Quantum Computing Starter Kit

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Welcome to the **Quantum Computing Starter Kit !**

This guide will help you set up your environment to start working with Qiskit and quantum computing using Miniconda.

Miniconda is an environment manager that acts like a separate space where you can download everything related to your project without affecting your system. You can create as many environments as you need and delete them when required

Installation Steps

Step 1: Install Miniconda

1. **Download Miniconda:**
   - Go to the Miniconda installation page.
   - Choose the installer for your operating system (Windows, macOS, or Linux).
2. **Install Miniconda:**
   - **Windows:** Run the downloaded `.exe` file and follow the installation prompts.
   - **macOS:** Open the terminal and run:

     ```
     bash Miniconda3-latest-MacOSX-x86_64.sh
     ```

   - **Linux:** Open the terminal and run:

     ```
     bash Miniconda3-latest-Linux-x86_64.sh
     ```

Step 2: Create a Conda Environment

1. **Create an `env.yml` file:** This file will list all the packages you need. Create a new file named `env.yml` and add the following
2. **Create the environment:** Open your terminal (or Anaconda Prompt on Windows) and navigate to the directory where your `env.yml` file is located. Run the following command:

   ```
   conda env create -f env.yml
   ```

3. **Activate the environment:** After the environment is created, activate it using:

   ```
   conda activate qiskit-env
   ```

Step 3: Verify the Installation

1. **Check Qiskit installation:** type `which python` in your terminal. Then, in the Python shell then it will show something like this

```
q on  main [x?] via  qiskit
❯ which python
/home/kundan/miniconda3/envs/qiskit/bin/python
```

Figure 1: Output

Getting Started with Qiskit

Before starting with playing with qiskit we setup a play ground called **jupyter notebook**

As we are going to explore more about IBM Quantum Computer and qiskit framwork we will be going through below file open jupter lab by typing **jupyter lab**

Open the jupyter notebook provided **IBMQ_playipynb** notebook

Now before going any further please visit this website and create a account

- IBM Quantum Computer website

Please click on right corner as shown in figure 2.And create a account

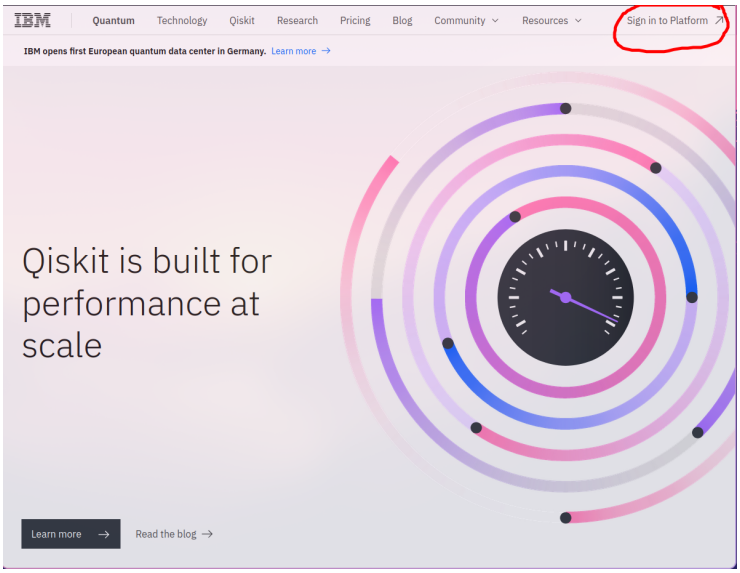

Figure 2: IBM Web Site

This how dashboard look like but copy the token and store in token.txt file

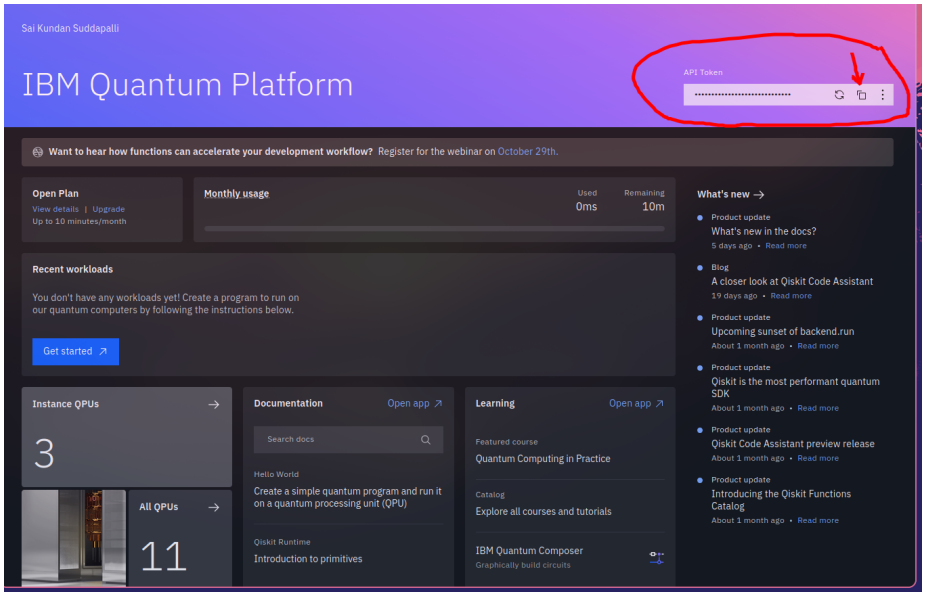

Figure 3: after login

After this you start following notebook
here are some useful links for reference

- IBM Quantuam Computing Tutorial and Course
- Useful Doc
- Quantum Machine Leaning