

## 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

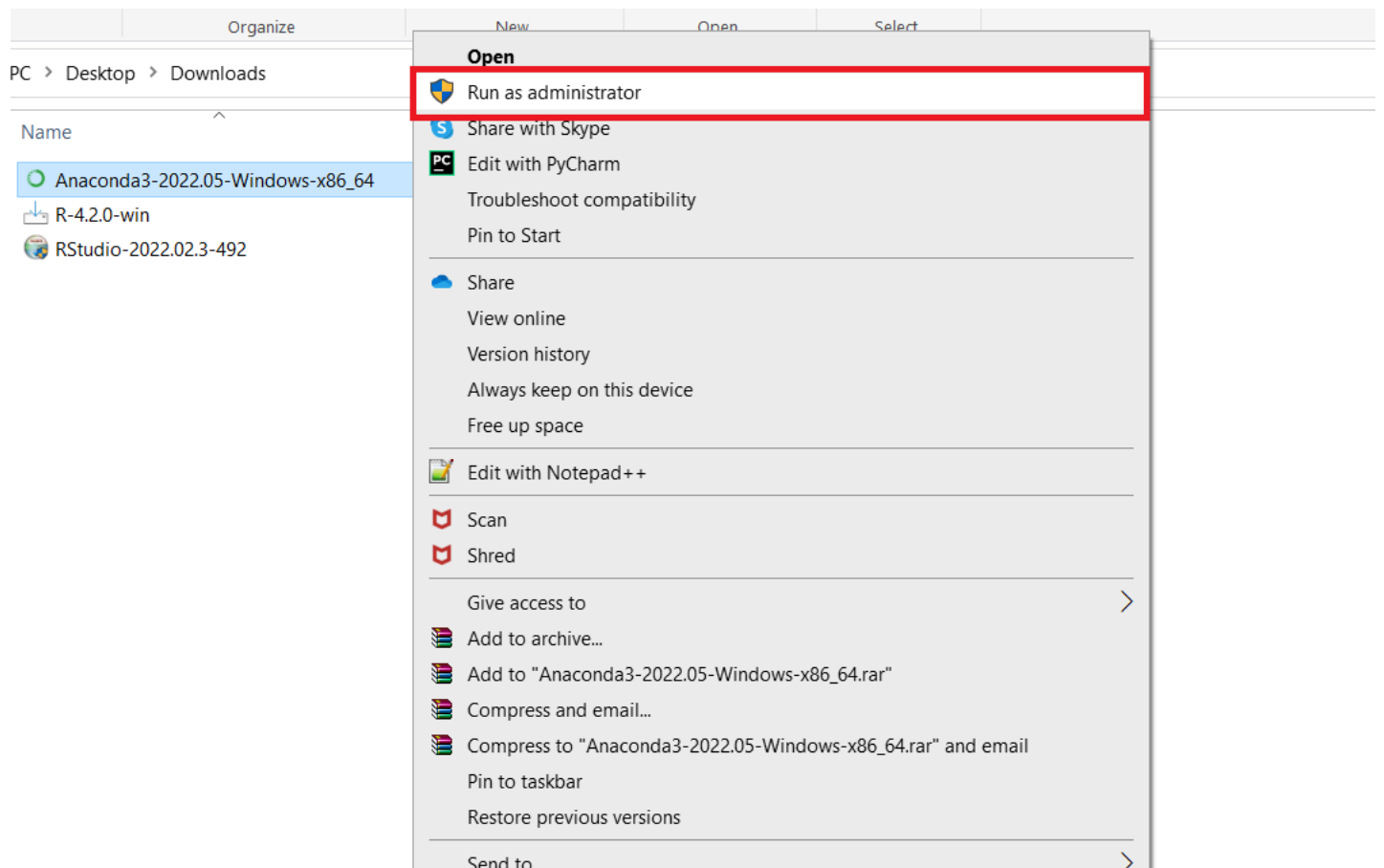
The world's most popular open-source Python distribution platform

Python 3.

