



## Hands-on Lab : Download & install Anaconda

Time efforts: 15 minutes

### Objectives of exercise

- Download & install Anaconda
- Create Anaconda Environment for R and Python
- Install and run Jupyter Notebook

### Overview of Anaconda

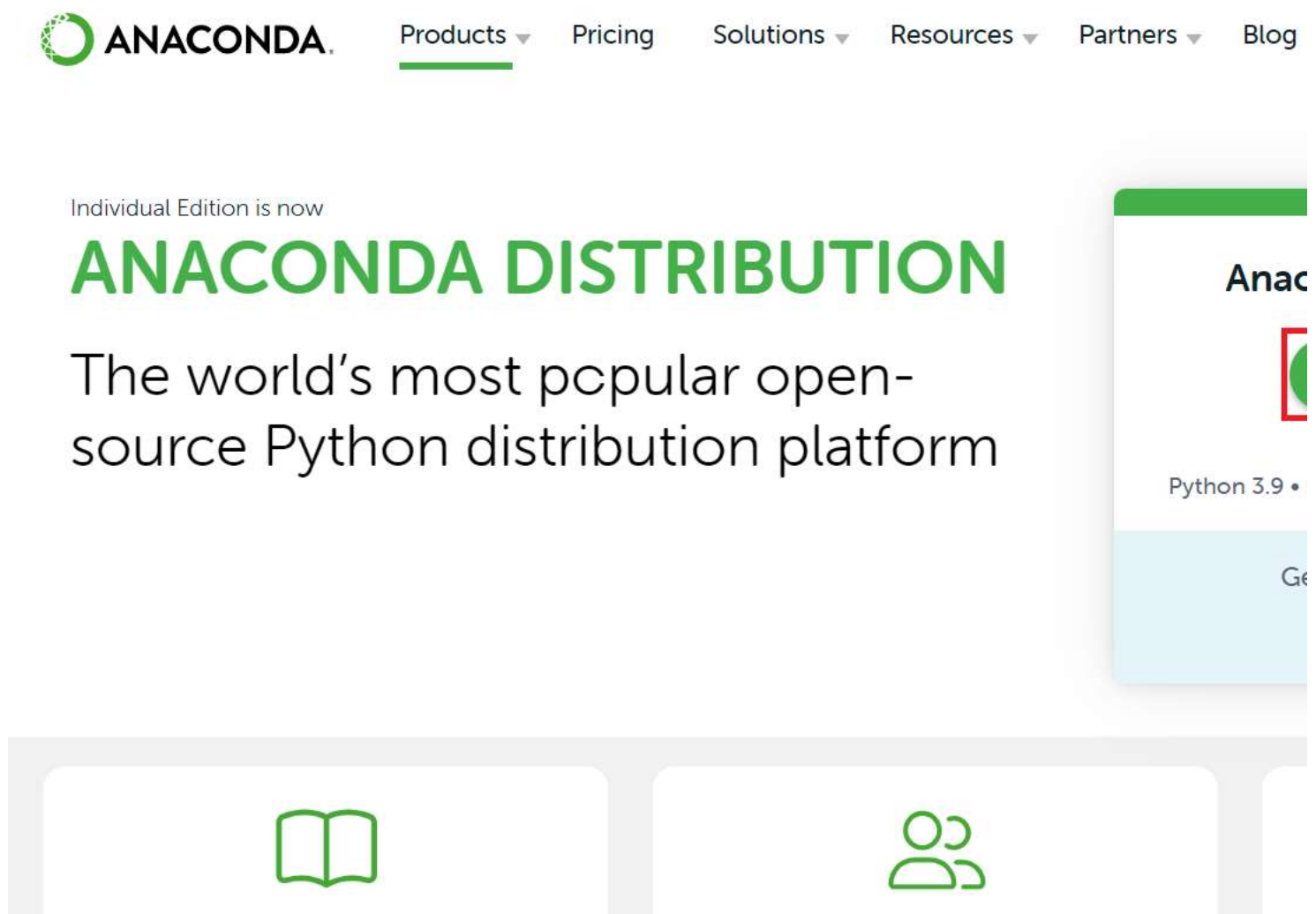
There are several cloud-based data science tools that can make team collaboration more accessible. At times it's useful to work directly on your desktop.

Anaconda Distribution is an open-source distribution of Python and R languages. It comes with a repository of a large number of packages for data science and machine learning, with the most popular and commonly used ones pre-installed. It includes Anaconda Navigator, a graphical interface (GUI) that contains several tools, and IDEs such as Jupyter Notebooks and R Studio. It has binaries for major platforms, including Windows, Linux, and macOS. This lab includes instructions for downloading and installing Anaconda on Windows.

### Exercise 1: Download & Install Anaconda Distribution

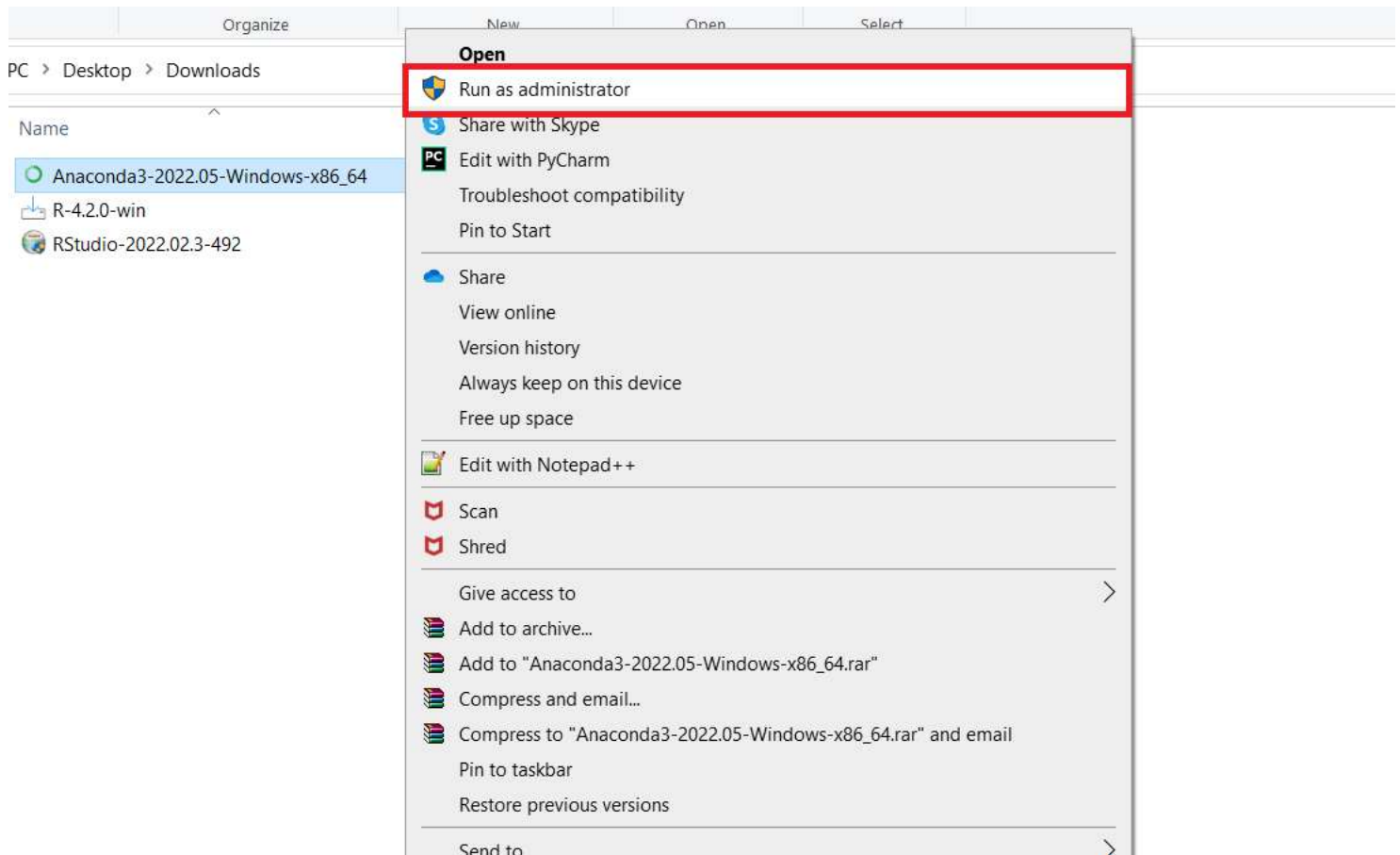
**Step 1:** Use the below link to download the Anaconda distribution:

**Link for Download Anaconda Distribution:** <https://www.anaconda.com/products/distribution>

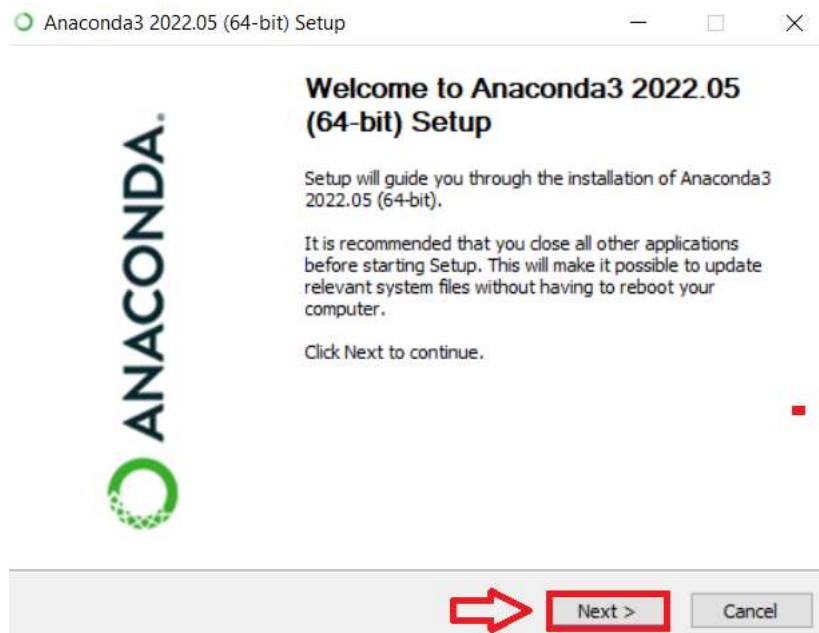


**Note:** Depending on your **Operating system**, it would show the download link specific to your OS. Click the **Download** button to download it to your local machine.

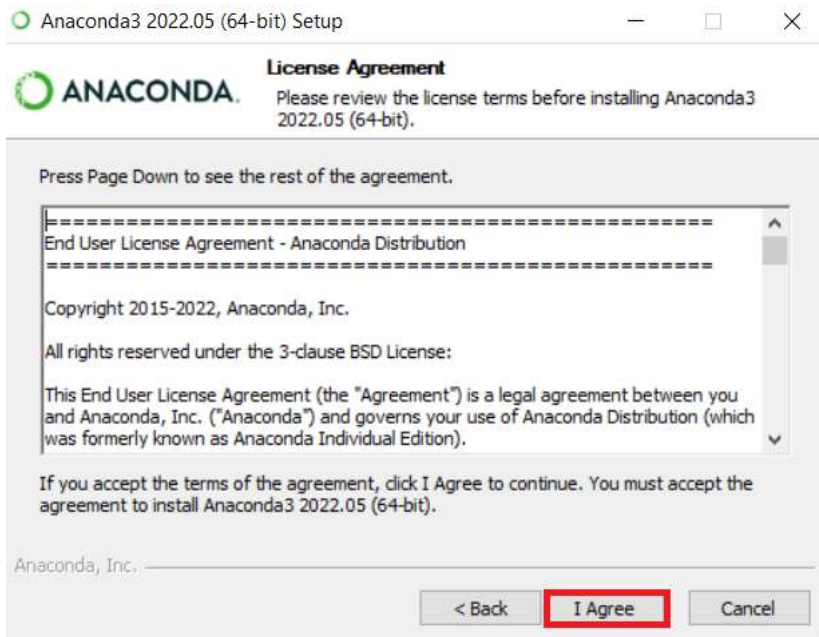
**Step 2:** Once the download completes, right-click the downloaded file and run it as **Administrator**.



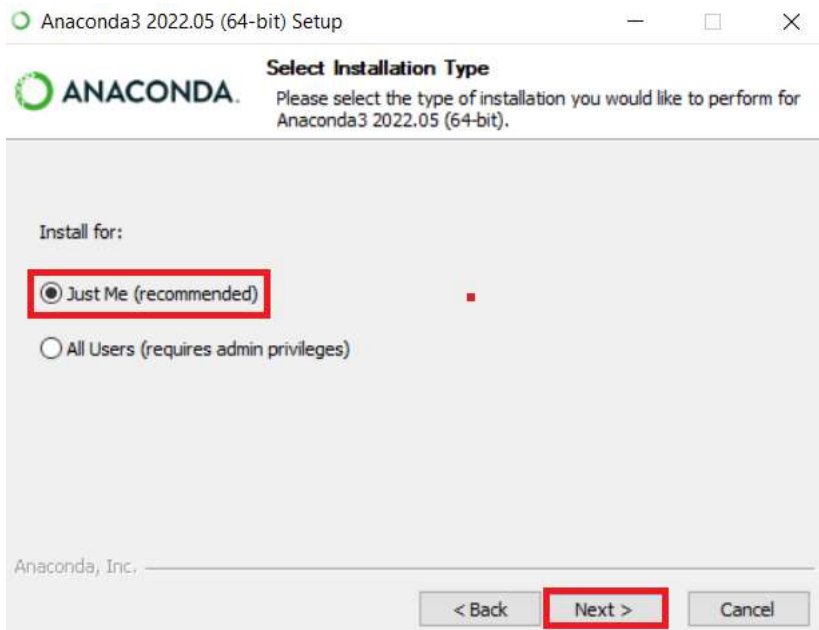
**Step 3:** At the beginning of the welcome window, you need to click **Next** to confirm the installation.



