IEEE

KENYATTA UNIVERSITY
IEEE STUDENT BRANCH

WORKSHOP 2

BEGINNING C++

PROGRAMMING SERIES

WHAT WE WILL COVER TODAY

1. Overview of the previous workshop
2. Conditionals (if, else, switch)
3. Loops (while, do-while, for)
4. Function

What we covered last week

- Basics of C++

- Syntax

- Keywords, data types and variable types

- Basic arithmetics

Operators

An operator is a symbol that tells the compiler to perform specific mathematical or logical manipulations. They are:

a) Arithmetic operators (+,-,*,/,%,++,--)

b) Relational Operators (==, !=, <,>,<=,>=)

c) Logical Operators (&&, | |, !)

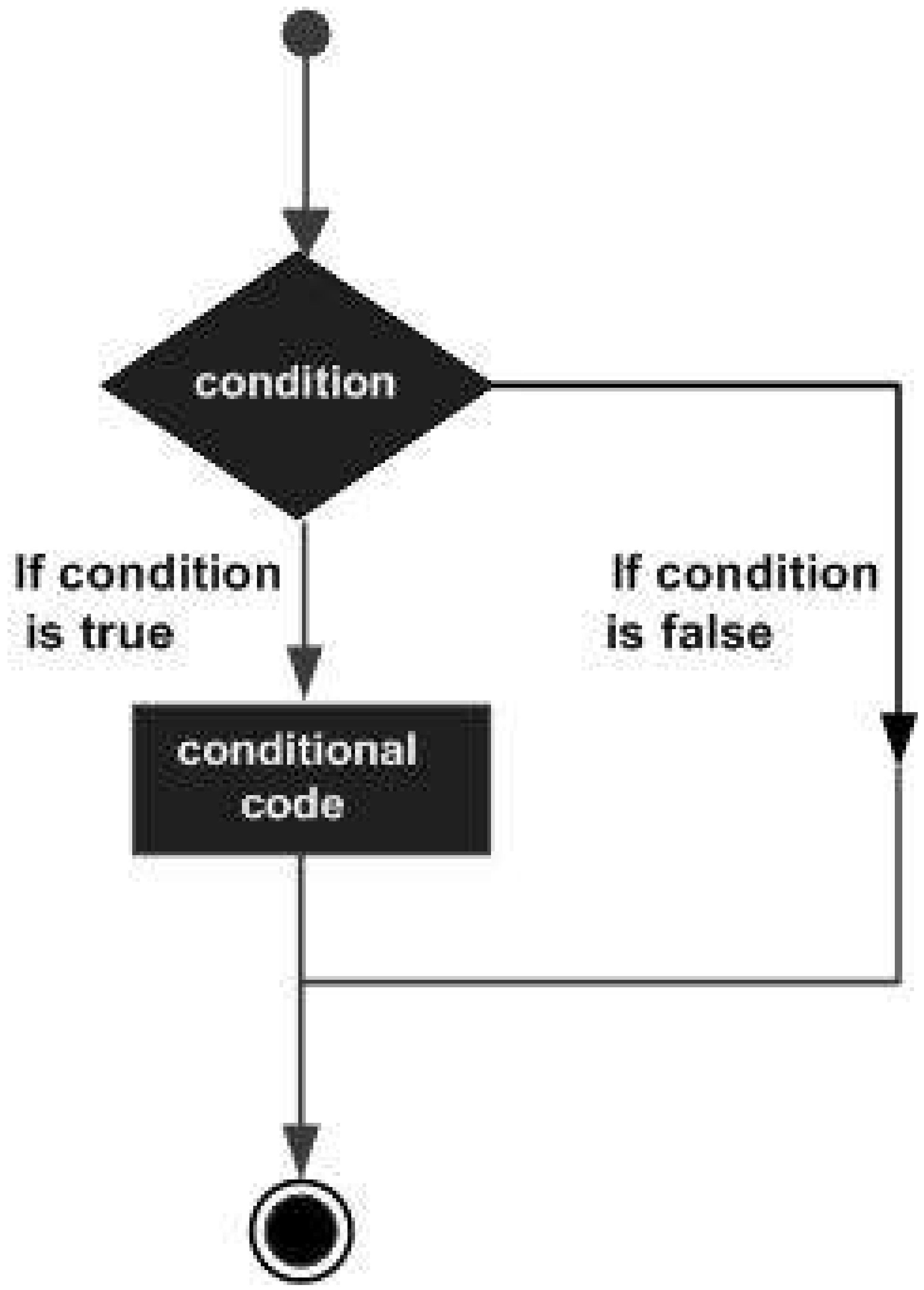
d) Assignment Operators (=, +=, -=, /=, *=, %=)

e) Bitwise Operators (<<, >>,)

CONDITIONALS

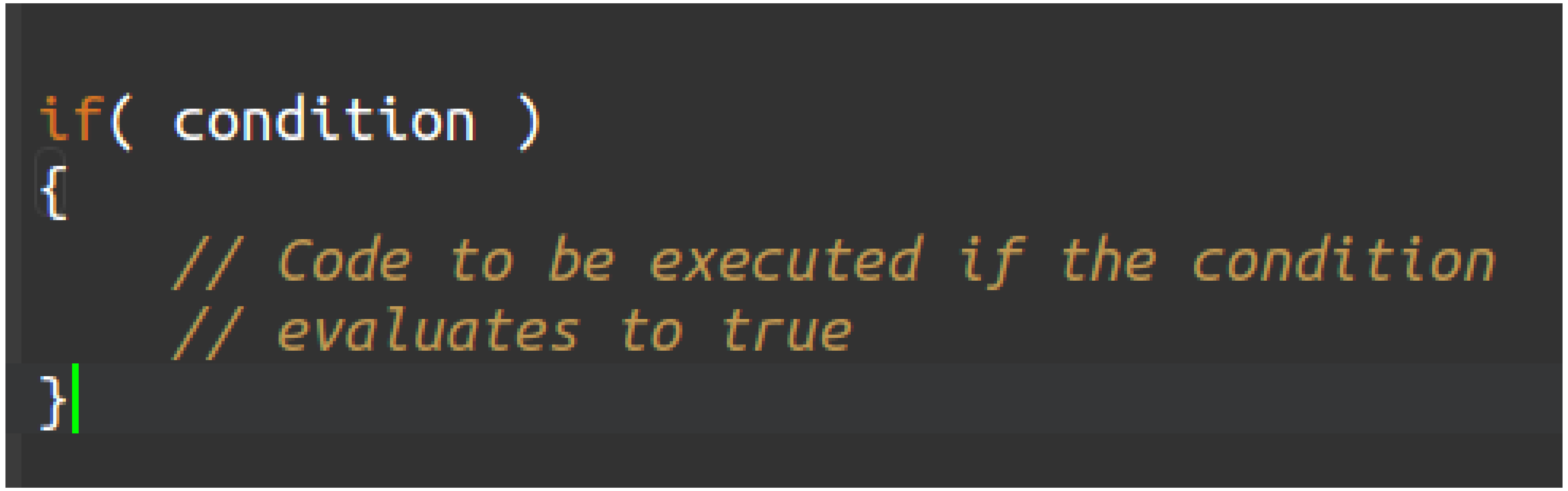
Executing a block of code depending on a condition state.

