Project Report: Slang Savvy - Urban Slang Decoder

1. Introduction

Slang Savvy is an AI-powered slang decoding application that integrates Urban Dictionary's slang database with Google's **Gemini AI** to provide accurate meanings and contextual examples of modern slang. It helps users, including non-native speakers, educators, content creators, and professionals, to understand and use slang appropriately.

2. Objectives

- Develop an intuitive platform for decoding slang.
- Provide AI-generated contextual examples for slang usage.
- Maintain an updated slang database using AI models.
- Ensure user-friendly interaction through a simple UI.

3. Technology Stack

- **Frontend**: Streamlit (for user interface),HTML,CSS
- **Backend**: Python
- **AI Model**: Google Gemini API
- **Database**: Urban Dictionary API integration
- **Hosting**: Streamlit Cloud

4. System Architecture

1. **User Input**: Users enter a slang term.
2. **API Request**: The input is processed via **Google Gemini API**.
3. **Response Generation**: AI decodes the slang and generates examples.
4. **Display**: The result is presented in a clean and readable format.

5. Features

- **Slang Interpretation**: Converts slang into understandable English.
- **Contextual Examples**: AI-generated usage in sentences.
- **Trending Slang Updates**: Dynamic updates from Urban Dictionary.
- **User-Friendly Interface**: Simple and interactive UI via Streamlit.
- **Error Handling**: Ensures graceful fallback for API failures.

6. Implementation

- **Frontend**: A Streamlit-based interface that allows users to input slang terms.
- **Backend**: Python API handling requests and responses via **Google Gemini AI**.
- **Integration**: Connection with external slang databases for real-time updates.

- **Deployment**: Hosted on cloud services for accessibility.

7. Challenges & Solutions

Challenge	Solution
API Rate Limits	Optimized API calls and caching
Slang Context Variability	AI-powered multiple-definition generation
Response Speed	Preloading common slang definitions
Security	API keys managed through environment variables

8. Future Enhancements

- **Multilingual Slang Support**: Expand to different languages.
- **Voice Input Feature**: Users can speak slang for decoding.
- **Community Contributions**: Users can submit and vote on meanings.
- **Mobile App Version**: Extend SlangSavvy to iOS & Android.

9. Conclusion

SlangSavvy effectively bridges the gap between slang usage and comprehension by leveraging AI-driven decoding and contextual understanding. It serves as a valuable tool for individuals and professionals navigating modern linguistic trends.

10. References

- Google Gemini API Documentation
- Urban Dictionary API
- Streamlit Framework Documentation

Prepared by: [K.Pranaydeep]

Prepared by: [P.Sana]

Prepared by: [K.Sravanthi]

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