Project Overview

**Objective**

This project aims to analyze NIFTY50 stock prices to understand risks, relationships between stocks, and investment opportunities. The analysis uses statistics and financial indicators to give useful insights for investors.

**Key Analyses**

1. **Data Preparation:**
   * Checked for missing data and fixed date formats.
   * Dropped columns with all missing data.
   * Sorted the data for time series analysis.
2. **Portfolio Analysis:**
   * Built a portfolio with weights assigned to three stocks.
   * Calculated daily returns, portfolio returns, and risk metrics like volatility and VaR (Value at Risk).
3. **Correlation Analysis:**
   * Used a heatmap to visualize the relationships between stock returns.
4. **Moving Averages and RSI:**
   * Plotted 5-day and 20-day moving averages for RELIANCE.NS.
   * Calculated the RSI (Relative Strength Index) to identify overbought or oversold conditions.
5. **Sharpe Ratio:**
   * Computed Sharpe Ratios to measure risk-adjusted returns for selected stocks.

**Findings**

* ICICIBANK had the highest volatility and the best risk-adjusted returns.
* Correlation analysis showed moderate to strong relationships between some stock pairs.
* RSI analysis suggested RELIANCE.NS was mostly neutral but offered occasional buying opportunities.
* Sharpe Ratio analysis highlighted ICICIBANK as the best investment option in the portfolio.