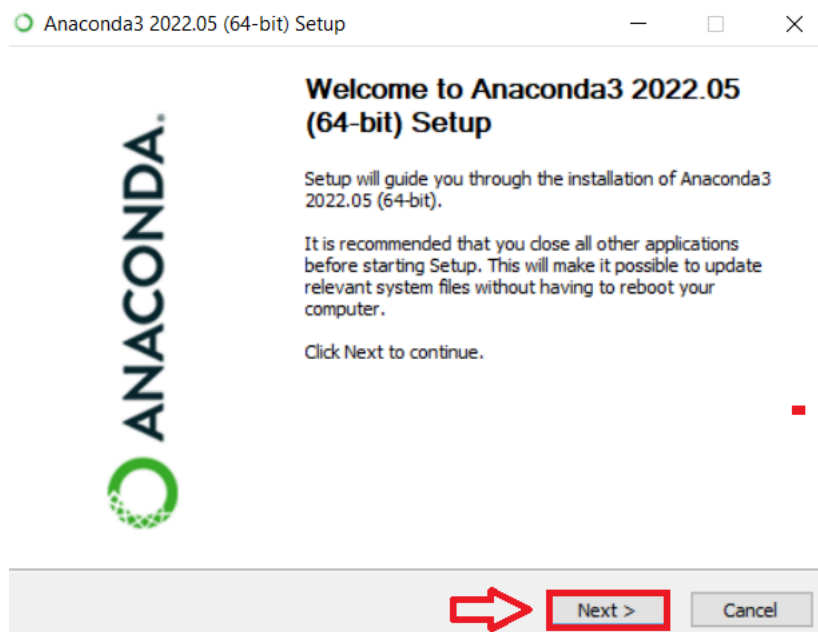


*Note: Depending on your **Operating system**, it would show the download link specific to your OS. Click the **Download** button to download it to your local machine.*

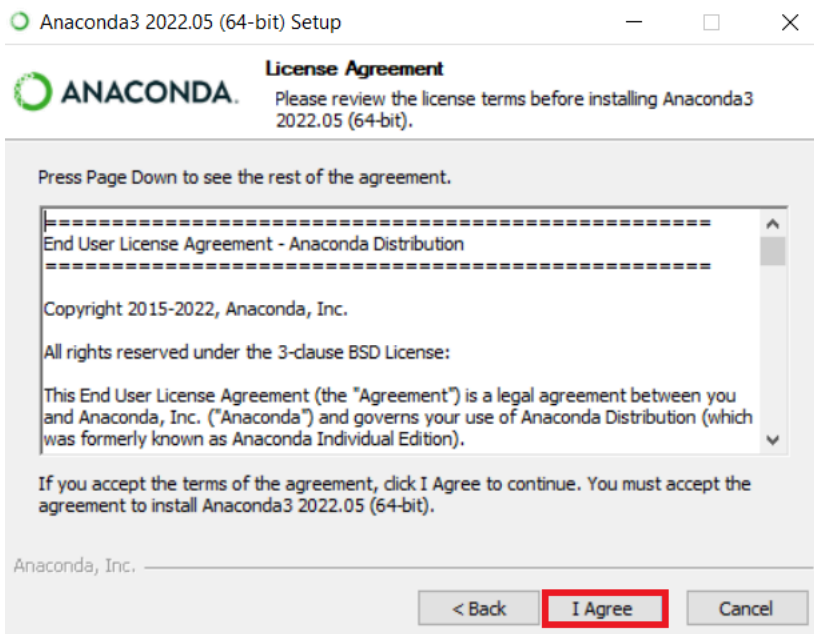
**Step 2:** Once the download completes, right-click the downloaded file and run it as **Administrator**.



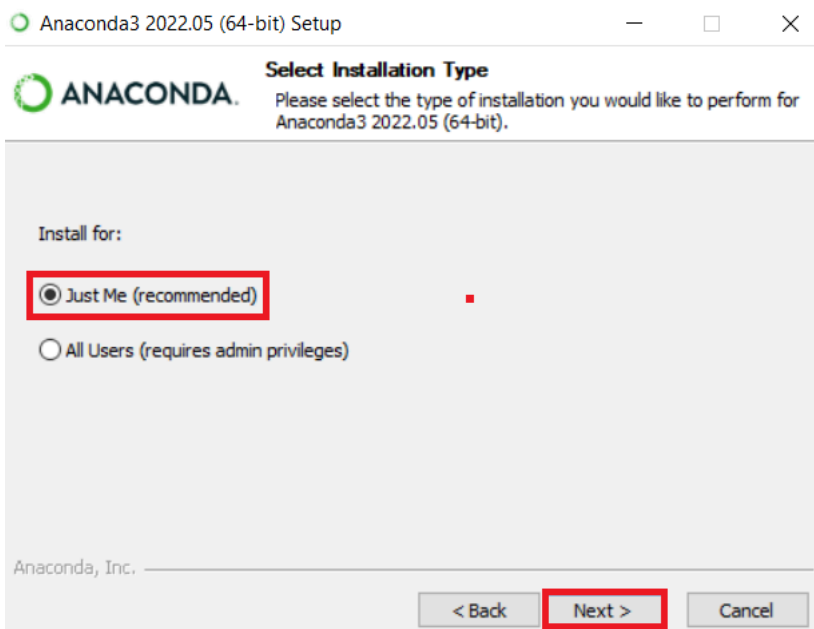
**Step 3:** At the beginning of the welcome window, you need to click **Next** to confirm the installation.



