Experiment 3: Logical Operators

Aim: To implement Logical Operators using Python.

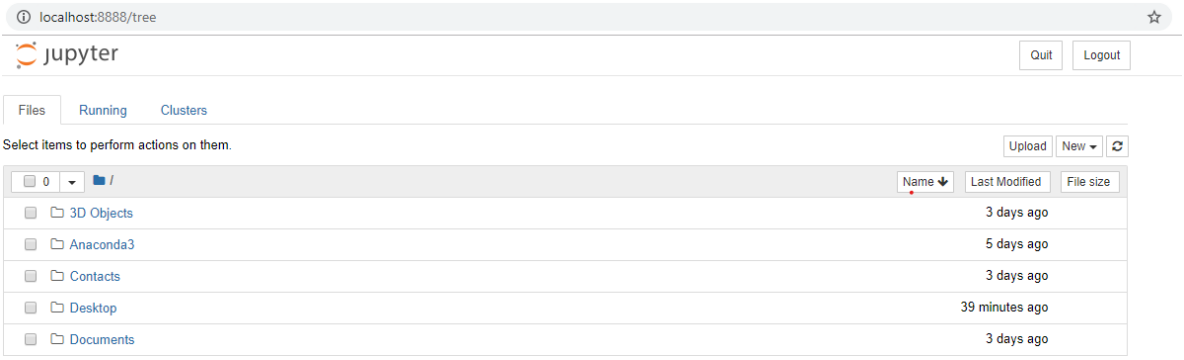
Theory: Logical Operators:

Assume two variables a and b.

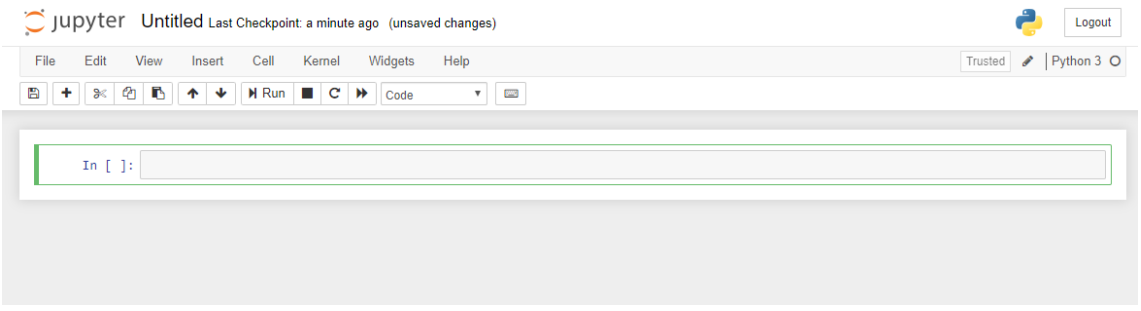
Logical Operator	Symbol	Description	Example
And	and	If both values are true, it returns true	a and b
Or	or	If atleast one value is true, it returns true.	a or b
Not	not	It is used to reverse the logical state of an operand.	not(a)

Steps:

1. Open Jupyter Notebook.



2. Open a New File by clicking New → Python3; a new python3 file opens, where we will be writing the codes.



3. Example Code: #and operator *# indicates this is a comment*

   3 and 0 *using and operator to perform and operation*

4. To obtain the result, press "**Ctrl+Enter**".

Code: In: #and operator

3 and 0

Out: 0

In: 0 and 3

Out: 0

In: 3 and 5

Out: 5

In: #or operator

0 or 3

Out: 3

In: 3 or 0

Out: 3

In: 3 or 5

Out: 3

In: #not operator

not 0

Out: True

In: not 2

Out: False

Observation: The "and" and "or" operators return one of the operands; whereas, the return type of "not" operator is "True" or "False".

Practice Questions:

1. For values "15" and "0", find the output of "nand" using "not + and". Explain your answer.
2. Write and implement a code to verify the truth table of "and" operator. Write the observations and the working of "and" operator in Python.
3. Write and implement a code to verify the truth table of "or" operator. Write the observations.