



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>

Individual Edition is now

ANACONDA DISTRIBUTION

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

Anaconda Distribution

[Download](#) 

For Windows

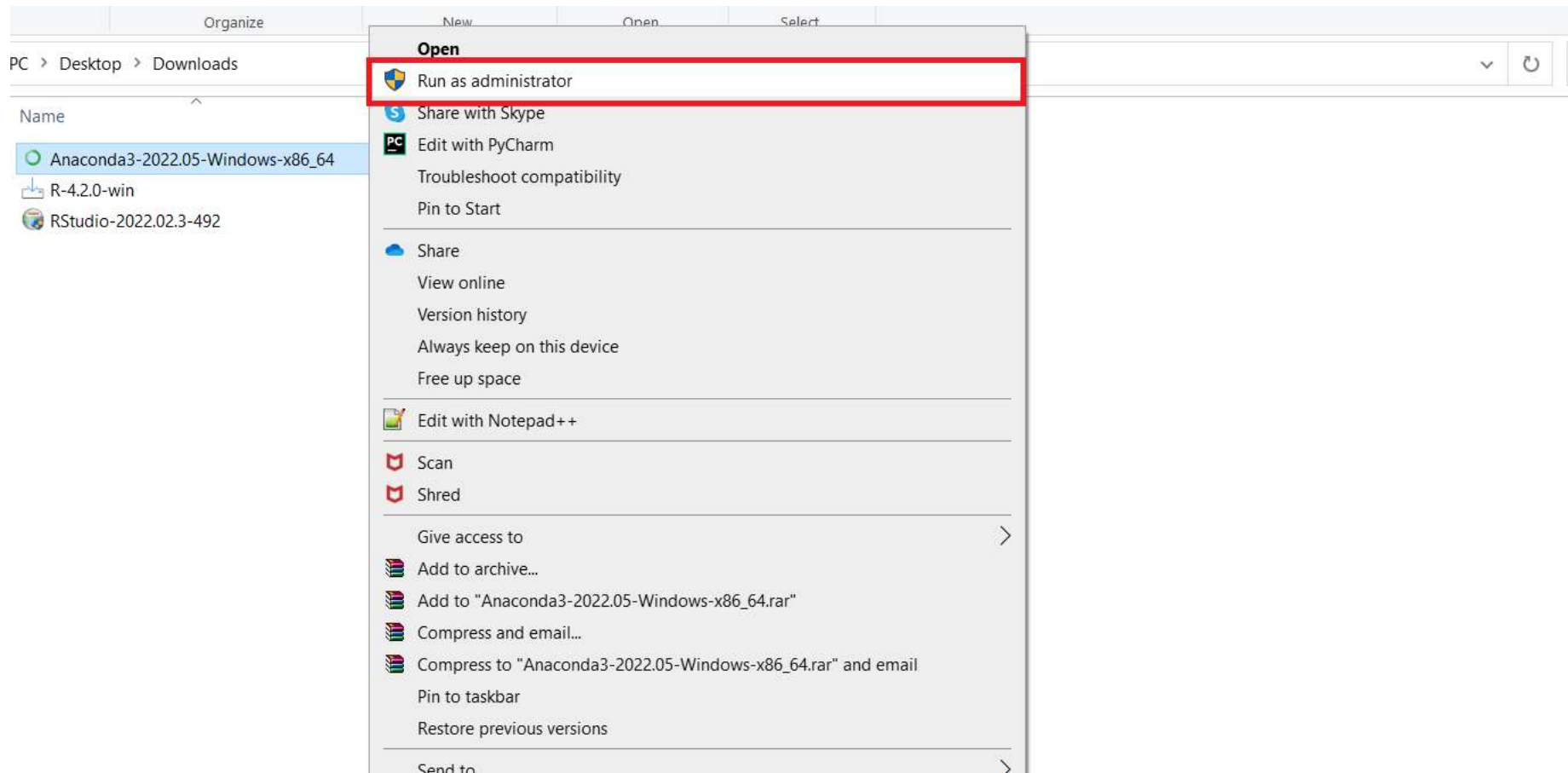
Python 3.9 • 64-Bit Graphical Installer • 594 MB

