

Report: Design and Implementation of QueryYourCSV App

Developer Details

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Application Code Link: [Query Your CSV](#)

Overview of the App

The "QueryYourCSV" app is designed to empower users to analyze and interact with their CSV data interactively. It allows users to upload CSV files, perform basic statistical analysis, generate plots, and query the data using natural language prompts.

Design Considerations

Architecture

The application follows a client-server architecture. The client interacts with the application through a web interface built using Streamlit. The server handles file uploads, data processing, and responding to user queries.

User Interface

The user interface is intuitive, with clear instructions and interactive elements for uploading files and entering prompts. Streamlit is used to create the web interface, providing a smooth user experience.

Key Features

- Upload CSV Files: Users can upload CSV files for analysis.
- Statistical Analysis: Basic statistical measures such as mean, median, mode, standard deviation, and correlation coefficient are calculated.
- Plot Generation: Various plots including histograms, scatter plots, and line plots can be generated.
- Natural Language Query: Users can enter natural language prompts to query the data.

Implementation Details

Technologies Used

- Python: The application is built using the Python programming language.
- Libraries: Pandas, Seaborn, Matplotlib, Streamlit, Dotenv, and Google Generative AI libraries are utilized for data manipulation, visualization, web interface creation, and natural language processing.
- LLM: Google's Generative AI is used for generating responses to user queries based on the provided prompt.

Code Structure

- main.py: The main script contains the core functionalities of the application including file upload, data processing, user interaction, and response generation.
- README.md: Provides instructions on how to use the application.
- requirements.txt: Lists all the required dependencies for the application.