C programming Examples

Print Number Entered By User Using printf() and scanf().

Objective:- In this program, integer entered by the user is stored in a variable. Then, the stored data is displayed on the screen using printf() function.

Program:-
```c
#include<stdio.h>
#include<conio.h>
void  main()
{
  int number;
  clrscr();
  printf("Enter an integer: ");
  scanf("%d", &number);
  printf("You entered: %d", number);
  getch();
}
```
Output:-
```
Enter A Number: 25
You entered: 25
```

C Program to Add Two Integers

Objective:- In this program, user is asked to enter two integers. Then, the sum of those two integers is stored in a variable and displayed on the screen.

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
  int a,b,sum;
  //clrscr();
  printf("Enter Value of Number A: ");
  scanf("%d",&a);
  printf("Enter Value of Number B: ");
  scanf("%d",&b);
  sum=a+b;
  printf("Sum of A+B: %d",sum);
  getch();
}
```

Output:-
```
Enter Value of Number A: 5
Enter Value of Number B: 2
Sum of A+B: 7
```

C program to swap two number variables using Third Variable.

Objective:- This program will swap values of tow variable using third variable temp.

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
  int a,b,temp;
  clrscr();
  printf("Enter Value of Number A: ");
  scanf("%d",&a);
  printf("Enter Value of Number B: ");
  scanf("%d",&b);
  printf("\nValues before swapping A=%d, B=%d",a,b);
  temp=a;
  a=b;
  b=temp;
  printf("\nValues after swapping A=%d, B=%d",a,b);
  getch();
}
```

Output:-
Enter Value of Number A: 5
Enter Value of Number B: 6
Values before swapping A=5, B=6
Values after swapping A=6, B=5

C program to swap two number variables without using Third Variable.

Objective:- This program will swap values of tow variable using without third variable temp.

Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int a,b,temp;
   clrscr();
   printf("Enter Value of Number A: ");
   scanf("%d",&a);
   printf("Enter Value of Number B: ");
   scanf("%d",&b);
   printf("\nValues before swapping A=%d, B=%d",a,b);
   a=a+b;
   b=a-b;
   a=a-b;
   printf("\nValues after swapping A=%d, B=%d",a,b);
   getch();
}
```

Output:-
Enter Value of Number A: 5
Enter Value of Number B: 6
Values before swapping A=5, B=6
Values after swapping A=6, B=5

C program to check greater of two number.

Objective:- This program will take tow input from user and it will return greater number between them.

Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int a,b;
   //clrscr();
   printf("Enter Value of Number A: ");
   scanf("%d",&a);
   printf("Enter Value of Number B: ");
   scanf("%d",&b);
   if(a>b)
   {
      printf("A is Greater.");
   }
   else
   {
      printf("B is Greater.");
   }
   getch();
}
```

Output:-
Enter Value of Number A: 9
Enter Value of Number B: 5
A is Greater.

C program to check greater of Three number.

Objective:- This program will take three input from user and it will return greater number between them.

Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int a,b,c;
   //clrscr();
   printf("Enter Value of Number A: ");
   scanf("%d",&a);
   printf("Enter Value of Number B: ");
   scanf("%d",&b);
   printf("Enter Value of Number C: ");
   scanf("%d",&c);
   if(a>b)
   {
      if(a>c)
      {
         printf("A is Greater.");
      }
      else
      {
         printf("C is Greater.");
      }
   }
   else
   {
      if(b>c)
      {
         printf("B is Greater.");
      }
      else
      {
         printf("C is Greater.");
      }
   }
   getch();
}
```

Output:-
Enter Value of Number A: 5
Enter Value of Number B: 6
Enter Value of Number C: 4
B is Greater.

C program to check if Number is Even or Odd.
Objective:- This program will take number from user and check is it is Even or Odd.
Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int n,r;
    //clrscr();
    printf("Enter Value of Number: ");
    scanf("%d",&n);
    r=n%2;
    if(r==0)
    {
        printf("Number is Even.");
    }
    else
    {
        printf("Number is Odd.");
    }
    getch();
}
```

Output:-
Enter Value of Number: 5
Number is Odd.

