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**What is the Jupyter Notebook?**

* Notebook documents (or “notebooks”, all lower case) are documents produced by the Jupyter Notebook App, which contain both computer code (e.g. python) and rich text elements (paragraph, equations, figures, links, etc...). Notebook documents are both human-readable documents containing the analysis description and the results (figures, tables, etc..) as well as executable documents which can be run to perform data analysis.

**Jupyter Notebook App**

* The Jupyter Notebook App is a server-client application that allows editing and running notebook documents via a web browser. The Jupyter Notebook App can be executed on a local desktop requiring no internet access (as described in this document) or can be installed on a remote server and accessed through the internet. In addition to displaying/editing/running notebook documents, the Jupyter Notebook App has a “Dashboard” (Notebook Dashboard), a “control panel” showing local files and allowing to open notebook documents or shutting down their kernels.

**Kernel**

* A notebook kernel is a “computational engine” that executes the code contained in a Notebook document. The ipython kernel, referenced in this guide, executes python code. Kernels for many other languages exist (official kernels). When you open a Notebook document, the associated kernel is automatically launched. When the notebook is executed (either cell-by-cell or with menu Cell -> Run All), 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 kernels (visualize and shutdown). The Notebook Dashboard has other features similar to a file manager, namely navigating folders and renaming/deleting files.

**Running the Jupyter Notebook**

* In the Search Button, look for the **Jupyter Notebook 2.7**. The notebook interface will appear in a new browser window or tab.

**Shut down the Jupyter Notebook App**

* Closing the browser (or the tab) will not close the Jupyter Notebook App. To completely shut it down you need to close the associated terminal. In more detail, the Jupyter Notebook App is a server that appears in your browser at a default address (http://localhost:8888). Closing the browser will not shut down the server. You can reopen the previous address and the Jupyter Notebook App will be redisplayed.

**Executing a notebook**

Download the notebook you want to execute and put it in your notebook folder (or a sub-folder of it). Then follow these steps:

* Launch the **Jupyter Notebook App** (see previous section).
* In the Notebook Dashboard **navigate to find the notebook**: clicking on its name will open it in a new browser tab.
* Click on the menu Help -> User Interface Tour for an overview of the Jupyter Notebook App user interface.
* You can run the notebook document step-by-step (one cell a time) by pressing **shift + enter.**
* You can run the whole notebook in a single step by clicking on the menu **Cell -> Run All.**
* To restart the kernel (i.e. the computational engine), click on the menu **Kernel -> Restart**. This can be useful to start over a computation from scratch (e.g. variables are deleted, open files are closed, etc...).
* Download the Data files below:
  + <http://bmobasher.com/Class/cloud2.jpg>
  + <http://bmobasher.com/Class/Spotify_Combined.csv>
  + <http://bmobasher.com/Class/Spotify_Data_Characteristics.pdf>