



# 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>

[Products](#) ▼[Pricing](#)[Solutions](#) ▼[Resources](#) ▼

Individual Edition is now

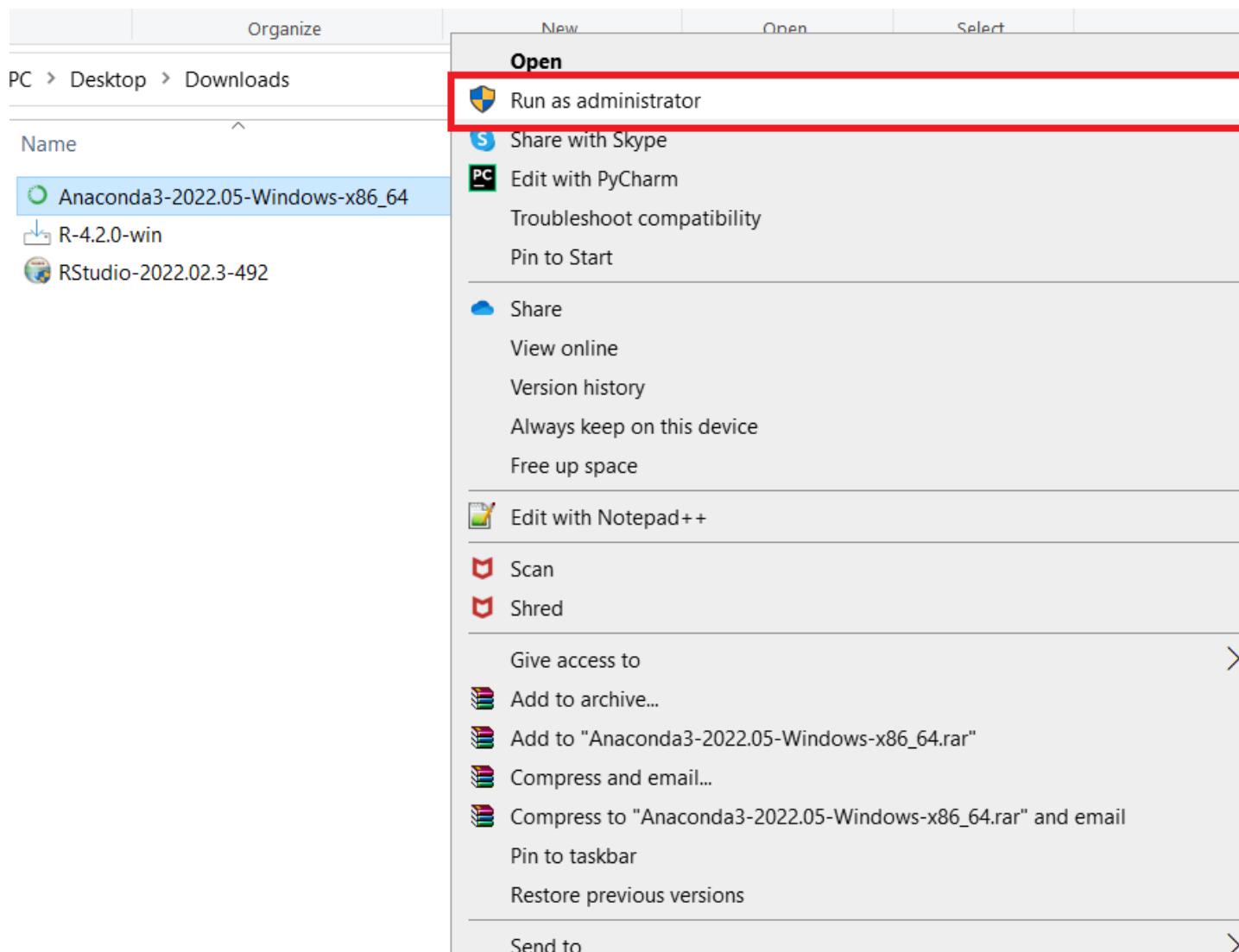
# ANACONDA DISTRIBUTION

The world's most popular open-source Python distribution platform



***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.*

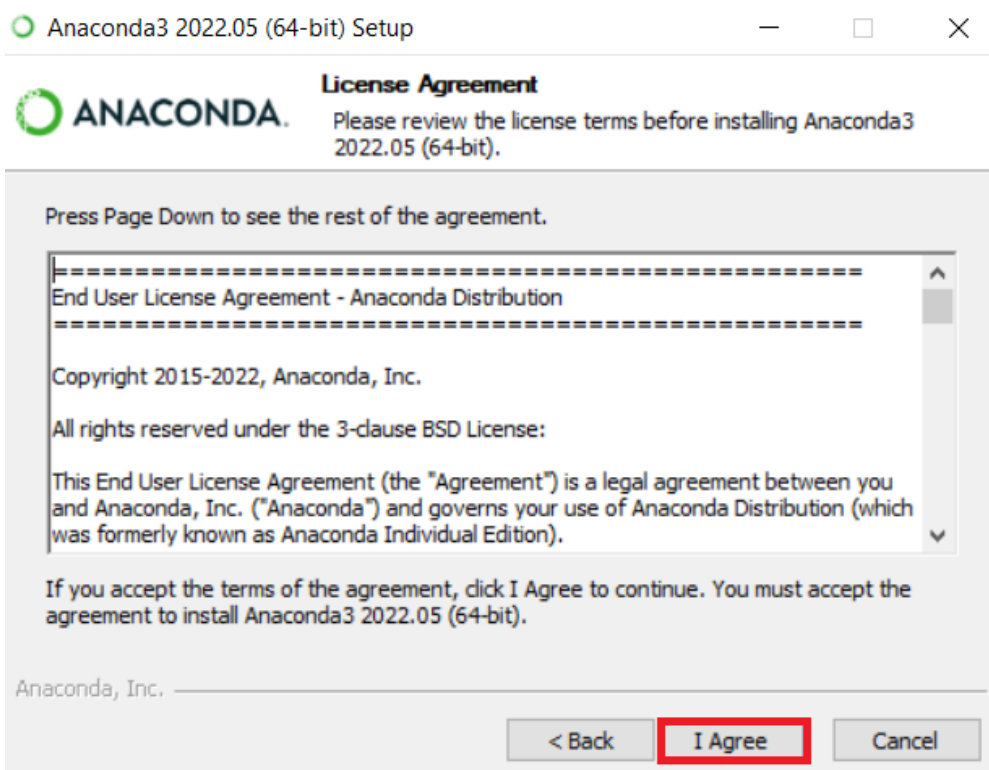
**Step 2:** Once the download completes, right-click the downloaded file and run it as **Administrator**.



