AI-Powered Developer Performance Analytics Dashboard

Methodology

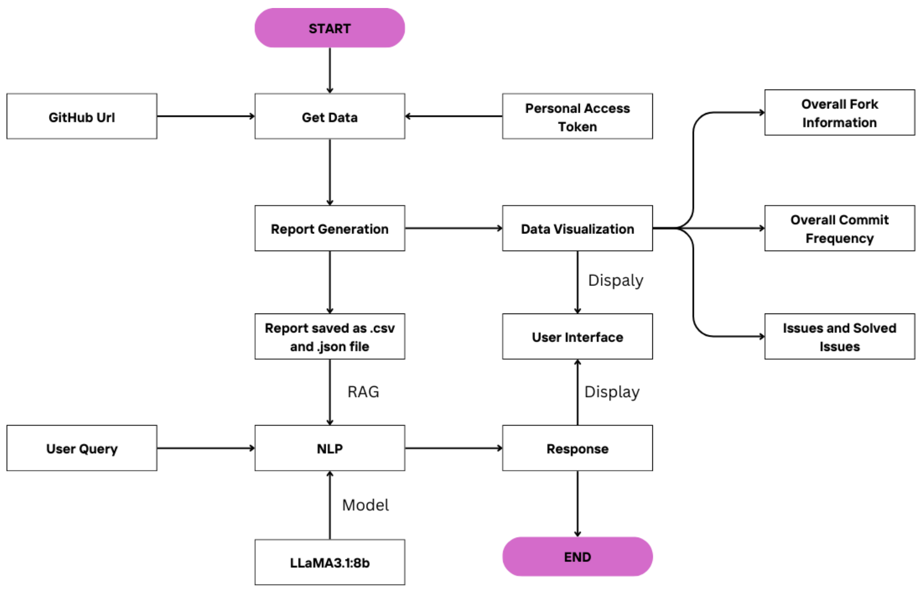
1. Data Collection: The system retrieves data from GitHub by using a **personal access token** and a specified **repository URL**. This ensures secure access to repository information. The main data collected includes **fork statistics**, **commit frequency**, and **issue tracking (open/closed issues)**. These metrics are essential for assessing the activity and health of a repository. The system is flexible enough to handle both private and public repositories.

2. Data Processing & Report Generation: After data is gathered, it undergoes processing to generate meaningful insights. The processed data is organized into a structured format, with reports automatically generated in **.csv** and **.json** formats for easy sharing and further analysis. These reports contain crucial information such as the number of forks, the rate of commits, and the status of issues (open, closed, in-progress). This step ensures that key repository metrics are both captured and presented in a user-friendly format.

3. Data Visualization: To facilitate understanding, the system presents data through a **visualization dashboard**. This dashboard displays key metrics like **overall fork information**, **commit frequency trends**, and the **status of issues**. The visualizations offer users an at-a-glance overview of repository health and activity, allowing for quick assessments without needing to parse through raw data.

4. Natural Language Processing (NLP) & Model Integration: Users interact with the system through natural language queries. An **NLPProcessor** linked to a **LLaMA3.18b** model processes these queries. By using **retrieval-augmented generation (RAG)**, the system searches for relevant information based on the user's question and generates a context-aware response. For example, users can ask about the current number of open issues or the most active period for commits, and the system will respond with accurate data.

5. User Interface: The system provides a **user-friendly interface** where data visualizations and responses to queries are displayed in a clean and interactive format. The UI is designed to allow both technical and non-technical users to easily navigate, request data, and interpret results.


START
GitHub Url
Get Data
Personal Access Token
Overall Fork Information
Report Generation
Data Visualization
Overall Commit Frequency
Dispaly
Report saved as .csv and .json file
User Interface
Issues and Solved Issues
RAG
Display
User Query
NLP
Response
Model
LLaMA3.1:8b
END