

## Introduction to IBM Qiskit



Qiskit is an open-source, Python-based, high-performance software stack for quantum computing, originally developed by IBM Research and first released in 2017. It provides tools for creating quantum programs and executing them on quantum computers or classical simulators.\

Qiskit is the world's most popular software stack for quantum computing. Build circuits, leverage Qiskit functions, transpile with AI tools, and execute workloads in an optimized runtime environment.

## Install miniconda

### Windows Command Prompt

```
curl https://repo.anaconda.com/miniconda/Miniconda3-latest-Windows-x86_64.exe -o  
.\miniconda.exe \  
  
start /wait "" .\miniconda.exe /S \  
  
del .\miniconda.exe
```

### macOS

```
mkdir -p ~/miniconda3 \  
  
curl https://repo.anaconda.com/miniconda/Miniconda3-latest-MacOSX-arm64.sh -o  
~/miniconda3/miniconda.sh \  
  
bash ~/miniconda3/miniconda.sh -b -u -p ~/miniconda3 \  
  
rm ~/miniconda3/miniconda.sh
```

## Linux

<https://www.anaconda.com/docs/getting-started/miniconda/install#linux-2>

In case of any future updates, you can check the following link for qiskit installation.\

<https://quantum.cloud.ibm.com/docs/en/guides/install-qiskit>

## Install environment

Download qcl.yml \

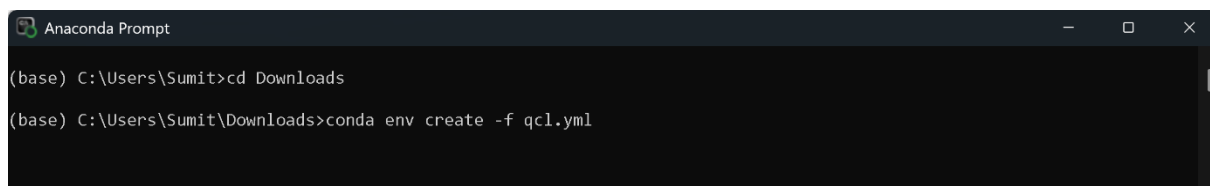
Open Anaconda prompt (windows) \

Open terminal (macOS and Linux)

### Change the directory where the qcl.yml is downloaded

Enter the following command to create an Environment to install all the required libraries:

**conda env create -f qcl.yml**

A screenshot of the Anaconda Prompt terminal window. The title bar says "Anaconda Prompt". The terminal shows two commands being executed: first, "(base) C:\Users\Sumit>cd Downloads", and second, "(base) C:\Users\Sumit\Downloads>conda env create -f qcl.yml".

```

Anaconda Prompt
(base) C:\Users\Sumit>cd Downloads
(base) C:\Users\Sumit\Downloads>conda env create -f qcl.yml
```

## Activate Environment and Run the Streamlit.py Application

Activate the qcl Environment by using the following command:

**conda activate qcl**

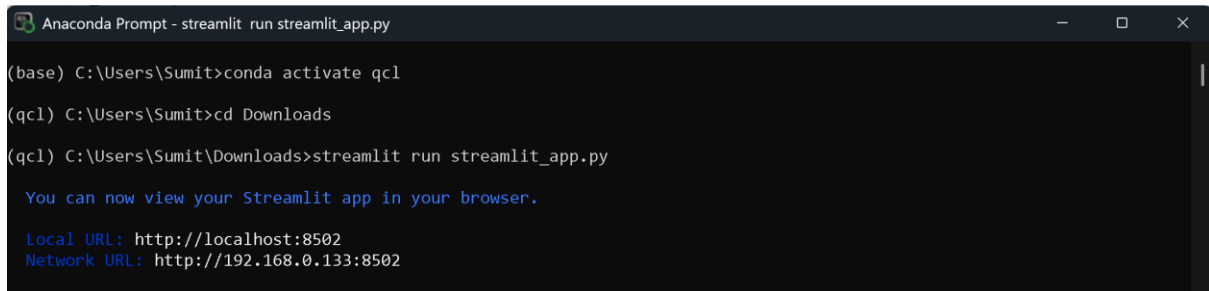
Change the directory where you have downloaded the Python File (streamlit\_app.py)

For Example:

**cd Downloads** [if the python (.py) file in Downloads Folder]

To run the streamlit\_app.py execute the following command:

**streamlit run streamlit\_app.py**

A screenshot of an Anaconda Prompt terminal window. The title bar reads "Anaconda Prompt - streamlit run streamlit\_app.py". The terminal shows the following sequence of commands and output:  
(base) C:\Users\Sumit>conda activate qcl  
(qcl) C:\Users\Sumit>cd Downloads  
(qcl) C:\Users\Sumit\Downloads>streamlit run streamlit\_app.py  
  
You can now view your Streamlit app in your browser.  
  
Local URL: http://localhost:8502  
Network URL: http://192.168.0.133:8502