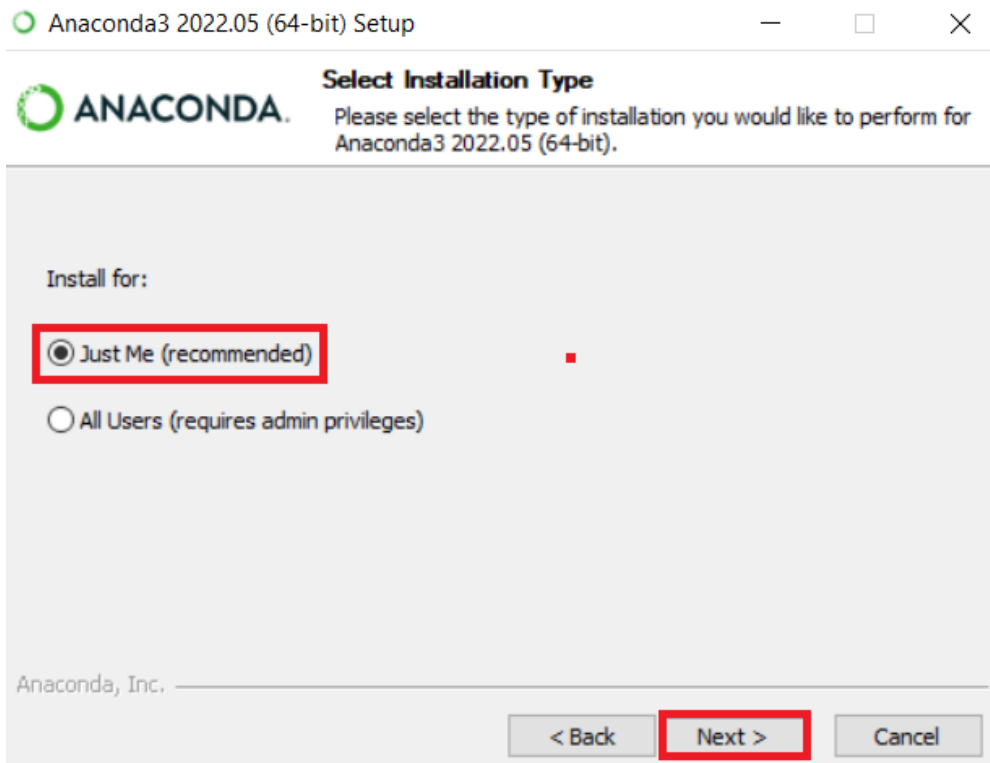
**Step 3:** At the beginning of the welcome window, you need to click **Next** to confirm the installation.



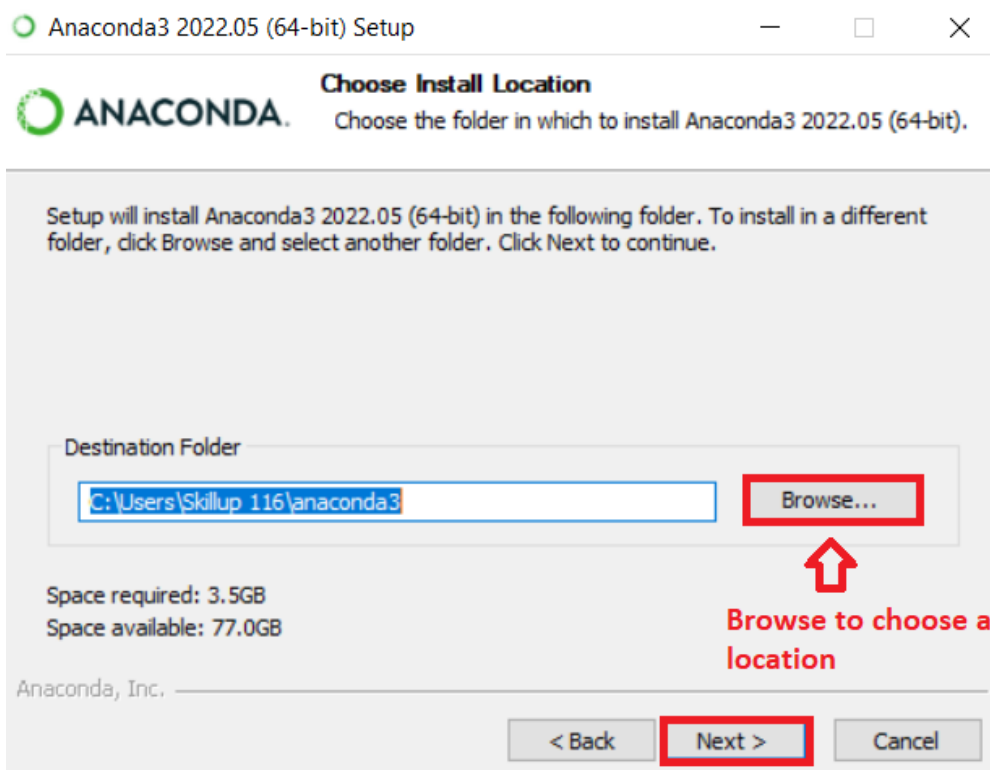
**Step 4:** Agree to the license.



