

# Assignment 1 Report - Airport and Flight Database

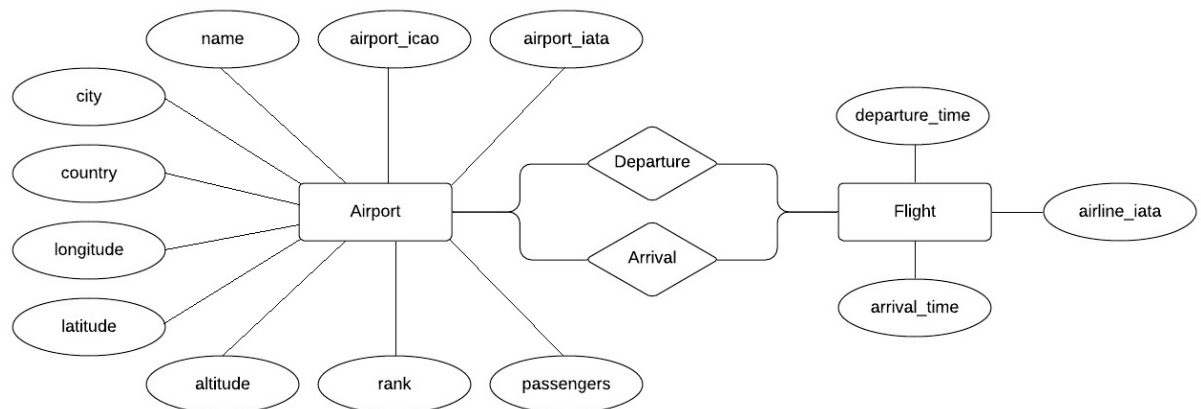
Anja Deric and Karan Soni

For this assignment, we created a database for flights and airports. We used 3 different sources to extract data - a web scraper, an API, and a raw csv file. After extracting and cleaning up our data, we combined and organized it into 2 data sets: one file with a list of top 30 airports in the world and information about each, and one file with a list of flights and relevant information about each.

Image below depicts the conceptual model for our database. We used our API to gather flight data, and a web scraper and raw csv file to gather airport data.

```
In [1]: from IPython.display import Image
Image(r'C:\Users\anja\Downloads\conceptualmodel.jpg')
```

Out[1]:



We started the assignment off by importing all libraries that we would be using throughout the assignment. We used the requests library to gather data from an API, the json library to format data for easier handling, and the pandas library to manipulate and audit the data. We also imported the urlopen function from urllib.request and BeautifulSoup function from the bs4 library for the web scraping part of the assignment.

```
In [2]: import requests
import json
import pandas as pd
import numpy as np
from urllib.request import urlopen
from bs4 import BeautifulSoup
```

## Data Source 1: Web Scraper

We started the web scraping part of the assignment by searching for a website that contains information about world airports. We found one website which ranks the top 30 busiest airports in the world by the total number of passengers. We then copied this website url and used it to scrape the website using `urlopen()` and `BeautifulSoup()` functions.

```
In [3]: # Website URL
url='https://www.world-airport-codes.com/world-top-30-airports.html'

# Open desired website
html = urlopen(url)
soup = BeautifulSoup(html, 'lxml')
```

Next, we extracted the title of the website to confirm that we were getting the right data.

```
In [4]: # Extract title of website
title = soup.title
titleText = title.get_text()
print(titleText)
```

List of Top 30 Airports in the World - World Airport Codes

We were then able to use the `get()` function to get the full content of the website, which includes all the information from the table that ranks the airports.

```
In [5]: # Get full content of website without formatting
req = requests.get("https://www.world-airport-codes.com/world-top-30-airports.
html", headers={'User-agent': 'Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:61.
0) Gecko/20100101 Firefox/61.0'})
cont = req.content
cont
```

[illegible]

