

# Car filtering application

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## Brief description

You are given a cars.csv file that contains some useful information about **several thousand** different cars. You will have to develop an application that will help users to find a car that suits their needs using several ways of filtering the data. Also, the database does not contain several modern models, so you will have to provide a convenient UI for adding them to the database.

## The dataset

The dataset and description of all fields can be found [here](#). *(If the page is down contact someone, I have a backup of both the dataset and the description)*

Unfortunately, the dataset has some problems. In particular, some dimensions are specified in inches and others are in centimeters, but this should not affect the project.

## Filters to create

The dataset contains quite a number of columns, so I chose only a few parameters that should be filtered.

You are not allowed to modify the dataset manually. For example, you cannot remove unnecessary " characters. However, if the user somehow modifies it using your program (deletes/edits/inserts a record), you have to modify the file when the "Save" button is clicked.

**Very important note:** All of the values have to be calculated **dynamically**. This means that if you need minimal and maximal values you have to calculate them, not just insert some magic constants in your code.

- **Dimensions.Height** - a Range slider between minimum and maximum (be careful about 0!)
- **Dimensions.Width** - same as Height
- **Dimensions.Length** - same as Height
- **Include unknown** - a checkbox that includes cars with unknown dimensions (marked as 0) into the filtered results
- **Engine Information.Driveline** - a **list of checkboxes** that are dynamically generated from the dataset
- **Fuel Information.Fuel Type** - a Combobox with dynamically generated values
- **Identification.Year** - a range slider (similar to height) for filtering the release year
- **Identification.ID** - A textbox that filters records in the following way: If search\_query is a substring of Identification.ID then the car satisfies this filter
- **Exclude makes** - a textbox which contains several makes which are separated by commas. For example Audi, BMW Motorrad. The specified makes have to be **excluded** from the search results.

## User interface

### Main window

Main Window

The green and red rectangles are buttons. The Search button filters the records and shows only those which satisfy the filter. Delete button removes the record selected in the table (not from the csv but from the table!). The yellow box is just a note.

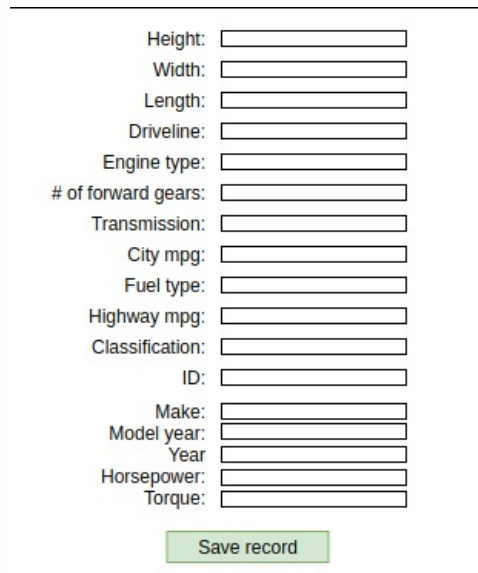
The table has to display all of the columns from CSV. Also, it should allow the user to modify cells and sort the records by each of the columns.

Requirements for the “File” menu:

- File -> Load data should show a file selection dialog and load the selected .csv file
- File -> Save data should show a save file dialog and save the .csv file

- File -> Save search should show a save file dialog and save user filters as file
- File -> Load search should show a load file dialog and load user filters from selected file
- File -> Add record should show an Add Record window. After the record is added the Main Window should update

### Add Record Dialog



A screenshot of a software dialog box titled "Add Record Dialog". The dialog contains a list of car-related attributes, each followed by a text input field. The attributes are: Height, Width, Length, Driveline, Engine type, # of forward gears, Transmission, City mpg, Fuel type, Highway mpg, Classification, ID, Make, Model year, Year, Horsepower, and Torque. At the bottom of the dialog is a green button labeled "Save record".

Height:	<input type="text"/>
Width:	<input type="text"/>
Length:	<input type="text"/>
Driveline:	<input type="text"/>
Engine type:	<input type="text"/>
# of forward gears:	<input type="text"/>
Transmission:	<input type="text"/>
City mpg:	<input type="text"/>
Fuel type:	<input type="text"/>
Highway mpg:	<input type="text"/>
Classification:	<input type="text"/>
ID:	<input type="text"/>
Make:	<input type="text"/>
Model year:	<input type="text"/>
Year	<input type="text"/>
Horsepower:	<input type="text"/>
Torque:	<input type="text"/>

Add record dialog

This window is quite simple - one has to just receive some input from the user, **validate it** (height cannot be 12in, it should be just 12), and update the Main Window.