**Document: File Upload/Download System with Login and Payment Control**

**1. Overview**

This document outlines the technical specifications for a system that allows users to upload and download data files, with access controlled through user authentication (login) and payment verification.

**2. System Components**

* **Frontend (Web/Mobile)**
* **Backend Server (API + File Management)**
* **Database (User, Payment, and File Info)**
* **Payment Gateway (Stripe, PayPal, etc.)**
* **Cloud Storage (e.g., AWS S3, Firebase, etc.)**

**3. User Roles**

* **Guest**: No access to upload/download
* **Registered User (Free)**: Limited access (e.g., view-only or limited downloads)
* **Premium User (Paid)**: Full access to upload/download

**4. Functional Requirements**

**4.1 User Authentication**

* Register new users (email, password)
* Login/Logout
* Forgot password (via email)
* Session/token-based authentication (JWT)

**4.2 Payment Integration**

* Payment processing via third-party (e.g., Stripe)
* Subscription model or pay-per-download
* Payment status tracking

**4.3 Upload Function**

* Authenticated users only
* File size/type restrictions
* Store files in secure cloud storage
* Store metadata in database (user ID, filename, timestamp, etc.)

**4.4 Download Function**

* Only accessible to users with valid subscriptions/payments
* Download access logging
* Optional: download limits per user/subscription

**5. Database Schema (Simplified)**

**Users Table**

bash

CopyEdit

id | email | password\_hash | role | subscription\_status | created\_at

**Payments Table**

bash

CopyEdit

id | user\_id | amount | status | payment\_method | timestamp

**Files Table**

bash

CopyEdit

id | user\_id | filename | filepath | uploaded\_at

**Downloads Table**

bash

CopyEdit

id | user\_id | file\_id | timestamp

**6. Security Considerations**

* File virus scanning on upload
* Rate limiting & CAPTCHA
* Encrypted storage (if needed)
* Secure download URLs (signed URLs or tokenized links)

**7. Optional Features**

* Admin dashboard (file/user/payment management)
* Email notifications (payment receipt, download alerts)
* File previews
* Analytics (most downloaded files, etc.)