



# 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:

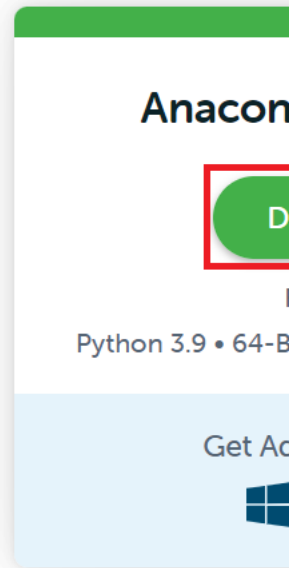
**Link for Download Anaconda Distribution:** <https://www.anaconda.com/products/distribution>

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Individual Edition is now

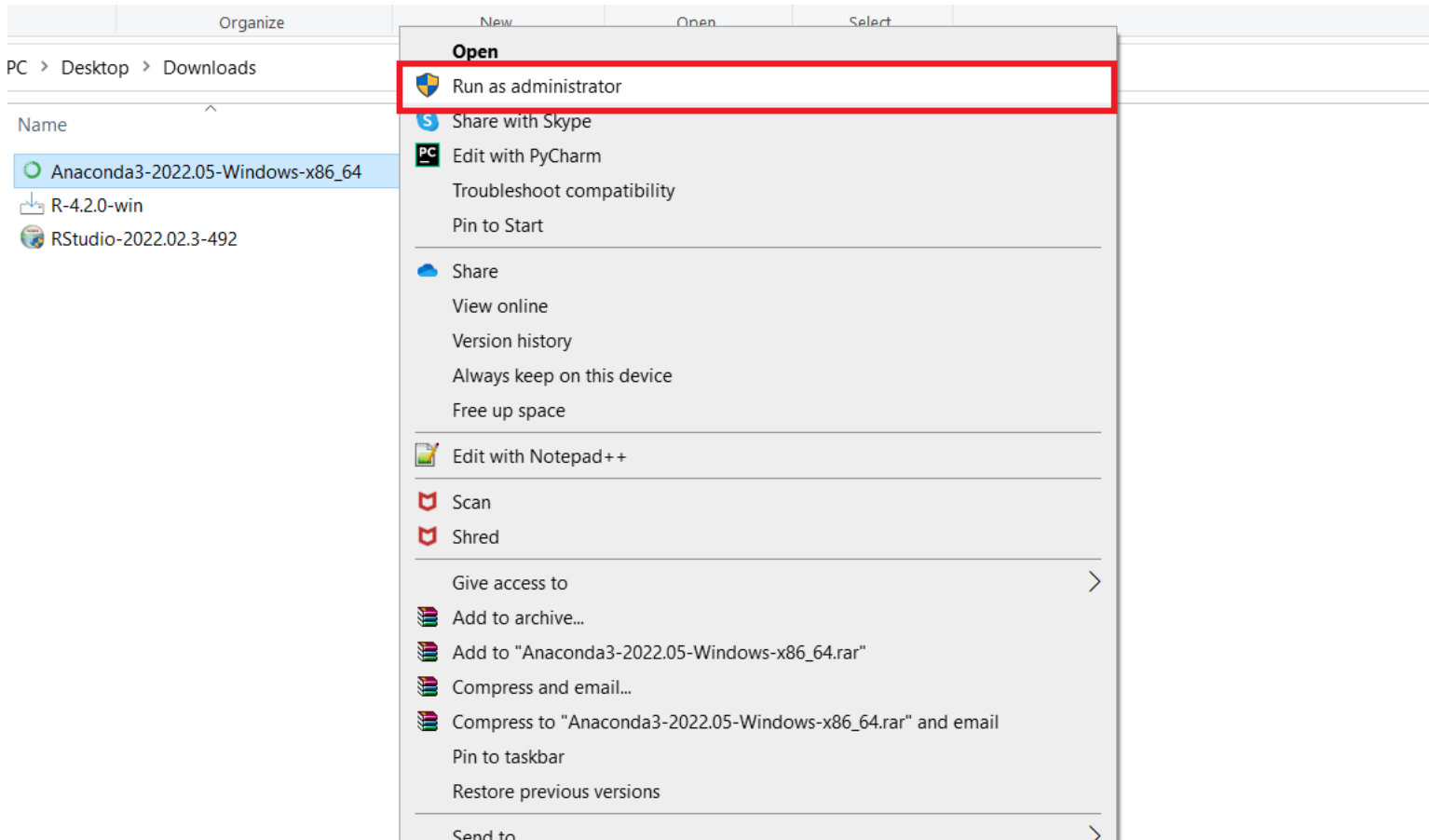
# ANACONDA DISTRIBUTION

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

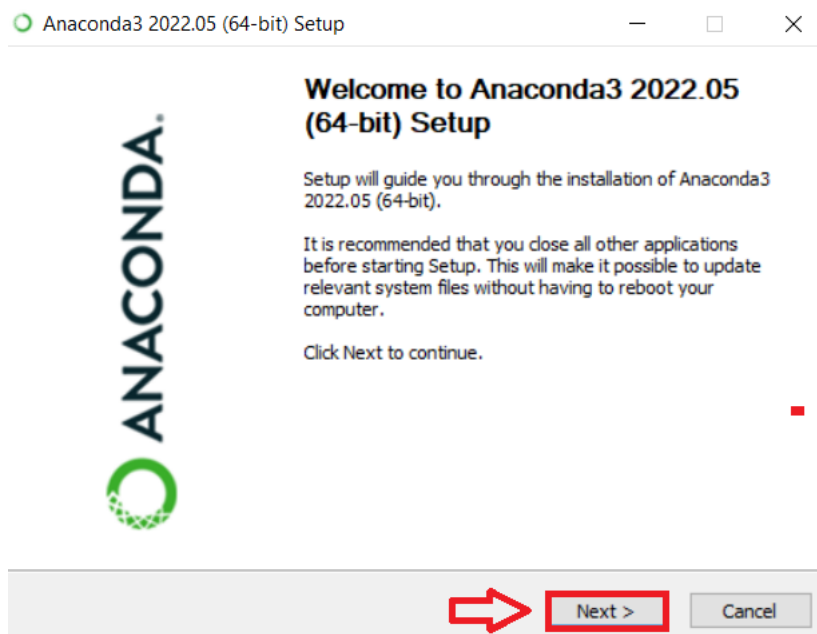


