**QISKIT FALL FEST GHANA: QUANTUM COMPUTING FOR SOCIAL GOOD**  
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**To attend the workshop here are some recommended prerequisites to help you get started.**

1.          You will need an account with IBM Quantum, it’s fast to make and completely free. Please register yourself here: [https://quantum-computing.ibm.com](https://quantum-computing.ibm.com/) **using your institute email ID**. It is recommended you **use your university or organisation affiliated email IDs** for registrations for this event. Be sure that you remember your sign-in credentials as those would be required for you to access IBM Quantum service providing all the open IBM Quantum resources.

2.          A browser fully up-to-date (Chrome or Firefox are recommended) as all teaching will be done on tools using IBM Quantum on the Cloud. There will be no run locally and everything can be done from your browser for general hands-on coding.

3.           There is very little background needed for the sessions. You can [brush up on Python programming](https://urldefense.proofpoint.com/v2/url?u=https-3A__learn.qiskit.org_course_ch-2Dprerequisites_introduction-2Dto-2Dpython-2Dand-2Djupyter-2Dnotebooks&d=DwMGaQ&c=jf_iaSHvJObTbx-siA1ZOg&r=qtNiidd2MvCHTZwDJCjseGcv_q4Emb0YtemqS6hiO_U&m=9VjdWwkJjW2i1H7ZY4RgchUMz-kw_NEbcN7SMTBfk1B5sIt01-veT9n8f4AgKIZk&s=1zk0DW-CLTSXotC6_UoP1EqnDoBW9LeA8vq7lY9fHO0&e=)before attending the lecture by using the [Qiskit Textbook](https://qiskit.org/textbook" \o "https://qiskit.org/textbook" \t "_blank). To make the most out of these lectures, you may also consider looking through the [linear algebra prerequisites](https://urldefense.proofpoint.com/v2/url?u=https-3A__learn.qiskit.org_course_ch-2Dappendix_an-2Dintroduction-2Dto-2Dlinear-2Dalgebra-2Dfor-2Dquantum-2Dcomputing&d=DwMGaQ&c=jf_iaSHvJObTbx-siA1ZOg&r=qtNiidd2MvCHTZwDJCjseGcv_q4Emb0YtemqS6hiO_U&m=9VjdWwkJjW2i1H7ZY4RgchUMz-kw_NEbcN7SMTBfk1B5sIt01-veT9n8f4AgKIZk&s=xpAHqHEYBDjQ6PlKXVmhgtTn_djYQDYhnZJ4KB405uc&e=)section of the Qiskit Textbook.

4.      You will be following through a part of the Qiskit Quantum Explorers program on the IBM Quantum Lab during the workshop. To access the community channel, it is recommended you download and setup Discord <https://discord.com>

**Here are the links to resources to follow along with the lectures:**

1.            Link to launch IBM Quantum Composer: <https://quantum-computing.ibm.com/composer>

2.            Link to launch IBM Quantum Lab: <https://quantum-computing.ibm.com/lab>

3.            Qiskit Textbook: [https://qiskit.org/learn/course/introduction-course](https://urldefense.proofpoint.com/v2/url?u=https-3A__qiskit.org_learn_course_introduction-2Dcourse&d=DwMGaQ&c=jf_iaSHvJObTbx-siA1ZOg&r=qtNiidd2MvCHTZwDJCjseGcv_q4Emb0YtemqS6hiO_U&m=9VjdWwkJjW2i1H7ZY4RgchUMz-kw_NEbcN7SMTBfk1B5sIt01-veT9n8f4AgKIZk&s=bEyiKteSjQeIkTHik-7xJmH7kjyUfiFVu1jvtgzhCD8&e=)

