Python Programming

- Presentation By Uplatz
- Contact us: https://training.uplatz.com
- Email: info@uplatz.com
- Phone: +44 7836 212635

Uplatz

Decision Making

Learning outcomes:

Introduction to Decision making Types of decision making statements

- if statement
- if…else statement
- nested if statement

elif statement

Decision Making

Decision making is a significant perspective in any programming language. It assists with taking an alternate way in the code dependent on the dynamic outcomes. This helps a great deal in process automation kind of stuff, where sooner or later in the process there could be numerous different ways, and the state by then chooses the way to be taken.

Decision Making

Decision making statements help us to make a decision based on some condition.
Suppose that you need to make a decision on 'whether a student passed or failed an exam' based on his obtained marks. So you may decide to put a condition for 'passing in exam' students need to obtain at least 50 marks out of 100. So if any student got at least 50 marks you can say that he/she passed, but if any student obtained less than 50 marks then you can say that he/she got failed in the exam.

Decision Making

Decision structures evaluate multiple expressions which produce TRUE or FALSE as outcome. You need to determine which action to take and which statements to execute if outcome is TRUE or FALSE otherwise.

Python programming language provides following types of decision making statements.

- **if Statements**
- **if...else statements**
- **nested if statements**

Types of Decision Making Statements:

1) if statement :

An **if** statement consists of a Boolean expression followed by one or more statements.
A Boolean expression is evaluated and if TRUE, a block of statements are executed else, the execution flow continues with the execution of statements after if statement.

Types of Decision Making Statements:

1) if statement :

The syntax of if statement is:

```
if expression:
    statement(s)
```

If the **expression** is evaluated to TRUE, the statement gets executed. But if it's FALSE, nothing happens.

Types of Decision Making Statements:

Flowchart of if statement:

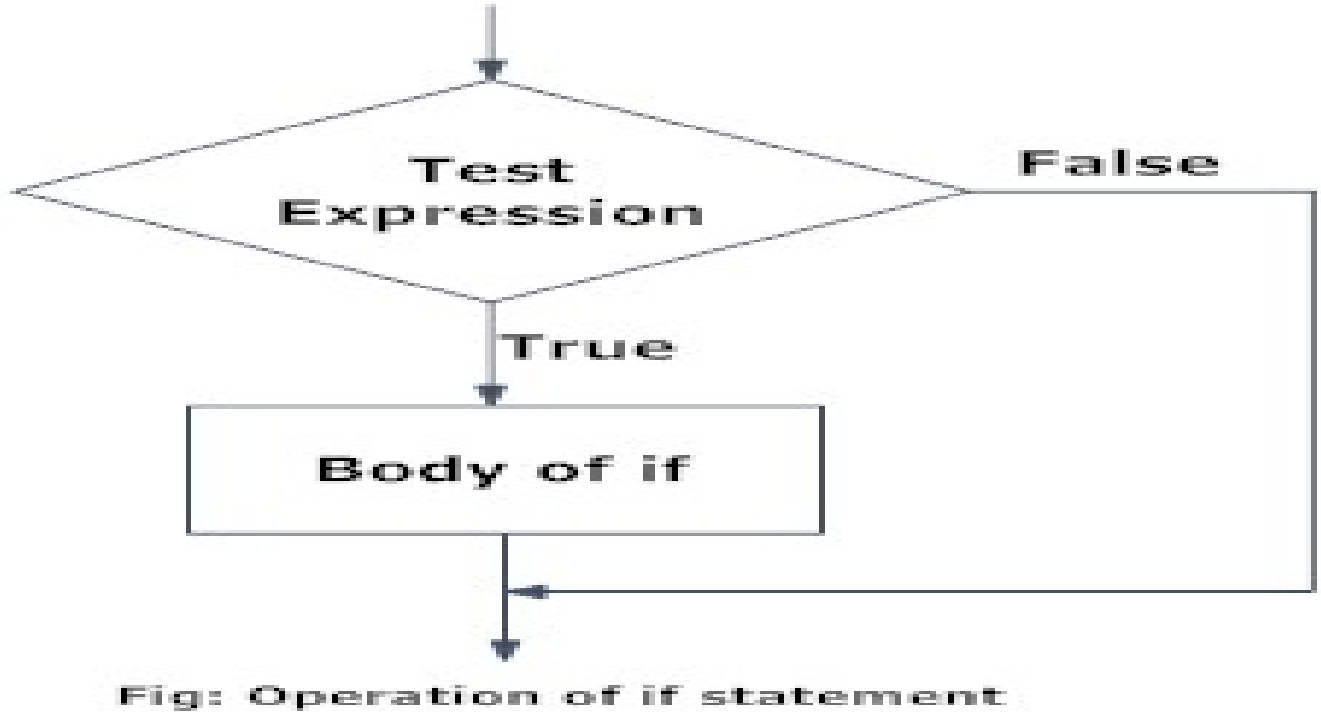


Fig: Operation of if statement

Types of Decision Making Statements:

1) if statement :

Example:

```
a = 15
if (a > 10):   #you can also write as if a>10:
   print("a is greater")
```

Types of Decision Making Statements:

1) if statement :

Example:

```
i = 10
if (i > 15):
   print ("10 is less than 15")
print ("if condition is not satisfied")
```

Types of Decision Making Statements:

2) If…else Statement :

An **if** statement can be followed by an optional **else** statement, which executes when the Boolean expression is **false**.

A Boolean expression is evaluated and if TRUE, a block of statements are executed else another block of statements are executed, then the execution flow continues with the execution of statements after if statement.

Types of Decision Making Statements:

2) If…else Statement :

The syntax of **if…else** statement is:

```
if expression:
    statement(s)
else:
    statement(s)
```

The else part is optional and is only evaluated if **expression** is evaluated to be FALSE.

Types of Decision Making Statements:

Flowchart of if…else statement

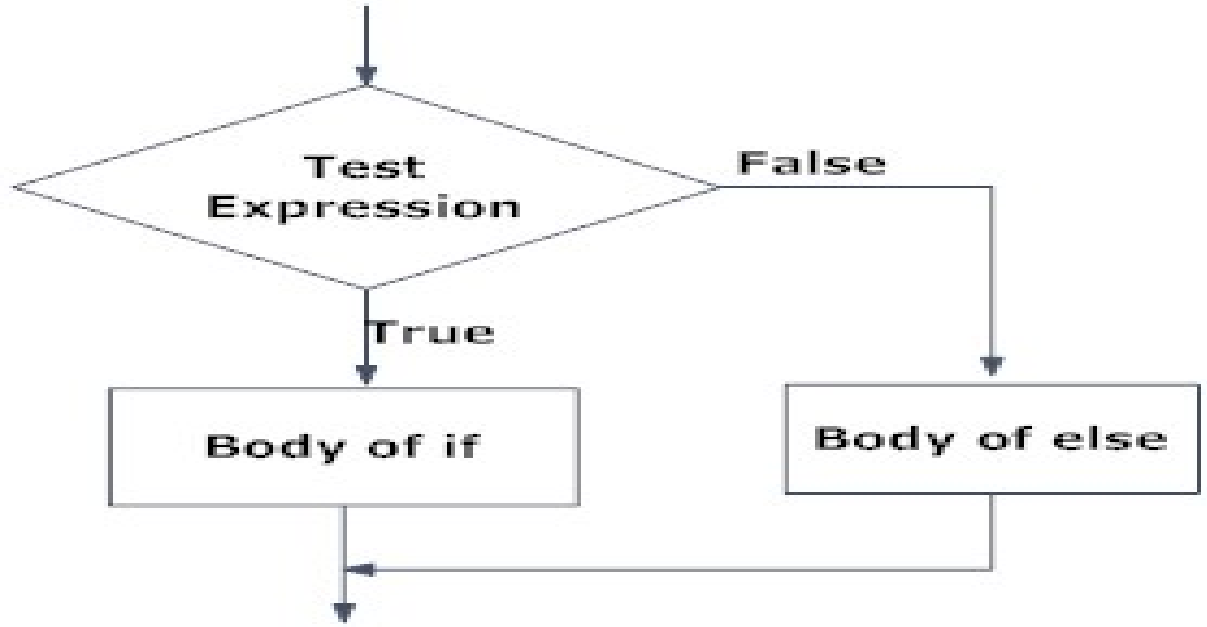


Fig: Operation of if...else statement

Types of Decision Making Statements:

2) If…else Statement :

Example:

```
x = 105
y = 205
if x > y:
   print("x is greater")
else:
   print("y is greater")
```

Types of Decision Making Statements:

3) Nested if statements:

A **nested if** is an **if statement** that is the target of another if statement. Nested if statements means an **if statement** inside another **if statement**. Yes, Python allows us to nest if statements within if statements. i.e, we can place an if statement inside another if statement.

Types of Decision Making Statements:

3) Nested if statements:

The syntax of nested if statement is

```
if expression:
    if expression:
       statement(s)
    else:
       statement(s)
else:
 statement(s)
```

Types of Decision Making Statements:

3) Nested if statements:

Example:

```
a=36
if(a > 30):
    if(a > 35):
        print("a is greater than 35")
    else:
        print("a is less than 35")
else:
    print("a is less than 30")
```

Decision Making

elif statement:

The **elif** statement allows you to check multiple expressions for TRUE and execute a block of code as soon as one of the conditions evaluates to TRUE. Similar to the **else**, the **elif** statement is optional. However, unlike **else**, for which there can be at most one statement, there can be an arbitrary number of **elif** statements following an **if**.

elif - is a keyword used in Python replacement of else if to place another condition in the program. This is called chained conditional.