C program to Calculate Gross Salary of Employee.
Objective:- This program will calculate gross salary of employee using following formula.
Gross Salary=Basic Salary+ Daily Allowance + Personal Allowance+ Travel Allowance

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    float
basicSalary,pa,ta,da,grossSalary,daRate,paRate,taRate;
    //clrscr();
    printf("Enter Basic Salary:");
    scanf("%f",&basicSalary);
    printf("Enter Percentage of Daily Allowance:");
    scanf("%f",&daRate);
    printf("Enter Percentage of Personal Allowance:");
    scanf("%f",&paRate);
    printf("Enter Percentage of Travel Allowance:");
    scanf("%f",&taRate);
    da=basicSalary*daRate/100;
    pa=basicSalary*paRate/100;
    ta=basicSalary*taRate/100;
    grossSalary=basicSalary+da+pa+ta;
    printf("Gross Salary is: %.0f",grossSalary);
    getch();
}
```

Output:-
Enter Basic Salary:10000
Enter Percentage of Daily Allowance:15
Enter Percentage of Personal Allowance:20
Enter Percentage of Travel Allowance:10
Gross Salary is: 14500

C program to Calculate Percentages of Student from Given 5 subject.
Objective:- This program will get marks of five subject as input and it will print Percentage of Student.
Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int s1,s2,s3,s4,s5,total;
    float per;
    //clrscr();
    printf("Enter Marks of Subject S1: ");
    scanf("%d",&s1);
    printf("Enter Marks of Subject S2: ");
    scanf("%d",&s2);
    printf("Enter Marks of Subject S3: ");
    scanf("%d",&s3);
    printf("Enter Marks of Subject S4: ");
    scanf("%d",&s4);
    printf("Enter Marks of Subject S5: ");
    scanf("%d",&s5);
    total=s1+s2+s3+s4+s5;
    per=(total*100)/500;
    printf("Percentages of Student is %0.2f",per);
    getch();
}
```

Output:-
Enter Marks of Subject S1: 76
Enter Marks of Subject S2: 85
Enter Marks of Subject S3: 45
Enter Marks of Subject S4: 65
Enter Marks of Subject S5: 69
Percentages of Student is 68.00

C program to Calculate Grade from Percentage using if-else if Statement.

Objective:- This program will Count Grade for that student using if-else if statement.
Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int per;
    //clrscr();
    printf("Enter Percentage: ");
    scanf("%d",&per);
    if(per>=70)
    {
        printf("Grade A.");
    }
    else if(per>=60)
    {
        printf("Grade B");
    }
    else if(per>=50)
    {
        printf("Grade C");
    }
    else if(per>=35)
    {
        printf("Grade D");
    }
    else
    {
        printf("Grade F");
    }
    getch();
}
```

Output:-
Enter Percentage: 65
Grade B

C program to check the number is Positive or Negative or Zero.

Objective:- This program will input a number and check it for Positive, Negative or Zero.

Program:-

```
#include<stdio.h>
//#include<conio.h>
void main()
{
    int no;
    //clrscr();
    printf("Enter A Number: ");
    scanf("%d",&no);
    if(no>0)
    {
        printf("No is Positive.");
    }
    else if(no<0)
    {
        printf("No is Negative.");
    }
    else
    {
        printf("No is Zero.");
    }
    //getch();
}
```

Output:-
Enter A Number: 6
No is Positive.

C program for Menu Driven Arithmetic.
Objective:- This program will ask user to enter two numbers and then it will ask what operation to do on that values.
Operation can be '+','-','*' or '/'.

Program:-

```c
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a,b,result;
    char op;
    //clrscr();
    a=5;
    printf("Enter Operation from +, -, * or / : ");
    scanf("%c",&op);
    printf("Enter Value for Number A: ");
    scanf("%d",&a);
    printf("Enter Value for Number b: ");
    scanf("%d",&b);
    switch(op)
    {
        case '+':
            result=a+b;
            printf("%d + %d = %d",a,b,result);
            break;
        case '-':
            result=a-b;
            printf("%d - %d = %d",a,b,result);
            break;
        case '*':
            result=a*b;
            printf("%d * %d = %d",a,b,result);
            break;
        case '/':
            result=a/b;
            printf("%d / %d = %d",a,b,result);
            break;
        default:
                        printf("Enter Valued Input");
    }
    //getch();
}
```

Output:-
Enter Operation from +, -, * or / : +
Enter Value for Number A: 5
Enter Value for Number b: 6
5 + 6 = 11

C program to check the character is Vowel or Consonant.

Objective:- This program will get input as single character and it will check if it is Vowel or Consonant.

Program:-

```c
#include<stdio.h>
//#include<conio.h>
void main()
{
    char c;
    //clrscr();
        printf("Enter A Character: ");
        scanf("%c",&c);
        if(c=='a'||c=='e'||c=='i'||c=='o'||c=='u'||c=='A'||
c=='E'||c=='I'||c=='O'||c=='U')
        {
                        printf("Character is Vowel.");
        }
        else
        {
                        printf("Character is consonant.");
        }
    //getch();
}
```

Output:-
Enter A Character: a
Character is Vowel.

C program to input Array and output it to user.
Objective:- This program will get Array of Length 5 and it will display it with it's position.
Program:-