***Note:** Depending on your **Operating system**, it would show the download link specific to your OS. Click the **Download** button to download it to your local machine.*

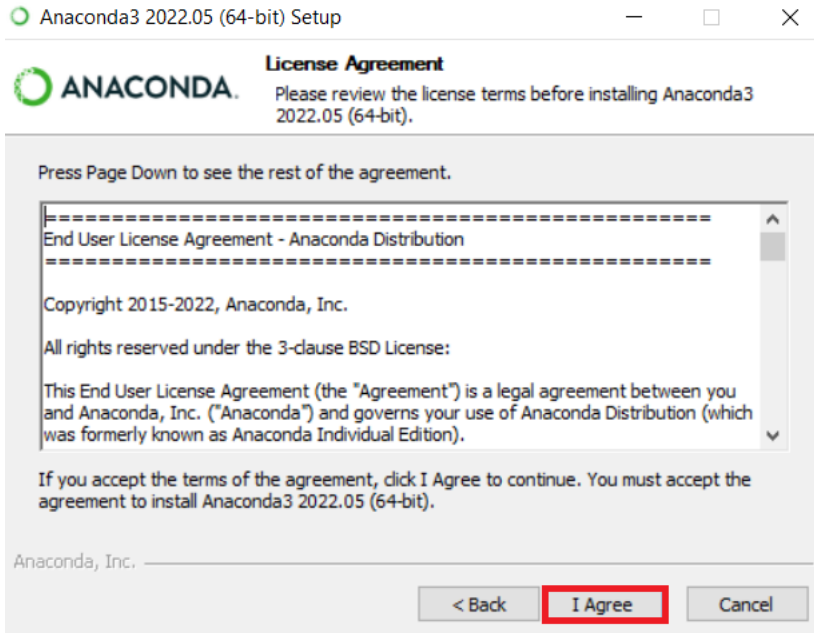
**Step 2:** Once the download completes, right-click the downloaded file and run it as **Administrator**.



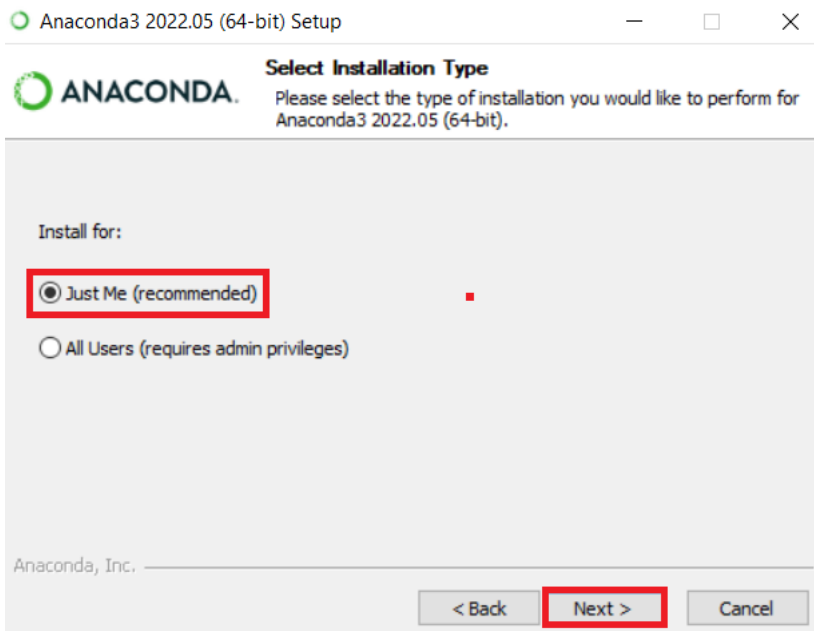
**Step 3:** At the beginning of the welcome window, you need to click **Next** to confirm the installation.



