Monty Python (aka The Pythons) were a British surreal comedy group who created the sketch comedy show *Monty Python's Flying Circus*, that first aired on the BBC on October 5, 1969. Loosely structured as a sketch show, but with an innovative stream-of-consciousness approach, it pushed the boundaries of what was acceptable in style and content.

About the origin of Python, Van Rossum wrote in 1996: I chose Python as a working title for the project, being in a slightly irreverent mood (and a big fan of *Monty Python's Flying Circus*). From Wikipedia, the free encyclopedia.
① Project tools
- Lessons: Completed.
- Tasks: Completed.
- Files supported by PyCharm Edu
- Sandbox: create files and folders

② Course Progress

③ Console
- Clear output

④ Code Editor

⑤ Task Description
- Next task
- Previous task
- Start task again
- View hints
Introduction to Python

- **Python** - an open-source general-purpose interpreted programming language
- Programming constructs (if else, while, for)
- Built-in functions - upper(), random(), sorted()...
- **Type in** Editor (command or expression)

```python
print(“Hello, world! My name is Susan”)
```

- **Run** – Output (Python Console)
What is a Variable?

- **Variable** stores a **value**
- **Assignment statement** puts a value into a variable
  - General form: `variable = expression`

```
age    =   20 + 1
```

- Assigns result of expression, 21, to variable called age
Modifying Variables

• **Initialize** a variable (assign first value)
  
  \[ \text{day} = 2 \]

• Change a variable (add 3 to it)
  
  \[ \text{day} = \text{day} + 3 \]

• **Increment**
  
  \[ \text{day} = \text{day} + 1 \]

• **Decrement**
  
  \[ \text{day} = \text{day} - 2 \]

What value does \text{day} have now?
Variable Names

- **Rules**
  - Must begin with a letter
  - May be followed by letters, digits, underscore ( `_ `)

- **Case-sensitive**
  - lower_case (variable names)
  - UPPER_CASE (constants)

- **Mnemonic** (makes sense!)

- **Python internal use:** begin/end with 2 underscores

- **AVOID:** 'I' (letter el), 'O' (letter OH), 'I' (letter EYE) as single character variable names

?what        easy_peasy       2be_or_not       0
Arithmetic Operators

sum        =  1 + 2

difference =  10 - sum

result     =  7 / 2

product    =  2 * -1.23

remainder  =  7 % 4

exponent   =  2 ** 3

What are the values of these variables?
Data Types

day = 23 # int
pi = 3.14 # float
name = "katie" # string ‘Jon’
isFun = True # boolean: False

quiz = [8, 7, 9] # list
labs = ["html", 5] # list
hw1 = hw2 = 3.3

hw3, hw4, hw5 = 2, 6, 4

hw6 = hw1

hw1 = 1

hw3 = hw1 + hw6

What is the value of hw3?
```python
b1 = '2b'
b2 = b1 + " OR "
b1 = 2

print( b2, end="" )  # suppress newline
print( b1 )
```

What gets printed?
**Type in Editor**

```python
# Prompt for food
food = input("Enter favorite food: ")

# Display
print("Let's have ", food, " tonight!")
```

**Run → Output**

```
Enter favorite food: pizza
Let's have pizza tonight!
```
Operator Order and Precedence

1 + 2 - 3 + 4

1 + 2 * 3 - 4

Who's on first?
<table>
<thead>
<tr>
<th>OPERATOR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>**</td>
<td>Exponentiation (raise to the power)</td>
</tr>
<tr>
<td>* / %</td>
<td>Multiply, divide, modulo</td>
</tr>
<tr>
<td>+ -</td>
<td>Addition and subtraction</td>
</tr>
<tr>
<td>&lt;= &lt; &gt; &gt;=</td>
<td>Comparison operators</td>
</tr>
<tr>
<td>== != &lt;&gt;</td>
<td>Equality operators</td>
</tr>
<tr>
<td>= %= /= -= += *=</td>
<td>Assignment operators</td>
</tr>
<tr>
<td>not or and</td>
<td>Logical operators</td>
</tr>
</tbody>
</table>