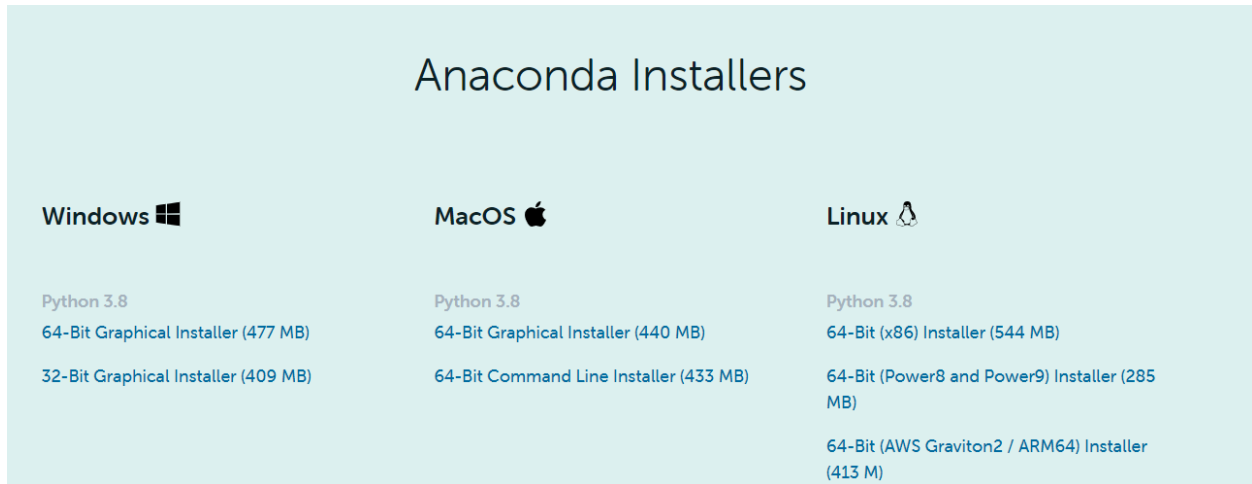


Brief details about Day 0 for Quantum Computing Workshop

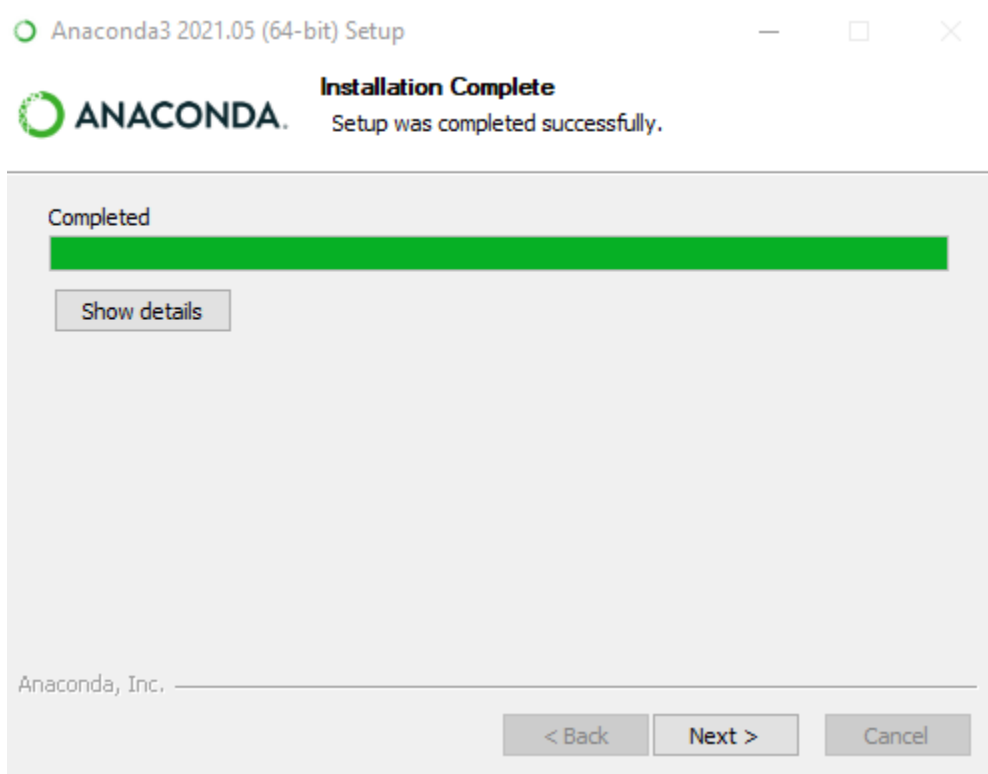
