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

Ans:- The two values of Boolean data type are :-

a) True
b) False

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

Ans:- Three types of Boolean Operators:-

a) and operator
b) or operator
c) not operator

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 evaluate).

Ans:-

and operator truth table

Operand 1	Operand 2	Result
True	True	True
True	False	False
False	True	False

or operator truth table

Operand 1	Operand 2	Result
True	True	True
True	False	True
False	True	True
False	False	False

not operator truth table

Operand 1	Result
True	False
False	True

4. What are the values of the following expressions?

(5 > 4) and (3 == 5)

not (5 > 4)

(5 > 4) or (3 == 5)

not ((5 > 4) or (3 == 5))

(True and True) and (True == False)

(not False) or (not True)

Ans:-

a) (5 > 4) and (3 == 5) :- The expression evaluates to True and False , which is **False**
b) not (5 > 4) is True but applying the not operator ,the expression evaluates to **False**
c) (5 > 4) or (3 == 5):- (5>4) is True. (3==5) is False . So the expression evaluates to True or False , which is **True.**
d) not ((5 > 4) or (3 == 5)) :- (True or False) is True . Applying the not operator to True , the expression evaluates to **False.**
e) (True and True) and (True == False) :- The expression evaluates to True & False , Which is **False**
f) (not False) or (not True):- (True or False) which is **True.**

5. What are the six comparison operators?

Ans:-

a) == Equal to operator. It checks if the both sides values are equal. It returns True if they are equal otherwise False
b) != Not equal to . It checks if the both sides values are not equal. It returns True if they are not otherwise False.
c) > Greater than. It checks if the values on the left side is greater than the value on right side & returns True if it is, otherwise False.
d) < Less than. It checks if the values on the left side is less than the value on right side & returns True if it is, otherwise False

e) >= Greater than or equal to. It checks if the values on the left side is greater than or equal to the value on right side & returns True if it is, otherwise False
f) <= Less than or equal to. It checks if the values on the left side is less than or equal to the value on right side & returns True if it is, otherwise False

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

Ans:- The equal to (==) operator is used for comparison . It checks if two values are equal. It returns True if values are equal and False otherwise. It is commonly used in conditional statement to compare values.

On the other hand, the assignment (=) operator is used to assign a value to a variable. Assignment operator does not compare the value for equality, instead, it assigns a value to a variable.

7. Identify the three blocks in this code:

```
spam = 0

if spam == 10:

print('eggs')

if spam > 5:

print('bacon')

else:

print('ham')

print('spam')

print('spam')
```

Ans:- Followings are the 3 blocks:-

a) if spam == 10:
   print(‘eggs’)
b) if spam > 5:

   print(‘bacon’)

c) 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.

Ans:-

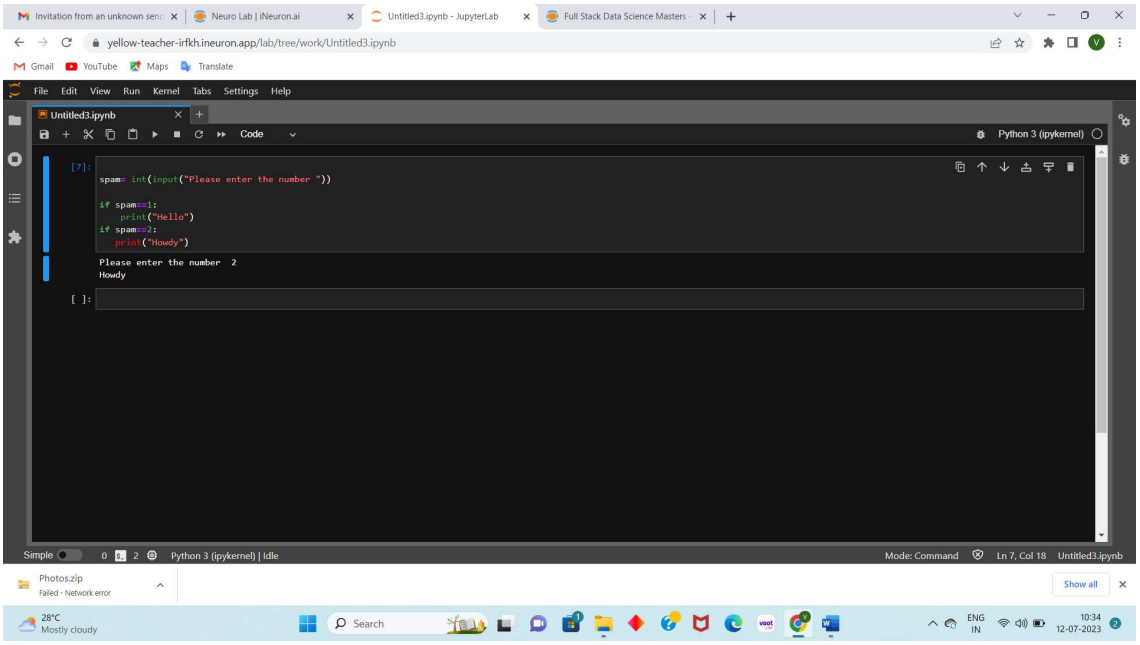
```
spam= int(input("Please enter the number "))

if spam==1:

   print("Hello")

if spam==2:

  print("Howdy")
```