4.            Qiskit SDK: [https://qiskit.org/](https://urldefense.proofpoint.com/v2/url?u=https-3A__qiskit.org_&d=DwMGaQ&c=jf_iaSHvJObTbx-siA1ZOg&r=qtNiidd2MvCHTZwDJCjseGcv_q4Emb0YtemqS6hiO_U&m=9VjdWwkJjW2i1H7ZY4RgchUMz-kw_NEbcN7SMTBfk1B5sIt01-veT9n8f4AgKIZk&s=4A88e6d1iO0xb6Ojpqhn4rI0S7QrLdj07KvwvtjVx9Q&e=)

5.            Qiskit Documentation: [Qiskit API Docs 0.43](https://qiskit.org/documentation/" \o "https://qiskit.org/documentation/)

6.            Link to join Qiskit slack: [https://ibm.co/joinqiskitslack](https://urldefense.proofpoint.com/v2/url?u=https-3A__ibm.co_joinqiskitslack&d=DwMGaQ&c=jf_iaSHvJObTbx-siA1ZOg&r=qtNiidd2MvCHTZwDJCjseGcv_q4Emb0YtemqS6hiO_U&m=9VjdWwkJjW2i1H7ZY4RgchUMz-kw_NEbcN7SMTBfk1B5sIt01-veT9n8f4AgKIZk&s=VUDLhqhVJH_WWzeC9Izstgx4aYIews7lkBxUYh-fYME&e=)

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**How to install Jupyter on Windows**

To install Jupyter Notebook on Windows using pip and Python, you can follow these steps:

**Install Python:**

If you haven't already installed Python on your Windows machine, you need to do this first. You can download the latest version of Python from the official website <https://www.python.org/downloads/windows/>

Make sure to add Python to your system PATH during installation.

**Open Command Prompt:**

Open the Windows Command Prompt. You can do this by pressing Win + R, typing "cmd," and pressing Enter.

**Upgrade pip (Optional, but recommended):**

It's a good practice to upgrade pip to the latest version before installing Jupyter Notebook. You can do this by running the following command:

*pip install --upgrade pip*

**Install Jupyter Notebook:**

To install Jupyter Notebook, use the following command:

*pip install jupyter*

**Verify the Installation:**

After the installation is complete, you can verify that Jupyter Notebook is installed correctly by running the following command:

*jupyter notebook*

This should open a web browser displaying the Jupyter Notebook interface.

**To install Jupyter on Linux, you can follow these steps:**

1. First, ensure that you have Python installed on your Linux machine. You can check if it is installed by running the following command in your terminal:

*python --version*

2. Next, install pip, which is the package manager for Python. You can use the following command to install pip:

*sudo apt-get install python3-pip*

3. Once pip is installed, use the following command to install Jupyter: *pip3 install jupyter*

4. After installation is complete, you can start Jupyter by running the following command in your terminal:

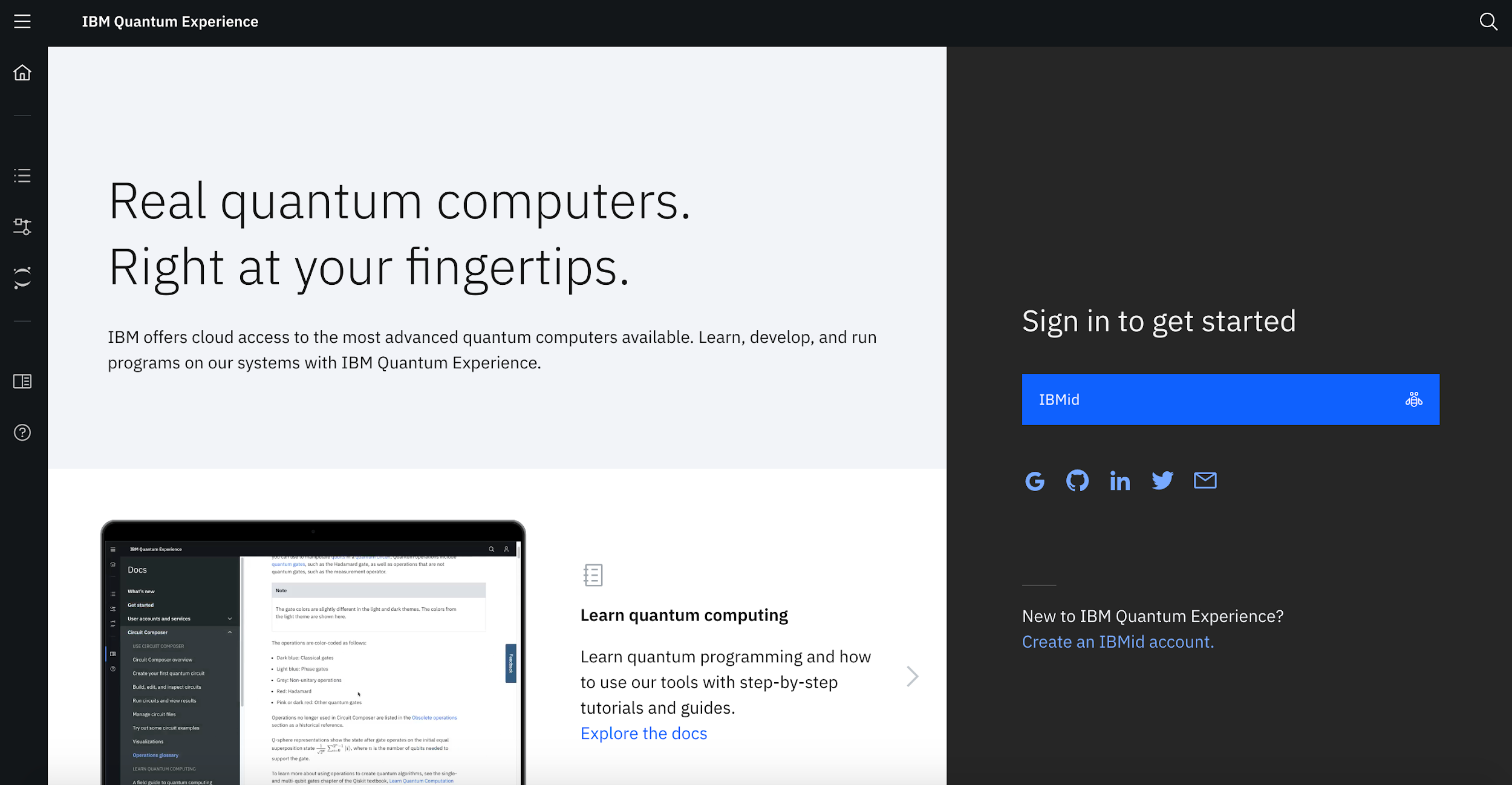
*jupyter notebook*

This will start the Jupyter notebook server and open a web browser window displaying the Jupyter interface. From here, you can create and run Jupyter notebooks to work with Python code, data, and visualizations.

