

API Documentation

(Airlines App)

Version	Date	Author	Description
1.0	4-March-2019	Teodor Oanca Razvan Poinaru	Initial draft
2.0	22-March-2019	Teodor Oanca Razvan Poinaru	Revised draft

1. All airports available in the USA

1.1 GET: Retrieve a list of all airports available in the USA

Request structure

Method	URL
GET	api/airports?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	Content-Type	String *If none specified, default is "JSON"

Example request

Method	URL
GET	api/airports

Example response

Status	Response
200	[{ "code": "ATL", "name": "Atlanta, GA: Hartsfield-Jackson Atlanta International", "operating_carriers": "api/airports/ATL/carriers" }, { "code": "BOS",

	<pre> "name": "Boston, MA: Logan International", "operating_carriers": "api/airports/BOS/carriers" }] </pre>
500	<pre> {"error": "Internal server error. Please try again later."} </pre>

2. All carriers operating in US airports

GET : Retrieve a list of all carriers operating in US airports

Request structure

Method	URL
GET	api/carriers?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	Content-Type	String *If none specified, default is “JSON”

Example request

Method	URL
GET	api/carriers/

Example response

Status	Response
200	<pre>[{ "code": "AA", "name": "American Airlines Inc.", "link_statistics": "api/airports/AA/statistics/", "link_reviews": "api/airports/AA/reviews/", "link_ratings": "api/airports/AA/ratings/" }, { "code": "AS", "name": "Alaska Airlines Inc.", "link_statistics": "api/airports/AS/statistics/", "link_reviews": "api/airports/AS/reviews/", "link_ratings": "api/airports/AS/ratings/" }]</pre>
500	{"error": "Internal server error. Please try again later."}

3. All carriers operating at a specific US airport

GET : Retrieve a list of all carriers operating at a specific US airport

Request structure

Method	URL
GET	api/airports/<airport_code>/carriers?Content-Type=<Content-Type>

Type	Params	Values
URL_PARAM	airport_code	string
URL_QUERY	Content-Type	string *If none specified, default is “JSON”

Request example

Method	URL
GET	api/airports/ATL/carriers

Example response

Status	Response
200	<pre>[{ "code": "AA", "name": "American Airlines Inc.", "link_statistics": "api/airports/AA/statistics/", "link_reviews": "api/airports/AA/reviews/", "link_ratings": "api/airports/AA/ratings/" }, { "code": "B6", "name": "JetBlue Airways", "link_statistics": "api/airports/B6/statistics/", "link_reviews": "api/airports/B6/reviews/", "link_ratings": "api/airports/B6/ratings/" }]</pre>
500	{"error": "Internal server error. Please try again later."}

4. Statistics about flights of a carrier from/to an airport for a given month/ all month available

4.1 **GET**: Retrieve all statistics (flights numbers, number of delays and minutes delayed) about flights of a carrier from/to a US airport for a given month/ all months available.

Request structure

Method	URL
GET	api/airports/<airport_code>/carriers/<carrier_code>/statistics?month=<month>&year=<year>&Content-Type=<Content-Type>

Type	Params	Values
URL_PARAM	carrier_code	string
URL_PARAM	airport_code	string
URL_QUERY	month	integer *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	year	integer *If none specified, will retrieve for ALL MONTHS*

Example request

Method	URL
GET	api/airports/CLT/carriers/CO/statistics?month=6&year=6

Example response

Status	Response
200	<pre>[{ "flights": { "cancelled": 0, "on_time": 55, "total": 78, "delayed": 22, "diverted": 1 }, "number_of_delays": { "late_aircraft": 5, "weather": 1, "security": 0, "national_aviation_system": 9, "carrier": 7 }, "minutes_delayed": { "late_aircraft": 250, "weather": 184, "carrier": 635, "security": 4, "total": 1562, "national_aviation_system": 489, "airport": "CLT", "time": "2011/6" }, "time": "2011/6", "link_flights": "api/airports/CLT/carriers/CO/statistics/flights",</pre>

	<pre> "link_number_of_delays": "api/airports/CLT/carriers/CO/statistics/number-of-delays", "link_minutes_delayed": "api/airports/CLT/carriers/CO/statistics/minutes-delayed", "link_delete": "api/airports/CLT/carriers/CO/statistics/delete" }] </pre>
400	{"error": "Content-type specified is not available."}
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

4.2 GET: Retrieve subsection of statistics (flights numbers, number of delays or minutes delayed) about flights of a carrier from/to a US airport for a given month.