```c
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a[5],i;
    //clrscr();
        for(i=0;i<=4;i++)
        {
                printf("Enter No %d: ",i);
                scanf("%d",&a[i]);
        }
        for(i=0;i<=4;i++)
        {
                        printf("a[%d]=%d\n",i,a[i]);
        }
    //getch();
}
```

Output:-
Enter No 0: 6
Enter No 1: 3
Enter No 2: 8
Enter No 3: 9
Enter No 4: 1
a[0]=6
a[1]=3
a[2]=8
a[3]=9
a[4]=1

C program to find minimum number from Array.

Objective:- This program will input an array and it will find minimum element from it.

Program:-

```
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a[5],i,min;
    //clrscr();
        for(i=0;i<=4;i++)
        {
                printf("Enter No %d: ",i);
                scanf("%d",&a[i]);
        }
    min=a[0];
    for(i=0;i<=4;i++)
    {
            if(a[i]<min)
            {
                    min=a[i];
            }
    }
    printf("Minimum No is: %d",min);
    //getch();
}
```

Output:-
Enter No 0: 5
Enter No 1: 6
Enter No 2: 3
Enter No 3: 8
Enter No 4: 9
Minimum No is: 3

C program to find maximum number from Array.

Objective:- This program will input an array and it will find maximum element from it.

Program:-

```
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a[5],i,max;
    //clrscr();
        for(i=0;i<=4;i++)
        {
                printf("Enter No %d: ",i);
                scanf("%d",&a[i]);
        }
    max=a[0];
    for(i=0;i<=4;i++)
    {
            if(a[i]>max)
            {
                    max=a[i];
            }
    }
    printf("Max No is: %d",max);
    //getch();
}
```

Output:-
Enter No 0: 5
Enter No 1: 6
Enter No 2: 3
Enter No 3: 8
Enter No 4: 9
Max No is: 9

C program to input matrix.

Objective:- This program will ask user to choose size of matrix and then it will get all elements of that matrix from user and it will display the matrix.

Program:-

```
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a[10][10],i,j,r,c;
    //clrscr();
    printf("Enter Number of Rows in Matrix: ");
    scanf("%d",&r);
    printf("Enter Number of Coloums in Matrix: ");
    scanf("%d",&c);
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
                printf("Enter Value for Element (%d,
%d): ",i+1,j+1);
                scanf("%d",&a[i][j]);
                }
        }
    printf("Matrix A:\n");
    for(i=0;i<r;i++)
    {
            for(j=0;j<c;j++)
            {
            printf("%d ",a[i][j]);
            }
            printf("\n");
    }
//getch();
}
```

Output:-
Enter Number of Rows in Matrix: 2
Enter Number of Coloums in Matrix: 3
Enter Value for Element (1, 1): 5
Enter Value for Element (1, 2): 6
Enter Value for Element (1, 3): 2
Enter Value for Element (2, 1): 1
Enter Value for Element (2, 2): 5
Enter Value for Element (2, 3): 6
Matrix A:
5 6 2
1 5 6

C program to add two matrix.

Objective:- This program will take two matrix as input and it will count sum of two and display it.

Output:-
Enter Number of Rows in Matrix: 2
Enter Number of Coloums in Matrix: 2
Enter Value for Element (1, 1) for Matrix A: 3
Enter Value for Element (1, 2) for Matrix A: 6
Enter Value for Element (2, 1) for Matrix A: 4
Enter Value for Element (2, 2) for Matrix A: 5

Matrix A
3 6
4 5
Enter Value for Element (1, 1) for Matrix B: 2
Enter Value for Element (1, 2) for Matrix B: 6
Enter Value for Element (2, 1) for Matrix B: 5
Enter Value for Element (2, 2) for Matrix B: 7

Matrix B
2 6
5 7
Matrix A+B
5 12
9 12

Program:-

```c
#include<stdio.h>
//#include<conio.h>
void main()
{
    int a[10][10],b[10][10],sum[10][10],i,j,r,c;
    //clrscr();
    printf("Enter Number of Rows in Matrix: ");
    scanf("%d",&r);
    printf("Enter Number of Coloums in Matrix: ");
    scanf("%d",&c);
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
                printf("Enter Value for Element (%d,
%d) for Matrix A: ",i+1,j+1);
                scanf("%d",&a[i][j]);
                }

        }
        printf("\nMatrix A\n");
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
                sum[i][j]=a[i][j]+b[i][j];
                }

