int));
printf("Size of float:%d bytes\n",sizeof(float));
printf("Size of double:%d bytes\n",sizeof(double));
printf("Size of char:%d bytes\n",sizeof(char));
getch();
}
```

```
Size of int:2 bytes
Size of float:4 bytes
Size of double:8 bytes
Size of char:1 bytes
```

Output:

10) <u>**WAP to add two complex numbers.**</u>

```c
#include<stdio.h>
#include<conio.h>
struct complex
{
float real;
float imag;
};
void main()
{
struct complex num1,num2,sum;
clrscr();
printf("Enter real and imaginary parts of the first complex number:\n");
printf("Real:");
scanf("%f",&num1.real);
printf("Imaginary:");
scanf("%f",&num1.imag);
printf("\n Enter real imaginary parts of the second complex number:\n");
printf("Real:");
scanf("%f",&num2.real);
printf("Imaginary:");
scanf("%f",&num2.imag);
sum.real=num1.real+num2.real;
sum.imag=num1.imag+num2.imag;
printf("\n Sum of the two complex numbers: %2.f+%.2fi\n",sum.real,sum.imag);
getch();
}
```

<u>**Output:**</u>

```
Enter real and imaginary parts of the first complex number:
Real:1.2
Imaginary:2.2

 Enter real imaginary parts of the second complex number:
Real:1.3
Imaginary:2.3

 Sum of the two complex numbers:  2+4.50i
```

C PROGRAMS

11) <u>WAP to check whether the number is Armstrong or not.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int num,rem,total=0,temp;

clrscr();

printf("Enter the number:");

scanf("%d",&num);

temp=num;

while(num>0)

{

rem=num%10;
```
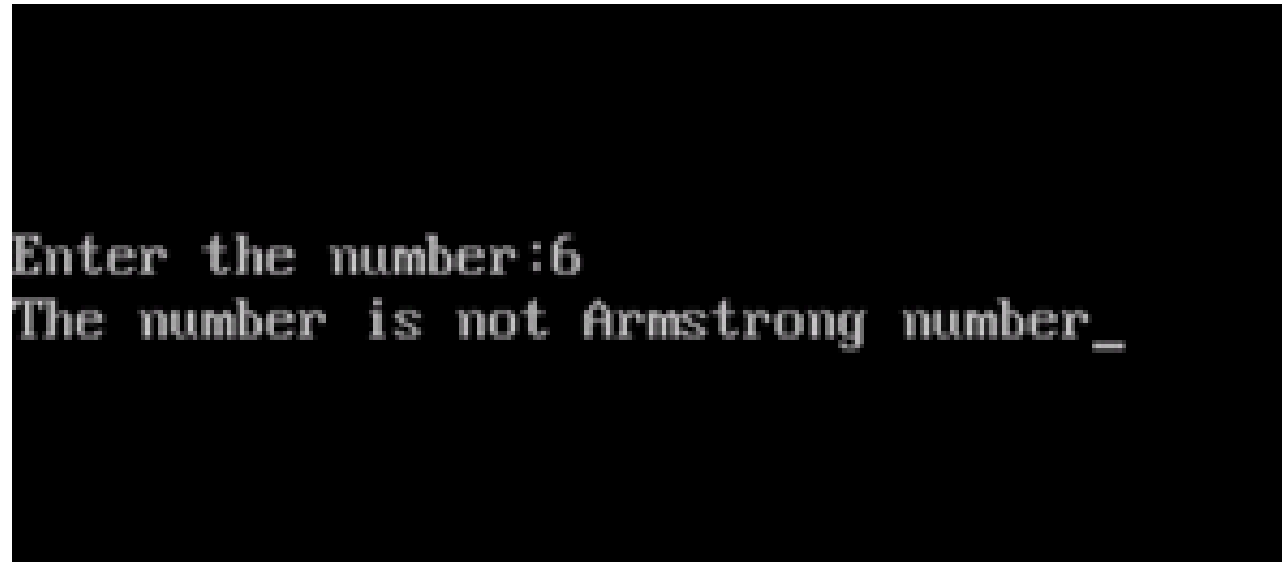
```c
total=total+(rem*rem*rem);

num=num/10;

}

if(temp==total)

printf("The number is Armstrong number");

else

printf("The number is not Armstrong number");

getch();

}
```

Output:

12) WAP to display the Armstrong numbers between 1 to 1000.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int num,count=1,rem,sum;

clrscr();

while(count<=1000)

{

num=count;

sum=0;

while(num)

{

rem=num%10;

sum=sum+(rem*rem*rem);

num=num/10;

}

if(count==sum)

{

printf("%d is a Armstrong number\n",count);

}

count++;

}

getch();

}
```

Output:

```
1 is a Armstrong number
153 is a Armstrong number
370 is a Armstrong number
371 is a Armstrong number
407 is a Armstrong number
```

13) <u>WAP to display the reverse number.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int num,r,sum=0,t;

clrscr();

printf("Enter the number:");

scanf("%d",&num);

for(t=num;num!=0;num=num/10)

{

r=num%10;

sum=sum*10+r;

}

printf("The number in reversed order is: %d\n",sum);

getch();

}
```
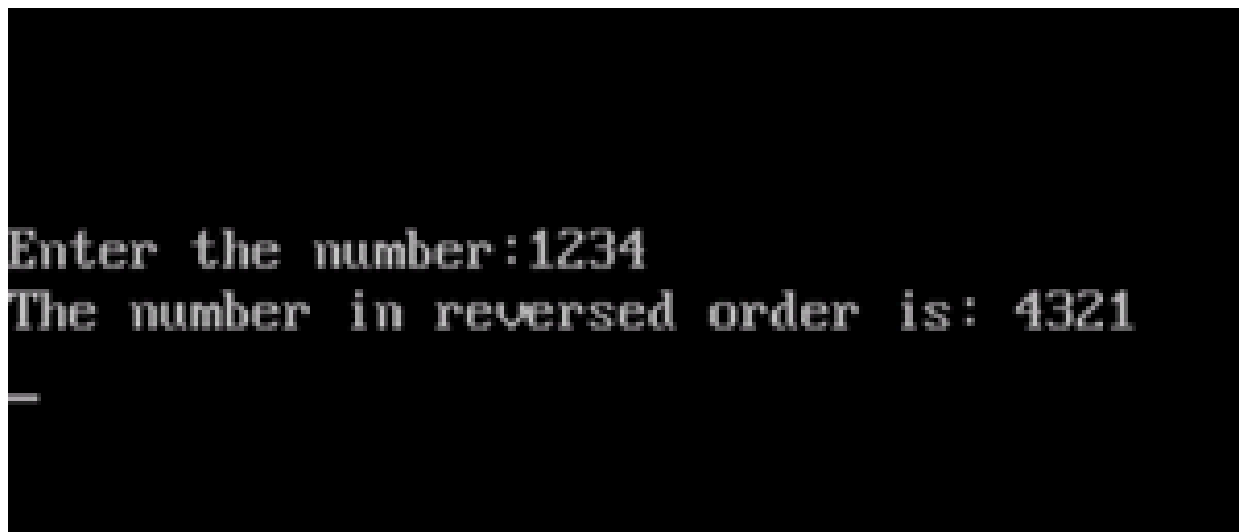
<u>Output:</u>

14) <u>WAP to display all factors of a number.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int i,number;

clrscr();

printf("\n Enter any number to find factors\n");

scanf("%d",&number);

printf("\n Factors of the given numbers are:\n");

for(i=1;i<=number;i++)

{

if(number%i==0)

{

printf("\n%d",i);

}

}

getch();

}
```

<u>Output:</u>

```
 Enter any number to find factors
1234

 Factors of the given numbers are:

1
2
617
1234_
```

15) <u>WAP to display half pyramid.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int rows,columns,n=5;

clrscr();

for(rows=1;rows<=n;rows++)

{

for(columns=1; columns<=rows; columns++)

{

printf("%d",rows);

}

printf("\n");

}

getch();

}
```

<u>Output:</u>

```
1
22
333
4444
55555
```

16) WAP to calculate the factorial of a number using recursion.

```c
#include<stdio.h>
#include<conio.h>
int fact(int);
void main()
{
int num;
clrscr();
printf("Enter a number:");
scanf("%d",&num);
printf("Factorial of %d is %d.",num,fact(num));
getch();
}
int fact(int n)
{
if(n>=1)
return(n*fact(n-1));
else
return 1;
}
```

Output:

```
Enter a number:4
Factorial of 4 is 24._
```

17) <u>WAP to find the GCD or HCF of two numbers</u>.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,gcd;

clrscr();

printf("Enter the two numbers:\n");

scanf("%d\n",&a);

scanf("%d",&b);

for(int i=1; i<=a &&i<=b; i++)

{

if(a %i==0 && b%i==0)

{

gcd=i;

}

}

printf("GCD of %d and %d is: %d",a,b,gcd);

getch();

}
```

<u>Output:</u>

```
Enter the two numbers:
4
6
GCD of 4 and 6 is: 2
```

18) <u>WAP to calculate the power of a number.</u>

#include<stdio.h>

#include<conio.h>

#include<math.h>

void main()

{

int n,x,s;

clrscr();

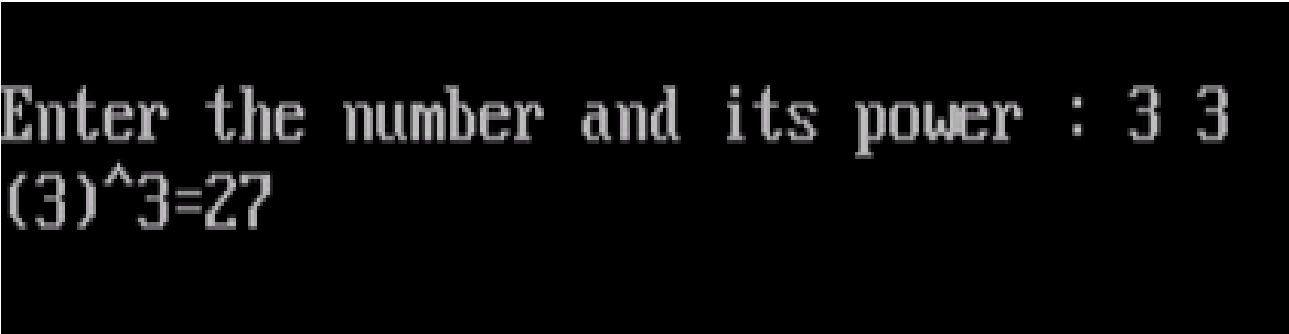printf("Enter the number and its power : ");

scanf("%d %d",&n,&x);

s=pow(n,x);

printf("(%d)^%d=%d",n,x,s);

