

# Document Management System - ER Diagram Full Description

## Entities & Attributes

### 1. ADMIN

- admin\_id (PK) : Unique identifier for each admin
- name : Full name of the admin
- email : Admin's login email (unique)
- password\_hash : Encrypted password for secure login
- created\_at : Timestamp of admin account creation

### 2. NORMALUSER

- user\_id (PK) : Unique identifier for each normal user
- name : Full name of the user
- email : User's login email (unique)
- password\_hash : Encrypted password for secure login
- created\_at : Timestamp of user account creation

### 3. DOCUMENT

- doc\_id (PK) : Unique identifier for each document
- title : Title of the document
- description : Description or metadata
- category : Document category (e.g., Finance, Technical)
- tags : Comma-separated tags for easy search
- uploader\_id (FK) : References NORMALUSER.user\_id
- created\_at : Upload timestamp

#### 4. DOCUMENTVERSION

- version\_id (PK) : Unique identifier for document version
- doc\_id (FK) : References DOCUMENT.doc\_id
- version\_number : Version sequence (1, 2, 3, etc.)
- file\_path : Storage path for the file
- uploaded\_on : Timestamp of version upload
- file\_size : Size in bytes
- file\_type : File format (e.g., pdf, docx)

#### 5. DOCUMENTPERMISSION

- permission\_id (PK) : Unique identifier for permission entry
- granted\_by\_admin\_id (FK) : References ADMIN.admin\_id
- user\_id (FK) : References NORMALUSER.user\_id
- doc\_id (FK) : References DOCUMENT.doc\_id
- can\_view : Boolean, view permission
- can\_edit : Boolean, edit permission
- can\_download : Boolean, download permission

#### 6. ACCESSLOG

- log\_id (PK) : Unique log entry identifier
- user\_id (FK) : References NORMALUSER.user\_id
- doc\_id (FK) : References DOCUMENT.doc\_id
- action : Type of action (upload, view, download, edit, delete)
- timestamp : Action performed timestamp

#### 7. DOWNLOADHISTORY

- download\_id (PK) : Unique identifier for download record

- user\_id (FK) : References NORMALUSER.user\_id
- doc\_id (FK) : References DOCUMENT.doc\_id
- version\_id (FK) : References DOCUMENTVERSION.version\_id
- downloaded\_on : Timestamp of download

Key Relationships

Relationship	Type	Description
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ADMIN to DOCUMENTPERMISSION	One-to-Many	Admin grants multiple document permissions
NORMALUSER to DOCUMENT	One-to-Many	A user can upload multiple documents
DOCUMENT to DOCUMENTVERSION	One-to-Many	A document can have multiple versions
NORMALUSER to DOCUMENTPERMISSION	One-to-Many	User has permissions granted per document
DOCUMENT to DOCUMENTPERMISSION	One-to-Many	Multiple users can have permissions per document
NORMALUSER to ACCESSLOG	One-to-Many	Each user action is logged
DOCUMENT to ACCESSLOG	One-to-Many	Access logs per document
NORMALUSER to DOWNLOADHISTORY	One-to-Many	Track all downloads performed by user
DOCUMENT to DOWNLOADHISTORY	One-to-Many	Track downloads per document

| DOCUMENTVERSION to DOWNLOADHISTORY | One-to-Many | Identify which version was downloaded |

## **Download Functionality**

- Users can download documents only if 'can\_download' is true in DOCUMENTPERMISSION.
- Download actions are logged in DOWNLOADHISTORY with version-specific information.
- Admins cannot download documents directly but control access for users.

## **Security & Access Control**

- Admins manage access via DOCUMENTPERMISSION.
- Users authenticate via secure passwords.
- All actions (upload, view, download, etc.) are logged in ACCESSLOG.

## **Diagram Reference**

The provided visual ER Diagram illustrates entities, relationships (diamonds), attributes (ovals), and keys as per standard conceptual ER design.