1. Downloading and Installing Anaconda

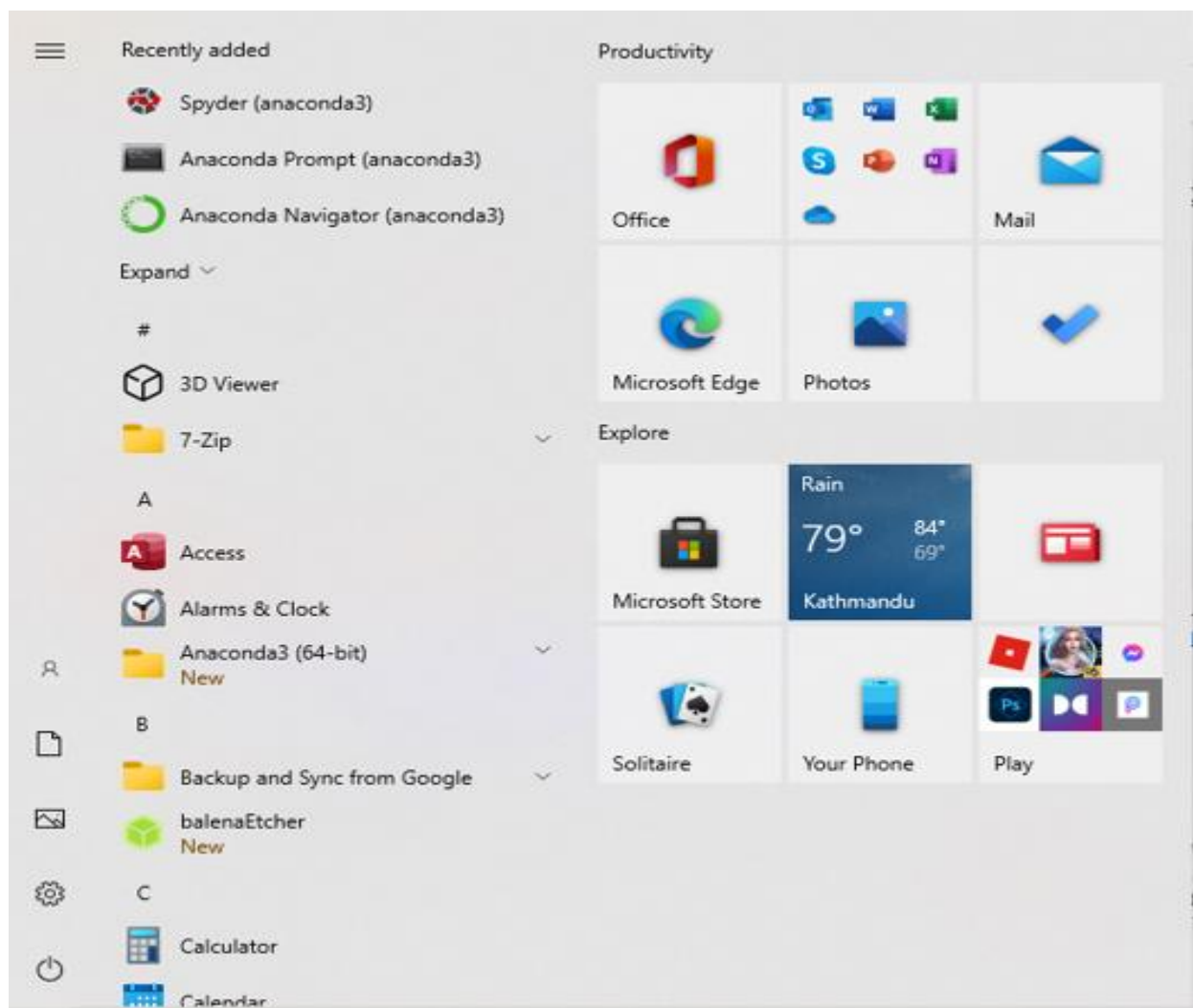
Link: <https://www.anaconda.com/products/individual#Downloads:->