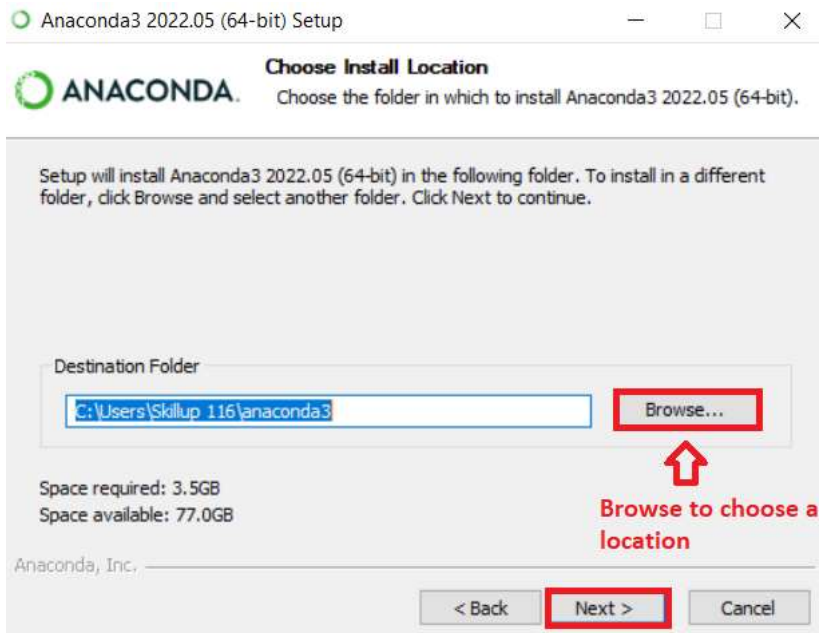
**Step 4:** Agree to the license.



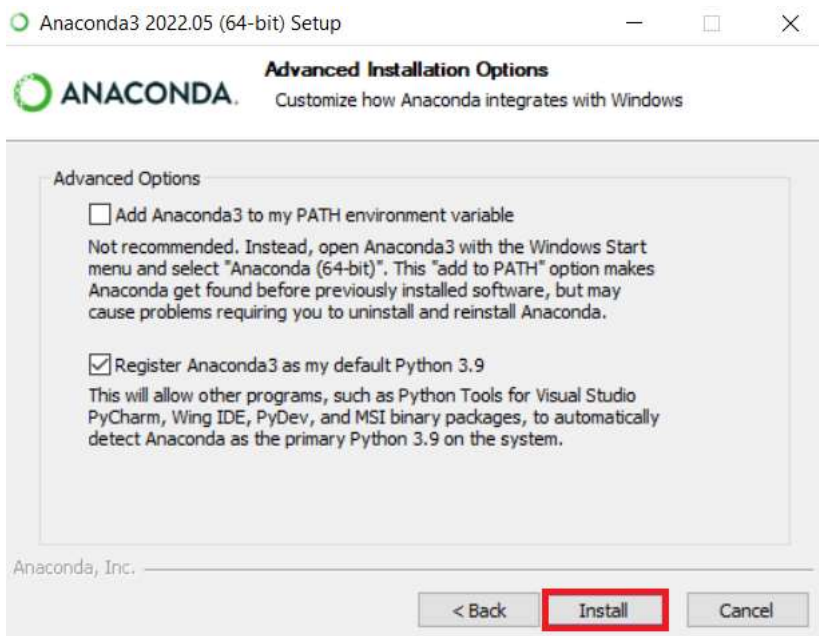
**Step 5:** In the installation window, select **Just me**, and click **Next**.



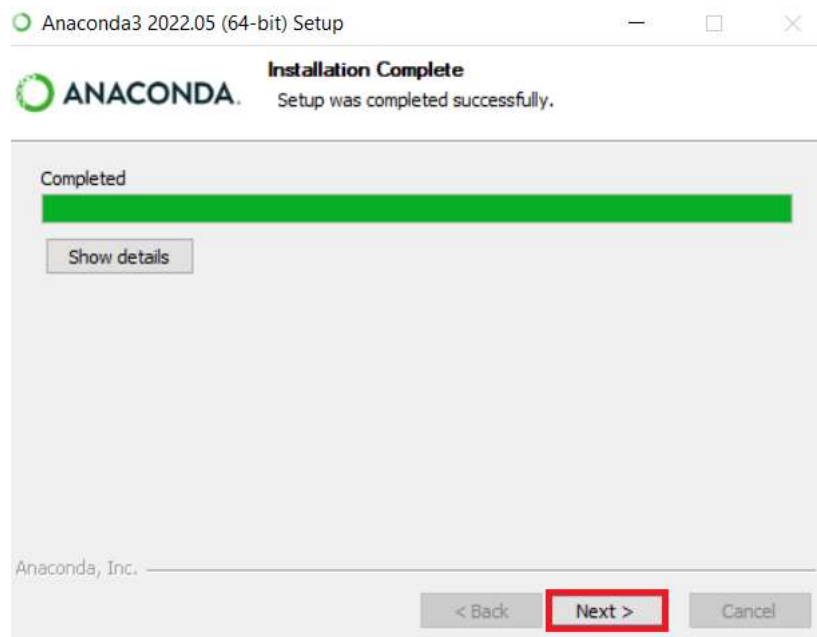
**Step 6:** Select the folder where you would like to **Install Anaconda**, or retain the **Default** installation location and click **Next**.