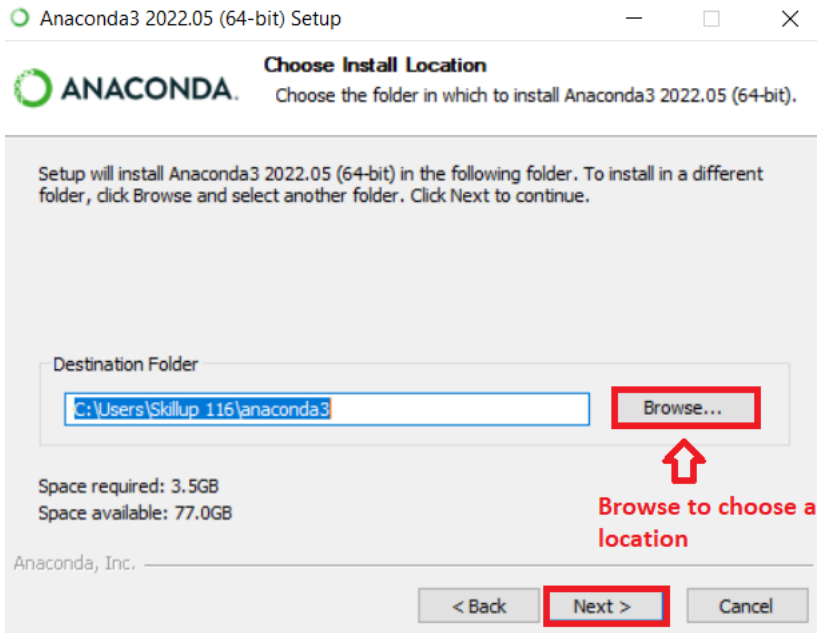
**Step 4:** Agree to the license.



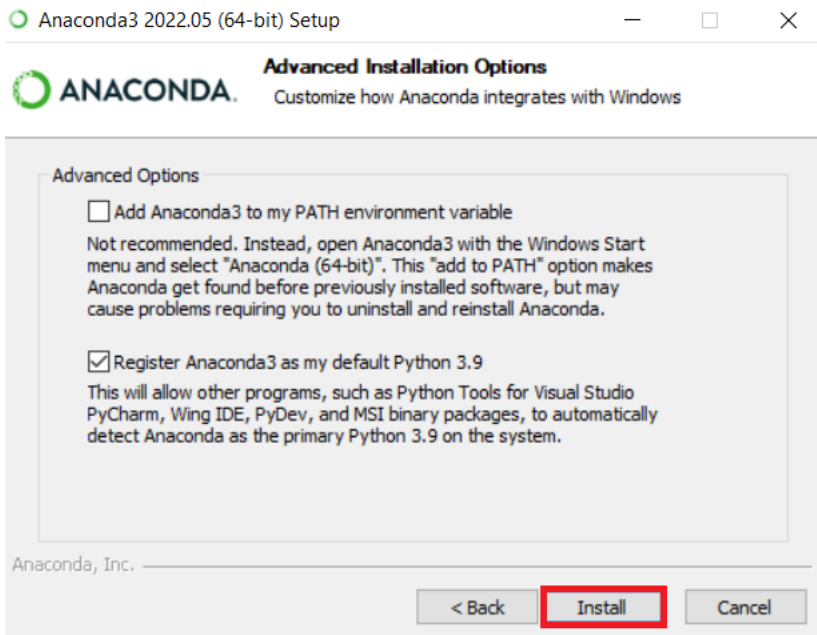
**Step 5:** In the installation window, select **Just me**, and click **Next**.



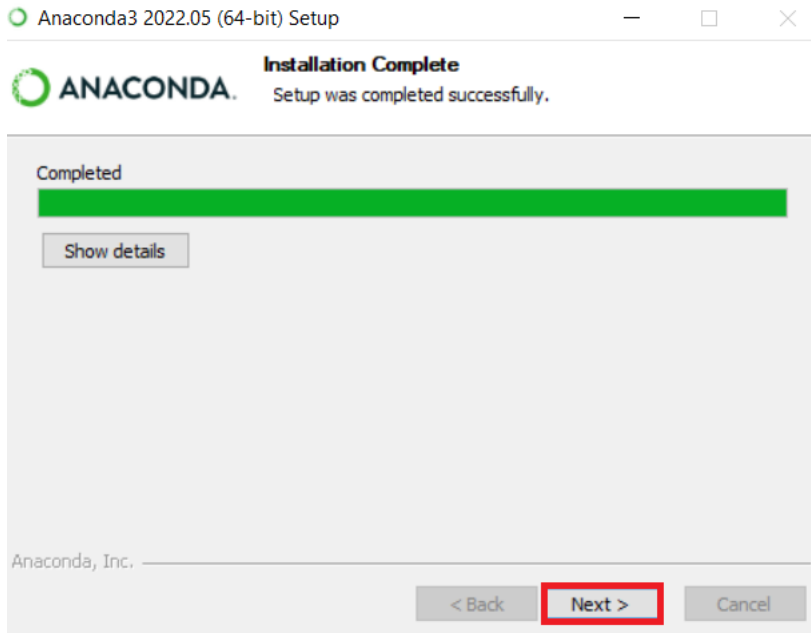
**Step 6:** Select the folder where you would like to **Install Anaconda**, or retain the **Default** installation location and click **Next**.



