



# OFFLINE GRADER GUIDE

**FOR PARTICIPANTS OF IBM QUANTUM CHALLENGE FALL  
2021**

Fallback routine for challenge grading and completion

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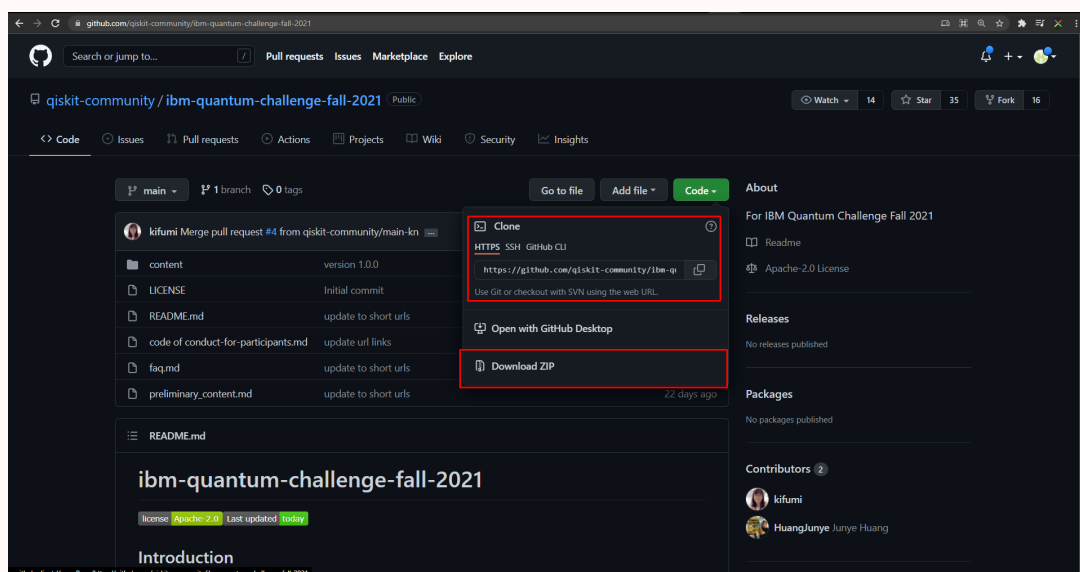
## Fallback routine for quantum challenge grader

In an unlikely event where the IBM Quantum Lab platform has some issues loading the notebooks, please follow the following to run your notebooks and grade them locally.

We are demonstrating using Python 3 (3.6+) and Anaconda as our distribution platform. To install Qiskit locally, Follow the guide prescribed here: [https://qiskit.org/documentation/getting\\_started.html](https://qiskit.org/documentation/getting_started.html)

To download the Lab notebooks, head over to this link: <https://github.com/qiskit-community/ibm-quantum-challenge-fall-2021>

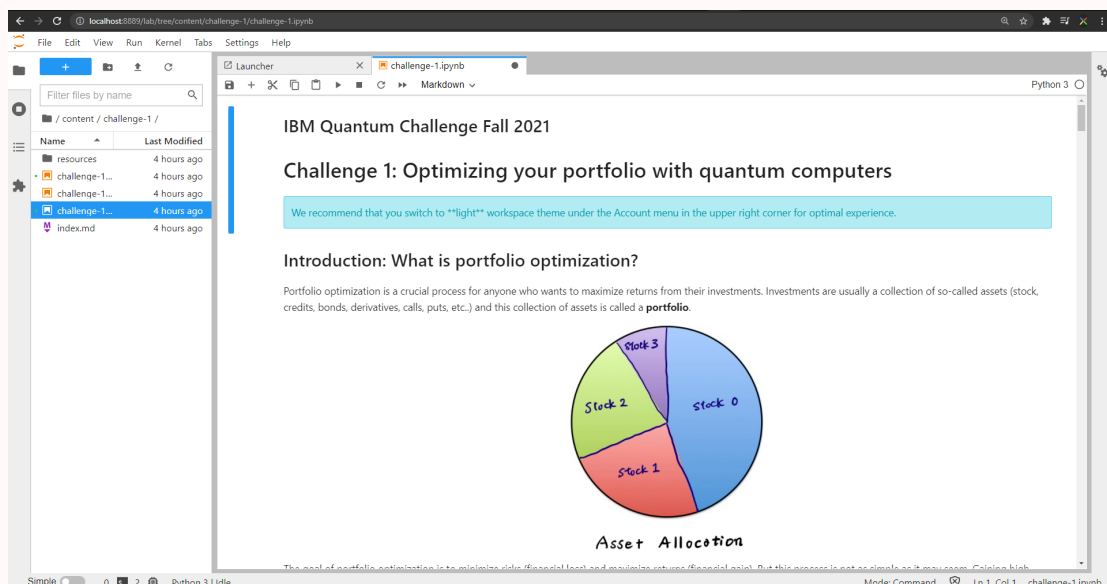
You can either download the zip file or clone the repo locally on your system



