**TOOLS:**

**Python**

Python is one of those rare languages which can claim to be both *simple* and powerful. The official introduction to Python is Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.I will discuss most of these features in more detail in the next section.

**Anaconda Navigator**

Anaconda Navigator is a desktop graphical user interface (GUI) included in Anaconda distribution that allows you to launch applications and easily 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. It is available for Windows, macOS, and Linux.

**Spyder**

Spyder is a powerful scientific environment written in Python, for Python, and designed by and for scientists, engineers and data analysts. It features a unique combination of the advanced editing, analysis, debugging, and profiling functionality of a comprehensive development tool with the data exploration, interactive execution, deep inspection, and beautiful visualization capabilities of a scientific package.

**ALGORITHM:**

* In machine learning, classification refers to a predictive modelling problem where a class label is predicted for a given example of input data.
* Classification is the task of predicting a discrete class label. Regression is the task of predicting a continuous quantity.
* In machine learning, classification is a supervised learning concept which basically categorizes a set of data into classes.
* Before classification, we should have split the data into test and train.
* Most of data’s are used for training and smaller portion of the data’s are used for testing.
* Training data is used for evaluate the model and testing data is used for predictive the model.
* After data splitting, we have to implement the classification algorithm.
* In our process, we have to use, support vector machine (SVM).
* **SVM** It is basically a representation of different classes in a hyper plane in multidimensional space.
* The hyper plane will be generated in an iterative manner by SVM so that the error can be minimized the goal of SVM is to divide the datasets into classes to find a maximum marginal hyper plane.
* Support Vector Machine (SVM) is a supervised machine learning algorithm that can be used for both classification and regression challenges.
* Support Vectors are simply the coordinates of individual observation. The SVM classifier is a frontier that best segregates the two classes (hyper-plane/ line).
* The choice of SVM for the model development task was informed by the fact that it is robust even with limited training data, and not prone to local extremum.
* SVM classifies training instances belonging to either of two classes by fitting a separation boundary (hyper plane) between the classes such that the margin between the boundary and either class is maximized.