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

Ans:- If program is stuck in an endless loop and we need to interrupt its execution, we can press the following keys :-

1. Ctrl+ C
2. Ctrl +Break

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

Ans:-

break statement: -

The break statement is typically used to break out of the loop entirely. When encountered inside a loop (such as for or while), the break statement immediately terminates the loop and transfers the control to the next statement after the loop.

It is commonly used to exit a loop prematurely when a certain condition is met.

After encountering a break statement, the program will not continue with the remaining iterations of the loop.

continue statement: -

The continue statement allows you to bypass certain code blocks within the loop and proceed with the next iteration. When encountered inside a loop, the continue statement immediately moves the control to the next iteration of the loop, skipping any remaining statements in the loop's body for the current iteration.

After encountering a continue statement, the program will jump back to the loop's header and start the next iteration.

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

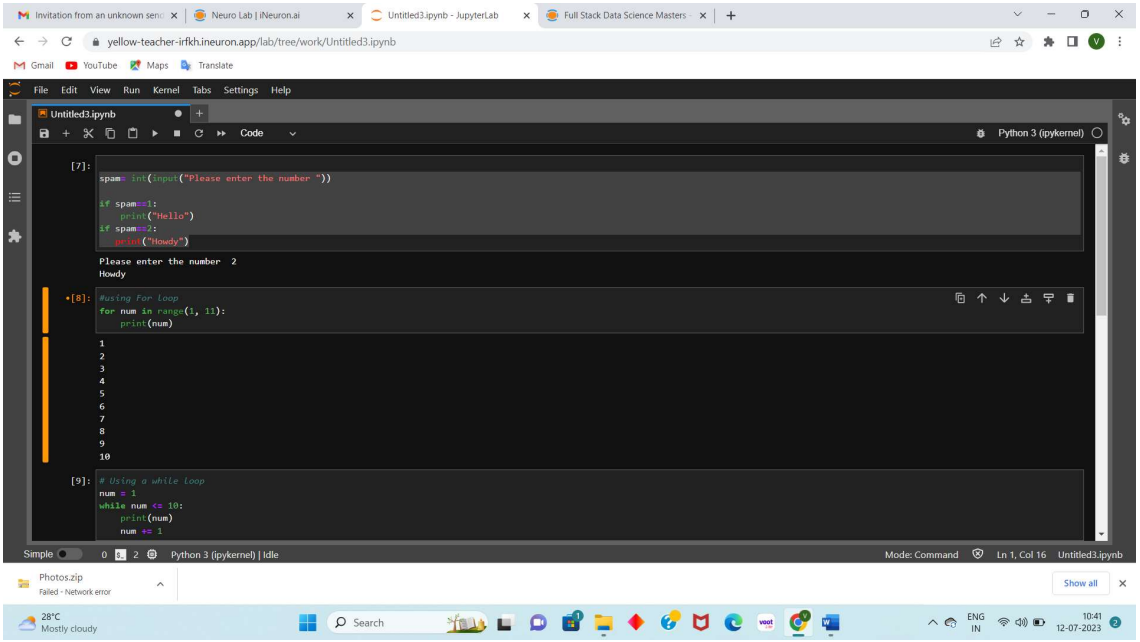
Ans:- In a for loop, range(10), range(0, 10), and range(0, 10, 1) produce the same result & iterate over the number from 0-9.

