A Project Report

on

DIGILOCKER

Submitted in partial fulfillment of requirements for the award of the course

of

EGB1221-DATABASE MANAGEMENT SYSTEMS

Under the guidance of

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Submitted By

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

M.KUMARASAMY COLLEGE OF ENGINEERING
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KARUR – 639 113

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(Autonomous Institution affiliated to Anna University, Chennai)

KARUR – 639 113

BONAFIDE CERTIFICATE

This is to certify that this project report on **"DIGILOCKER "** is the bonafide work of **DURKA SRI N, GOPIKA S (927623BEC051,927623BEC059)** who carried out the project work during the academic year 2024 - 2025 under my supervision.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INSTITUTION VISION AND MISSION

VISION

To emerge as a leader among the top institutions in the field of technical education

MISSION

M1: Produce smart technocrats with empirical knowledge who can surmount the global challenges.

M2: Create a diverse, fully -engaged, learner -centric campus environment to provide quality education to the students.

M3: Maintain mutually beneficial partnerships with our alumni, industry and professional associations

DEPARTMENT VISION, MISSION, PEO, PO AND PSO

Vision

To empower the Electronics and Communication Engineering students with emerging technologies, professionalism, innovative research and social responsibility.

Mission

M1: Attain the academic excellence through innovative teaching learning process, research areas & laboratories and Consultancy projects.

M2: Inculcate the students in problem solving and lifelong learning ability.

M3: Provide entrepreneurial skills and leadership qualities.

M4: Render the technical knowledge and skills of faculty members.

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Core Competence: Graduates will have a successful career in academia or industry associated with Electronics and Communication Engineering

PEO2: Professionalism: Graduates will provide feasible solutions for the challenging problems through comprehensive research and innovation in the allied areas of Electronics and Communication Engineering.

PEO3: Lifelong Learning: Graduates will contribute to the social needs through lifelong learning, practicing professional ethics and leadership quality.

PROGRAM OUTCOMES (POs)

Engineering students will be able to:

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Applying knowledge in various areas, like Electronics, Communications, Signal processing, VLSI, Embedded systems etc., in the design and implementation of Engineering application.

PSO2: Able to solve complex problems in Electronics and Communication Engineering with analytical and managerial skills either independently or in team using latest hardware and software tools to fulfil the industrial expectations.

ABSTRACT

In today's digital era, the need for secure and efficient storage of personal and official documents is paramount. The proposed Digi Locker App aims to provide a user-friendly and secure platform for individuals to store, manage, and retrieve their important digital documents such as identification cards, educational certificates, and legal files. Leveraging fundamental Database Management System (DBMS) concepts, the application ensures organized data handling, robust access control, and efficient document retrieval mechanisms.The core of the system is a well-structured relational database that manages user profiles, document metadata, and storage details. Each user is provided with a unique account, secured by authentication mechanisms, allowing them to upload and categorize documents based on type, purpose, and other metadata such as upload date, issuing authority, and expiry date. The categorization enhances searchability and retrieval speed, employing optimized SQL queries for filtering and indexing.The backend database includes multiple interrelated tables such as users, documents, document_types, and storage_locations, designed to maintain data integrity and support normalization .

ABSTRACT WITH POs AND PSOs MAPPING

ABSTRACT	COs MAPPED	POs MAPPED	PSOs MAPPED
Design and develop a Digi Locker App using DBMS concepts to provide users with a secure platform for storing, managing, and accessing their important documents and digital certificates. The system should allow users to upload various types of documents such as identification cards, educational certificates, and other legal files. It should also support categorizing, searching, and retrieving these documents efficiently. The database will manage user profiles, document metadata (like document type, upload date, etc.), and storage details	CO1 CO2 CO3 CO5	PO1 PO2 PO3 PO4 PO6 PO7 PO8 PO9 PO10 PO11	PSO1 PSO2

SUPERVISOR   **HEAD OF THE DEPARTMENT**

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CHAPTER 1

INTRODUCTION

1.1 OBJECTIVE

The objective of the DigiLocker project is to develop a secure, efficient, and user-friendly digital platform that enables users to store, access, and share personal documents electronically. The system aims to reduce physical documentation, eliminate redundancy, ensure data integrity, and provide easy access to verified documents anytime, anywhere. By implementing features like user authentication, document upload and preview, access logging, and database normalization, the project supports digital empowerment and promotes a paperless governance initiative.

