C Programming
Tutorial for Beginners
LECTURE - 16

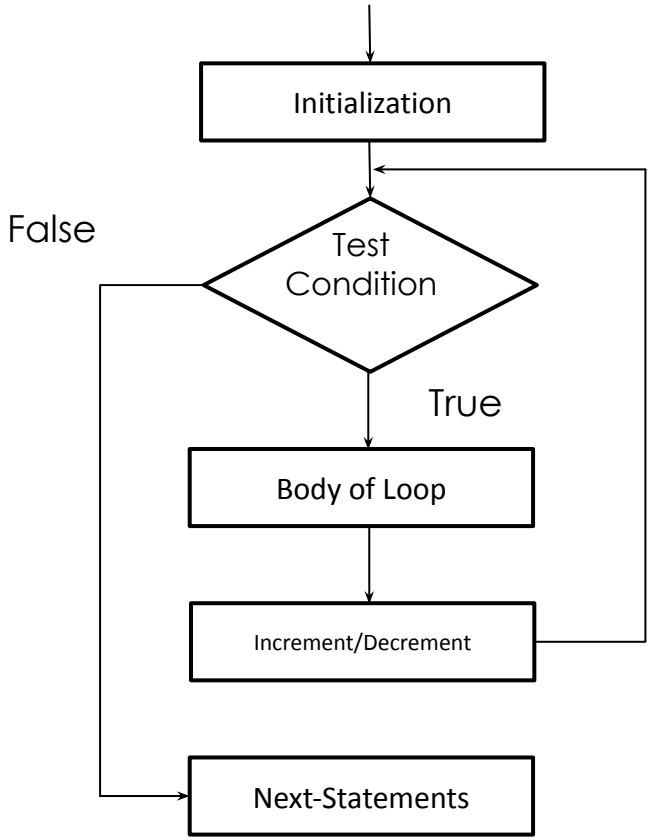
FOR Loop

1. The '**for**' loop is used to execute a statement or set of statements repeatedly for a **specified number of times**.
2. This loop is also known as **counter loop**.
3. The format of for loop is different from both while and do-while loop structures.

```
for(initialization; condition; increment/decrement)
{
    statements (body of loop);
}
```

All parts of for loop structure are optional. `for(; ;)`

FOR Loop – Flowchart – Working



1. **First** Initialization part is executed. It is executed only for the first time when control enters into loop.
2. Then, **condition is evaluated**. If it is **True**, the body of loop is executed.
3. Then, increment/decrement part is executed. It is last part of for loop.
4. Then, control again transfer to condition. If it is **True**, then body of loop and increment/decrement are executed. This process is repeated. If condition is **False**, the loop is terminated.

C Program Examples

1. Write a program first **10 numbers** and their average.
2. Write a program to input any positive number and display its digits in reverse order. **[Example: 12345 to 54321].**
3. Write a program to display sum of following series:
   $1^2 + 2^2 + 3^2 + \ldots + n^2$

In this Tutorial, we are using **Dev C++ 5.7.1** for coding