Decision Making

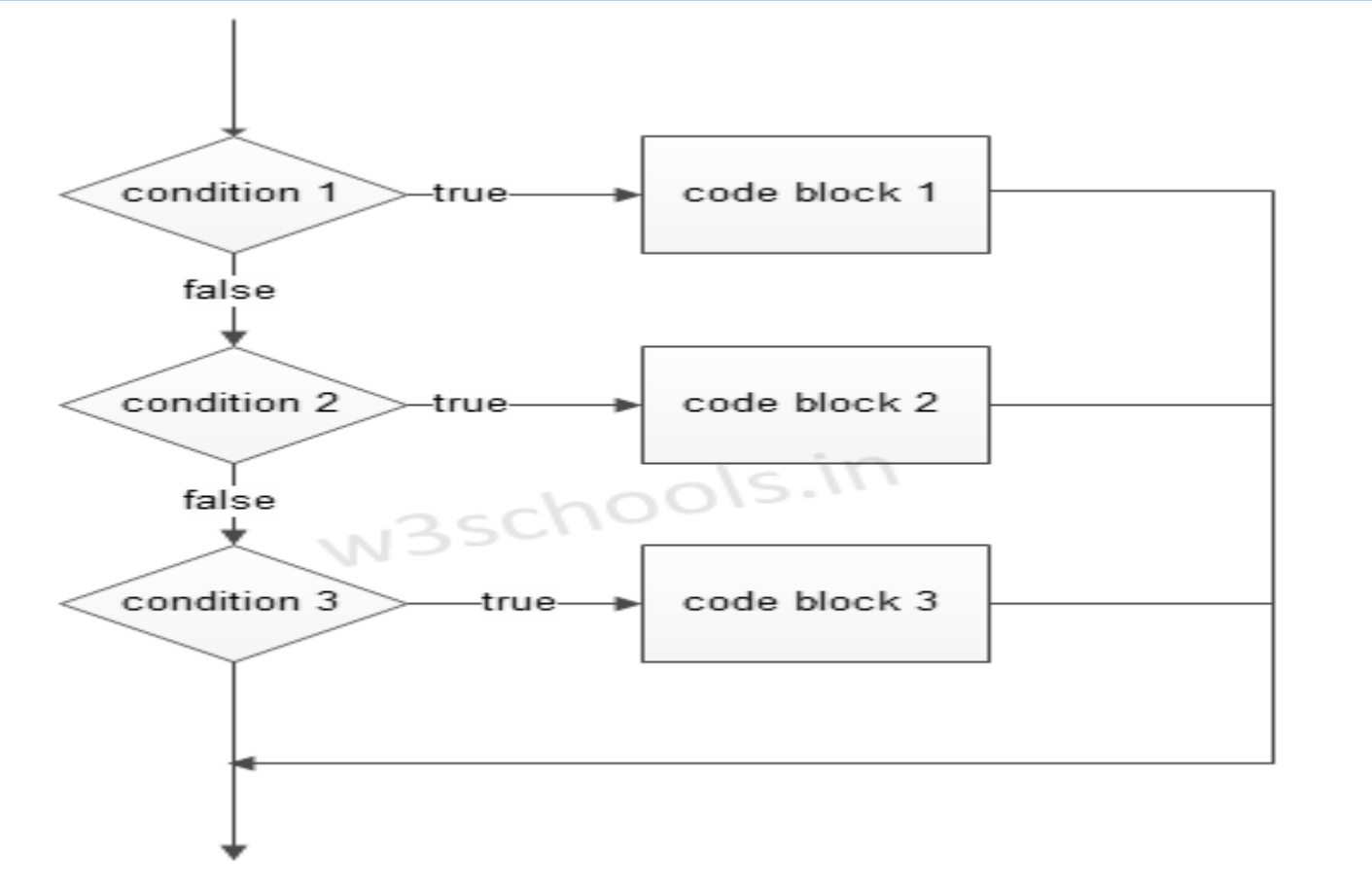
elif statement:

The syntax of **elif** statement is:

```
if expression1:
  statement(s)
elif expression2:
  statement(s)
elif expression3:
  statement(s)
else:
  statement(s)
```

Decision Making Statements:

Flowchart of elif statement



Decision Making

elif statement:

Example:

```
P = 15
Q = 15
if P > Q:
   print("P is greater")
elif P == Q:
   print("both are equal")
elif P < Q:
   print("Q is greater")
```