# PRE-REQUISITES

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| **Date** | **11 November 2022** |
| **Team id** | **PNT2022TMID30674** |
| **Project Name** | **Emerging methods for early detection of forest fires** |

Each and every project has certain pre-requisites which need to be satisfied or executed in order to kickstart the project with a good start. Some of the pre- requisites of this project are as follows:

- Anaconda Navigator
- Tensor flow
- Keras

## Anaconda Navigator:

1. Anaconda Navigator is a desktop graphical user interface (GUI) includedin Anaconda Distribution that allows you to launch applications and manage conda packages, environments, and channels without using command line interface (CLI) commands. Anaconda Navigator is a free and open-source distribution of the Python and R programming languages for data science and machine learning related applications. It can be installed on Windows, Linux, and macOS. Conda is an open-source, cross- platform, package management system. Anaconda comes with so very nice tools like Jupiter lab, Jupiter Notebook, QtConsole, Spyder, Glueviz, Orange, Rstudio, Visual Studio Code. For this project, we will be using Jupiter notebook and Spyder.
2. Navigator can search for packages on Anaconda.org or in a local Anaconda Repository. It is available for Windows, macOS, and Linux.
3. The Navigator documentation includes the following:
    - Installation
    - Overview

- Getting started with Navigator
- Tutorials
- Updating Navigator
- Troubleshooting
- Help and support
- Release notes
- Glossary

## Use of Navigator:

- In order to run, many scientific packages depend on specific versions of other packages. Data scientists often use multiple versions of many packages and use multiple environments to separate these different versions.
- The CLI program conda is both a package manager and an environment manager. This helps data scientists ensure that each version of each package has all the dependencies it requires and works correctly.
- Navigator is a graphical interface that enables you work with packages and environments without needing to type conda commands in a terminalwindow. You can use it to find the packages you want, install them in an environment, run the packages, and update them – all inside Navigator.

## Tensor Flow:

- TensorFlow is Google Brain's second-generation system.
- Version 1.0.0 was released on February 11, 2017.
- While the reference implementation runs on single devices, TensorFlowcan run on multiple CPUs and GPUs (with optional CUDA and SYCL extensions for general-purpose computing on graphics processing units).
- TensorFlow is available on 64-bit Linux, macOS, Windows, and mobile computing platforms including Android and iOS.
- Its flexible architecture allows for the easy deployment of computation

across a variety of platforms (CPUs, GPUs, TPUs), and from desktops to clusters of servers to mobile and edge devices.

- TensorFlow computations are expressed as stateful dataflow graphs. The name TensorFlow derives from the operations that such neural networks perform on multidimensional data arrays, which are referred to as ***tensors*.**
- During the Google I/O Conference in June 2016, Jeff Dean stated that1,500 repositories on GitHub mentioned TensorFlow, of which only 5were from Google

## Keras :

- Keras is an opensource deep learning framework for python.
- It has been developed by at Googlenamed Francois Chollet an artificial intelligence researcher.
- Leading organizations like Google, Square, Netflix, Huawei and Uber are currently using Keras.
- This tutorial walks through the installation of Keras, basics of deep learning, Keras models, Keras layers, Keras modules and finally concludewith some real-time applications.

## Open cv:

OpenCV is a library of programming functions mainly aimed at real-time computer vision:

- Type “pip install NumPy” and click enter.
- Type “pip install pandas” and click enter.
- Type “pip install matplotlib” and click enter.
- Type “pip install scikit-learn” and click enter.
- Type "pip install tensor flow==1.14.0” and click enter.
- Type "pip install keras=2.2.4” and click enter.
- Type "pip install OpenCV-python” and click enter.
- Type “pip install Flask” and click enter.