

Car Selector

E 177 Final Project

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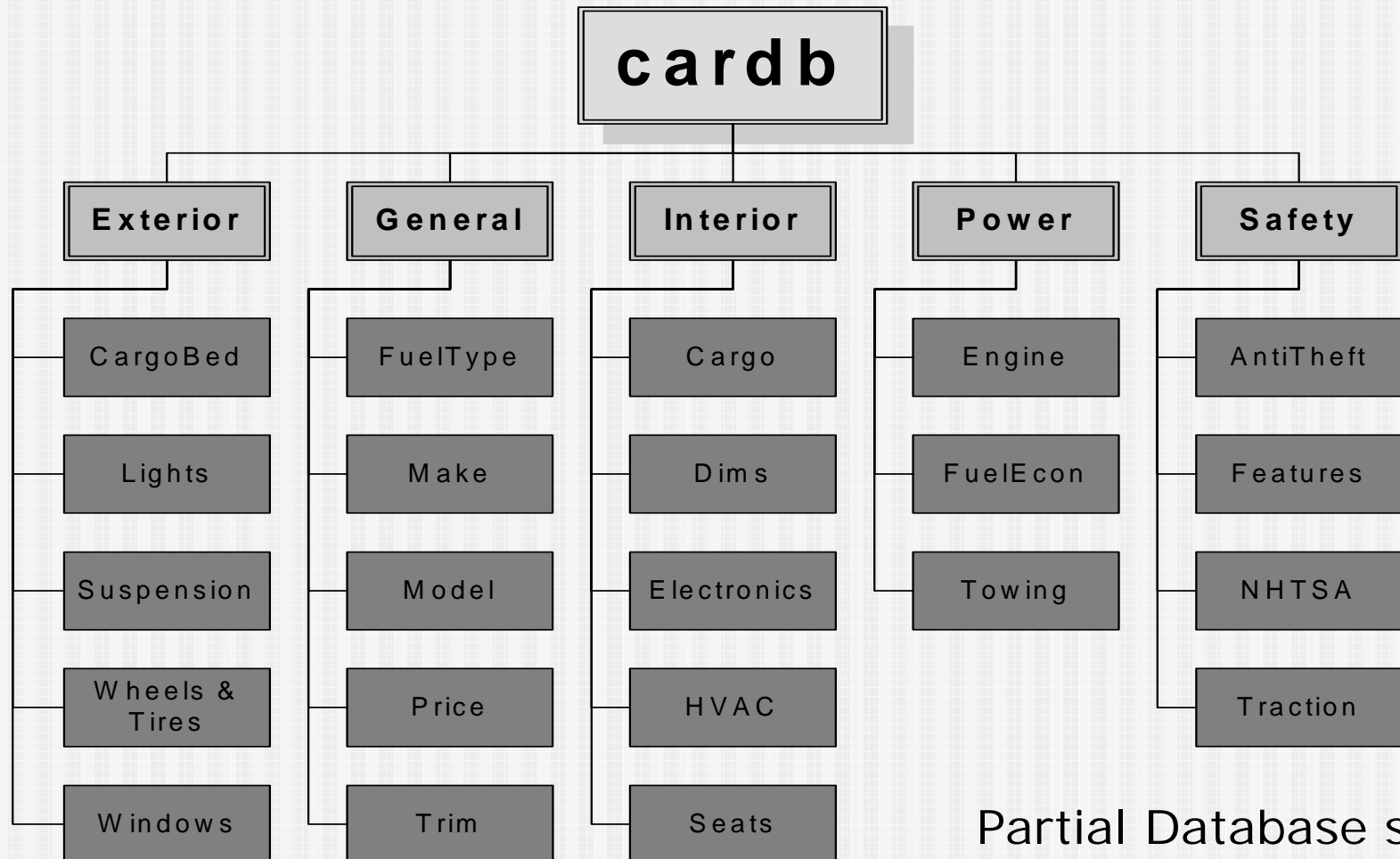
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Project Objective

- Design a software program to assist new car buyers
 - Survey-based
 - Dynamic Ranking System
 - 100% Data-driven
 - Blinds user to brand names

Car Database



Partial Database shown
for Example Only

Survey 1

Establishes the general type of vehicle that the user seeks.

- Organized by UiPanels

Uses

- Check Boxes
- Edit
- A Push Button

Vehicle Selector : General Requirements

Fill out the following survey to narrow the range of vehicles that best fit your requirements

Body Type

☐ Sedan☐ Coupe

☐ Convertible☐ SUV

☐ Pick-up Truck

Fuel Type

☐ Gasoline☐ Diesel

☐ Gas and Electric Hybrid

Transmission Type

☐ Manual☐ Automatic

Drivetrain

☐ Front-Wheel Drive☐ All-Wheel Drive

☐ Rear-Wheel Drive☐ 4 x 4

Price Range

\$0

\$Inf

Set the Minimum and Maximum MSRP of the vehicle you seek

Continue...

Survey 2

Survey2, like Survey 1, uses...

- UiPanels
- Check Boxes
- Edits
- A Push Button

In addition, @radio10 class was developed to create mutually exclusive button groups of 11 radio buttons.

Vehicle Selector Co

Fill out this survey to further specify your requirements.

Rank the importance of the following properties.

1 = low priority 10 = high priority

Safety

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ N/A

Performance

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ N/A

Passenger Space

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ N/A

Cargo Space

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ N/A

Designate the desired fuel economy rating

Greater than miles per gallon of fuel in the city.

Finish

@radio10 class

- Group 10 (+1) radio buttons
- Mutually exclusive behavior
- Stores value of user's choice
- Adjustable Positioning
- Adjustable Fontsize

Example:



Survey Data Storage

- Answers saved in 'appdata' of figure

```
% Psuedo Code
TH = gcf;
res.Rating.Performance = get(radio10handle,'value')
... % rest of ratings and checkbox answers
TS.results = res;
setappdata(TH,'ToolState',TS);
```

- Answers retrieved from 'appdata' of figure for analysis

```
% Psuedo Code
FigH = gcf;
TS = getappdata(FigH,'ToolState');
TS.Results % Analyze to find best cars
```

Data Analysis

- Loops through database to find vehicles that match all user-defined requirements
- Score each vehicle based on user ratings
 - Normalize data within range of valid vehicles

- Example:

$$Power_{norm,i} = \frac{Power_i - Power_{min}}{Power_{max} - Power_{min}}$$

- Multiply normalized data by rating to weight each category
- Example:

$$Score_{Power,i} = 0.1 \times Rating_{Power} \times Power_{norm,i}$$

- Add score of each category to get final score

Further Data Management

- Implement MySQL Database
 - Utilize Database Toolbox
- Automate Data Acquisition
 - All data courtesy of autos.msn.com
 - Use code parser to obtain vehicle specs from MSN website