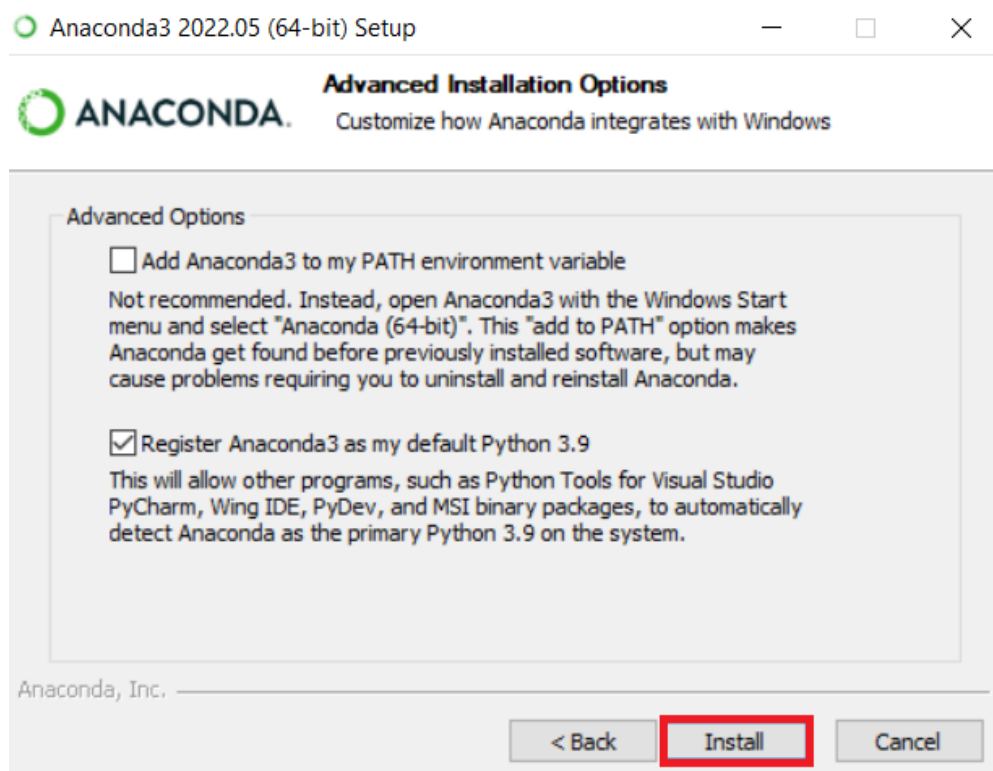
**Step 5:** In the installation window, select **Just me**, and click **Next**.



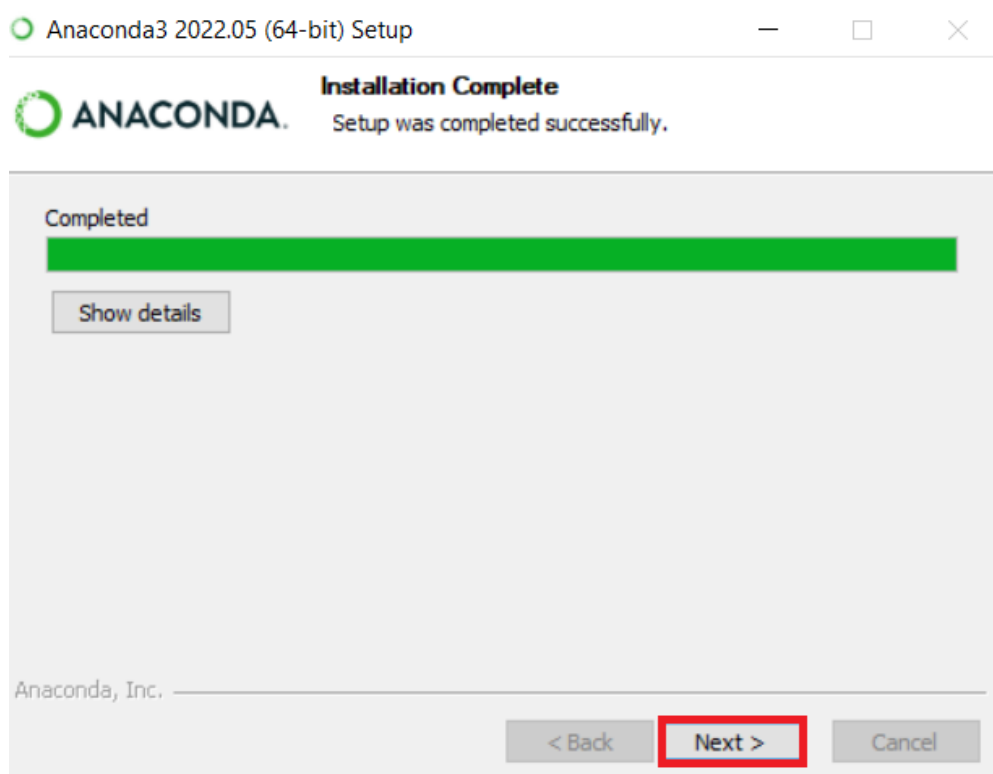
**Step 6:** Select the folder where you would like to **Install Anaconda**, or retain the **Default** installation location and click **Next**.



