



## 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

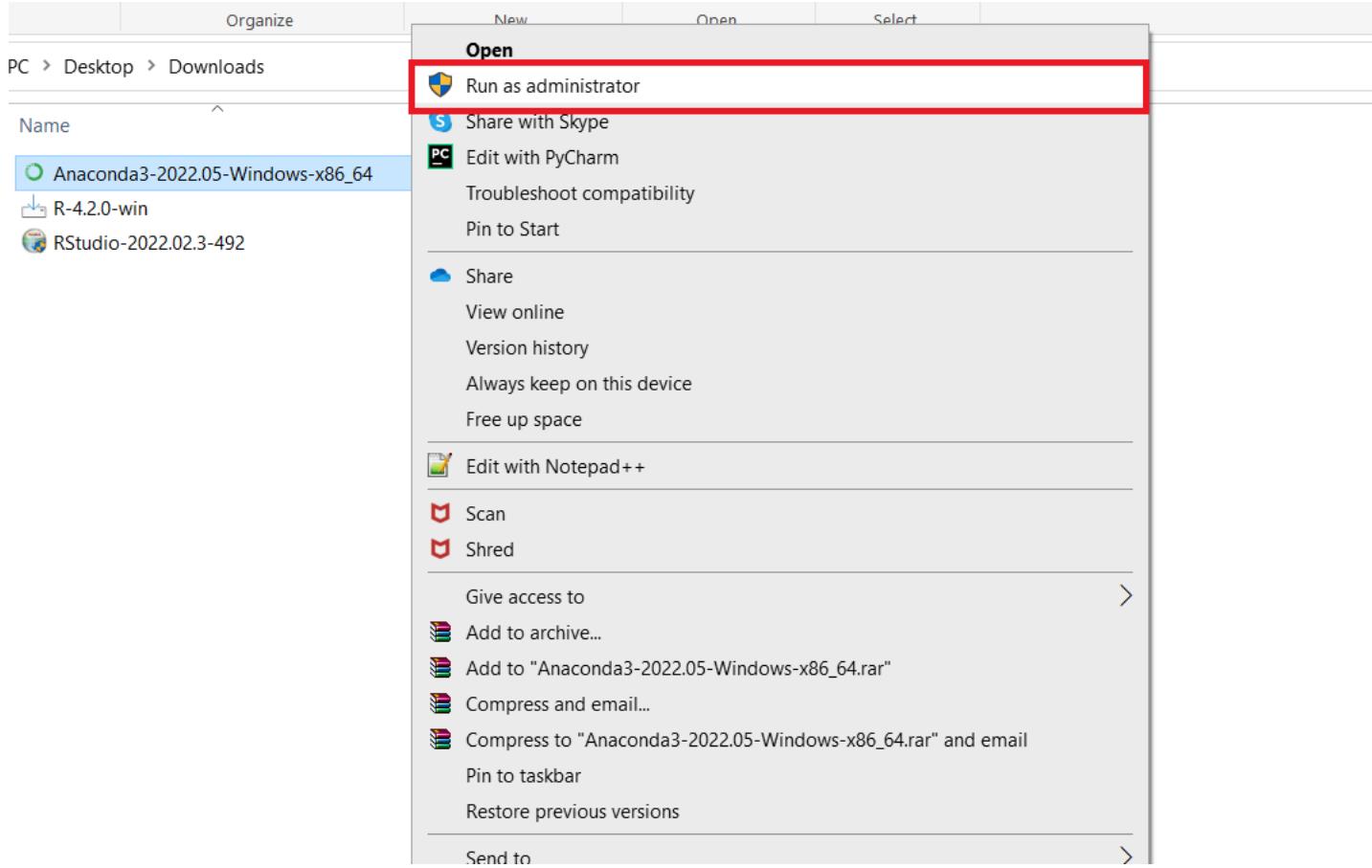
**Step 1:** Use the below link to download the Anaconda distribution:

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

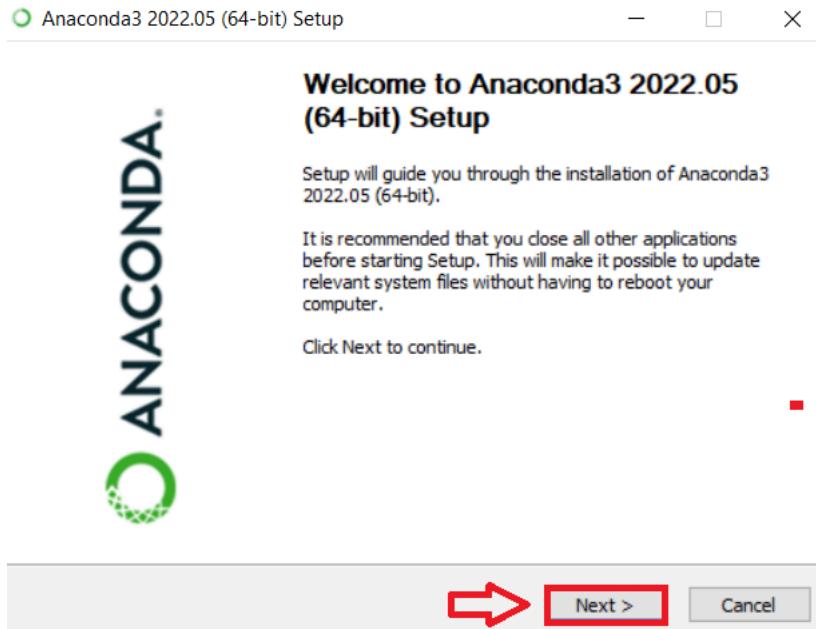
A screenshot of the Anaconda website. The header features the Anaconda logo (a green circle with a white 'A') and the word 'ANAconda'. Below the header, there are navigation links: Products (underlined), Pricing, Solutions, Resources, Partners, and a partially visible 'Blog' link. A green bar runs horizontally across the page. The main content area has a light grey background. At the top left, a message says 'Individual Edition is now'. In the center, the words 'ANACONDA DISTRIBUTION' are displayed in large, bold, green capital letters. Below this, a large black text reads 'The world's most popular open-source Python distribution platform'. To the right, a vertical column shows a 'Python 3.' icon. At the bottom, there are two rounded rectangular boxes: one with a book icon and another with a user profile icon.

*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.

○ Anaconda3 2022.05 (64-bit) Setup



### License Agreement

Please review the license terms before installing Anaconda3 2022.05 (64-bit).

Press Page Down to see the rest of the agreement.

```
=====
End User License Agreement - Anaconda Distribution
=====
```

Copyright 2015-2022, Anaconda, Inc.

All rights reserved under the 3-clause BSD License:

This End User License Agreement (the "Agreement") is a legal agreement between you and Anaconda, Inc. ("Anaconda") and governs your use of Anaconda Distribution (which was formerly known as Anaconda Individual Edition).

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Anaconda3 2022.05 (64-bit).

Anaconda, Inc.

< Back

I Agree

Cancel

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

○ Anaconda3 2022.05 (64-bit) Setup



### Select Installation Type

Please select the type of installation you would like to perform for Anaconda3 2022.05 (64-bit).

Install for:

Just Me (recommended)

All Users (requires admin privileges)

Anaconda, Inc.

< Back

Next >

Cancel

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

○ Anaconda3 2022.05 (64-bit) Setup



### Choose Install Location

Choose the folder in which to install Anaconda3 2022.05 (64-bit).

Setup will install Anaconda3 2022.05 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

C:\Users\Skillup\_116\anaconda3

Browse...



Browse to choose a location

Space required: 3.5GB  
Space available: 77.0GB

Anaconda, Inc.

< Back

Next >

Cancel

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

 Anaconda3 2022.05 (64-bit) Setup

— □ ×

**Advanced Installation Options**

Customize how Anaconda integrates with Windows

**Advanced Options** Add Anaconda3 to my PATH environment variable

Not recommended. Instead, open Anaconda3 with the Windows Start menu and select "Anaconda (64-bit)". This "add to PATH" option makes Anaconda get found before previously installed software, but may cause problems requiring you to uninstall and reinstall Anaconda.

 Register Anaconda3 as my default Python 3.9

This will allow other programs, such as Python Tools for Visual Studio PyCharm, Wing IDE, PyDev, and MSI binary packages, to automatically detect Anaconda as the primary Python 3.9 on the system.

Anaconda, Inc.

&lt; Back

**Install**

Cancel

**Step 8:** You need to wait for the installation to complete. Once installation completes, click **Next**. Anaconda3 2022.05 (64-bit) Setup

— □ ×

**Installation Complete**

Setup was completed successfully.

