

Search Dialog Example

Let's consider an example graphical interface
The widgets of which are laid out using a GridPane:

`FixedSizeInterfaceJFX`

This all looks perfectly acceptable...
But what happens if we resize the window ?

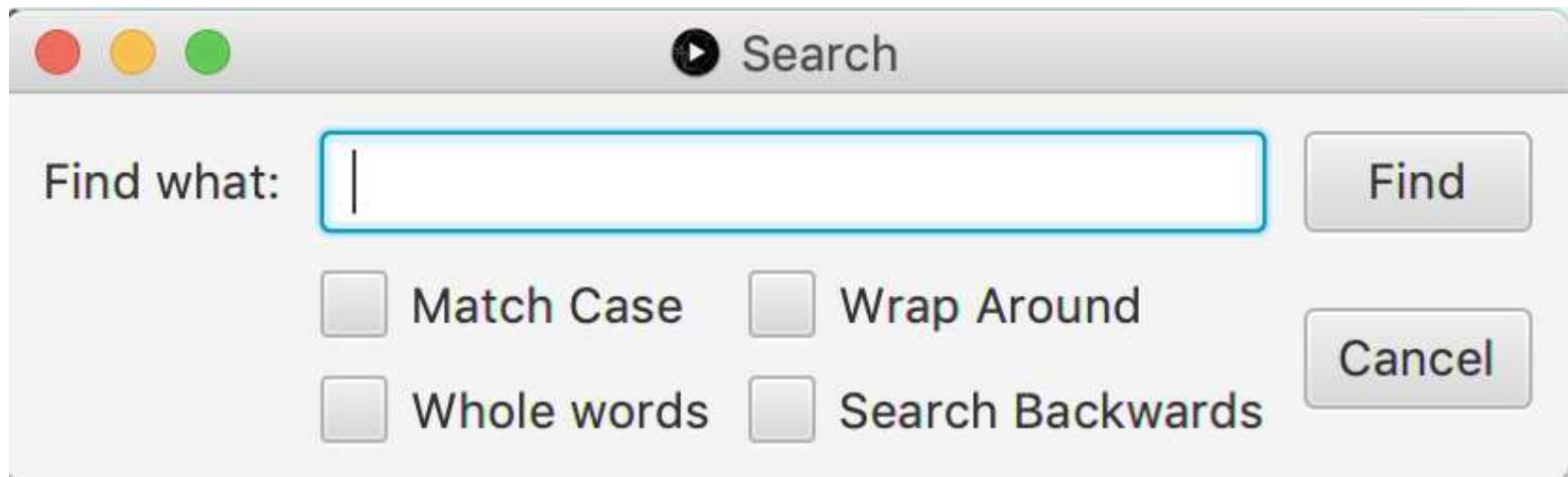
Desired Outcome

The question is: What SHOULD happen to...

"Find what" - "Text Field" - "Find Button"

When the window is resized horizontally ?

When the window is resized vertically ?



Expressing Desires

We can't expect widgets to KNOW how to behave
We (as developer) need to tell them what to do
But how do we do this ?

We can do this with a bunch of "constraints"...

GridPane Constraints

```
ColumnConstraints colConst = new ColumnConstraints();  
colConst.setPercentWidth(100/numberOfCols);  
for (int i=0; i<numberOfCols; i++)  
    pane.getColumnConstraints().add(colConst);
```

```
RowConstraints rowConst = new RowConstraints();  
rowConst.setPercentHeight(100/numberOfRows);  
for (int i=0; i<numberOfRows; i++)  
    pane.getRowConstraints().add(rowConst);
```

Alternative Layout Panes

GridPane is perhaps TOO open and TOO flexible
We have to customise it with various constraints
In order to get it resize in a specific way
Sometimes this appropriate, other times not !

Luckily there are alternative layout panes
Which are MORE specific and MORE specialised
Maybe not as flexible as GridPane
But which exhibit more "self control"...

