

**Team 10**

# **PYQPMS**

Previous Year Question Papers Management System

**Software Design Document (SDD)**

# 1. Data Dictionary

This section provides the complete data dictionary for PYQPMS, covering all processes, data flows, and data stores identified in the system's Data Flow Diagram (DFD).

## 1.1 Data Dictionary for Processes

### P1 — User Authentication

Field	Details
Process Name	User Authentication
Description	Validates the credentials of a User or Admin attempting to log in. Checks username and password against the Users data store and grants role-based access with a session token.
Inward Flows	Login Credentials (username, password, role — User or Admin)
Outward Flows	Authentication Result (success / failure), Session Token, Role-based Redirect
Process Specification	See Structured English and Decision Table below

### Process Specification — Structured English (P1)

INPUT: username, password, role (User / Admin)

```
SEEK username IN Users_DB
IF username NOT FOUND THEN
    DISPLAY 'User not found' error
    RETURN to Login Page
ELSE
    IF password MATCHES hashed_password IN Users_DB THEN
        IF role = 'Admin' THEN
            GENERATE session_token with role = Admin
            REDIRECT to Admin Dashboard
        ELSE
            GENERATE session_token with role = User
            REDIRECT to Home Dashboard
        ENDIF
    ELSE
        INCREMENT failed_attempts counter
        IF failed_attempts >= 3 THEN
            LOCK account for 15 minutes
            DISPLAY 'Account locked' message
        ELSE
            DISPLAY 'Incorrect password' error
        ENDIF
    ENDIF
ENDIF
```

## Decision Table — Authentication Logic (P1)

Scenario	User Exists?	Password Match?	Action
Admin Login – correct credentials	Yes	Yes	Redirect to Admin Dashboard
User Login – correct credentials	Yes	Yes	Redirect to Home Dashboard
Any login – wrong password	Yes	No	Show 'Incorrect Password' error
Any login – username not found	No	–	Show 'User Not Found' error
Any login – 3 consecutive failures	Yes	No ×3	Lock account for 15 minutes

## P2 — Search and Filter Papers

Field	Details
<b>Process Name</b>	Search and Filter Papers
<b>Description</b>	Allows authenticated users to search the paper library using a keyword and / or dropdown filters (Course, Subject, Semester, Year). Returns matching paper records from the Papers data store.
<b>Inward Flows</b>	Search Keyword (optional), Filter Parameters: course, subject, semester, year (all optional)
<b>Outward Flows</b>	Filtered Paper List (paper_id, subject, course, semester, year, upload_date)
<b>Process Specification</b>	INPUT: keyword, course, subject, semester, year (all optional) IF all inputs empty THEN FETCH all papers ORDER BY upload_date DESC ELSE BUILD query with provided filter values SEEK matching records IN Papers_DB IF results found THEN DISPLAY paper cards ELSE DISPLAY 'No papers found' ENDIF ENDIF

## P3 — View Paper

Field	Details
<b>Process Name</b>	View Paper
<b>Description</b>	Enables a logged-in user to open and preview a question paper as an inline PDF in the browser. Logs the view event in the RecentActivity data store.

<b>Inward Flows</b>	Paper ID, User Session Token
<b>Outward Flows</b>	Paper File Stream (PDF preview), Recent Activity Log Entry
<b>Process Specification</b>	INPUT: paper_id, session_token VALIDATE session_token IF session invalid THEN REDIRECT to Login Page ELSE FETCH file_path FROM Papers_DB WHERE paper_id matches STREAM paper file to
	browser viewer INSERT record INTO RecentActivity_DB (user_id, paper_id, viewed_at) ENDIF

#### P4 — Download Paper

Field	Details
<b>Process Name</b>	Download Paper
<b>Description</b>	Allows an authenticated user to download a question paper as a PDF to their device. Logs the download event in the Downloads data store.
<b>Inward Flows</b>	Paper ID, User Session Token
<b>Outward Flows</b>	Paper File (PDF download), Download Log Entry
<b>Process Specification</b>	INPUT: paper_id, session_token VALIDATE session_token IF session invalid THEN REDIRECT to Login Page ELSE FETCH file_path FROM Papers_DB WHERE paper_id matches TRIGGER file download as attachment INSERT record INTO Downloads_DB (user_id, paper_id, downloaded_at) ENDIF

#### P5 — Save / Bookmark Paper

Field	Details
<b>Process Name</b>	Save Paper
<b>Description</b>	Allows a user to bookmark a paper to their personal saved list. Checks for duplicate saves before inserting.
<b>Inward Flows</b>	Paper ID, User Session Token
<b>Outward Flows</b>	Save Confirmation Message, Updated SavedPapers List
<b>Process Specification</b>	INPUT: paper_id, session_token VALIDATE session_token CHECK IF (user_id, paper_id) already exists IN SavedPapers_DB IF already saved THEN DISPLAY 'Already in Saved Papers' ELSE INSERT INTO SavedPapers_DB (user_id, paper_id, saved_at) DISPLAY 'Paper saved successfully' ENDIF

