

## **PYTHON ASSIGNMENT 2**

**1. What are the two values of the Boolean data type? How do you write them?**

The two values of the Boolean data type are true and false. They are written as such: True and False.

**2. What are the three different types of Boolean operators?**

The Boolean operators are used to perform Boolean logic operations using Boolean expressions to make a logical decision in a programming language. The most common Boolean operators used are: AND (&), OR (|) and NOT (!). These Boolean operators, when used in a Boolean expression, control the program flow based on the Boolean expression result. Boolean operators are used to making choices in a program. It is used in searching for a particular topic.

**3. Make a list of each Boolean operator's truth tables (i.e. every possible combination of Boolean values for the operator and what it evaluates).**

**AND**

A	B	A AND B
T	T	T
T	F	F
F	T	F
F	F	F

**OR**

A	B	A OR B
T	T	T
T	F	T
F	T	T
F	F	F

**NOT**

A	NOT A
T	F
F	T

**4. What are the values of the following expressions?**

- a. `(5 > 4) and (3 == 5)`
- b. `not (5 > 4)`
- c. `(5 > 4) or (3 == 5)`
- d. `not ((5 > 4) or (3 == 5))`
- e. `(True and True) and (True == False)`
- f. `(not False) or (not True)`

Answer:

- a. False
- b. False
- c. True
- d. False
- e. False
- f. True

**5. What are the six comparison operators?**

Python has six comparison operators, which are as follows:

- Less than (`<`)
- Less than or equal to (`<=`)
- Greater than (`>`)
- Greater than or equal to (`>=`)
- Equal to (`==`)
- Not equal to (`!=`)

**6. How do you tell the difference between the equal to and assignment operators? Describe a condition and when you would use one.**

`=` is the equal to operator that compares two values and evaluates to a Boolean, while `=` is the assignment operator that stores a value in a variable.

A condition is an expression used in a flow control statement that evaluates to a Boolean value.

**7. Identify the three blocks in this code:**

- a. `spam = 0`
- b. `if spam == 10:`
- c. `print('eggs')`
- d. `if spam > 5:`
- e. `print('bacon')`
- f. `else:`
- g. `print('ham')`
- h. `print('spam')`
- i. `print('spam')`

Answer:

The three blocks are everything inside the if statement and the lines `print('bacon')` and `print('ham')`.

```
spam = 0
```

```

if spam == 10:
    print('eggs')
    if spam > 5:
        print('bacon')
    else:
        print('ham')
print('spam')
print('spam')

```

- 8. Write code that prints Hello if 1 is stored in spam, prints Howdy if 2 is stored in spam, and prints Greetings! if anything else is stored in spam.**

```

spam = int(input("Input a no. "))

if spam == 1:
    print('Hello')

elif spam == 2:
    print('Howdy')

else:
    print('Greetings!')

```

- 9. If your programme is stuck in an endless loop, what keys you'll press?**

We need to press CTRL-C to stop a program stuck in an infinite loop.

- 10. How can you tell the difference between break and continue?**

Basis for comparison	Break	Continue
Use	It is used for the termination of all the remaining iterations of the loop.	It is used for the termination of the only current iteration of the loop.
Control after using break/continue statement	The line which is just after the loop will gain control of the program.	The control will pass to the next iteration of that current loop by skipping the current iteration.
Causes	It performs the termination of the loop.	It performs early execution of the next loop by skipping the current one.
Continuation	It stops the continuation of the loop.	It stops the execution of the current iteration.
Other	It can be used with labels and switches.	It can't be used with labels and switches.

- 11. In a for loop, what is the difference between range(10), range(0, 10), and range(0, 10, 1)?**

They all do the same thing. The `range(10)` call ranges from 0 up to (but not including) 10, `range(0, 10)` explicitly tells the loop to start at 0 and end at 10, and `range(0, 10, 1)` explicitly tells the loop to increase the variable by 1 on each iteration.

- 12. Write a short program that prints the numbers 1 to 10 using a for loop. Then write an equivalent program that prints the numbers 1 to 10 using a while loop.**

The code using for loop:

```
for i in range(1, 11):  
    print(i)
```

The code using while loop:

```
i = 1  
while i <= 10:  
    print(i)  
    i = i + 1
```

- 13. If you had a function named `bacon()` inside a module named `spam`, how would you call it after importing `spam`?**

This function can be called with `spam.bacon()`.