

Data Description and Interface

For the Second Assignment, PKU Visualization Course, 2013 Fall

PKUVIS, 2013.10.15

In the second assignment, students are asked to design and implement an online visualization system for the openflight dataset. This dataset contains current available records of airports, airlines and routes all over the world. Information includes their name, city, country, exact location, source or destination, active or not, how many stops, etc.

The original data and description is available at <http://openflights.org/data.html>. This document gives an overview to the data, and describes our online data interface.

1. Data description

The openflight dataset consists of 3 sub datasets, Airports, Airlines and Routes.

1.1 Airports

Including 7546 airports record, only 5140 of them are valid (IATA code not null), available fields are:

Airport ID	Unique Open Flights identifier for this airport.
*Name	Name of airport. May or may not contain the City name.
*City	Main city served by airport. May be spelled differently from Name.
*Country	Country or territory where airport is located.
*IATA/FAA	3-letter FAA code, for airports located in Country "United States of America". 3-letter IATA code, for all other airports. Blank if not assigned.
*ICAO	4-letter ICAO code. Blank if not assigned.
Latitude	Decimal degrees, usually to six significant digits. Negative is South, positive is North.
Longitude	Decimal degrees, usually to six significant digits. Negative is West, positive is East.
Altitude	In feet.
Timezone	Hours offset from UTC. Fractional hours are expressed as decimals, e g. India is 5.5.
DST	Daylight savings time. One of E (Europe), A (US/Canada), S (South America), O (Australia), Z (New Zealand), N (None) or U (Unknown).

Fields with '*' can be specified as parameter in HTTP GET request of our data interface, will explain later.

1.2 Airlines:

Including 5963 airlines records, only 1411 of them are valid(IATA code not null), available fields are:

Airline ID	Unique Open Flights identifier for this airline.
*Name	Name of the airline.
*Alias	Alias of the airline. For example, All Nippon Airways is commonly known as "ANA".
*IATA	2-letter IATA code, if available.
*ICAO	3-letter ICAO code, if available.
*Callsign	Airline callsign.
*Country	Country or territory where airline is incorporated.
*Active	"Y" if the airline is or has until recently been operational, "N" if it is defunct. This field is not reliable: in particular, major airlines that stopped flying long ago, but have not had their IATA code reassigned (eg. Ansett/AN), will incorrectly show as "Y".

Fields with '*' can be specified as parameter in GET request of our data interface, will explain later.

1.3 Routes:

Including 59015 route records, 58261 of them are with valid airlineID. Containing fields:

Airline	2-letter (IATA) or 3-letter (ICAO) code of the airline.
*Airline ID	Unique Open Flights identifier for airline (see Airline).
*Source airport	3-letter (IATA) or 4-letter (ICAO) code of the source airport.
*Source airport ID	Unique Open Flights identifier for source airport (see Airport)
*Destination airport	3-letter (IATA) or 4-letter (ICAO) code of the destination airport.
*Destination airport ID	Unique Open Flights identifier for destination airport (see Airport)
Codeshare	"Y" if this flight is a codeshare (that is, not operated by Airline, but another carrier), empty otherwise.
*Stops	Number of stops on this flight ("0" for direct)
Equipment	3-letter codes for plane type(s) generally used on this flight, separated by spaces

Fields with '*' can be specified as parameter in GET request of our data interface, will explain later.

2. Online data interface

To enable the online dynamic interaction, we've constructed an online interface for data access, using http GET method, data with specified constrains is return as a JSON object, including fields:

name	data structure	meaning
result	Boolean	'true' if return result successfully
count	Integer	number of records returned(for routes search)
airports/airlines/routes	JSON array	Result of airports/airlines/routes
finished (only for routes)	Boolean	'true' if the whole result is returned (because result is limited to 5000)

The http GET methods' url and parameters are defined as follow:

2.1 Airports

url: 'http://vis.pku.edu.cn/course/Visualization_2013F/openflight/apsearch.php'

It will return all airports, in JSON. Optional parameters are:

meaning	parameter name	data structure
name	name	string
city	city	string
country	country	string
IATA	iata	string
ICAO	icao	string

For example, to get all airports in

China: 'http://vis.pku.edu.cn/course/Visualization_2013F/openflight/apsearch.php?country=china'

2.2 Airlines:

url: http://vis.pku.edu.cn/course/Visualization_2013F/openflight/alsearch.php

It will return all airlines, in JSON. Optional parameters are:

meaning	parameter name	data structure
name of the airline	name	string
alias of the airline	alias	string
IATA	iata	string
ICAO	icao	string
Callsign	callsign	string
Country	country	string
Active	active	string, 'Y' or 'N'

For example, to get all airlines in China which are still active

currently: http://vis.pku.edu.cn/course/Visualization_2013F/openflight/alsearch.php?country=china&active=Y

2.3 Routes:

url: http://vis.pku.edu.cn/course/Visualization_2013F/openflight/routes.php

It will return all routes, in JSON. Optional parameters are:

meaning	parameter name	data structure
Airline ID	alid	Integer
Source airport's ID	src_apid	Integer
Destination airport's ID	dst_apid	Integer
Source airport IATA or ICAO	src_ap	String
Destination airport IATA or ICAO	dst_ap	String
Number of stops	stops	Integer
Offset from the whole result	offset	Integer

For example, to get all routes of the airline whose airline ID = 10: http://vis.pku.edu.cn/course/Visualization_2013F/openflight/routes.php?alid=10

Feel free to contact shuqingyasylvia@gmail.com if there's any problem or needs.