CS50 Shuttle

shuttle.cs50.net

David J. Malan
malan@harvard.edu
CS50 Shuttle

start engine
teleport

Pick Up  Drop Off

no announcements at this time
<table>
<thead>
<tr>
<th>Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Empty Seat</td>
</tr>
<tr>
<td>1. Empty Seat</td>
</tr>
<tr>
<td>2. Empty Seat</td>
</tr>
<tr>
<td>3. Empty Seat</td>
</tr>
<tr>
<td>4. Empty Seat</td>
</tr>
<tr>
<td>5. Empty Seat</td>
</tr>
<tr>
<td>6. Empty Seat</td>
</tr>
<tr>
<td>7. Empty Seat</td>
</tr>
<tr>
<td>8. Empty Seat</td>
</tr>
<tr>
<td>9. Empty Seat</td>
</tr>
</tbody>
</table>
ingredients

- HTML, CSS
- JavaScript
  - loops, conditions, variables, functions
  - arrays, objects (encapsulation)
- APIs
- GIS
season to taste

• DOM (trees)
• event handling
• anonymous functions
• distance between points
• camera angles
• ...

starter code

- index.html
- service.css
- houses.js
- passengers.js, passengers/*.jpg
- shuttle.js
- service.js
- ...
- ...
var HOUSES = {
  "Adams House": {lat: 42.37189, lng: -71.11639},
  "Cabot House": {lat: 42.381842, lng: -71.123857},
  "Currier House": {lat: 42.381704, lng: -71.125773},
  "Dunster House": {lat: 42.368648, lng: -71.115929},
  "Eliot House": {lat: 42.370355, lng: -71.121041},
  "Kirkland House": {lat: 42.370699, lng: -71.120859},
  "Leverett House": {lat: 42.36993, lng: -71.117238},
  "Lowell House": {lat: 42.370572, lng: -71.118343},
  "Mather House": {lat: 42.368196, lng: -71.115376},
  "Pforzheimer House": {lat: 42.38229, lng: -71.124839},
  "Quincy House": {lat: 42.370741, lng: -71.11698},
  "Winthrop House": {lat: 42.370188, lng: -71.11955}
};
var PASSENGERS = [
{
  username: "achang88",
  name: "Alex Chang",
  house: "Kirkland House"
},
{
  username: "afaux",
  name: "Ainsley Faux",
  house: "Adams House"
},
{
  username: "agore",
  name: "Al Gore",
  house: "Dunster House"
},
...
challenges

• implement pickup()

• implement dropoff()}
design decisions

• how to represent shuttles' seats?
• how to find passenger among $n$ seats?
• ...

choose your own adventure

- implement points
- implement a timer
- group passengers by house
- implement flying (via Konami Code)
- replace blue bus with an arrow
- implement teleportation
- add gas pedal
- implement gas tank
- implement autopilot
- ...

weaknesses

• warrants starter code
• can be (made to be) too easy
• requires Internet access
• requires (sometimes buggy) plugin
strengths

- challenges range from easy to hard
- lots of opportunities for encapsulation
- introduces students to third-party APIs
- can be transplanted to any campus
- fun to drive around campus :-)

demo!

shuttle.cs50.net