# Data Analysis Project Proposal

## 1. Introduction

This project aims to perform an in-depth analysis of stock price data from 2015 to 2021 for ten leading companies: Apple, Amazon, Netflix, Microsoft, Google, Facebook, Tesla, Walmart, Uber, and Zoom. The dataset includes daily records of opening, closing, high, and low prices, trading volumes, and adjusted closing prices. The project will apply data analysis tools such as NumPy, Pandas, Matplotlib, Power BI, and SQL to explore patterns, compare performance trends, and visualize financial insights.

## 2. Objectives

- Perform exploratory data analysis (EDA) to identify stock performance trends.

- Visualize stock price movements using Matplotlib and Power BI.

- Compare stock growth between companies across different years.

- Analyze trading volume and volatility trends over time.

- Apply SQL queries for data extraction and aggregation.

- Perform basic predictive analysis on stock prices using historical data.

## 3. Methodology

The methodology includes several phases combining Python-based analysis and visualization tools:  
  
• Data Collection: Load and preprocess the dataset in CSV format.  
• Data Cleaning: Handle missing values, correct data types, and remove inconsistencies.  
• Exploratory Data Analysis (EDA): Use Pandas, NumPy, and Matplotlib to uncover trends and patterns.  
• Visualization: Develop interactive dashboards in Power BI to display stock performance.  
• SQL Integration: Query and aggregate data for deeper insights into company-wise performance.  
• Predictive Modeling: Build a simple forecasting model for future stock trends using historical patterns.

## 4. Tools and Technologies

- Python (NumPy, Pandas, Matplotlib)

- Microsoft Power BI

- SQL for data querying and transformation

- Jupyter Notebook or Visual Studio Code for implementation

## 5. Project Timeline

- Week 1: Data collection, exploration, and cleaning.

- Week 2: Exploratory Data Analysis (EDA) and visualizations using Python.

- Week 3: Power BI dashboard development and SQL-based data operations.

- Week 4: Predictive analysis, documentation, and final presentation preparation.

## 6. Expected Outcomes

- A comprehensive stock performance comparison report between the ten companies.

- Interactive dashboards and visual insights highlighting growth trends.

- SQL-based analytical queries to support financial decision-making.

- Predictive analysis on potential stock trends using historical patterns.