Trip Builder

Outline

An **airline** has a name and is identified by a IATA Airline Code.
Ex: Air Canada (AC)

An **airport** is a location identified by a IATA Airport Code. It also has a name, a city, latitude and longitude coordinates, a timezone and a city code, the IATA Airport Code for a city, which may differ from an airport code in larger areas.
Ex: Pierre Elliott Trudeau International (YUL) belongs to the Montreal (YMQ) city code.

A **flight** is uniquely numbered for a referenced airline. For the sake of simplicity, a flight is priced for a single passenger (any gender, any type) in a neutral currency and is available every day of the week. It references a pair of airports for departure and arrival. It has departure and arrival times in the corresponding airport timezones.
Ex: AC301 from YUL to YVR departs at 7:35 AM (Montreal) and arrives at 10:05 AM (Vancouver).

Your Mission

Create Web Services to *build and navigate trips* for a single passenger using criteria such as departure locations, departure dates and arrival locations. Be mindful of timezones!

A **trip** references one or many flights with dates of departure. The price amounts to the total of the price of the referenced flights.

The following trip types MUST be supported:

- A *one-way* is a flight getting from A to B
- A *round-trip* is a pair of one-ways getting from A to B then from B to A

A trip MUST depart after creation time at the earliest or 365 days after creation time at the latest.

Technical Requirements

- Server-side application(s) MUST be written in PHP
- The resulting project MUST be version-controlled and hosted online
- Easy to follow instructions MUST be provided to *provision an environment*, *install* and *run* the application locally on a PC (Windows or Linux) and/or Mac

How to Earn Extra Considerations

- Deploy the application online to ease the review process
- Scale beyond sample data (see below)
- Use data storage(s) provisioned within the environment
- Implement automated software tests
- Document Web Services
- Allow flights to be restricted to a preferred airline
- Sort trip listings
- Paginate trip listings
- Allow flights departing and/or arriving in the vicinity of requested locations
- Support *open-jaw* trips, a pair of one-ways getting from A to B then from C to A
- Support *multi-city* trips, one-ways (up to 5) from A to B, B to C, C to D, *etc.*

Sample Data

```json
{
    "airlines": [
        {
            "code": "AC",
            "name": "Air Canada"
        }
    ],
    "airports": [
        {
            "code": "YUL",
            "city_code": "YMQ",
            "name": "Pierre Elliott Trudeau International",
            "city": "Montreal",
            "country_code": "CA",
            "region_code": "QC",
            "latitude": 45.457714,
            "longitude": -73.749908,
            "timezone": "America/Montreal"
        },
        {
            "code": "YVR",
            "city_code": "YVR",
            "name": "Vancouver International",
            "city": "Vancouver",
            "country_code": "CA",
            "region_code": "BC",
            "latitude": 49.194698,
            "longitude": -123.179192,
            "timezone": "America/Vancouver"
        },
    ],
    "flights": [
        {
            "airline": "AC",
            "number": "301",
            "departure_airport": "YUL",
            "departure_time": "07:35",
            "arrival_airport": "YVR",
            "arrival_time": "10:05",
            "price": "273.23"
        },
        {
            "airline": "AC",
            "number": "302",
            "departure_airport": "YVR",
            "departure_time": "11:30",
            "arrival_airport": "YUL",
            "arrival_time": "19:11",
            "price": "220.63"
        }
    ]
}
```