ie. allowing a transaction if the user has a balance equal or greater than the amount to transact

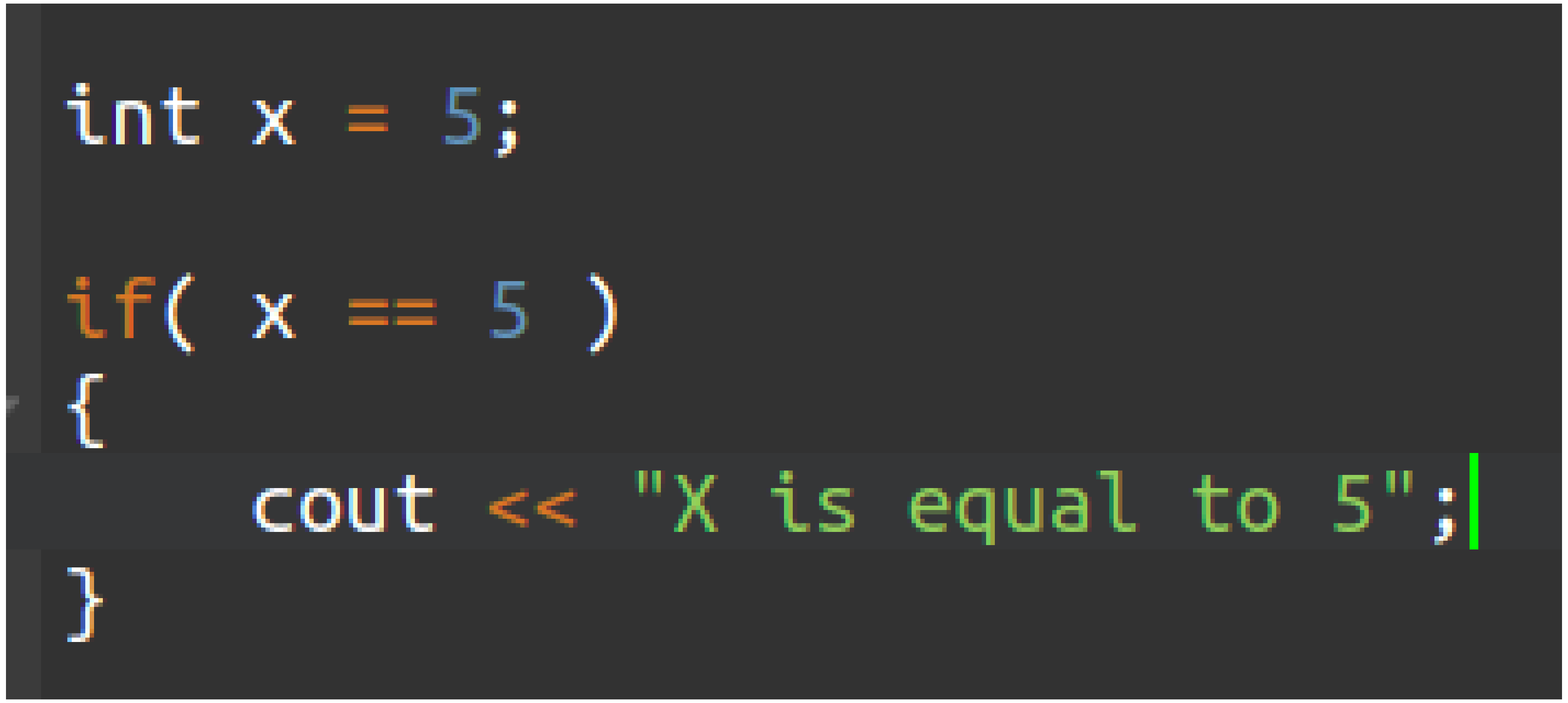


IF

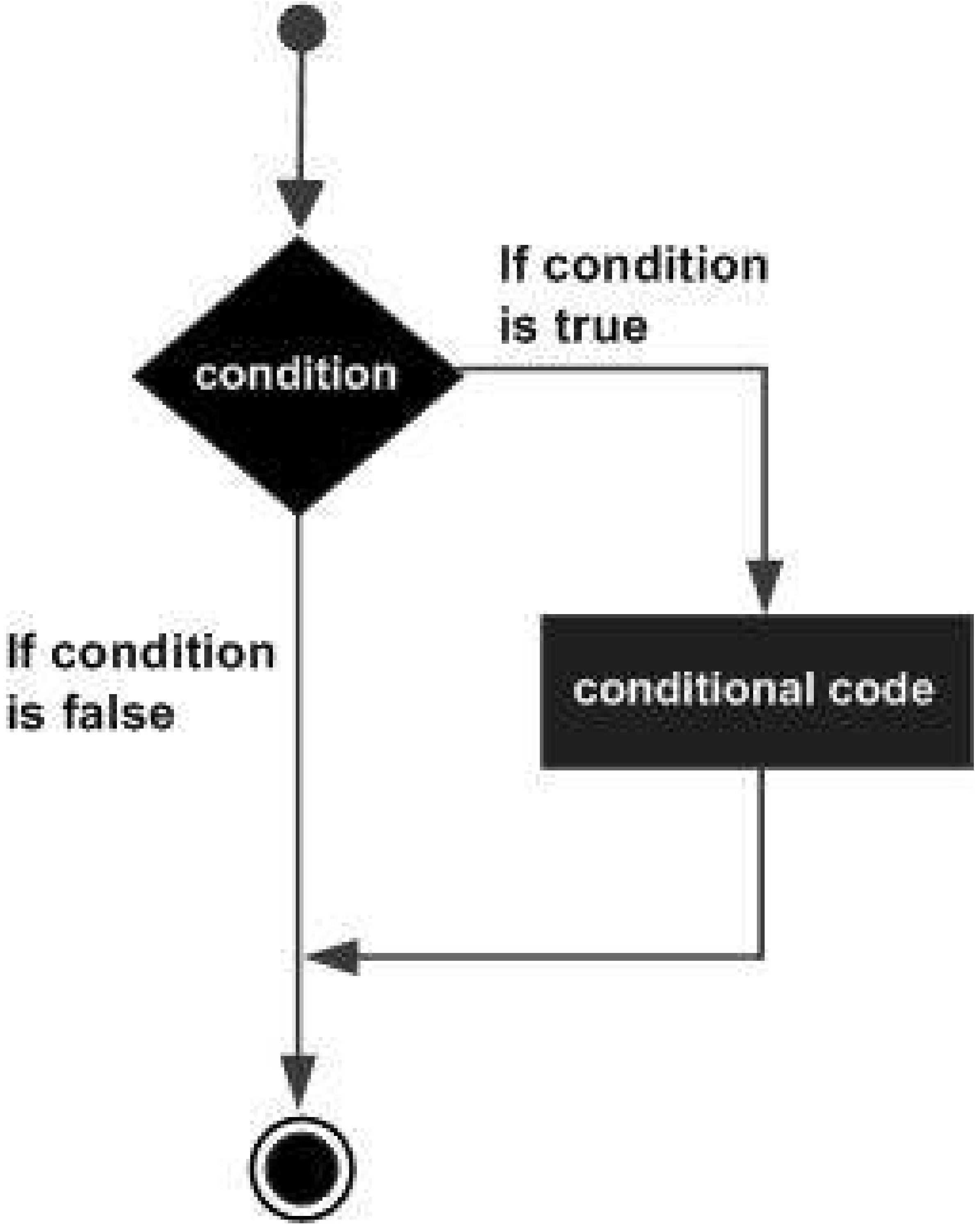
Syntax



```
if( condition )
{
    // Code to be executed if the condition
    // evaluates to true
}
```