HBox Pane

A horizontal row of widgets

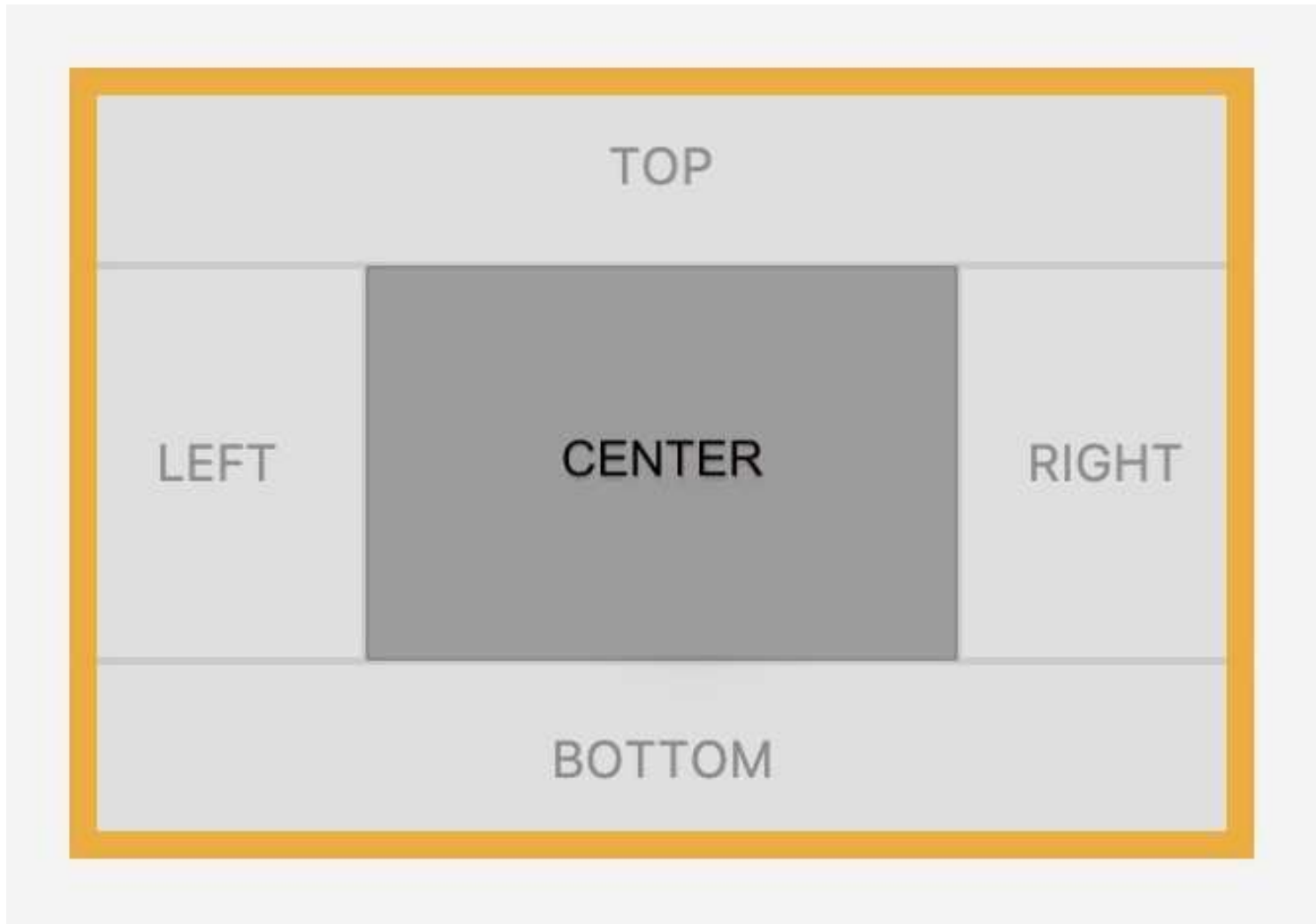
When the pane is resized, each widget expands
by the same amount to fill the space



VBox Pane



Border Pane



Interface Re-design

We can reimplement our previous search example
Using VBoxs, BorderPanes and GridPanes...

Find what: Find

<input type="checkbox"/> Match Case	<input type="checkbox"/> Whole words	Cancel
<input type="checkbox"/> Wrap Around	<input type="checkbox"/> Search Backwards	