1.2 OVERVIEW

DigiLocker is a cloud-based digital document storage system that allows users to securely store, access, and share personal and official documents online. Designed to support the vision of paperless governance, DigiLocker eliminates the need for physical document handling by enabling digital issuance and verification. Users can upload documents such as identity proofs, educational certificates, and licenses, which are stored securely and can be accessed anytime. The system includes features like user authentication, role-based access control, secure document upload using BLOB storage, and detailed access logs for tracking user activity. Built with principles of database normalization, data integrity, and transactional security, DigiLocker ensures a reliable and scalable digital document management experience for individuals and organizations alike.

1.3 DATABASE MANAGEMENT SYSTEMS CONCEPTS

- **Normalization**:

  Normalization is the process of organizing data in a database to reduce redundancy and improve data integrity. It involves dividing large tables into smaller, related tables and defining relationships between them using keys. In this project, user information, document details, and access logs are stored in separate, well-defined tables. This eliminates data duplication—for example, user details are not repeated with each document upload but instead referenced using unique IDs (foreign keys).

- **Indexes**:

  Indexes improve the speed of data retrieval operations on large datasets. They are created on frequently searched fields like UserID, DocumentID, and AccessTime to ensure that queries and filters (such as retrieving all documents uploaded by a specific user) execute efficiently without scanning the entire table.

- **Data Integrity**:

  Data integrity ensures that only valid and consistent data is entered into the database. This is maintained through the use of constraints such as PRIMARY KEY, FOREIGN KEY, NOT NULL, and UNIQUE. For example, the system ensures that documents cannot be uploaded without valid associated user IDs, preserving logical consistency between tables.

- **Transactions and ACID Properties**:

  Transactions are used to group multiple database operations into a single unit that either fully completes or fully fails. DigiLocker applies transactions during critical processes like document uploads or access logging to maintain data consistency. It follows the ACID properties:

- **BLOB (Binary Large Object)**:

  BLOB is a data type used to store large binary data, such as PDFs and images. In this project, uploaded documents are stored in the Document table using the BLOB datatype. This allows secure storage and retrieval of full-sized files, maintaining data accessibility and completeness for each user.