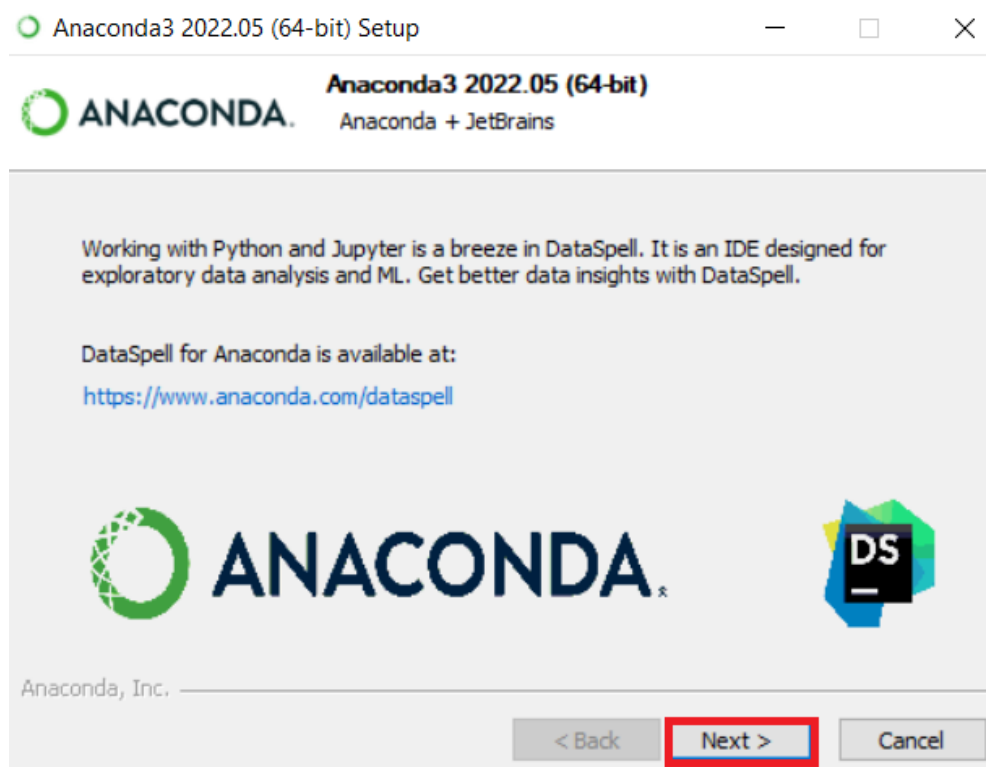
**Step 7:** In the **Advanced Installation Options** window, select **Register Anaconda3 as the default Python 3.9** option, and click **Install**.



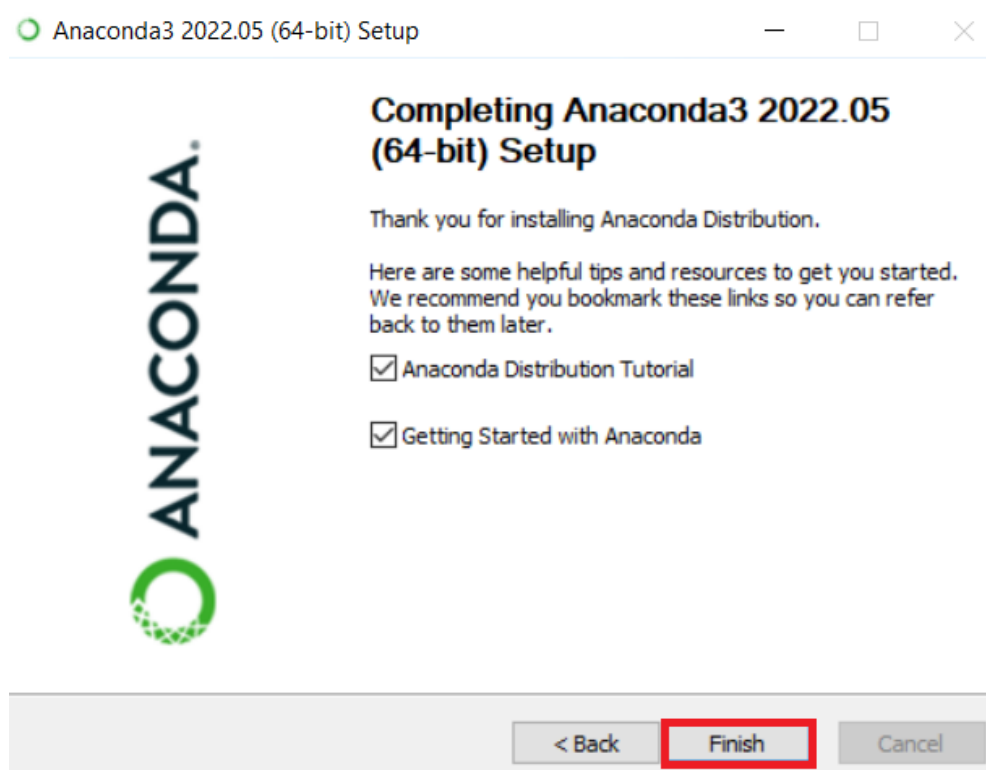
**Step 8:** You need to wait for the installation to complete. Once installation completes, click **Next**.



