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. Timezones are also ignored. It references a pair of airports for departure and arrival.
Ex: AC301 from YUL to YVR departs at 7:35 AM (Montreal) and arrives at 10:05 AM (Vancouver).

Your Mission

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

A **trip** references one or many flights, each one departing after the arrival date of the previous flight. A trip's price is the sum of the prices of the referenced flights.

The following trip types MUST be supported:

- A *one-way* is a trip getting from A to B *(i.e. 1+ flights)*
- A *round-trip* is a trip getting from A to B, and then from B to A *(i.e. 2+ flights)*

Technical Requirements

- Server-side application MUST be written in PHP
- The resulting project MUST be version-controlled and available online *(e.g. GitHub)*
- 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 the API
- Allow flights to be restricted to a preferred airline
- Sort trip listings *(e.g. by price, trip duration, # of stops)*
- Paginate trip listings

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"
        }
    ]
}
```

Sample Request/Response

```
{
    "request": {
        {
            "departure_airport": "YUL",
            "arrival_airport": "YVR",
            "departure_date": "2021-02-01",
            "return_date": "2021-02-20",
            "trip_type": "round-trip"
        }
    }
}

{
    "response": {
        {
            "trips": [
                {
                    "price": "493.86",
                    "flights": [
                        {
                            "airline": "AC",
                            "number": "301",
                            "departure_airport": "YUL",
                            "departure_datetime": "2021-02-01 07:35",
                            "arrival_airport": "YVR",
                            "arrival_datetime": "2021-02-01 10:05",
                            "price": "373.23"
                        },
                        {
                            "airline": "AC",
                            "number": "302",
                            "departure_airport": "YVR",
                            "departure_datetime": "11:30",
                            "arrival_airport": "YUL",
                            "arrival_datetime": "19:11",
                            "price": "320.63"
                        }
                    ]
                },
                {
                    "price": "458.62",
                    "flights": [
                        {
                            "airline": "AC",
                            "number": "317",
                            "departure_airport": "YUL",
                            "departure_datetime": "2021-02-01 07:35",
                            "arrival_airport": "YCC",
                            "arrival_datetime": "2021-02-01 09:30",
                            "price": "146.42"
                        },
                        {
                            "airline": "AC",
                            "number": "318",
```

```
                    "departure_airport": "YCC",
                    "departure_datetime": "2021-02-01 10:10",
                    "arrival_airport": "YVR",
                    "arrival_datetime": "2021-02-01 10:38",
                    "price": "86.23"
                },
                {

                    "airline": "AC",
                    "number": "346",
                    "departure_airport": "YVR",
                    "departure_datetime": "11:30",
                    "arrival_airport": "YCC",
                    "arrival_datetime": "18:35",
                    "price": "75.41"
                } ,
                {

                    "airline": "AC",
                    "number": "347",
                    "departure_airport": "YCC",
                    "departure_datetime": "19:15",
                    "arrival_airport": "YUL",
                    "arrival_datetime": "19:46",
                    "price": "150.56"
                }
            ]
        },
        ]
    }
  }
}
```