Get Additional Installers

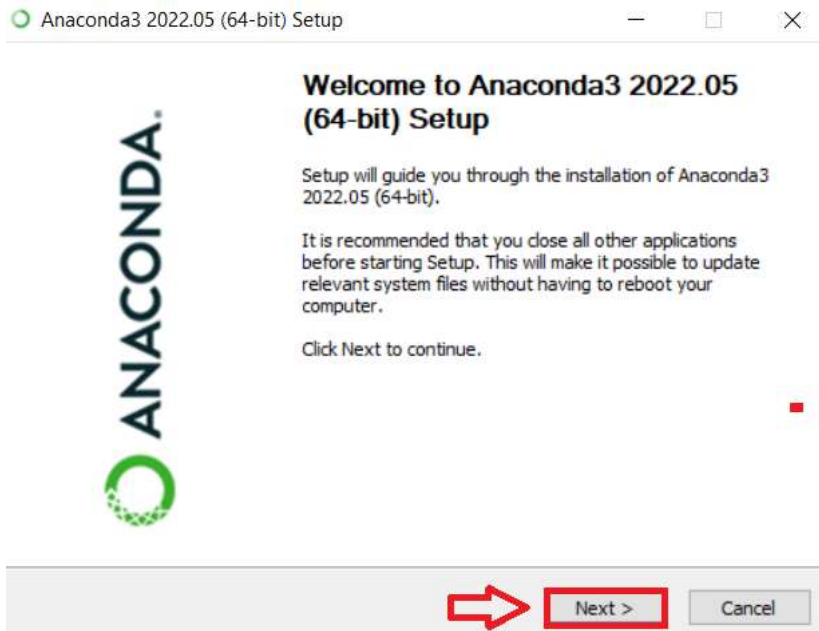


*Note: Depending on your **Operating system**, it would show the download link specific to your OS. Click the **Download** button to download it to your local machine.*

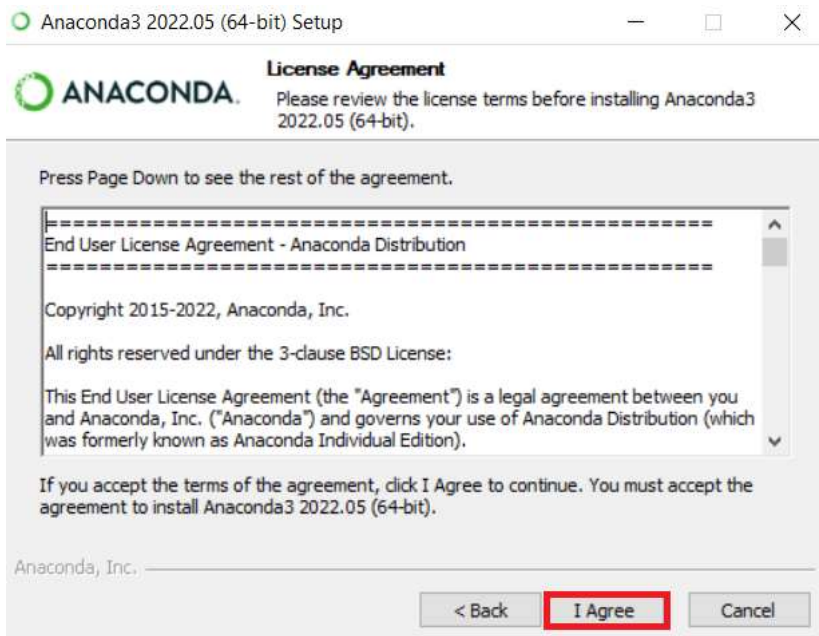
Step 2: Once the download completes, right-click the downloaded file and run it as **Administrator**.