**Step 9:** Click **Next**.



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

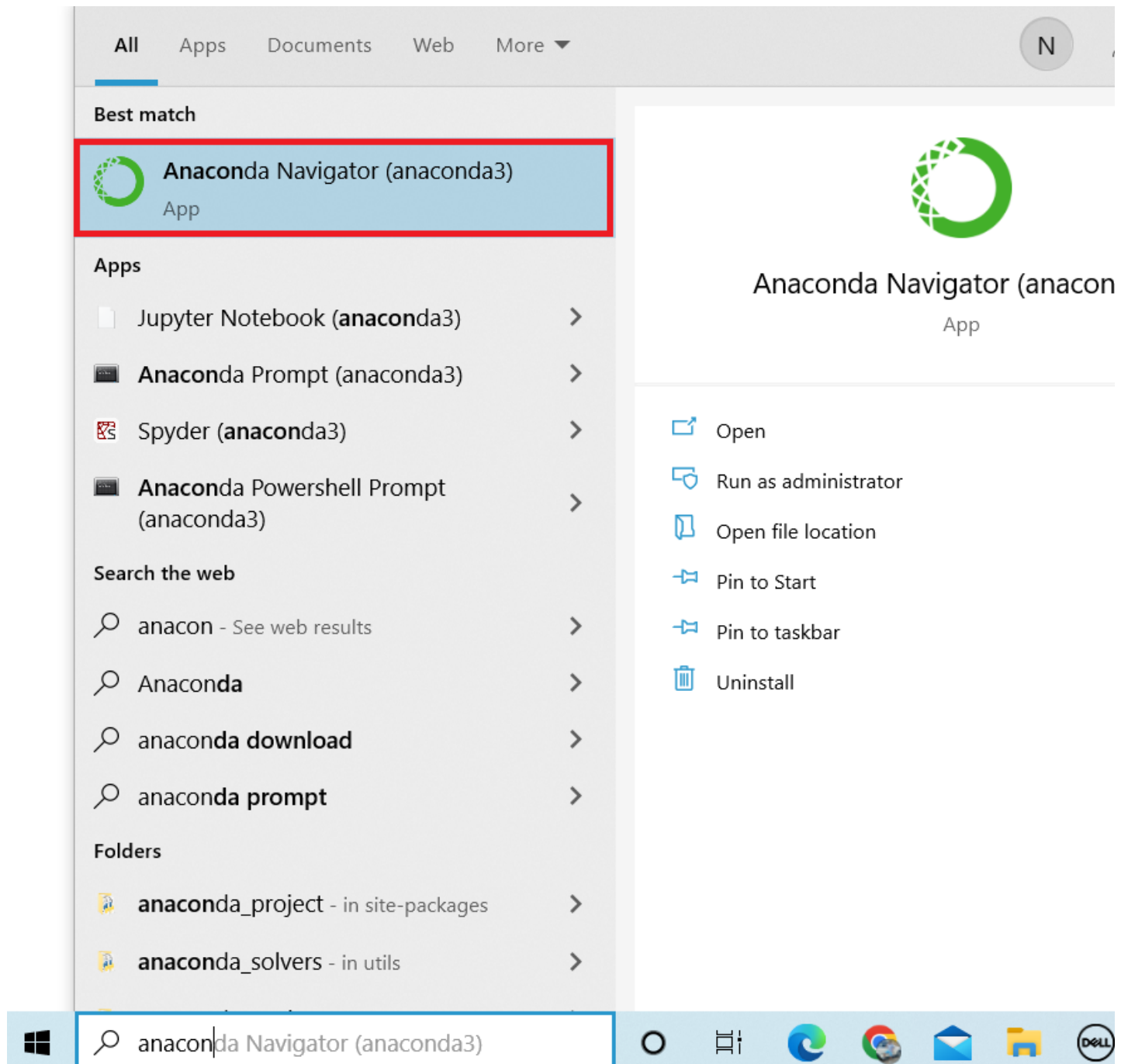


## Exercise 2: Create Anaconda Environment

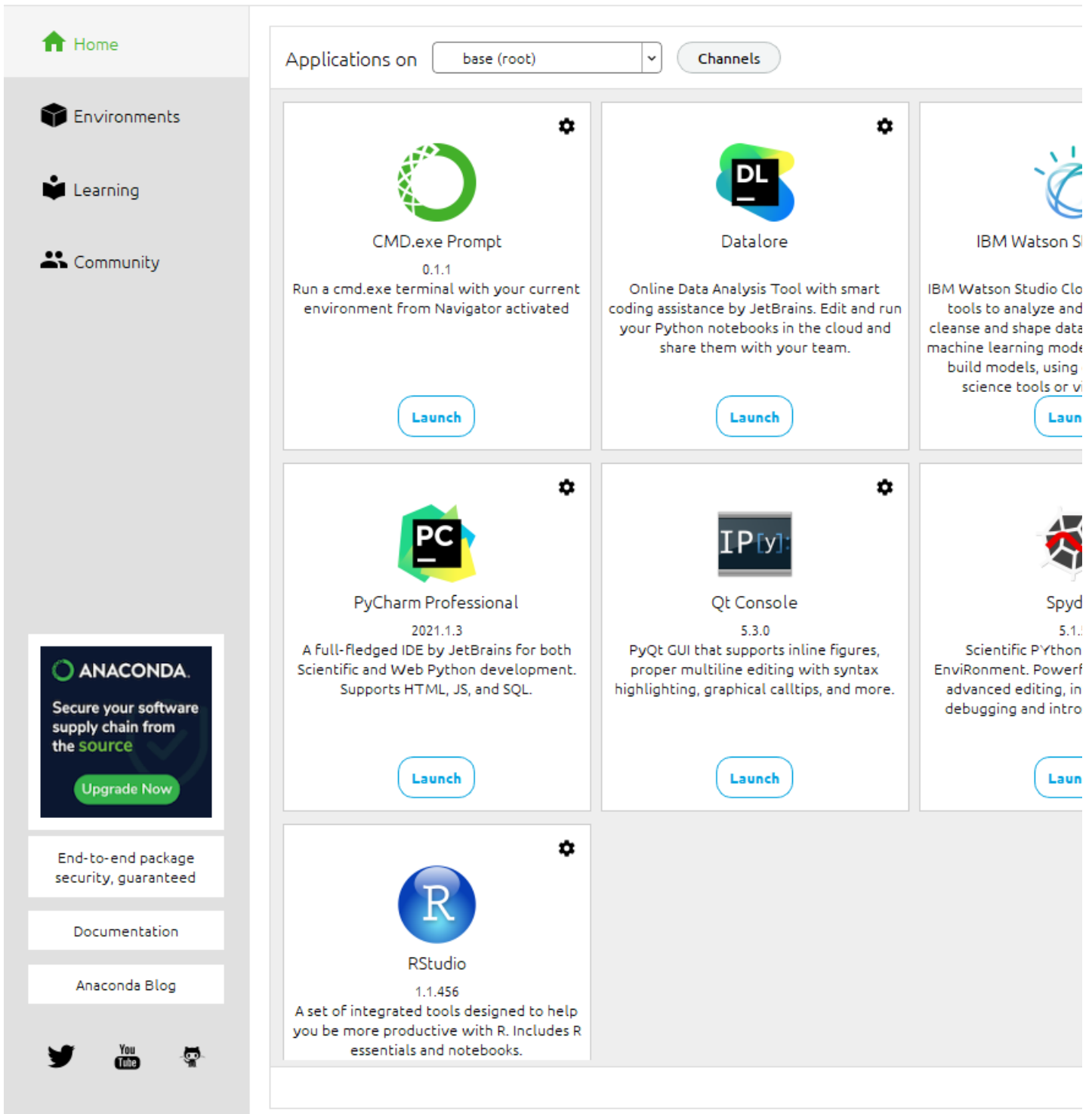
Anaconda environment is a directory containing a specific collection of conda packages you have installed. For example, you may have one environment with NumPy 1.7 and its dependencies and another environment with NumPy 1.6 for legacy testing.

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

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







Applications on base (root) Channels

**CMD.exe Prompt**  
0.1.1  
Run a cmd.exe terminal with your current environment from Navigator activated  
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**Datalore**  
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**PyCharm Professional**  
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A Full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL.  
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**Qt Console**  
5.3.0  
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.  
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Scientific Python Environment. Powerful advanced editing, in debugging and intro  
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**RStudio**  
1.1.456  
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.

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**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.

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base (root)

Installed

Channels Update

Name	T	Description
✓ _ipyw_jlab_nb_ex...	○	A configuration metapackage fo
✓ aiohttp	○	Async http client/server framev
✓ aiosignal	○	Aiosignal: a list of registered asy
✓ alabaster	○	Configurable, python 2+3 compi
✓ anaconda	○	Simplifies package management
✓ anaconda-client	○	Anaconda.org command line clie
✓ anaconda-project	○	Tool for encapsulating, running,
✓ anyio	○	High level compatibility layer fr
< ✓ appdirs	○	A small python module for dete
✓ argon2-cffi	○	The secure argon2 password ha
✓ argon2-cffi-bindings	○	Low-level python cffi bindings f
✓ arrow	○	Better dates & times for python
✓ astroid	○	A abstract syntax tree for pytho
✓ astropy	○	Community-developed python
✓ asttokens	○	The asttokens module annotate
✓ async-timeout	○	Timeout context manager for a