Now you will see the following page:

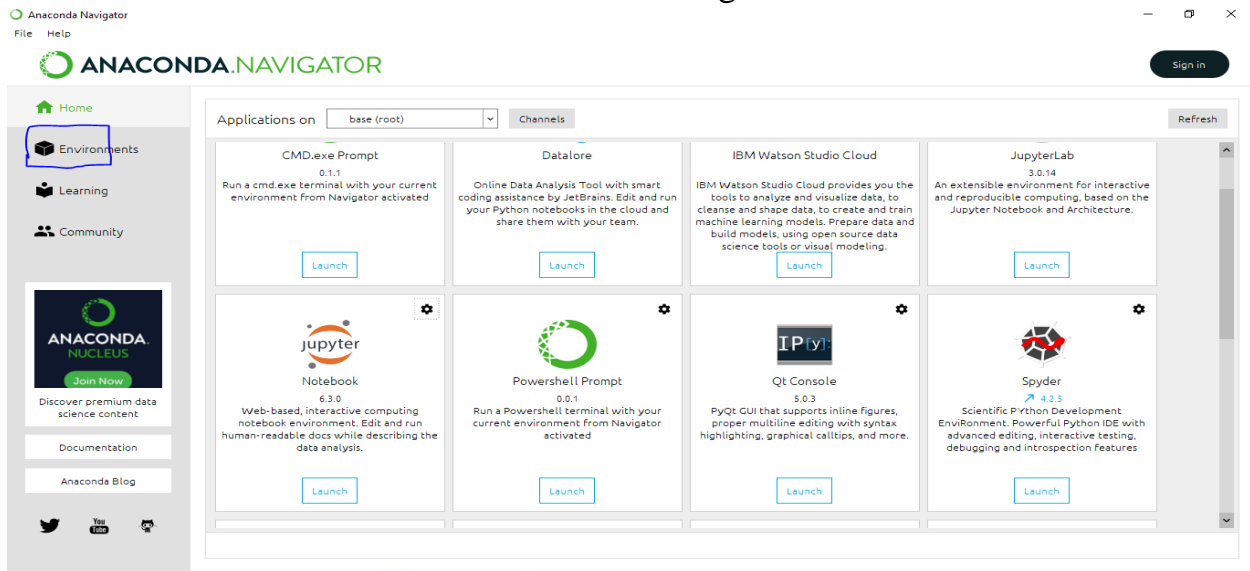


Choose the operating system and install the application.





From the start menu choose the Anaconda Navigator.

