**INTERNSHIP REPORT**

NAME: Pratham Patil

Title: Google Play Store Analysis

**Introduction**

This project develops an interactive dashboard using Python, Plotly and Dash to analyze Google Play Store app data. It visualizes key metrics—installs, revenue, ratings, and reviews—through multiple dynamic plots, each conditionally displayed based on specific time windows. The dashboard enables targeted, real-time insights for data-driven decision-making.

**Study Background**

In today’s competitive mobile app landscape, understanding user engagement and financial performance is crucial. This project analyzes a comprehensive Google Play Store dataset, focusing on key metrics such as installs, revenue, ratings, and reviews. By leveraging interactive visualization tools (Plotly and Dash), the study transforms raw data into actionable insights that inform strategic decisions in app development and marketing. Additionally, conditional visualization based on time windows enables targeted monitoring of trends and performance metrics, aligning data insights with specific business needs**.**

**Learning Objectives**

* Data Processing Proficiency
* Interactive Visualization
* Dashboard Development
* Conditional Display Techniques

**Activities and Task**

* Data cleaning and Transformation
* Interactive Plot Development
* Saving plots as HTML
* Dashboard Development
* Testing and Debugging

**Skills and Competencies**

* Python Programming and Data Analysis
* Data Cleaning and Transformation
* Dashboard development with dash
* Web Development Basics
* Time series and correlation Analysis
* Deployment and browser integration
* Conditional logic and Dynamic Display

**Challenges and solutions**

1. **Sparse Data after filtering**.

Challenge: Strict filtering criteria resulted in very few data points and sometimes limited coverage.

Solution: We adjusted time axis formatting to display both month and year, ensuring clarity on time points. We also refined filtering logic to better balance data.

1. **Conditional display based on time.**

Challenge: Implementing visibility for plots was complex task, particularly ensuring that the dashboard updated dynamically based on current time

Solution: we implemented a **Dash** to check the current IST time. This callback conditionally rendered each plot’s IFRAME based on defined time intervals ensuring the correct plot on given time.

1. **Redirecting dashboard to open in Chrome**.

Challenge: The dashboard was not automatically opening in chrome as desired; sometimes it would open in notebook or in a different browser.

Solution: We used python **Web-browser** module with a correctly specified path to the chrome execution.

**Outcomes and Impact**

**Outcomes**:

* Developed an interactive, web-based dashboard using Python, Plotly, and Dash.
* Successfully integrated multiple visualizations—including a dual-axis chart, grouped bar chart, time series trend line, and a correlation Heatmap each providing insights into key metrics like installs, revenue, ratings, and reviews.
* Implemented conditional, time-based display logic to ensure that specific plots are visible during designated time windows.
* Strengthened skills in data cleaning, transformation, and dynamic dashboard development.

**Impact:**

* Enables real-time monitoring of app performance, allowing stakeholders to access targeted insights at strategic intervals.
* Supports data-driven decision-making by visually correlating user engagement metrics with financial outcomes.
* Demonstrates a scalable approach for creating interactive analytics tools, which can be adapted for broader business intelligence applications**.**

**Conclusion**

This project successfully demonstrates how to transform raw Google Play Store data into actionable insights through interactive visualizations and a dynamic web dashboard. By leveraging Python, Plotly, and Dash, we built a comprehensive dashboard that not only visualizes key metrics such as installs, revenue, ratings, and reviews, but also conditionally displays specific plots based on defined time windows. This approach enables stakeholders to access targeted insights in real time, supporting more informed, data-driven decision-making.

Throughout the project, we navigated challenges including sparse data after strict filtering, embedding external HTML plots into a web dashboard, and implementing time-based conditional rendering. Addressing these challenges enhanced our technical skills in data processing, interactive visualization, and web development—all critical competencies for modern data analysis and dashboard design.

Overall, the project lays a robust foundation for future work, such as integrating real-time data feeds or further refining the filtering and display logic, and serves as a scalable template for building similar analytical dashboards in diverse business contexts.