## P6 — Upload Paper (Admin)

Field	Details
<b>Process Name</b>	Upload Paper
<b>Description</b>	Enables an Admin user to upload a new question paper (PDF) along with its metadata. Validates file type and required fields before storing.
<b>Inward Flows</b>	Paper File (PDF), Metadata (subject, course, semester, year), Admin Session Token
<b>Outward Flows</b>	Upload Confirmation, New Paper Entry in Papers_DB
<b>Process Specification</b>	<pre> INPUT: file, subject, course, semester, year, admin_session_token VALIDATE admin_session_token — must have role = Admin IF file type != PDF THEN DISPLAY 'Only PDF files are allowed' ELSE IF any metadata field is empty THEN DISPLAY 'All fields are required' ELSE  SAVE file to /storage/papers/  INSERT INTO Papers_DB (subject, course, semester, year, file_path, uploaded_by, upload_date) DISPLAY 'Paper uploaded successfully' ENDIF </pre>

## 1.2 Data Dictionary for Data Flows

Flow Name	Description	From	To
Login Credentials	Username, password, and role submitted on the login form	Login Form (UI)	P1 – User Authentication
Authentication Result	Success / failure status + session token on success	P1 – User Authentication	Home Dashboard / Login Page
Search Keyword	Optional text string entered in the search bar	Search Bar (UI)	P2 – Search & Filter Papers
Filter Parameters	Selected values from Course, Subject, Semester, Year dropdowns	Filter Dropdowns (UI)	P2 – Search & Filter Papers
Paper List	Set of paper records matching the search / filter criteria	P2 – Search & Filter	Paper Cards (UI)
View Request	Request to preview a specific paper by paper_id	View Button (UI)	P3 – View Paper

Paper File Stream	PDF content streamed inline to the browser viewer	P3 – View Paper	Browser PDF Viewer
Download Request	Request to download a specific paper by paper_id	Download Button (UI)	P4 – Download Paper
Paper File Download	PDF file sent as a download attachment to the user device	P4 – Download Paper	User Device
Save Request	Request to bookmark a paper for the current user	Save Button (UI)	P5 – Save Paper
Save Confirmation	Success or duplicate message returned to the user	P5 – Save Paper	UI Notification
Upload Submission	PDF file and full metadata submitted by an Admin	Admin Upload Form (UI)	P6 – Upload Paper
Upload Confirmation	Success or validation error message after upload attempt	P6 – Upload Paper	Admin Dashboard (UI)
Activity Log Entry	Record of user_id, paper_id, and timestamp for a view event	P3 – View Paper	RecentActivity_DB
Download Log Entry	Record of user_id, paper_id, and timestamp for a download event	P4 – Download Paper	Downloads_DB
Recent Paper List	Last-viewed papers for the current user shown in the Recent sidebar section	RecentActivity_DB	Recent Section (UI)
Saved Papers List	All bookmarked papers for the current user shown on the Saved Papers page	SavedPapers_DB	Saved Papers Page (UI)
My Downloads List	All download records for the current user shown on the My Downloads page	Downloads_DB	My Downloads Page (UI)

## 1.3 Data Dictionary for Data Stores

### DS1 — Users

**Description:** Stores account information for all registered users and administrators

**Input Flows:** Registration data (Sign Up), Login credentials (P1)

**Output Flows:** Authentication result (P1), User profile (Account Settings)

Field Name	Data Type	Format / Constraints	Description
user_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each user
username	VARCHAR(50)	NOT NULL, UNIQUE	Login username chosen at registration
password_hash	VARCHAR(255)	NOT NULL	Bcrypt-hashed password
email	VARCHAR(100)	NOT NULL, UNIQUE	User email address
role	ENUM	'user'   'admin', DEFAULT 'user'	Determines access level
created_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Account creation timestamp
failed_attempts	INT	DEFAULT 0	Consecutive failed login count
is_locked	BOOLEAN	DEFAULT FALSE	Account lock flag after repeated failures