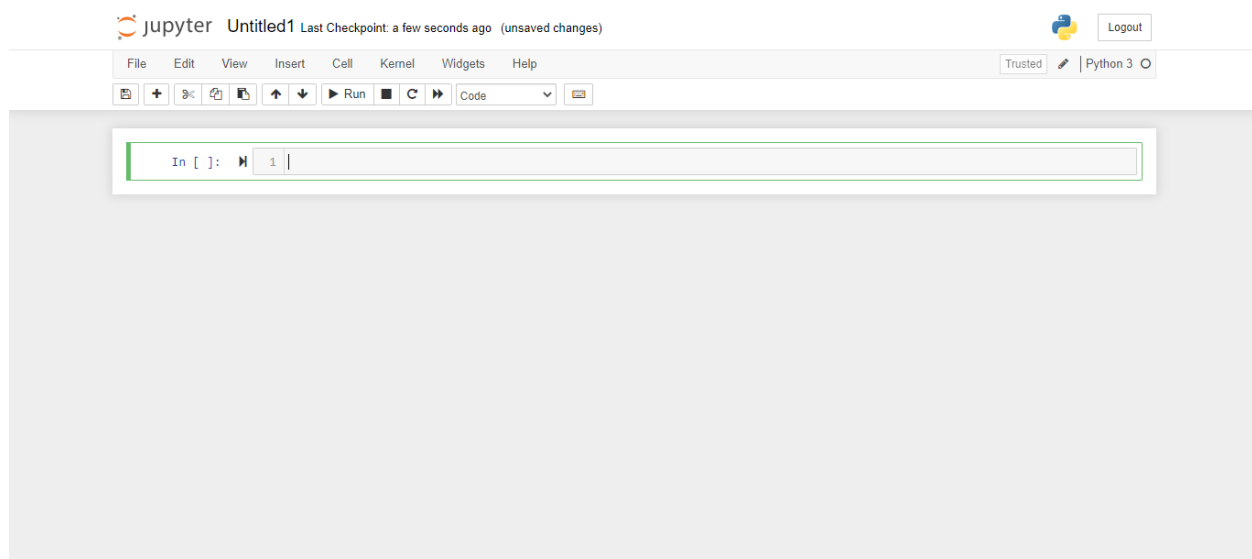


The above windows will pop open. Then, to use the Jupyter notebook click on the launch.





When you click on the python 3 in the new tab, then the Jupyter notebook is opened in your default internet browser.



Now anaconda and Jupyter Notebook is successfully setup in your Machine.

2. Installing Qiskit using Anaconda prompt

From the start menu in windows click on Anaconda prompt.

To install qiskit: *pip install qiskit*

```
Anaconda Prompt (anaconda3) - pip install qiskit

(base) C:\Users\pa1>pip install qiskit
Collecting qiskit
  Using cached qiskit-0.28.0.tar.gz (12 kB)
Collecting qiskit-terra==0.18.0
  Downloading qiskit-terra-0.18.0-cp38-cp38-win_amd64.whl (5.3 MB)
    | 5.3 MB 2.2 MB/s
Collecting qiskit-aer==0.8.2
  Downloading qiskit-aer-0.8.2-cp38-cp38-win_amd64.whl (24.2 MB)
    | 16.1 MB 1.7 MB/s eta 0:00:05
```

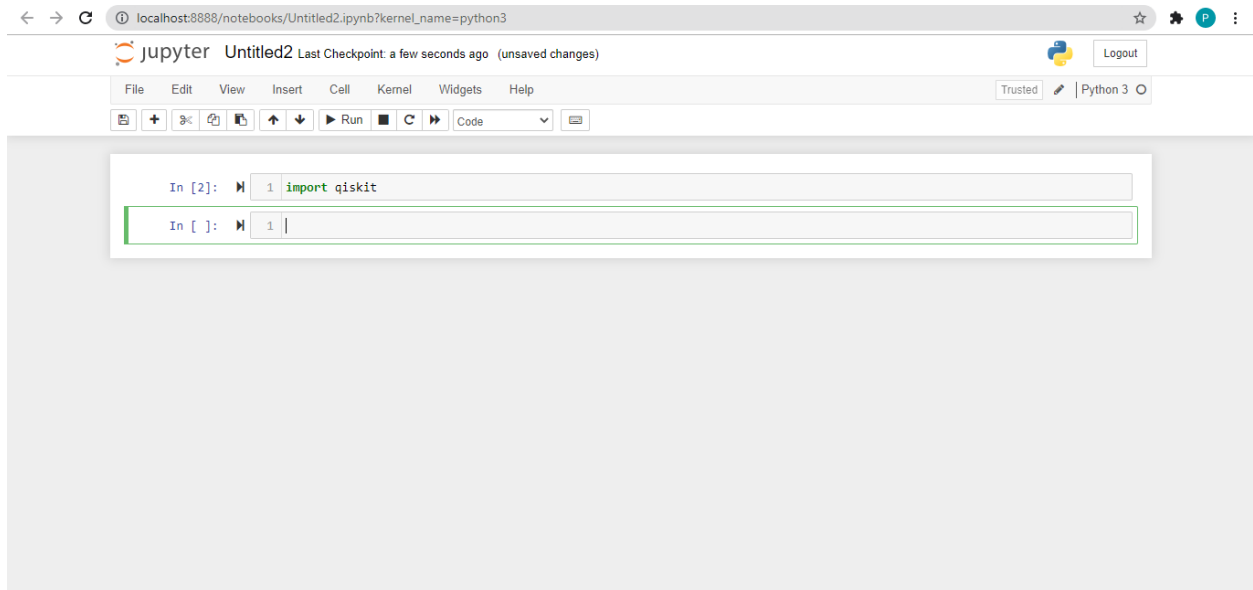
After the installation has been completed. Try to open the Jupyter notebook using the following command.