5/114

supports.everything=t.supports.everything&&t.supports[i[o]], "flag")!=i[o]&&(t.supports.everythingExceptFlag=t.supports.everythingExceptFlag&&t.supports[i[o]]);t.supports.everythingExceptFlag=t.supports.everythingExceptFlag&&!t.supports.flag,t.DOMReady=!1,t.readyCallback=function(){t.DOMReady=!0},t.supports.everything||(n=function(){t.readyCallback()},a.addEventListener?(a.addEventListener("DOMContentLoaded",n,!1),e.addEventListener("load",n,!1)):(e.attachEvent("onload",n),a.attachEvent("onreadystatechange",function(){"complete"===a.readyState&&t.readyCallback()})),(r=t.source||{}).concatemoji?d(r.concatemoji):r.wpemoji&&r.twemoji&&(d(r.twemoji),d(r.wpemoji)))}(window,document,window.\_wpemojiSettings);\n\t\t</script>\n\t\t<style type="text/css">\n nimg.wp-smiley,\n nimg.emoji {\n \n \\display: inline !important;\n \\border: none !important;\n \\box-shadow: none !important;\n \\height: 1em !important;\n \\width: 1em !important;\n \\margin: 0 .07em !important;\n \\vertical-align: -0.1em !important;\n \\background: none !important;\n \\padding: 0 !important;\n }\n </style>\n\t\t<link rel='stylesheet' id='wp-block-library-css' href='https://www.world-airport-codes.com/wp/wp-includes/css/dist/block-library/style.min.css?ver=5.3.2' type='text/css' media='all' />\n\t\t<link rel='stylesheet' id='cookie-bar-css-css' href='https://www.world-airport-codes.com/content/plugins/cookie-bar/css/cookie-bar.css?ver=5.3.2' type='text/css' media='all' />\n\t\t<link rel='stylesheet' id='animate-css' href='https://www.world-airport-codes.com/content/plugins/wp-quiz/assets/frontend/css/animate.css?ver=3.6.0' type='text/css' media='all' />\n\t\t<link rel='stylesheet' id='wp-quiz-css' href='https://www.world-airport-codes.com/content/plugins/wp-quiz/assets/frontend/css/wp-quiz.css?ver=2.0.5' type='text/css' media='all' />\n\t\t<link rel='stylesheet' id='the\_champ\_frontend\_css-css' href='https://www.world-airport-codes.com/content/plugins/super-socializer/css/front.css?ver=7.12.37' type='text/css' media='all' />\n\t\t<script type='text/javascript' src='https://js.stripe.com/v3/?ver=5.3.2'></script>\n\t\t<script type='text/javascript'>\n /\*  \*/\n \nvar notam = {"ajaxurl":"https://\\\\"/www.world-airport-codes.com\\\\"/wp\\\\"/wp-admin\\\\"/admin-ajax.php"};\n /\* ]&gt; \*/\n &lt;/script&gt;\n\t\t&lt;script type='text/javascript' src='https://www.world-airport-codes.com/wp/wp-includes/js/jquery/jquery.js?ver=1.12.4-wp'&gt;&lt;/script&gt;\n\t\t&lt;script type='text/javascript' src='https://www.world-airport-codes.com/wp/wp-includes/js/jquery/jquery-migrate.min.js?ver=1.4.1'&gt;&lt;/script&gt;\n\t\t&lt;script type='text/javascript'&gt;\n /\* <![CDATA[ \*/\n \nvar email\_preferences = {"ajaxurl":"https://\\\\"/www.world-airport-codes.com\\\\"/wp\\\\"/wp-admin\\\\"/admin-ajax.php"};\n /\* ]&gt; \*/\n &lt;/script&gt;\n\t\t&lt;script type='text/javascript' src='https://www.world-airport-codes.com/content/plugins/wac-custom-members/js/email\_preferences.js?ver=5.3.2'&gt;&lt;/script&gt;\n\t\t&lt;script type='text/javascript'&gt;\n /\* <![CDATA[ \*/\n \nvar stripe\_coupons = {"ajaxurl":"https://\\\\"/www.world-airport-codes.com\\\\"/wp\\\\"/wp-admin\\\\"/admin-ajax.php"};\n /\* ]&gt; \*/\n &lt;/script&gt;\n\t\t&lt;script type='text/javascript' src='https://www.world-airport-codes.com/content/plugins/cookie-bar/js/cookie-bar.js?ver=1580728937'&gt;&lt;/script&gt;\n\t\t&lt;!--[if lt IE 9]&gt;\n\t\t&lt;script type='text/javascript' src='https://www.world-airport-codes.com/content/themes/genesis/lib/js/html5shiv.js?ver=3.7.3'&gt;&lt;/script&gt;\n\t\t&lt;![endif]&gt;\n\t\t&lt;link rel='https://api.w.org/' href='https://www.world-airport-codes.com/wp-json/' /&gt;\n\t\t&lt;link rel="alternate" type="application/json+oembed" href="https://www.world-airport-codes.com/wp-json/oembed/1.0/embed?url=https%3A%2F%2Fwww.world-airport-codes.com%2Fworld-top-30-airports.html" /&gt;\n\t\t&lt;link rel="alternate" type="text/xml+oembed" href="https://www.world-airport-codes.com/wp-json/oembed/1.0/embed?url=https%3A%2F%2Fwww.world-airport-codes.com%2Fworld-top-30-airports.html&amp;#038;format=xml" /&gt;\n\t\t&lt;link rel="pingback" href="https://www.world-airport-codes.com/wp/xmlrpc.php" /&gt;\n\t\t&lt;link rel="Shortcut Icon" href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon.ico" type="image/x-icon"&gt;\n\t\t&lt;link rel="apple-touch-icon-precomposed" sizes="57x57" href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icon/apple-touch-icon-57x57.png" /&gt;\n\t\t&lt;link rel="apple-touch-icon-precomposed" size
