11-05-2024

LOOP / ITIRATIVE / REPETATIVE =>

-> For ()

-> while ()

-> do while ()

-> For ()

⅄-While ();-

SYNTAX :-

```
while ()
    initialization
    while (condition)
    {
        True Block statement
        increment / decrement
    }
```

FLOWCHART :-

INITIALIZATION

CONDITION

TRUE BLOCK STACEMENT

INC/DEC

NEXT
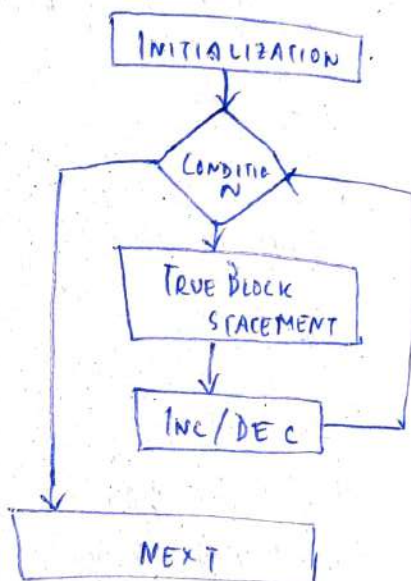
Q:- Generating 1st n - integers :-

```
-> # include < stdio.h>
main ()
{
    int i, n;
    printf (" enter n ");
    scanf ("%d", &n);
    i = 1;
    while (i <= m)
    {
        printf ("%d", i);
        i++;
    }
}
```

Q:- sum of n-integers :-

```c
-> # include < stdio.h >
main ( )
{ int i, m, s = 0;
    printf ("enter m");
    scanf ("%d", &m);
    i = 1;
    while (i <= m)
    {
        s = s + i;
        i++;
    }
    printf ("%d", s);
}
```

Q:- To print a Multiplication table :-

```c
-> # include < stdio.h >
# include < conio.h >
main ( )
{
    int i, m;
    printf ("enter m");
    scanf ("%d", &m);
    i = 1;
    while (i <= 10)
    {
        printf ("%d * %d = %d\n",
                m, i, m * i);
        i++;
    }
    getch ();
}
```

Q:- Factorial of n-integers

```c
-> # include < stdio.h >
main ( )
{
    int i, m, f = 1;
    printf ("enter m");
    scanf ("%d", &m);
    i = 1;
    while (i <= m)
    {
        f = f * i;
        i++;
    }
    printf ("%d", f);
}
```

Q:- Greatest common Divisor [GCD] of 2 numbers :-

```c
-> # include < stdio.h >
# include < conio.h >
main ( )
{
    int a, b;
    printf ("enter a, b");
    scanf ("%d %d", &a, &b);
    while (a! = b)
    {
        if (a > b)
        a = a - b;
        else
        b = b - a;
    }
    printf ("%d", a);
}
```

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LCM of 2 Numbers:-

```c
→ main()
{ int a, b, c, lcm;
    printf ("enter a, b ");
    scanf ("%d %d", &a, &b);
    c = a * b;
    while (a != b)
    {
        if (a > b)
            a = a - b;
        else
            b = b - a;
    }
    lcm = c / a;
    printf ("lcm = %d", lcm);
}
```

$a * b = LCM * GCD$

$LCM = \dfrac{a*b}{GCD}$ // c/a

$LCM = c/a$ (or) %b

```c
-> main ()
{ int a, b, lcm;
    printf ("enter a, b");
    scanf (" %d %d", &a, &b);
    lcm = (a > b) ? a : b;
    while (1)
    {
        if ((lcm % a == 0) && (lcm % b == 0))
        {
            printf (" LCM of %d & %d is %d \n", a, b, lcm);
            break;
        }
        ++ lcm;
    }
}
```

☆ 5 Programs enam