Professional Report on Streamlit App and Jupyter Notebook

# Introduction

This report provides an overview of the project, focusing on the development of a Streamlit app and a Jupyter Notebook related to Spotify data analytics in Argentina. The report includes details on the application’s interface, functionalities, and code execution, along with descriptions of data analysis processes used in both tools.

# Streamlit Application Overview

The Streamlit app is designed to visualize data from Spotify's Argentina region and enables users to explore various aspects of the dataset, such as the most streamed songs, artist rankings, and stream trends. The application allows users to interact with the data through a sidebar, where they can select from different visualizations and questions.

## Key Features:

1. Custom Styling:  
 - The app uses custom CSS to enhance the user interface, including a background image related to Spotify and a transparent sidebar for a clean, aesthetic look.  
2. Data Loading:  
 - The data is loaded using pd.read\_csv('data.csv'), where df represents the Spotify data for Argentina.  
3. Interactive Visualizations:  
 - The sidebar allows users to choose between viewing the raw DataFrame, summary statistics, or answering specific analytical questions.

## Visualization Options:

1. Top 10 Most Streamed Songs: Displays a bar chart for the top 10 most streamed songs.  
2. Average Streams per Artist: Shows a bar chart of the average number of streams per artist.  
3. Trend of Streams Over Time: Provides a line chart of the trend of streams over a given period.  
4. Top 5 Artists by Total Streams: Shows the top 5 artists in terms of total streams.  
5. Comparison of Streams Between Two Artists: Users can select two artists and compare their stream trends.  
6. Bar Chart of Trends: Displays the count of different trends within the dataset.  
7. Argentina Streams Over Time: Shows a line chart that visualizes the streams in Argentina over time.  
8. Most Monthly Streams Each Year: Identifies and displays the month with the most streams for each year.

# Jupyter Notebook Overview

The notebook provides a comprehensive data analysis environment, focusing on deeper insights into the Spotify dataset. The notebook is set up for analytical exploration and pre-processing steps such as handling missing data and generating visualizations.

## Data Analysis Objectives:

1. Missing Data Handling: The notebook addresses missing values in the streams column, as noted in the exploratory phase, ensuring data accuracy.  
2. Exploratory Data Analysis (EDA): Various statistical methods, including data summary, aggregation, and visualization techniques, are used to extract insights from the dataset.  
3. Visualizations: The notebook generates visualizations like bar charts, line graphs, and histograms to summarize key metrics such as song streams, artist popularity, and streaming trends over time.

# Conclusions and Recommendations

Both the Streamlit app and the Jupyter Notebook serve as powerful tools for analyzing Spotify’s Argentina dataset. The Streamlit app offers an interactive platform for data visualization and answering specific business questions, while the Jupyter Notebook provides an in-depth analytical environment for exploring trends and preparing data for visualization.

## Future Work:

1. Incorporating predictive analytics to forecast streaming trends.  
2. Enhancing the visual appeal of the app by adding more customizations and options for exporting the visualizations.