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1. JUPYTER LAB
2. VARIABLS
3. IF – ELIF – ELSE
4. FUNCTIONS
5. EXERCISE 4

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1. JUPYTER LAB

1.1. Installation

pip

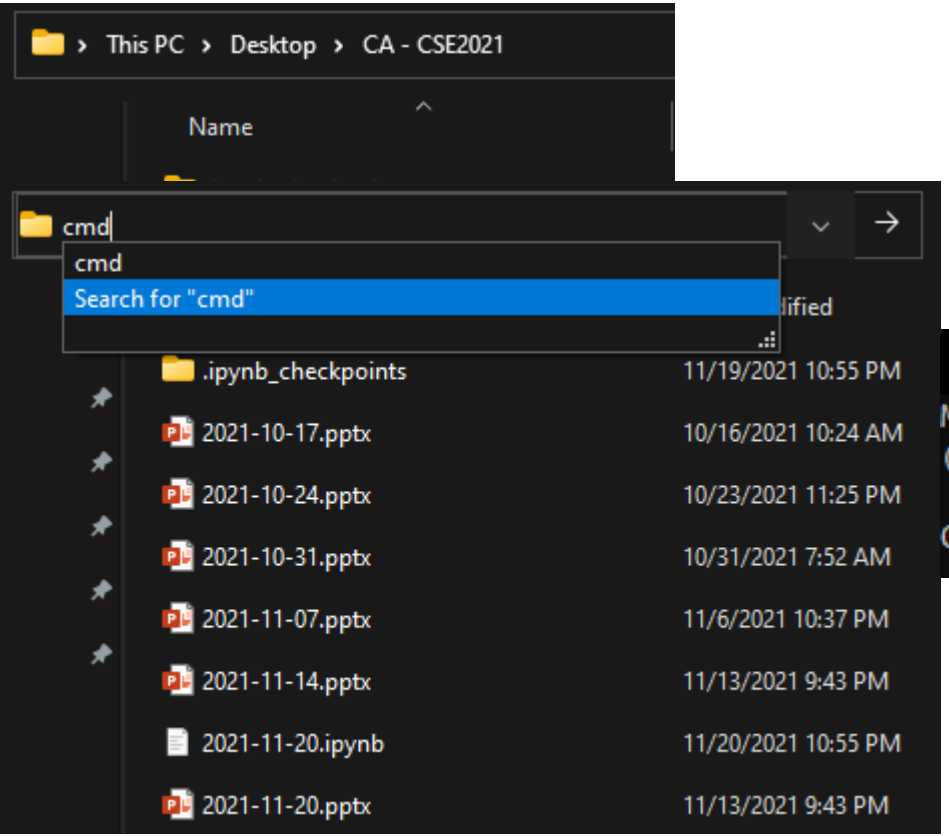
If you use `pip`, you can install it with:

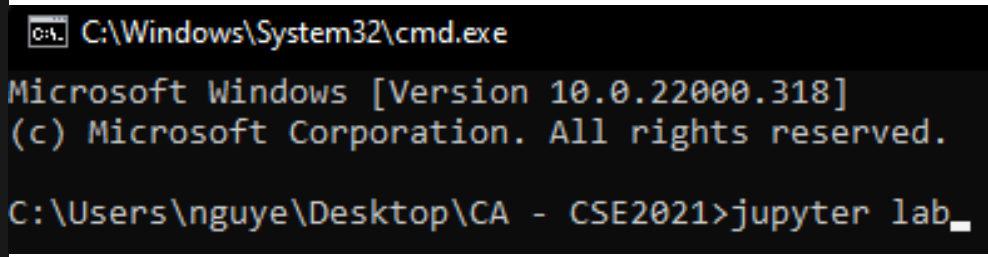
```
pip install jupyterlab
```

https://jupyterlab.readthedocs.io/en/stable/getting_started/installation.html

1. JUPYTER LAB

1.2. Usage





1. JUPYTER LAB

1.3. Shortcuts

Mode	Shortcut	Function
Command / Edit	Shift + Enter	Run + insert a cell (if don't have)
	Ctrl + Enter	Run
	Ctrl + B	Hide/show left sidebar
	Ctrl + S	Save
	Ctrl + Shift + S	Save as
	Ctrl + F	Find
Command	Enter	Enter edit mode
	A	Insert a cell above
	B	Insert a cell below
	M	Make the cell a markdown cell
	C	Copy
	V	Paste
	Shift + M	Merge cells
	DD / X	Delete cell
	00	Restart kernel
	Z	Undo
Edit	Esc	Enter command mode
	Tab	Code completion
	Ctrl + /	Block comment

1. JUPYTER LAB

1.4. Markdown cheatsheet

string or __string__	Bold
string or _string_	Italic
# string	Title
## string	2nd subheadings
### string	3rd subheadings
### string	4th subheadings
Space + space or 	Lines
$ string $	Mathematical symbols (Latex)
 string 	String with color

2. VARIABLES

```
# declare a varible
name = value
```

```
a_string = "Hello"
a_string
```

```
'Hello'
```

```
an_integer = 100
an_integer
```

```
100
```

```
a_float = 5.1
a_float
```