✓ atomicwrites	○	Atomic file writes
✓ attrs	○	Attrs is the python package that

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 box in Anaconda. The dialog has a title bar with a close button. Inside, the 'Name' field is 'RP\_Env', the 'Location' is 'C:\Users\Skillup 116\anaconda3\envs\RP\_Env1', and the 'Packages' section has checkboxes for 'Python' (checked) and 'R' (checked). The version for Python is '3.9.12' and for R is '3.6.1'. At the bottom, there are 'Cancel' and 'Create' buttons. The 'Create' button is highlighted with a red box. In the background, a list of installed packages is visible, including \_r-mutex, argon2-cffi, argon2-cffi-bindings, asttokens, attrs, backcall, beautifulsoup4, bleach, ca-certificates, certifi, cffi, colorama, debugpy, decorator, and defusedxml.

**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**

1

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Learning

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Applications on **RP\_Env** 2 Channels

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**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 notebook environment for human-readable docs with data analysis.  
[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.  
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**Orange**  
3.26.0  
Component based data mining software. Data visualization and analysis for novice and expert. Interacts with a large number of data sources.  
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**Spyder**  
5.1.5  
Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing, and more.  
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**Step 5:** This opens **Jupyter Notebook** in the default browser, and now you can select the **kernel** and create a **Notebook**.



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Select items to perform actions on them.

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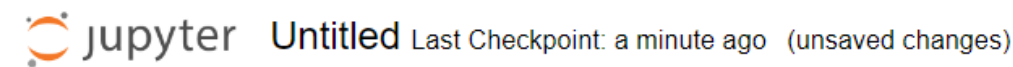
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## Exercise 3: Create and execute Python Jupyter Notebook

### 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.



File Edit View Insert Cell Kernel Help

Code

Code

Markdown

Raw NBConvert

Heading

In [ ]: 1

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
- # 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

