

1) // Program to display something as output

```
#include <stdio.h>
void main()
{ printf("Hello world! Welcome to the world of 'c' language");
}
```

① Output →

Hello world! Welcome to the world of 'c' language.

2) // Addition of two integers in c program

```
#include <stdio.h>
int main()
{ int a,b,c;
printf("Enter two values");
scanf("%d %d", &a,&b);
c = a+b;
printf("The addition result is = %d", c);
return 0;
}
```

① Output →

Enter two values : 6 9

The addition result is = 15

3) // Average between two integer values in c program

```
#include <stdio.h>
int main()
{ int num1,num2;
float avg;
printf("Enter first number:");
scanf("%d", &num1);
printf("Enter second number:");
scanf("%d", &num2);
avg = (float)(num1+num2)/2;
printf("Average of %d and %d is : %.2f", num1, num2, avg);
return 0;
}
```

① Output →

Enter first number: 6 Enter second number: 7 Average of 6 and 7 is = 6.50

4) // Program to display an integer value by using different printf() format

```
#include <stdio.h>
int main()
{ printf("In The number is = %d", 1234);
printf("In The number is = %6d", 1234);
printf("In The number is = %.-6d", 1234);
printf("In The number is = %06d", 1234);
printf("In The number is = %-06d", 1234);
printf("In The number is = %2d", 1234);
return 0;
}
```

Ø Output :-

```
The number is = 1234
The number is = 1234
The number is = 1234
The number is = 001234
The number is = 1234
The number is = 1234
```

5) // Program to display floating point value by using different printf(), format

```
#include <stdio.h>
int main()
{ float a = 98.7628;
printf("In The float number is = %f", a);
printf("In The float number is = %7.4f", a);
printf("In The float number is = %7.2f", a);
printf("In The float number is = %10.2e", a);
printf("In The float number is = %11.4e", a);
printf("In The float number is = %.-10.2e", a);
printf("In The float number is = %e", a);
return 0;
}
```

Ø Output :-

```
The float number is = 98.762802
The float number is = 98.7628
The float number is = 98.76
The float number is = 9.88e+01
The float number is = 9.8763e+01
The float number is = 9.88e+01
The float number is = 9.876280e+01
```

6) // Write a program to calculate the area of a triangle

```
#include <stdio.h>
#include <math.h>
int main()
{ float a,b,c,area,semi;
printf("Enter 3 sides of a triangle : ");
scanf("%f %f %f", &a, &b, &c);
semi = (a+b+c)/2;
area = sqrt((semi*(semi-a)*(semi-b)*(semi-c)));
printf("The area of the given triangle is = %f", area);
return 0;
}
```

Ø Output:

Enter 3 sides of a triangle : 4 5 3
 The area of the given triangle is = 6.000000

7) // Write a program to calculate the area of a circle

```
#include <stdio.h>
int main()
{ float pie = 3.14;
float radius;
printf("Enter the radius of circle : ");
scanf("%f", &radius);
printf("The radius of the circle is %f in", radius);
float area = (float)(pie * radius * radius);
printf("The area of the given circle is %f", area);
return 0;
}
```

Ø Output:

Enter the radius of circle : 4
 The radius of the circle is 4
 The area of the given circle is 50.240002

- 8) // Write a c program to read a character in uppercase and print it in lowercase

```
#include <stdio.h>
int main()
{ char ch;
printf("In Enter any character in uppercase : ");
scanf("%c", &ch);
printf("In The '%c' character in lowercase is = %c", ch, ch+32);
return 0;
}
```

Ø Output :-

Enter any character in uppercase : A
The 'A' character in lowercase is = a

- 9) // Write a program in c to print the ASCII value of any character

```
#include <stdio.h>
int main()
{ char ch;
printf("In Enter any character : ");
scanf("%c", &ch);
printf("In The ASCII value of '%c' is = %d", ch, ch);
return 0;
}
```

Ø Output :-

Enter any character : A
The ASCII value of 'A' is = 65

- 10) // Write a program in c to convert temperature from centigrade to fahrenheit

```
#include <stdio.h>
int main()
{ float celsius, fahrenheit;
printf("Enter temperature in celsius : ");
scanf("%f", &celsius);
fahrenheit = (celsius * 9/5) + 32;
printf("%f celsius = %.2f Fahrenheit", celsius, fahrenheit);
return 0;
}
```

Ø Output :-

Enter temperature in celsius : 34
34.000000 celsius = 93.199997 Fahrenheit.

11) // Write a program in c two integer values using a third variable

```
#include <stdio.h>
int main()
{ int a,b,c;
printf("In Enter two values : ");
scanf("%d%d", &a, &b);
printf(" In Before swapping a=%d and b=%d ", a, b);
c=a;
a=b;
b=c;
printf(" In After swapping a=%d and b=%d ", a, b);
return 0;
}
```

① Output :-

Enter two values : 7 9

Before swapping a=7 and b=9

After swapping a=9 and b=7

12) // Write a program in c two integer values without using third variable

```
#include <stdio.h>
int main()
{ int a,b;
printf("In Enter two values : ");
scanf("%d%d", &b, &a);
printf(" In Before swapping a=%d and b=%d ", a, b);
a=a+b;
b=a-b;
a=a-b;
printf(" In After swapping a=%d and b=%d ", a, b);
return 0;
}
```

① Output :-

Enter two values : 8 7

Before swapping a=7 and b=8

After swapping a=8 and b=7

- 13) // Write a program in c to convert a floating point number into the corresponding integer

```
#include <stdio.h>
int main()
{ float fnum;
  int inum;
  printf("In Enter any floating point number : ");
  scanf("%f", &fnum);
  inum = (int) fnum;
  printf("The integer value of %f is = %d", fnum, inum);
  return 0;
}
```

Ø Output :

Enter any floating point number : 5.24
 The integer value of 5.240000 is = 5

- 14) // Write a program in c to convert a integer value into the corresponding floating point number

```
#include <stdio.h>
int main()
{ int inum;
  float fnum;
  printf("In Enter any integer number : ");
  scanf("%d", &inum);
  fnum = (float) inum;
  printf("The floating value of %d is = %f", inum, fnum);
  return 0;
}
```

Ø Output :

Enter any integer number : 5
 The floating value of 5 is = 5.000000

- 15) // Write a program to check whether a given number is positive or negative

```
#include <stdio.h>
int main()
{ int a;
  printf("In Enter any integer number : ");
  scanf("%d", &a);
```

```

if (a>=0)
printf("In %d is a positive number",a);
else
printf("In %d is a negative number",a);
return 0;
}

```

① Output :

Enter any integer number : 65
65 is a positive number.

16) // Write a program to check whether a given number is even or odd

```

#include <stdio.h>
int main()
{
int a;
printf("In Enter any integer number:");
scanf("%d",&a);
if (a%2 == 0)
printf("In %d is a even number.",a);
else
printf("In %d is a odd number.",a);
return 0;
}

```

① Output :

Enter any integer number : 55
55 is a odd number.