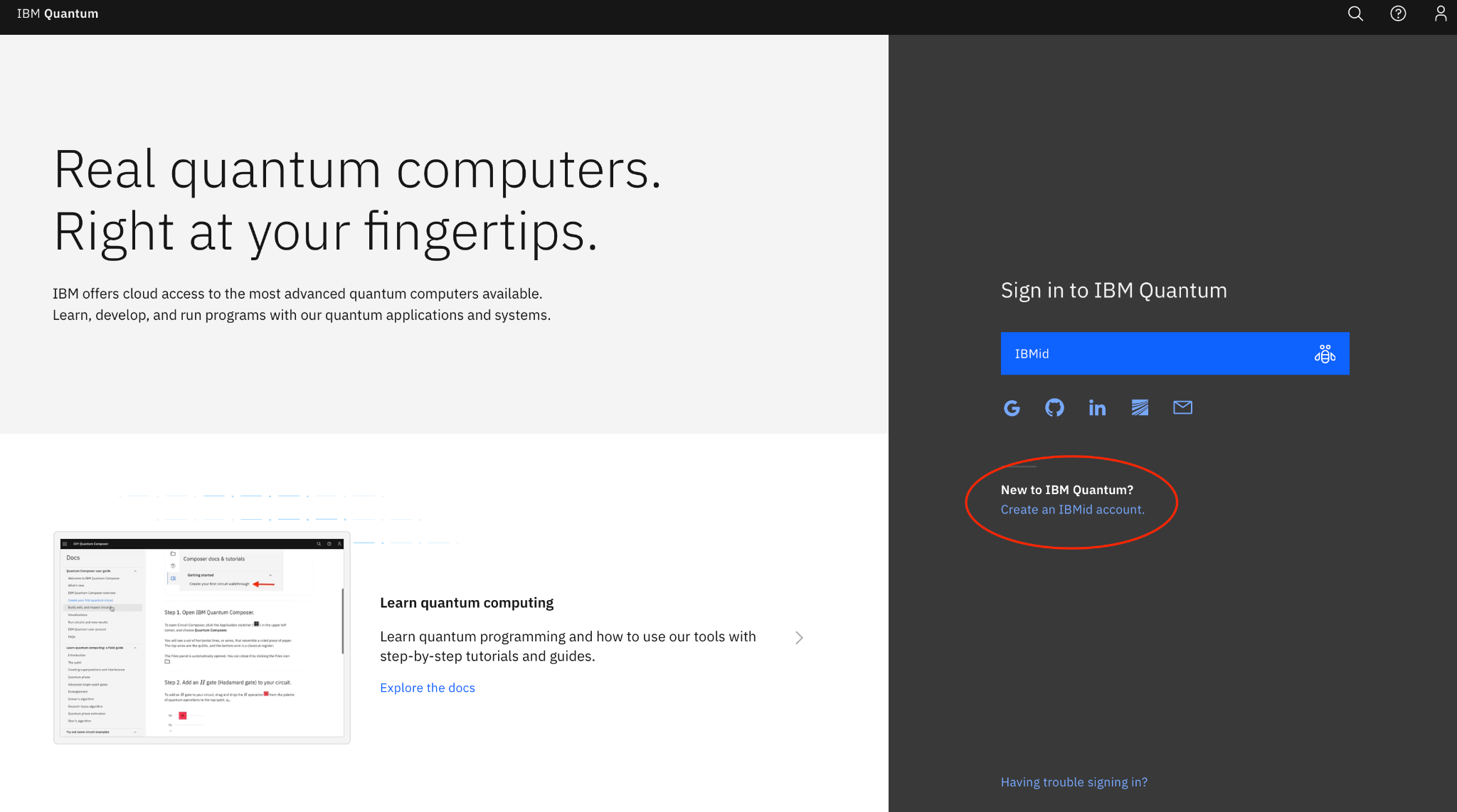
**IBM Quantum Experience Guide**

# **Creating an account on IBM Quantum Experience**