1. **range(10)-** In this case, the stop value is specified as a single argument. It generates a series of numbers that begin at 0 and finish exclusively at the stop value that is given. In this situation, range(10) generates a range of 0 to 9.
2. **range(0,10):-** This form specifies two arguments, the start value and the stop value. It generates a sequence of numbers starting from the specified start value (inclusive) and ending at the specified stop value (exclusive). In this case, range(0, 10) starts from 0 and ends at 9, producing the same range of numbers as range(10).
3. **range(0,10,1):-** This form specifies three arguments, the start value, the stop value, and the step value. It generates a sequence of numbers starting from the specified start value (inclusive), incrementing by the specified step value, and stopping before the specified stop value. In this case, range(0, 10, 1) starts from 0, increments by 1, and stops at 9, producing the same range of numbers as the above mentioned forms.

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.

Ans:- Using for loop:-

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



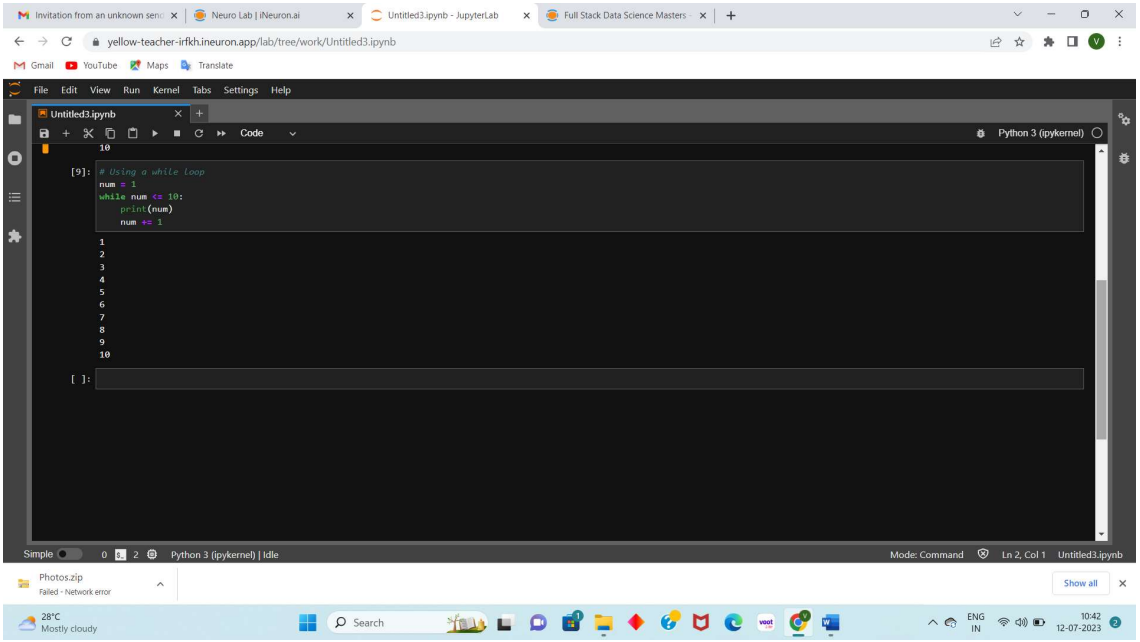
Using while loop

```
num = 1

while num <= 10:

    print(num)

    num += 1
```



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

Ans:- After importing spam we can call it by using following syntax:

spam. bacon()