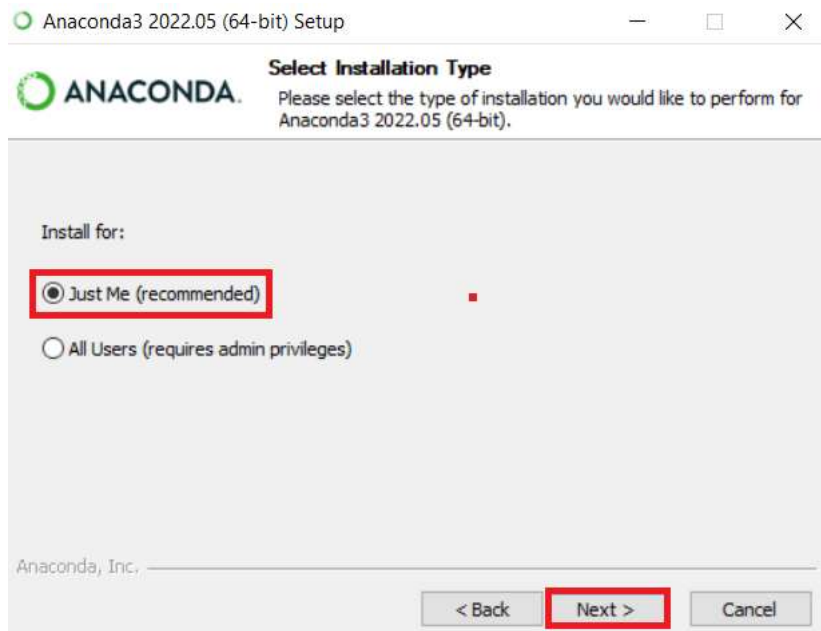
Step 3: At the beginning of the welcome window, you need to click **Next** to confirm the installation.



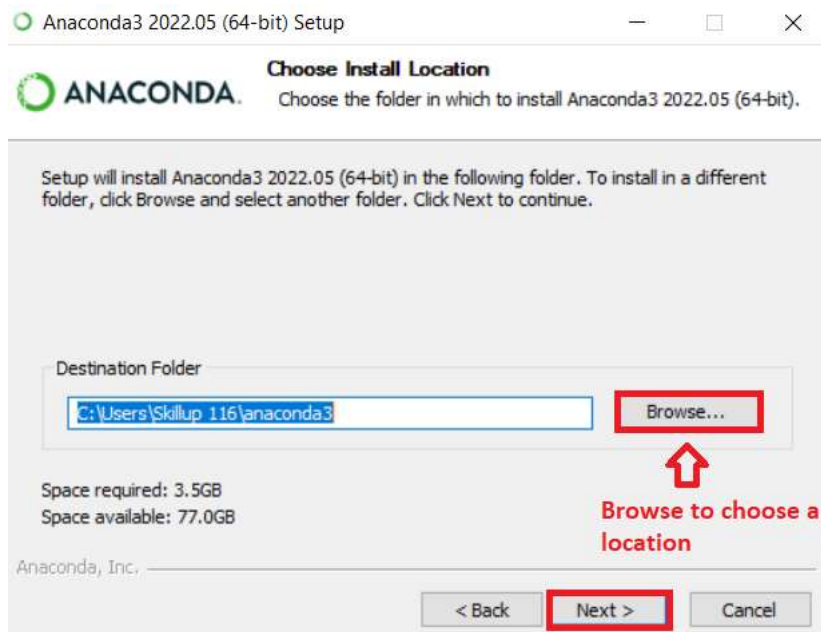
Step 4: Agree to the license.



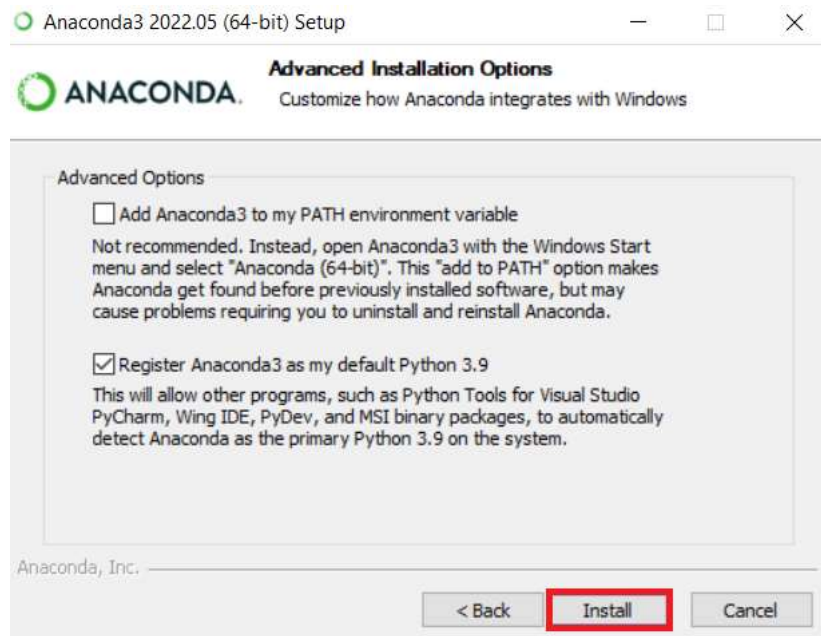
Step 5: In the installation window, select **Just me**, and click **Next**.