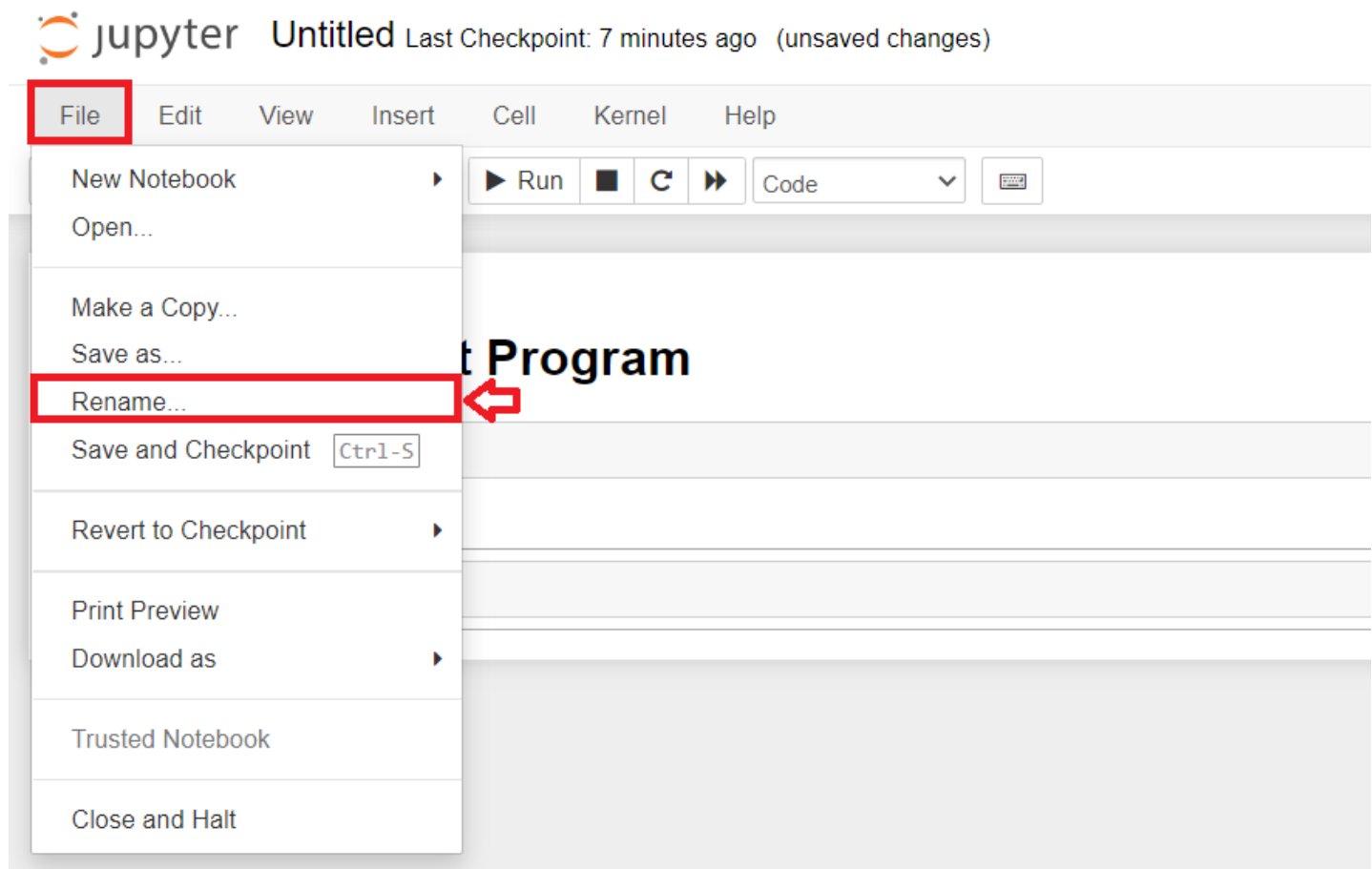
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- Execute the code by clicking the **Play** button in the menu above the notebook or pressing **Shift+Enter** on your notebook.
- You should see the output 2.