## Navigating to the notebook

```
Anaconda Powershell Prompt (qiskit)
(qiskit) PS C:\Users\visha> cd "C:\Users\visha\Desktop\ibm-quantum-challenge-fall-2021-main"
(qiskit) PS C:\Users\visha\Desktop\ibm-quantum-challenge-fall-2021-main> jupyter lab
```

Change your directory to the notebook folder and run your jupyter lab/ jupyter notebook depending on your preference.

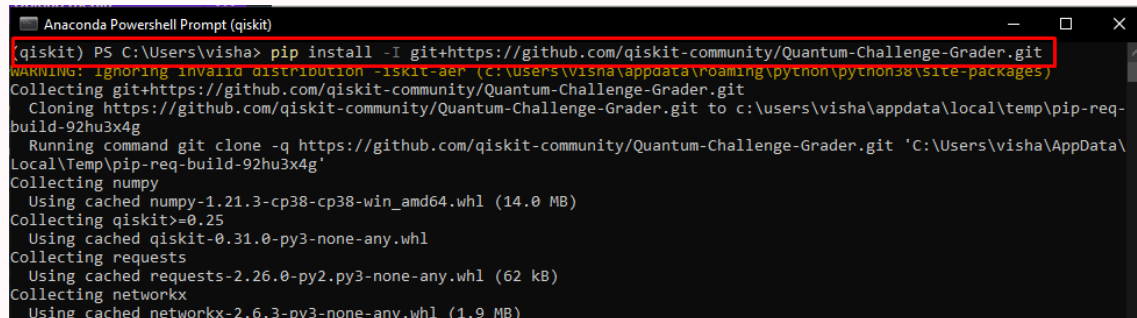


You should now be able to access your lab notebooks! Now let us setup our grader!

## Setting up the grader

In your Anaconda terminal run the following command to install the grader:

**pip install -I git+https://github.com/qiskit-community/Quantum-Challenge-Grader.git**



```
Anaconda PowerShell Prompt (qiskit)
(qiskit) PS C:\Users\visha> pip install -I git+https://github.com/qiskit-community/Quantum-Challenge-Grader.git
WARNING: Ignoring invalid distribution -iskit-aer (c:\users\visha\appdata\roaming\python\python38\site-packages)
Collecting git+https://github.com/qiskit-community/Quantum-Challenge-Grader.git
  Cloning https://github.com/qiskit-community/Quantum-Challenge-Grader.git to c:\users\visha\appdata\local\temp\pip-req-
build-92hu3x4g
  Running command git clone -q https://github.com/qiskit-community/Quantum-Challenge-Grader.git 'C:\Users\visha\AppData\
Local\Temp\pip-req-build-92hu3x4g'
Collecting numpy
  Using cached numpy-1.21.3-cp38-cp38-win_amd64.whl (14.0 MB)
Collecting qiskit>=0.25
  Using cached qiskit-0.31.0-py3-none-any.whl
Collecting requests
  Using cached requests-2.26.0-py2.py3-none-any.whl (62 kB)
Collecting networkx
  Using cached networkx-2.6.3-py3-none-any.whl (1.9 MB)
```