 </p>

```

s="114x114" href="https://www.world-airport-codes.com/content/themes/wac-gene
sis-child/images/icons/apple-touch-icon-114x114.png" /><link rel="apple-touch
-icon-precomposed" sizes="72x72" href="https://www.world-airport-codes.com/co
ntent/themes/wac-gene-sis-child/images/icons/apple-touch-icon-72x72.png" /><li
nk rel="apple-touch-icon-precomposed" sizes="144x144" href="https://www.world
-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/apple-touch-
icon-144x144.png" /><link rel="apple-touch-icon-precomposed" sizes="60x60" hr
ef="https://www.world-airport-codes.com/content/themes/wac-gene-sis-child/imag
es/icons/apple-touch-icon-60x60.png" /><link rel="apple-touch-icon-precompose
d" sizes="120x120" href="https://www.world-airport-codes.com/content/themes/w
ac-gene-sis-child/images/icons/apple-touch-icon-120x120.png" /><link rel="appl
e-touch-icon-precomposed" sizes="76x76" href="https://www.world-airport-code
s.com/content/themes/wac-gene-sis-child/images/icons/apple-touch-icon-76x76.pn
g" /><link rel="apple-touch-icon-precomposed" sizes="152x152" href="https://w
ww.world-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/appl
e-touch-icon-152x152.png" /><link rel="icon" type="image/png" href="https://w
ww.world-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/favi
con-196x196.png" sizes="196x196" /><link rel="icon" type="image/png" href="ht
tps://www.world-airport-codes.com/content/themes/wac-gene-sis-child/images/ico
ns/favicon-96x96.png" sizes="96x96" /><link rel="icon" type="image/png" href
="https://www.world-airport-codes.com/content/themes/wac-gene-sis-child/image
s/icons/favicon-32x32.png" sizes="32x32" /><link rel="icon" type="image/png"
href="https://www.world-airport-codes.com/content/themes/wac-gene-sis-child/im
ages/icons/favicon-16x16.png" sizes="16x16" /><link rel="icon" type="image/pn
g" href="https://www.world-airport-codes.com/content/themes/wac-gene-sis-chil
d/images/icons/favicon-128.png" sizes="128x128" /><meta name="application-nam
e" content="World Airport Codes"/><meta name="msapplication-TileColor" conten
t="#FFFFFF" /><meta name="msapplication-TileImage" content="https://www.world
-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/mstile-144x1
44.png" /><meta name="msapplication-square70x70logo" content="https://www.wor
ld-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/mstile-70x
70.png" /><meta name="msapplication-square150x150logo" content="https://www.w
orld-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/mstile-1
50x150.png" /><meta name="msapplication-wide310x150logo" content="https://ww
w.world-airport-codes.com/content/themes/wac-gene-sis-child/images/icons/mstil
e-310x150.png" /><meta name="msapplication-square310x310logo" content="http
s://www.world-airport-codes.com/content/themes/wac-gene-sis-child/images/icon
s/mstile-310x310.png" /><script>var stripe = Stripe('\pk_live_LDyhLnd
RYcUemweHBP6T0XSH00a4j9mHQ0\');</script>\n</head>\n<body class="page-
template-default page page-id-64898 header-full-width content-sidebar page-st
andard" itemscope itemtype="https://schema.org/WebPage"><div class="site-cont
ainer"><div class="members-menu-top-container">\n<div class="row">\n
<div id="members-menu-top-submenu">\n<a href="https://www.world-a
irport-codes.com/members/my-account/my-details"><i id="members-menu-top-user-
logo" class="fa fa-user" aria-hidden="true"></i></a>\n<div id="me
mbers-menu-top">\n<ul>\n
<li><a href="https://www.world-airport-codes.com/login-required/?action=login
#login">Log In</a></li>\n<li><a href="https://w
ww.world-airport-codes.com/login-required/?action=register">Register</a></li>
\n</ul>\n</div>\n
<div id="members-menu-mobile">\n<ul>\n<li>
My Account</li>\n</ul>\n</div>\n</div>\n
<div id="mobile-members-menu-dropdown-content">\n
<li><a href="https://www.world-airport-codes.com/login-required/?action=login
#login">Log In</a></li>\n<li><a href="https://www.world-airport-code
s.com/login-required/?action=register">Register</a></li>\n</ul>\n\n<div c
lass="top-bar">\n<div class="row">\n<div class="small-12 column