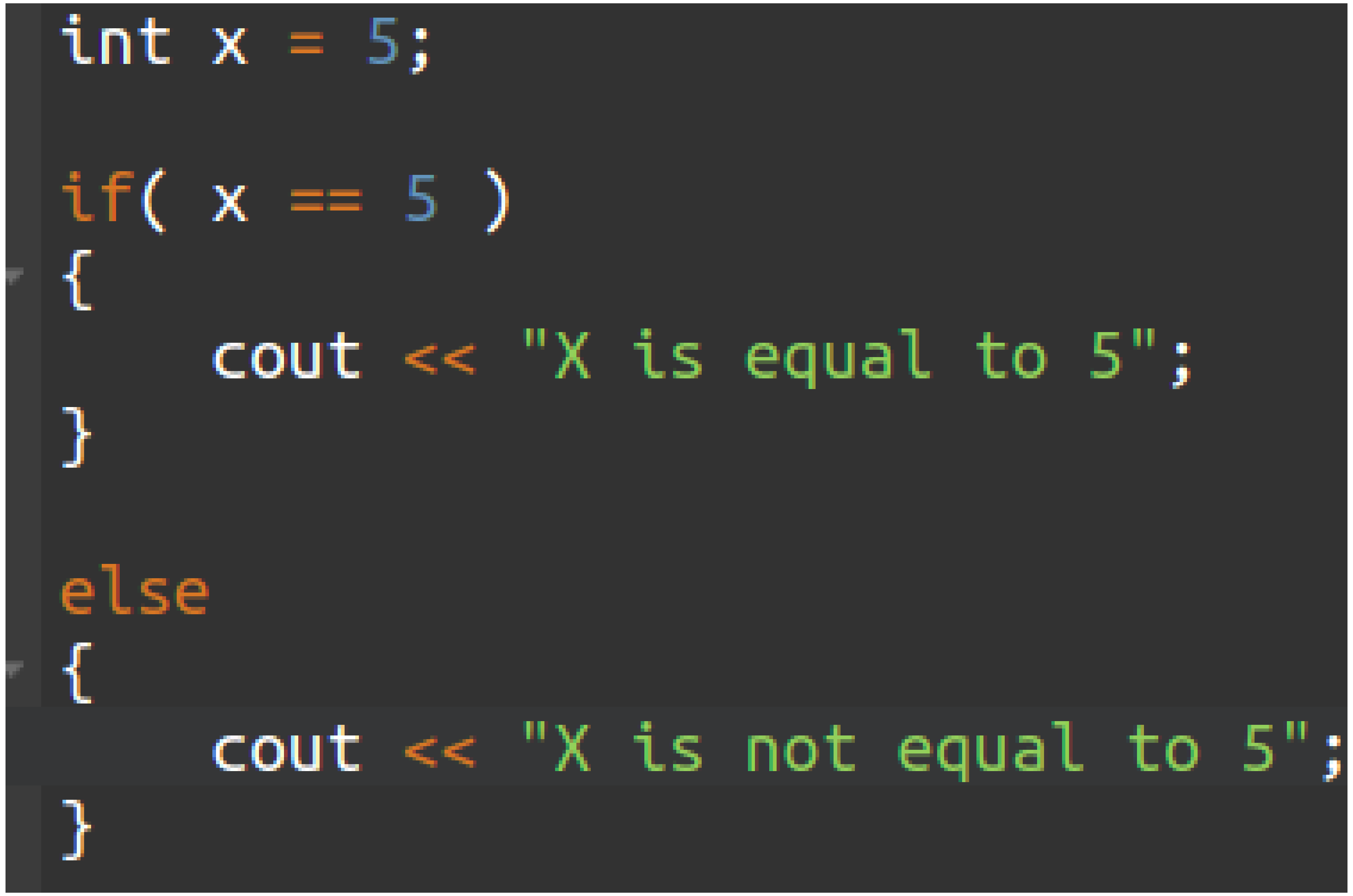


```
int x = 5;

if( x == 5 )
{
    cout << "X is equal to 5";
}
```