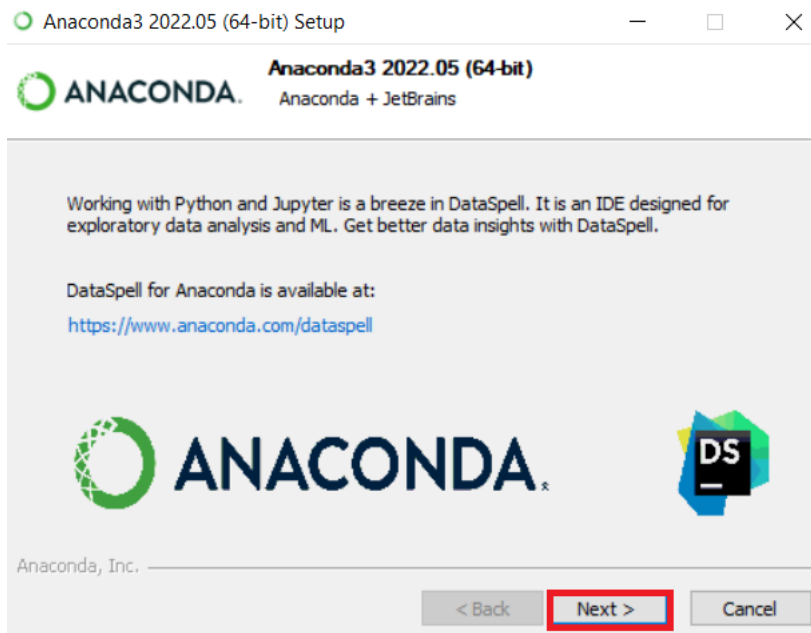
**Step 7:** In the **Advanced Installation Options** window, select **Register Anaconda3 as the default Python 3.9** option, and click **Install**.



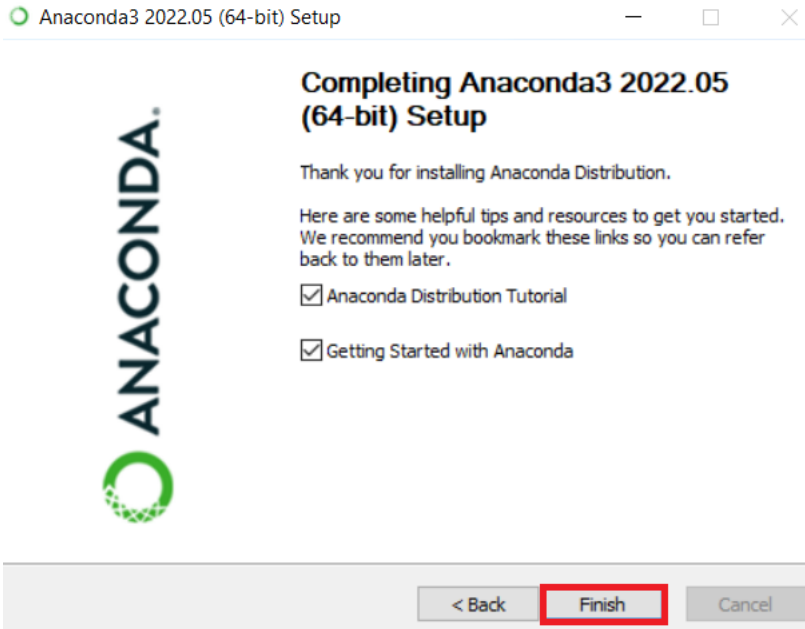
**Step 8:** You need to wait for the installation to complete. Once installation completes, click **Next**.