Command to open notebook: *jupyter notebook*

```
(base) C:\Users\pa1>jupyter notebook
[I 2021-07-22 18:25:34.009 LabApp] JupyterLab extension loaded from C:\Users\pa1\anaconda3\lib\site-packages\jupyterlab
[I 2021-07-22 18:25:34.009 LabApp] JupyterLab application directory is C:\Users\pa1\anaconda3\share\jupyter\lab
[I 18:25:34.018 NotebookApp] Serving notebooks from local directory: C:\Users\pa1
[I 18:25:34.018 NotebookApp] Jupyter Notebook 6.3.0 is running at:
[I 18:25:34.018 NotebookApp] http://localhost:8888/?token=297f3a5fe40a62c1e425a83c57796830d7bbe9e05a424766
[I 18:25:34.018 NotebookApp] or http://127.0.0.1:8888/?token=297f3a5fe40a62c1e425a83c57796830d7bbe9e05a424766
[I 18:25:34.018 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 18:25:34.054 NotebookApp]

To access the notebook, open this file in a browser:
  file:///C:/Users/pa1/AppData/Roaming/jupyter/runtime/nbserver-5320-open.html
Or copy and paste one of these URLs:
  http://localhost:8888/?token=297f3a5fe40a62c1e425a83c57796830d7bbe9e05a424766
  or http://127.0.0.1:8888/?token=297f3a5fe40a62c1e425a83c57796830d7bbe9e05a424766
```

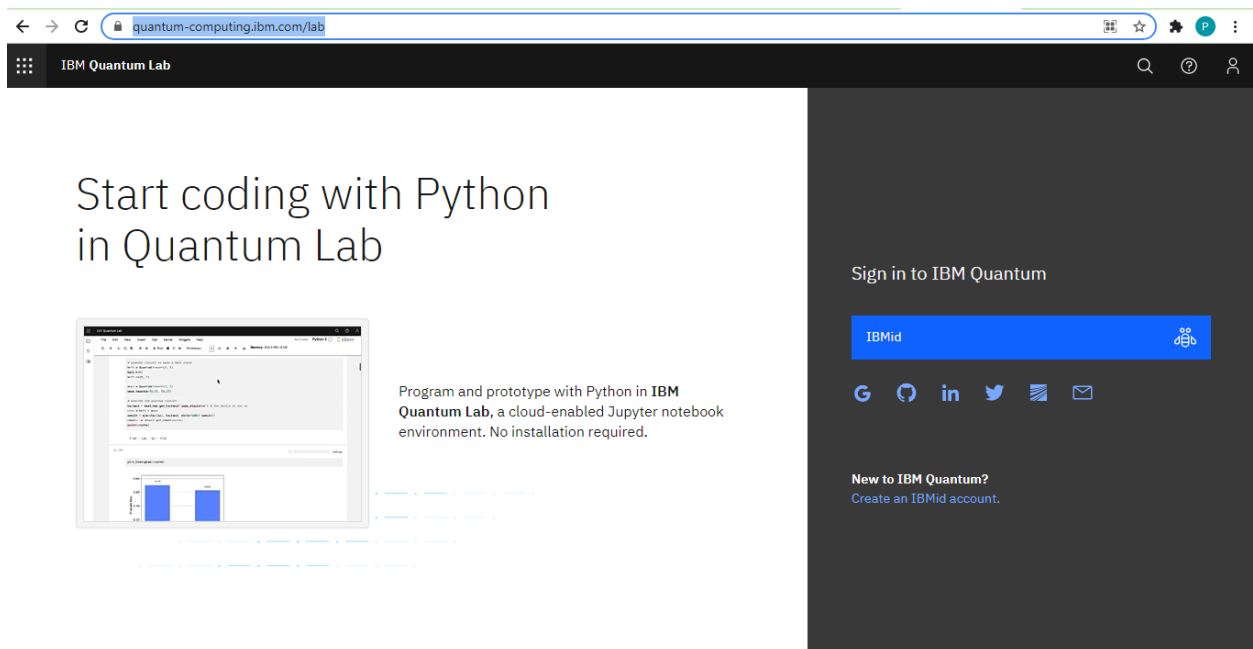
Now open a new file (python3)



