Heart Disease Prediction Using Effective Machine Learning Techniques

Anaconda is a free and open-source distribution of the Python and R programming languages for scientific computing (data science, machine learning applications, large-scale data processing, predictive analytics, etc.), that aims to simplify package management and deployment. Package versions are managed by the package management system “Conda”.

The open source packages can be individually installed from the Anaconda repository with the `conda install` command or using the `pip install` command that is installed with Anaconda. Pip packages provide many of the features of conda packages and in most cases they can work together. The default installation of Anaconda2 includes Python 2.7 and Anaconda3 includes Python 3.7. However, you can create new environments that include any version of Python packaged with conda.

Anaconda Navigator:

Anaconda Navigator is a desktop graphical user interface (GUI) included in Anaconda distribution that allows users to launch applications and manage conda packages, environments and channels without using command-line commands. Navigator can search for packages on Anaconda Cloud or in a local Anaconda Repository, install them in an environment, run the packages and update them. It is available for Windows, macOS and Linux.

The following applications are available by default in Navigator:

- JupyterLab
- Jupyter Notebook
- QtConsole
- Spyder
- Glueviz
- Orange
- Rstudio
- Visual Studio Code

The Jupyter Notebook:

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

Non-Functional Requirements:

Process of functional steps,

1. Problem define
2. Preparing data
3. Evaluating algorithms
4. Improving results
5. Prediction the result

Environmental Requirements:

1. Software Requirements:

Operating System	: Windows
Tool	: Anaconda with Jupyter Notebook

2. Hardware requirements:

Processor	: Pentium IV/III
Hard disk	: minimum 80 GB
RAM	: minimum 2 GB

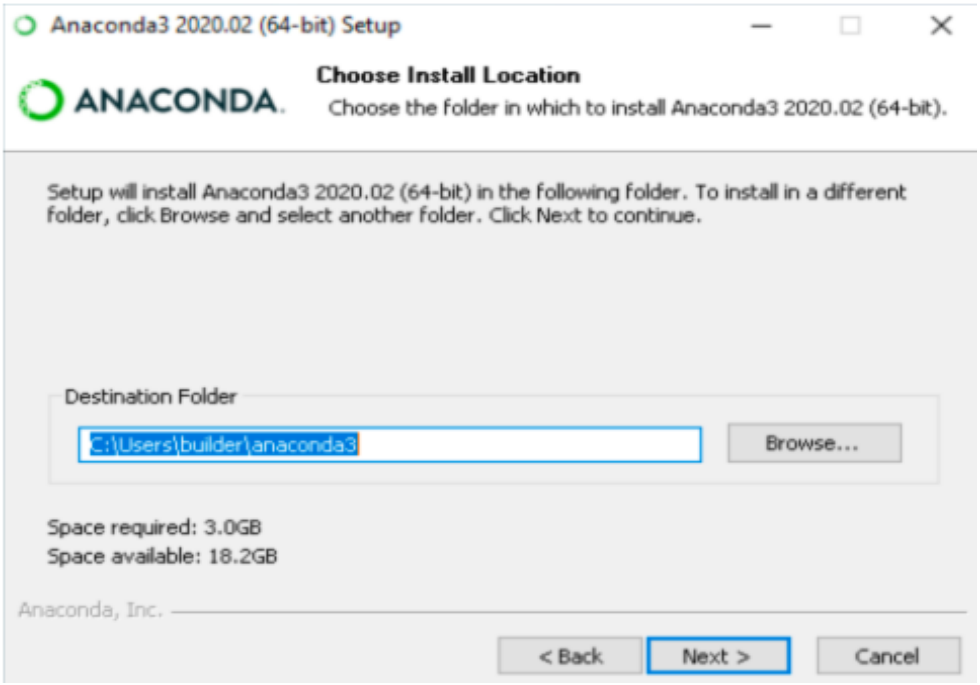
Modules:

- Data validation and pre-processing technique (Module-01)
- Exploration data analysis of visualization and training a model by given attributes (Module-02)
- Performance measurements of logistic regression and decision tree algorithms (Module-03)
- Performance measurements of Support vector classifier and Random forest (Module-04)
- Performance measurements of KNN and Naive Bayes (Module-05)
- GUI based prediction of heart disease (Module-06)

Steps To Install Anaconda -

1. Download the Anaconda installer.
   https://www.anaconda.com/products/individual#windows
2. Double click the installer to launch.
3. Click Next.

4. Read the licensing terms and click “I Agree”.
5. Select an install for “Just Me” unless you’re installing for all users (which require Windows Administrator privileges) and click Next.
6. Select a destination folder to install Anaconda and click the Next button.

