**Programming for Data Science**

**Practical 00 – Install Anaconda to use Jupyter Notebook**

**What you will learn / do in this lab**

1. Install Anaconda Python distribution
2. What is Jupyter Notebook?
3. How to launch Juypter Notebook
4. How to use Jupyter Notebook

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# Overview

## What you will do for this lab

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In this lab, you will install Anaconda software and learn what is Jupyter Notebook and how it can be used to write and run Python programs in this module.

## Intro to Anaconda

Anaconda is a free Python distribution focused on large-scale data processing, analytics, and numeric computing.

The following are the key features of Anaconda:

* It includes the most popular Python packages for scientific, engineering, numerical, and data analysis.
* It is completely free and available on Linux, Windows, and Mac OS X platforms.
* Installations do not require root or local admin privileges, and the entire package installs in a single folder.
* Multiple installations can coexist, and the installation does not affect pre-existing Python installations on the system.
* It includes modules such as Cython, NumPy, SciPy, pandas, IPython, matplotlib, and homegrown Continuum packages such as Numba, Blaze, and Bokeh.

## Intro to Jupyter Notebook

The **Jupyter Notebook App** is a web-based application that allows you to edit and run Python programs via your favourite browser.

The Jupyter Notebook App can be executed on a local desktop requiring no internet access or can be installed on a remote server and accessed through the internet.

## Conventions used in Jupyter Notebook

Before you start using Jupyter Notebook in this module, let’s get acquainted with some jargon that is associated with this software

### Jupyter notebooks

When you use the Jupyter software to write your Python code, you save them as **Notebook documents or Jupyter notebooks**. Notebook documents have an extension of **.pynb**.

Jupyter notebooks are mark-up documents that contain both programming code and rich text elements such as images, links, equations etc.

### notebook kernel

A notebook kernel is a “computational engine” that executes the code contained in a Jupyter notebook.

In this module, we will be using the **ipython kernel**. Though we would not be using them, kernels for other languages exist, e.g. R and Julia.

When you open a Notebook document, the associated kernel is automatically launched. When the notebook is executed, the kernel performs the computation and produces the results. Depending on the type of computations, the kernel may consume significant CPU and RAM. Note that the RAM is not released until the kernel is shut-down.

### Notebook Dashboard

The Notebook Dashboard is the component which is shown first when you launch Jupyter Notebook App.

The Notebook Dashboard is mainly used to open notebook documents, and to manage the running of the kernels.

In addition, the Notebook Dashboard has other features similar to a file manager, namely navigating folders and renaming/deleting files.

# My First Jupyter Notebook



## Install Anaconda

| No | Task |
| --- | --- |
|  | Visit the Anaconda website [https://www.anaconda.com/download](https://www.anaconda.com/download/)  and click on “Download” |
|  | Choose the appropriate installers depending on your computer. |



## Create a folder to store your notebooks

| No | Task |
| --- | --- |
|  | Before you proceed, create a folder where you would store your Jupyter notebooks.  When naming your folder, choose a name as short as possible and do not use spaces or other special symbols in it. |



## Launch Jupyter Notebook app

| No | Task |
| --- | --- |
|  | * Invoke **Anaconda Prompt**  on your laptop by pressing **Windows key + S** then search for **Anaconda Prompt**      * A terminal will appear as shown below. Your directory path may be different from mine and it is alright.     Directory path   * Type jupyter notebook at the prompt |
|  | After a while, your Jupyter Notebook dashboard will automatically be shown in your default browser as shown below. The default notebook directory will be your home directory. |
|  | |



## Create my First Jupyter notebook

| No | Task | |
| --- | --- | --- |
|  | In the Juypter Dashboard console in your browser, navigate to the folder where you are going to store your jupyter notebooks, then click on “**New->Python 3**” | |
|  |  | |
|  | You will be brought to a new browser tab labelled “Untitled” like this | |
|  |  | |
|  | Double-click on “Untitled”, enter the notebook name as “My First Jupyter Notebook” and then click “Rename” | |
|  |  | |
|  | In the first notebook cell, type the following code   |  | | --- | | name = input("What is your name: ")  print("Hi " + name) | | |
|  |  | |
|  | Subsequently, click the “Cell” menu and choose “Run Cells”  Alternatively, you may press “Ctrl-Enter” |  |
|  | You would be presented with a prompt asking “What is your name: “  Type in your name and press Enter  After you have entered your name, you will see a message greeting you “Hi <your name>” | |
|  |  | |
|  | Congratulations! You have just written and run your first Python program using Jupyter Notebook App successfully! 😊 | |

**-- End of Practical --**