Completed



Show details

Anaconda, Inc.

&lt; Back

**Next >**

Cancel

**Step 9:** Click **Next**. Anaconda3 2022.05 (64-bit) Setup

— □ ×

**Anaconda3 2022.05 (64-bit)**

Anaconda + JetBrains

Working with Python and Jupyter is a breeze in DataSpell. It is an IDE designed for exploratory data analysis and ML. Get better data insights with DataSpell.

DataSpell for Anaconda is available at:

<https://www.anaconda.com/dataspell>

Anaconda, Inc.

&lt; Back

**Next >**

Cancel

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

Anaconda3 2022.05 (64-bit) Setup

## 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

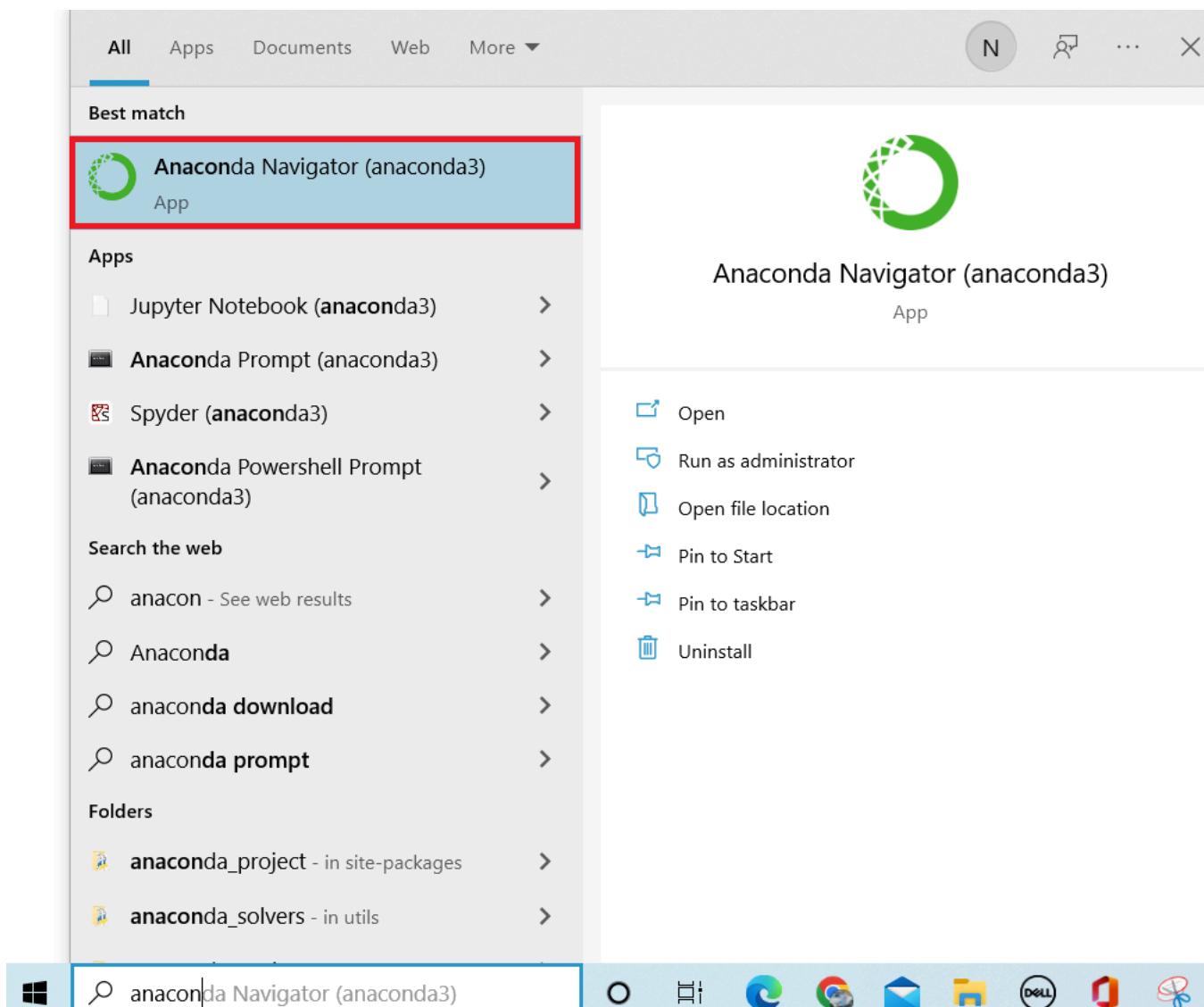
< Back Finish Cancel

## 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.



 Anaconda Navigator

File Help

# ANACONDA.NAVIGATOR

 Home Environments Learning Community ANACONDA.