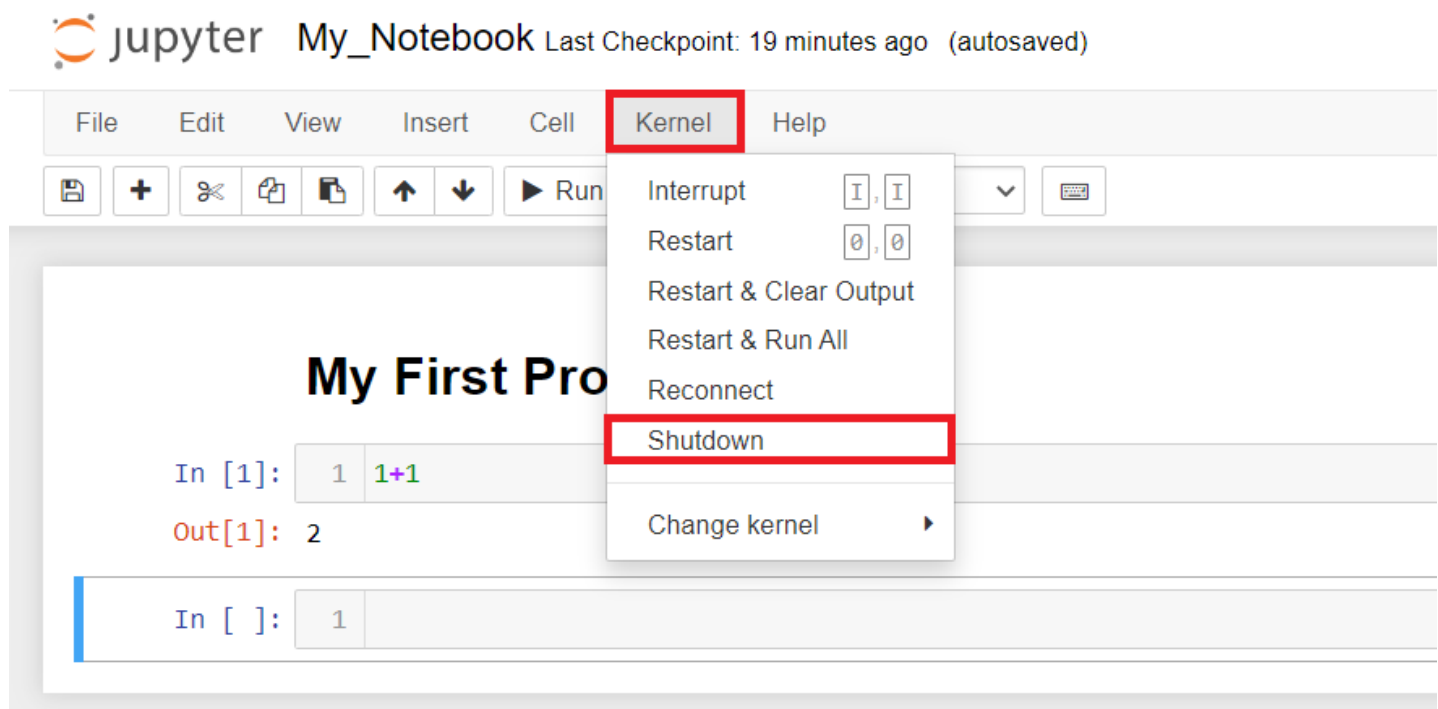
► Output

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

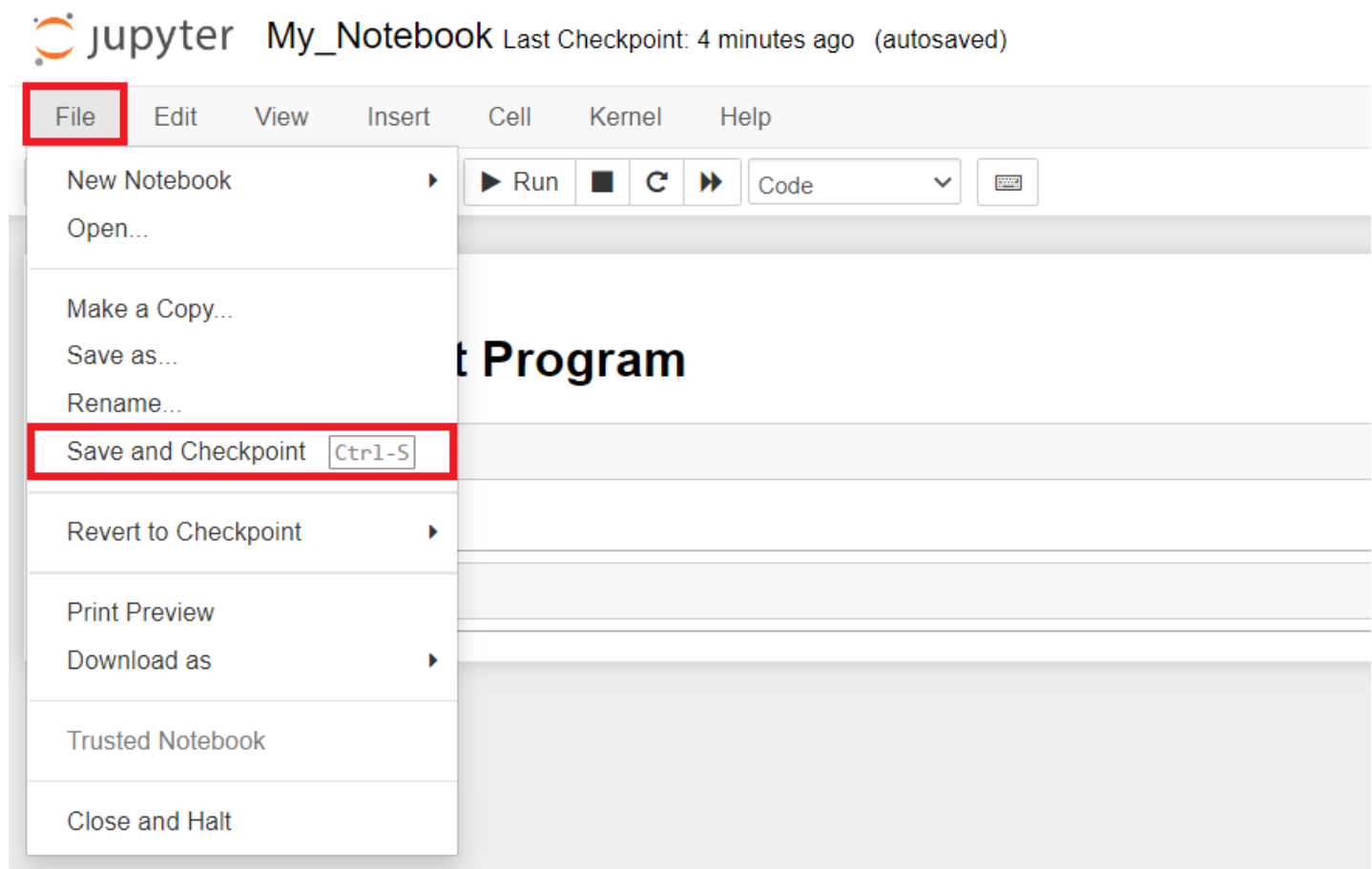
**Step 1:** Click **Rename** from the **File** menu to rename your notebook like *My\_Notebook.ipynb*.



**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.



## 5. Open the recently created notebook.

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



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1

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Learning

Community

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



<input type="checkbox"/>	📁 IBMDeveloperSkillsNetwork-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

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Select items to perform actions on them.



0



/



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### 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

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