

Assignment: EDA & Interactive Dashboard Assignment

Assignment Brief

Submission: GitHub Repository + Live Streamlit Link

Total Points: 100

Objective

Create an interactive dashboard by performing Exploratory Data Analysis on either stock market data or COVID-19 data. Deploy your solution as a web application.

Requirements Checklist

Step 1: Data & EDA (40 points)

Data Selection & Loading (10 points)

- Choose stock OR COVID dataset
- Load data using appropriate libraries
- Clean missing values and handle date formats
- Create derived features (moving averages, growth rates, etc.)

Statistical Analysis (15 points)

- Calculate descriptive statistics (mean, median, std)
- Perform correlation analysis
- Conduct time series decomposition
- Analyze data distributions

Initial Visualizations (15 points)

- Create time series line charts
- Plot distributions (histograms/box plots)
- Generate correlation heatmaps
- Show seasonal patterns

Step 2: Interactive Dashboard (40 points)

Plotly Charts (25 points)

- Minimum 4 different interactive chart types
- Time series with range selector
- Candlestick (stocks) OR geographical maps (COVID)
- Interactive correlation matrix
- Scatter plots with hover information

Dashboard Layout (15 points)

- Sidebar with filters and controls
- Organized multi-section layout
- Clear titles and labels throughout
- Responsive and user-friendly design

Step 3: Deployment (20 points)**GitHub Repository (10 points)**

- Complete README with project description
- Requirements.txt file included
- Organized folder structure
- Meaningful commit history

Streamlit Deployment (10 points)

- Successfully deployed on Streamlit Cloud
- Fully functional application
- No runtime errors
- Accessible via public URL

Dataset Options**Option A: Stock Data**

- Source: yfinance library
- Suggested: AAPL, TSLA, GOOGL, or your choice
- Timeframe: Last 2-5 years
- Data: Open, High, Low, Close, Volume

Option B: COVID-19 Data

- Source: Johns Hopkins dataset
- Scope: Global or country-specific
- Timeframe: Pandemic period
- Data: Cases, deaths, recoveries, vaccinations

Submission Items**Required for Submission:**

1. GitHub repository URL
2. Live Streamlit application URL

3. Working interactive dashboard
4. Complete source code

Grading Focus:

- EDA depth and insights (40%)
- Visualization quality and interactivity (25%)
- Dashboard functionality (15%)
- Deployment and documentation (20%)