*Not specifying a month and an year would result in a “400 Bad request”

Request structure

Method	URL
GET	api/airports/<airport_code>/carriers/<carrier_code>/statistics/<type-of-statistic>/?month=<month>&year=<year>&Content-Type=<Content-Type>

Type	Params	Values
URL_PARAM	carrier_code	string
URL_PARAM	airport_code	string

URL_PARAM	type-of-statistic	string *Possible values: “flights”, “number-of-delays”, “minutes-delayed”
URL_QUERY	month	integer *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	year	integer *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/airports/ATL/carriers/AA/statistics/flights/?month=6&year=2003

Example response

Status	Response
200	{ "cancelled": 5, "on_time": 561, "total": 752, "delayed": 186, "diverted": 0 }
400	{"error": "Invalid syntax. Provide both year and month"}
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

4.3 **PATCH**: Update statistics subsection of a carrier from/to a US airport for a given month and year.

*When using PATCH, will update only the fields specified in the body.

The fields not present in the body of the request will stay “untouched”.

*Not specifying a month and an year would result in a “400 Bad request”

Request structure

Method	URL
PATCH	api/airports/<airport_code>/carriers/<carrier_code>/statistics/<type-of-statistic>/?month=<month>&year=<year>&content-type=<content-type>

Type	Params	Values
URL_PARAM	carrier_code	string
URL_PARAM	airport_code	string
URL_QUERY	month	integer
URL_QUERY	year	integer

Example request

Method	URL
PATCH	api/airports/ATL/carriers/AA/statistics/flights/?month=6&year=2003

Type	Values
BODY	{ "cancelled": 6 }

Example response

Status	Response
200	{ "cancelled": 6, "on_time": 561, "total": 752, "delayed": 186, "diverted": 0 }
400	{"error": "Invalid syntax. Provide both year and month"}
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

4.4 DELETE: Delete statistics of a carrier from/to a US airport for a given month and year.

*Not specifying a month and an year would result in a “400 Bad request”

Request structure

Method	URL
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PATCH	api/airports/<airport_code>/carriers/<carrier_code>/statistics/delete/?month=<month>&year=<year>&Content-Type=<Content-Type>
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Type	Params	Values
URL_PARAM	carrier_code	string
URL_PARAM	airport_code	string
URL_QUERY	month	integer
URL_QUERY	year	integer

Example request

Method	URL
DELETE	api/airports/ATL/carriers/AA/statistics/delete/?month=6&year=2003

Example response

Status	Response
204	
400	{"error": "Invalid syntax. Provide both year and month"}
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

5. Number of on-time, delayed, and cancelled flights of a carrier

5.1 **GET**: Retrieve the number of on-time, delayed and cancelled flights of a carrier from/to a US airport for a given month/ all months available.

* Almost the same as number 4.2. Made another point for it to show that all the requirements were satisfied

Request structure

Method	URL
GET	api/airports/<airport_code>/carriers/<carrier_code>/statistics/<type-of-statistic>/?month=<month>&year=<year>&specific=true&Content-Type=<Content-Type>

Type	Params	Values
URL_PARAM	carrier_code	string
URL_PARAM	airport_code	string
URL_QUERY	specific	boolean *If none specified, will retrieve the same data as 4.2
URL_QUERY	month	integer *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	year	integer *If none specified, will retrieve for ALL MONTHS*

URL_QUERY	Content-Type	string *If none specified, default is "JSON"
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Example request

Method	URL
GET	api/airports/CLT/carriers/CO/statistics/flights/?month=6&year=2008&specific=true

Example response

Status	Response
200	{ "cancelled": 1, "on time": 31, "delayed": 14 }
400	{"error": "Invalid syntax. Provide both year and month"}
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

6. Number of minutes of delay

6.1 **GET**: Retrieve the number of minutes of delay per carrier attributed to carrier-specific reasons (i.e. attributes carrier and late aircraft in the dataset)/ all reasons, for a given month/ all

months available for a specific airport/ across all US airports.