17) // Write a program to check whether a year is a leap year or not leap year

```

#include <stdio.h>
int main()
{
int a;
printf("In Enter any integer number:");
scanf("%d",&a);
if (a%4 == 0)
printf("In %d is a leap year number.",a);
else
printf("In %d is a not leap year.",a);
return 0;
}

```

① Output :

Enter any integer number : 1999
1999 is a not leap year

18)

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```

"Write a program to find out the maximum number of three numbers
#include <stdio.h>
int main()
{int a,b,c;
printf("In Enter 3 number : ");
scanf("%d%d%d", &a, &b, &c);
if (a>b && a>c)
printf ("In The max value is = %d", a);
else
{if (b>a && b>c)
printf ("In The max value is = %d", b);
else
printf ("In The max value is = %d", c);
}
return 0;
}

```

@ Output

Enter 3 number : 3 5 7

The max value is = 7

19)

"Write a program to find out whether a character is vowel or not

```

#include <stdio.h>
int main()
{char ch;
printf("In Enter a character : ");
scanf("%c", &ch);
if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
    ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U')
{printf ("In %c is vowel", ch);}
else
{printf ("In %c is consonant", ch);}
}
return 0;
}

```

@ Output

Enter a character : A

A is a vowel.

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20) // WAP to find out the roots of a quadratic equation

```

#include <stdio.h>
#include <math.h>
int main()
{
    int a, b, c;
    float D, deno, root1, root2, root;
    printf("Enter the values of a, b and c : ");
    scanf("%d %d %d", &a, &b, &c);
    D = (b * b) - (4 * a * c);
    deno = 2 * a;
    if (D > 0)
    {
        root1 = (-b + sqrt(D)) / deno;
        root2 = (-b - sqrt(D)) / deno;
        printf("The roots are REAL and they are %f and %f", root1, root2);
    }
    else
    {
        if (D == 0)
        {
            root = -b / deno;
            printf("The roots are equal and their value is %f", root);
        }
        else
            printf("The roots are IMAGINARY");
    }
    return 0;
}

```

Output :-

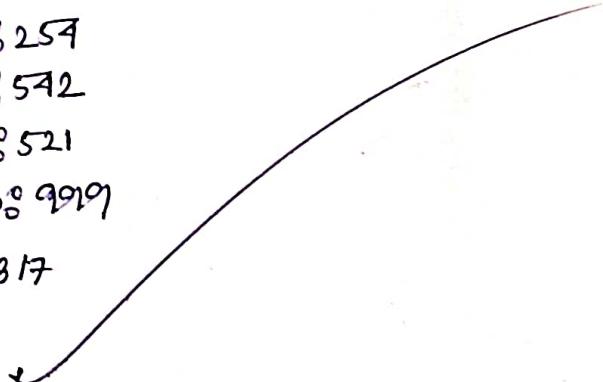
Enter the values of a, b and c : 6 8 9
 The roots are IMAGINARY.

// Write a program in c to see the use of goto

```
#include <stdio.h>
int main()
{int num,sum=0;
printf("In Enter any number. Enter 999 to stop :");
read //label for goto statement
printf("In Enter the number. Enter 999 to stop :");
scanf("%d",&num);
if(num!=999 && num>0)
{
    sum+=num;
    goto read;
}
printf("The sum of the entered numbers is = %d",sum);
return 0;
}
```

Output

```
Enter the number. Enter 999 to stop : 254
Enter the number. Enter 999 to stop : 542
Enter the number. Enter 999 to stop : 521
Enter the number. Enter 999 to stop : 999
the sum of the given numbers = 1317
```



// Write a calculate the sum of 'n' numbers using loop

```
#include <stdio.h>
int main()
{int n, i, sum=0;
printf("In Enter how many numbers you want to take:");
scanf("%d", &n);
for (i=1; i<=n; i++)
{sum = sum + i;
}
printf("In the addition of %d numbers is = %d", n, sum);
return 0;
}
```

① Output :-

Enter how many numbers you want to take : 5
 The addition of 5 numbers is = 15

// Write a program to add any 'n' numbers

```
#include <stdio.h>
int main()
{int n, i, num, sum=0;
printf("In Enter how many numbers you want to take:");
scanf("%d", &n);
for (i=1; i<=n; i++)
{printf("In Enter number %d", i);
scanf("%d", &num);
sum = sum + num;
}
printf("In the summation of %d numbers is = %d", n, sum);
return 0;
}
```

① Output :-

Enter how many number you want to take 5

Enter number 1

8

Enter number 2

6

Enter number 3

3

Enter number 4

5

Enter number 5

8

The summation of 5 numbers is = 30

✓
Kiran (10/23)
28/10/23

25) Display Series Output

```

// 1^2 + 2^2 + 3^2 + ... + n^2
#include <stdio.h>
int main()
{
    int n, i, sum = 0;
    printf("In Enter the limit value : ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++)
    {
        sum = sum + (i * i);
    }
    printf("In The summation of the given series is %d", sum);
    return 0;
}

```

Ø Output

Enter the limit value : 5

The summation of the given series is = 55

26) // 1+2^3+3^3+...+n^3

```

#include <stdio.h>
#include <math.h>
int main()
{
    int n, i, sum = 0;
    printf("In Enter the limit value : ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++)
    {
        sum = sum + pow(i, i);
    }
    printf("In The summation of the given series is %d", sum);
    return 0;
}

```

Ø Output

Enter the limit value : 5

The summation of the given series is = 3413

27>

```

// 1 + 1/2 + 1/3 + ... + 1/n
#include <stdio.h>
#include <math.h>
int main()
{
    float n, i, sum = 0.0;
    printf("In Enter the limit value : ");
    scanf("%f", &n);
    for (i=1; i<=n; i++)
    {
        sum = sum + (1/i);
    }
    printf("In The summation of the given series is = %f", sum);
    return 0;
}

```

② Output :

Enter the limit value : 5

The summation of the given series is = 2.283334

28>

```

// 1 + 1/2^3 + 1/3^3 + ... + 1/n^3
#include <stdio.h>
#include <math.h>
int main()
{
    float n, i, sum = 0.0;
    printf("In Enter the limit value : ");
    scanf("%f", &n);
    for (i=1; i<=n; i++)
    {
        sum = sum + (1/pow(i, 3));
    }
    printf("In The summation of the given series is = %f", sum);
    return 0;
}

```

② Output :

Enter the limit value : 5

The summation of the given series is = 1.285662

29)

// $1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}$

```
#include <stdio.h>
#include <math.h>
int main()
{
    float n, i, sum = 0.0;
    printf("Enter the limit value: ");
    scanf("%f", &n);
    for (i = 1; i <= n; i++)
    {
        sum = sum + (1 / pow(i, i));
    }
    printf("The summation of the given series is = %f", sum);
    return 0;
}
```

② Output

Enter the limit value: 5

The summation of the given series is = 1.291263

30)

// $\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \dots + \frac{n}{n+1}$

```
#include <stdio.h>
#include <math.h>
int main()
{
    float n, i, sum = 0.0;
    printf("Enter the limit value: ");
    scanf("%f", &n);
    for (i = 1; i <= n; i++)
    {
        sum = sum + (i / (i + 1));
    }
}
```

printf("The summation of the given series is = %f", sum);

return 0;

}

② Output

Enter the limit value: 5

The summation of the given series is = 10.000000

31) // $2+4+6+\dots+n$

```
#include <stdio.h>
int main()
{ int n, i, sum=0;
printf("In Enter the limit value : ");
scanf("%d", &n);
for(i=2; i<=n; i=i+2)
{ sum = sum + i;
}
printf("In the summation of the given series is = %d", sum);
return 0;
}
```

② Output :

Enter the limit value : 8

The summation of the given series is = 20

32) // $1+3+5+\dots+n$

```
#include <stdio.h>
int main()
{ int n, i, sum=0;
printf("In Enter the limit value : ");
scanf("%d", &n);
for(i=1; i<=n; i=i+2)
{ sum = sum + i;
}
printf("In the summation of the given series is = %d", sum);
return 0;
}
```

② Output :

Enter the limit value : 5

The summation of the given series is = 9

33)

Printing Patterns

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

② Output

Enter number of rows : 5

12345
12345
12345
12345
12345

34)

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

② Output

Enter the number of rows : 3

11111
22222
33333

19/10/23

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

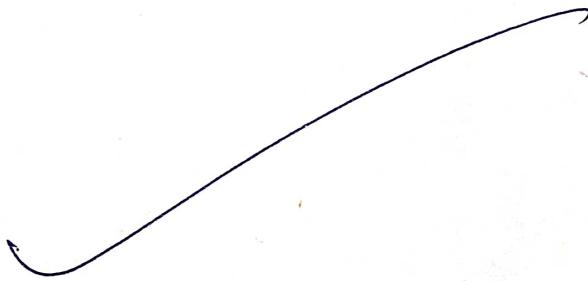
Q Output :-

Enter the number of rows : 6