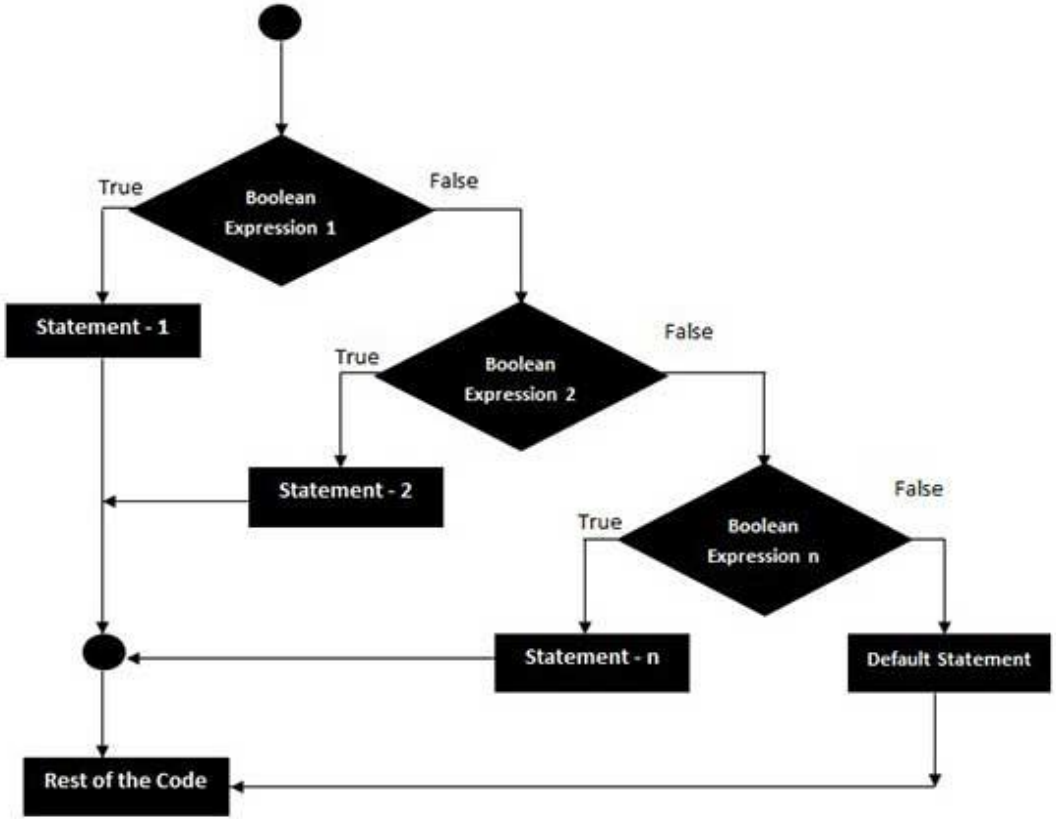
```
5.1
```

2. VARIABLES

C#: We have float, double, int, etc.

Meanwhile in Python:

3. IF - ELSE IF - ELSE




```
# format of a if - elif - else
if condition1:
    statement1
elif condition2:
    statement2
else:
    statement3
```

https://www.tutorialspoint.com/vbscript/vbscript_if_elseif_else_statement.htm

3. IF - ELSE IF - ELSE

```
# format of a if - elif - else
a = 5

if a < 5:
   print("a is less than 5")
elif a > 5:
   print("a is greater than 5")
else:
   print("a is equal 5")
```

```
a is equal 5
```

3. IF - ELSE IF - ELSE

```
# format of a if - else in one line
condition1 if expression1 else (statement2 if condition2 else statement3)
```

```
a = 5

print("a is less than 5") if a < 5 else (print("a is greater than 5") if a > 5 else(print("a is equal 5")))
```

```
a is equal 5
```

4. FUNCTIONS

```python
def fibonacci(first, second, length):
    if length != 2:
        length -= 1
        next_num = first + second
        print(str(next_num) + "\t", end="")
        return fibonacci(second, next_num, length)

first = int(input("Enter the first of the Fibonacci sequence: \n>> "))
second = int(input("Enter the second of the Fibonacci sequence: \n>> "))
length = int(input("Enter the length of the Fibonacci sequence: \n>> "))

print(f"\nThe Fibonacci sequence: \n{first}\t{second}\t", end="")
fibonacci(first, second, length)
```

```
Enter the first of the Fibonacci sequence:
>>  1
Enter the second of the Fibonacci sequence:
>>  1
Enter the length of the Fibonacci sequence:
>>  9

The Fibonacci sequence:
1       1       2       3       5       8       13      21      34
```

```python
# format of a function

def function_name(parameters):
    # do somthing

    return
```

4. FUNCTIONS

print numbers divisible by 5 from a list

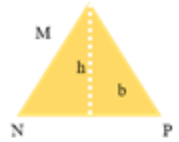
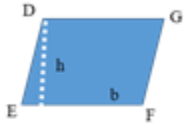
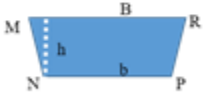
```
num_list = [10, 20, 33, 46, 55]
```

```
def divisible_by_5(a_list):
    for num in num_list:
        if num % 5 == 0:
            print(f"{num}\t", end="")

num_list = [10, 20, 33, 46, 55]
print("Divisible by 5:")
divisible_by_5(num_list)
```

```
Divisible by 5:
10      20      55
```

5. EXERCISE 4

	$A = \frac{b \times h}{2}$
	$A = b \times h$
	$A = L \times w$
	$A = l^2$
	$A = \frac{(B+b) \times h}{2}$
	$A = \pi r^2$

5. EXERCISE 4

$$\text{FuzzyEncoding}(x, y, T) = \begin{cases} 5, & \text{if } x + T \leq y \\ 4, & \text{if } x < y < x + T \\ 3, & \text{if } x = y \\ 2, & \text{if } y < x < y + T \\ 1, & \text{if } y + T \leq x \end{cases}$$