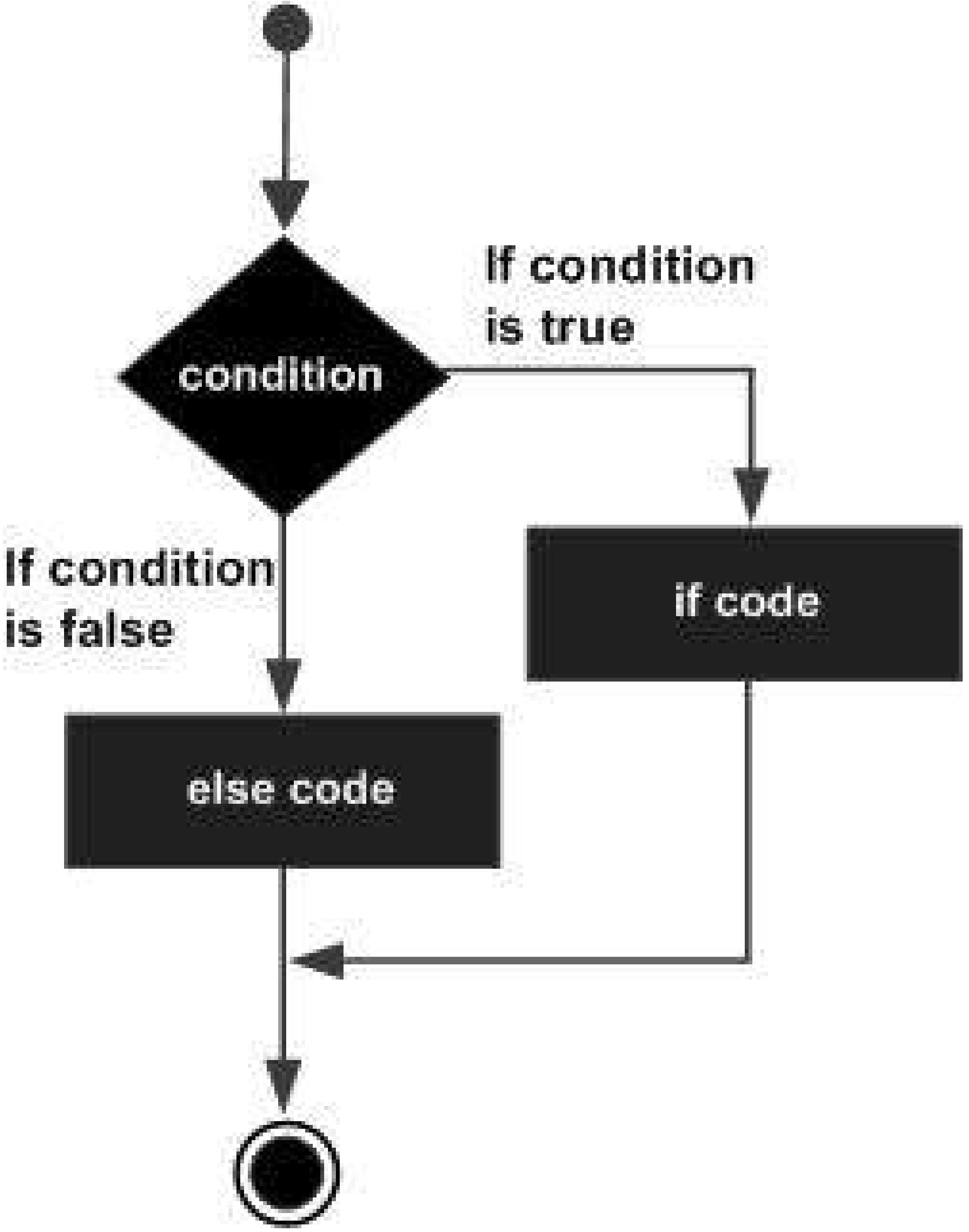


ELSE

Syntax



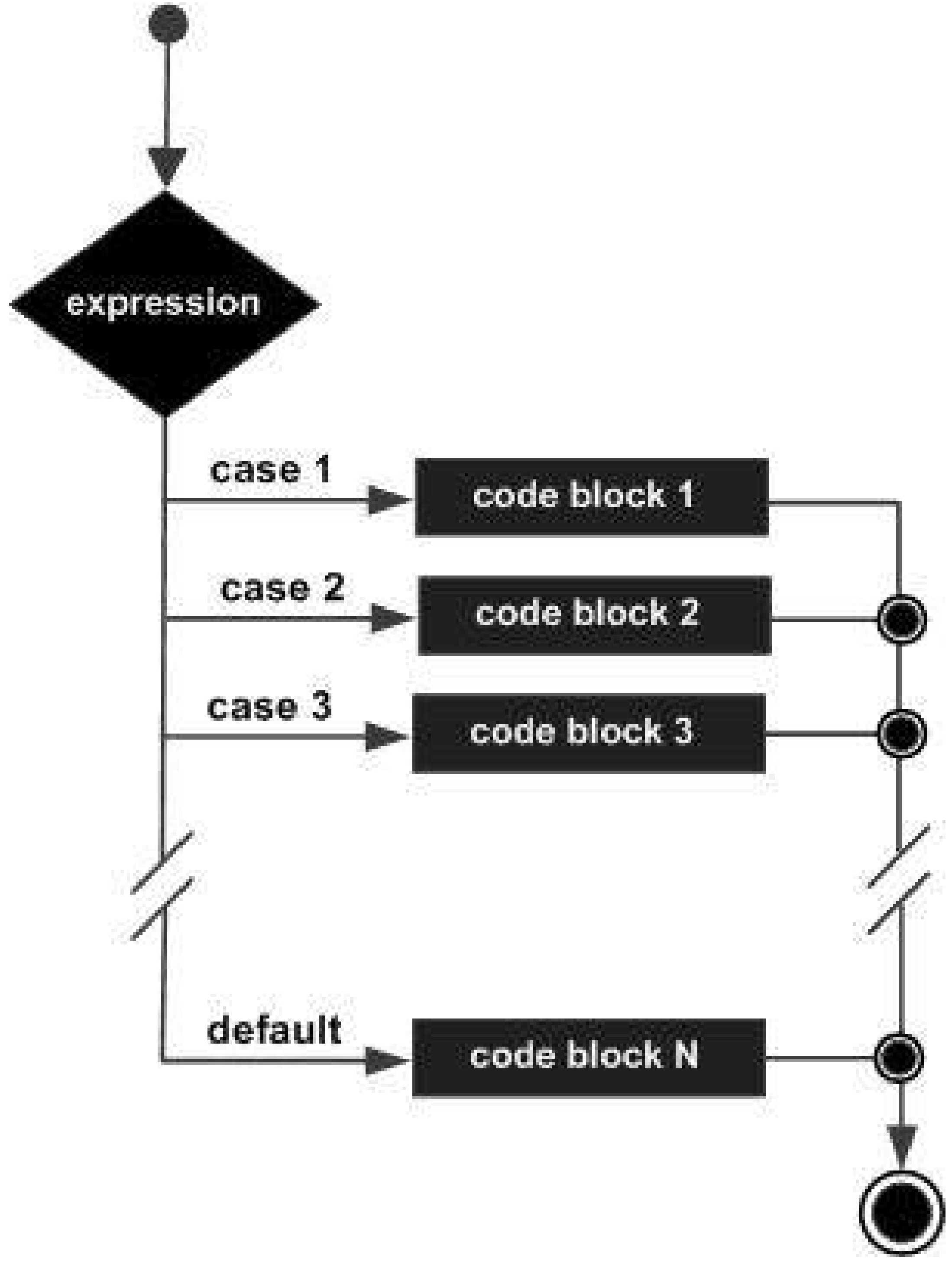
```
int x = 5;

if( x == 5 )
{
    cout << "X is equal to 5";
}

else
{
    cout << "X is not equal to 5";
}
```



