

Output:-

Enter two numbers: 15  
5  
Sum = 20

Title.....

Page No. 1

Q1 Write a program to calculate sum of two numbers and display the output.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    int a,b,c;
    printf("Enter two numbers: ");
    scanf("%d %d", &a, &b);
    c = a+b;
    printf("Sum = %d", c);
    return 0;
}
```

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Output:-

Enter the principal, rate and time: 5000

6.5

3

The simple interest = 975.000000

Total amount = 5975.000000

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02. Write a program to calculate simple interest and display the output.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float p,r,t, SI;
    printf("Enter the principal, rate and time:");
    scanf("%f %f %f", &p, &r, &t);
    SI = (p*r*t)/100;
    printf("The Simple interest = %f", SI);
    printf("\n Total amount = %f", SI+p);
    getch();
}
```

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Output :-

(a) Enter the radius of circle: 7  
Area of Circle = 153.860000

(b) Enter the breadth and height of triangle: 12  
6  
Area of triangle = 36.0000

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(a) circle

```
#include <stdio.h>
#include <conio.h>
void main(){
    int r;
    float ar;
    printf("Enter the radius of circle : ");
    scanf("%d", &r);
    ar = 3.14 * r * r;
    printf("Area of circle = %f", ar);
    getch();
}
```

(b) triangle

```
#include <stdio.h>
#include <conio.h>
void main(){
    int b, h;
    float ar;
    printf("Enter breadth and height of triangle : ");
    scanf("%d %d", &b, &h);
    ar = 0.5 * b * h;
    printf("Area of triangle = %f", ar);
    getch();
}
```

Outputs:-

(a) Enter length and breadth of rectangle : 10  
5

Area of rectangle = 50.000000

(b) Enter side of square : 8

Area of square = 64

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(c) rectangle

#include <stdio.h>

#include <conio.h>

void main () {

int l, b;

float ar;

printf ("Enter length and breadth of rectangle: ");

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

ar = l \* b;

printf ("Area of rectangle = %f", ar);

getch();

(d) Square

#include <stdio.h>

#include <conio.h>

void main () {

int s, ar;

printf ("Enter side of square: ");

scanf ("%d", &s);

ar = s \* s;

printf ("Area of square = %d", ar);

getch();

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Output:-

Enter a binary number: 1010  
1010 in decimal system: 10

Enter a decimal number: 10  
Binary Number: 1010

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Write a program to convert (a) binary number to decimal number

```
#include <stdio.h>
#include <math.h>
int main()
{
    int bin, dec, i;
    dec = 10;
    printf("Enter a binary number:");
    scanf("%d", &bin);
    int originalbin = bin;
    while (bin != 0)
    {
        int rem = bin % 10;
        if (rem != 0)
            dec = dec + rem * (int)pow(2, i);
        i++;
        bin /= 10;
    }
    printf("10d in decimal system : %d", originalbin, dec);
    return 0;
}
```

(b) Decimal to binary number.

```
#include <stdio.h>
int main()
{
    int dec, bin(0), i, n;
    printf("Enter a decimal number:");
    scanf("%d", &dec);
    i = 0;
```

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```
while (dec != 0) {  
    bin[i] = dec % 2;  
    dec /= 2;  
    i++;  
}  
n = i;  
printf("Binary Number: ");  
for (i = n - 1; i >= 0; i--) {  
    printf("%d", bin[i]);  
}  
return 0;
```

Output:-

Enter a number: 5  
You entered an odd number

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Write a program to check a number is even or odd.

```
#include <stdio.h>
int main()
{
    int a;
    printf("Enter a number: ");
    scanf("%d", &a);
    if (a%2 == 0)
        printf("You entered an even number\n");
    else
        printf("You entered an odd number\n");
    return 0;
}
```

Output:  
Enter a year: 2024  
2024 is a leap year.

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Write a program to check a year is leap year or not.

