Technical Documentation: Employee-Asset Management System

Database Design and Structure

This document outlines the database design and structure for the Employee-Asset Management System, including the schema for MongoDB collections and relationships between entities.

Database Name: employee_asset_system

Collections

The system consists of three primary collections:

- Employee Collection
- Asset Collection
- Mapping Collection

Relationships

- **Employee Collection ↔ Employee-Asset Mapping Collection**:
    o `employee_id` in `mapping` references `emp_id` in `employee`.
- **Asset Collection ↔ Employee-Asset Mapping Collection**:
    o `asset_id` in `mapping` references `asset_id` in `asset`.

Indexing

To optimize query performance, the following indexes are recommended:

- **Employee Collection**:
    o Index on `emp_id` (unique).
    o Compound index on `first_name` and `last_name`.
- **Asset Collection**:
    o Index on `asset_id` (unique).
- **Employee-Asset Mapping Collection**:
    o Compound index on `employee_id` and `asset_id`.

Collection Schemas

1. Employee Collection : Stores employee details.

Field Name	Data Type	Description	Example
emp_id	String	Unique identifier for each employee	"e123"
first_name	String	Employee's first name	"Naruto"
last_name	String	Employee's last name	"Uzumaki"
gender	String	Employee's gender	"M"
phone_number	String	Employee's phone number	"9123456789"
employee_email	String	Employee's email address	"naruto@example.com"
address	String	Employee's residential address	"Konoha, Leaf Village"
blood_group	String	Employee's blood group	"AB+"
emergency_contact_number	String	Emergency contact number	"9876543210"
password	String	Hashed password for authentication	"hashed_password_here"
created_at	DateTime	Record creation timestamp	"2024-12-01T12:00:00Z"
updated_at	DateTime	Record last updated timestamp	"2024-12-01T12:00:00Z"

2. Asset Collection : Stores asset details.

Field Name	Data Type	Description	Example
asset_id	String	Unique identifier for each asset	"a123"
asset_name	String	Name of the asset	"Laptop"
asset_type	String	Type/category of the asset	"Electronics"
purchase_date	DateTime	Date the asset was purchased	"2022-01-01T00:00:00Z"
warranty_expiry_date	DateTime	Warranty expiry date	"2025-01-01T00:00:00Z"
created_at	DateTime	Record creation timestamp	"2024-12-01T12:00:00Z"
updated_at	DateTime	Record last updated timestamp	"2024-12-01T12:00:00Z"

3. Employee-Asset Mapping Collection : Maintains the relationship between employees and assets.

Field Name	Data Type	Description	Example
mapping_id	String	Unique identifier for each mapping	"m123"
employee_id	String	Reference to the emp_id in Employee	"e123"
asset_id	String	Reference to the asset_id in Asset	"a123"
assigned_date	DateTime	Date when the asset was assigned	"2024-01-01T12:00:00Z"
status	String	Status of the mapping (active/inactive)	"active"

Sample JSON Documents

Employee Collection

```json
{
  "emp_id": "e123",
  "first_name": "Naruto",
  "last_name": "Uzumaki",
  "gender": "M",
  "phone_number": "9123456789",
  "employee_email": "naruto@example.com",
  "address": "Konoha, Leaf Village",
  "blood_group": "AB+",
  "emergency_contact_number": "9876543210",
  "password": "hashed_password_here",
  "created_at": "2024-12-01T12:00:00Z",
  "updated_at": "2024-12-01T12:00:00Z"
}
```

Asset Collection

```json
{
  "asset_id": "a123",
  "asset_name": "Laptop",
  "asset_type": "Electronics",
  "purchase_date": "2022-01-01T00:00:00Z",
  "warranty_expiry_date": "2025-01-01T00:00:00Z",
  "created_at": "2024-12-01T12:00:00Z",
  "updated_at": "2024-12-01T12:00:00Z"
}
```

Employee-Asset Mapping Collection

json
{
  "mapping_id": "m123",
  "employee_id": "e123",
  "asset_id": "a123",
  "assigned_date": "2024-01-01T12:00:00Z",
  "status": "active"
}