

## NeLson's Garage

NeLson, your high school friend, currently has the largest garage in town. Unfortunately, his garage still operates by taking notes of each vehicle owner's data manually. As your best friend, NeLson asks for your help to create an application using C programming language and **chaining hash table** data structure. The application would consists of menu as stated:

- The program will consists of 4 menus:
  - Insert New Vehicle
  - View All Vehicles
  - Update Storage Duration
  - Exit
- If the user chooses **menu 1 (Insert New Vehicle)**, the program will:
  - Prompt the user to input **vehicle name**. Validate the input must consists of **2 words** and **unique**.
  - Prompt the user to input **vehicle type**. Validate the input must be **between "SUV", "Sedan", and "Hatchback" (case sensitive)**.
  - Prompt the user to input **storage duration**. Validate the input must be **a positive number**.
  - Prompt the user to confirm **insertion**. Validate the confirmation must be between **"Y" or "N" (case sensitive)**.
  - If the user **chooses "N"**, **redirect** user to the main menu.
  - Insert the user to the chaining hash table, sorted by alphabetical order, with the table size of 50, based on the following key which could be obtained by the following method:

$$\text{Key} = X \% Y$$

**X** : Sum of all ASCII value of vehicle name

**Y** : Size of hash table

Vehicle Name : Toyota Avanza

Size : 50

X :  $84 + 111 + 121 + 111 + 116 + 97 + 32 + 65 + 118 + 97 + 110 + 122 + 97 = 1281$

Y : 50

Key :  $1281 \% 50$ , therefore key will be 31

- If the user chooses **menu 2 (View All Vehicles)**, the program will:
  - Check data from hash table. If there is no vehicle, display the message “**There is currently no vehicle**” and **redirect** user to the main menu.
  - Otherwise, **display all vehicles data** and **redirect** user to the main menu.
- If the user chooses **menu 3 (Update Storage Duration)**, the program will:
  - Check data from hash table. If there is no vehicle, display the message “**There is currently no vehicle**” and **redirect** user to the main menu.
  - Otherwise, **display all vehicles data**.
  - Prompt user to input the **vehicle name** to be updated. Validate the input must **exists in the hash table**.
  - If the movie name **exists** in the hash table, prompt user to input **new storage duration**. Validate the input must be a positive value.
  - **Update** the storage duration, and **redirect** user to the main menu.
- If the user chooses **menu 4 (Exit)**, the program will close.