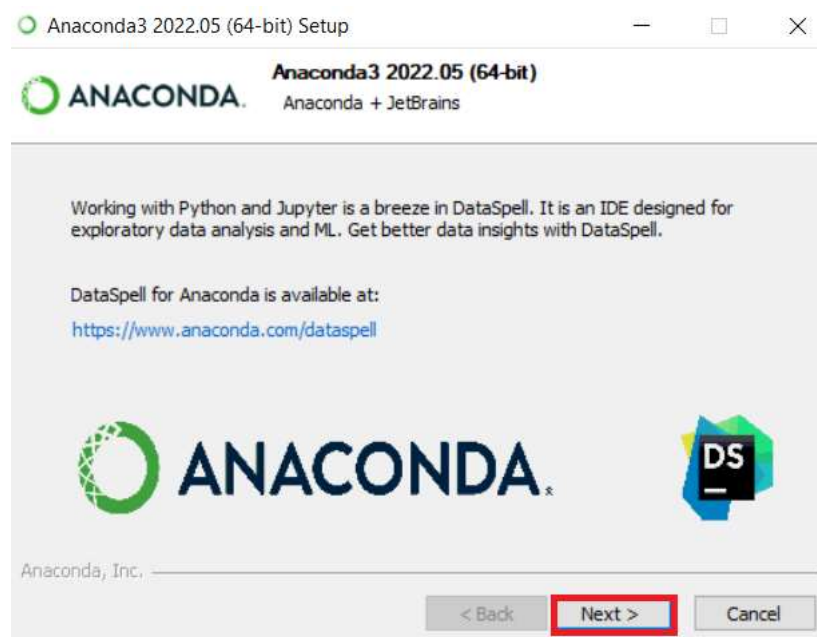
**Step 7:** In the **Advanced Installation Options** window, select **Register Anaconda3 as the default Python 3.9** option, and click **Install**.



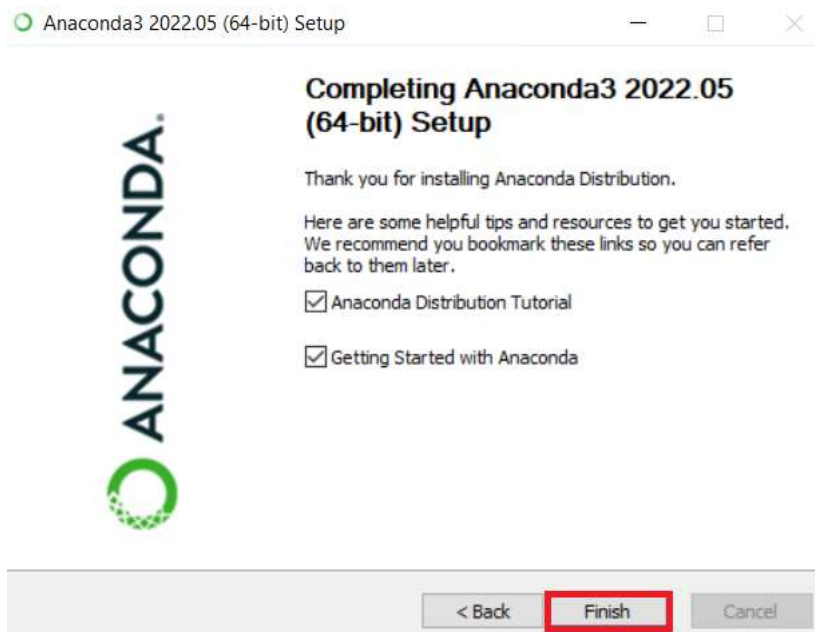
**Step 8:** You need to wait for the installation to complete. Once installation completes, click **Next**.



Step 9: Click Next.



Step 10: Click **Finish** to complete the installation of the Anaconda distribution.

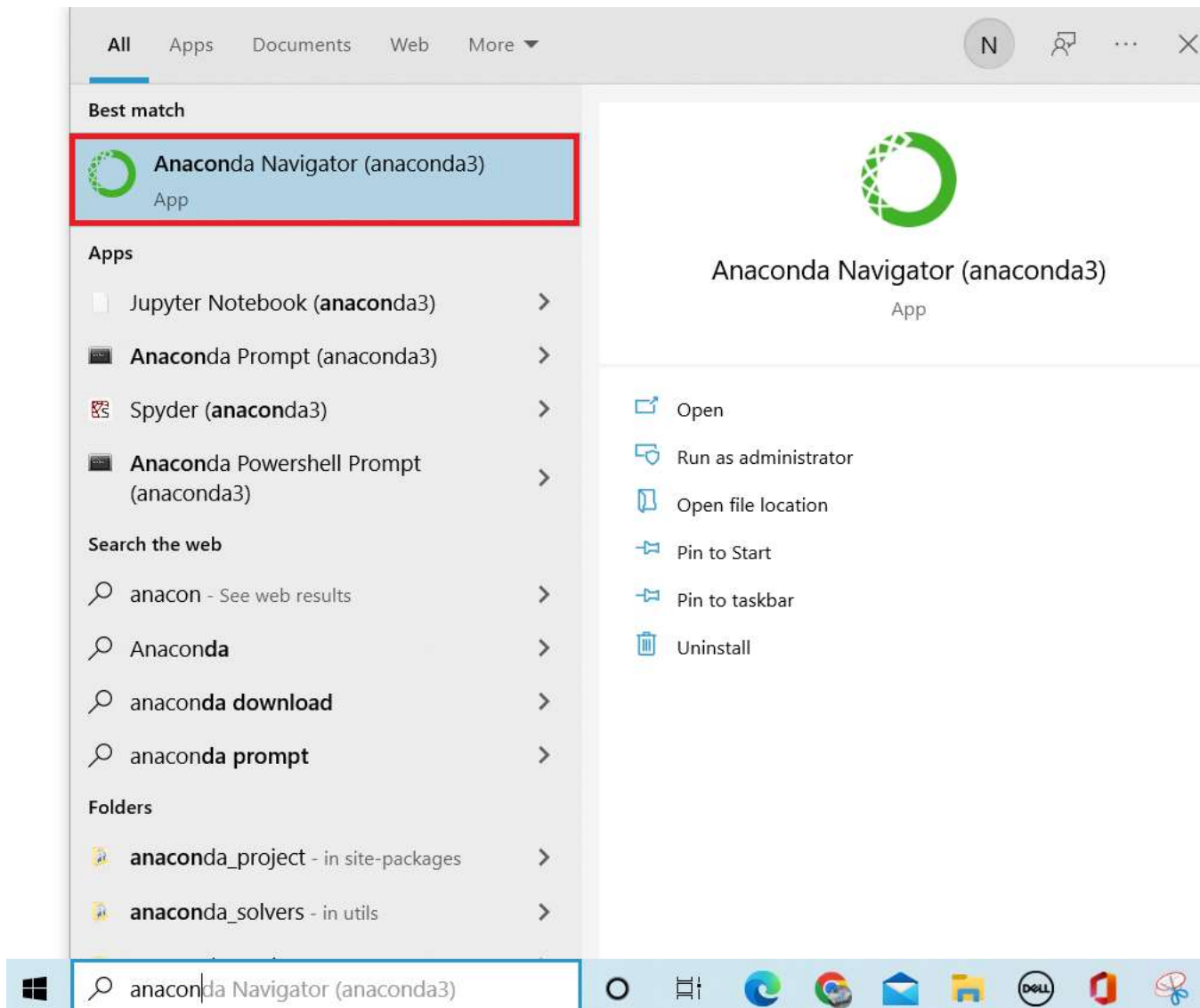


## Exercise 2: Create Anaconda Environment

<q>Anaconda environment is a directory containing a specific collection of conda packages you have installed. For example, you may have one environment with NumPy 1.7 and its dependencies and another environment with NumPy 1.6 for legacy testing.</q>

Ref: <https://conda.io/projects/conda/en/latest/user-guide/concepts/environments.html>

**Step 1:** Open the **Anaconda Navigator** from the Windows Start menu.







End-to-end package  
security, guaranteed

Documentation

Anaconda Blog



Applications on

base (root)

Channels



CMD.exe Prompt

0.1.1

Run a cmd.exe terminal with your current  
environment from Navigator activated

Launch



DataLore

Online Data Analysis Tool with smart  
coding assistance by JetBrains. Edit and run  
your Python notebooks in the cloud and  
share them with your team.

