

Project Report

Mini Google Drive – Secure Cloud File Manager

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1. Introduction

This project, *Mini Google Drive*, is a secure and scalable cloud-based file management system. It enables users to upload, store, and share files seamlessly using Amazon Web Services (AWS) S3 for storage and JSON Web Tokens (JWT) for authentication. The application is designed with a user-centric interface powered by Bootstrap and deployed on Amazon EC2 for production readiness.

2. Objectives

- To design a lightweight yet secure alternative to Google Drive.
- To implement JWT-based authentication for user login and signup.
- To integrate AWS S3 for reliable file storage and retrieval.
- To provide a polished, responsive UI for enhanced user experience.
- To ensure deployment readiness on cloud infrastructure (Amazon EC2).

3. System Architecture

- **Frontend:** HTML, CSS (Bootstrap), JavaScript
- **Backend:** Flask (Python)
- **Database:** MySQL (local EC2 instance)
- **Cloud Storage:** AWS S3
- **Authentication:** JWT
- **Deployment:** Amazon EC2 (Amazon Linux)

4. Key Features

- Secure user authentication with JWT.
- File upload, download, search, and deletion.
- Expiring shareable links for controlled access.
- Responsive Bootstrap-based interface.
- Clear separation of templates (templates/) and static assets (static/).

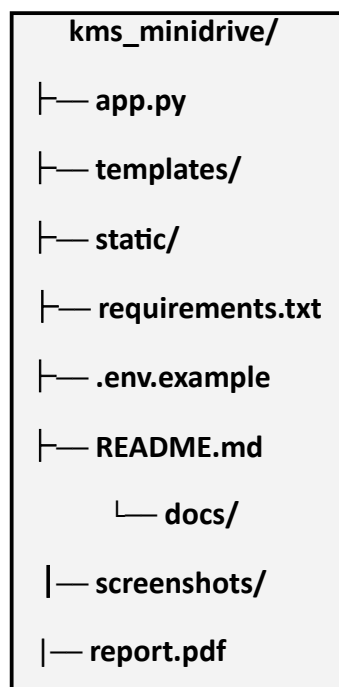
5. Implementation Details

- **Environment Variables:** Managed via .env file (example provided in .env.example).
- **Dependencies:** Listed in requirements.txt for reproducibility.
- **Deployment:** Flask app bound to 0.0.0.0:5000 and hosted on EC2 with inbound rules configured for port 5000.
- **Security:** AWS IAM roles and secure credential handling through environment variables.

6. Screenshots

Screenshots of the working application (login, upload, file listing, sharing, and download) are included in the repository under: docs/Minidrive - PICTURES OF THE WORKING APP...

7. Repository Structure



8. Conclusion

The Mini Google Drive project demonstrates secure cloud integration, robust backend design, and a polished frontend interface. It highlights practical skills in cloud deployment, authentication, and user-centric design. This project is production-ready and serves as a strong foundation for future enhancements such as role-based access control, file versioning, and collaborative editing.