```

*
**
***
****
*****
*****
```

36) #include <stdio.h>
 int main()
 { int i, j, n, k=0;
 printf("In Enter the number of rows : ");
 scanf("%d", &n);
 for (i=1; i<=n; i++)
 { for (j=1; j<=n-i; j++)
 { printf(" ");
 }
 for (k=1; k<=(2*i-1); k++)
 { printf("*");
 }
 printf("\n");
 }



```
return 0;
}
```

④ Output :

Enter the number of rows : 5

```
*  
***  
****  
*****  
*****
```

37)

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

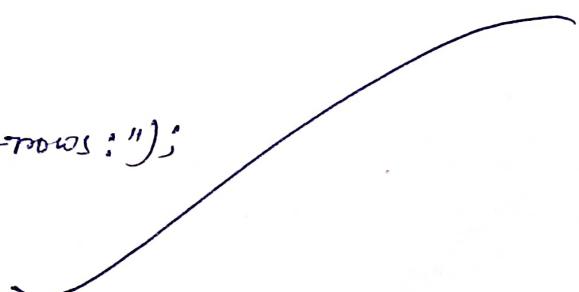
④ Output :

Enter the number of rows : 5

```
*****  
****  
***  
**  
*
```

38)

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



```

} for (j=1; j<=1; j++)
} printf(" ");
}
for (k=i; k<=n; k++)
} printf("*");
}
printf("\n");
}
return 0;
}

```

② Output :

Enter the number of rows : 6

```

*****
 ****
  ***
   *
  **
   *
  *

```

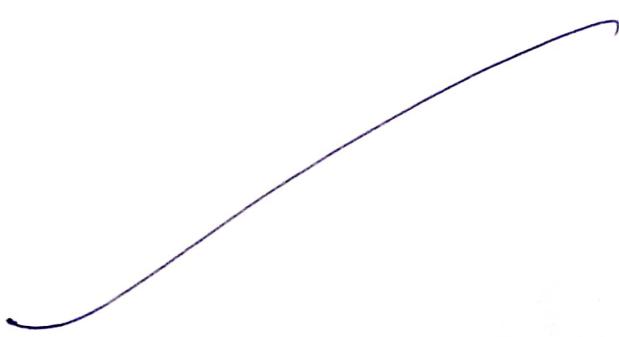
39) #include <stdio.h>

int main()

```

int i, j, n, m=1;
printf("Enter the number of columns : ");
scanf("%d", &n);
for (i=1; i<=n; i++)
} for (j=1; j<=i; j++)
} printf("*");
}
printf("\n");
}
for (i=n-1; i>1; i--)
} for (j=1; j<=i; j++)
} printf("*");
}
printf("\n");
}

```



```
return 0;
}
```

② Output :

Enter the number of column : 5

```
*
**
*** 
**** 
*** 
** 
*
```

40) #include <stdio.h>

```
int main()
{
    int n, i, j;
    printf("Enter the number of rows : ");
    scanf("%d", &n);
    for(i=1; i<=n; i++)
    {
        printf("\n");
        for(j=1; j<=i; j++)
            printf("*");
    }
    return 0;
}
```

② Output :

Enter the number of rows : 5

```
*
```

```
**
```

```
***
```

```
****
```

```
*****
```



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

Output:

Enter the number of rows : 5

```
*****
*****
*****
*****
*****
```

12) #include <stdio.h>

int main ()
{int i, j, k, n;
printf("Enter the number of rows :");
scanf("%d", &n);
for (i=0; i<n; i++)
{for (j=0; j<i; j++)
printf(" ");
for (k=0; k<=i; k++)
printf("*");
printf("\n");
}
return 0;
}

Output:

Enter the number of rows : 4

```
*  
* *  
* * *  
* * * *
```

13) // $x + x^2/2 + x^3/3 + \dots + x^n/n$

#include <stdio.h>

#include <math.h>

int main()

```
{ float x=2, n, i, sum=0.0;
printf("nEnter limit value:");
scanf("%f", &n);
for(i=1; i<=n; i++)
{ sum = sum + (pow(x,i)/i);
}
printf("n The sum of the given series is = %f", sum);
return 0;
}
```

Output :-

Enter limit value : 6

The sum of the given series is = 27.733332

14) // $x - x^2/2 + x^3/3 - x^4/4 + \dots + (-1)^n x^n/n$

#include <stdio.h>

#include <math.h>

int main()

```
{ float x=2, n, i, sum=0.0;
printf("nEnter limit value:");
scanf("%f", &n);
for(i=1; i<=n; i++)
{ sum = sum - (pow(-x,i)/i);
}
printf("n The sum of the given series is = %f", sum);
return 0;
}
```

Output :-

Enter limit value : 5

The sum of the given series is = 5.066667

15)

// Write a program to find the result of the series .

$$1 + \frac{1}{2!} + \frac{1}{3!} + \dots + \frac{1}{n!}$$

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

```
int main()
```

```
{ float n, i, n, sum = 0, fact = 1;
```

```
printf("In Enter limit value : ");
```

```
scanf(" %f ", &n);
```

```
for (i = 1; i <= n; i++)
```

```
{ fact = fact * i;
```

```
sum = sum + (1 / fact);
```

```
}
```

printf("In The sum of the given series is = %f ", sum);

```
return 0;
```

```
}
```

① Output :-

Enter limit value : 5

The sum of the given series is = 1.716667

16)

// Write a program to find out the result of the series .

$$-x + \frac{x^2}{2!} - \frac{x^3}{3!} + \dots + (-1)^n \frac{x^n}{n!}$$

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

```
#include <math.h>
```

```
{ int main() { sum = 0; fact = 1; }
```

```
printf("In Enter limit value : ");
```

```
scanf(" %f ", &n);
```

```
for (i = 1; i <= n; i++)
```

```
{ fact = fact * i;
```

```
sum = sum + (pow(-x, i) / fact);
```

```
}
```

printf("In The summation of the given series is = %f ", sum);

```
return 0;
```

```
}
```

① Output :-

Enter limit value : 6

The sum of the given series is = -0.844444

17)

Function

Page NO. - 26

```

// addition using functions
#include <stdio.h>
int sum(int, int);
int main()
{
    int a, b, result;
    printf("Enter values for Addition : ");
    scanf("%d %d", &a, &b);
    result = sum(a, b);
    printf("The result of Addition is = %d", result);
    return 0;
}

int sum(int x, int y)
{
    int n;
    n = x + y;
    return (n);
}

```

④ Output

Enter 2 values for Addition : 5 4
 The result of Addition is = 9

18)

Write a program to find out the factorial of a number using function

```

#include <stdio.h>
int factorial(int);
int main()
{
    int i, n, fact;
    printf("Enter a number to find out its factorial : ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++)
    {
        fact = factorial(i);
    }
    printf("The factorial of %d is = %d", n, fact);
    return 0;
}

int factorial(int x)
{
    int f = 1, j;
    if (x == 1)
        return 1;
    else
    {
        for (j = 1; j <= x; j++)
        {
            f = f * j;
        }
    }
    return (f);
}

```

④ Output
 Enter a number to find out its factorial : 5
 The factorial of 5 is = 120

Durga 2/11/23

49) A program to add + subtract + multiply + divide two numbers using function