```
#include <stdio.h>
int main()
{
    int y;
    printf("Enter a year: ");
    scanf("%d", &y);
    if ((y % 4 == 0) && (y % 100 != 0) || (y % 400 == 0))
        printf("%d is a leap year", y);
    else
        printf("%d is not a leap year", y);
    return 0;
}
```

Output:-

Enter an integer: 153  
153 is an Armstrong number

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Write a program in C to check whether a number is Armstrong or not.

```
#include <stdio.h>
#include <math.h>
int main()
{
    int i, n, number, rem;
    i = 0;
    printf("Enter an integer:");
    scanf("%d", &number);
    for (i = number; i != 0; i /= 10)
    {
        float result = 0.0;
        for (i = number; i != 0; i /= 10)
            rem = i % 10;
        result += pow(rem, n);
    }
    if ((int)result == number)
        printf("%d is an Armstrong number", number);
    else
        printf("%d is not an Armstrong number", number);
    return 0;
}
```

Output:

Enter a number: 5

Table of 5 using for loop:

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

$$5 \times 3 = 15$$

$$5 \times 4 = 20$$

$$5 \times 5 = 25$$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

$$5 \times 8 = 40$$

$$5 \times 9 = 45$$

$$5 \times 10 = 50$$

Table of 5 using while loop:

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

$$5 \times 3 = 15$$

$$5 \times 4 = 20$$

$$5 \times 5 = 25$$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

$$5 \times 8 = 40$$

$$5 \times 9 = 45$$

$$5 \times 10 = 50$$

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Write a program in C to print table using for loop and while loop.

```
#include <stdio.h>
int main(){
    int n,i;
    printf("Enter a number:");
    scanf("%d", &n);
    printf("Table of %d using for loop:\n", n);
    for(i=1; i<=10; i++){
        printf("%d * %d = %d\n", n, i, n*i);
    }
    printf("Table of %d using while loop:\n", n);
    for(i=1; while(i<=10){
        printf("%d * %d = %d\n", n, i, n*i);
        i++;
    }
    return 0;
}
```

Output:-

Enter the number of terms (n≥2): 8

0 1 1 2 3 5 8 13

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Write a program in C to generate fibonacci series upto n terms.

```
#include <stdio.h>
int main()
{
    int n, i;
    printf("Enter the number of terms (n≥2): ");
    scanf("%d", &n);
    int t1 = 0;
    int t2 = 1;
    printf("%d %d ", t1, t2);
    for (i = 3; i ≤ n; i++)
    {
        int t3 = t1 + t2;
        printf("%d ", t3);
        t1 = t2;
        t2 = t3;
    }
    return 0;
}
```

Output:

Enter number of rows and columns of 1st matrix: 2  
3  
Enter the number of rows and columns of second matrix: 3

3  
Enter the elements of first matrix:

Element 00: 2

Element 01: 3

Element 02: 1

Element 10: 5

Element 11: 3

Element 12: 4

Enter the elements of second matrix:

Element 00: 4

Element 01: 1

Element 02: 1

Element 10: 5

Element 11: 3

Element 12: 2

Element 20: 2

Element 21: 6

Element 22: 0

The product of two matrices is:

|    |    |    |
|----|----|----|
| 25 | 17 | 8  |
| 43 | 38 | 11 |

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Write a program to perform matrix multiplication and display the output.

```
#include <stdio.h>
int main(){
    int a[10][10], b[10][10], c[10][10];
    int n, m, q, p;
    printf("Enter the number of rows and columns of 1st matrix:");
    scanf("%d%d", &n, &m);
    printf("Enter the number of rows and columns of 2nd matrix:");
    scanf("%d%d", &p, &q);
    if (m != q){
        printf("Invalid size for multiplication!");
        return 0;
    }
    printf("Enter the elements of first matrix:\n");
    for (int i=0; i<n; i++){
        for (int j=0; j<m; j++){
            printf("Element %d%d:", i, j);
            scanf("%d", &a[i][j]);
        }
    }
    printf("Enter the elements of second matrix:\n");
    for (int i=0; i<n; i++){
        for (int j=0; j<p; j++){
            printf("Element %d%d:", i, j);
            scanf("%d", &b[i][j]);
        }
    }
}
```