```
getch();

}
```

Output:


```
Enter the number and its power : 3 3
(3)^3=27
```

19) WAP to find the largest number in an array.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int i;

long int x;

long int arr[10000];

clrscr();

printf("Enter the number of elements : ");

scanf("%ld",&x);

for(i=0;i<x;i++){

   printf("Enter number %d : ",i+1);

   scanf("%ld",&arr[i]);

  }

for(i=1;i<x;i++){

  if(arr[0]<arr[i]){

    arr[0]=arr[i]; }

  }
```
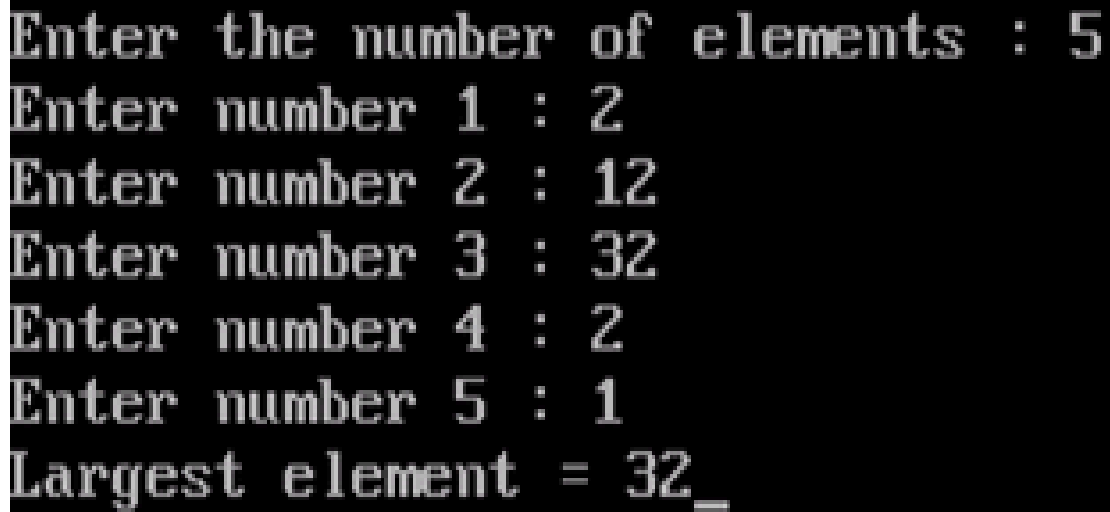
```c
printf("Largest element = %ld",arr[0]);

getch();

}
```

Output:

```
Enter the number of elements : 5
Enter number 1 : 2
Enter number 2 : 12
Enter number 3 : 32
Enter number 4 : 2
Enter number 5 : 1
Largest element = 32_
```

C PROGRAMS

20) WAP to check maximum and minimum size of an array.

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


int main()
{
    int a[1000],i,n,min,max;
    clrscr();

    printf("Enter size of the array : ");
    scanf("%d",&n);

    printf("Enter elements in array : ");
    for(i=0; i<n; i++)
    {
        scanf("%d",&a[i]);
    }

    min=max=a[0];
    for(i=1; i<n; i++)
    {
        if(min>a[i])
    min=a[i];
    if(max<a[i])
    max=a[i];
    }
    printf("minimum of array is : %d",min);
    printf("\nmaximum of array is : %d",max);
```

getch();

return 0;

}

Output:

```
Enter elements in array: 1
2
3
4
5
minimum of an array is: 1
maximum of an array is: 5
```

21) <u>WAP to read the matrix and product of the matrix.</u>

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,l1,l2,p=1;
int m[100][100];
clrscr();
printf("Enter the number of rows and columns of the matrix : ");
scanf("%d %d",&a,&b);
m[a][b];
printf("\nEnter the elements of the matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("Enter element [%d,%d] : ",l1+1,l2+1);
    scanf("%d",&m[l1][l2]);
    p*=m[l1][l2];
    }
  }
printf("\nThe entered matrix is : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("%d\t",m[l1][l2]);
    }
  printf("\n");
  }
printf("\nThe product of the matrix is : %d",p);
getch();
```