Launch



IBM Watson Studio Cloud

IBM Watson Studio Cloud provides you the  
tools to analyze and visualize data, to  
cleanse and shape data, to create and train  
machine learning models. Prepare data and  
build models, using open source data  
science tools or visual modeling.

Launch

An extensible e  
and reproducibl  
Jupyter Not



PyCharm Professional

2021.1.3

A Full-fledged IDE by JetBrains for both  
Scientific and Web Python development.  
Supports HTML, JS, and SQL.

Launch



Qt Console

5.3.0

PyQt GUI that supports inline figures,  
proper multiline editing with syntax  
highlighting, graphical calltips, and more.

Launch



Spyder

5.1.5

Scientific PYTHON Development  
EnviRonment. Powerful Python IDE with  
advanced editing, interactive testing,  
debugging and introspection features

Launch

Streamlined co  
development  
task runnin



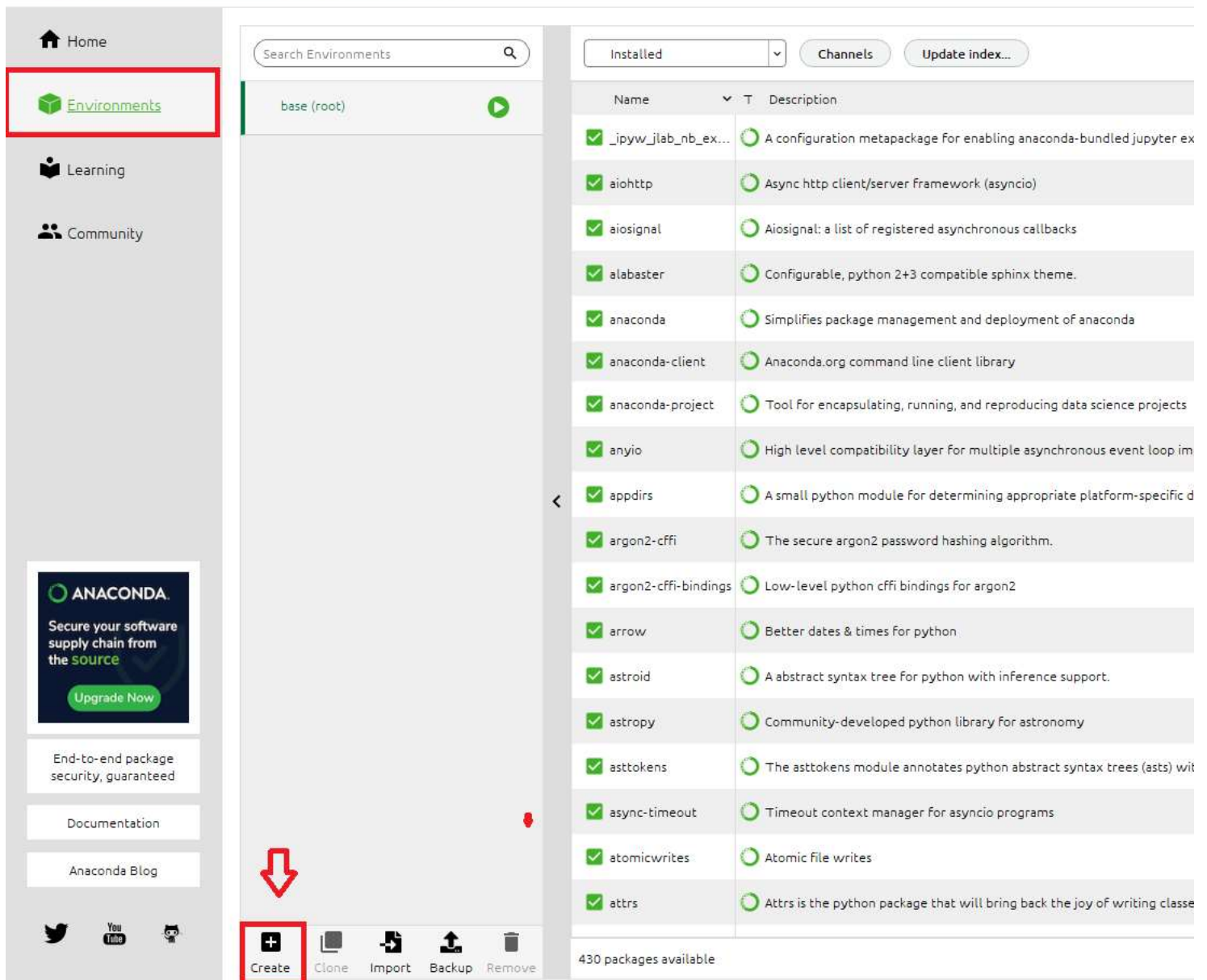
RStudio

1.1.456

A set of integrated tools designed to help  
you be more productive with R. Includes R  
essentials and notebooks.

**Step 2:** Create an environment using Anaconda Navigator. Go to the **Environments** tab and click **Create** (at the bottom menu as highlighted below) to create an icon on the Anaconda environment.





Home

**Environments**

Learning

Community

ANACONDA

Secure your software supply chain from the source

Upgrade Now

End-to-end package security, guaranteed

Documentation

Anaconda Blog

Twitter YouTube GitHub

Search Environments

base (root)

Installed

Channels

Update index...