```
printf("The product of two matrices is :");
for (int i=0; i<n; i++) {
    printf("\n");
    for (int j=0; j<p; j++) {
        c[i][j] = 0;
        for (int k=0; k<m; k++) {
            c[i][j] += a[i][k] * b[k][j];
        }
        printf("%d\t", c[i][j]);
    }
}
return 0;
```

Write a program in C to swap two integers using function by call by reference

```
#include <stdio.h>
void swap(int *a, int *b);
int main() {
    int x, y;
    printf("Enter a number:");
    scanf("%d", &x);
    printf("Enter another number:");
    scanf("%d", &y);
    printf("x: %d y: %d\n", x, y);
    swap(&x, &y);
    printf("After swapping\n");
    printf("x: %d y: %d\n", x, y);
    return 0;
}
```

```
void swap(int *a, int *b) {
    int t;
    t = *a;
    *a = *b;
    *b = t;
}
```

Output:-

Enter string 1: Jabalpur

Enter string 2: Computer

Length of string 1: 8

String1 after reverse: ruplabaj

Strings after concatenation: JabalpurComputer

String1 after copying : Computer

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Write a program in C to perform following string functions:-

- a. Length of string
- b. Copy of string
- c. Concatenation of string
- d. Reverse of string

```
#include <stdio.h>
#include <string.h>
int main()
{
    char s1[20], s2[20], s3[20];
    int l;
    printf("Enter string1:");
    scanf("%s", s1);
    printf("Enter string 2:");
    scanf("%s", s2);
    strcpy(s3, s1);
    printf(l = strlen(s1));
    printf("Length of string1: %d\n", l);
    strrev(s1);
    printf("String1 after reverse: %s\n", s1);
    strcat(s3, s2);
    printf("Strings after concatenation: %s\n", s3);
    strcpy(s1, s2);
    printf("String1 after copying: %s\n", s1);
    return 0;
}
```

Output:-

Enter length of rectangle: 10

Enter breadth of rectangle: 5

Area of rectangle = 50.0000

Enter side of square: 5

Area of square = 25.0000

Enter length of base of triangle: 6

Enter height of triangle: 10

Area of triangle = 30.0000

Enter radius of circle: 7

Area of circle = 153.8600

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Write a program to calculate area of rectangle, square, triangle and circle using functions.

```
#include <stdio.h>
float rec_area(float l, float b);
float square_area(float s);
float triangle_area(float b, float h);
float circle_area (float r);

int main()
{
    float a, b, s;
    printf("Enter length of rectangle:");
    scanf("%f", &a);
    printf("Enter breadth of rectangle:");
    scanf("%f", &b);
    printf("Area of rectangle = %f\n", rec_area(a,b));
    printf("Enter side of square:");
    scanf("%f", &s);
    printf("Area of square = %f\n", square_area(s));
    printf("Enter length of base of triangle:");
    scanf("%f", &b);
    printf("Enter height of triangle:");
    scanf("%f", &s);
    printf("Area of triangle = %f\n", triangle_area(b,s));
    printf("Enter radius of circle:");
    scanf("%f", &r);
    printf("Area of circle = %f\n", circle_area(r));
    return 0;
}
```

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float area  
float rec\_area (float l, float b) {  
 float ar;  
 ar = l \* b;  
 return ar;  
}

float square\_area (float s) {  
 float ar;  
 ar = s \* s;  
 return ar;  
}

float triangle\_area (float b, float h) {  
 float ar;  
 ar = 0.5 \* b \* h;  
 return ar;  
}

float circle\_area (float r) {  
 float ar;  
 ar = 3.14 \* r \* r;  
 return ar;  
}