}

C PROGRAMS

Output:

```
Enter the number of rows and columns of the matrix : 2 2

Enter the elements of the matrix :
Enter element [1,1] : 2
Enter element [1,2] : 3
Enter element [2,1] : 4
Enter element [2,2] : 6

The entered matrix is :
2       3
4       6

The product of the matrix is : 144_
```

22) <u>WAP to find the sum of all elements in each row.</u>

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,l1,l2,m[100][100],x;
clrscr();
printf("Enter the number of rows and columns of the matrix : ");
scanf("%d %d",&a,&b);
m[a][b];
printf("Enter the elements of the matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    scanf("%d",&m[l1][l2]);
    }
  }
printf("The matrix you entered : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("%d\t",m[l1][l2]);
    }
  printf("\n");
  }
for(l1=0;l1<a;l1++){
  x=0;
  for(l2=0;l2<b;l2++){
    x=x+m[l1][l2];
    }
```

```c
        printf("The sum of row %d is = %d\n",l1+1,x);

    }

getch();

}
```

C PROGRAMS

Output:

```
Enter the number of rows and columns of the matrix : 2 2
Enter the elements of the matrix :
1 2 3 4
The matrix you entered :
1       2
3       4
The sum of row 1 is = 3
The sum of row 2 is = 7
```

23) <u>WAP to read the matrix and print its diagonals</u>.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,l1,l2;

int m[100][100];

clrscr();

printf("Enter the number of rows and columns of the matrix : ");

scanf("%d %d",&a,&b);

m[a][b];

printf("\nEnter the elements of the matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m[l1][l2]);

    }

  }

printf("The entered matrix is : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("%d\t",m[l1][l2]);

    }

  printf("\n");

  }

if(a==b){

  printf("Diagonals of this matrix : \n");

  for(l1=0;l1<b;l1++){
```

```c
    for(l2=0;l2<a;l2++){
if(l1==l2)
  printf("%d\t",m[l2][l1]);
else
  printf("\t");
}
    printf("\n");
    }
  }
else{
  printf("\nMatrix is not a square matrix");
  }
getch();
}
```

Output:

```
Enter the number of rows and columns of the matrix : 3 3

Enter the elements of the matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [1,3] : 3
Enter element [2,1] : 4
Enter element [2,2] : 5
Enter element [2,3] : 6
Enter element [3,1] : 7
Enter element [3,2] : 8
Enter element [3,3] : 9
The entered matrix is :
1          2          3
4          5          6
7          8          9
Diagonals of this matrix :
1
           5
                      9
```

24) <u>WAP to display the sum of two matrix</u>.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int l1,l2,a,b;
int m1[100][100], m2[100][100], m3[100][100];
clrscr();
printf("Enter the size of the matrix : ");
scanf("%d %d",&a,&b);
printf("\nEnter the elements of the 1st matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("Enter element [%d,%d] : ",l1+1,l2+1);
    scanf("%d",&m1[l1][l2]);
    }
  }
printf("\nEnter the elements of the 2nd matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("Enter element [%d,%d] : ",l1+1,l2+1);
    scanf("%d",&m2[l1][l2]);
    m3[l1][l2]=m1[l1][l2]+m2[l1][l2];
    }
  }
printf("The 1st matrix is : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
```

```c
      printf("%d\t",m1[l1][l2]);
      }
    printf("\n");
    }
printf("The 2nd matrix is : \n");
for(l1=0;l1<a;l1++){
    for(l2=0;l2<b;l2++){
      printf("%d\t",m2[l1][l2]);
      }
    printf("\n");
    }
printf("The solution to the addition of these two matrix :\n");
for(l1=0;l1<a;l1++){
    for(l2=0;l2<b;l2++){
      printf("%d\t",m3[l1][l2]);
      }
    printf("\n");
    }
getch();
}
```

```
Enter the size of the matrix : 2 2

Enter the elements of the 1st matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [2,1] : 3
Enter element [2,2] : 4

Enter the elements of the 2nd matrix :
Enter element [1,1] : 5
Enter element [1,2] : 6
Enter element [2,1] : 7
Enter element [2,2] : 8
The 1st matrix is :
1       2
3       4
The 2nd matrix is :
5       6
7       8
The solution to the addition of these two matrix :
6       8
10      12
```

Output:

25) <u>WAP to display the subtraction of two matrix.</u>

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int l1,l2,a,b;
int m1[100][100], m2[100][100], m3[100][100];
clrscr();
printf("Enter the size of the matrix : ");
scanf("%d %d",&a,&b);
printf("\nEnter the elements of the 1st matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("Enter element [%d,%d] : ",l1+1,l2+1);
    scanf("%d",&m1[l1][l2]);
    }
  }
printf("\nEnter the elements of the 2nd matrix : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("Enter element [%d,%d] : ",l1+1,l2+1);
    scanf("%d",&m2[l1][l2]);
    m3[l1][l2]=m1[l1][l2]-m2[l1][l2];
    }
  }
printf("The 1st matrix is : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
```

```c
        printf("%d\t",m1[l1][l2]);
        }
    printf("\n");
    }
printf("The 2nd matrix is : \n");
for(l1=0;l1<a;l1++){
    for(l2=0;l2<b;l2++){
        printf("%d\t",m2[l1][l2]);
        }
    printf("\n");
    }
printf("The solution to the subtraction of these two matrix :\n");
for(l1=0;l1<a;l1++){
    for(l2=0;l2<b;l2++){
        printf("%d\t",m3[l1][l2]);
        }
    printf("\n");
    }
getch();
}
```