Type `import qiskit` and run it. If there are no problems then the qiskit has been installed successfully. (To run a cell, you can either click Run or simply use Shift+Enter key combination in the keyword)

3. Creating the account on IBM

Link: <https://quantum-computing.ibm.com/lab>



Click on the create IMBId account

IBM

Create your IBM account

Access to trials, demos, starter kits, services and APIs

Already have an IBM account? [Log in](#)

Sign up for an IBMId

1. Account information

E-mail ⓘ

Your email address will become your IBMId, which you'll use to log into IBM.com.

First name Last name

Password ⓘ

- 8 characters minimum
- One uppercase character
- One lowercase character
- One number

Country or region of residence

Nepal

Fill it with all the required credentials. Perform the verification process where you are asked to verify the email (Check your email for the codes). After you fill all the things and verified your account. You can have access to labs.

IBM Quantum Lab

Lab files

Search files

New file +

Name	Updated	
Untitled.ipynb	a few seconds ago	
qiskit-textbook	a few seconds ago	
qiskit-tutorials	a few seconds ago	

File Edit View Insert Cell Kernel Widgets Help

Trusted Kernel jupyter

Memory: 232.3 MB / 8 GB

```
In [*]:  
import numpy as np  
# Importing standard Qiskit libraries  
from qiskit import QuantumCircuit, transpile, Aer, IBMQ  
from qiskit.tools.jupyter import *  
from qiskit.visualization import *  
from ibm_quantum_widgets import *  
  
# Loading your IBM Quantum account(s)  
provider = IBMQ.load_account()  
  
Matplotlib is building the font cache; this may take a moment.  
  
In [ ]:
```

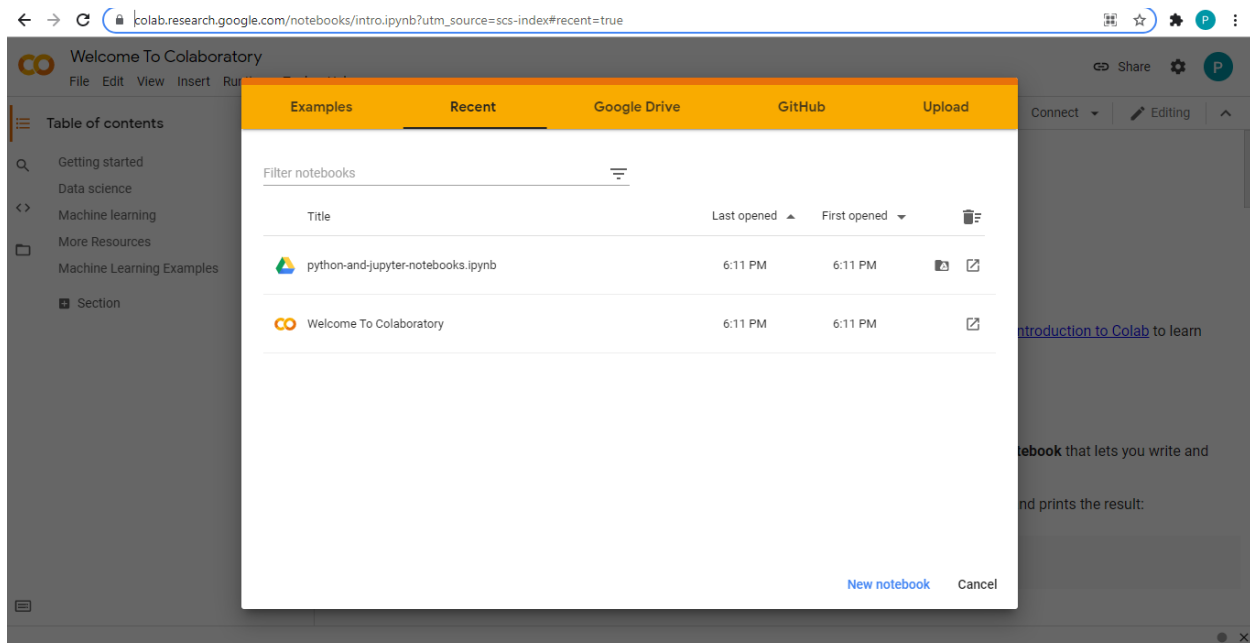
Finally, you are ready to use the Quantum Labs from the IBM.