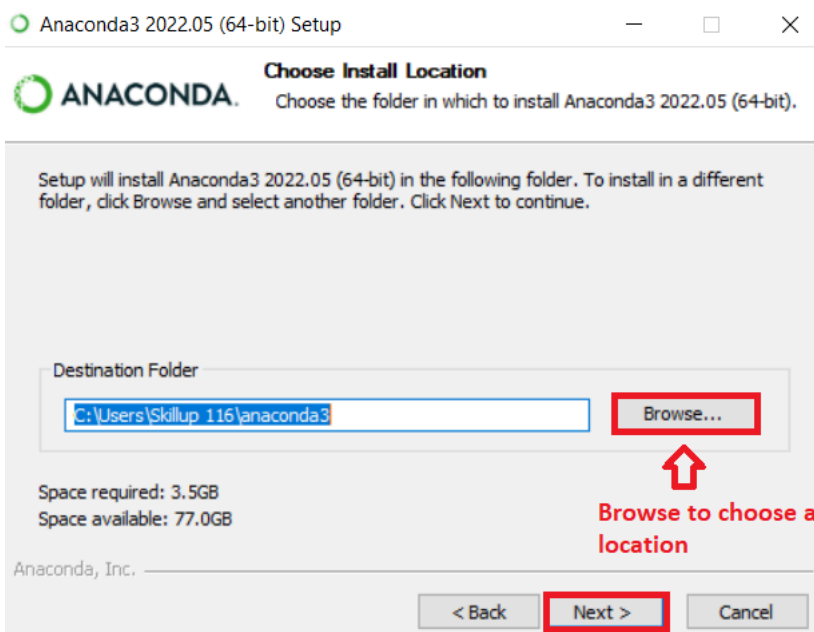
**Step 4:** Agree to the license.



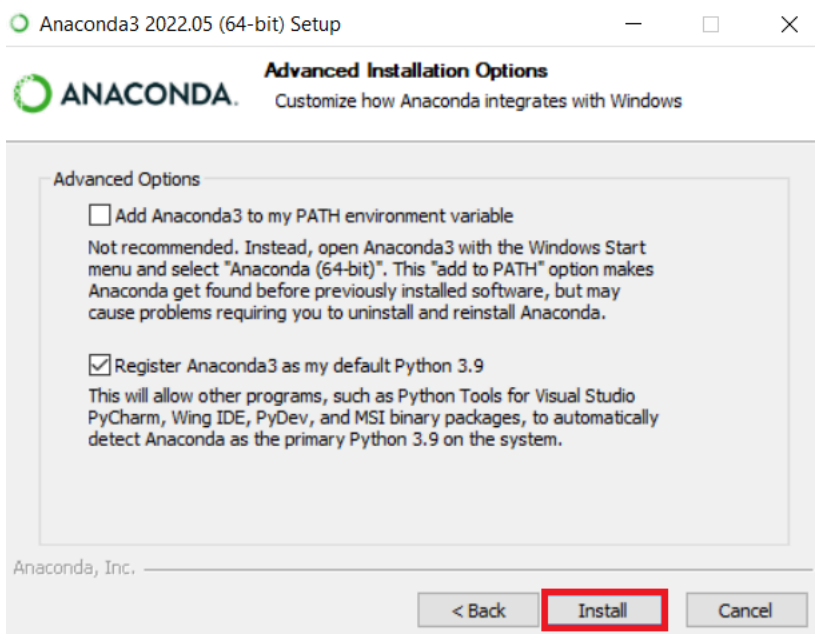
**Step 5:** In the installation window, select **Just me**, and click **Next**.