Column stats-> minutes delayed

Request structure

Method	URL
GET	api/carriers/<carrier_code>/delays-minutes?carrier-specific=<carrier_specific>&airport=<code_airport>&month=<month>&year=<year>&Content-Type=<Content-Type>

Type	Params	Values
URL_PARAM	carrier_code	string
URL_QUERY	carrier_specific	Boolean (true or false) * If not specified, default will be false
URL_QUERY	code_airport	string *If none specified, will retrieve for ALL AIRPORTS*
URL_QUERY	month	string *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	year	string *If none specified, will retrieve for ALL MONTHS*
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/carriers/CO/delays-minutes?carrier-specific=true&airport=CLT

Example response

Status	Response
200	[{ "late_aircraft": 1269, "carrier": 1367, "time": "2003/6", "airport": "ATL" }, { "late_aircraft": 1793, "carrier": 1662, "time": "2003/7", "airport": "ATL" }]
400	{"error":"Invalid syntax. Provide both year and month"}
404	{"error":"Resource not found."}
500	{"error":"Internal server error. Please try again later."}

7. Descriptive statistics

7.1 **GET**: Retrieve the descriptive statistics (mean, median, standard deviation) for carrier-specific delays for a flight between any two airports in the USA for a specific carrier/ all carriers serving this route.

Request structure

Method	URL
GET	api/descriptive-statistics/<first_airport_code>/second-airport/<second_airport_code>/carriers/<carrier_code>/?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	first_airport_code	String
URL_QUERY	second_airport_code	String
Optional URL_QUERY	carrier_code	String *If none specified, will retrieve for all carriers
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/descriptive-statistics/BOS/second-airport/ATL/carriers/AA

Example response

Status	Response
200	{ "mean": 6857.835526315789,

	<pre> "median": 6332, "standard_deviation": 3652.4318268910715, "carrier": "AA" } </pre>
404	<pre>{"error": "Resource not found."}</pre>
500	<pre>{"error": "Internal server error. Please try again later."}</pre>

Extra value-added features:

8. Carriers ratings

8.1 **GET**: Retrieve the average rating and the number of ratings for a carrier.

Request structure

Method	URL
GET	api/carriers/<carrier_code>/ratings/?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	carrier_code	String
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/carriers/AA/ratings/

Example response

Status	Response
200	{ "rating": 3.5714285714285716, "votes": 7 }
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

8.2 POST: Rate a carrier.

Request structure

Method	URL
POST	api/carriers/<carrier_code>/ratings/?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	carrier_code	String
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/carriers/AA/ratings/

Type	Values
BODY	<pre>{ "stars": 3 }</pre>

Example response

Status	Response
200	<pre>{ "rating": 3.5714285714285716, "votes": 7 }</pre>
404	<pre>{"error": "Resource not found."}</pre>
500	<pre>{"error": "Internal server error. Please try again later."}</pre>

9. Carriers reviews

9.1 GET: Retrieve the reviews of a carrier.

Request structure

Method	URL
GET	api/carriers/<carrier_code>/reviews/?Content-Type=<Content-Type>

Type	Params	Values
URL_QUERY	carrier_code	String
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
GET	api/carriers/AA/reviews/

Example response

Status	Response
200	[{ "text": "nice" }, { "text": "awful" }]
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}

9.2 POST: Submit a review for a carrier.

Request structure

Method	URL
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POST	api/carriers/<carrier_code>/reviews/?Content-Type=<Content-Type>
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Type	Params	Values
URL_QUERY	carrier_code	String
URL_QUERY	Content-Type	string *If none specified, default is "JSON"*

Example request

Method	URL
POST	api/carriers/AA/reviews/

Type	Values
BODY	{ "text": "it was amazing" }

Example response

Status	Response
200	{ "text": "it was amazing" }
404	{"error": "Resource not found."}
500	{"error": "Internal server error. Please try again later."}