  .
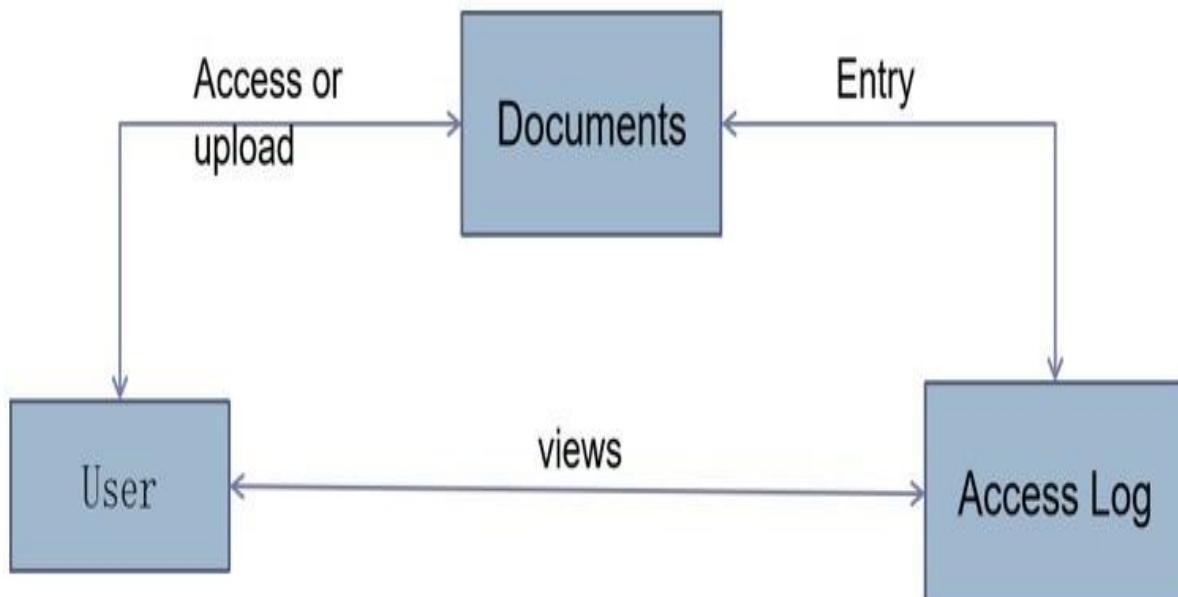
CHAPTER 2

PROJECT METHODOLOGY

2.1 PROPOSED WORK

- **User Management Module** – Handles user lifecycle operations including registration, authentication, and profile management.
- **Document Upload Module** – Enables secure uploading of digital documents with metadata entry and storage as BLOBs in the database.
- **Document Retrieval Module** – Facilitates efficient search and access of stored documents through search, filter, view, download, and categorization features.
- **Access Log Module** – Ensures transparency and security by tracking document access events, storing access time and user information, and enabling administrative oversight.
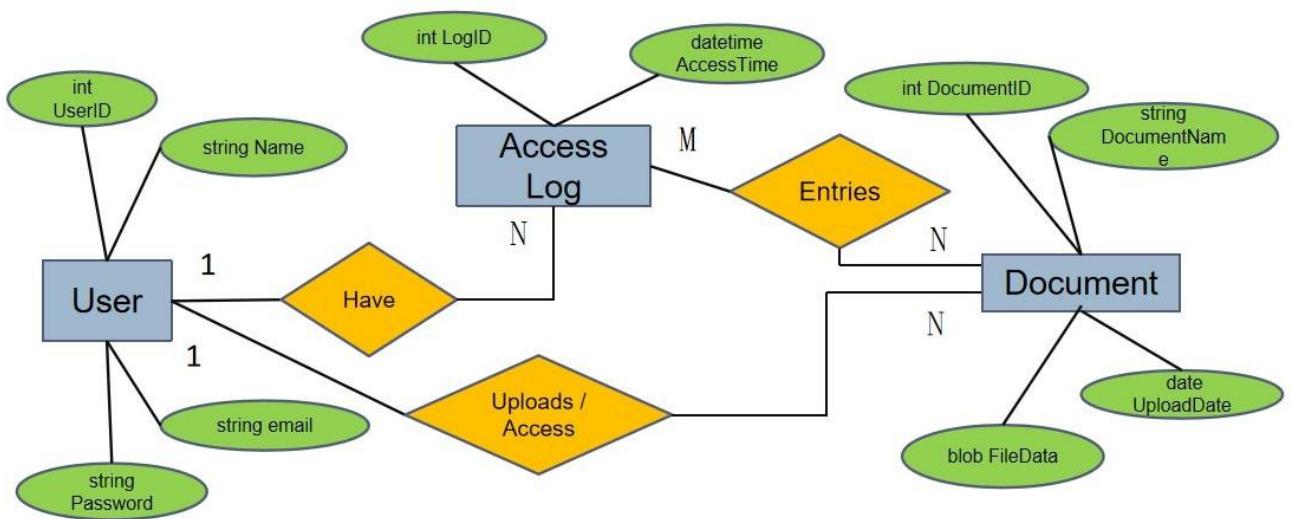
## 2.2 PROPOSED ARCHITECTURE

Fig 2.1 ARCHITECTURE

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2.3 E-R DIAGRAM

Fig 2.2 E-R DIAGRAM

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CHAPTER 3
MODULE DESCRIPTION

3.1 User Management Module:

This module manages user authentication and profile management. It handles the user registration process, including email verification and secure password storage. It also facilitates user login, maintaining session data and providing secure access to the system. Profile management allows users to view and update personal information such as contact details and preferences.