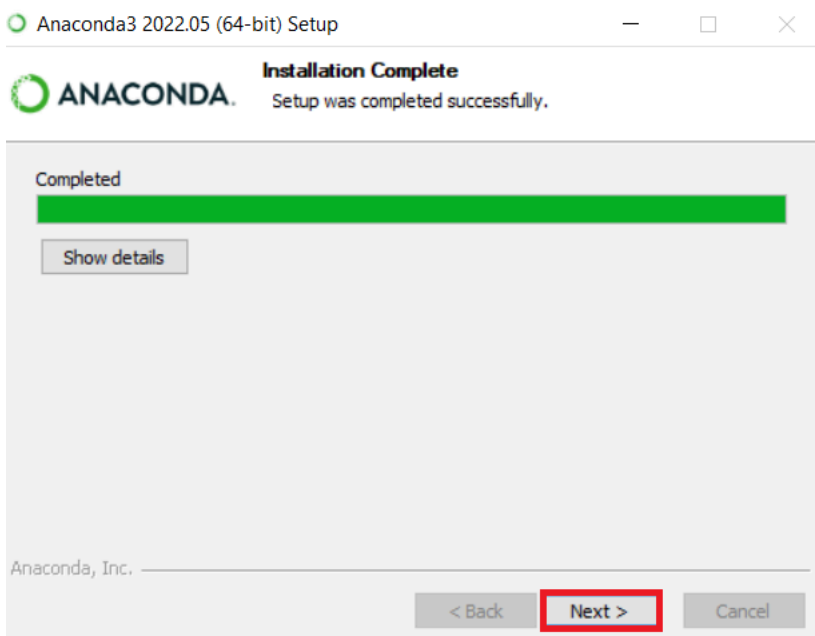
**Step 6:** Select the folder where you would like to **Install Anaconda**, or retain the **Default** installation location and click **Next**.



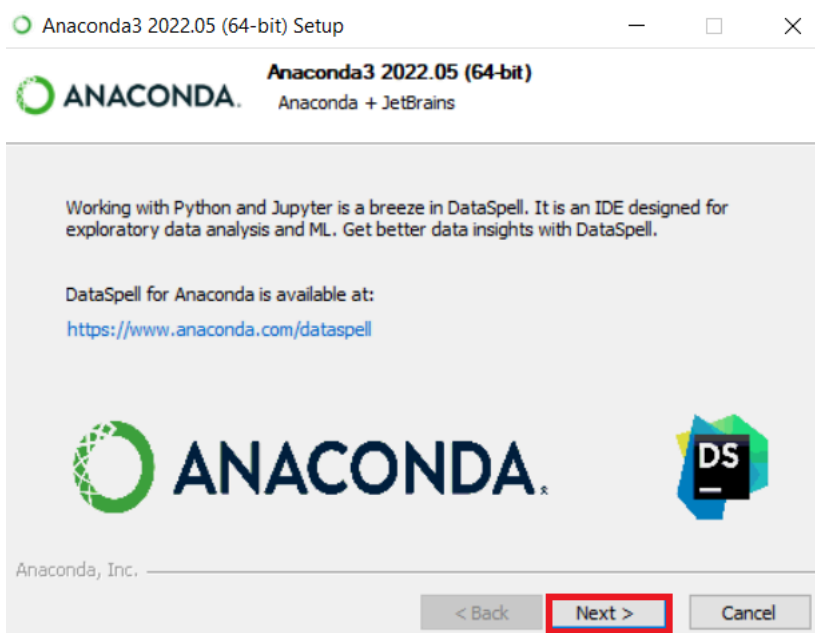
**Step 7:** In the **Advanced Installation Options** window, select **Register Anaconda3** as the default Python 3.9 option, and click **Install**.



**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.



## Completing Anaconda3 2022.05 (64-bit) Setup

Thank you for installing Anaconda Distribution.

Here are some helpful tips and resources to get you started. We recommend you bookmark these links so you can refer back to them later.

