Welcome,

PROGRAMMERS

01.

What is Loops?

Loops (Repetition Structure)

Loops allows the **execution of a block of code repeatedly** as long as a specified **condition is true**.

1. Entry Control Loop
   - while loop
   - for loop

2. Exit Control Loop
   - do while loop

Loops (Repetition Structure)

In any type of loops, following three essential parts must have to be included:

Initialization

Condition

Increment
or
Decrement

++ --

01

Initialization

initialization

Initialization in a loop refers to **the process of setting an initial value** to the **loop control variable** before the loop starts executing.
The loop control variable is a variable that determines the

number of iterations or the condition for the loop to continue.

```
int i = 1;
```

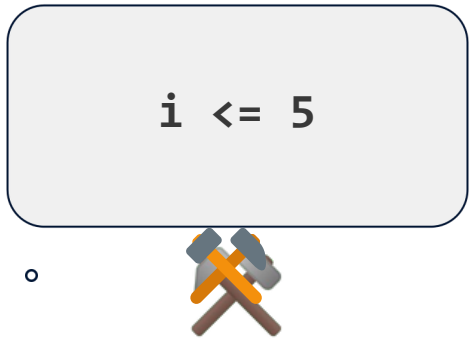
02

Condition

Condition

The condition in a loop is **a boolean expression** that **determines whether the loop should continue or terminate**.
It is **evaluated before each iteration** of the loop.

If the condition is true, the loop body is executed;
if it is false, the loop is terminated, and program control moves to the next statement after the loop.



Increment or decrement

increment / decrement

Increment and decrement in a loop refer to **the operation of increasing or decreasing the loop control variable**.
These operations are typically part of the loop control statement and are **executed after each iteration** of the loop.
They are **used to update the loop control variable** and play a

crucial role in determining when the loop should terminate.

increment / decrement

Increment and decrement can be done using three different approaches:

```
i = i + 1;
    or
i = i - 1;
```

Normal way

```
i += 1;
   or
i -= 1;
```

Shorthand syntax (using assignment operators)

```
i++;
  or
i--;
```

Using unary operator

Let’s see **while loop** in detail...

Syntax of while loop

The while loop is a **control flow statement** that **allows a block of code to be executed repeatedly as long as a specified condition is true**.

The basic **syntax** of the while loop is as follows:

```
Initialization
while (Condition)
{
    // Code to be executed if the condition is true
 // Increment / Decrement
}
```

Language

Let’s start now...