Infinite Interact: Multi-Agent Operational Suite

Team Name: Bay Area Rockers

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Team Members:

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Project Overview

- Infinite Interact is a comprehensive suite of AI agents developed for CMPE 258
- Leverages powerful language models like GPT-3 via OpenAI API
- Utilizes LangChain library to build applications with LLMs
- Suite consists of 5 distinct agents for various operational tasks

Objectives

- Automate repetitive and complex operational tasks using AI
- Significantly enhance productivity and streamline workflows
- Showcase the versatility of AI in handling diverse data types
- Provide intelligent solutions for video transcription, data analysis, documentation, and web scraping

Related Work

- CrewAI: Framework for collaborative multi-agent AI systems
- Dialogflow: Google's platform for building conversational interfaces (chatbots, voice apps)
- OpenAI GPT-3: One of the most advanced language models for text generation and understanding
- LangChain: Facilitates building applications by chaining LLMs with other components

Supported Data Types

- AssemblyAI Agent: Processes YouTube video URLs, downloads videos, generates transcriptions
- PandasAI Agent: Accepts CSV file uploads, queries data, generates plots/visualizations
- Presentation Agent: Converts Jupyter Notebook (.ipynb) files into PowerPoint presentations
- README Agent: Generates comprehensive README files from specified file paths
- Web Scraping Agent: Scrapes web pages based on provided URLs, allows querying scraped data

Multimedia Agent

- Retrieves YouTube videos by supplying video URL
- Downloads the video in desired format (mp4, etc.)
- Calls AssemblyAI API to generate transcription from video
- Allows users to query the transcribed text using natural language
- Leverages OpenAI's language model for understanding queries

PandasAI Agent

- Users can upload CSV files containing tabular data
- Utilizes Pandas library for data manipulation and analysis
- Accepts natural language queries about the CSV data
- Generates relevant plots and visualizations (scatter, bar, line, etc.)
- Provides statistical insights based on the queried data

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Presentation Agent

- Designed to create PowerPoint presentations from Jupyter Notebooks
- Accepts .ipynb file as input
- Parses notebook content (code, markdown, visuals) using LangChain
- Intelligently structures extracted content into presentation slides
- Generates visually appealing slides with formatted code, charts, etc.

README Agent

- Automates README file generation for projects
- Takes project file path as input
- Analyzes files and extracts relevant information
- Generates structured README with sections like overview, installation, usage
- Ensures comprehensive and consistent documentation

Web Scraping Agent

- Accepts a website URL for scraping
- Scrapes relevant data from the web page
- Stores scraped data in a structured format
- Allows users to query the scraped data using natural language
- Provides intelligent responses based on scraped content

Data Management

- Project data organized in a shared repository
- Each agent has a dedicated folder for input/output files
- Clear separation of transcripts, CSV files, presentations, etc.
- Ensures efficient data access and reduces clutter

Conclusion

- Demonstrated AI's transformative impact on automating ops tasks
- Developed versatile agents for video, data, documentation, and web
- Improved productivity by streamlining complex workflows
- Highlighted collaborative efforts and innovative solutions