```

#include <stdio.h>
int add(int, int);
int sub (int, int);
int mult (int, int);
int div (int, int);
int main()
{
    int a, b;
    printf("Enter 2 values : ");
    scanf("%d %d", &a, &b);
    add(a, b);
    sub(a, b);
    mult(a, b);
    div(a, b);
    return 0;
}
int add (int x, int y)
{
    int sum;
    sum = x+y;
    printf("The addition of 2 values is=%d", sum);
}
int sub (int i, int j)
{
    int s;
    s = i-j;
    printf("The subtraction result of 2 values is=%d", s);
}
int mult (int m, int n)
{
    int multi;
    multi = m*n;
    printf("The multiplication result is=%d", multi);
}
int div (int u, int v)
{
    int d;
    d = u/v;
    printf("The division result of 2 values is=%d", d);
}

```

① Output

Enter two values : 20 10

The addition of 2 values is=30

The subtraction of 2 values is=10

The multiplication of 2 values is=200

The division of 2 values is=2

50)

```

/* Program to check an even/odd number using function with arguments
and return value */

#include <stdio.h>
int evenodd(int);
int main()
{
    int n, result;
    printf("\nEnter a number to check even or odd : ");
    scanf("%d", &n);
    result = evenodd(n);
    if (result == 1)
        printf("\nThe given number is even");
    else
        printf("\nThe given number is odd");
}

int evenodd(int x)
{
    if (x%2 == 0)
        return 1;
    else
        return 0;
}

```

② Output

Enter a number to check even or odd : 56
The given number is even.

51)

```

/* Program to check an even/odd number using function with arguments
but no return value */

#include <stdio.h>
int evenodd(int);
int main()
{
    int n;
    printf("\nEnter a number to check even or odd : ");
    scanf("%d", &n);
    evenodd(n);
    return 0;
}

int evenodd(int x)
{
    if (x%2 == 0)

```

```
printf("In The given no. is even");
else
printf("In The given no. is odd");
}
```

① Output :

Enter a number to check even or odd : 19
The given no. is odd.

52) /* Write a program to check an even/odd number by using function with no arguments and with return value */

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

```
int even();
```

```
int odd();
```

```
int main()
```

```
{ int n;
```

```
printf("Enter a number to check even or odd : ");
```

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

```
if (n % 2 == 0)
```

```
even();
```

```
else
```

```
odd();
```

```
return 0;
```

```
}
```

```
int even()
```

```
{ printf("The given number is even");
```

```
}
```

```
int odd()
```

```
{ printf("The given number is odd.");
```

```
}
```

① Output :

Enter a number to check even or odd : 65

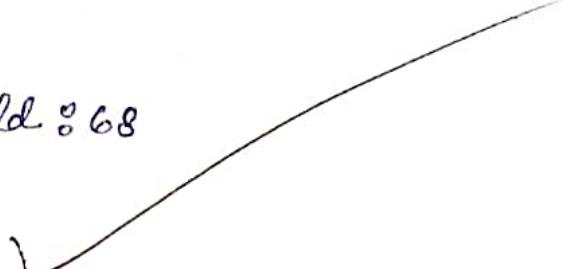
The given number is odd.

53) /* Write a program to check an even/odd number using function with no arguments and no return value. */

```
#include <stdio.h>
int evenodd();
int main()
{evenodd();
return 0;
}
int evenodd()
{int n;
printf("Enter a number to check even or odd : ");
scanf("%d", &n);
if (n%2 == 0)
printf("The even no.");
else
printf("The odd no.");
}
```

Output:

Enter a number to check even or odd : 68
The even no.



54)

```

" Call by value example
#include <stdio.h>
int add (int n);
int main ()
{
    int num = 2;
    printf ("In The value of num before calling the function is = %.d", num);
    add (num);
    printf ("In The value of num after calling the function is = %.d", num);
    return 0;
}
int add (int n)
{
    n = n + 10;
    printf ("In The value of num inside the function is = %.d", n);
}

```

② Output :

The value of num before calling function is = 2

The value of num inside the function is = 12

The value of num after calling the function is = 2

55)

" Example on call by reference

```

#include <stdio.h>
int add (int *x);
int main ()
{
    int num = 5;
    printf ("In The value of num before calling function is = %.d", num);
    add (&num);
    printf ("In The value of num after calling the function is = %.d", num);
    return 0;
}
int add (int *x)
{
    *x = *x + 10;
    printf ("In The value of num inside the function is = %.d", *x);
}

```

② Output :

The value of num before calling function is = 5

The value of num inside the function is = 15

The value of num after calling the function is = 15

56>

Recursion

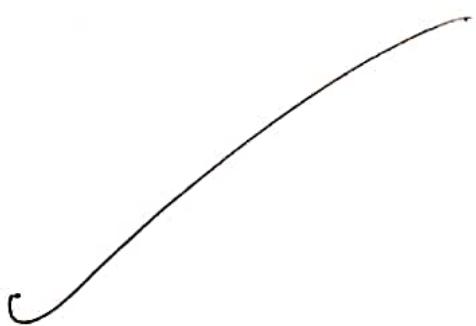
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```

// Program to find out factorial of a no. using recursion
#include <stdio.h>
int fact (int);
int main()
{
    int n;
    printf ("In Enter any no. to find out factorial : ");
    scanf ("%d", &n);
    printf ("In The factorial of %d is = %d", n, fact (n));
}

int fact (int n)
{
    if (n == 1)
        return 1;
    else
        return (n * fact (n - 1));
}

```



② Output

Enter any no. to find out factorial of 5

The factorial of 5 is = 120

57>

"Program to find out GCD of two numbers using recursion"

```

#include <stdio.h>
int gcd (int, int);
int main()
{
    int a, b, res;
    printf ("In Enter two numbers to calculate GCD of them : ");
    scanf ("%d %d", &a, &b);
    res = gcd (a, b);
    printf ("In The GCD of %d and %d is = %d.", a, b, res);
    return 0;
}

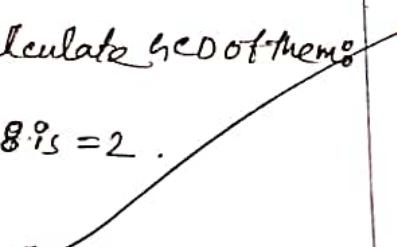
int gcd (int m, int n)
{
    int rem;
    rem = m % n;
    if (rem == 0)
        return n;
    else
        return (gcd (n, rem));
}

```

② Output

Enter the numbers to calculate GCD of them
62 8

The GCD of 62 and 8 is = 2.



58)

```

// Program to find out exponent of a no. by using recursion
#include <stdio.h>
int Exp (int a, int b);
int main ()
{
    int a, b, res;
    printf ("In Enter two numbers to calculate Exp of them : ");
    scanf ("%d %d", &a, &b);
    res = Exp (a, b);
    printf ("The Exp of %d and %d is = %d.", a, b, res);
    return 0;
}

int Exp (int a, int b)
{
    if (b == 0)
        return 1;
    else
        return (a * Exp (a, b - 1));
}

```

④ Output :-

Enter two numbers to calculate Exp of them : 2 2
 The Exp of 2 and 2 is = 4

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 9/11/23

Extra program send by man

"Program to calculate the sum of array elements by passing to a function"

#include <stdio.h>

float calculateSum(float num[]);

int main()

{ float result, num[] = { 23.4, 55, 22.6, 3, 40.5, 18 };

result = calculateSum(num);

printf("result = %.2f", result);

return 0;

}

float calculateSum(float num[])

{ float sum = 0.0;

for (int i=0; i<6; i++)

{ sum += num[i];

}

return sum;

}

① Output :

result = 162.500000

"I'm passing address of array elements

#include <stdio.h>

void disp(int *num)

{ printf("%d", *num);

}

int main()

{ int arr[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 };

for (int i=0; i<10; i++)

{ disp(&arr[i]);

}

return 0;

}

② output —

1234567890

Extra program send by moon

```
// I'm passing each element one by one using subscript
#include <stdio.h>
void disp (char ch)
{printf ("%.c", ch);}
int main ()
{char arr [] = {'a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j'};
for (int x=0; x<10; x++)
{disp (arr [x]);}
return 0;
}

@ Output:
abedefghij
```