**Step 9:** Click Next.



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

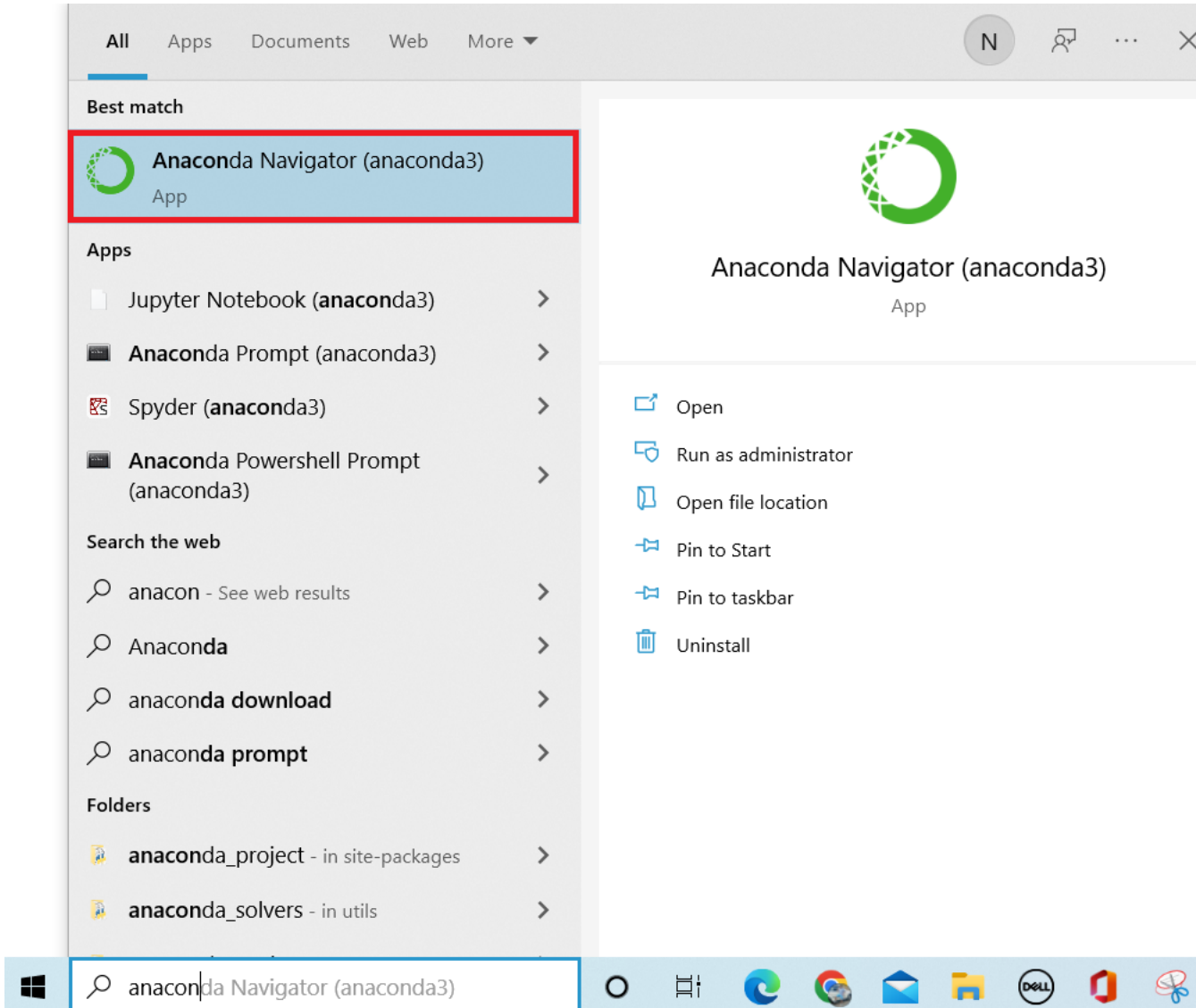


## Exercise 2: Create Anaconda Environment

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.






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CMD.exe Prompt

0.1.1

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


Launch



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Launch




Jupyter

3.3.2

An extensible environment and reproducible computing Jupyter Notebook application

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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

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VS Code

1.68.

Streamlined code editor, development operations, task running and v

Launch

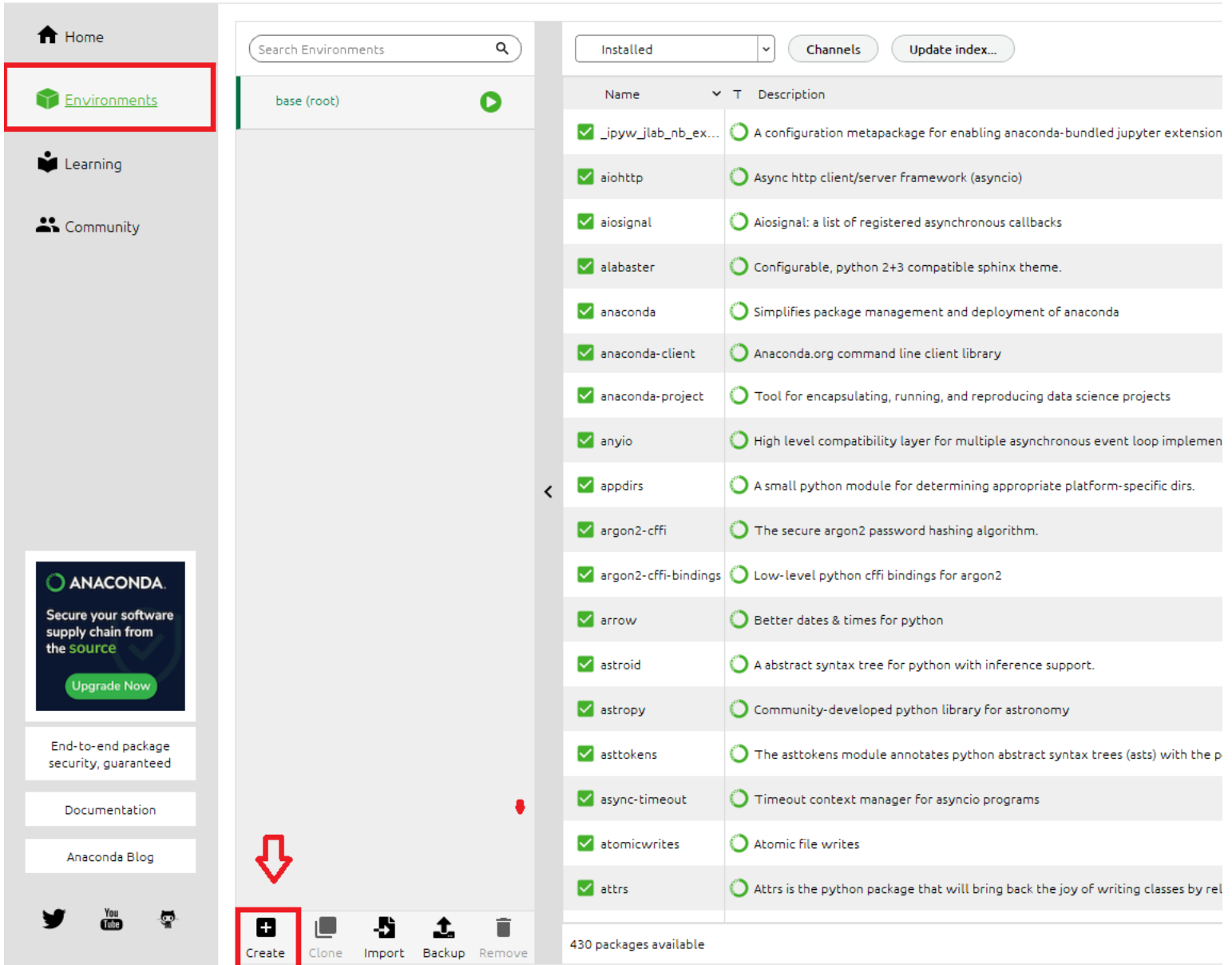


RStudio

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.