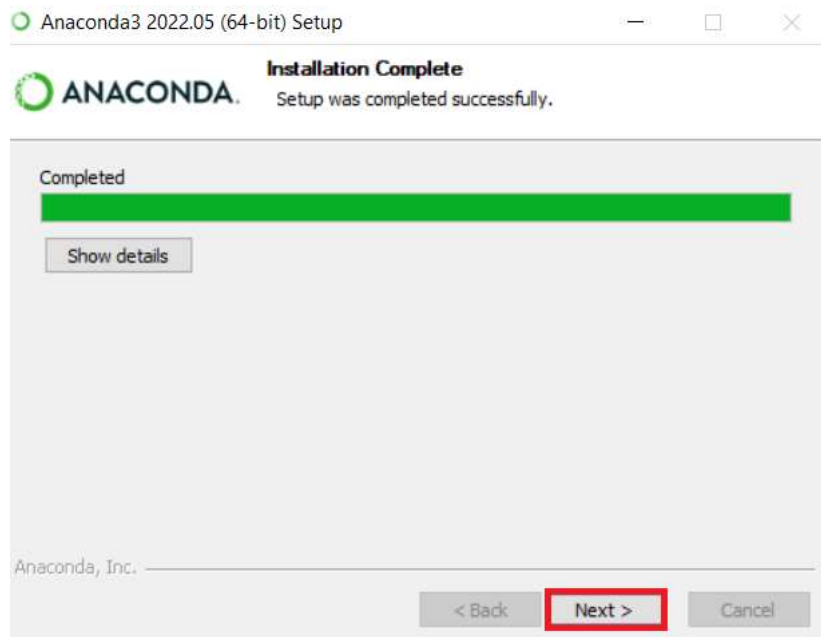
Step 6: Select the folder where you would like to **Install Anaconda**, or retain the **Default** installation location and click **Next**.



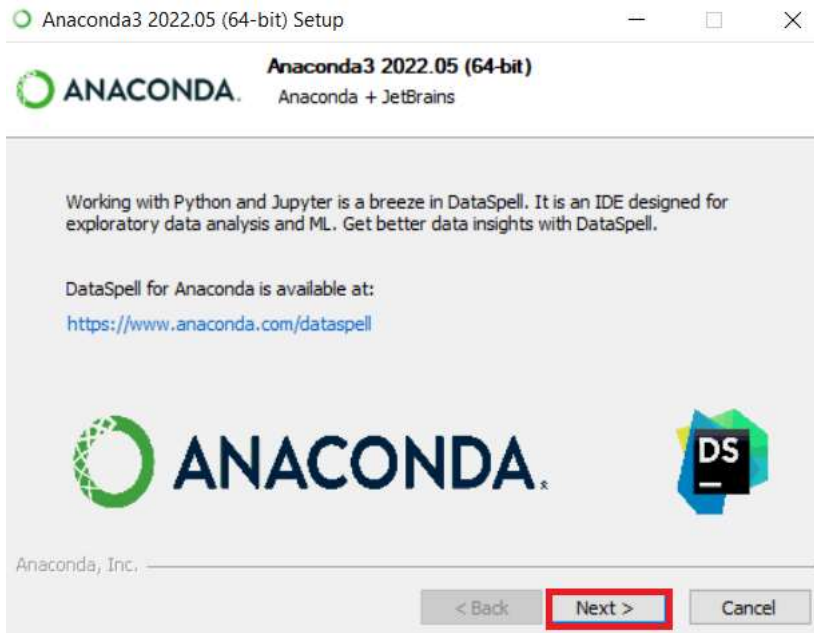
Step 7: In the **Advanced Installation Options** window, select **Register Anaconda3** as the default Python 3.9 option, and click **Install**.