Main send for exam

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59)

* Write a 'c' program to find out the maximum and minimum value in an array and also display the sum of them.*/

```
#include <stdio.h>
int main()
{
    int n[10], i, max, min, sum;
    printf("In Enter 10 values : ");
    for (i=0; i<10; i++)
    {
        scanf("%d", &n[i]);
    }
    min = max = n[0];
    for (i=1; i<10; i++)
    {
        if (n[i] > max)
            max = n[i];
        if (n[i] < min)
            min = n[i];
    }
    sum = (max + min);
    printf("In maximum number is = %d", max);
    printf("In minimum number is = %d", min);
    printf("In sum = %d", sum);
    return 0;
}
```

Ø Output:

Enter 10 values : 3 4 5 7 7 2 3 4 6 9

maximum number is = 9

minimum number is = 2

sum = 12

60)

// Write a 'c' program to display Fibonacci series using recursion.

```
#include <stdio.h>
int fibonacci(int);
int main ()
{
    int n, i=0; res;
    printf ("nEnter the limit of Fibonacci : ");
    scanf ("%d", &n);
    printf ("nThe Fibonacci series is : ");
    for (i=0; i<n; i++)
    {
        res = fibonacci(i);
        printf ("%d\t", res);
    }
    return 0;
}
int fibonacci (int n)
{
    if (n==0)
        return 0;
    else if (n==1)
        return 1;
    else
        return (fibonacci (n-1) + fibonacci (n-2));
}
```

② Output :

Enter the limit of Fibonacci : 6

The Fibonacci series is : 0 1 1 2 3 5

61)

// Write a 'c' program to display sum of two matrices using function.

#include <stdio.h>

void addMatrix (int a[10][10], int b[10][10], int c[10][10], int row, int column)

{ for (int i=0; i<row; ++i)

{ for (int j=0; j<column; ++j)

{ c[i][j] = a[i][j] + b[i][j];

}

}

}

void readMatrix (int matrix[10][10], int row, int column)

{ for (int i=0; i<row; ++i)

{ for (int j=0; j<column; ++j)

{ scanf ("%d", &matrix[i][j]);

}

}

}

void displayMatrix (int matrix[10][10], int row, int column)

{ for (int i=0; i<row; ++i)

{ for (int j=0; j<column; ++j)

{ printf ("%d", matrix[i][j]);

}

printf ("\n");

}

}

int main()

{ int a[10][10];

int b[10][10];

int c[10][10];

int row, column;

printf ("Enter Row and Column sizes : ");

scanf ("%d %d", &row, &column);

```
printf("Enter Matrix-1 Elements : \n");
readMatrix(a, row, column);
printf("Enter Matrix-2 Elements : \n");
readMatrix(b, row, column);
AddMatrix(a, b, c, row, column);
printf("Resultant Matrix : \n");
displayMatrix(c, row, column);
return 0;
}
```

Ø Output:

Enter Row and Column Sizes : 2 3

Enter Matrix-1 Elements :

22
13
43
32
26
70

Enter Matrix-2 Elements :

44
65
87
56
41
49

Resultant Matrix :

66 78 130
88 67 119

Man send for exam

1) Write a 'c' program to calculate the sum: $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots + \frac{x^n}{n!}$

```
#include <stdio.h>
#include <math.h>
int main()
{
    float x=2, n, i, sum=0.0, fact=1;
    printf("Enter the limit value: ");
    scanf("%d", &n);
    for(i=1; i<=n; i++)
    {
        fact = fact * i;
        sum = sum + pow(x, i) / fact;
    }
    printf("The sum of the given series is = %f", sum);
    return 0;
}
```

② Output:

Enter the limit value: 6

The sum of the given series is = 6.355556

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

② Output:

Enter the number of rows: 6

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
1 2 3 4 5 6 5 4 3 2 1

Digital Home-tasks

```
// Write a program to print the sum of the digits of a number.  
#include <stdio.h>  
int main()  
{ int n, sod=0, r, x;  
printf("In Enter any number numbers to find out its sum of digit : ");  
scanf("%d", &n);  
x=n;  
while(n>0)  
{ r=n%10;  
sod=sod+r;  
n=n/10;  
}  
printf("In the sum of the digit of %d is = %d ", x, sod);  
return 0;  
}
```

① Output :-

Enter any number to find out its sum of digit : 9
The sum of the digit of 9 is = 9

```
// Write a program to store 10 values in an array and display summation of those numbers  
#include <stdio.h>  
int main()  
{ int i, sum=0, a[10];  
printf("In Enter 10 values in an array : ");  
for (i=0; i<10; i++)  
{ scanf("%d", &a[i]);  
}  
for (i=0; i<10; i++)  
{ sum = sum + a[i];  
}  
printf("In the sum of the numbers in the array is = %d ", sum);  
return 0;  
}
```

② Output :-

Enter 10 values in an array : 9 8 7 4 5 6 3 2 4 8
The sum of the numbers in the array is = 56

Diwali Home tasks

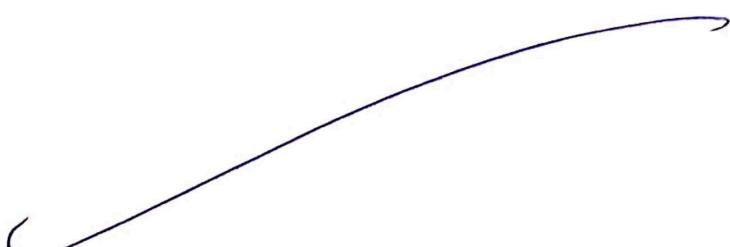
11. Write a program to check whether a given number is prime or not.

```
#include <stdio.h>
int prime (int);
int main ()
{
    int num;
    printf ("Enter a number: ");
    scanf ("%d", &num);
    if (prime (num))
        printf (" %d is a prime number", num);
    else
        printf (" %d is not a prime number", num);
    return 0;
}
int prime (int p)
{
    int i;
    if (p<2)
        return 0;
    for (int i=2; i*i<=p; i++)
    {
        if (p%i==0)
            return 0;
    }
}
```

Ø Output:

Enter a number: 55

55 is not a prime number.



Diwali - home tasks

```
/* Write a program to check whether a given number is Armstrong or not */

#include <stdio.h>
int main()
{
    int ncl, n, m, i, r, s = 0;
    printf("Enter the number of digits: ");
    scanf("%d", &ncl);
    printf("Enter the number: ");
    scanf("%d", &n);
    m = n;
    for (i = 1; i <= ncl; i++)
    {
        r = n % 10;
        n = n / 10;
        s = s + r * r * r;
    }
    if (m == s)
        printf("The given number is Armstrong");
    else
        printf("The given number is not Armstrong");
    return 0;
}
```

Output:

Enter the number of digit : 153

Enter the number : 1

The given number is Armstrong.