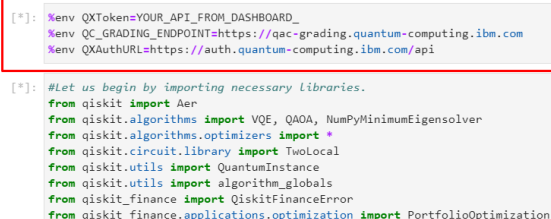
Additionally, you can also run the same in your jupyter notebook, just replace "pip" with "!pip"

## Setting up Environment variables

Type these in a jupyter code cell and run it

```
%env QXToken=YOUR_API_FROM_DASHBOARD_
%env QC_GRADING_ENDPOINT=https://qac-
grading.quantum-computing.ibm.com
%env QXAuthURL=https://auth.quantum-
computing.ibm.com/api
```

### Step 1. Import necessary libraries

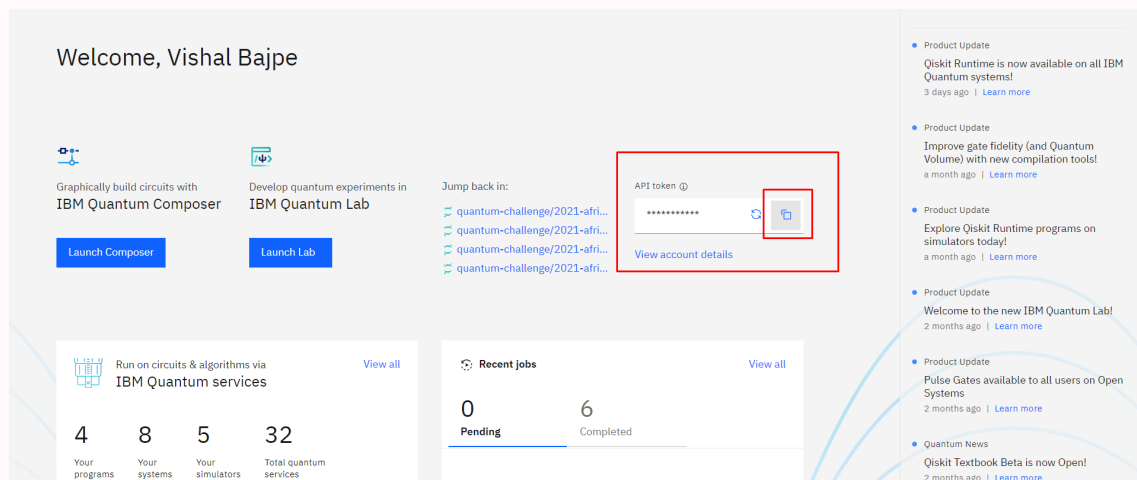


```
[*]: %env QXToken=YOUR_API_FROM_DASHBOARD_
%env QC_GRADING_ENDPOINT=https://qac-grading.quantum-computing.ibm.com
%env QXAuthURL=https://auth.quantum-computing.ibm.com/api

[*]: #Let us begin by importing necessary libraries.
from qiskit import Aer
from qiskit.algorithms import VQE, QAOA, NumPyMinimumEigensolver
from qiskit.algorithms.optimizers import *
from qiskit.circuit.library import TwoLocal
from qiskit.utils import QuantumInstance
from qiskit.utils import algorithm_globals
from qiskit.finance import QiskitFinanceError
from qiskit.finance.applications.optimization import PortfolioOptimization
```

## Finding your QX Token

To find your token, head over to your Dashboard at <https://quantum-computing.ibm.com/> and copy your API Token key. Paste it for your QXToken variable. Do not add any quotes. **DO NOT SHARE THIS KEY WITH ANYONE.**



**Lets test it out! Run a completed exercise and check if the grader works!**

```
If you were able to successfully generate the code, you should see a standard representation of the formulation of our
```

```
[18]: # Check your answer and submit using the following code
      from qc_grader import grade_ex1a
      grade_ex1a(qp)

      Submitting your answer for 1a. Please wait...
      Congratulations 🎉! Your answer is correct and has been submitted.
```

**If it works, you can now continue the challenge locally and your progress will be recorded! For any issues, please feel free to message in the challenge channel!**