Voice Assistant Application Documentation

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# Introduction

This voice assistant application allows users to interact through both voice and text inputs, perform various tasks such as web searches, open applications, tell jokes, and provide current date/time information. The application offers a user-friendly graphical interface (GUI) built using Tkinter with options to toggle between speech input/output and text input/output.

# Features

## 1. Speech Recognition

The application uses the SpeechRecognition library to recognize spoken commands. It processes the voice input and executes corresponding actions such as Google searches, telling jokes, or opening applications.

## 2. Google Search

The application can perform Google searches via voice or text commands. When a user queries a search term, the first result is retrieved and presented as a response.

## 3. Joke Telling

The application uses the pyjokes library to tell a joke when requested by the user.

## 4. Application Launch

The application can open specified programs, such as Notepad and Calculator, based on voice or text commands. The user can say, "Open Notepad" or "Open Calculator," and the app will launch the respective program.

## 5. Date and Time Query

The user can ask the assistant for the current date and time. It responds with the current timestamp in a readable format.

## 6. Response Modes

Users can toggle between speech or text responses for the assistant. When in speech response mode, the assistant speaks the response out loud. Otherwise, responses are displayed as text.

## 7. GUI Layout

The assistant comes with an intuitive GUI interface that includes text input boxes, buttons to toggle between modes, and areas to display responses.

# GUI Components and Usage

## 1. Input Modes

The application supports two input modes:  
- Speech Input Mode: By default, the application listens for voice commands.  
- Text Input Mode: Users can switch to text input, where they type the command in the provided text box.  
The input mode can be toggled using the 'Switch to Text Input Mode' or 'Switch to Speech Input Mode' button on the sidebar.

## 2. Response Modes

Users can choose between:  
- Speech Response: The assistant speaks the response out loud.  
- Text Response: The response is displayed in the GUI's response area.  
The response mode is toggled using the 'Switch to Speech Response' or 'Switch to Text Response' button on the sidebar.

## 3. Action Buttons

- Listen Button: Activates the speech recognition feature to listen for user commands. This button is enabled only in speech input mode.  
- Search Button: Executes a Google search for the text entered in the input box (when in text input mode).  
- Exit Button: Exits the application.

# Installation

## Requirements:

Python 3.x  
Required libraries:  
- speech\_recognition  
- pyttsx3  
- requests  
- beautifulsoup4  
- googlesearch-python  
- pyjokes  
- tkinter (comes pre-installed with Python)

## Steps:

1. Install the required libraries:  
```bash  
pip install speechrecognition pyttsx3 requests beautifulsoup4 googlesearch-python pyjokes  
```  
2. Run the script using Python:  
```bash  
python voice\_assistant.py  
```

# How to Use

1. Speech Input: Upon launching, speak your command when prompted. The assistant will recognize and respond either by speaking or displaying the response.  
2. Text Input: Switch to text mode using the 'Switch to Text Input Mode' button. Type your command in the text box and click the 'Search' button to get a response.  
3. Google Search: Either speak or type a query like 'search for weather in New York,' and the assistant will open a browser with the search results.  
4. Jokes: To hear a joke, say 'Tell me a joke.'  
5. Application Launch: Command the assistant to 'Open Notepad' or 'Open Calculator.'  
6. Time/Date Query: Say 'What is the time?' or 'What is the date?' to get the current time and date.  
7. Exit: Click the 'Exit' button to close the application.

# Future Improvements

1. Expand Application Launch Capabilities: Add more applications to be launched by the assistant.  
2. Improve Speech Recognition: Add support for different accents and languages.  
3. Enhanced GUI Design: Incorporate more modern UI elements and styles.