Diwali-Homeworks

1* Write a program to store 10 values in an array and display the maximum and minimum values in that array *.

```
#include <stdio.h>
int main()
{
    int n[10], i, max, min;
    printf("Enter 10 values:");
    for (i=0; i<10; i++)
    {
        scanf("%d", &n[i]);
    }
    min = max = n[0];
    for (i=1; i<10; i++)
    {
        if (n[i] > max)
            max = n[i];
        if (n[i] < min)
            min = n[i];
    }
    printf("Maximum number is=%d", max);
    printf("Minimum number is=%d", min);
    return 0;
}
```

② Output:

```
Enter 10 values: 14 13 12 10 8 2 3 4 19 1
Maximum number is = 19
Minimum number is = 1
```

Diwali Home tasks

1* Write a program to store 10 values in an array and search any particular value in that array */

```
#include <stdio.h>
int main()
{
    int i, n[10], s, p=0;
    printf("In Enter 10 values: ");
    for (i=0; i<10; i++)
    {
        scanf("%d", &n[i]);
    }
    printf("In Enter a number to search: ");
    scanf("%d", &s);
    for (i=0; i<10; i++)
    {
        if (n[i]==s)
            p=1;
    }
    if (p)
        printf("In %d is found %d", s);
        printf(" and position %d", i+1);
    else
        printf("In %d is not found %d", s);
    return 0;
}
```

Output:

Enter 10 values : 1 2 3 4 5 7 9 11 13

Enter a number to search: 11

11 is found and position 6

3x3 matrix addition

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

```
int main()
```

```
{ int a[3][3], i, j, b[3][3], c[3][3];
```

```
printf("Enter the elements of first matrix : ");
```

```
for (i=0; i<3; i++)
```

```
{ for (j=0; j<3; j++)
```

```
{ scanf("%d", &a[i][j]);
```

```
}
```

```
}
```

```
printf("Enter the elements of second matrix : ");
```

```
for (i=0; i<3; i++)
```

```
{ for (j=0; j<3; j++)
```

```
{ scanf("%d", &b[i][j]);
```

```
}
```

```
}
```

```
for (i=0; i<3; i++)
```

```
{ for (j=0; j<3; j++)
```

```
{ c[i][j] = a[i][j] + b[i][j];
```

```
}
```

```
}
```

```
printf("After addition the final matrix is : ");
```

```
for (i=0; i<3; i++)
```

```
{ for (j=0; j<3; j++)
```

```
{ printf("%d ", c[i][j]);
```

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

```
return 0;
```

```
}
```

Output :

Enter the elements of first matrix : 1 5 7 45 76 88 11 23 59
Enter the elements of second matrix : 21 33 56 67 89 53 20 68 78

After addition the final matrix is :

25	38	63
112	165	111
64	91	132

Array

```
/* 3x3 matrix initialization by using 2-D array
#include <stdio.h>
int main()
{int a[3][3], i, j;
printf("Enter the elements of 2-D array : ");
for (i=0; i<3; i++)
{for (j=0; j<3; j++)
{scanf("%d", &a[i][j]);
}
}
printf("The 2-D array elements are : ");
for (i=0; i<3; i++)
{for (j=0; j<3; j++)
{printf("%d ", a[i][j]);
}
}
printf("\n");
return 0;
}
```

② Output:

Enter the elements of 2-D array : 5 9 4

9
4
12
13
56
76
88
44

The 2-D array elements are : 5 9 4

12 13 56
76 88 44

```

// Program to Insert an element in array at any specified location
#include <stdio.h>
int main()
{int a[10], i, n, pos, num;
printf("Enter how many elements you want to take in any array:");
scanf("%d", &n);
printf("Enter the element of array:");
for(i=0; i<n; i++)
scanf("%d", &a[i]);
printf("Enter the number you want to insert in an array:");
scanf("%d", &num);
printf("Enter the position at which you want to insert it:");
scanf("%d", &pos);
for(i=n; i>=pos; i--)
a[i+1] = a[i];
a[pos] = num;
printf("After insertion the array elements are:");
for(i=0; i<n+1; i++)
printf("\t%d", a[i]);
return 0;
}

```

Output:

Enter how many elements you want to take in any array: 9
 Enter the element of array: 65 32 45 98 58 63 25 41 21
 Enter the number you want to insert in an array: 5
 Enter the position at which you want to insert it: 4
 After insertion, the array elements are: 65 32 45 5 98 58
 63 25 41 21

```

"Program to delete an element in array at any specified location"
#include <stdio.h>
int main ()
{
    int a[10], i, n, pos, num;
    printf("Enter how many elements you want to take in an array:");
    scanf("%d", &n);
    printf("Enter the element of array:");
    for (i=0; i<n; i++)
        scanf("%d", &a[i]);
    printf("Enter the number you want to delete in an array:");
    scanf("%d", &num);
    for (i=0; i<n; i++)
    {
        if (a[i] == num)
            pos = i;
    }
    for (i=pos; i<n-1; i++)
        a[i] = a[i+1];
    printf("After deletion, the array elements are:");
    for (i=0; i<n-1; i++)
        printf("%d", a[i]);
    return 0;
}

```

Output:

Enter how many elements you want to take in array : 6
 Enter the element of array : 3 6 9 8 5 7
 Enter the number you want to delete in an array : 9
 After deletion, the array elements are : 3 6 8 5 7

4 Program to sort an array in ascending or descending order

```
#include <stdio.h>
int main()
{int a[10], i, n, j, temp;
printf("In how many elements you want to take in the array : ");
scanf("%d", &n);
printf("In Enter the elements of an array : ");
for (i=0; i<n; i++)
scanf("%d", &a[i]);
printf("In Before sorting the array is : ");
for (i=0; i<n; i++)
printf("%d\t", a[i]);
for (i=0; i<n; i++)
{for (j=i+1; j<n; j++)
{if (a[i]>a[j])
{temp = a[i];
a[i] = a[j];
a[j] = temp;
}
}
}
printf("In After sorting the array elements are : ");
for (i=0; i<n; i++)
printf("%d\t", a[i]);
return 0;
}
```

Ø Output :-

How many elements you want to take in the array : 5
Enter the elements of an array : 9 6 3 5 4 8

Before sorting the array : 9 6 3 5 4 8

After sorting the array elements are : 9 8 6 5 4

```

// For taking array inputs and display an array
#include <stdio.h>
int main()
{int a[10], i;
printf("Enter array elements : ");
for (i=0; i<10; i++)
scanf("%d", &a[i]);
printf("The array elements entered are : ");
for (i=0; i<10; i++)
printf("%d", a[i]);
return 0;
}

```

② Output :-

Enter array elements : 54 63 56 96 86 65 36 42 52 12
The array elements entered are : 54 63 56 96 86 65 36 42 52 12

Jeng
2/12/23

1* In a class there are 10 students. Each student is supposed to appear in 3 tests.
Write a program using 2-D array to print -

↳ The marks obtained by each student in different subjects.

↳ total marks and average obtained by each student.

↳ store the average of each student in a separate 1D array so that it can be used to calculate the class average. */

```
#include <stdio.h>
int main ()
{
    int marks[10][3], i, j;
    int total_marks[10] = {0};
    float class_avg = 0.0, total_avg = 0.0;
    float avg[10];
    printf("In Enter the data:");
    printf("\n*****");
    for (i=0; i<10; i++)
    {
        printf("In Enter the marks of 3 subjects of %d student:", i+1);
        for (j=0; j<3; j++)
        {
            scanf("%d", &marks[i][j]);
        }
    }
    for (i=0; i<10; i++)
    {
        for (j=0; j<3; j++)
        {
            total_marks[i] += marks[i][j];
        }
    }
    for (i=0; i<10; i++)
    {
        for (j=0; j<3; j++)
        {
            avg[i] = (float)total_marks[i]/3.0;
        }
    }
    total_avg += avg[i];
    class_avg = (float)total_avg/10.0;
    printf("\n\nStudent no. 1t Marks 1 1t Marks 2 1t Marks 3 1t Marks Total Average
          Marks");
    for (i=0; i<10; i++)
```

```

    {
        printf("In %d", i);
        for (j=0; j<3; j++)
        {
            printf(" %d", marks[i][j]);
        }
        printf(" %d", total_marks[i]);
        printf(" %f", avg[i]);
    }
    printf("In In The class average is = %f", class_avg);
    return 0;
}