C PROGRAMS

```
Enter the elements of the 1st matrix :
Enter element [1,1] : 12
Enter element [1,2] : 13
Enter element [1,3] : 14
Enter element [2,1] : 15
Enter element [2,2] : 16
Enter element [2,3] : 17

Enter the elements of the 2nd matrix :
Enter element [1,1] : 2
Enter element [1,2] : 1
Enter element [1,3] : 5
Enter element [2,1] : 4
Enter element [2,2] : 7
Enter element [2,3] : 3
The 1st matrix is :
12        13        14
15        16        17
The 2nd matrix is :
2         1         5
4         7         3
The solution to the subtraction of these two matrix :
10        12        9
11        9         14
```

Output:

26) <u>WAP to display the multiplication of two matrix.</u>

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int l1,l2,l3,a,b;

int m1[100][100], m2[100][100], m3[100][100];

clrscr();

printf("Enter the size of the matrix : ");

scanf("%d %d",&a,&b);

printf("\nEnter the elements of the 1st matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m1[l1][l2]);

    }

  }

printf("\nEnter the elements of the 2nd matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m2[l1][l2]);

    }

  }

printf("The 1st matrix is : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("%d\t",m1[l1][l2]);
```

```c
      }
   printf("\n");

   }
printf("The 2nd matrix is : \n");
for(l1=0;l1<a;l1++){

   for(l2=0;l2<b;l2++){

      printf("%d\t",m2[l1][l2]);

      }
   printf("\n");

   }
printf("The product of these two matrix :\n");
for(l1=0;l1<a;l1++){

   for(l2=0;l2<b;l2++){

      m3[l1][l2]=0;

      for(l3=0;l3<b;l3++){

 m3[l1][l2]+=m1[l1][l3]*m2[l3][l2];

 }

      printf("%d\t",m3[l1][l2]);

      }
   printf("\n");

   }
getch();

}
```

C PROGRAMS

Output:

```
Enter the size of the matrix : 2 2

Enter the elements of the 1st matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [2,1] : 3
Enter element [2,2] : 4

Enter the elements of the 2nd matrix :
Enter element [1,1] : 2
Enter element [1,2] : 3
Enter element [2,1] : 4
Enter element [2,2] : 5
The 1st matrix is :
1       2
3       4
The 2nd matrix is :
2       3
4       5
The product of these two matrix :
10      13
22      29
```

27) WAP to check whether the two matrix are identical or not.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int l1,l2,a,b, bool=1;

int m1[100][100], m2[100][100], m3[100][100];

clrscr();

printf("Enter the size of the matrix : ");

scanf("%d %d",&a,&b);

printf("\nEnter the elements of the 1st matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m1[l1][l2]);

    }

  }

printf("\nEnter the elements of the 2nd matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m2[l1][l2]);

    m3[l1][l2]=m1[l1][l2]+m2[l1][l2];

    }

  }

printf("The 1st matrix is : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){
```

```c
        printf("%d\t",m1[l1][l2]);
    }
  printf("\n");

  }
printf("The 2nd matrix is : \n");
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    printf("%d\t",m2[l1][l2]);
    }
  printf("\n");

  }
for(l1=0;l1<a;l1++){
  for(l2=0;l2<b;l2++){
    if(m1[l1][l2] != m2[l1][l2]){
bool=0;
break;
}
    }
  }
if(bool==1){
  printf("The matrices are identical");
  }
else{
    printf("The matrices are not identical");
  }
getch();
}
```
Output:

```
Enter the size of the matrix : 2 2

Enter the elements of the 1st matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [2,1] : 3
Enter element [2,2] : 4

Enter the elements of the 2nd matrix :
Enter element [1,1] : 2
Enter element [1,2] : 3
Enter element [2,1] : 4
Enter element [2,2] : 5
The 1st matrix is :
1       2
3       4
The 2nd matrix is :
2       3
4       5
The matrices are not identical_
```

28) WAP to interchange the rows of a matrix.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,l1,l2,x;

int m[100][100],r1,r2;

clrscr();

printf("Enter the number of rows and columns of the matrix : ");

scanf("%d %d",&a,&b);

m[a][b];

printf("\nEnter the elements of the matrix : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("Enter element [%d,%d] : ",l1+1,l2+1);

    scanf("%d",&m[l1][l2]);

    x+=m[l1][l2];

    }

  }

printf("The entered matrix is : \n");

for(l1=0;l1<a;l1++){

  for(l2=0;l2<b;l2++){

    printf("%d\t",m[l1][l2]);

