**Automated Car Catalog System for Enhanced Showroom Management**

**Project Report**

**1. Introduction**

**1.1 Background**

Car showrooms typically handle large inventories of various makes and models. Manual inventory management leads to inefficiencies, errors, and delayed customer service. An automated car catalog system can significantly streamline operations, improve customer experience, and support sales staff with accurate, real-time information.

**1.2 Objectives**

* Automate the entry and update of car listings.
* Provide a centralized database for car specifications, images, and availability.
* Facilitate advanced search and filter features for users.
* Enable staff to generate reports and manage inventory in real-time.

**2. System Overview**

**2.1 Scope**

The system is designed for use by showroom managers, sales representatives, and customers. It handles catalog management, car information display, and basic inventory tracking.

**2.2 Features**

* **Car Entry Module:** Add new car details including make, model, year, price, images, etc.
* **Inventory Tracking:** Real-time availability status (e.g., in stock, sold, reserved).
* **Search and Filter:** By brand, price range, type (SUV, sedan, etc.), year, and more.
* **Customer View Mode:** A front-end interface to allow browsing without backend access.
* **Admin Dashboard:** Manage listings, update prices, and generate reports.

**3.1 Architecture**

* **Frontend:** HTML, CSS, JavaScript (React or Angular optional)
* **Backend:** Node.js / Python (Flask/Django)
* **Database:** MySQL / PostgreSQL / MongoDB
* **Hosting:** Local server or cloud-based (e.g., AWS, Azure)

**3.2 ER Diagram (Entities)**

* **Car** (Car\_ID, Make, Model, Year, Type, Price, Status, Image\_URL)
* **Admin** (Admin\_ID, Name, Email, Password)
* **Inventory\_Log** (Entry\_ID, Car\_ID, Date\_Added, Status\_Change)
* **User (Optional for login-based access)**

**4. Implementation**

**4.1 Modules Description**

* **Admin Panel:** Secure login, car entry/update, report generation
* **Catalog Viewer:** Interactive catalog for customers
* **Database Handler:** Interfaces with the database to CRUD car entries
* **Reporting Tool:** Daily/weekly inventory status summaries

**4.2 Screenshots (If available)**

Include screenshots of:

* Admin login panel
* Add car form
* Catalog UI
* Report generation page

**5. Testing & Validation**

**5.1 Testing Approach**

* **Unit Testing:** Each module independently tested
* **Integration Testing:** Verified smooth flow between frontend and backend
* **User Acceptance Testing (UAT):** Tested by showroom staff for usability

**5.2 Sample Test Cases**

| **Test Case** | **Input** | **Expected Output** | **Result** |
| --- | --- | --- | --- |
| Add new car | Valid car details | Entry saved in DB | Pass |
| Filter by brand | Brand = Toyota | All Toyota cars | Pass |
| Search unavailable car | Car not in DB | "No results found" | Pass |

**6. Results and Discussion**

* Time to access car info reduced by over 50%
* Improved accuracy in car availability
* Enhanced customer experience through detailed filters and visuals
* Simplified reporting and inventory planning for managers

**7. Limitations & Future Scope**

**7.1 Current Limitations**

* No integration with billing or CRM systems
* No mobile app version
* Limited to internal showroom database (no multi-branch support)

**7.2 Future Enhancements**

* Cloud-based multi-showroom integration
* Integration with finance/loan tools
* Customer-side booking/reservation portal
* Mobile app for iOS/Android

**8. Conclusion**

The Automated Car Catalog System streamlines showroom operations, enhances data accuracy, and improves customer engagement. It serves as a robust foundation for further expansion into full dealership management platforms.