        }
        printf("\nMatrix A+B\n");
        for(i=0;i<r;i++)

                printf("%d ",a[i][j]);
                }
                printf("\n");
        }
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
                printf("Enter Value for Element (%d,
%d) for Matrix B: ",i+1,j+1);
                scanf("%d",&b[i][j]);
                }

        }
        printf("\nMatrix B\n");
        for(i=0;i<r;i++)
        {
                for(j=0;j<c;j++)
                {
                printf("%d ",b[i][j]);
                }
                printf("\n");
        }


        {
                for(j=0;j<c;j++)
                {
                printf("%d ",sum[i][j]);
                }
                printf("\n");
        }
    //getch();
}
```

Program to Print Pattern

Objective:- Bellow programs print the different pattern using Nested For Loop. First Pattern and then the output is given bellow.

Pattern 1:-
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d ",j);
        }
        printf("\n");
    }
getch();
}
```

Output:-
```
Enter Value of N:5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Pattern 2:-
```
*
* *
* * *
* * * *
* * * * *
```

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("*");
        }
        printf("\n");
    }
getch();
}
```

Output:-
```
*
* *
* * *
* * * *
* * * * *
```

Pattern 3:-
```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d ",i);
        }
        printf("\n");
    }
getch();
}
```

Output:-
Enter Value of N:5
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

Pattern 4:-
1
1 4
1 4 9
1 4 9 16
1 4 9 16 25

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d ",j*j);
        }
        printf("\n");
    }
getch();
}
```

Output:-
Enter Value of N:5
1
1 4
1 4 9
1 4 9 16
1 4 9 16 25

Pattern 5:-
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1

Program:-
```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d ",j%2);
        }
        printf("\n");
    }
getch();
```

Output:-
Enter Value of N:5
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1

Pattern 6:-
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
Program:-

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d ",j);
        }
        printf("\n");
    }
}
```

Output:-
Enter Value of N:5
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1

Pattern 7:-
* * * * *
* * * *
* * *
* *
*
Program:-

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

Output:-
Enter Value of N:5
* * * * *
* * * *
* * *
* *
*

Pattern 8:-

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

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n;
    clrscr();
    printf("Enter Value of N:");
    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");
    }
getch();
}
```

Output:-

```
Enter Value of N:5
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Pattern 9:-

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

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n,h,p;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
                h=n-i+1;
                for(p=1;p<=h;p++)
                {
                    printf(" ");
                }
      for(j=1;j<=i;j++)
      {
          printf("*");
      }
      printf("\n");
    }
getch();
}
```

Output:-

```
Enter Value of N:5
        *
      * *
    * * *
  * * * *
* * * * *
```

Pattern 10:-

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

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n,h,p;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
                h=n-i+1;
                for(p=1;p<=h;p++)
                {
                        printf(" ");
                }
        for(j=1;j<=i;j++)
        {
            printf("*");
        }
        printf("\n");
    }
    for(i=n-1;i>=1;i--)
    {               h=n-i+1;
                for(p=1;p<=h;p++)
                {       printf(" ");
                }
        for(j=1;j<=i;j++)
        {
            printf("*");
        }
        printf("\n");
    }
getch();
}
```

Output:-

```
Enter Value of N:5
        *
      * *
    * * *
  * * * *
* * * * *
  * * * *
    * * *
      * *
        *
```

Pattern 11:-

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

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n,h,p;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
                h=n-i+1;
                for(p=1;p<=h;p++)
                {
                        printf(" ");
                }
        for(j=1;j<=i;j++)
        {
            printf("* ");
        }
        printf("\n");
    }
    for(i=n-1;i>=1;i--)
    {
                h=n-i+1;
                for(p=1;p<=h;p++)
                {
                        printf(" ");
                }
        for(j=1;j<=i;j++)
        {
            printf("* ");
        }
    printf("\n");
    }
getch();
}
```

Output:-
```
Enter Value of N:5
    *
   * *
  * * *
 * * * *
* * * * *
 * * * *
  * * *
   * *
    *
```

Pattern 12:-
```
   *
  * * *
 * * * * *
* * * * * * *
```

Program:-

```c
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,n,h,p;
    clrscr();
    printf("Enter Value of N:");
    scanf("%d",&n);
    for(i=1;i<=n;i=i+2)
    {
                h=n-i+1;
                for(p=1;p<=h;p++)
                {
                        printf(" ");
                }
        for(j=1;j<=i;j++)
        {
            printf("* ");
        }
    printf("\n");
    }
getch();
}
```

Output:-
```
Enter Value of N:7
    *
   * * *
  * * * * *
 * * * * * * *
```