**F.R.I.D.A.Y – AI Assistant**

Project Documentation

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# 1. Introduction

F.R.I.D.A.Y (Functional Reactive Intelligent Digital Assistant for You) is an AI-powered, voice-activated desktop assistant. It listens, understands, and responds to user commands in real-time using automation, voice synthesis, live data APIs, and image generation.

# 2. Objectives

- Understand user input through voice (Speech-to-Text)  
- Classify and handle commands (Automation, Realtime, Routine, or General)  
- Respond using voice (Text-to-Speech)  
- Execute tasks like app control, search, and image generation  
- Display results visually or audibly  
- Maintain system performance and logs

# 3. Technology Stack

- STT: Selenium, WebDriver, Google Translate, Rich  
- TTS: Requests, Asyncio, Playsound, Rich  
- Image Generation: Pollinations AI API  
- Automation: AppOpener, Webbrowser, PyWhatKit, Keyboard, Subprocess  
- Authentication: OpenCV, NumPy  
- Others: BeautifulSoup, dotenv, Groq API

# 4. System Features

- Voice Command Processing  
- AI Image Generation  
- TTS Response Generation  
- Automation and Web Search  
- Face Authentication  
- Real-Time Data Access  
- Logging and Session Memory

# 5. System Architecture

The architecture follows a layered design:

- Presentation Layer: GUI/CLI, Voice Input, TTS Output  
- Application Layer: Query Classification, Execution Modules  
- Data Layer: Logs, API Integration, Memory Access

# 6. Module Descriptions

6.1 Authentication – Face detection using OpenCV and NumPy.

6.2 STT – Speech recognition with Selenium and Google Translate.

6.3 Query Classification – Intent classification into task types.

6.4 Image Generator – Generates images using Pollinations API.

6.5 TTS – Asynchronous voice response with requests and playsound.

6.6 Automation – App control, browser tasks, system control.

6.7 Real-time Info – Live news, weather, and stocks via scraping/APIs.

6.8 Logging – Saves all interactions as JSON logs.

# 7. Testing & Evaluation

- STT Accuracy: Works with multiple accents.  
- Face Match: Verified using webcam.  
- Response Time: Under 2 seconds for most tasks.  
- Error Handling: Manages API and input failures.  
- Platform Compatibility: Tested on Windows and Linux.

# 8. Screenshots & User Interface

You can manually insert screenshots in this section to showcase key features such as application startup, STT output, image generation, automation, and TTS response.

# 9. Conclusion

F.R.I.D.A.Y combines various Python technologies into a cohesive AI system for voice-based task execution. Developed by Ahmed F. Sallu, this project showcases intelligent automation, voice processing, real-time interaction, and user-friendly AI implementation on desktop platforms.

# 10. References

- Selenium Python Docs  
- Pollinations AI  
- Groq API Docs  
- PyWhatKit GitHub  
- AppOpener GitHub  
- BeautifulSoup Documentation