- ☒ Anaconda Distribution Tutorial
- ☒ Getting Started with Anaconda

&lt; Back

Finish

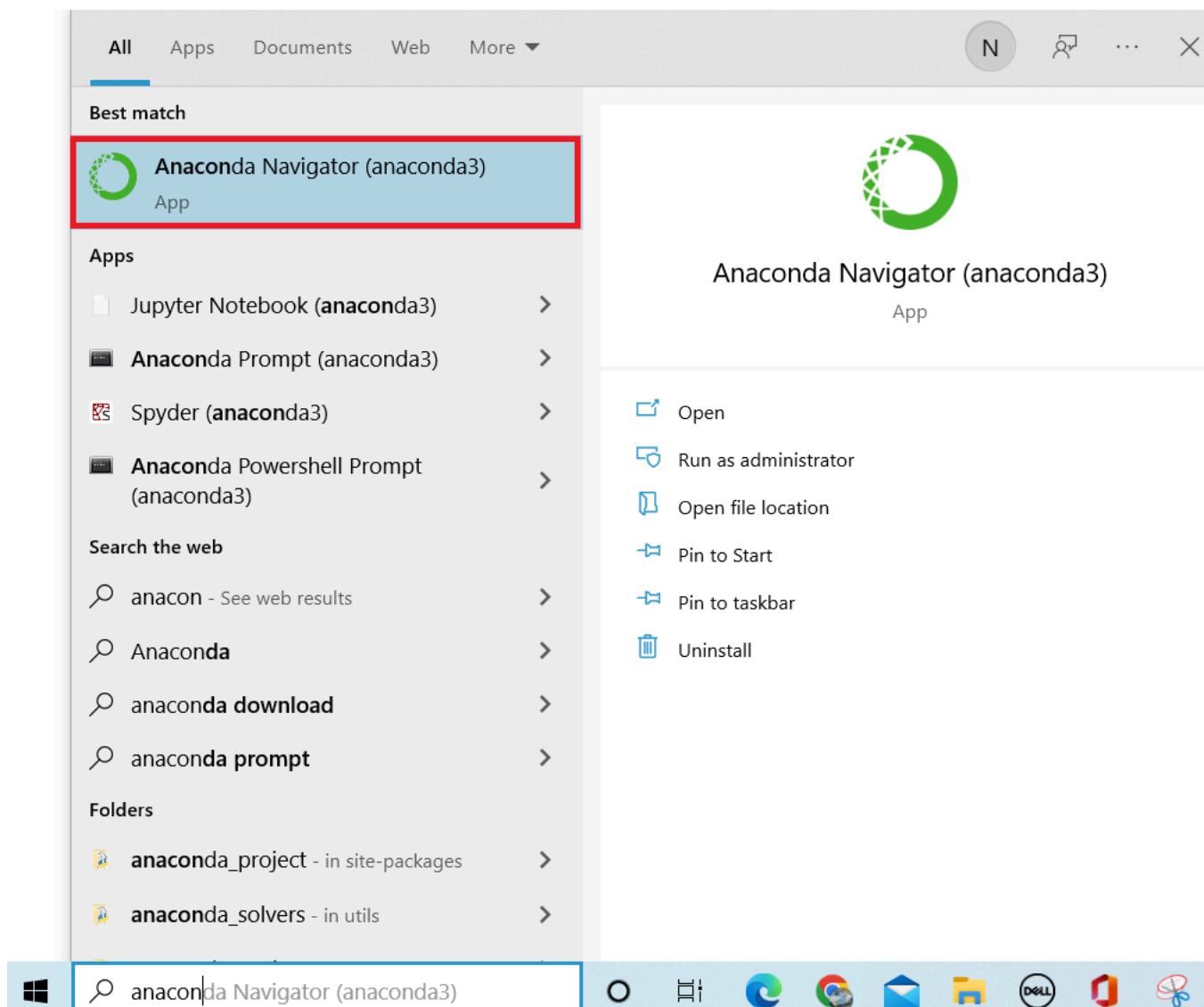
Cancel

## 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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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.

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An extens  
and repro  
Jupyter



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

Streamlin  
developi  
task



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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Search Environments

base (root)

+

+

+

+

+

Create

Clone

Import

Backup

Remove

Installed

Channels

Update index...

| Name                   | Description   |
|------------------------|---|
| ✓ _ipyw_lab_nb_ex...   | A configuration metapackage for enabling anaconda-bundled jupy      |
| ✓ 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 pro   |
| ✓ anyio                | High level compatibility layer for multiple asynchronous event lo   |
| ✓ appdirs              | A small python module for determining appropriate platform-spe      |
| ✓ 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 (asi    |
| ✓ 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 |