Name	T	Description
✓ _ipyw_jlab_nb_ex...	✓	A configuration metapackage for enabling anaconda-bundled jupyter ex
✓ aiohttp	✓	Async http client/server framework (asyncio)
✓ aiosignal	✓	Aiosignal: a list of registered asynchronous callbacks
✓ alabaster	✓	Configurable, python 2+3 compatible sphinx theme.
✓ anaconda	✓	Simplifies package management and deployment of anaconda
✓ anaconda-client	✓	Anaconda.org command line client library
✓ anaconda-project	✓	Tool for encapsulating, running, and reproducing data science projects
✓ anyio	✓	High level compatibility layer for multiple asynchronous event loop im
✓ appdirs	✓	A small python module for determining appropriate platform-specific d
✓ argon2-cffi	✓	The secure argon2 password hashing algorithm.
✓ argon2-cffi-bindings	✓	Low-level python cffi bindings for argon2
✓ arrow	✓	Better dates & times for python
✓ astroid	✓	A abstract syntax tree for python with inference support.
✓ astropy	✓	Community-developed python library for astronomy
✓ asttokens	✓	The asttokens module annotates python abstract syntax trees (asts) wit
✓ async-timeout	✓	Timeout context manager for asyncio programs
✓ atomicwrites	✓	Atomic file writes
✓ attrs	✓	Attrs is the python package that will bring back the joy of writing classe

430 packages available

Create Clone Import Backup Remove

**Note:** All the macOS users, select Update index and all your packages will be updated.

*Note:* It is always helpful to create a separate environment because different projects require different packages.

**Step 3:** Give a name for your environment, select the suitable version and language and click **Create**.

The screenshot shows the 'Create new environment' dialog in Anaconda. The 'Name' field is set to 'RP\_Env'. The 'Location' is 'C:\Users\Skillup 116\anaconda3\envs\RP\_Env1'. Under 'Packages', both 'Python' (version 3.9.12) and 'R' (version 3.6.1) are selected. The 'Create' button is highlighted with a red box.

**Note:** The macOS users must uncheck Python and then create the environment.

**Step 4:** Once you create an Anaconda environment, go back to the **Home Page** and **Launch Jupyter** and create a **Python Notebook** (make sure to select the right environment).

**Note:** The macOS users need to restart their Anaconda prompt first and then launch their Jupyter Notebook.

**ANACONDA.NAVIGATOR**

Home

Environments

Learning

Community

Applications on **RP\_Env** Channels

**DL**  
DataLore  
Online Data Analysis Tool with smart coding assistance by JetBrains. Edit and run your Python notebooks in the cloud and share them with your team.  
Launch

**IBM Watson Studio Cloud**  
IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling.  
Launch

**jupyter**  
Notebook  
6.4.11  
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.  
Launch

**PyCharm**  
A Full-fledged IDE for Scientific and Web Development. Supports Python, Java, JavaScript, and more.  
Launch

**Glueviz**  
1.0.0  
Multidimensional data visualization across files. Explore relationships within and among related datasets.  
Install

**lab**  
JupyterLab  
3.3.2  
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.  
Install

**Orange 3**  
3.26.0  
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.  
Install

**PowerShell**  
Run a Powershell script in the current environment.  
Launch

**Spyder**  
5:1.5  
Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing, and more.  
Launch

**ANACONDA**  
Secure your software supply chain from the source  
Upgrade Now

End-to-end package security, guaranteed

Documentation

Anaconda Blog

Twitter YouTube GitHub

**Step 5:** This opens **Jupyter Notebook** in the default browser, and now you can select the **kernel** and create a **Notebook**.

**jupyter**

Files Running Clusters

Select items to perform actions on them.

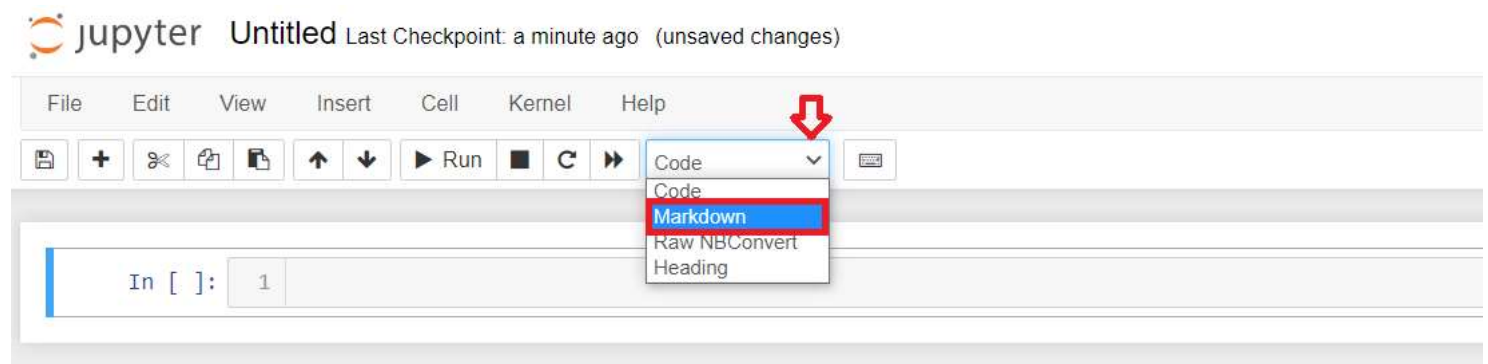
0 /

- 3D Objects
- anaconda3
- Contacts
- Desktop
- Documents
- Downloads
- Favorites

## Exercise 3: Create and execute Python Jupyter Notebook

### 1. Create markdown cells and add text

In your notebook, **click any code cell**, and in the drop-down menu, change the cell type from Code to Markdown. You will notice that you cannot create Markdown cells without first creating and converting them from Code to Markdown.



In the Markdown cell, write some text like **My First Program**.

To render the Markdown text, make sure the cell is selected (by clicking within it), and press **Play** in the menu or **Shift+Enter**.

```
1. 1
1. # My First Program
```

Copied!

Your Markdown cell should now be rendered!

► Output

*Note: To edit your Markdown cell, double-click anywhere within the cell. Note you can use the keyboard shortcut: `[m]` - Convert Cell to Markdown.*

### 2. Create new cells.

- In your Jupyter Notebook, click any of the existing cells to select the cell.
- Click **Insert Cell Above** or **Insert Cell Below** to insert the cell from the Insert menu.