    }

  printf("\n");

  }

printf("The rows to be interchanged : \n");

scanf("%d %d",&r1,&r2);
```

```c
for(l1=0;l1<a;l1++){

    x=m[r1-1][l1];

    m[r1-1][l1]=m[r2-1][l1];

    m[r2-1][l1]=x;

    }

printf("\nMatrix after interchanging rows : \n");

for(l1=0;l1<a;l1++){

    for(l2=0;l2<b;l2++){

        printf("%d\t",m[l1][l2]);

        }

    printf("\n");

    }

getch();

}
```

Output:

```
Enter the number of rows and columns of the matrix : 3 3

Enter the elements of the matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [1,3] : 3
Enter element [2,1] : 4
Enter element [2,2] : 5
Enter element [2,3] : 6
Enter element [3,1] : 7
Enter element [3,2] : 8
Enter element [3,3] : 9
The entered matrix is :
1       2       3
4       5       6
7       8       9
The rows to be interchanged :
1 3

Matrix after interchanging rows :
7       8       9
4       5       6
1       2       3
```

29) WAP to interchange the columns of a matrix.

#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,l1,l2,x;

int m[100][100],r1,r2;

clrscr();

printf("Enter the number of rows and columns of the matrix : ");

scanf("%d %d",&a,&b);

m[a][b];

printf("\nEnter the elements of the matrix : \n");

for(l1=0;l1<a;l1++){

```c
      for(l2=0;l2<b;l2++){

        printf("Enter element [%d,%d] : ",l1+1,l2+1);

        scanf("%d",&m[l1][l2]);

        x+=m[l1][l2];

        }

      }
    printf("The entered matrix is : \n");

    for(l1=0;l1<a;l1++){

      for(l2=0;l2<b;l2++){

        printf("%d\t",m[l1][l2]);

        }

      printf("\n");

      }
    printf("The columns to be interchanged : \n");

    scanf("%d %d",&r1,&r2);

    for(l1=0;l1<a;l1++){

      x=m[l1][r1-1];

      m[l1][r1-1]=m[l1][r2-1];

      m[l1][r2-1]=x;

      }
    printf("\nMatrix after interchanging columns : \n");

    for(l1=0;l1<a;l1++){

      for(l2=0;l2<b;l2++){

        printf("%d\t",m[l1][l2]);

        }

      printf("\n");

      }
    getch();

    }
```

Output:

```
Enter the number of rows and columns of the matrix : 3 3

Enter the elements of the matrix :
Enter element [1,1] : 1
Enter element [1,2] : 2
Enter element [1,3] : 3
Enter element [2,1] : 4
Enter element [2,2] : 5
Enter element [2,3] : 6
Enter element [3,1] : 7
Enter element [3,2] : 8
Enter element [3,3] : 9
The entered matrix is :
1        2        3
4        5        6
7        8        9
The columns to be interchanged :
2 3

Matrix after interchanging columns :
1        3        2
4        6        5
7        9        8
```

30) WAP to find string length without function in c.
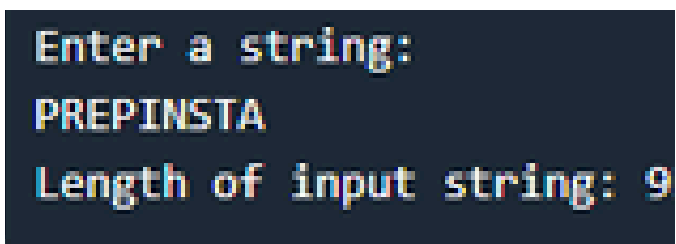
```c
#include<stdio.h>

#include<conio.h>

void main()

{

char l[100];

int l1,size=0;

clrscr();

printf("Enter a string : \n");

scanf("%s",l);

for(l1=0;l[l1]!='\0';l1++){

  size++;

  }

printf("Length of input string: %d",size);

getch();

}
```

Output:

31) WAP to count character in a string.

```c
#include<stdio.h>

#include<conio.h>

#include<string.h>

void main()

{

char l[100];

int l1,size=0;

clrscr();

printf("Enter some line : ");

scanf("%[^\n]",&l);

for(l1=0;l1<strlen(l);l1++){

  if(l[l1]!=' '){

    size++;

    }

  }

printf("Total number of character in this string is : %d",l1);

getch();

}
```

Output:

```
Enter some line : a geek coder
Total number of character in this string is : 12
```

32) WAP to count vowels in a string.

