

**Superior University Gold Campus**

**PAI Lab Task # 8**

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### ****Vehicle Info App****

### 1.Introduction

The Vehicle Info App is a simple web-based application that allows users to:

* Retrieve a list of car models based on a vehicle make (e.g., Toyota, Honda).
* Get detailed vehicle information by entering a Vehicle Identification Number (VIN).

The app uses Python on the backend and HTML/JavaScript on the frontend. It integrates with the National Highway Traffic Safety Administration (NHTSA) API to fetch real-time vehicle data.

### ****2. Backend Explanation****

The backend is built using Python’s built-in web server capabilities. It handles HTTP requests and communicates with the NHTSA API.

#### **a. Model Retrieval by Make**

The backend receives a vehicle make from the frontend (e.g., “Toyota”), sends a request to the NHTSA API, retrieves the available car models for that make, and returns them to the user.

#### **b. Vehicle Information by VIN**

The backend also allows users to enter a VIN. It uses this VIN to request vehicle details from the NHTSA API and returns a list of attributes such as model year, body class, engine type, and manufacturer details.

#### **c. Server and Request Handling**

The backend server:

* Listens for incoming requests.
* Serves the HTML file to the user.
* Handles two types of POST requests:
  + One for fetching car models by make.
  + Another for decoding VINs and returning vehicle info.

### ****3. Frontend Explanation****

The frontend is built using HTML and JavaScript and includes:

* A form to input a vehicle **make** and display the corresponding models.
* A form to input a **VIN** and display the detailed vehicle information.

#### **a. User Interface**

* The interface is minimal and user-friendly. It contains two forms:
* One for entering the car make.
* One for entering the VIN.

Below each form is a section where the results are displayed after processing.

#### **b. JavaScript Functionality**

JavaScript is used to:

* Prevent the default form submission behavior.
* Send the user’s input to the backend using POST requests.
* Receive and display the HTML response in the appropriate section of the page without reloading.

### ****4. External API (NHTSA Integration)****

The app uses the NHTSA Vehicle API, which provides public access to:

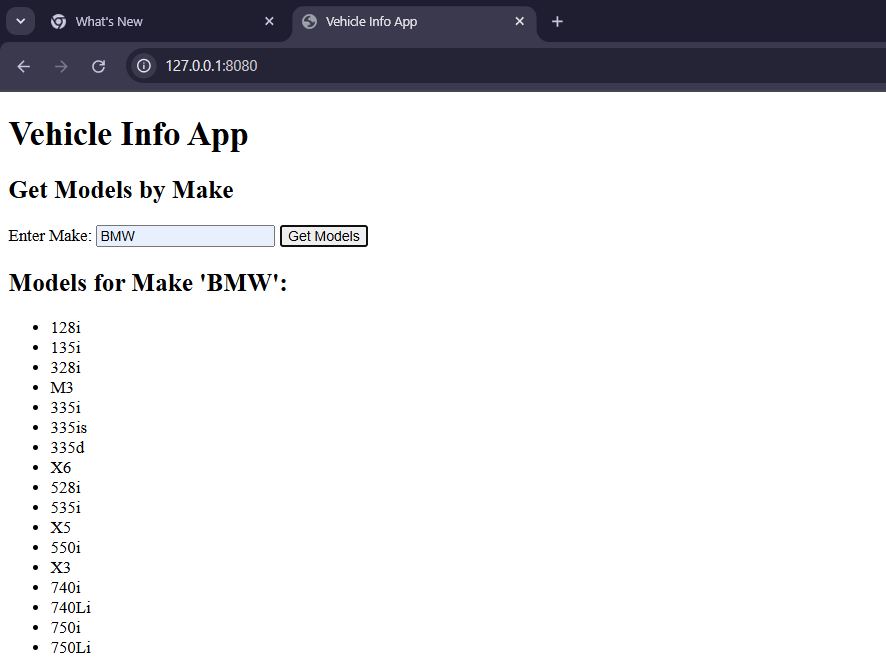
* A list of vehicle models for a given make.
* Detailed vehicle attributes based on a VIN.

This allows the app to deliver accurate and up-to-date information directly from a trusted government source.

### ****5. Workflow Summary****

1. The user opens the app in a web browser.
2. They enter a vehicle make or a VIN.
3. JavaScript captures the input and sends it to the backend.
4. The backend sends a request to the NHTSA API and processes the response.
5. The backend returns an HTML snippet with the results.
6. JavaScript displays the result dynamically on the webpage.

**Output:**

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