► Output

*Note: You can use the keyboard shortcuts: `[a]` - Insert a Cell Above; `[b]` - Insert a Cell Below.*

### 3. Write and execute code.

- In your new empty notebook, click within the gray code cell and write some code, like.

```
1. 1
1. 1+1
```

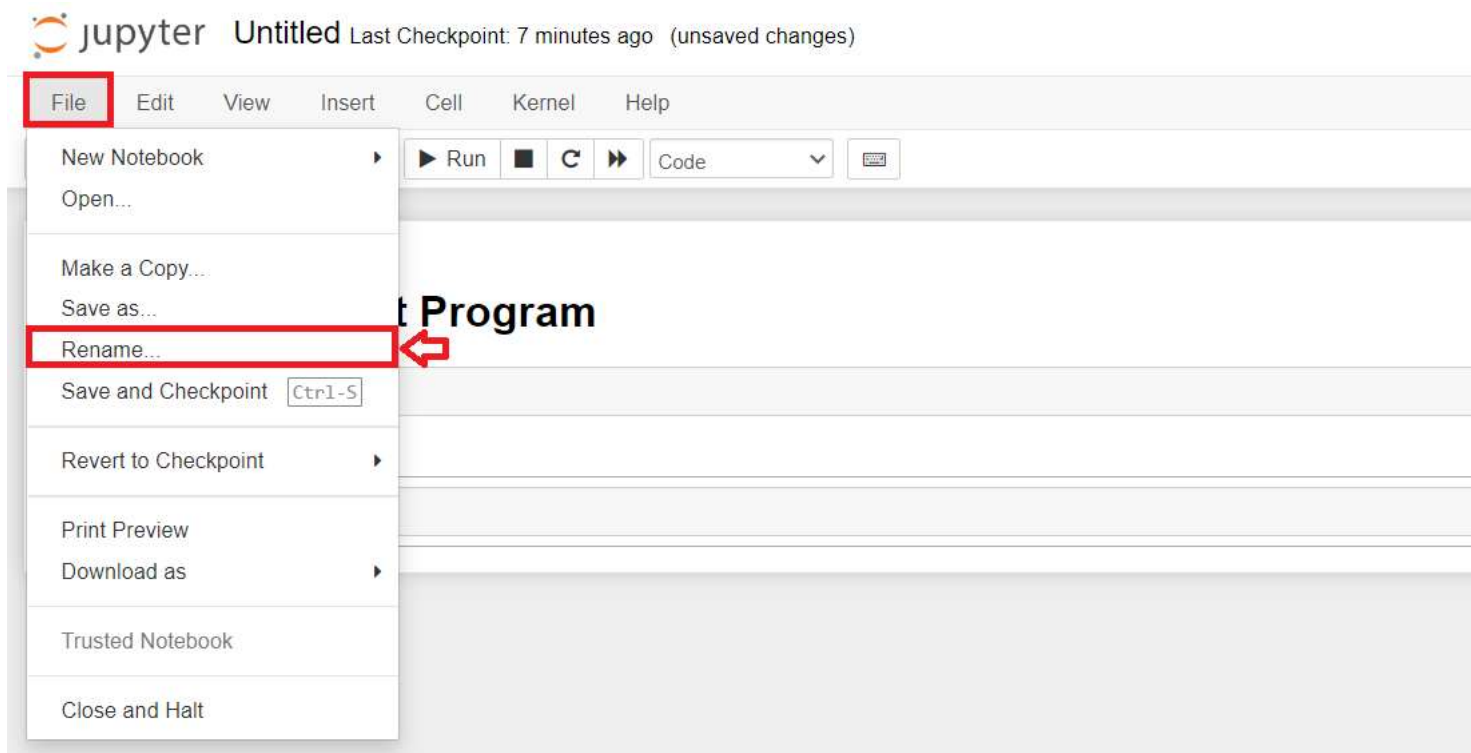
Copied!

- Execute the code by clicking the **Play** button in the menu above the notebook or pressing **Shift+Enter** on your notebook.
- You should see the output 2.