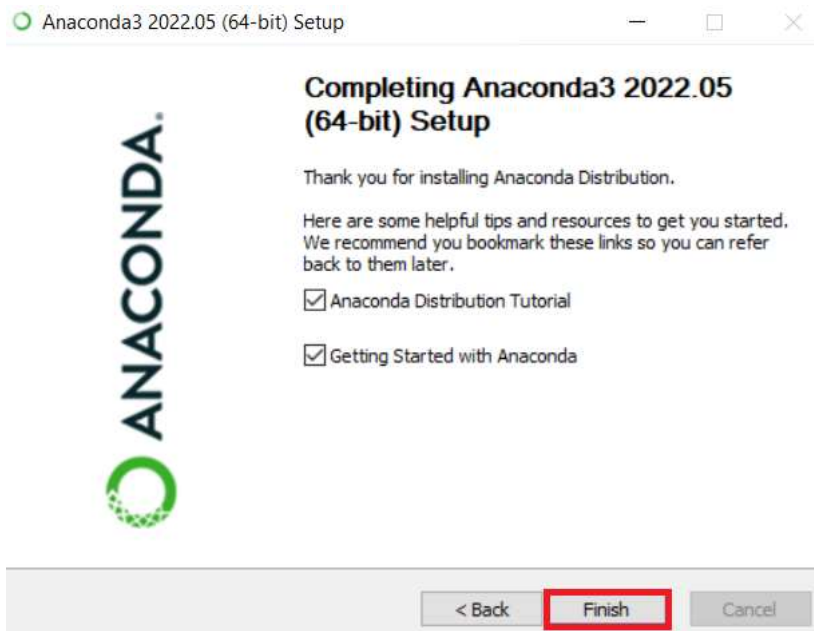
Step 8: You need to wait for the installation to complete. Once installation completes, click **Next**.



Step 9: Click **Next**.