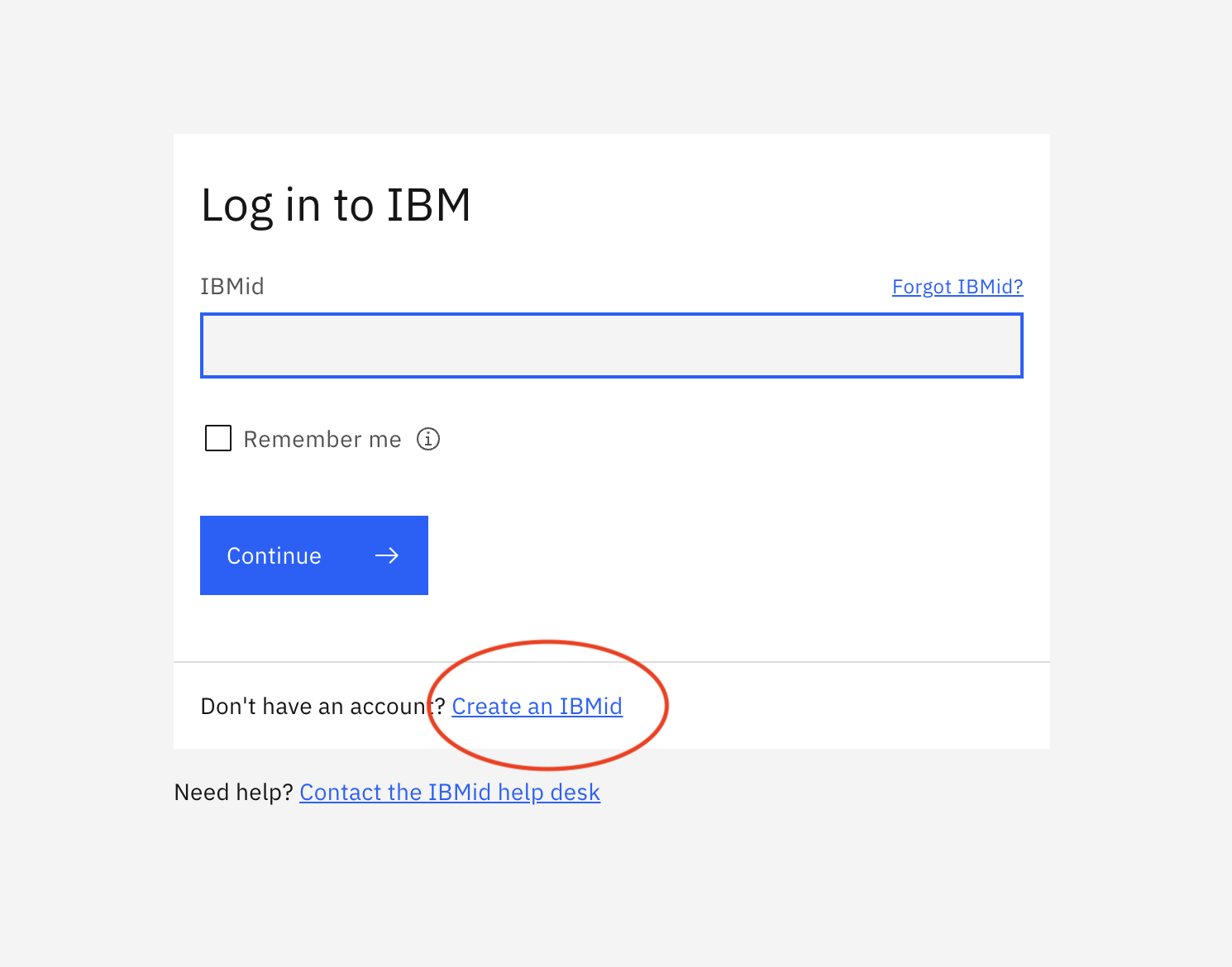
1. Go to **IBM’s Quantum Experience website**: <https://quantum-computing.ibm.com/>