Secure your software supply chain from the source

[Upgrade Now](#)

End-to-end package security, guaranteed

Documentation

Anaconda Blog

Applications on  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](#)



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](#)



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.

The screenshot shows the Anaconda Navigator interface. On the left, there's a sidebar with 'Home', 'Environments' (which is highlighted with a red box), 'Learning', and 'Community'. Below that is an 'ANACONDA.' section with a 'Secure your software supply chain from the source' message and an 'Upgrade Now' button. Underneath are links for 'End-to-end package security, guaranteed', 'Documentation', and 'Anaconda Blog', along with social media icons for Twitter, YouTube, and GitHub.

The main area has a search bar for 'Search Environments' and a dropdown for 'Channels'. It shows a list of installed packages under 'base (root)'. The 'Installed' tab is selected. The list includes packages like '\_ipyw\_jlab\_nb\_ex...', 'aiohttp', 'aiosignal', 'alabaster', 'anaconda', 'anaconda-client', 'anaconda-project', 'anyio', 'appdirs', 'argon2-cffi', 'argon2-cffi-bindings', 'arrow', 'astroid', 'astropy', 'asttokens', 'async-timeout', 'atomicwrites', and 'attrs'. At the bottom, it says '430 packages available'.

A large red arrow points down to the 'Create' button in the toolbar at the bottom of the main window, which is also highlighted with a red box.

Name	T	Description
_ipyw_jlab_nb_ex...		A configuration metapackage for enabling anaconda-bundled jupyter notebooks.
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 loops.
appdirs		A small python module for determining appropriate platform-specific temporary directory.
argon2-cffi		The secure argon2 password hashing algorithm.
argon2-cffi-bindings		Low-level python ffi 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 (ast).
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 better code.

**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 a list of Python packages on the left and a 'Create new environment' dialog box on the right. The dialog box has the following fields:

- Name: RP\_Env
- Location: C:\Users\Skillup 116\anaconda3\envs\RP\_Env1
- Packages:
  - Python: 3.9.12
  - R: 3.6.1

The 'Create' button at the bottom right of the dialog box 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.

The screenshot shows the Anaconda Navigator interface. A red circle labeled '1' highlights the 'Home' button in the top-left corner. A red circle labeled '2' highlights the dropdown menu 'Applications on' which is set to 'RP\_Env'. A red circle labeled '3' highlights the 'Launch' button for the 'Jupyter Notebook' application, which is also circled in red. The 'Jupyter Notebook' card includes a description: 'Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.' Below the grid of applications, there is a sidebar with the Anaconda logo and a message: 'Secure your software supply chain from the source' with a 'Upgrade Now' button. Other sidebar items include 'End-to-end package security, guaranteed', 'Documentation', 'Anaconda Blog', and social media links for Twitter, YouTube, and GitHub.

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



Files    Running    Clusters

Select items to perform actions on them.

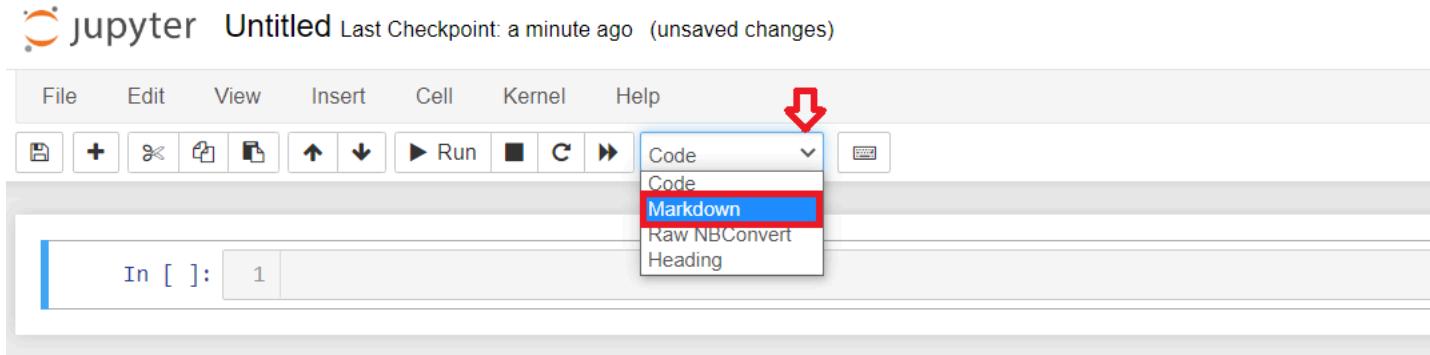
The screenshot shows the Jupyter Notebook file browser. The left sidebar lists the following directory structure:

- 0 /
- 3D Objects
- anaconda3
- Contacts
- Desktop
- Documents
- Downloads
- Favorites

### 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**.

```
# My First Program
```

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.

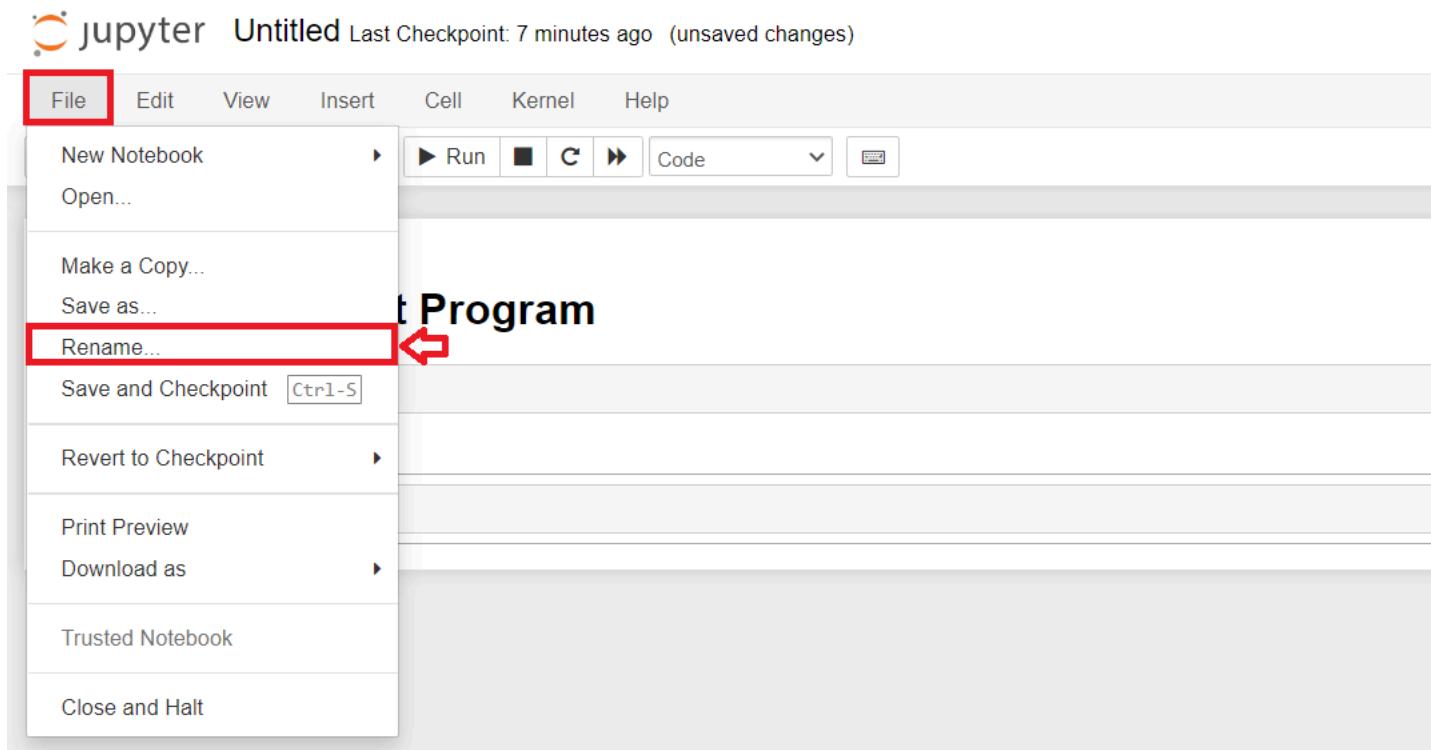
```
1+1
```

- 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.

