**Slide 1: Introduction** Hello everyone, **<Sibani>**

I am Sibani Panda, and today, I am excited to present the insights from our Stock Market Analytics capstone project. This project was a collaborative effort with my teammates—Tushar Gupta and Smith Desai.

Our project falls under Finance and Risk Analytics, where we focused on analyzing stocks and creating an optimized investment portfolio. With stock markets being highly volatile, our objective was to provide data-driven investment recommendations that align with different risk appetites and financial goals.

**Slide 2: Agenda** Here’s what we’ll be covering in today’s presentation: **<Sibani>**

* **Objective** – Understanding why this analysis is important.
* **Methodology** – Steps we followed for data cleaning and analysis.
* **Insights and Visualizations** – Key observations from our data analysis.
* **Portfolio Analysis** – Investment recommendations for two investors.

**Slide 3: Objective <Sibani>**

The stock market is a popular avenue for wealth creation, but many investors either lack the expertise or the time to make informed decisions. This is where portfolio managers step in to help individuals and businesses maximize their returns while managing risks.

In this project, we take on the role of a portfolio manager at an investment firm. Our goal is to analyze stock portfolios and provide investment recommendations tailored to the needs of two investors—Mr. Patrick Jyengar and Mr. Peter Jyengar.

* Mr. Patrick Jyengar is a conservative investor looking for stable, low-risk investments to support his post-retirement life.
* Mr. Peter Jyengar is an aggressive investor who seeks high returns within a short time frame for business expansion.

Our task was to analyze the stock market and develop suitable investment strategies for these investors.

**Slide 4 : Methodology <Nothing to speak>**

**Slide 5: Exploratory Data Analysis and Data Cleaning <Sibani>**

Before diving into stock selection, we performed extensive data cleaning and analysis:

* We checked for missing values and handled inconsistencies.
* We identified and treated outliers where necessary.
* We filled missing data points for Facebook since it was listed on the NYSE only after 2012.

For analysis, we calculated:

* **Daily Returns** – To measure stock price fluctuations.
* **Cumulative Daily Returns** – To track the overall trend of a stock.
* **Sharpe Ratios** – To measure risk-adjusted returns.
* **Portfolio Risk and ROI** – To assess the performance of different stocks.

Using these metrics, we identified stocks that performed well over the past five years.

**Slide 6: Insights and Visualizations <Nothing to Speak>**

**Slide 7: Stocks Data Available <Sibani>**

Our dataset contained 24 stocks across four sectors: Technology, Finance, Pharma & Healthcare, and Aviation. We also compared their performance with the S&P 500 index, a benchmark representing the top 500 stocks in the US.

Using Power BI, we visualized:

* Stock price trends.
* Sector-wise performance.
* Correlations between stocks.

These insights helped us identify the best-performing stocks for portfolio recommendations.

**Slide 8: VISUALIZATION OF STOCKS AFTER NORMALIZING THE VALUES <Tushar>**

After normalizing stock values, we compared their performance over 10 years.

* Most stocks followed the general market trend, but some significantly outperformed the S&P 500.
* Facebook’s data started only from 2012 due to its IPO.
* We also built an interactive dashboard for sector-wise analysis.

**Slide 9: Aviation Sector Analysis <Tushar>**

* The Aviation sector was **not correlated** with the S&P 500.
* The market suffered a massive hit in 2020 due to the COVID-19 pandemic, causing a **bear market**.
* While the overall market recovered, Aviation stocks **underperformed**.
* We found positive correlations between certain airlines like Delta, Southwest, and Allegiant Travel.

**Slide 10: Finance Sector Analysis <Tushar>**

* The Finance sector is **positively correlated** with the S&P 500.
* In 2020, the market crash hit finance stocks, but major firms like Morgan Stanley and Goldman Sachs **recovered well** and even outperformed their sector.
* These two stocks showed strong positive correlation, indicating similar market behavior.

**Slide 11: Pharma & Healthcare Sector Analysis <Tushar>**

* Pharma & Healthcare stocks had **positive correlation** with S&P 500.
* This sector showed **significant growth during the pandemic**, as demand for healthcare services surged.
* However, Bausch Health Companies Inc. remained stagnant over the last five years.
* Overall, this sector was **strong and resilient**.

**Slide 12: Technology Sector Analysis <Tushar>**

* The **Technology sector had the highest correlation** with S&P 500.
* Unlike other sectors, tech stocks **rebounded quickly** after the 2020 crash.
* Most stocks, except IBM, consistently outperformed the market.
* Companies like Amazon, Microsoft, Google, Apple, and Facebook dominated the sector.

**Slide 13 & 14: Stock Performance Over the Last 5 Years <Smith>**

We created a dashboard to analyze stock performance over the past 5 years.

* The **top-performing stocks** with annualized returns higher than S&P 500 were:
  + **Amazon (40.59%)**
  + **Microsoft (34.95%)**
  + **Apple (33.32%)**
  + **Facebook (26.45%)**
  + **UnitedHealth (23.72%)**
  + **Google (21.02%)**
  + **Morgan Stanley (14.55%)**
* In contrast, the S&P 500 had **13.04% annual returns**.

**Slide 15: ANNUALIZED RETURN & ANNUALIZED RISK <Smith>**

* Stocks with the highest **annualized returns** included AMZN, MSFT, AAPL, FB, and UNH.
* Higher returns often come with **higher risk**, meaning there’s a tradeoff between potential gain and stability.
* Some stocks like JNJ, RHHBY, and MRK provided **moderate returns with low risk**, making them safer options.

**Slide 16 : Portfolio Analysis <Nothing to Speak>**

**Slide 17 & 18: Portfolio Recommendations <Smith>**

**For Mr. Patrick Jyengar (Conservative Investor):**

* Prefers **low-risk investments** for steady growth.
* We recommended a **diversified portfolio** including:
  + **Johnson & Johnson**
  + **Roche Holding**
  + **Google)**
  + A **small allocation to MSFT** to balance returns.

**For Mr. Peter Jyengar (Aggressive Investor):**

* Prefers **high-risk, high-reward stocks**.
* We recommended:
  + **Amazon**
  + **Microsoft**
  + **Apple**
  + **Google**
  + **Facebook**
* These stocks align with his goal of maximizing returns within five years.

**Slide 19: Thank You <Smith>**

In summary:

* We analyzed **stock market trends and risks** across different sectors.
* We identified the **top-performing stocks** and sector-wise correlations.
* We designed **personalized investment portfolios** based on risk appetite and financial goals.

This project helped us understand the importance of **data-driven decision-making** in finance, providing valuable insights for smart investments.

Thank You !!