### DS2 — Papers

**Description:** Stores metadata and file path for every question paper in the system

**Input Flows:** Paper upload data (P6 – Upload Paper)

**Output Flows:** Paper list (P2), File path (P3, P4)

Field Name	Data Type	Format / Constraints	Description
paper_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each paper
subject	VARCHAR(100)	NOT NULL	Subject name (e.g., DBMS, ML, OS)
course	VARCHAR(100)	NOT NULL	Degree programme (e.g., BTech AI & ML)

semester	INT	NOT NULL, range 1–8	Semester number
year	YEAR	NOT NULL, 4-digit year	Exam year of the paper
file_path	VARCHAR(255)	NOT NULL	Server path to the stored PDF
uploaded_by	INT	FOREIGN KEY → Users(user_id)	Admin who uploaded the paper
upload_date	DATETIME	DEFAULT CURRENT_TIMESTAMP	Timestamp of upload

### DS3 — Downloads

**Description:** Logs every paper download event, associating user, paper, and timestamp

**Input Flows:** Download log entry (P4 – Download Paper)

**Output Flows:** Download history shown on My Downloads page

Field Name	Data Type	Format / Constraints	Description
download_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each download event
user_id	INT	FOREIGN KEY → Users(user_id), NOT NULL	User who downloaded the paper
paper_id	INT	FOREIGN KEY → Papers(paper_id), NOT NULL	Paper that was downloaded
downloaded_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Timestamp of the download event

### DS4 — Saved Papers

**Description:** Stores bookmarked papers for each user, enabling quick future access

**Input Flows:** Save request (P5 – Save Paper)

**Output Flows:** Saved papers list shown on Saved Papers page

Field Name	Data Type	Format / Constraints	Description
save_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each save record
user_id	INT	FOREIGN KEY → Users(user_id), NOT NULL	User who saved the paper
paper_id	INT	FOREIGN KEY → Papers(paper_id), NOT NULL	Paper that was saved

saved_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Timestamp when paper was bookmarked
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## DS5 — Recent Activity

**Description:** Records the most recently viewed papers per user, populating the Recent sidebar section

**Input Flows:** Activity log entry (P3 – View Paper)

**Output Flows:** Recent paper list shown in the Recent sidebar section

Field Name	Data Type	Format / Constraints	Description
activity_id	INT	PRIMARY KEY, AUTO_INCREMENT	Unique identifier for each activity record
user_id	INT	FOREIGN KEY → Users(user_id), NOT NULL	User who viewed the paper
paper_id	INT	FOREIGN KEY → Papers(paper_id), NOT NULL	Paper that was viewed
viewed_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Timestamp of the view event

## 2. Use Interface Screenshots

The following screenshots illustrate the key screens of PYQPMS as implemented.

### 2.1 Login Page

The Login page is the entry point for all users. It uses a split-panel layout — the left panel contains the login form with a User / Admin role toggle, and the right panel prompts new visitors to register.

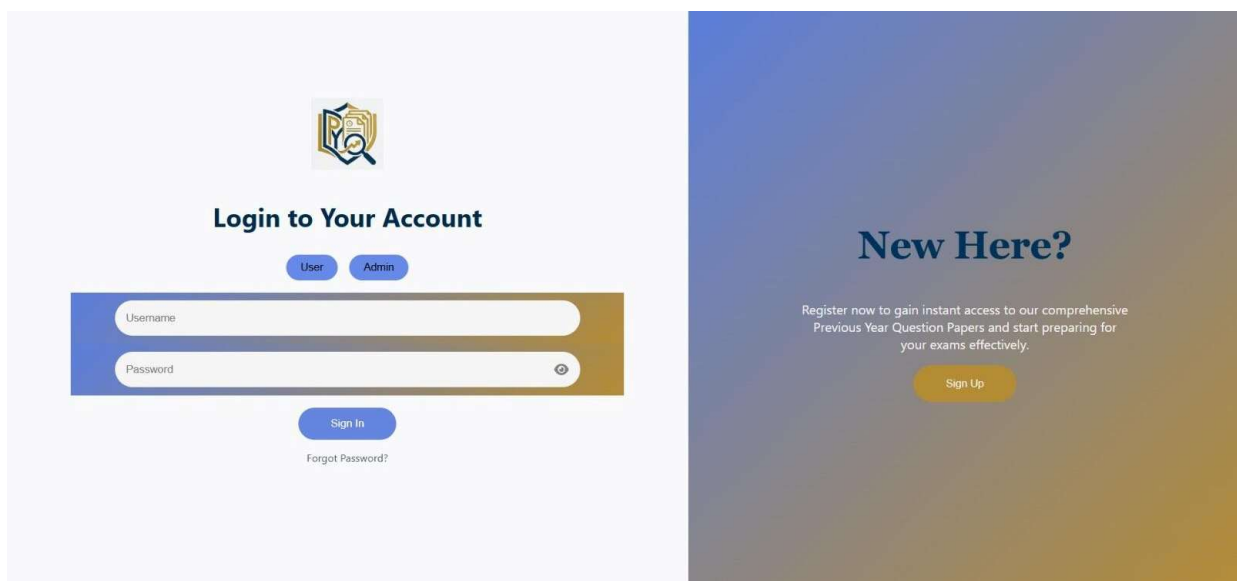


Figure 2.1 — Login Page (127.0.0.1:5500/Login/Login\_PYQPMS.html)