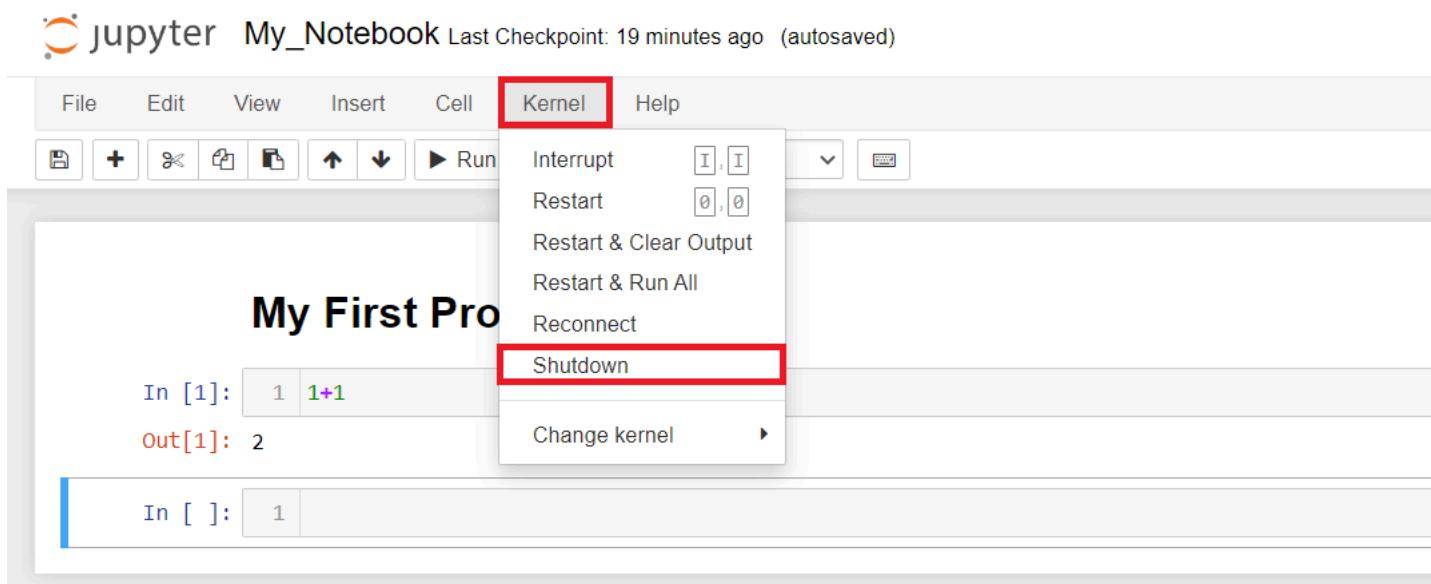
► Output

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

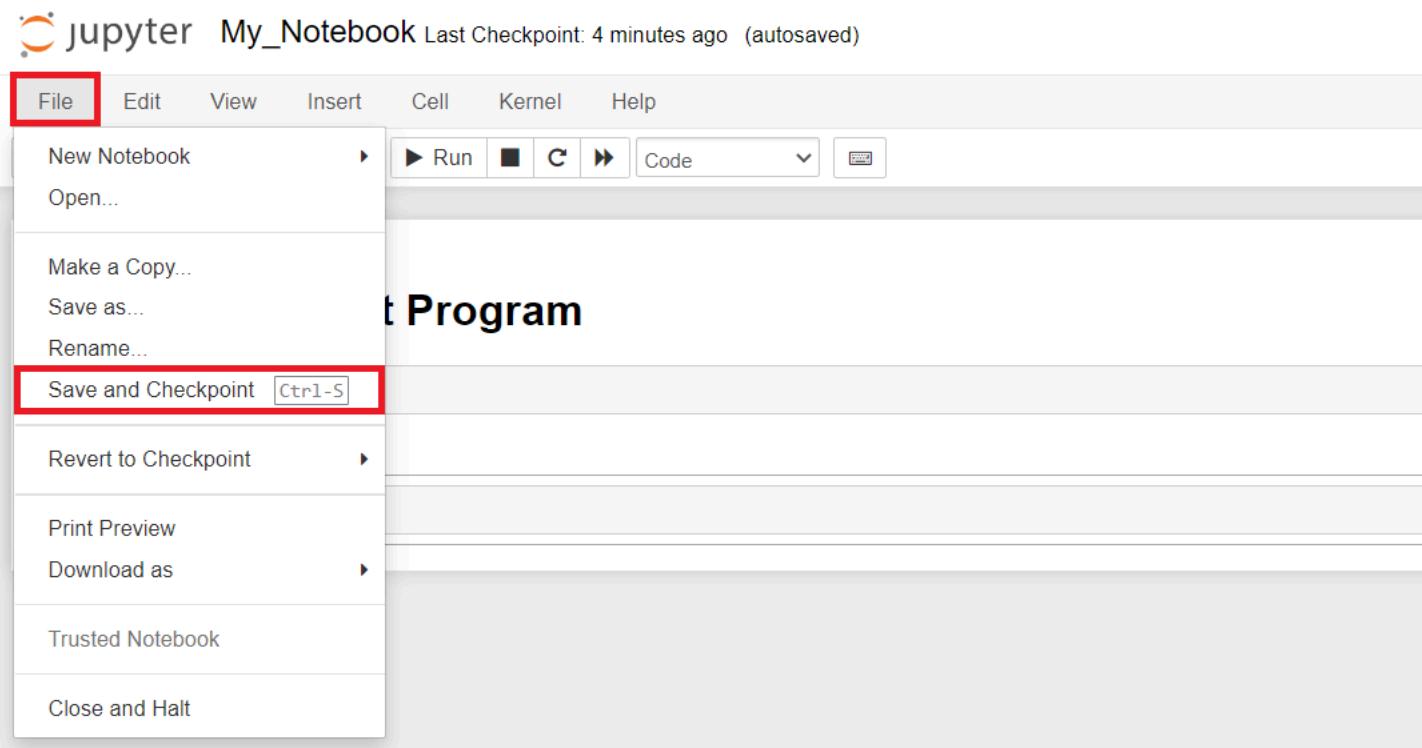
**Step 1:** Click **Rename** from the **File** menu to rename your notebook like *My\_Notebook.ipynb*.



**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.

The screenshot shows the Anaconda Navigator interface. A red circle labeled '1' highlights the 'Home' button in the top-left corner. A red circle labeled '2' highlights the dropdown menu 'Applications on' which is set to 'RP\_Env'. A red circle labeled '3' highlights the 'Launch' button for the 'Jupyter Notebook' application, which is also circled in red. The 'Jupyter Notebook' card includes a red arrow pointing to the 'Launch' button.

**ANACONDA NAVIGATOR**

1

2

3

Applications on RP\_Env Channels

**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.

**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.

**Jupyter Notebook**

6.4.11  
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,

**ANACONDA**  
Secure your software supply chain from the source  
[Upgrade Now](#)

End-to-end package security, guaranteed

Documentation

Anaconda Blog

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