3.2 Document Upload Module:

This module allows users to securely upload documents into the DigiLockersystem. It supports various file formats and ensures that uploaded documents are safely stored in the database or file system. The module may include file size checks, format validation, and encryption for sensitive documents. Users can also manage their documents (edit metadata, delete files, etc.) through this module.

3.3 Document Retrieval Module

This module enables users to search and retrieve their uploaded documents quickly. It provides efficient search functionality, allowing users to filter and view their documents based on metadata (such as document type, upload date, etc.). Additionally, this module allows users to download documents in a secure manner, ensuring that only authorized individuals can access their files.
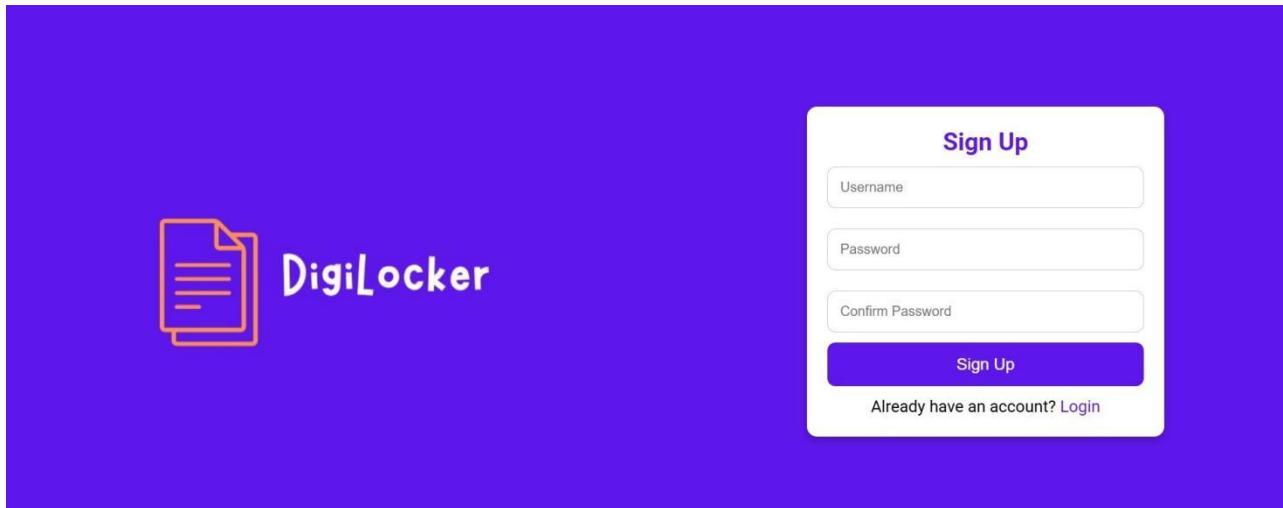
3.4 Access Log Module

The Access Log Module tracks and records every action performed on documents, including uploads, downloads, and views. It is designed to enhance security by providing an audit trail of who accessed a particular document and when. This helps in identifying potential unauthorized access and ensuring compliance with regulatory requirements. .

