Mobile Phone Information Chatbot: Project Overview

Project Approach

This project implements a sophisticated chatbot that provides information about mobile phones by scraping data from GSMArena. The approach combines web scraping, natural language processing, and intent recognition to create an intelligent assistant that can understand and respond to various types of phone-related queries.

Key Components:

1. Intent Detection System: The chatbot uses a hybrid approach combining rule-based pattern matching and a transformer-based NLP model to understand user queries. It can recognize multiple intents:

- Latest/trending phones requests
- Phone specification inquiries
- Phone comparison requests
- Basic conversational intents (greetings, help)

2. Web Scraping Functionality: The system scrapes GSMArena to provide up-to-date information about phones, including:

- Trending phones with popularity metrics
- Detailed phone specifications organized by category
- Comparative data between phone models

3. Natural Language Understanding: The implementation uses the Hugging Face transformers library with a zero-shot classification model to understand complex queries that don't match simple patterns.

4. Robust Phone Name Extraction: The code includes sophisticated regular expression patterns and handling for extracting phone names from natural language queries, with special handling for iPhone variants.

5. Structured Response Generation: Responses are formatted with emoji and clear organization to improve readability, particularly for specification data and comparisons