- [IBMDeveloperSkillsNetwork-RP0321EN-SkillsNetwork](#)
- [lax\\_to\\_jfk](#)
- [Links](#)
- [Maps\\_with\\_R](#)
- [Music](#)
- [OneDrive](#)
- [OneDrive - Flexible Road LLC](#)
- [PycharmProjects](#)
- [Saved Games](#)
- [seaborn-data](#)
- [Searches](#)
- [Tracing](#)
- [Videos](#)
- [Week3](#)
- [With\\_R](#)
- [My\\_Notebook.ipynb](#)
- [-1.14-windows.xml](#)
- [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="button" value="▼"/>	<input type="button" value="📁 /"/>
<input type="checkbox"/> <input type="button" value="📁 3D Objects"/>		
<input type="checkbox"/> <input type="button" value="📁 anaconda3"/>		
<input type="checkbox"/> <input type="button" value="📁 Contacts"/>		
<input type="checkbox"/> <input type="button" value="📁 Desktop"/>		
<input type="checkbox"/> <input type="button" value="📁 Documents"/>		
<input type="checkbox"/> <input type="button" value="📁 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

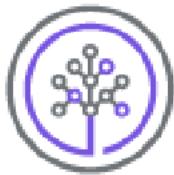
```
df = data.frame(Emp_Name = c("Jai", "David", "Michael"),  
                Job_role = c("Manager", "Team Lead", "Developer" )  
               )  
print(df)
```

► 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**