SWITCH

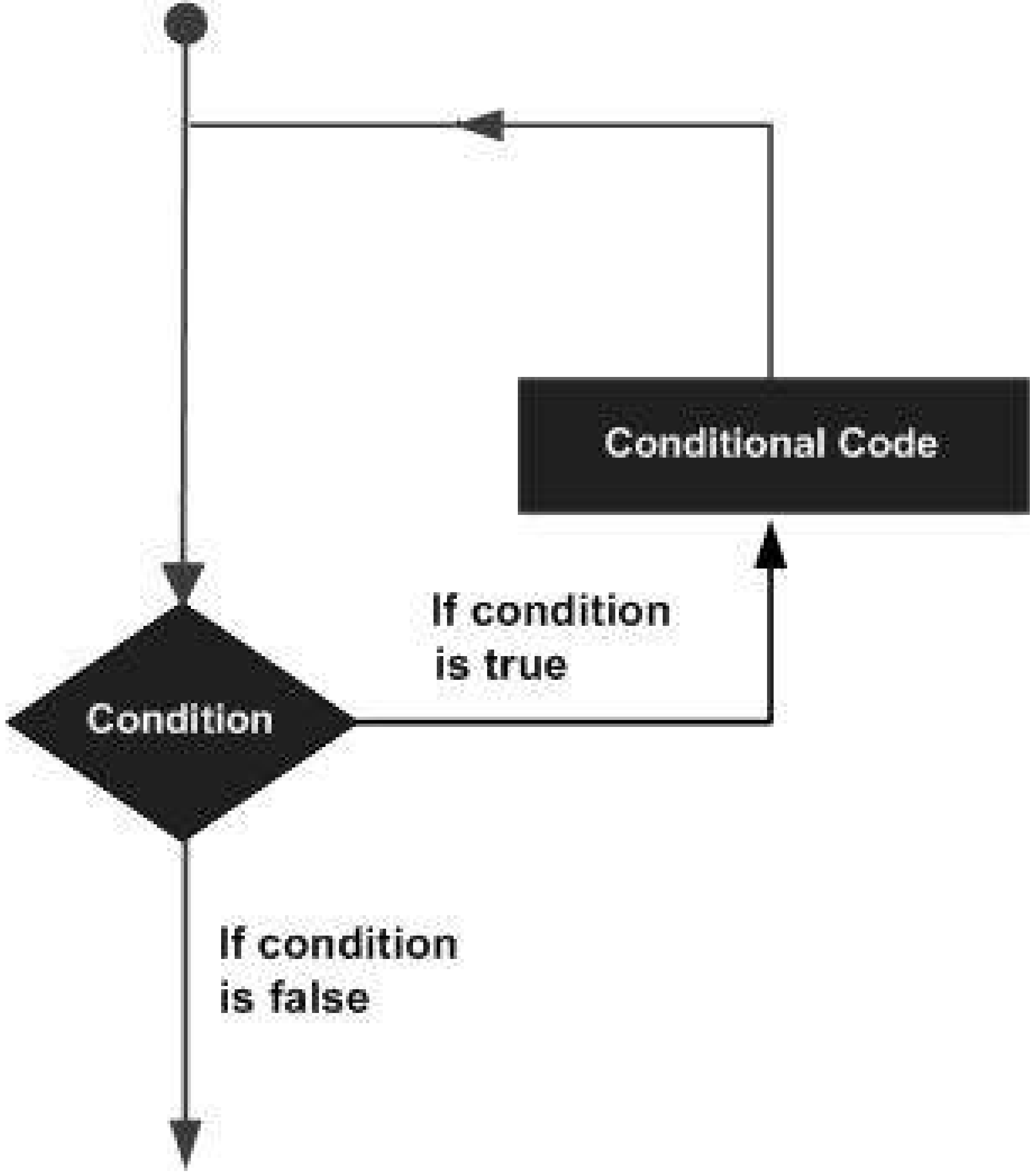
A switch statement allows a variable to be tested for equality against a list of values

When the variable being switched on is equal to a case, the statements following that case will execute until a break statement is reached