```c
#include<stdio.h>

#include<conio.h>

void main()

{

char l[100];

int l1,v=0;

clrscr();

printf("Enter the string: ");

scanf("%[^\n]",&l);

for(l1=0;l[l1];l1++){

  if(l[l1]=='a'||l[l1]=='e'||l[l1]=='i'||

    l[l1]=='o'||l[l1]=='u'||l[l1]=='A'||

    l[l1]=='E'||l[l1]=='I'||l[l1]=='O'||l[l1]=='U'){

    v++;

    }

  }

printf("Total number of vowels: %d",v);

getch();

}
```
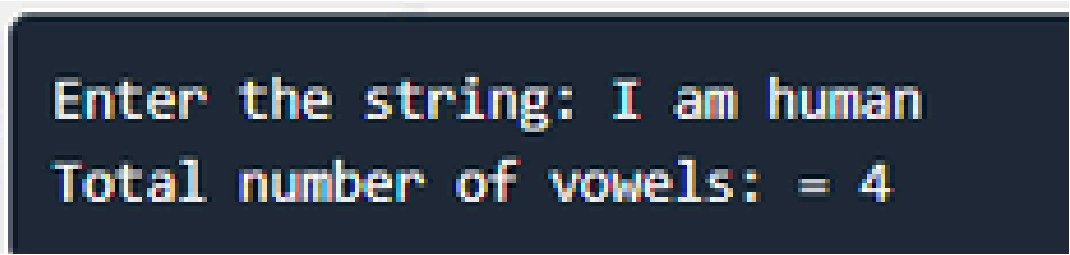
Output:

33) WAP to swap two strings.

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char s1[100], s2[100], s3[100];
clrscr();
printf("Value of s1 -");
gets(s1);
printf("Value of s2 - ");
gets(s2);
strcpy(s3,s1);
strcpy(s1,s2);
strcpy(s2,s3);
printf("After Swaping -\n");
printf("Value of s1 - %s\n Value of s2 -%s",s1,s2);
getch();
}
```
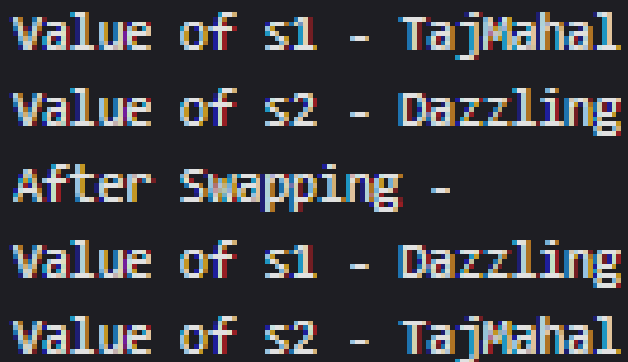
Output:

```
Value of s1 - TajMahal
Value of s2 - Dazzling
After Swapping -
Value of s1 - Dazzling
Value of s2 - TajMahal
```

34) WAP to concatenate two strings.

```c
#include<stdio.h>

#include<conio.h>

#include<string.h>

void main()

{

char s1[100], s2[100];

clrscr();

printf("Enter string number 1: ");

gets(s1);

printf("Enter string number 2: ");

gets(s2);

strcat(s1,s2);

printf("\n combined two strings = %s",s1);

getch();

}
```
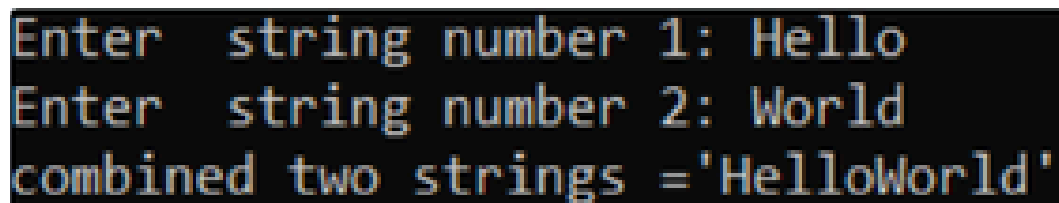
Output:

35) **WAP to reverse words of a string.**

```
#include<stdio.h>

#include<conio.h>

#include<string.h>

void main()

{

char s1[100];

clrscr();

printf("Enter a string to reverse\n ");

gets(s1);

strrev(s1);

printf("\nReverse of entered string is %s",s1);

getch();

}
```
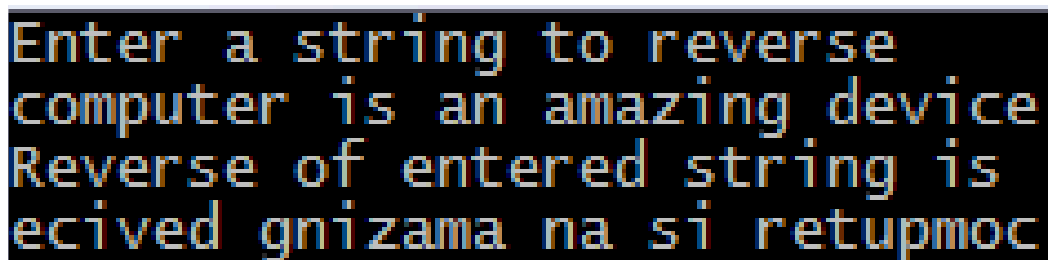
Output:


```
Enter a string to reverse
computer is an amazing device
Reverse of entered string is
ecived gnizama na si retupmoc
```

