

Ryanair - Task 2 - Java/Spring - Interconnecting Flights

Write a Spring MVC based RESTful API application which serves information about possible direct and interconnected flights (maximum 1 stop) based on the data consumed from external APIs.

Given:

The application can consume data from the following two microservices: - Routes API:

<https://api.ryanair.com/core/3/routes> which returns a list of all available routes based on the airport's IATA codes. Please note that only routes with empty `connectingAirport` should be used (value set to `null`). For example:

```
[
  {
    "airportFrom": "LUZ", # a departure airport IATA code
    "airportTo": "STN", # an arrival airport IATA code
    "connectingAirport": null, # a connecting airport IATA code
    "newRoute": false,
    "seasonalRoute": false,
    "group": "GENERIC"
  },
  {
    "airportFrom": "CHQ",
    "airportTo": "SKG",
    "connectingAirport": null,
    "newRoute": false,
    "seasonalRoute": false,
    "group": "GENERIC"
  },
  (...)
]
```

- Schedules API:

<https://api.ryanair.com/timetable/3/schedules/{departure}/{arrival}/years/{year}/months/{month}> which returns a list of available flights for a given departure airport IATA code, an arrival airport IATA code, a year and a month. For example (<https://api.ryanair.com/timetable/3/schedules/DUB/WRO/years/2018/months/6>):

```
{
  "month": 6, # a month of a year
  "days": [
    {
      "day": 1, # a day of a month
      "flights": [ # a list of flights for given day
        {
          "number": "1926", # a flight number
          "departureTime": "18:00", # a departure time in the departure
```

```

airport timezone
    "arrivalTime": "21:35" # an arrival time in the arrival airport
    timezone
    }
    ]
    },
    {
        "day": 3,
        "flights": [
            {
                "number": "1926",
                "departureTime": "17:25",
                "arrivalTime": "21:00"
            }
        ]
    },
    (...)
]
}

```

Requirements:

- The source code of the application should be delivered.
- The application should be assembled as a deployable WAR file
- The application should response to following request URI with given query parameters:

`http://<HOST>/<CONTEXT>/interconnections?departure={departure}&arrival={arrival}&departureDateTime={departureDateTime}&arrivalDateTime={arrivalDateTime}` where:

- departure - a departure airport IATA code
- departureDateTime - a departure datetime in the departure airport timezone in ISO format
- arrival - an arrival airport IATA code
- arrivalDateTime - an arrival datetime in the arrival airport timezone in ISO format

for example:

`http://localhost:8080/somevalidcontext/interconnections?departure=DUB&arrival=WRO&departureDateTime=2018-03-01T07:00&arrivalDateTime=2018-03-03T21:00`

- The application should return a list of flights departing from a given departure airport not earlier than the specified departure datetime and arriving to a given arrival airport not later than the specified arrival datetime. The list should consist of:
 - all direct flights if available (for example: DUB - WRO)
 - all interconnected flights with a maximum of one stop if available (for example: DUB - STN - WRO)
- For interconnected flights the difference between the arrival and the next departure should be 2h or greater
- The list should be of the following form:

```

[
  {
    "stops": 0,

```

```

    "legs": [
      {
        "departureAirport": "DUB",
        "arrivalAirport": "WRO",
        "departureDateTime": "2018-03-01T12:40",
        "arrivalDateTime": "2018-03-01T16:40"
      }
    ]
  },
  {
    "stops": 1,
    "legs": [
      {
        "departureAirport": "DUB",
        "arrivalAirport": "STN",
        "departureDateTime": "2018-03-01T06:25",
        "arrivalDateTime": "2018-03-01T07:35"
      },
      {
        "departureAirport": "STN",
        "arrivalAirport": "WRO",
        "departureDateTime": "2018-03-01T09:50",
        "arrivalDateTime": "2018-03-01T13:20"
      }
    ]
  }
]

```

We are looking for the solution to be well factored and to adhere to the SOLID principles.