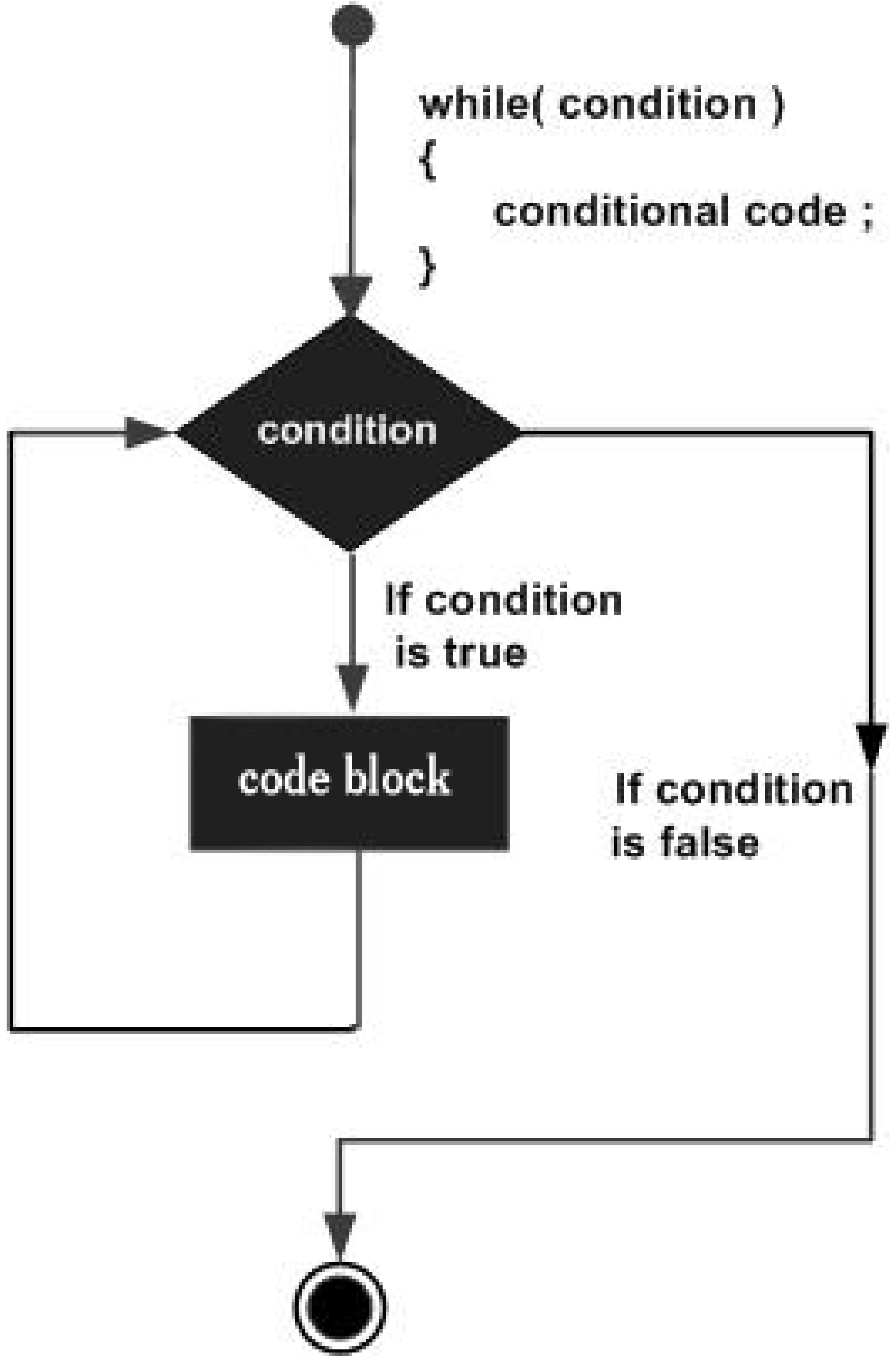
LOOPS

A loop statement allows us to execute a statement or group of statements multiple times



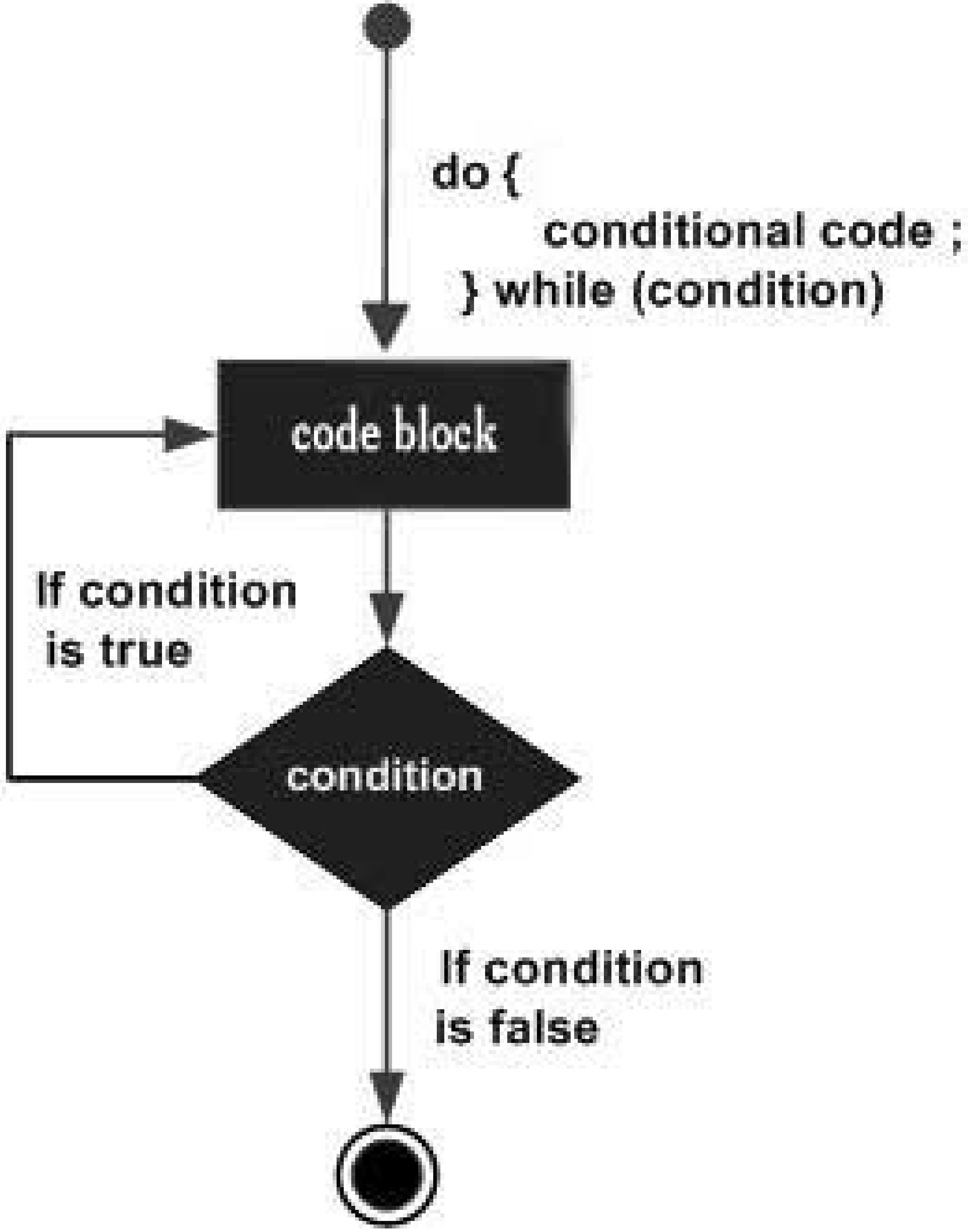
The general form of a loop statement in most of the programming languages