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CHAPTER 4
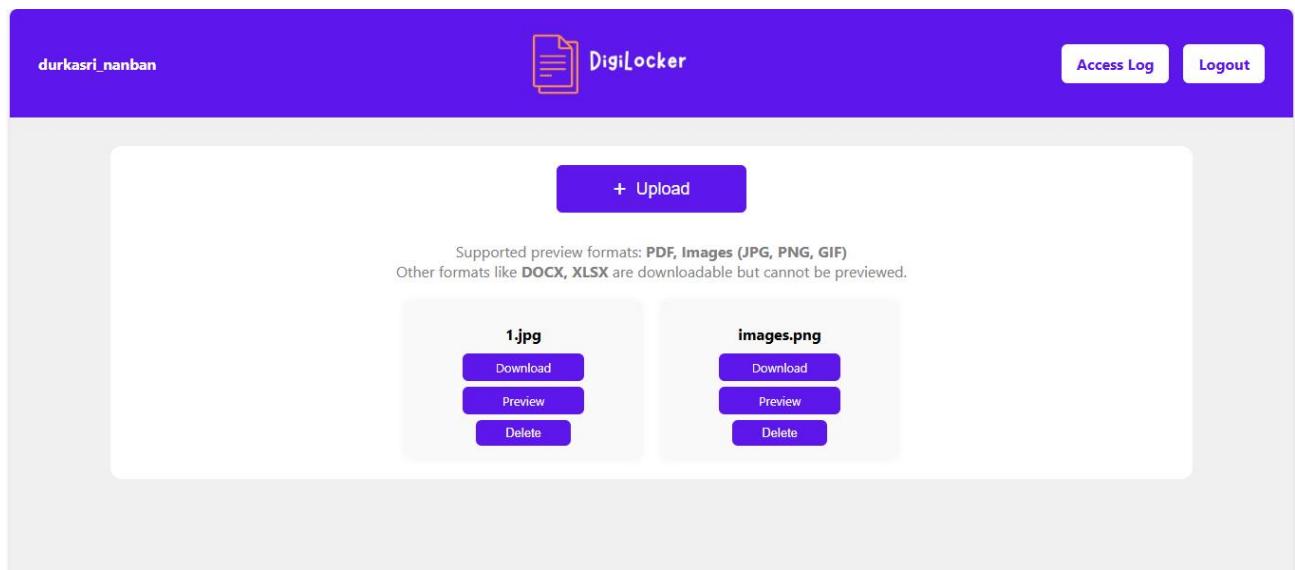
RESULTS AND DISCUSSION

- **User Management Module:**

Handles user registration with email verification, secure login with session management, and profile updates including contact info and preferences.

- **Document Upload Module:**

Enables secure upload of various file types with size/format checks and optional encryption. Users can manage documents by editing metadata or deleting files.

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- **Document Retrieval Module:**

Supported preview formats: **PDF, Images (JPG, PNG, GIF)**
Other formats like **DOCX, XLSX** are downloadable but cannot be previewed.