430 packages available

**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**.

|                                     |                      |  |
|-------------------------------------|----------------------|--|
| <input checked="" type="checkbox"/> | _r-mutex             |  |
| <input checked="" type="checkbox"/> | argon2-cffi          | The secure argon2 password hashing algorithm.  |
| <input checked="" type="checkbox"/> | argon2-cffi-bindings | Low-level python cffi bindings for argon2  |
| <input checked="" type="checkbox"/> | asttokens            | The asttokens module annotates python abstract syntax trees (asts) with the positions of tokens and text in the source code that generated them. |
| <input checked="" type="checkbox"/> | attrs                | Attributes for classes, you save you from the drudgery of implementing object protocols (aka dunder met  |
| <input checked="" type="checkbox"/> | backcall             | Specialize the call function to allow for a more consistent interface between the  |
| <input checked="" type="checkbox"/> | beautifulsoup4       | Python library for parsing HTML and XML documents  |
| <input checked="" type="checkbox"/> | bleach               | Easy HTML sanitization   |
| <input checked="" type="checkbox"/> | ca-certificates      | Certificate data for the requests library  |
| <input checked="" type="checkbox"/> | certifi              | Python module for the Mozilla root certificates  |
| <input checked="" type="checkbox"/> | cffi                 | Foreign Function interface for python calling c code.  |
| <input checked="" type="checkbox"/> | colorama             | Cross-platform colored terminal text   |
| <input checked="" type="checkbox"/> | debugpy              | An implementation of the debug adapter protocol for python   |
| <input checked="" type="checkbox"/> | decorator            | Better living through python with decorators.  |
| <input checked="" type="checkbox"/> | defusedxml           | XML bomb protection for python stdlib modules  |

Create new environment

Name:

Location: C:\Users\Skillup 116\anaconda3\envs\RP\_Env1

Packages: ☒ Python 3.9.12   
☒ R 3.6.1

**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.



**1** Home

Applications on **RP\_Env** **2** Channels

**3** Jupyter Notebook

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.

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.

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

Glueviz 1.0.0

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

JupyterLab 3.3.2

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

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.

Spyder 5.1.5

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

**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.

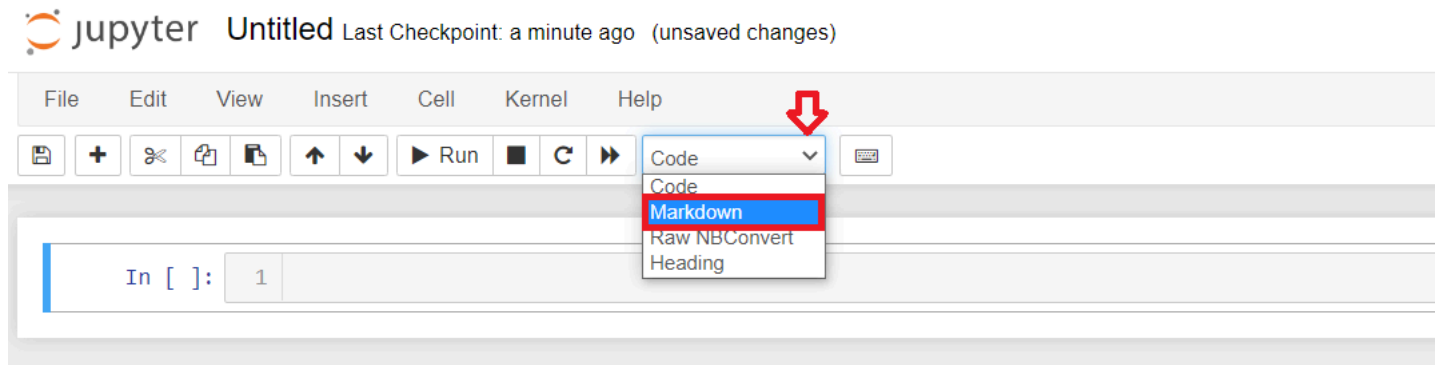
0 /

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### Exercise 3: Create and execute Python Jupyter Notebook