Vbox

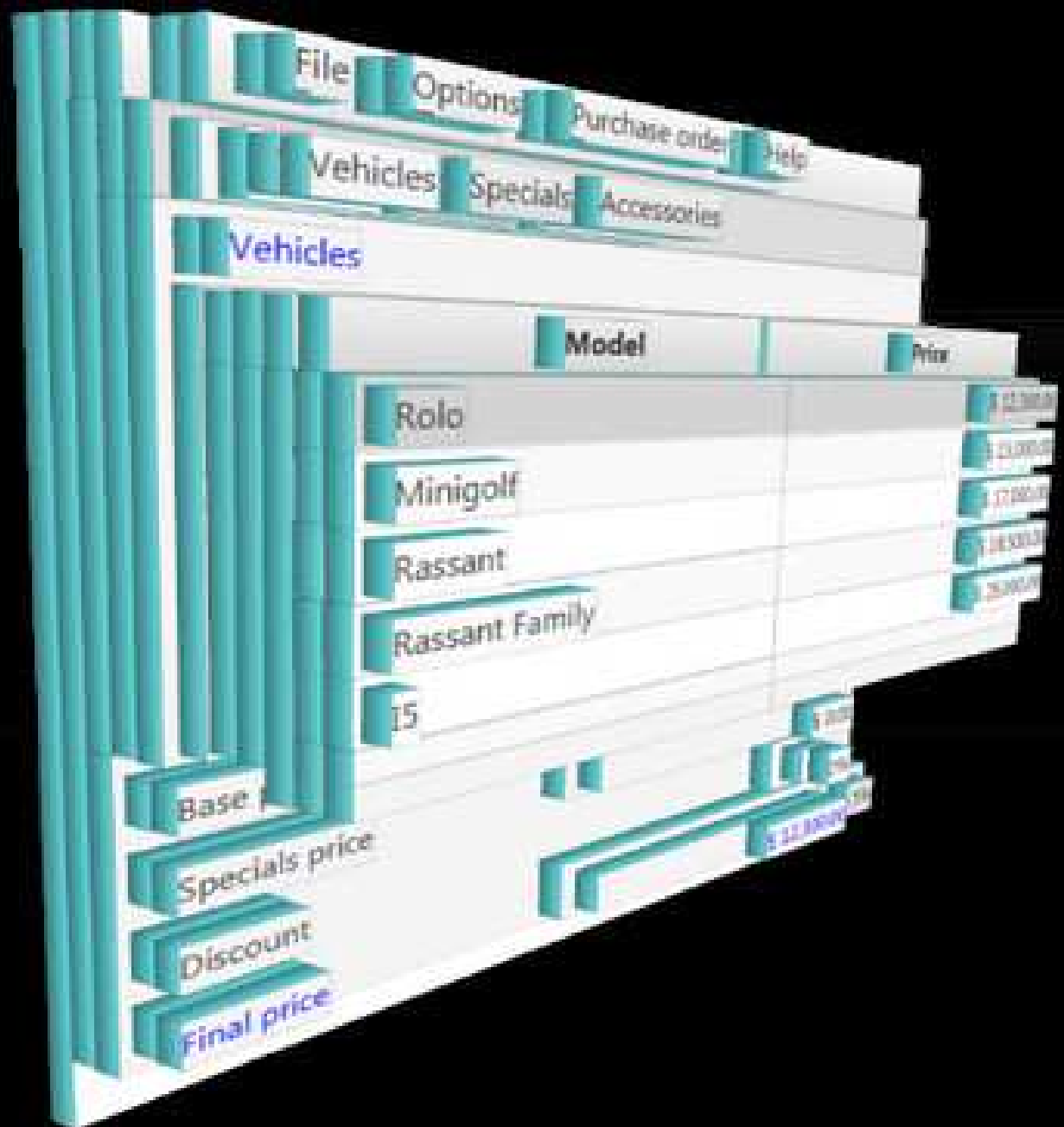
BorderPane

GridPane

Let's see it in action !

ResponsiveInterfaceJFX

As we can see, this resizes in a satisfying manner
It does however involve nesting layout managers
And tweaking of margins, alignment and insets
This all starts to become VERY complicated...



Widget Properties

We can't just leave everything to the panes

Have to give them hints on how to show widgets:

- Minimum (squashed) size:

```
myButton.setMinWidth(66);
```

- Maximum (stretched) size:

```
myButton.setMaxWidth(300);
```

- Horizontal alignment:

```
buttonPane.setAlignment(myButton, Pos.CENTER);
```

- Scaling policy (VBox and HBox only):

```
VBox.setVgrow(buttonPane, Priority.ALWAYS);
```

Size Demonstration

The following shows how different setting of:

MaxHeight, MaxWidth and Vgrow

Impact the rendering of a set of buttons in a VBox

VgrowPrioritiesJFX