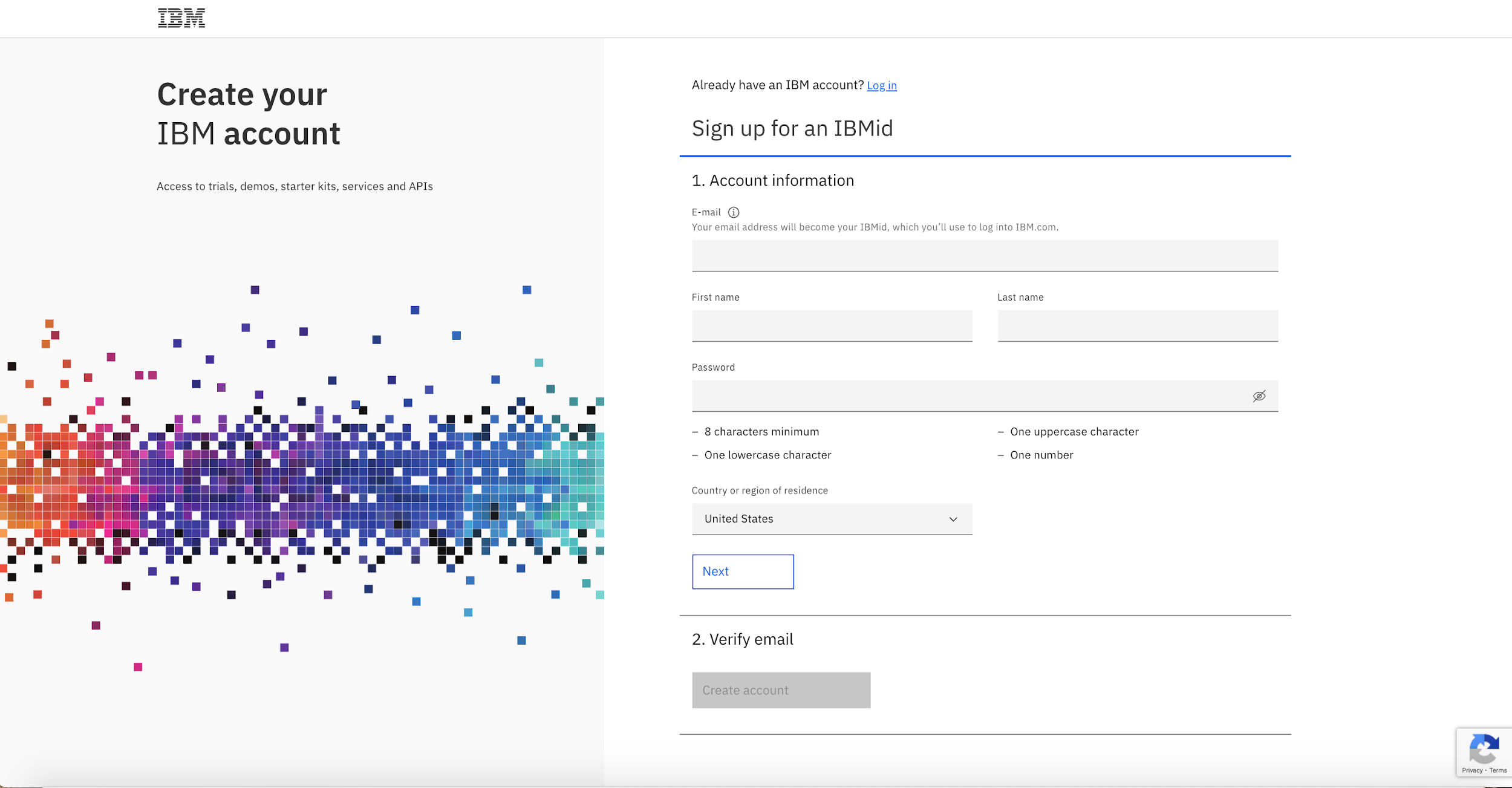
1. Click **Create an IBMid account** on the right side of the screen.