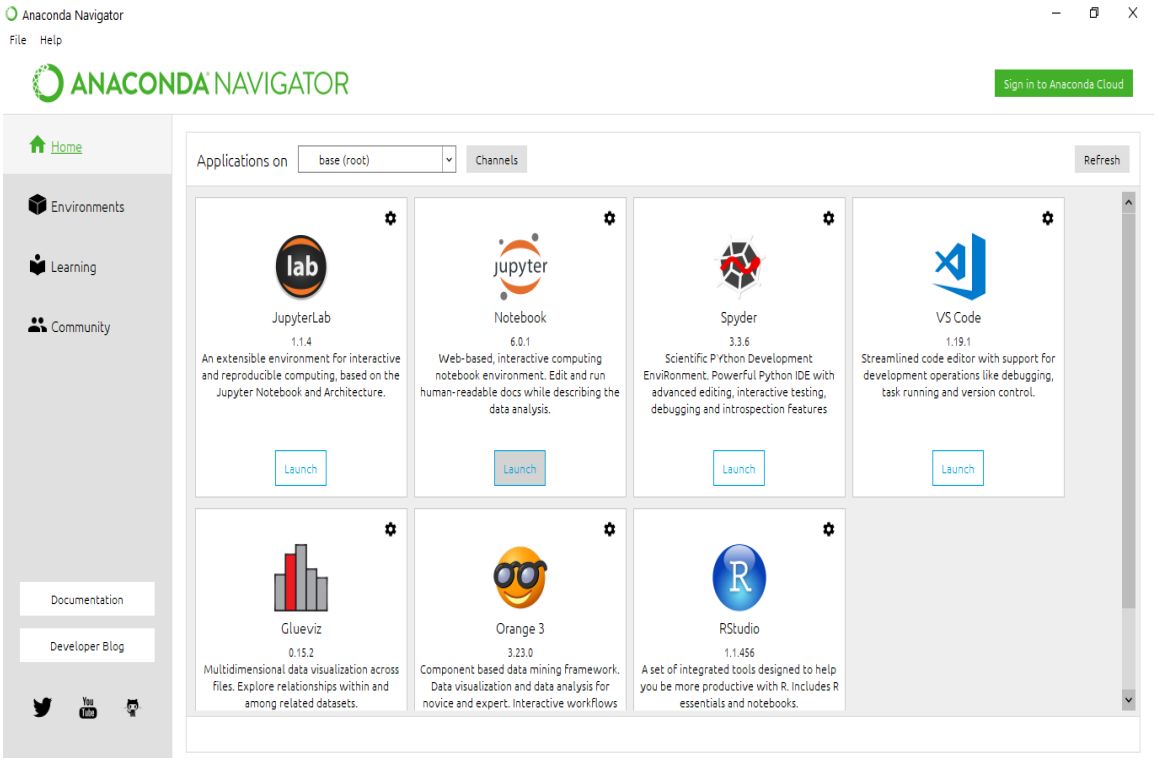


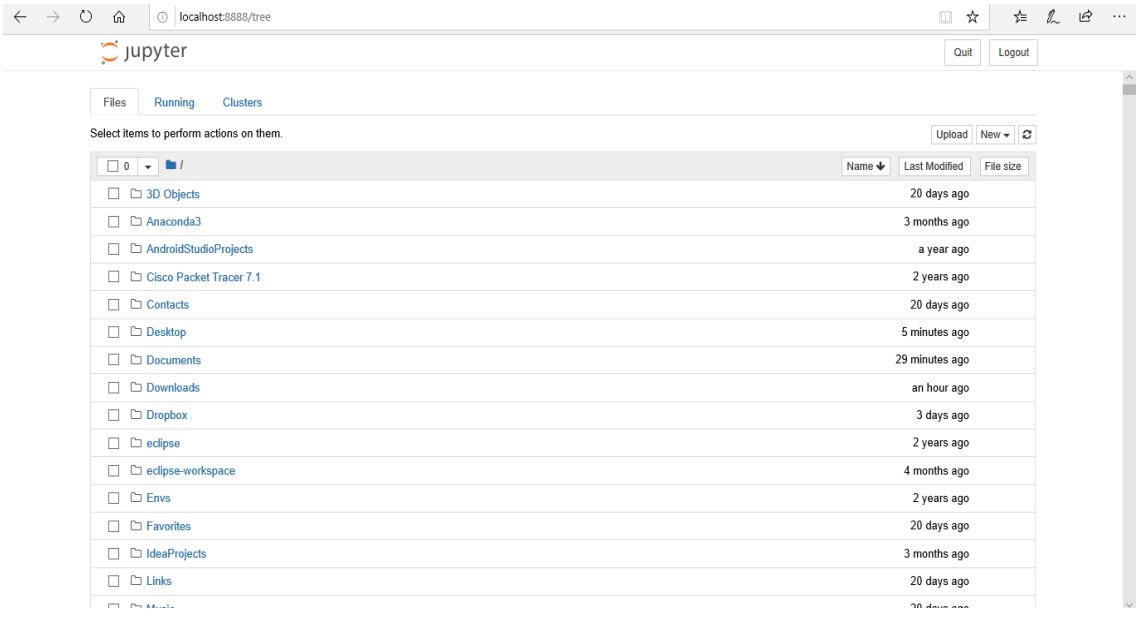
7. Choose whether to add Anaconda to your PATH environment variable. We recommend not adding Anaconda to the PATH environment variable, since this can interfere with other software. Instead, use Anaconda software by opening Anaconda Navigator or the Anaconda Prompt from the Start Menu.
8. Choose whether to register Anaconda as your default Python. Unless you plan on installing and running multiple versions of Anaconda or multiple versions of Python, accept the default and leave this box checked.
9. Click the Install button. If you want to watch the packages Anaconda is installing, click Show Details.
10. Click the Next button.
11. After a successful installation you will see the “Thanks for installing Anaconda” dialog box.

