**REQUIREMENTS:**

**Software Requirements**

Software requirements establish the agreement between your team and the customer on what the application is supposed to do. Without a description of what features will be included and details on how the features will work, the users of the software can't determine if the software will meet their needs.

The key software requirements required for the project are:

● Google colab

● Python

● Google Drive

● Google Earth Engine

● ArcMap GIS Software

**Google colab:**

Collaboratory, or “Colab” for short, is a product from Google Research. Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education. More technically, Colab is a hosted Jupyter notebook service that requires no setup to use, while providing free access to computing resources. Colab notebooks are stored in Google Drive, or can be loaded from GitHub. Colab notebooks can be shared just as you would with Google Docs or Sheets. Simply click the Share button at the top right of any Colab notebook, or follow these Google Drive file sharing instructions. Colab notebooks allow you to combine executable code and rich text in a single document, along with images, html, latex and more. When you create your own Colab notebooks, they are stored in your Google Drive account. You can easily share your Colab notebooks with co-workers or friends, allowing them to comment on your notebooks or even edit them. If you are familiar with the Jupyter Notebook, you can think of Google Colab as a supercharged version of the Jupyter Notebook, hosted on Google’s cloud servers, with 20 multiple convenient features. And if you are not familiar with it, do not worry, because this tutorial does not require any prior knowledge on Jupyter Notebook.

**Python:**

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasises readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms and can be freely distributed. Python code is reasonable for people, which makes it simpler to construct models for AI. Numerous software engineers state that Python is more intuitive than other programming dialects. Others bring up multiple systems, libraries, and augmentations that improve the execution of various functionalities.

**Rasterio:**

Geographic information systems use GeoTIFF and other formats to organise and store gridded raster datasets such as satellite imagery and terrain models. Rasterio reads and writes these formats and provides a Python API based on Numpy N-dimensional arrays and GeoJSON.

**Google Drive:**

Google Drive is a file storage and synchronisation service developed by Google. Google Drive allows users to store files in the cloud (on Google's servers), synchronise files across devices, and share files. Google Drive offers users 15 GB of free storage through Google One. We can change privacy settings for individual files and folders, including enabling sharing with other users or making content public. Our project makes use of Google Drive for storing all the images of the dataset and accessing them in the code through Google Collab.

**Google Earth Engine:**

Google Earth is a computer program that renders a 3D representation of Earth based primarily on satellite imagery. The program maps the Earth by superimposing satellite images, aerial photography, and GIS data onto a 3D globe, allowing users to see cities and 21 landscapes from various angles. Google Earth provides tools to measure distance, to overlay images. Our project uses Google Earth Engine to visualise the images and results, and overlay images

**Hardware Requirements**

• Processor: Intel Pentium

• RAM:1GB or more

• Hard Disk