```

Ø Output :-

Enter the data:-

Enter the marks of 3 subjects of 1 student : 21 32 63

Enter the marks of 3 subjects of 2 student : 63 59 83

Enter the marks of 3 subjects of 3 student : 65 48 75

Enter the marks of 3 subjects of 4 student : 96 32 54

Enter the marks of 3 subjects of 5 student : 59 69 12

Enter the marks of 3 subjects of 6 student : 65 42 96

Enter the marks of 3 subjects of 7 student : 48 59 62

Enter the marks of 3 subjects of 8 student : 12 37 85

Enter the marks of 3 subjects of 9 student : 96 58 62

Enter the marks of 3 subjects of 10 student : 24 16 59

Student no.	Marks 1	Marks 2	Marks 3	Total Marks	Average Marks
0	21	32	63	116	38.666668
1	63	59	83	205	68.333336
2	65	48	75	188	62.666668
3	96	32	54	182	60.666668
4	59	69	12	140	46.666668
5	65	42	96	203	67.666664
6	48	59	62	169	56.333332
7	12	37	85	134	44.666668
8	96	58	62	216	72.000000
9	24	16	59	99	33.000000

The class average is = 55.066662

String

" Write a program to take a string input and display it in different pattern

```
#include <stdio.h>
int main ()
{ char str [10];
printf("In Enter any string : ");
scanf("%s", &str);
printf("In |%s| ", str);
printf("In |%20s| ", str);
printf("In |%-20s| ", str);
printf("In |%.4s| ", str);
printf("In |%.20.4s| ", str);
printf("In |%.-20.4s| ", str);
return 0;
}
```

Output

Enter any string : Srimanta

| Srimanta |

| Srimanta |

| Srim |

| Srim |

| Srim |

// Write a program to find out the length of a string

```
#include <stdio.h>
int main()
{ char str[30], i=0, len;
  printf("Enter any string: ");
  gets(str);
  while (str[i] != '\0')
  { len = i+1;
    i++;
  }
  printf("The length of the string is = %d", len);
  return 0;
}
```

Output

Enter any string: Smriti
The length of the string is = 8

// Write a program to lowercase to uppercase

```
#include <stdio.h>
int main()
{char str[20], i=0, j=0, upper_str[20];
printf("In Enter any string : ");
gets(str);
while (str[i] != '\0')
{
    if (str[i] >= 'a' && str[i] <= 'z')
        upper_str[j] = str[i] - 32;
    else
        upper_str[j] = str[i];
    i++;
    j++;
}
upper_str[j] = '\0';
printf("The uppercase string is : ");
puts(upper_str);
return 0;
}
```

Ø Output:

Enter any string : Srimanta
The uppercase string is : SRIMANTA

// Write a program to concatenate two strings into a third string

```
#include <stdio.h>
int main()
{ char str1[10], i=0, j=0, str2[10], str3[20];
printf("Enter first string : ");
gets(str1);
printf("Enter second string : ");
gets(str2);
while (str1[i] != '\0')
{ str3[j] = str1[i];
i++; j++;
}
i=0; str3[j] = ' '; j++;
while (str2[i] != '\0')
{ str3[j] = str2[i];
i++; j++;
}
str3[j] = '\0';
printf("After concatenate the third string is : ");
puts(str3);
return 0;
}
```

D Output:

Enter first string: Smimanta

Enter second string: Bag

After concatenate the third string is: Smimanta Bag

```

// Reverse the string
#include <std.h>
#include <string.h>
int main()
{
    char str[20], newstr[20]; i, j, n;
    printf("Enter a string : ");
    gets(str);
    n = strlen(str);
    for (i=n-1; i=0; i--)
    {
        newstr[i] = str[i];
        i++;
    }
    newstr[n] = '\0';
    printf("The reverse string is : ");
    puts(newstr);
    return 0;
}

```

① Output:

Enter a string : Srimanta
 The reverse string is = atnamans.

```

// compare between two strings
#include <stdio.h>
#include <string.h>
int main ()
{
    char str1[20], str2[20], i, len1, len2, l, greater = 0, same = 0;
    printf("Enter first string:");
    scanf("%s", str1);
    printf("Enter second string:");
    scanf("%s", str2);
    len1 = strlen(str1);
    len2 = strlen(str2);
    if (len1 == len2)
    {
        while (i < len1)
        {
            if (str1[i] == str2[i])
                i++;
            else break;
        }
        if (i == len1)
        {
            same = 1;
            printf("The two strings are equal");
        }
    }
    if (len1 != len2)
        printf("The two strings are not equal");
    if (same == 0)
    {
        if (str1[i] > str2[i])
            printf("String 1 is greater than String 2");
        else if (str1[i] < str2[i])
            printf("String 2 is greater than String 1");
    }
    return 0;
}

```

Output
 Enter first string: Hello
 Enter second string: hello
 String 2 is greater than String 1.

Daya 21/2/23

Pointer

"Program to find out the size of pointer variables

```
#include <stdio.h>
int main()
{
    int *pnum;
    char *pch;
    float *pfnum;
    double *pdnum;
    long *plnum;
    printf("In the size of integer variable is = %d ", sizeof(int));
    printf("In the size of integer pointer variable is = %d ", sizeof(pnum));
    printf("In the size of character variable is = %d ", sizeof(char));
    printf("In the size of character pointer variable is = %d ", sizeof(pch));
    printf("In the size of float variable is = %d ", sizeof(float));
    printf("In the size of float pointer variable is = %d ", sizeof(pfnum));
    printf("In the size of double variable is = %d ", sizeof(double));
    printf("In the size of double pointer variable is = %d ", sizeof(pdnum));
    printf("In the size of long integer variable is = %d ", sizeof(long int));
    printf("In the size of long pointer variable is = %d ", sizeof(plnum));
    return 0;
}
```

Output :

The size of integer variable is = 4
The size of integer pointer variable is = 8
The size of character variable is = 1
The size of character pointer variable is = 8
The size of float variable is = 4
The size of float pointer variable is = 8
The size of double variable is = 8
The size of double pointer variable is = 8
The size of long integer variable is = 8
The size of long pointer variable is = 8

/* Write a program to print whether a string is palindrome or not.

#include <stdio.h>

#include <string.h>

int main()

{ char st[20], rev[20];

int i, j;

printf("Enter the string: ");

scanf("%s", st);

i = 0;

j = strlen(st) - 1;

while(j >= 0)

{ rev[i] = st[j];

++i;

j -= 1;

}

rev[i] = '\0';

if(strcmp(st, rev) == 0)

printf("The string is a palindrome string.", st);

else

printf("The string is not a palindrome string.", st);

return 0;

}

① Output:

Enter the string: Srimanta

Srimanta is not a palindrome string.

11 Write a program to access a one dimension array using pointer

```
#include <stdio.h>
int main ()
{
    int arr [] = {1, 2, 3, 4, 5, 6, 7};
    int *ptr;
    ptr = arr;
    printf ("In the array elements are : ");
    for (i = 0; i < 7; i++)
        printf ("%d ", *(ptr + i));
    return 0;
}
```

Output:

The array elements are : 1 2 3 4 5 6 7

36) /* WAP to concatenate two strings using pointers */

```
#include <stdio.h>
void concat(char *str1, char *str2)
{
    while (*str1)
        str1++;
    while (*str2)
    {
        *str1 = *str2;
        str1++;
        str2++;
    }
    *str1 = '\0';
}

int main()
{
    char string1[100], string2[50];
    printf("Enter the first string:\n");
    gets(string1);
    printf("Enter the second string:\n");
    gets(string2);
    concat(string1, string2);
    printf("concatenated string: %s\n", string1);
    return 0;
}
```

→ Output -

Enter the first string: Techno

Enter the second string: logy

concatenated string: Technology

Q) 1* WAP to enter two points and then calculate the distance between them */

```
→ #include <stdio.h>
→ #include <math.h>
int main()
{
    struct point
    {
        int x, y;
    } P1, P2;
    float distance;
    printf("Enter the coordinates of the first point: ");
    scanf("%d%d", &P1.x, &P1.y);
    printf("Enter the coordinates of the second point: ");
    scanf("%d%d", &P2.x, &P2.y);
    distance = sqrt(pow((P1.x - P2.x), 2) + pow((P1.y - P2.y), 2));
    printf("The coordinates of the first point are: %d %d", P1.x, P1.y);
    printf("The coordinates of the second point are: %d %d", P2.x, P2.y);
    printf("Distance between P1 and P2 = %.2f", distance);
    return 0;
}
```

→ **Output** -

Enter the coordinates of the first point: 6 9

Enter the coordinates of the second point: 8 5

The coordinates of the first point are: 6x9y

The coordinates of the second point are: 8x5y

Distance between P1 and P2 = 1.4142136.