1. Now click **Create an IBMid**



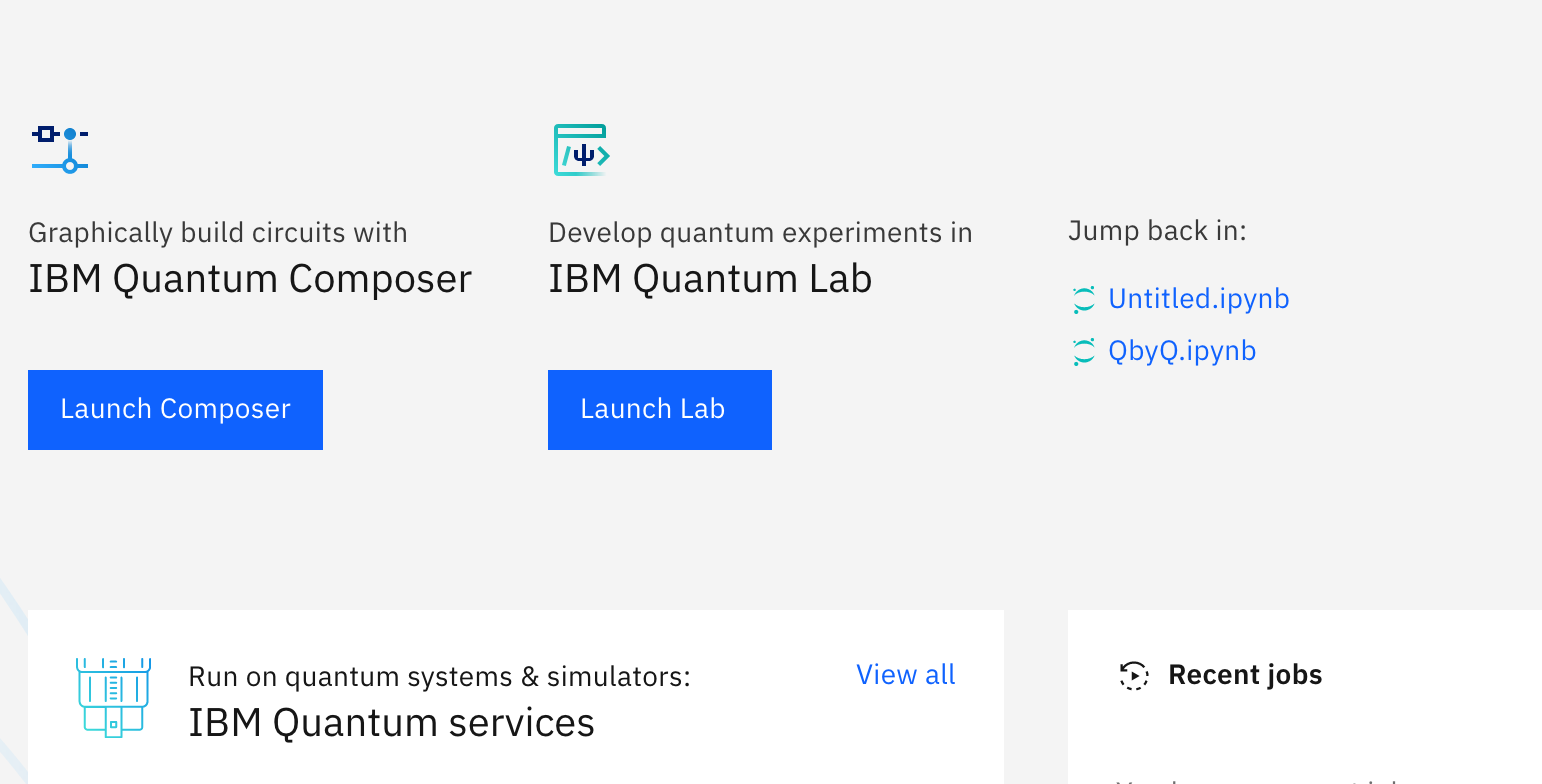
1. Enter your relevant information in the boxes. You are agreeing to IBM’s relevant policies, like the [IBM Terms of Use](https://www.ibm.com/legal) and IBM Quantum End User Agreement.