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base (root)

Installed

Channels

Update index...

Name	T	Description
✓ _ipyw_jlab_nb_ex...	○	A configuration metapackage for enabling anaconda-bundled jupyter extension
✓ 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 implemen
✓ appdirs	○	A small python module for determining appropriate platform-specific dirs.
✓ 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) with the p
✓ 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 classes by rel

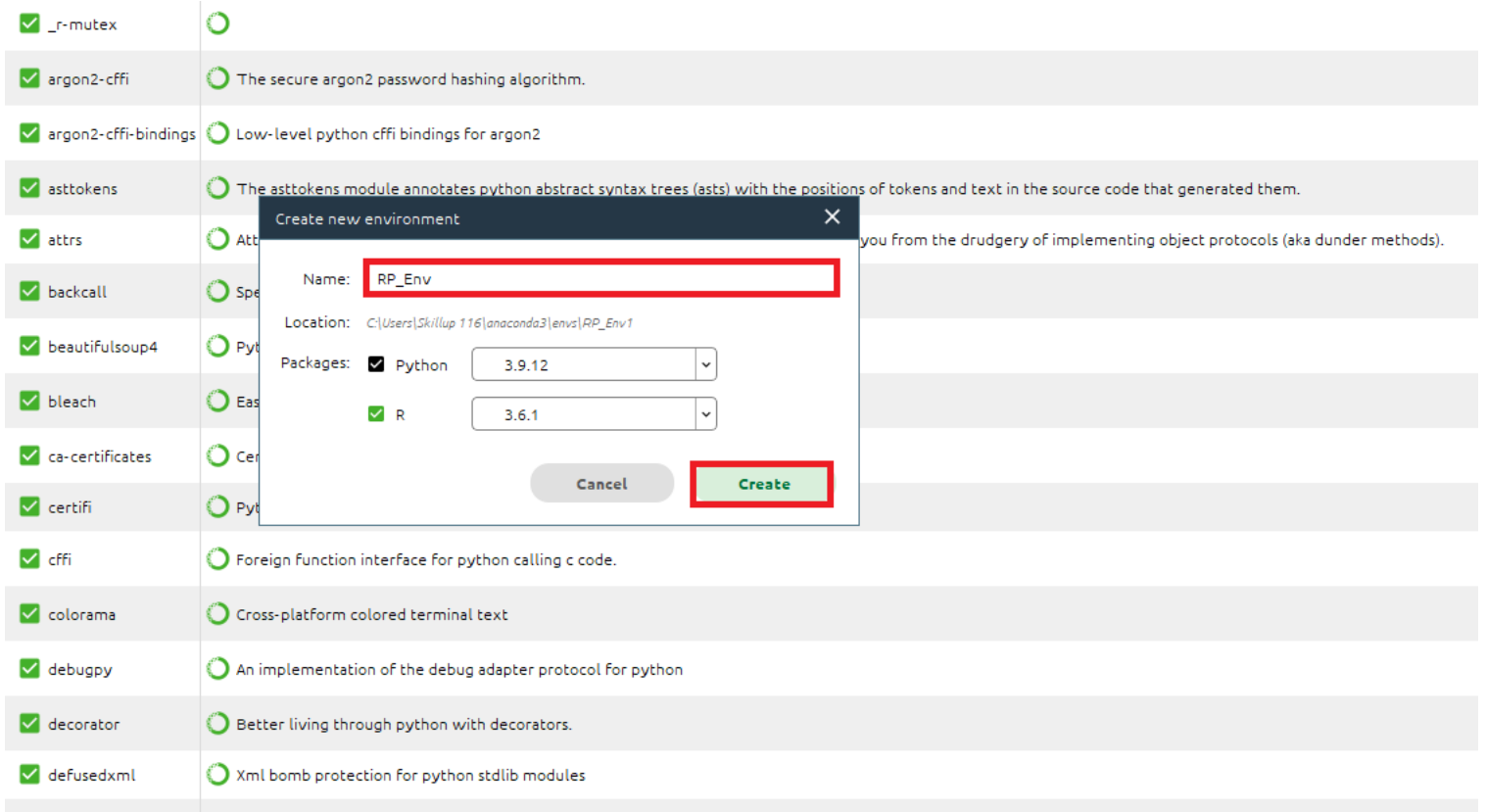
430 packages available

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**.



**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.

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1 Home

2 Applications on RP\_Env Channels

3 Jupyter Notebook

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6.4.11  
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.  
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1.0.0  
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**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**  
3.26.0  
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.  
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**Powershell P**  
0.0.1  
Run a Powershell terminal in current environment  
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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**.

## Clusters

0

□ Favorites

- 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.