90) /* C program to count the number of lines in a text file */

```
#include <stdio.h>
#define MAX_FILE_NAME 100
int main()
{
    FILE *fp;
    int count = 0;
    char file_name[MAX_FILE_NAME];
    char c;
    printf("Enter file name: ");
    scanf("%s", file_name, "n");
    if (fp == NULL)
    {
        printf("could not open the file");
        return 0;
    }
    for (c = getc(fp); c != EOF; c = getc(fp));
    if (c == '\n')
        count = count + 1;
    fclose(fp);
    printf("\nthe file %s has %d lines", file_name, count);
    return 0;
}
```

→ Output

82) /* WAP to find out the size of pointer variable */

```
#include <stdio.h>
int main()
{
    int *pnum;
    char *pch;
    float *pfnum;
    double *pdnum;
    long *plnum;
    printf("\n The size of integer variable is=%d", sizeof(int));
    printf("\n The size of integer pointer variable is=%d", sizeof(pnum));
    printf("\n The size of character variable is=%d", sizeof(char));
    printf("\n The size of Character pointer variable is=%d",
           sizeof(pch));
    printf("\n The size of float variable is=%d", sizeof(float));
    printf("\n The size of float pointer variable is=%d",
           sizeof(pfnum));
    printf("\n The size of double variable is=%d", sizeof(double));
    printf("\n The size of double pointer variable is=%d",
           sizeof(pdnum));
    printf("\n The size of long integer variable is=%d",
           sizeof(long int));
    printf("\n The size of long pointer variable is=%d",
           sizeof(plnum));
    return 0;
}
```

the size of long int variable is 8

83) *WAP to print all even numbers from m to n using pointers */

→ #include <stdio.h>

```

int main()
{
    int m, *pm;
    int n, *pn;
    printf("nEnter the starting and ending limit value: ");
    scanf("%d %d", &m, &n);
    while (*pm <= *pn)
    {
        if (*pm % 2 == 0)
            printf("n%d", *pm);
        else
            (*pm)++;
        continue;
    }
    return 0;
}

```

→ [Output] –

Enter the starting and ending limit value: 5 6

6

Q) Write a program to find out distance between two points using structure.

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

struct point
{
    float x;
    float y;
};

struct line
{
    struct point start;
    struct point end;
};

struct point midpoint(struct line);

float findDistance(struct line);

int main()
{
    struct point p;
    struct line myline;
    float distance;
    printf("Enter x coordinate of starting point: ");
    scanf("%f", &myline.start.x);
    printf("Enter y coordinate of starting point: ");
    scanf("%f", &myline.start.y);
    printf("Enter x coordinate of Ending point: ");
    scanf("%f", &myline.end.x);
    printf("Enter y coordinate of Ending Point: ");
    scanf("%f", &myline.end.y);

    distance = findDistance(myline);

    printf("The distance between (%.2f, %.2f) to (%.2f, %.2f)\n",
           myline.start.x, myline.start.y, myline.end.x,
           myline.end.y, distance);

    return 0;
}

float findDistance (struct line myline)
```

```
5
float distance;
distance = sqrt ((myline.start.x - myline.end.x) +
                  (myline.start.y - myline.end.y)) + (myline.start.y -
                  myline.end.y));
return distance;
}
```

→ **Output** -

Enter x coordinate of starting point: 2
Enter y coordinate of starting point: 5
Enter x coordinate of ending point: 7
Enter y coordinate of ending point: 3
The distance between (2.00, 5.00) & (7.00, 3.00) is 5.39

89) write a program to create, a structure named 'student' which has roll-no, name, marks as member variables. Read the variables value and display it.

```
→ #include <stdio.h>
struct student
{
    char name[50];
    int roll;
    float marks;
};

int main()
{
    struct student s;
    printf("Enter The Information of Students:\n");
    printf("Enter Name: ");
    scanf("%s", s.name);
    printf("Enter Roll No.: ");
    scanf("%d", &s.roll);
    printf("Enter marks: ");
    scanf("%f", &s.marks);
    printf("\nDisplaying Information\n");
    printf("Name: %s\n", s.name);
    printf("Roll: %d\n", s.roll);
    printf("Marks: %.2f\n", s.marks);
    return 0;
}
```

Output -

Enter the Information of Students:

Enter Name: Arifit

Enter Roll No: 3

Enter marks: 97

Displaying Information

Name : Arifit

Roll : 3

Marks: 97

Q1) /* WAP to find out Even / odd numbers using Macro */
→ # include <stdio.h>
define EVEN_ODD(n) ((n%2==0)?printf("Even"):printf("Odd"));
•
in main()
{ int num;
printf("Enter any number: ");
scanf("%d", &num);
EVEN_ODD(num);
return 0;
}

→ Output)

Enter any number: 7

Odd.

Enter any ^{or} number: 4
Even.

Q3) # Sum of two numbers using command line arguments

→ `#include < stdio.h >`

```
int main(int argc, char *argv[])
```

```
{ int i, sum = 0;
```

```
if (argc != 3)
```

```
{ printf("you have forgot to enter argument");
```

```
return 0;
```

```
}
```

```
printf("\n the sum is: ");
```

```
for (i = 1; i < argc; i++)
```

```
sum = sum + atoi(argv[i]);
```

```
printf("\n%d", sum);
```

```
return 0;
```

```
}
```

→ [Output] -

92) Program Using Command line argument ↗

```
→ #include <stdio.h>
int main (int argc, char *argv[])
{
    int i;
    printf ("In Program name: %s", argv[0]);
    if (argc < 2)
    {
        printf ("No arguments passed through command line");
    }
    else
    {
        printf ("Argument supplied: ");
    }
    for (i = 1; i < argc; i++)
    {
        printf ("\n\t", argv[i]);
    }
    return 0;
}
```

→ **Output** -

12) At wap to copy one file into another Copy one character at a time /*

```
#include <stdio.h>

int main()
{
    FILE *fp1, *fp2;
    int ch;
    char filename1[20], filename2[20];
    printf("\nEnter the name of the first file: ");
    gets(filename1);
    fflush(stdin);
    printf("\nEnter the name of the second file: ");
    gets(filename2);
    fflush(stdin);
    if ((fp1 = fopen(filename1, "r")) == NULL)
    {
        printf("Error opening the first file ");
        exit(1);
    }
    if ((fp2 = fopen(filename2, "w")) == NULL)
    {
        printf("Error opening the second file ");
        exit(1);
    }
    //copy from fp1 to fp2
    ch = fgetc(fp1);
    while (ch != EOF)
    {
        fputc(ch, fp2);
        ch = fgetc(fp1);
    }
    printf("\nFILE COPIED");
    fclose(fp1);
    fclose(fp2);
    return 0;
}
```

→ Output -

Q1) /* write a program to read a file character by character and display it simultaneously on the screen */

```
#include <stdio.h>
#include <string.h>
int main ()
{
    FILE *fp;
    int ch;
    char filename[20];
    printf ("Enter the filename: ");
    gets (filename);
    fp = fopen (filename, "r");
    if (fp == NULL)
    {
        printf ("Error Opening the file");
        exit(1);
    }
    ch = fgetc(fp);
    while (ch != EOF)
    {
        putchar(ch);
        ch = fgetc(fp);
    }
    fclose(fp);
    return 0;
}
```

Output :-