access_log.php
Download
Preview
Delete

pexels-philkallahar-983200.jpg
Download
Preview
Delete
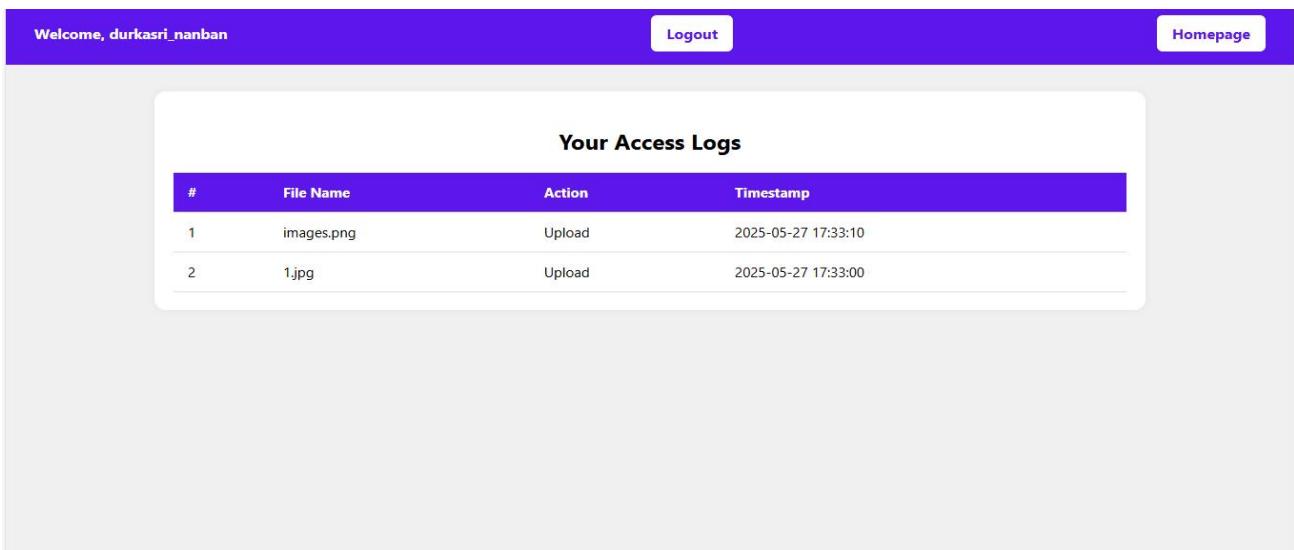
Allows users to search, filter, and securely download their documents based on metadata like type and upload date, ensuring authorized access only.

- **Access Log Module:**

Welcome, durkasri_nanban   Logout   Homepage

Your Access Logs

#	File Name	Action	Timestamp
1	images.png	Upload	2025-05-27 17:33:10
2	1.jpg	Upload	2025-05-27 17:33:00

Records all document actions (upload, view, download), providing an audit trail for security and compliance. Supports activity logging and reporting.

CHAPTER 5

CONCLUSION

The DigiLocker App, designed using core DBMS concepts, offers a secure and efficient platform for users to digitally store, manage, and access their important documents. By integrating modules for user authentication, document uploading, retrieval, and activity logging, the system ensures both usability and robust data security. Each module is structured to handle specific functionalities—from verifying user credentials to encrypting sensitive files and maintaining detailed access logs— making the system reliable and trustworthy. With support for metadata-based search and document categorization, users can conveniently manage a wide variety of personal and legal documents. Overall, the application not only simplifies digital document handling but also reinforces privacy and access control, making it a practical solution for modern document management needs.

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   — For concepts on normalization, indexing, data integrity, and ACID properties.

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   https://www.w3schools.com

APPENDIX
(coding)

INDEX.PHP

```php
<?php session_start();
if (!isset($_SESSION["username"])) { header("Location: login.php");
exit();
}
require 'db.php';
$username = $_SESSION["username"];
$stmt = $conn->prepare("SELECT id, file_name, file_type FROM uploaded_files WHERE username
= ?");
$stmt->bind_param("s", $username);
$stmt->execute();
$result = $stmt->get_result();
$files = $result->fetch_all(MYSQLI_ASSOC);
?>

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>DigiLocker</title>
<link rel="icon" href="image/main_logo.png">
<link rel="stylesheet" href="styles.css">
</head>
<body>
<div class="top-bar">
<div class="username"><?= htmlspecialchars($username) ?></div>
<div class="logo">
<img src="image/rectangle_logo.jpg" alt="Logo" style="width: 200px; height: auto;">
</div>
<div class="links">
<a href="access_log.php">Access Log</a>
<a class="logout" href="logout.php">Logout</a>
</div>
</div>

<div class="container">
<div class="upload-area">
<form action="upload.php" method="post" enctype="multipart/form-data" id="uploadForm">
<input type="file" name="file" id="fileInput" hidden
onchange="document.getElementById('uploadForm').submit()"
required>
<button type="button" class="upload-btn" onclick="document.getElementById('fileInput').click()">
<span>+</span> Upload
</button>
</form>
</div>
```