You can use either the Jupyter notebook, Google Collab or IBM Lab to run the different .ipynb files throughout the session. Also note that, Jupyter notebook is a local web application and can run without the Internet, whereas Google collab and IBM Lab require internet connection. Moreover, if you are interested in Quantum Computing field, having a IBMid is a mandatory step since it allows you to run the code on an actual quantum computer provisioned by IBM. You will also need to familiarize yourself with the basic concepts of Python since we will be extensively using it throughout the workshop.

4. Using Google Collab

Link: <https://colab.research.google.com/>

You can use this site to run the ipynb files (jupyter notebook files) on the web.



You can either create a new notebook or upload the .ipynb files.

We first try to install the qiskit in the google collab using the pip which is a very handy tool to install the various python modules and libraries.

The image displays two screenshots of a Google Colab notebook interface. The top screenshot shows the execution of the command `pip install qiskit`. The output lists various dependencies being installed or already satisfied, including `python-constraint`, `tweedledum`, `fastjsonschema`, `symengine`, `dill`, `jsonschema`, `six`, `cached-property`, `idna`, `certifi`, `chardet`, `cryptography`, `ntlm-auth`, `cffi`, `pycparser`, `joblib`, `mpmath`, and `multitasking`. The bottom screenshot shows the execution of `import qiskit`, which is successful. The notebook interface includes a menu bar (File, Edit, View, Insert, Runtime, Tools, Help), a toolbar with icons for code, text, and search, and a status bar at the bottom indicating the notebook is 'completed at 6:53 PM'.

```
pip install qiskit

Collecting python-constraint>=1.4
  Downloading python-constraint-1.4.0.tar.bz2 (18 kB)
Collecting tweedledum<2.0,>=1.1
  Downloading tweedledum-1.1.0-cp37m-manylinux_2_12_x86_64.manylinux2010_x86_64.whl (943 kB)
Collecting fastjsonschema>=2.10
  Downloading fastjsonschema-2.15.1-py3-none-any.whl (21 kB)
Collecting symengine>0.7
  Downloading symengine-0.7.2-cp37m-manylinux2010_x86_64.whl (33.9 MB)
Requirement already satisfied: dill>=0.3 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (0.3.4)
Requirement already satisfied: jsonschema>=2.6 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (2.6.0)
Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from docplex>=2.21.207->qiskit-aqua==0.9.4->qiskit) (1.15.0)
Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packages (from h5py<3.3.0->qiskit-aqua==0.9.4->qiskit) (1.5.2)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (2.10)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (2021.5.7)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (3.0.4)
Collecting cryptography>=1.3
  Downloading cryptography-3.4.7-cp36-abi3-manylinux2014_x86_64.whl (3.2 MB)
Collecting ntlm-auth>=1.0.2
  Downloading ntlm_auth-1.5.0-py2.py3-none-any.whl (29 kB)
Requirement already satisfied: cffi>=1.12 in /usr/local/lib/python3.7/dist-packages (from cryptography>=1.3->requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (1.14.6)
Requirement already satisfied: pycparser in /usr/local/lib/python3.7/dist-packages (from cffi>=1.12->cryptography>=1.3->requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (2.21)
Requirement already satisfied: joblib>=0.11 in /usr/local/lib/python3.7/dist-packages (from scikit-learn>=0.20.0->qiskit-aqua==0.9.4->qiskit) (1.0.1)
Requirement already satisfied: mpmath>=0.19 in /usr/local/lib/python3.7/dist-packages (from sympy>=1.3->qiskit-aqua==0.9.4->qiskit) (1.2.1)
