

SEM VI PROJECT SUMMARY

PROJECT TITLE

VocabularyCLI

TEAM MEMBERS

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PROJECT DESCRIPTION

VocabularyCLI is a lightweight Command Line Interface that allows users to look up word definitions, examples, synonyms and antonyms directly via the command line. Powered with several utility based commands our CLI offers rapid and robust Knowledge Base capabilities like Flashcards, Tagging, Word Management, Graph Reporting, Bulk import and export of word lists and is a definitive software for linguaphiles.

This application boasts a simple and intuitive interface that is easy to use and is a must have for anyone who wants to expand their vocabulary and improve their language skills. The app also offers advanced Text Classification and Processing via the use of Natural Language Processing and Machine Learning algorithms which will be discussed in detail in the "Scope and Features" section.

The CLI will be offered with eye-catching Panels, Tables, Animated Symbols, Emojis, Interactive Menus, Spinners, Colored fonts and other rich features that will make the user experience more enjoyable and interactive. The CLI will also be offered with a comprehensive User Manual and a detailed Documentation that will help users get started with the CLI and use it to its full potential.

TECHNOLOGY AND LIBRARIES INVOLVED

- **Primary Development Language:** Python 3.10
- **Database Management System:** SQLite3
- **API:** DictionaryAPI <https://api.dictionaryapi.dev/api/v2/entries/en/hello>
- **Deployment:** PyPi (Python Package Index)
- **Libraries:** Rich, Typer, Matplotlib, Seaborn, NLTK, SpaCy, Pandas, Numpy, Requests, Beautiful Soup, PyDictionary
- **Testing:** PyTest (Unit Testing), PyTest-Cov (Code Coverage), PyTest-Benchmark (Benchmarking)
- **Documentation:** Sphinx, ReadTheDocs

SCOPE AND FEATURES

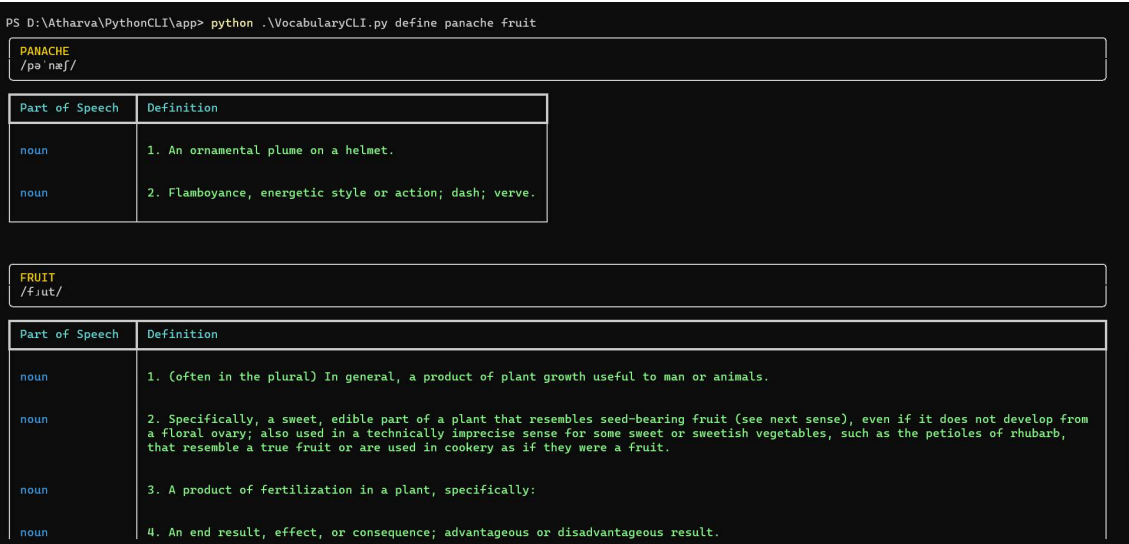
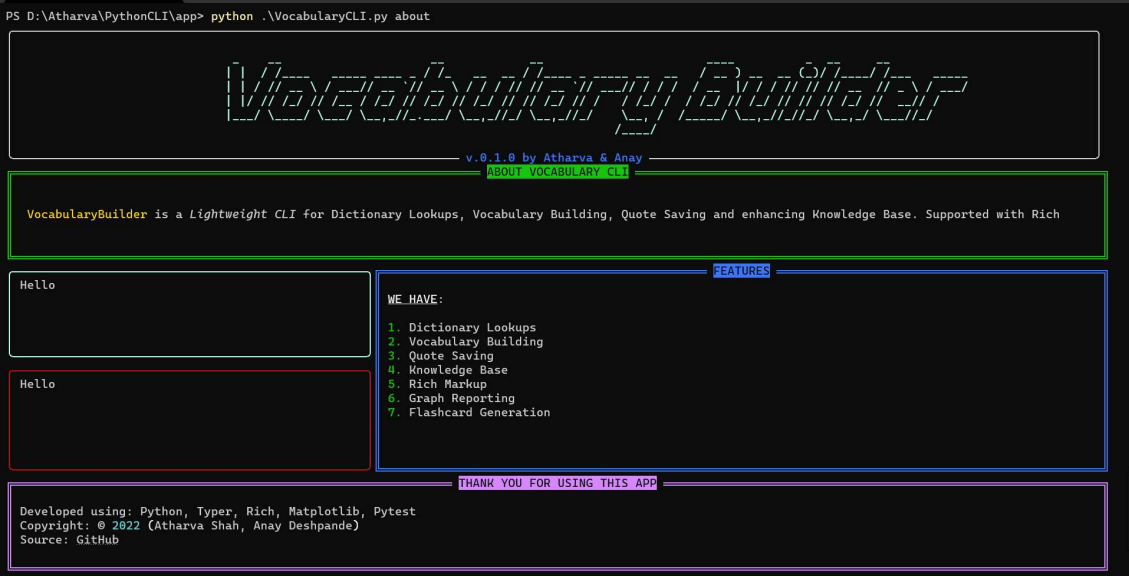
The CLI will be able to perform the following tasks, via commands:

- Look up word definitions, examples, homonyms, synonyms and antonyms
- Generate flashcards for words
- Tag words, set words as favorites, set words as learning, set words as mastered
- Generate Graph Reports
- Import and Export word lists in PDF and CSV formats
- Show word lookup history and word lookup statistics
- Perform Text Classification and Processing and Summarize Web Articles
- Delete words from the database and clear attributes associated with the words
- Revise words and ready-made word collections
- Quiz Mode
- TTS (Text to Speech) Mode and Accessibility Mode
- Paraphrase Text and Generate Word Clouds
- Detect Plagiarism and Generate Similarity Scores
- Determine Readability Index and Filter out offensive words
- Generate Word Frequency Distributions
- Save User Quotes and Provide Quotes of the Day
- Determine Word Sentiment and Generate Sentiment Analysis Reports
- More to follow...

PROJECT LEARNING OUTCOMES

1. Writing beautiful, interactive CLI from scratch using Python
2. Working with APIs, handling JSON queries and responses
3. Working with Databases, DB architecture modeling, caching, data and state management and SQL queries
4. Working with Natural Language Processing and Machine Learning algorithms
5. Automated Unit Testing, Code Coverage and Benchmarking using PyTest
6. Automatic Documentation Generation from docstrings using Sphinx and ReadTheDocs
7. Publishing a Real World Python Package on PyPi and managing its lifecycle in an open source environment
8. Utilizing Git and GitHub for version control and project management
9. Modern, clean and efficient coding practices, principles and design patterns

SNAPSHOTS



```
PS D:\Atharva\PythonCLI\app> python .\VocabularyCLI.py --help
Usage: VocabularyCLI.py [OPTIONS] COMMAND [ARGS]...

■ This is a dictionary and a vocabulary builder CLI.

Options
--install-completion  Install completion for the current shell.
--show-completion     Show completion for the current shell, to copy it or customize the installation.
--help               Show this message and exit.

Vocabulary Builder
about  📖 About the software
bye    📖 Exits the CLI
clear  📖 Clears all lists
define 📖 Lookup a word in the dictionary
delete 📖 Deletes the word from the database
favorite 📖 Sets a word as favorite
history 📖 Gives the word history of a word
learn  📖 Sets a word as learning
list   📖 Lists of all your looked up words
master 📖 Sets a word as mastered
random 📖 Gets a random word
rate   📖 Learning Rate gives the number of words you have learned in a particular time period with a comparison of a previous time period
refresh 📖 Update the JSON response in the cache
tag    📖 Tags a word
unfavorite 📖 Removes the word from favorites
unlearn 📖 Removes the word from learning
unmaster 📖 Removes the word from mastered
untag  📖 Remove tag of a word in the dictionary

Thesaurus
antonym 📖 Find antonyms for a word
synonym 📖 Find synonyms for a word

Import / Export
export 📖 Exports a list of all your looked up words
import 📖 Imports a list words in the application
```

