

# PC Inventory Management System

## Table of Contents

1. Overview
2. Tech Stack
3. Database Schema Design
  - PC Inventory Collection
  - User Details Collection
4. Relationships
5. Core Functionalities
6. Additional Notes
7. Conclusion

## 1) Overview

This project is a software solution built using **MongoDB** and **Prisma ORM** to manage PC inventory within an organization. It captures essential hardware information and maps PCs to their respective users for effective asset tracking.

## 2) Tech Stack

- **Backend:** Node.js, Express.js
- **ORM:** Prisma
- **Database:** MongoDB
- **Frontend:** React.js

## 3) Database Schema Design

### i. PC Inventory Collection

Stores details of each PC in the organization.

Field	Type	Description
assetId	String	Unique ID for the PC
model	String	PC model
make	String	Manufacturer name
macAddress	String	MAC address
ipAddress	String	IP address
os	String	Operating System
ram	String	RAM size
hardDisk	String	Hard disk size/type
user	User	User associated with the PC
userId	String	UserId associated with the PC

## **ii. User Details Collection**

Stores user-related information.

Field	Type	Description
id	String	Unique User ID
username	String	Username of the user
name	String	Name of the user
email	String	Email of the user
role	String	Role of the user
password	String	Password of the user
designation	String	Job title

Field	Type	Description
division	String	Department or division
computers	PC[]	The pcs assigned to the user

#### 4) Relationships

- **One-to-One (1:1):**  
Each **PC** is assigned to **one specific user**.
- **One-to-Many (1:N):**  
One **make** (e.g., Dell, HP) can belong to multiple PCs.

#### 5) Core Functionalities

##### 1. **Enter PC Details**

Admin can enter new PC hardware details into the database.

##### 2. **Map PC to User**

Link a PC (by asset ID) to a user (by user ID).

##### 3. **Find PC Details Based on User**

Query the database to fetch a user's assigned PC details.

#### 6) Additional Notes

- **Prisma** is used as the Object-Relational Mapping (ORM) tool to interact with the MongoDB database.
- The schema is flexible and can be easily extended to support features such as:
  - Login activity tracking
  - PC maintenance history
  - Software inventory and license mapping

## **7) Conclusion**

The PC Inventory Management System offers an efficient and scalable solution for tracking and managing organizational computer assets. By leveraging MongoDB's document-based structure and Prisma's ORM capabilities, the system ensures fast querying, smooth integration, and flexibility in modelling relationships. This setup lays a solid foundation for future enhancements like real-time asset tracking, audit trails, and integration with HR or IT management tools.