36) **WAP for function without argument and with return value.**
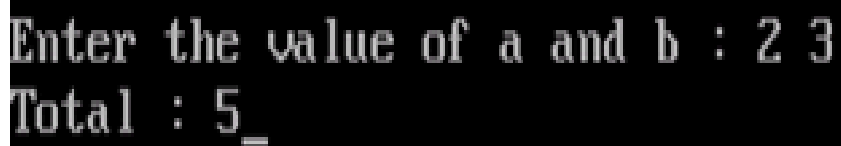
```
#include<stdio.h>

#include<conio.h>

int add();

void main()
```

```c
{
int x;
x=add();
printf("Total : %d",x);
getch();
clrscr();
}
int add()
{
int a,b;
printf("Enter the value of a and b : ");
scanf("%d %d",&a,&b);
return a+b;
}
```

Output:

Enter the value of a and b : 2 3
Total : 5

37) WAP for function with argument and without return value.

```c
#include<stdio.h>

#include<conio.h>

void greet(char*name){

printf("Hello,%s!\n",name);

}

void main()

{

char name[100];

clrscr();

printf("Enter your name:");

scanf("%s",name);

greet(name);

getch();

}
```

Output:

38) WAP for function with argument and with return value.

```
#include<stdio.h>
#include<conio.h>
int sum(int a,int b)
{
return a+b;
}
void main()
{
int a,b,x;
clrscr();
printf("Enter the two numbers : ");
scanf("%d %d",&a,&b);
x=sum(a,b);
printf("The sum of these two is : %d",x);
getch();
}
```
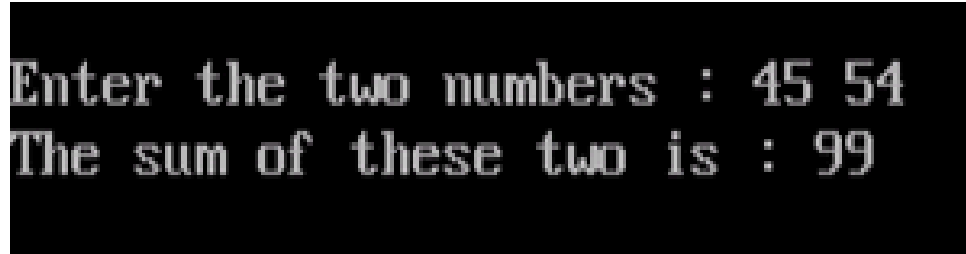
Output:

```
Enter the two numbers : 45 54
The sum of these two is : 99
```

39) WAP to show use of call by value and call by reference (Call by Value).

```c
#include<stdio.h>

#include<conio.h>

void swap(int a,int b);

void main()

{

int n1=22,n2=33;

clrscr();

swap(n1,n2); //pass by values

printf("\nInside main function : \nn1=%d n2=%d",n1,n2);

getch();

}

//function that swaps the two values

void swap(int a,int b){

int t;

t=a;

a=b;

b=t;

printf("inside swap function : \na=%d b=%d",a,b);

}
```
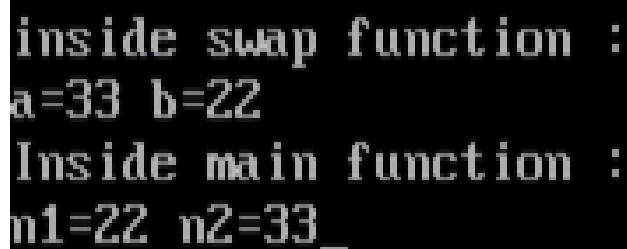
Output:

40) WAP to show use of call by value and call by reference (Call by Reference).

```
#include<stdio.h>

#include<conio.h>

void swap(int*,int*);

void main()

{

int n1=22,n2=33;

clrscr();

swap(&n1,&n2); //pass by reference

printf("\nInside main function : \nn1=%d n2=%d",n1,n2);

getch();

}

//function that swaps the two variables by references

void swap(int* a,int* b){

int t;

t=*a;

*a=*b;

*b=t;

printf("Inside swap function : \na=%d b=%d",*a,*b);

}
```
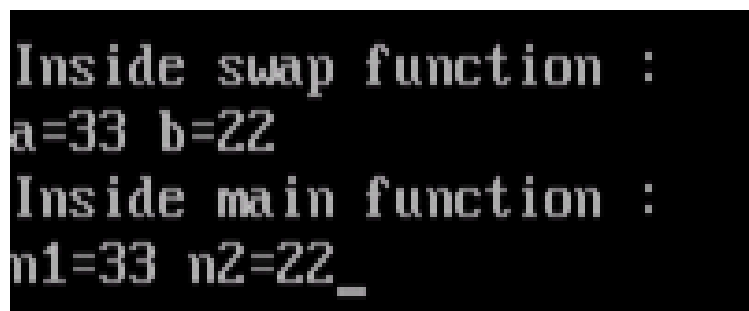
Output:

```
Inside swap function :
a=33 b=22
Inside main function :
n1=33 n2=22_
```