

LAB-8

1. Write a program in C to display the cube of the number upto given integer.

```
main.c
1  #include<stdio.h>
2
3  int Calculte_Cube(int Number);
4
5  int main()
6  {
7      int i,number, cube;
8
9      printf(" \n Please Enter no. of terms: ");
10     scanf("%d", &number);
11     for(i=1;i<=number;i++)
12     {
13         cube = Calculte_Cube(i);
14
15         printf("\n Cube of a given number %d is = %d", i, cube);
16     }
17
18     return 0;
19 }
20
21 int Calculte_Cube(int Number)
22 {
23     return Number * Number * Number;
24 }
```

```
Please Enter no. of terms: 5

Cube of a given number 1 is = 1
Cube of a given number 2 is = 8
Cube of a given number 3 is = 27
Cube of a given number 4 is = 64
Cube of a given number 5 is = 125

...Program finished with exit code 0
Press ENTER to exit console.
```

2. Write a program in C to display the multiplication table of a given integer.

```
main.c
1  #include<stdio.h>
2
3  void tables(int);
4
5  int main()
6  {
7      int num;
8
9      printf("Enter a positive number\n");
10     scanf("%d", &num);
11
12     printf("\nMultiplication Table for %d is:\n", num);
13
14     tables(num);
15
16     return 0;
17 }
18
19 void tables(int num)
20 {
21     int count;
22
23     for(count = 1; count <= 10; count++)
24     {
25         printf("%d x %d = %d\n", num, count, num*count);
26     }
27 }
```

```
Enter a positive number
5

Multiplication Table for 5 is:
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50

...Program finished with exit code 0
Press ENTER to exit console.
```

3. Write a program in C to display the n terms of odd natural number and their sum .

Test Data

Input number of terms : 10

Expected Output :

The odd numbers are :1 3 5 7 9 11 13 15 17 19

The Sum of odd Natural Number upto 10 terms : 100

```

main.c
1  #include <stdio.h>
2
3  void main()
4  {
5      int a;
6
7      printf("Input number of terms : ");
8      scanf("%d",&a);
9      odd(a);
10
11 }
12
13 int odd(int n)
14 {
15     int i,sum=0;
16     printf("\nThe odd numbers are :");
17     for(i=1;i<=n;i++)
18     {
19         printf("%d ",2*i-1);
20         sum+=2*i-1;
21     }
22     printf("\nThe Sum of odd Natural Number upto %d terms : %d \n",n,sum);
23 }

```

main.c:9:4: warning: implicit declaration of function

Input number of terms : 3

The odd numbers are :1 3 5

The Sum of odd Natural Number upto 3 terms : 9

...Program finished with exit code 49

Press ENTER to exit console.

4. Write a program in C to display the n terms of even natural number and their sum.

```
main.c
1  #include <stdio.h>
2
3  void main()
4  {
5      int a;
6
7      printf("Input number of terms : ");
8      scanf("%d",&a);
9      even(a);
10
11 }
12
13 int even(int n)
14 {
15     int i,sum=0;
16     printf("\nThe even numbers are :");
17     for(i=1;i<=n;i++)
18     {
19         printf("%d ",2*i);
20         sum+=2*i;
21     }
22     printf("\nThe Sum of odd Natural Number upto %d terms : %d \n",n,sum);
23 }
```

input

```
main.c:9:4: warning: implicit declaration of function 'even' [-Wimplicit-function-declaration]
Input number of terms : 3

The even numbers are :2 4 6
The Sum of odd Natural Number upto 3 terms : 12
```

5. Write a C program to calculate the factorial of a given number.

```
main.c
1  #include <stdio.h>
2
3  int fact(int);
4
5  void main()
6  {
7      int n,factorial;
8
9      printf("Enter a number to calculate it's factorial\n");
10     scanf("%d",&n);
11     factorial=fact(n);
12     printf("Factorial of the num(%d) = %d\n",n,factorial);
13 }
14
15 int fact(int N)
16 {
17     int i,f=1;
18     for(i=1;i<=N;i++)
19     {
20         f=f*i;
21     }
22     return f;
23 }
```

Enter a number to calculate it's factorial
9
Factorial of the num(9) = 362880

...Program finished with exit code 33
Press ENTER to exit console.□

6. Write a program in C to display the first n terms of Fibonacci series.
Fibonacci series 0 1 2 3 5 8 13

Test Data :

Input number of terms to display : 10

Expected Output :

Here is the Fibonacci series upto to 10 terms :

0 1 1 2 3 5 8 13 21 34

```
main.c
1  #include<stdio.h>
2
3  void fibo(int N);
4  void main()
5  {
6      int n;
7      printf("\nEnter a number to generate fibonacci series for first n terms\n");
8      scanf("%d",&n);
9      fibo(n);
10 }
11
12 void fibo(int N)
13 {
14     int i,c=0;
15     int a=0;
16     int b=1;
17     printf("Fibonacci series for %d terms:-\n",N);
18     for(i=0;i<N;i++)
19     {
20         printf("%d ",c);
21         a=b;
22         b=c;
23         c=a+b;
24     }
25 }
```

input

```
Enter a number to generate fibonacci series for first n terms
10
Fibonacci series for 10 terms:-
0 1 1 2 3 5 8 13 21 34

...Program finished with exit code 10
Press ENTER to exit console.
```

7. Write a program in C swapping of two numbers using call by value and call by reference both.

Call by reference


```

main.c
1  #include <stdio.h>
2  void swap(int*, int*);
3  int main()
4  {
5      int n1, n2;
6
7      printf("Enter the value of n1 and n2\n");
8      scanf("%d%d",&n1,&n2);
9
10     printf("Before Swapping\nn1 = %d\nn2 = %d\n", n1, n2);
11
12     swap(&n1, &n2);
13
14     printf("After Swapping\nn1 = %d\nn2 = %d\n", n1, n2);
15
16     return 0;
17 }
18 void swap(int *n1, int *n2)
19 {
20     int t;
21
22     t = *n2;
23     *n2 = *n1;
24     *n1 = t;
25 }
26

```

```

Enter the value of n1 and n2
23
45
Before Swapping
n1 = 23
n2 = 45
After Swapping
n1 = 45
n2 = 23

...Program finished with exit code 0
Press ENTER to exit console.

```


Call by Value

```
main.c
1  #include <stdio.h>
2  void swap(int, int);
3  int main()
4  {
5      int n1, n2;
6
7      printf("Enter the value of n1 and n2\n");
8      scanf("%d%d",&n1,&n2);
9
10     printf("Before Swapping\nn1 = %d\nn2 = %d\n", n1, n2);
11
12     swap(n1,n2);
13
14
15
16     return 0;
17 }
18 void swap(int n1, int n2)
19 {
20     int t;
21
22     t = n2;
23     n2 = n1;
24     n1 = t;
25     printf("After Swapping\nn1 = %d\nn2 = %d\n", n1, n2);
26 }
27
```

```
Enter the value of n1 and n2
1
23
Before Swapping
n1 = 1
n2 = 23
After Swapping
n1 = 23
n2 = 1

...Program finished with exit code 0
Press ENTER to exit console.
```