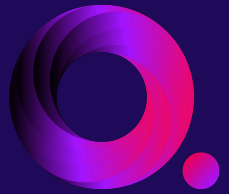
Introductory Python Sub-Module



One of the great things about the quBes course:

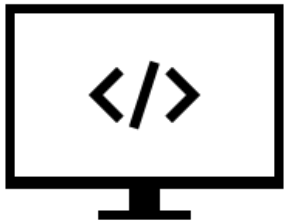
You don’t need to download anything in order to access or work with Python. Everything is provided to you in our JupyterLab, hosted by qBraid!

Launch account.qbraid.com and log-in

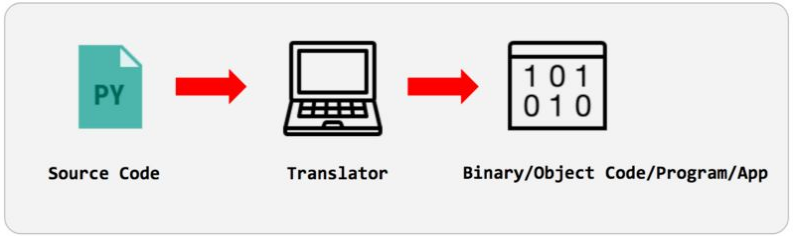
- In the upper-right, on your account, select profile
- On the far right select “Add an access key”
- Enter in “intro_to_python_v1-0” (without quotation marks)
- Launch learn.qbraid.com

This will bring you to JupyterLab, where you will have an interactive introduction to Python programming

Intro to Coding



- What is a computer program?
  - A set of instructions
  - Each line is an instruction for the computer
  - The computer carries out these instructions sequentially
- What is a programming language?
  - Eg. Python, Java, C++, C, MATLAB, etc
  - (classical) Computers speak in binary - in 0s and 1s
  - We need a way to translate from english to computer
  - What we write in python is decoded by an interpreter so the computer can understand it and carry out the instructions
  - We'll be using Python in Jupyter notebooks
- What are libraries?
  - Libraries help us add extra features to Python



Intro to Python

Some useful commands

- Print statements
  - Eg. print (“Hello World”)
- Conditional statements
  - Eg. if x == 1:
- Logical operators (AND, OR, NOT)
  - Eg. x and y
- Import statements
  - Eg. import numpy as np

**note: Python is case-sensitive

Exercise: Coding AND, OR, and NOT gates in Python

AND

OR

NOT

- In breakout rooms, try to write the python code for these gates.
- Once you've got them, see if you can write the code for executing multiple gates in sequence (ie a *circuit*)