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

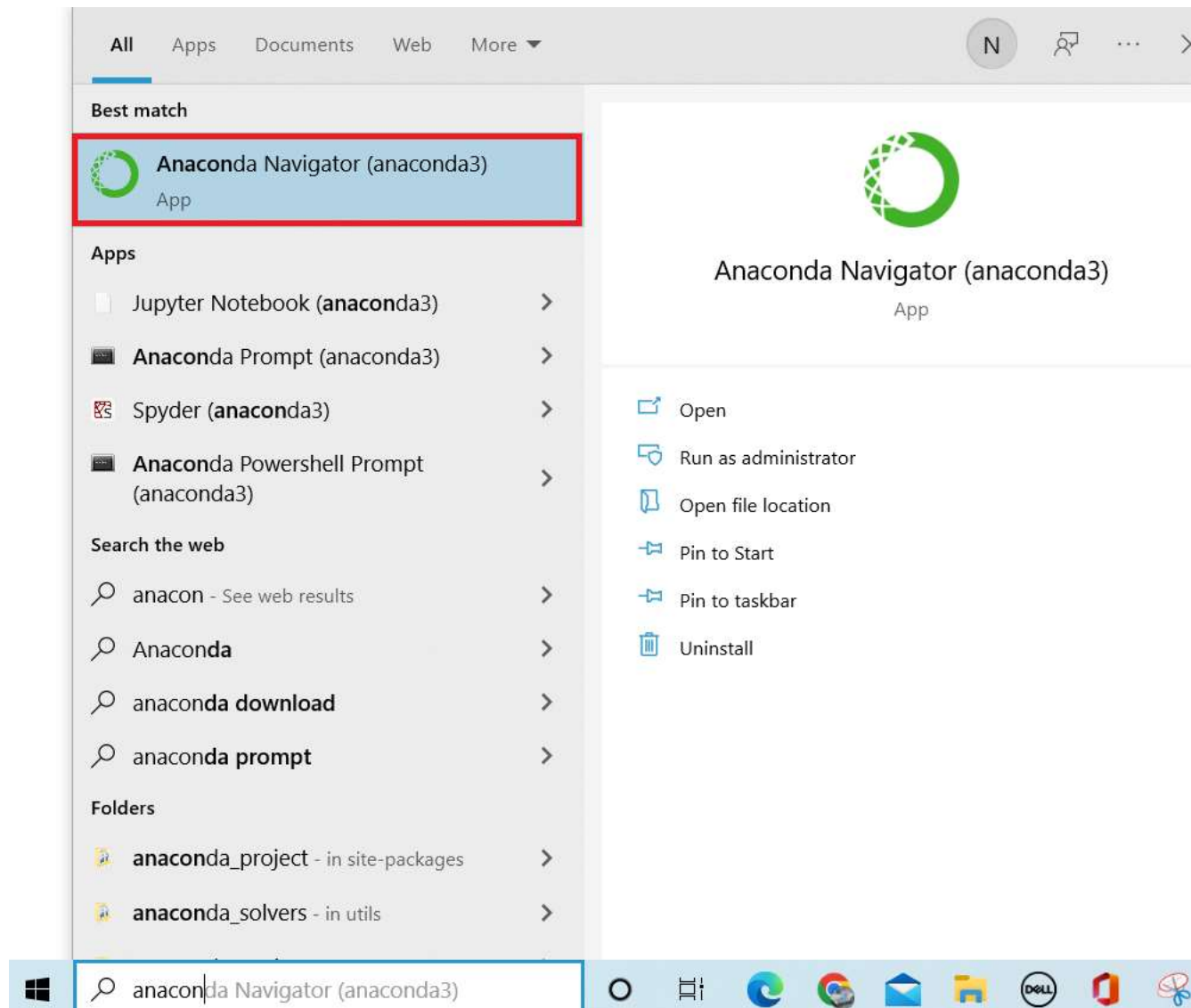


Exercise 2: Create Anaconda Environment

<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.



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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.

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



JupyterLab

3.3.2

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

Launch



Jupyter Notebook

6.4.0

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

Launch



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



VS Code

1.68.1

Streamlined code editor with support for development operations like debugging, task running and version control.