### Step 3: Write and execute code.

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

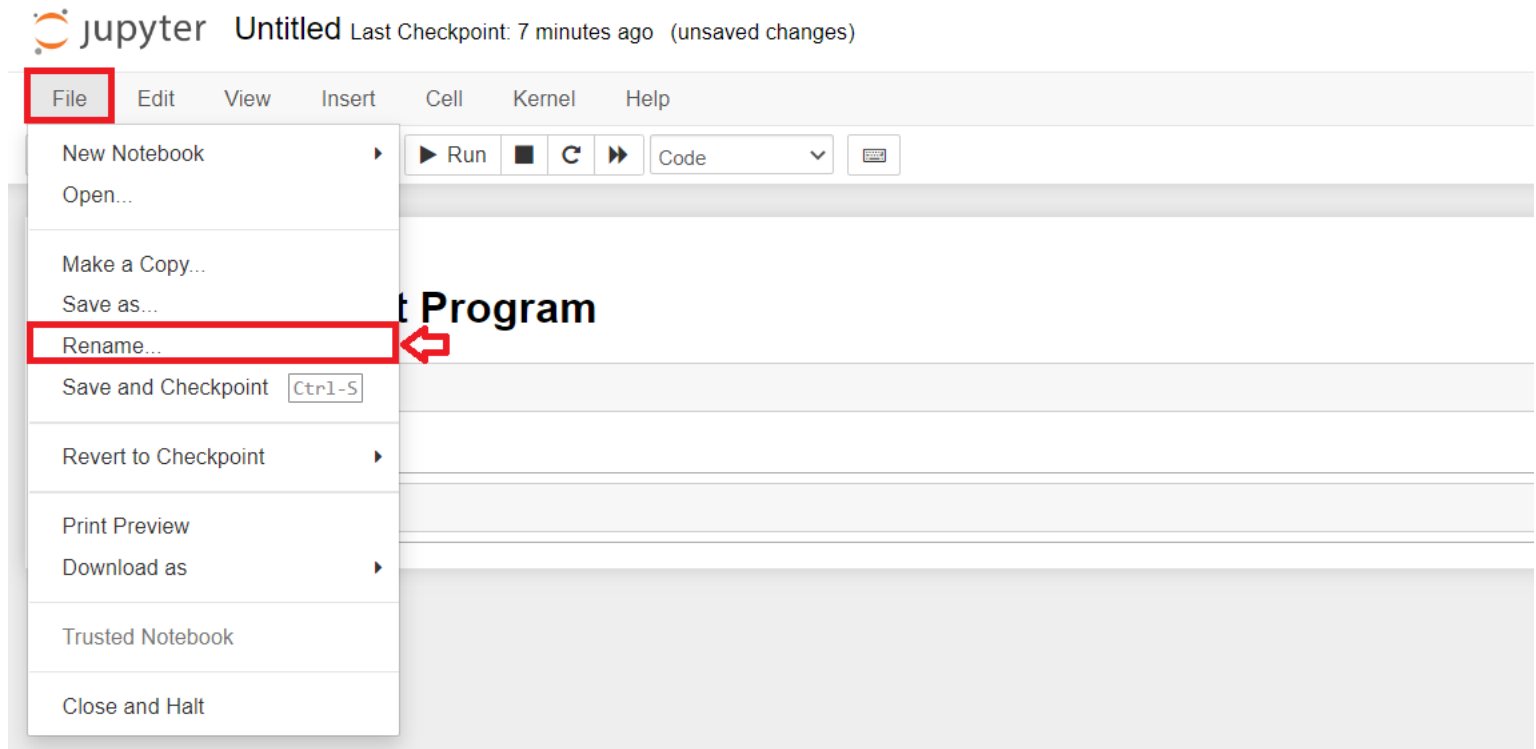
```
1+1
```

- 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.