## Step 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.*

## Step 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.*

## Step 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
```

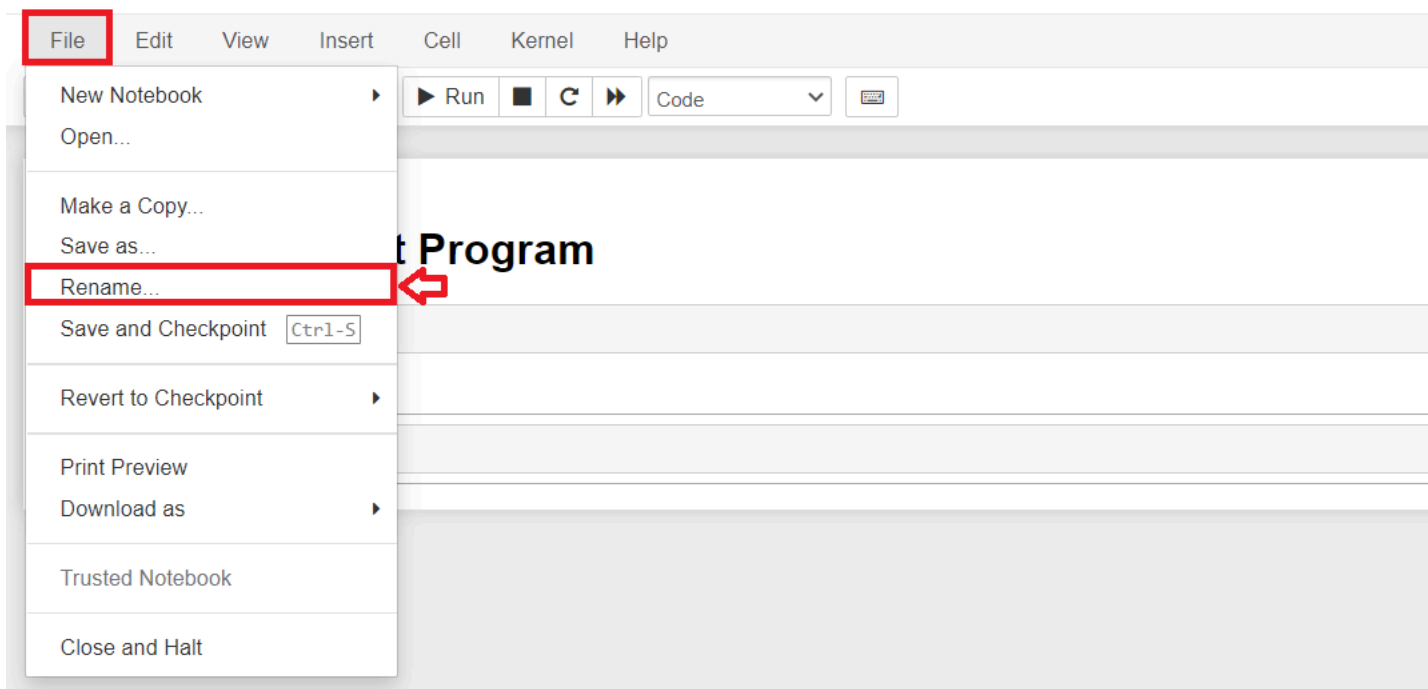
Copied!

- 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.

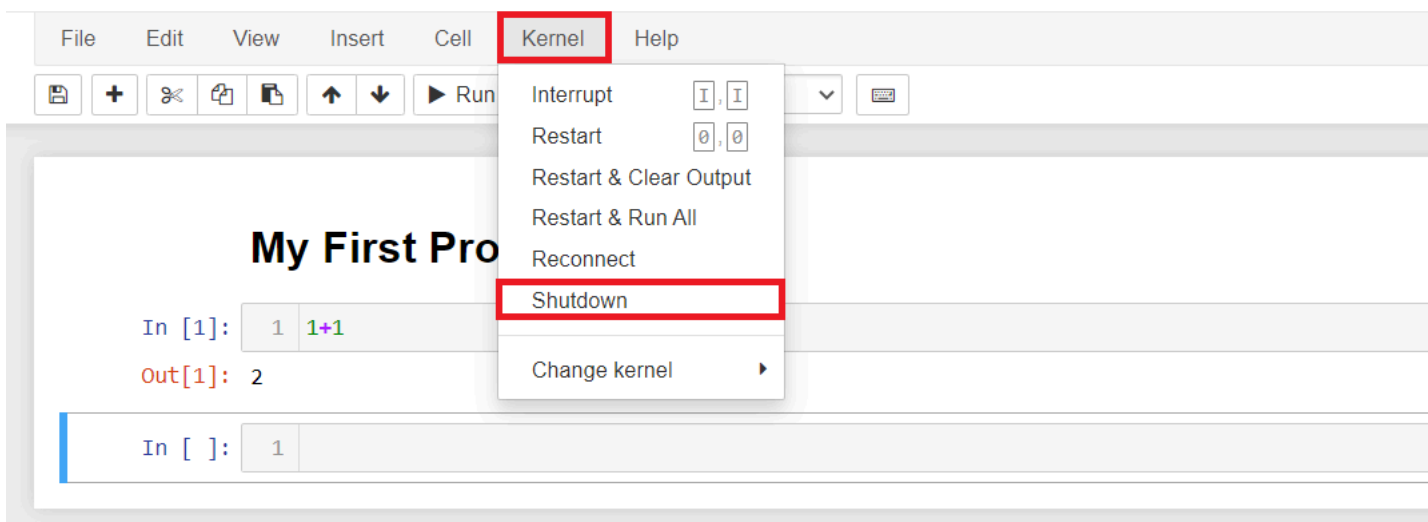
► Output

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

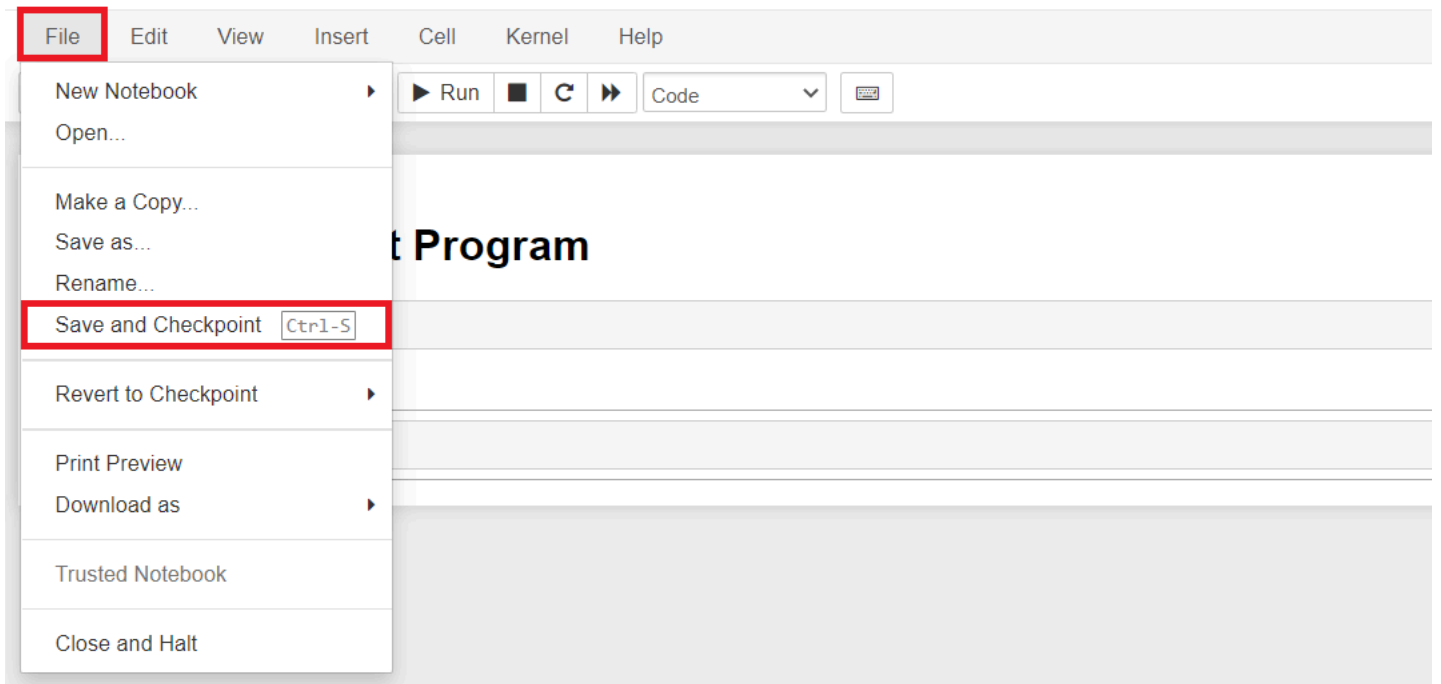
**Step 1:** Click **Rename** from the **File** menu to rename your notebook like *My\_Notebook.ipynb*.



**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.



**5. Open the recently created notebook.**

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

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2 Applications on RP\_Env Channels

3

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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

**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**

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



















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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.

Select items to perform actions on them.

☐ 0 ▾  /

☐

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anaconda3

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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](#)



**Skills** Network