

# TECHNOLOGIES USED

The machine learning technologies used in the customer churn prediction project

## CLASSIFICATION

Classification is a type of supervised machine learning technique in which a model is trained to predict the class or category of a new observation based on its characteristics or features. The goal of classification is to identify the underlying patterns in the data that distinguish different classes or categories.

In classification, the data is divided into a training set and a test set. The training set is used to train the model, and the test set is used to evaluate the performance of the model on unseen data.

Some classification algorithm are:

Here is a list of popular classification algorithms:

- **Logistic Regression:** A linear model that predicts the probability of a binary or categorical outcome.
- **Decision Trees:** A non-parametric model that uses a tree-like structure to make decisions based on the features of the data.
- **Random Forests:** An ensemble model that combines multiple decision trees to improve accuracy and reduce overfitting.
- **Support Vector Machines (SVM):** A linear or nonlinear model that maximizes the margin between different classes and separates them with a hyperplane.

## LIBRARIES USED

- **Scikit-learn:** A popular Python library used for machine learning. It includes a wide variety of machine learning algorithms, such as logistic regression, decision trees, and random forests, which are used in this project for customer churn prediction.
- **Pandas and Numpy:** Python libraries used for data manipulation and analysis, which are used extensively in data preprocessing and feature engineering for the machine learning models.
- **Matplotlib and Seaborn:** Python libraries used for data visualization, which are used to visualize the data and gain insights during exploratory data analysis.

## **PYTHON**

Python is a popular high-level programming language that is widely used in various domains such as web development, data analysis, scientific computing, artificial intelligence, and machine learning. Python is known for its simplicity, readability, and flexibility, which makes it a preferred choice among developers and data scientists.

Python has a vast ecosystem of libraries and frameworks that make it easier to perform complex tasks such as data manipulation, visualization, and machine learning.

### **Framework used :**

**Flask** is a popular web framework for Python that allows developers to quickly build web applications using Python. Flask is known for its simplicity and flexibility, and it is a preferred choice among developers who want to build small to medium-sized web applications.

Flask is a micro-framework, which means that it does not include many of the features and components that are commonly found in larger web frameworks. However, Flask provides a solid foundation for building web applications and can be extended using various plugins and extensions.