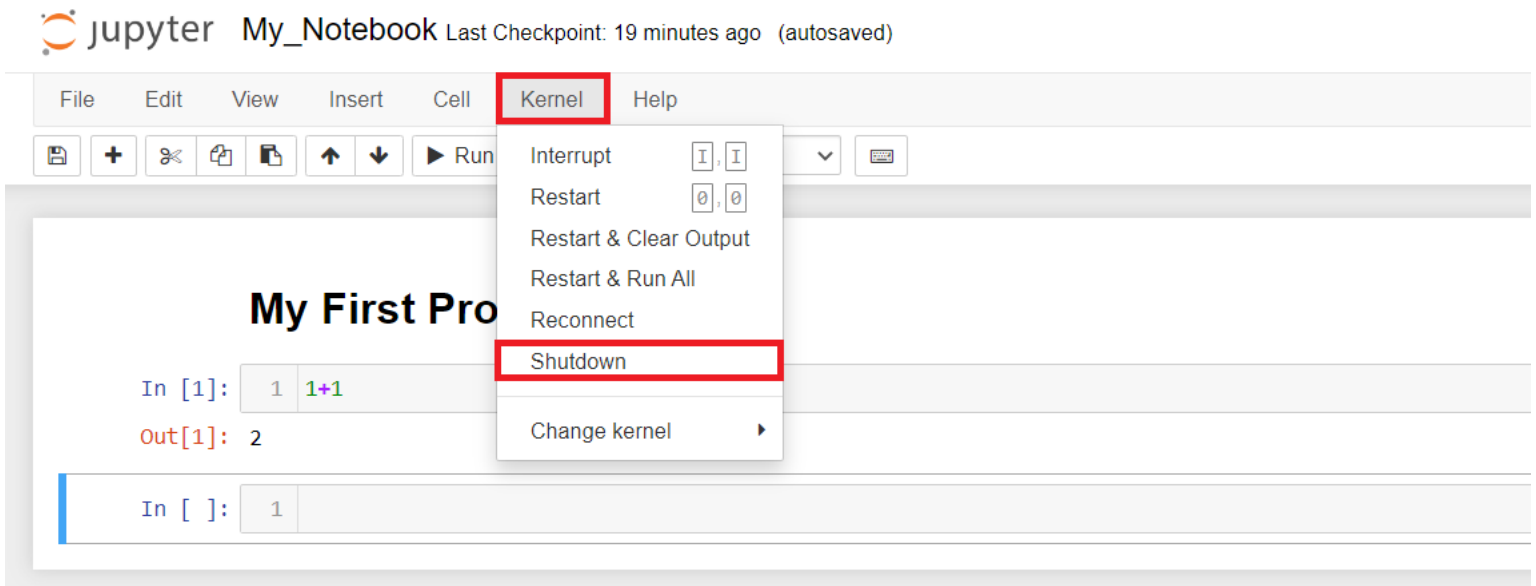
► Output

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

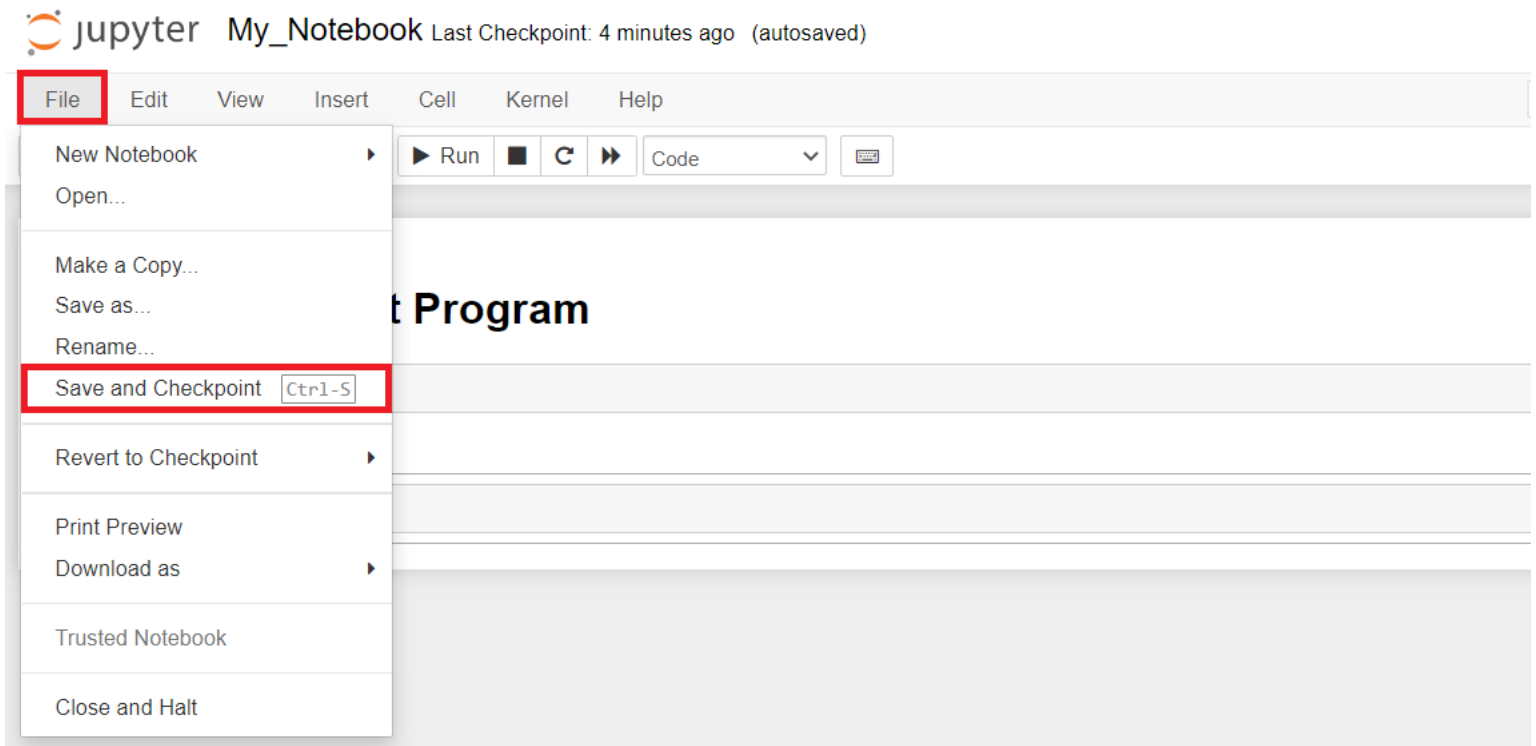
**Step 1:** Click **Rename** from the **File** menu to rename your notebook like *My\_Notebook.ipynb*.



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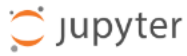
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**Step 2:** Go to the **directory** where you **saved** your file and **click** to open it.





<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.**

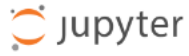
```
x = min(5, 10, 25)
y = max(5, 10, 25)
print(x)
print(y)
```

► Output

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

```
x = pow(4, 3)
print(x)
```

► 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.

<input type="checkbox"/>	0	▼	/
<input type="checkbox"/>		3D Objects	
<input type="checkbox"/>		anaconda3	
<input type="checkbox"/>		Contacts	
<input type="checkbox"/>		Desktop	
<input type="checkbox"/>		Documents	
<input type="checkbox"/>		Downloads	

**Problem 1: Find the Multiplication of 2 numbers.**

```
2 * 3 # Multiplication
```

► Output

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

```
4 - 1 # Subtraction
```

► Output

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

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

► Output

#### Problem 4: Create a data frame

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

► 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](#)



# Skills Network