Requirement already satisfied: multitasking>=0.0.7 in /usr/local/lib/python3.7/dist-packages (from yfinance<0.1.63->qiskit-aqua==0.9.4->qiskit) (0.0.9)

Executing (25s) Cell > magic() > run_line_magic() > _pip_magic() > system() > _system_compat() > _run_command() > _monitor_process() > _poll_process()
```

```
[2] Requirement already satisfied: dill>=0.3 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (0.3.4)
Requirement already satisfied: symengine>0.7 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (0.7.2)
Requirement already satisfied: python-constraint>=1.4 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (1.4.0)
Requirement already satisfied: tweedledum<2.0,>=1.1 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (1.1.0)
Requirement already satisfied: ply>=3.10 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (3.11)
Requirement already satisfied: fastjsonschema>=2.10 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (2.15.1)
Requirement already satisfied: jsonschema>=2.6 in /usr/local/lib/python3.7/dist-packages (from qiskit-terra==0.18.0->qiskit) (2.6.0)
Requirement already satisfied: six in /usr/local/lib/python3.7/dist-packages (from docplex>=2.21.207->qiskit-aqua==0.9.4->qiskit) (1.15.0)
Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packages (from h5py<3.3.0->qiskit-aqua==0.9.4->qiskit) (1.5.2)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (2021.5.36)
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (2.10)
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-packages (from requests>=2.19->qiskit-ibmq-provider==0.15.0->qiskit) (3.0.4)
Requirement already satisfied: ntlm-auth>=1.0.2 in /usr/local/lib/python3.7/dist-packages (from requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (1.5.6)
Requirement already satisfied: cryptography>=1.3 in /usr/local/lib/python3.7/dist-packages (from requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (3.4.7)
Requirement already satisfied: cffi>=1.12 in /usr/local/lib/python3.7/dist-packages (from cryptography>=1.3->requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (1.14.6)
Requirement already satisfied: pycparser in /usr/local/lib/python3.7/dist-packages (from cffi>=1.12->cryptography>=1.3->requests-ntlm==1.1.0->qiskit-ibmq-provider==0.15.0->qiskit) (2.21)
Requirement already satisfied: joblib>=0.11 in /usr/local/lib/python3.7/dist-packages (from scikit-learn>=0.20.0->qiskit-aqua==0.9.4->qiskit) (1.0.1)
Requirement already satisfied: mpmath>=0.19 in /usr/local/lib/python3.7/dist-packages (from sympy>=1.3->qiskit-aqua==0.9.4->qiskit) (1.2.1)
Requirement already satisfied: lxml>=4.5.1 in /usr/local/lib/python3.7/dist-packages (from yfinance<0.1.63->qiskit-aqua==0.9.4->qiskit) (4.6.3)
Requirement already satisfied: multitasking>=0.0.7 in /usr/local/lib/python3.7/dist-packages (from yfinance<0.1.63->qiskit-aqua==0.9.4->qiskit) (0.0.9)
Requirement already satisfied: pytz>=2017.2 in /usr/local/lib/python3.7/dist-packages (from pandas>qiskit-aqua==0.9.4->qiskit) (2018.9)
Requirement already satisfied: inflection>=0.3.1 in /usr/local/lib/python3.7/dist-packages (from quandl>qiskit-aqua==0.9.4->qiskit) (0.5.1)
Requirement already satisfied: more-itertools in /usr/local/lib/python3.7/dist-packages (from quandl>qiskit-aqua==0.9.4->qiskit) (8.8.0)

[3] import qiskit
```

Importing the qiskit was successful.

If any problems occur during the installation, you can contact us at email or discord. We will be happy to help you on the journey ahead in this workshop.