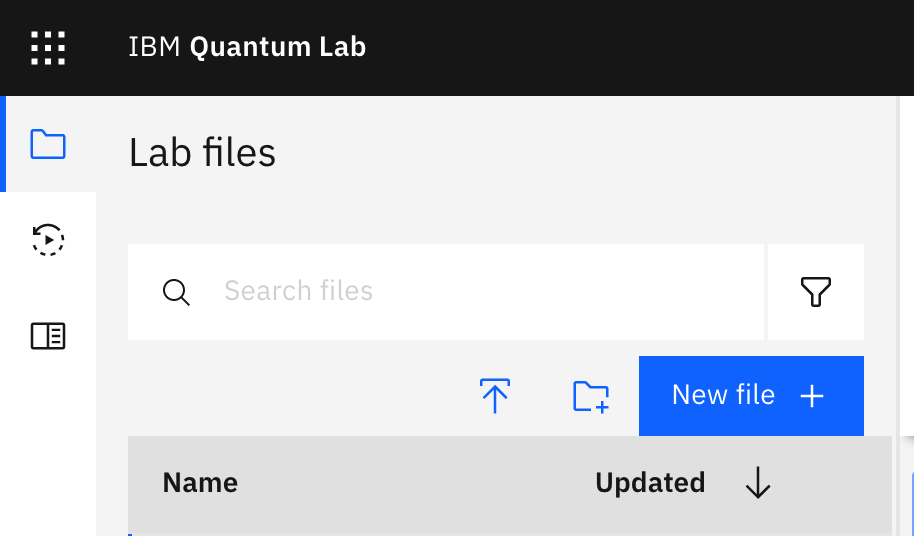
1. Check your email for a **verification emai**l at the address you provided. Click it to verify your account.
2. Your login information will be:
   1. IBMid: *email address you used*
   2. Password: *password you created*

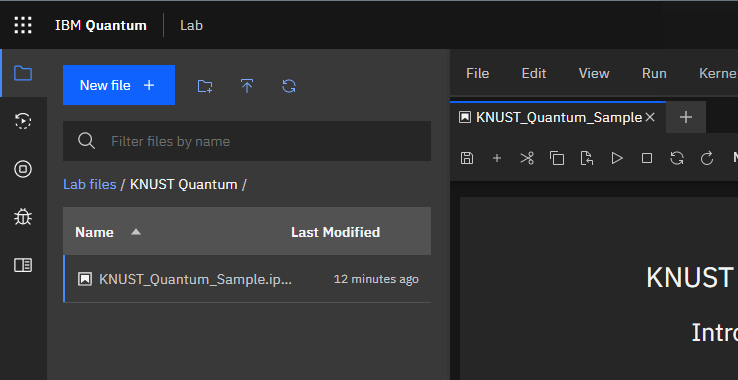
# **Uploading Jupyter Notebooks**

1. **Download the required Jupyter notebook file from GitHub each day. You may use** [**this one**](https://drive.google.com/file/d/1t7alv-HE3xwbA7Qj4Aw8vXwqI8WbVZjZ/view?usp=sharing) **as an example.**
2. To upload the notebook to IBM Quantum Experience, first **log into your account** at <https://quantum-computing.ibm.com/>. Once you’re logged in, **select “Launch Lab”** (underneath “IBM Quantum Lab”).



1. Upload the notebook by **clicking on the “Import” option**.



1. When it has been successfully uploaded, **it will appear in your list of files**.
2. **To open the notebook, click on the file name.** Now you’re ready to code using Qiskit!

**To install Jupyter on macOS, you can follow these steps:**

1. First, ensure that you have Python installed on your Mac. You can check if it is installed by running the following command in your terminal:

*python --version*

2. Next, install pip, which is the package manager for Python. You can use the following command to install pip:

*sudo easy\_install pip*

3. Once pip is installed, use the following command to install Jupyter: *pip install jupyter*

4. After installation is complete, you can start Jupyter by running the following command in your terminal:

*jupyter notebook*

This will start the Jupyter notebook server and open a web browser window displaying the Jupyter interface. From here, you can create and run Jupyter notebooks to work with Python code, data, and visualizations.