HACKXTREME'26

POBO TECHNOLOGIES

Company Problem Statement

Problem Title:

Large Medical File Upload System using React, Python & AWS S3

Objective:

Design and develop a scalable web application that enables users to upload and manage large medical files (1GB to 3GB), such as MRE, MRI, and CT scan reports, securely using AWS S3.

Problem Description:

Healthcare applications often deal with very large files that cannot be uploaded using traditional methods due to network failures, timeouts, and browser limitations.

Your task is to build a system that supports:

- Large file uploads (up to 3GB per file)
- Reliable upload even with network interruptions
- Secure cloud storage using AWS S3

Technology Stack:

- Frontend: React.js
- Backend: Python (FastAPI / Flask)
- Cloud Storage: AWS S3 (Multipart Upload)
- Optional Database: DynamoDB / MongoDB

Key Requirements:

- Implement multipart (chunked) file upload
- Generate pre-signed URLs from backend
- Upload chunks directly to AWS S3
- Track upload progress in UI
- Handle retry for failed chunks
- Complete upload after all parts are uploaded

Security Considerations:

- Do not expose AWS credentials in frontend
- Use pre-signed URLs for secure upload
- Enable server-side encryption in S3

Bonus Features (Optional):

- Pause and resume upload
- File preview (medical formats like DICOM)
- Upload analytics dashboard
- Role-based access (Doctor / Patient)

Evaluation Criteria:

- Large file handling efficiency
- Proper use of AWS S3 multipart upload
- User experience and UI design
- Error handling and retry mechanism
- Innovation and additional features

Deliverables:

- Source code (GitHub repository)
- Working demo or video demonstration
- Documentation (README with setup steps)