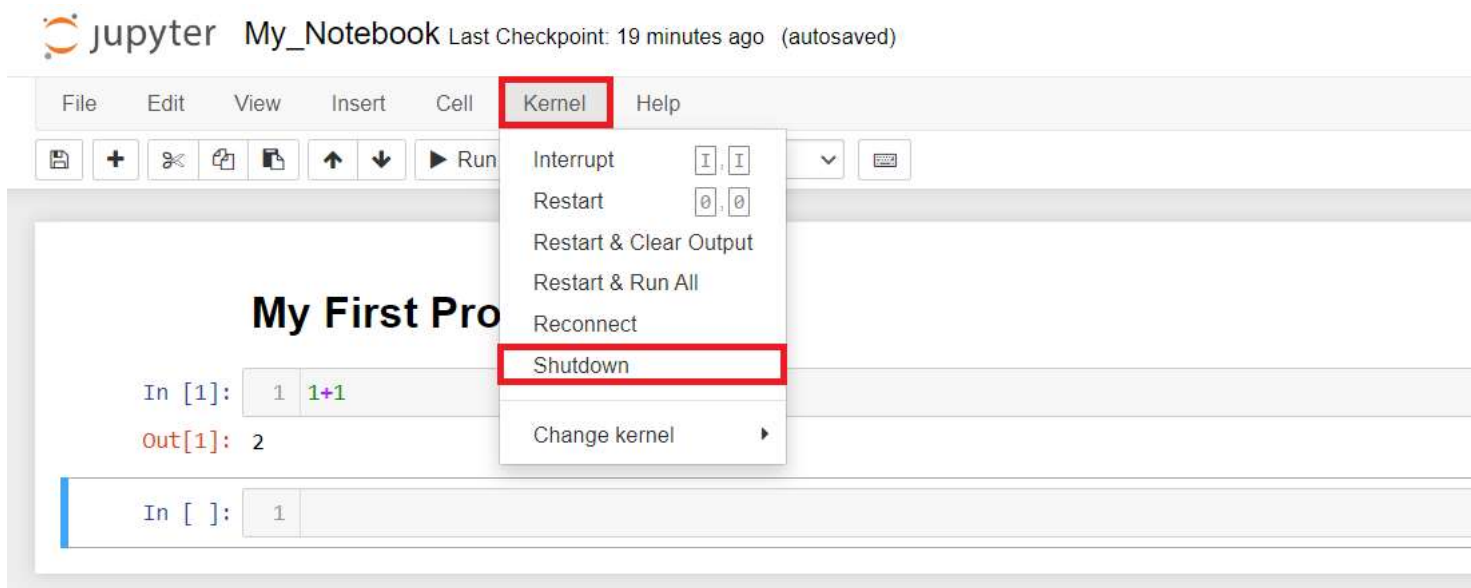
► Output

### 4. Rename, Shutdown kernel, and Save your Notebook

**Step 1:** Click **Rename** from the **File** menu to rename your notebook like *My\_Notebook.ipynb*.

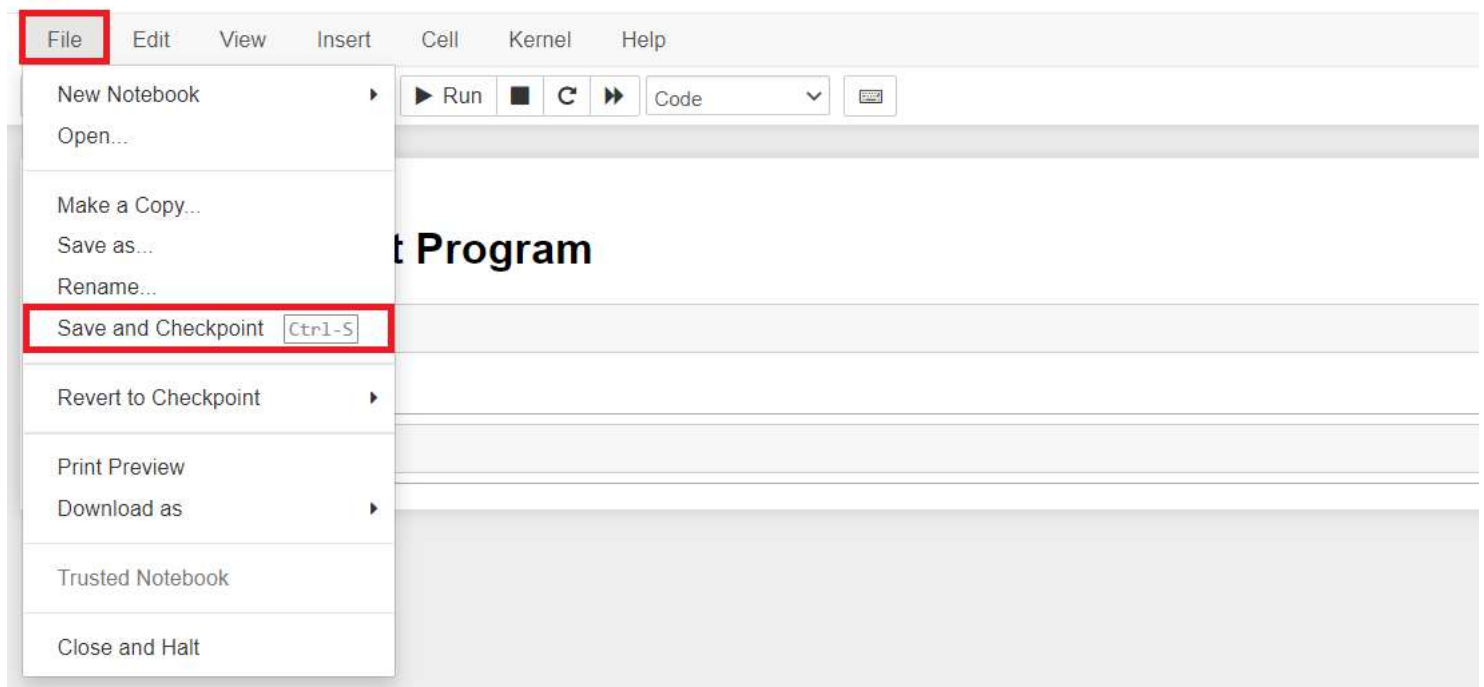


**Step 2:** To shut down the kernel, click **Shutdown** from the **Kernel** menu.



**Step 3:** Click **Save Notebook** or **Save Notebook as** to save the notebook from the **File** menu.

jupyter My\_Notebook Last Checkpoint: 4 minutes ago (autosaved)



##### 5. Open the recently created notebook.

**Step 1:** Open **Anaconda Navigator** from the Windows **Start** menu and **launch Jupyter**.



ANACONDA.NAVIGATOR

1

Home

Environments

Learning

Community

Applications on RP\_Env Channels

2

3

Jupyter Notebook 6.4.11

Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.

Launch

Datalore

Online Data Analysis Tool with smart coding assistance by JetBrains. Edit and run your Python notebooks in the cloud and share them with your team.

Launch

IBM Watson Studio Cloud

IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling.

Launch

Glueviz 1.0.0

Multidimensional data visualization across files. Explore relationships within and among related datasets.

Install

JupyterLab 3.3.2

An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.

Install

Orange 3 3.26.0

Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.

Install

Spyder 5:1.5

Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing,

ANACONDA.

Secure your software supply chain from the source

Upgrade Now

End-to-end package security, guaranteed

Documentation

Anaconda Blog

Twitter YouTube GitHub

**Step 2:** Go to the **directory** where you **saved** your file and **click** to open it.





<input type="checkbox"/>		IBMDDeveloperSkillsNetwork-RP0321EN-SkillsNetwork
<input type="checkbox"/>		lax_to_jfk
<input type="checkbox"/>		Links
<input type="checkbox"/>		Maps_with_R
<input type="checkbox"/>		Music
<input type="checkbox"/>		OneDrive
<input type="checkbox"/>		OneDrive - Flexible Road LLC
<input type="checkbox"/>		PycharmProjects
<input type="checkbox"/>		Saved Games
<input type="checkbox"/>		seaborn-data
<input type="checkbox"/>		Searches
<input type="checkbox"/>		Tracing
<input type="checkbox"/>		Videos
<input type="checkbox"/>		Week3
<input type="checkbox"/>		With_R
<input type="checkbox"/>		My_Notebook.ipynb
<input type="checkbox"/>		-1_14-windows.xml
<input type="checkbox"/>		BullseyeCoverageError.txt

## Practice Exercise

Let us try executing simple math operations

**Problem 1: Find the minimum and maximum values.**

```
1. 1
2. 2
3. 3
4. 4
5. 5

1. x = min(5, 10, 25)
2. y = max(5, 10, 25)
3.
4. print(x)
5. print(y)
```

Copied!

► Output

**Problem 2: Find the value of 4 to the power 3.**

```
1. 1
2. 2
3. 3

1. x = pow(4, 3)
2.
3. print(x)
```

Copied!

► Output

## Exercise 4: Create and execute R Jupyter Notebook

Select the kernel and create a Notebook.



Files

Running

Clusters

Select items to perform actions on them.

☐ 0

/

☐ 3D Objects☐ anaconda3☐ Contacts☐ Desktop☐ Documents☐ Downloads**Problem 1: Find the Multiplication of 2 numbers.**

```
1. 1
1. 2 * 3 # Multiplication
```

Copied!

► Output

**Problem 2: Find the Subtraction of 2 numbers.**

```
1. 1
1. 4 - 1 # Subtraction
```

Copied!

► Output

**Problem 3: Add 2 to the given number.**

```
1. 1
2. 2

1. a <- 1 # Assigning 1 to the variable called "a"
2. a + 2 # Adding 2
```

Copied!

► Output

**Problem 4: Create a data frame**

```
1. 1
2. 2
3. 3
4. 4
5. 5

1. df = data.frame(Emp_Name = c("Jai", "David", "Michael"),
2.                 Job_role = c("Manager", "Team Lead", "Developer" )
3.                 )
4.
5. print(df)
```

Copied!

► Output

**Congratulations! You have learned how to download and install Anaconda on your local machine and create a new environment. You have also created a Jupyter Notebook and saved it.**

**Author(s)**

[D.M.Naidu](#)

**Change Log**

Date (YYYY-MM-DD) Version Changed By Change Description			
2023-01-03	0.2	Steve Hord	QA pass with edits
2022-06-22	0.1	D.M.N	Created Initial Version

© IBM Corporation 2022. All rights reserved.