Launch



Glueviz

1.0.0

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

Install

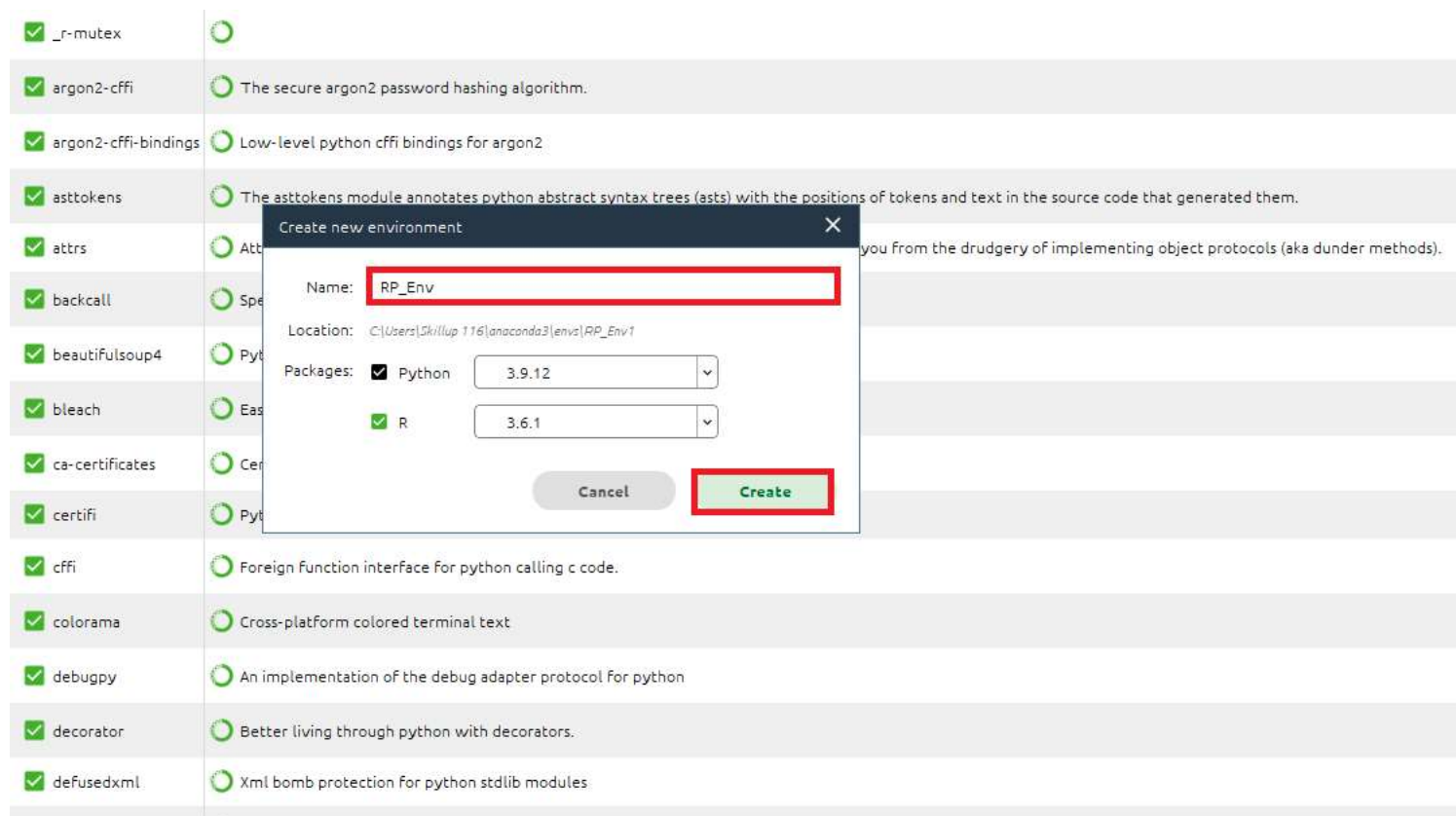


RStudio

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.



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 Home

2 Applications on RP_Env Channels

3

Environments

Learning

Community

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6.4.11

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

A screenshot of the JupyterLab interface. The top bar shows the 'File' menu open, with 'Python 3 (ipykernel)' selected. The main area displays a file browser with a list of folders: 3D Objects, anaconda3, Contacts, Desktop, Documents, Downloads, and Favorites. The 'Python 3 (ipykernel)' option is highlighted in the 'File' menu.