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```html
<div class="support-note">
Supported preview formats: <strong>PDF, Images (JPG, PNG, GIF)</strong><br>
Other formats like <strong>DOCX, XLSX</strong> are downloadable but cannot be previewed.
</div>

<div class="documents">
<?php foreach ($files as $file): ?>
<div class="doc-card">
<div class="file-name"><?= htmlspecialchars($file['file_name']) ?></div>
<div class="actions">
<a href="download.php?id=<?= $file['id'] ?>">Download</a>
<a href="view.php?id=<?= $file['id'] ?>" target="_blank">Preview</a>
<form action="delete.php" method="post" onsubmit="return confirm('Delete this file?');">
<input type="hidden" name="id" value="<?= $file['id'] ?>">
<button type="submit" class="delete-btn">Delete</button>
</form>
</div>
</div>
<?php endforeach; ?>
</div>
</div>
</body>
</html>
```

UPLOAD.PHP

```php
<?php session_start();
if (!isset($_SESSION["username"])) { header("Location:
login.php");
exit();
}
require 'db.php';
if ($_SERVER["REQUEST_METHOD"] == "POST" && isset($_FILES["file"])) {
$username = $_SESSION["username"];
$fileName = $_FILES["file"]["name"];
$fileType = $_FILES["file"]["type"];
$fileSize = $_FILES["file"]["size"];
$fileData = file_get_contents($_FILES["file"]["tmp_name"]);

$stmt = $conn->prepare("INSERT INTO uploaded_files (username, file_name, file_type, file_size, file_data) VALUES (?, ?, ?, ?, ?)");
$stmt->bind_param("sssib", $username, $fileName, $fileType, $fileSize, $null);
$stmt->send_long_data(4, $fileData);
$stmt->execute();
```

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```php
$file_id = $conn->insert_id;

$logStmt = $conn->prepare("INSERT INTO file_logs (username, file_id, action) VALUES (?, ?, 'upload')");
$logStmt->bind_param("si", $username, $file_id);
$logStmt->execute();
}

header("Location: index.php"); exit();
```

ACCESS_LOG.PHP

```php
<?php session_start();
if (!isset($_SESSION["username"])) { header("Location:
login.php");
exit();
}
require 'db.php';

$username = $_SESSION["username"];

$stmt = $conn->prepare("
SELECT fl.id, fl.file_id, fl.action, fl.timestamp, uf.file_name FROM
file_logs fl
JOIN uploaded_files uf ON fl.file_id = uf.id WHERE
fl.username = ?
ORDER BY fl.timestamp DESC ");
$stmt->bind_param("s", $username);
$stmt->execute();
$result = $stmt->get_result();
$logs = $result->fetch_all(MYSQLI_ASSOC);
?>

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>Access Log - DigiLocker</title>
<link rel="icon" href="image/main_logo.png">
<link rel="stylesheet" href="styles.css">
</head>
<body>
<div class="top-bar">
<div class="username">Welcome, <?= htmlspecialchars($username) ?></div>
<a class="logout" href="logout.php">Logout</a>
</div>
```

```php
 <div class="container">
<h2>Your Access Logs</h2>
<?php if (count($logs) > 0): ?>
 <table>
<thead>
<tr>
<th>#</th>
<th>File Name</th>
<th>Action</th>
<th>Timestamp</th>
</tr>
</thead>
<tbody>
<?php foreach ($logs as $index => $log): ?>
<tr>
<td><?= $index + 1 ?></td>
<td><?= htmlspecialchars($log['file_name']) ?></td>
<td><?= ucfirst($log['action']) ?></td>
<td><?= $log['timestamp'] ?></td>
</tr>
<?php endforeach; ?>
</tbody>
</table>
<?php else: ?>
<div class="no-logs">No access logs available.</div>
<?php endif; ?>
</div>
</body>
</html>
```