1. WHILE LOOP



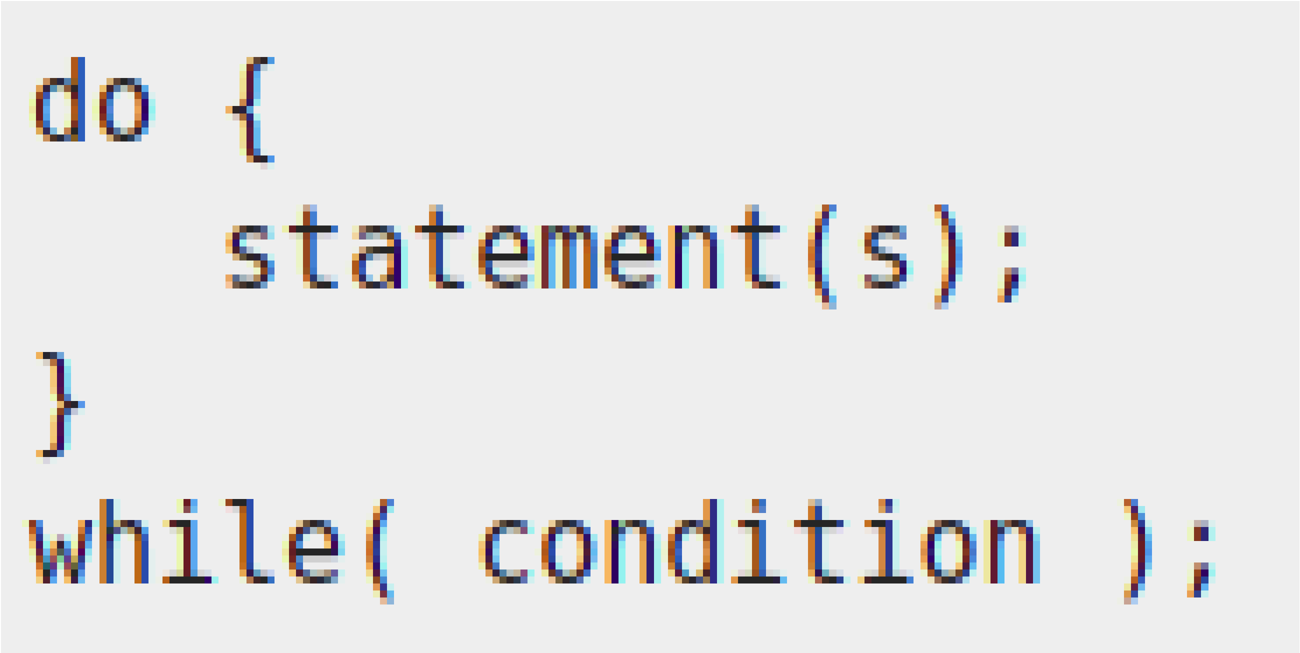
Checks the condition, if it evaluates to true, it executes the code block. The condition is checked again and the process repeated. If the condition evaluates to false, the loop exits.

2. DO WHILE LOOP



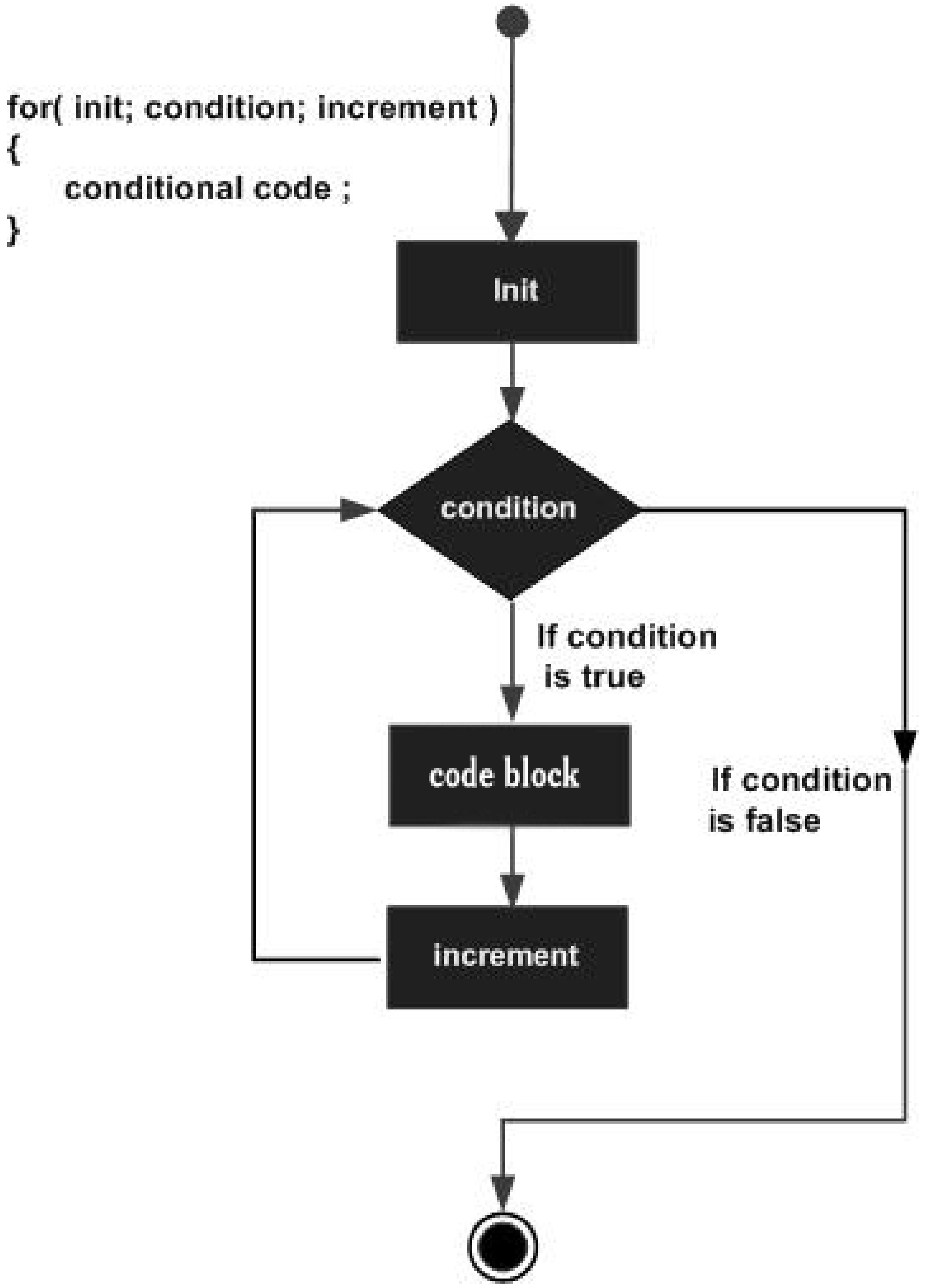
Executes the block of code then checks the conditional block.