The screenshot shows the JupyterLab interface. At the top, the title bar reads "jupyter Untitled Last Checkpoint: a minute ago (unsaved changes)". The top right corner features the Python logo and a "Logout" button. Below the title bar is a menu bar with "File", "Edit", "View", "Insert", "Cell", "Kernel", and "Help". To the right of the menu bar are "Trusted" and "Python 3 (ipykernel)" status indicators. The "Insert" menu is open, showing options: "Code", "Markdown" (highlighted with a red box), "Raw NBConvert", and "Heading". A red arrow points to the "Insert" menu. Below the menu bar is a toolbar with icons for saving, adding, deleting, copying, pasting, undo, redo, and running. The main area shows a code cell with the prompt "In []:" and the number "1".

- ```
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*.





New Notebook

Open...

Make a Copy...

Save as...

Rename...

Save and Checkpoint Ctrl-S

Revert to Checkpoint

Print Preview

Download as

Trusted Notebook

Close and Halt



Run



Code



Code



Program

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



Run



Interrupt



Restart



Restart & Clear Output



Restart & Run All



Reconnect



Shutdown



Change kernel



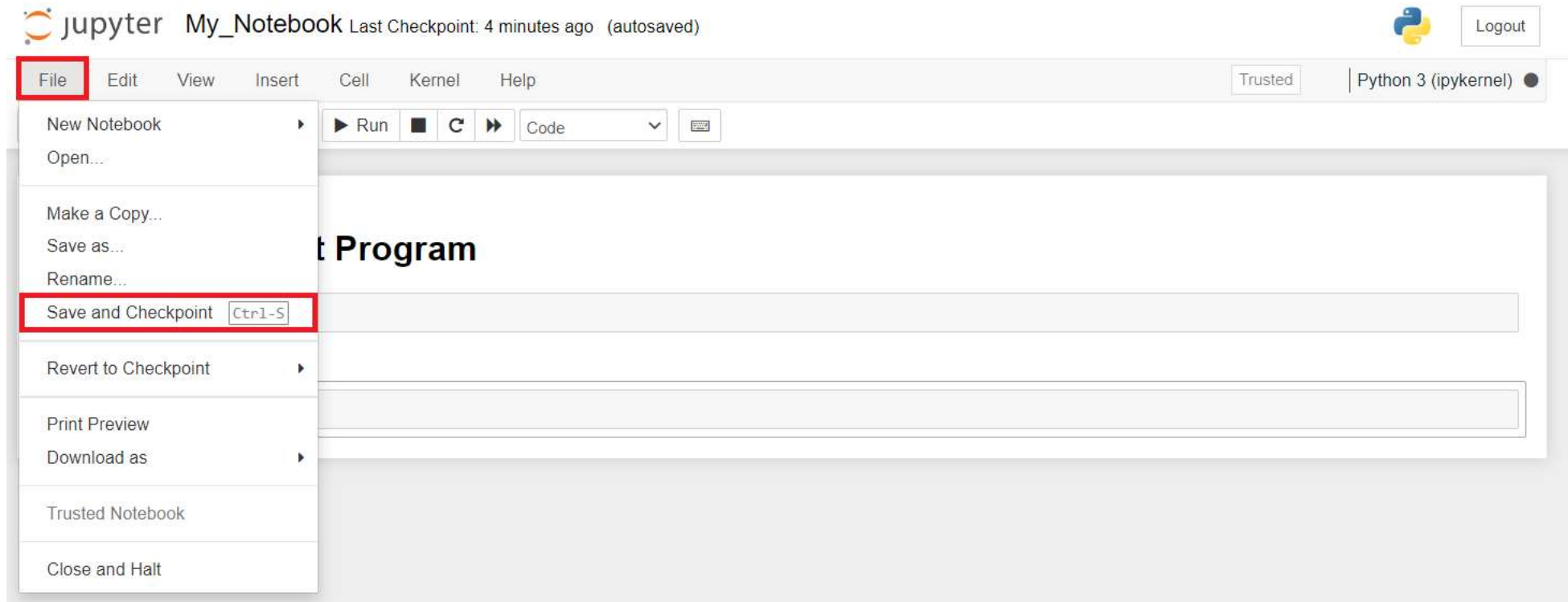
My First Pro

In [1]: 1 1+1

Out[1]: 2

In [ ]: 1

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

|                          |                                                                                                                                    |                       |                |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|
| <input type="checkbox"/> |  IBMDeveloperSkillsNetwork-RP0321EN-SkillsNetwork | 7 months ago          |                |
| <input type="checkbox"/> |  lax_to_jfk                                       | 10 months ago         |                |
| <input type="checkbox"/> |  Links                                            | a year ago            |                |
| <input type="checkbox"/> |  Maps_with_R                                      | a year ago            |                |
| <input type="checkbox"/> |  Music                                            | a year ago            |                |
| <input type="checkbox"/> |  OneDrive                                         | 5 months ago          |                |
| <input type="checkbox"/> |  OneDrive - Flexible Road LLC                     | 10 hours ago          |                |
| <input type="checkbox"/> |  PycharmProjects                                  | 3 months ago          |                |
| <input type="checkbox"/> |  Saved Games                                      | a year ago            |                |
| <input type="checkbox"/> |  seaborn-data                                     | a year ago            |                |
| <input type="checkbox"/> |  Searches                                         | a year ago            |                |
| <input type="checkbox"/> |  Tracing                                          | a year ago            |                |
| <input type="checkbox"/> |  Videos                                           | a year ago            |                |
| <input type="checkbox"/> |  Week3                                            | 5 months ago          |                |
| <input type="checkbox"/> |  With_R                                           | 3 months ago          |                |
| <input type="checkbox"/> |  <b>My_Notebook.ipynb</b>                         | <b>41 minutes ago</b> | <b>1.02 kB</b> |
| <input type="checkbox"/> |  -1.14-windows.xml                                | a year ago            | 7.21 kB        |
| <input type="checkbox"/> |  BullseyeCoverageError.txt                        | a year ago            | 151 B          |

## 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.



The screenshot shows the JupyterLab interface. At the top, there is a 'jupyter' logo and 'Quit' and 'Logout' buttons. Below the logo, there are tabs for 'Files', 'Running', and 'Clusters'. The 'Files' tab is active, showing a file browser. The file browser has a search bar and a list of files and folders. A red arrow points to the 'New' button in the top right corner of the file browser. The 'New' dropdown menu is open, showing options for 'Notebook:', 'Python 3 (ipykernel)', 'R', and 'Other:'. The 'R' option is highlighted with a red box. The 'Other:' section includes 'Text File', 'Folder', and 'Terminal'. The file browser also shows a list of files and folders, including '3D Objects', 'anaconda3', 'Contacts', 'Desktop', 'Documents', and 'Downloads'. The 'Name' column is visible. The '2 hours ago' timestamp is shown at the bottom right of the file browser.

**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 |