Component / Field	Description / Details
Logo / Brand Icon	Displayed at the top-centre of the left panel
Role Toggle (User/Admin)	Pill buttons to select login role before submitting
Username Field	Text input for the registered username
Password Field	Password input with show/hide eye-icon toggle
Sign In Button	Submits credentials; triggers P1 – User Authentication
Forgot Password?	Text link to initiate password recovery
Right Panel — New Here?	Blue-gold gradient panel prompting unregistered users to sign up
Sign Up Button	Navigates to the Registration screen

## 2.2 Home Dashboard

The Home Dashboard is the primary screen for authenticated users. It provides subject tag buttons for quick filtering, a multi-filter search bar, and a Recently Uploaded section with paper cards showing View and Download actions.

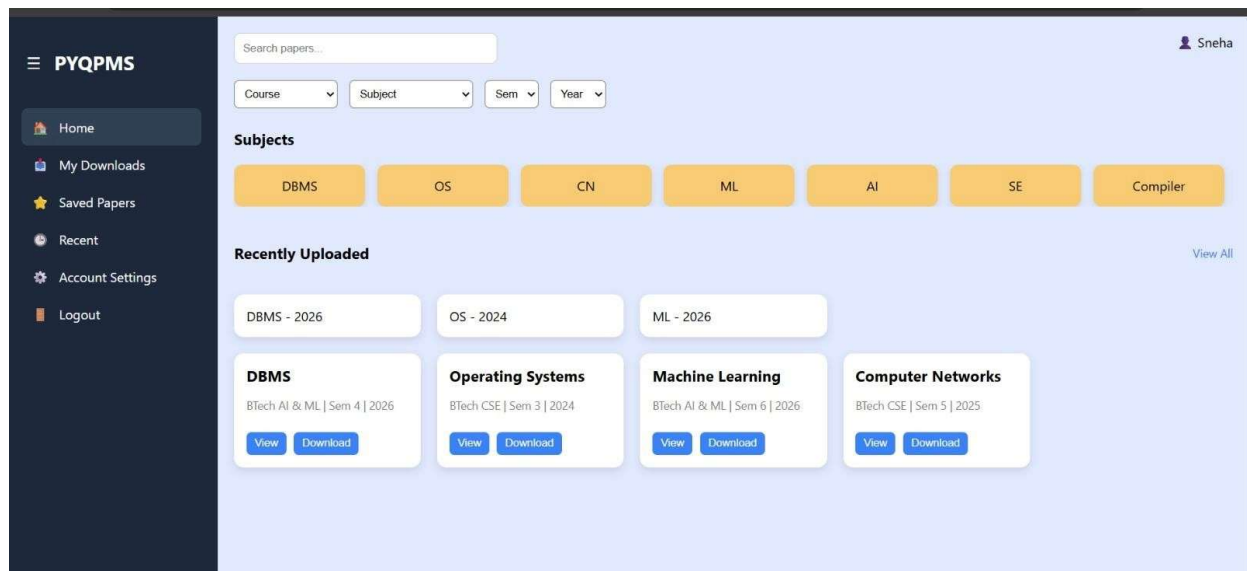


Figure 2.2 — Home Dashboard (logged in as Sneha)

Component / Field	Description / Details
<b>Sidebar Navigation</b>	Fixed dark-navy panel: Home, My Downloads, Saved Papers, Recent, Account Settings, Logout
<b>User Indicator</b>	Top-right shows the logged-in username with a user icon
<b>Search Bar</b>	Full-width keyword search across paper titles and subjects
<b>Course Dropdown</b>	Filter by degree programme (e.g., BTech AI & ML, BTech CSE)
<b>Subject Dropdown</b>	Filter by subject name
<b>Sem Dropdown</b>	Filter by semester number (1–8)
<b>Year Dropdown</b>	Filter by exam year
<b>Subject Tag Buttons</b>	Gold/amber pill buttons (DBMS, OS, CN, ML, AI, SE, Compiler) for one-click filtering
<b>Recently Uploaded Chips</b>	Small year chips (e.g., DBMS – 2026) showing the newest papers
<b>Paper Cards</b>	White cards showing subject, course, semester, year with View and Download buttons
<b>View Button</b>	Opens paper as inline PDF preview — triggers P3 – View Paper
<b>Download Button</b>	Downloads paper as PDF — triggers P4 – Download Paper
<b>View All Link</b>	Navigates to the full paper listing page