Auth-App Project Report

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1 Introduction

Developed a Dockerized authentication system with:

- React frontend
- Flask backend
- PostgreSQL database

GitHub Repository: `https://github.com/rTalhaa/auth-app`

2 Implementation

2.1 System Architecture

- 3-container Docker setup
- Nginx reverse proxy
- Container networking

2.2 Key Components

- **Frontend**: ReactJS with Vite
- **Backend**: Python/Flask REST API
- **Database**: PostgreSQL with volume persistence
- **Authentication**: Basic email/password system

3 Challenges Faced

- **Docker Networking**: Initial connection failures between containers
- **Database Initialization**: Timing issues with container startup
- **Environment Variables**: Configuration management across services
- **Windows Compatibility**: Line endings and file permissions

4   Problem Solutions

- Implemented health checks using `pg_isready`

- Added wait-for-db.sh script

- Used Docker network bridge mode

- Converted files to UNIX line endings

5   Conclusion

Successfully created a scalable microservices architecture demonstrating:

- Containerized development

- Service isolation

- Database persistence

Future work: Add JWT authentication and email verification.