Similar to the *while* loop only that it guarantees execution of the code at least once



```
do {
   statement(s);
}
while( condition );
```

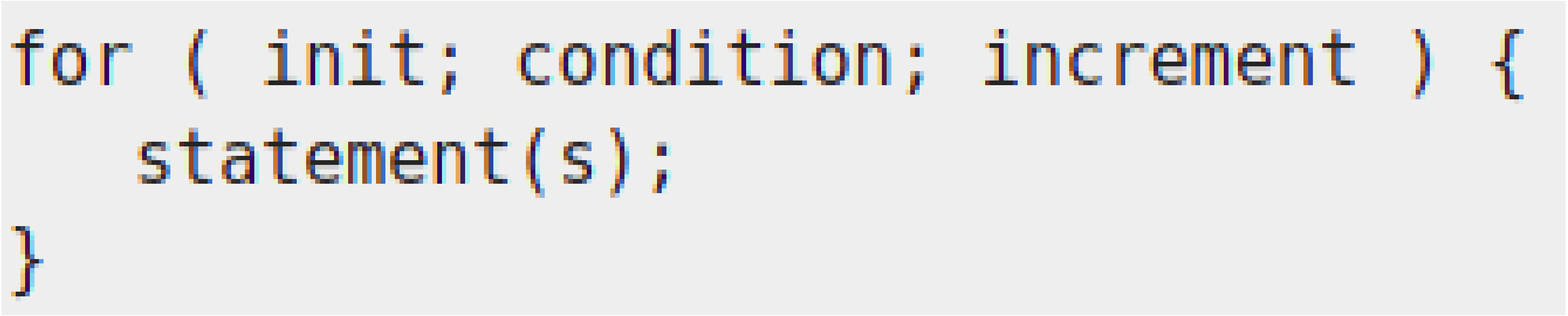
3. FOR LOOP



```
for( init; condition; increment )
{
    conditional code ;
}
```

Allows you to write loops that need to execute a specific number of times.

Begins with a loop control variable initialization, then the loop guard condition, then incremental/decremental steps then the body of the function.

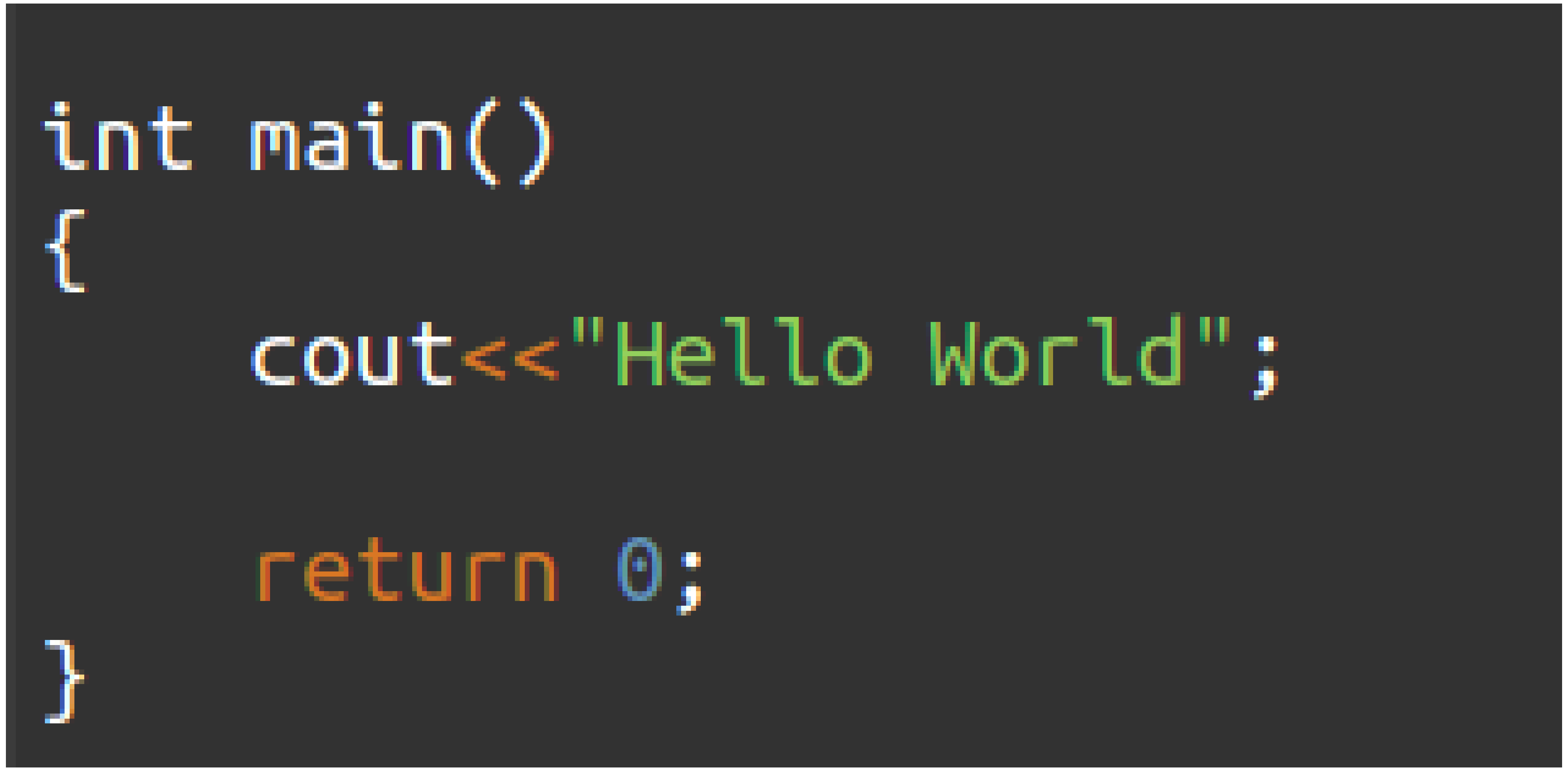


```
for ( init; condition; increment ) {
   statement(s);
}
```

FUNCTIONS

Is a group of statements that together perform a task

Every C++ program has at least one function, which is main()



```
int main()
{
    cout<<"Hello World";

    return 0;
}
```

main() function in C++

Syntax

```
return_type function_name( parameter_list )
{
    Body of the function
}
```

```
void foo( )
{
    // My function body
}
```

```
int sum( int a, int b )
{
    return a+b;
}
```

What we have looked at today

Operators
Conditionals
Loops
Functions

You will find today's code and an exercise in the folder Workshop2/main.cpp here https://github.com/lalan-ke/IEEE_KU-beginning-cpp

THANK YOU

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