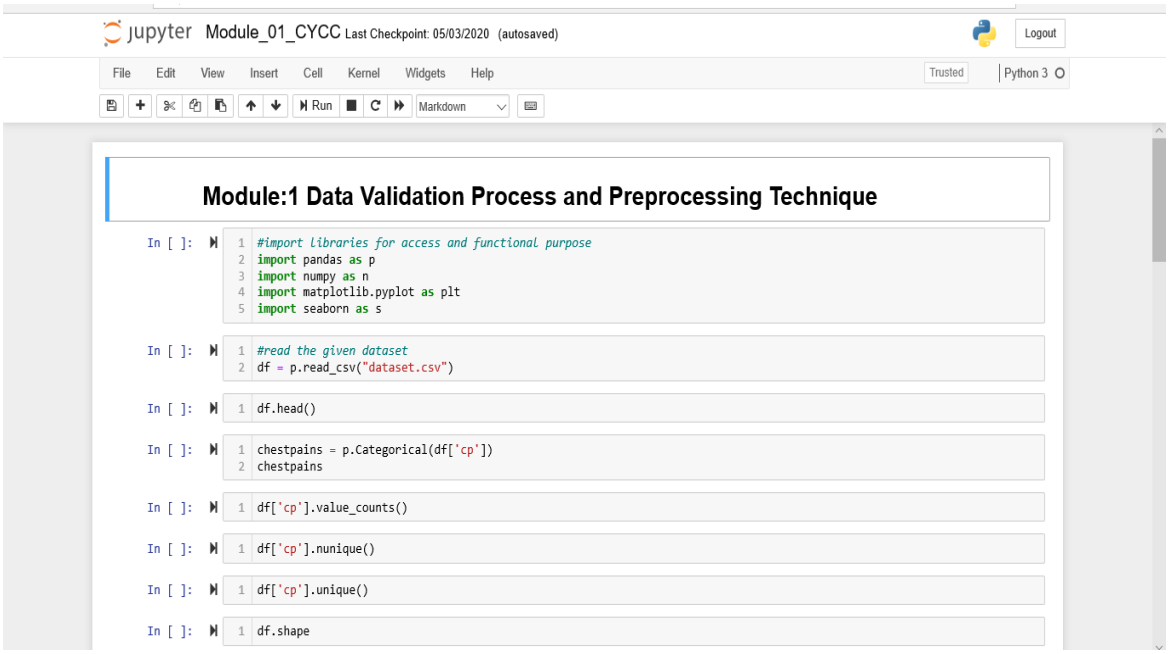
Installing Jupyter using Anaconda-

1. Download Anaconda. We recommend downloading Anaconda's latest Python 3 version (currently Python 3.7).
2. Install the version of Anaconda which you downloaded, following the instructions on the download page.
3. Congratulations, you have installed Jupyter Notebook. To run the notebook type the following command in the command prompt

```
jupyter notebook
```






jupyter Module_01_CYCC Last Checkpoint: 05/03/2020 (autosaved)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 3
Run
Markdown
Module:1 Data Validation Process and Preprocessing Technique
In [ ]:
#import libraries for access and functional purpose
import pandas as p
import numpy as n
import matplotlib.pyplot as plt
import seaborn as s
In [ ]:
#read the given dataset
df = p.read_csv("dataset.csv")
In [ ]:
df.head()
In [ ]:
chestpains = p.Categorical(df['cp'])
chestpains
In [ ]:
df['cp'].value_counts()
In [ ]:
df['cp'].nunique()
In [ ]:
df['cp'].unique()
In [ ]:
df.shape