Project Two Proposal

Open Sky API ✈

Hotwheels Team

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Drew McBride - Backend, Database Connections
Andrew Neher - Project Manager, Design Assist

For the **Group Project Two**, the Hotwheels Team proposes using the OpenSky API and Historical Flight Information to create an interactive web dashboard/portal to analyze Chicago area flight data. We hope to use HTML, CSS, JavaScript, OpenSky API, Jupyter Notebook, Pandas, SQL, Flask, Flowmap (a Leaflet plugin), JSON (if applicable), D3, OpenStreetMap and Plotly to achieve this goal. We have requested formal access to historical flight data from OpenSky's Impala Shell, a full dataset over an SQL-like query interface. Response pending.

Ideally, the user may select dates and location data, times of day, with color coding times of day, purple for evening, green for daytime, red for late flights, layover data, total flight times, type of aircraft, airline company. We could toggle between inbound and outbound flights, as well as.

Visual Inspiration:

Other JavaScript Tools and Visualizations:

- **2nd Visualizations:** Table underneath map with all flight info toggleable. This could be similar to the Mars web-scraping homework. We would want to put a cap on the amount of data we are pulling from the API to avoid overwhelming the requests.
- Data Types: Start Time, End Time, Type of Aircraft, State Vectors
- **3rd Visualization** of Historical Flight Data
- Consider making this a Proof of Concept with live data to avoid excessive data pulls
- Dropdown menus to toggle views
- TaffyDB
- TweenJS
- Voca
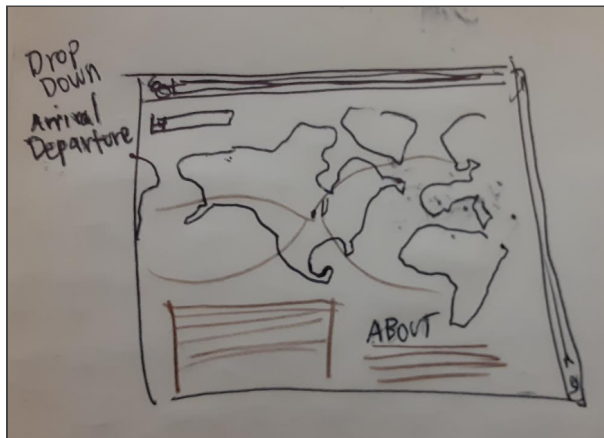- TypeScript

API Example Data:

```
$ curl -s
"https://USERNAME:PASSWORD@opensky-network.org/api/flights/aircraft?icao24=3c675a&begi
n=1517184000&end=1517270400" | python -m json.tool
```

```
15          "estArrivalAirportVertDistance": 423,
16          "departureAirportCandidatesCount": 1,
17          "arrivalAirportCandidatesCount": 3
18      },
19      {
20          "icao24": "3c675a",
21          "firstSeen": 1517249610,
22          "estDepartureAirport": null,
23          "lastSeen": 1517253348,
24          "estArrivalAirport": "EDDF",
25          "callsign": "DLH1RP  ",
26          "estDepartureAirportHorizDistance": null,
27          "estDepartureAirportVertDistance": null,
28          "estArrivalAirportHorizDistance": 4478,
29          "estArrivalAirportVertDistance": 110,
30          "departureAirportCandidatesCount": 0,
31          "arrivalAirportCandidatesCount": 3
32      },
33      {
34          "icao24": "3c675a",
35          "firstSeen": 1517241634,
36          "estDepartureAirport": "EDDF",
37          "lastSeen": 1517244499,
38          "estArrivalAirport": null,
39          "callsign": "DLH830  ",
40          "estDepartureAirportHorizDistance": 934,
41          "estDepartureAirportVertDistance": 42,
42          "estArrivalAirportHorizDistance": null,
43          "estArrivalAirportVertDistance": null,
44          "departureAirportCandidatesCount": 1,
45          "arrivalAirportCandidatesCount": 0
46      },
47      {
48          "icao24": "3c675a",
49          "firstSeen": 1517232785,
50          "estDepartureAirport": null,
```

Site Thumbnail:

Schedule:

Wed 04/14: Submit Proposal

Sat 04/17: Class Project Work

Mon 04/19: Class Project Work

Wed 04/21: Class Project Work

Sat 04/24: Class Project Work

Mon 04/26: Class Lessons

Wed 04/28: Class Lessons

Sat 05/01: Presentation Day