# PROJECT OVERVIEW

**Project Title:** Stock Price Prediction

**Problem Definition:** The problem is to build a predictive model that forecasts stock prices based on historical market data. The goal is to create a tool that assists investors in making well-informed decisions and optimizing their investment strategies. This project involves data collection, data preprocessing, feature engineering, model selection, training, and evaluation.

**Dataset Link:** https://www.kaggle.com/datasets/prasoonkottarathil/microsoft-lifetime-stocks-dataset

**Design Thinking:**

**1.Data Collection:** Collect historical stock market data, including features like date, open price, close price, volume, and other relevant indicators.

**2.Data Preprocessing:** Clean and preprocess the data, handle missing values, and convert categorical features into numerical representations.

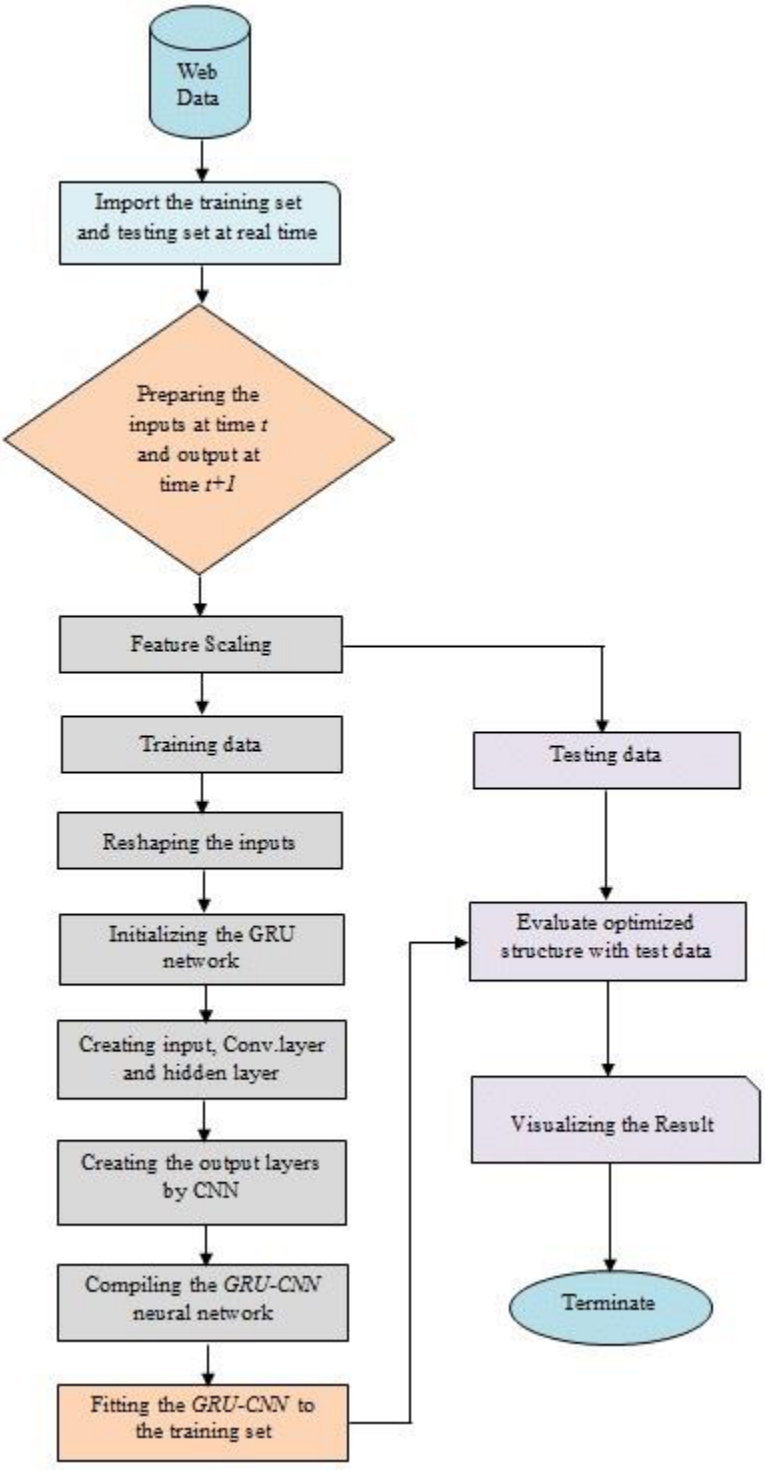
**3. Feature Engineering:** Create additional features that could enhance the predictive power of the model, such as moving averages, technical indicators, and lagged variables.

**4. Model Selection:** Choose suitable algorithms for time series forecasting (e.g., ARIMA, LSTM) to predict stock prices.

**5. Model Training:** Train the selected model using the preprocessed data.

**6. Evaluation:** Evaluate the model's performance using appropriate time series forecasting metrics (e.g., Mean Absolute Error, Root Mean Squared Error).

**FLOWCHART:**


Web Data
Import the training set and testing set at real time
Preparing the inputs at time t and output at time t+1
Feature Scaling
Training data
Reshaping the inputs
Initializing the GRU network
Creating input, Conv.layer and hidden layer
Creating the output layers by CNN
Compiling the GRU-CNN neural network
Fitting the GRU-CNN to the training set
Testing data
Evaluate optimized structure with test data
Visualizing the Result
Terminate