```

```

s">\n                <div class="row">\n                                <div class="small-10 medi
um-8 large-4 columns">\n                                <div class="top-bar-left float-le
ft">\n                                <ul class="menu">\n                                <a href
="/">World Airport Codes</a>\n
</li>\n                                </ul>\n                                </div>\n
</div>\n                                <div class="small-2 medium-4 large-8 columns">\n
<div class="top-bar-right hide-for-large float-right">\n
<ul class="menu">\n                                <li><button class="menu-icon"
id="toggle-resp-menu" type="button"></button></li>\n
</ul>\n                                </div>\n                                <div class="top-bar-ri
ght show-for-large float-right">\n                                <ul class="menu"><l
i id="menu-item-78000" class="menu-item menu-item-type-post_type menu-item-ob
ject-page current-menu-item page_item page-item-64898 current_page_item menu-
item-78000"><a href="https://www.world-airport-codes.com/world-top-30-airpor
s.html" aria-current="page" itemprop="url">World Top 30 Airports</a></li>\n<l
i id="menu-item-78001" class="menu-item menu-item-type-post_type menu-item-ob
ject-page menu-item-78001"><a href="https://www.world-airport-codes.com/us-to
p-40-airports.html" itemprop="url">US Top 40 Airports</a></li>\n<li id="menu-
item-78002" class="menu-item menu-item-type-post_type menu-item-object-page m
enu-item-78002"><a href="https://www.world-airport-codes.com/uk-top-20-airpor
ts.html" itemprop="url">UK Top 20 Airports</a></li>\n<li id="menu-item-78003"
class="menu-item menu-item-type-post_type menu-item-object-page menu-item-780
03"><a href="https://www.world-airport-codes.com/blog.html" itemprop="url">Bl
og</a></li>\n</ul>
</div>\n                                </div>\n
</div>\n                                </div>\n</div>\n\n\n<div id="resp-menu" class="te
xt-center hide-for-large">\n                                <ul>\n                                <li><a href="http
s://www.world-airport-codes.com/world-top-30-airports.html">World Top 30 Airp
orts</a></li>\n\n                                <li><a href="https://www.world-airport-c
odes.com/us-top-40-airports.html">US Top 40 Airports</a></li>\n\n
<li><a href="https://www.world-airport-codes.com/uk-top-20-airports.html">UK
Top 20 Airports</a></li>\n\n                                <li><a href="https://www.worl
d-airport-codes.com/blog.html">Blog</a></li>\n\n                                <li>\n\n
<span style="font-size: 20px;color:white;">Advertise with us:</span><br>\n
<span style="font-size: 12px;"><a href="mailto:advertise@fubra.com">advertise
@fubra.com</a></span>\n                                <span style="font-size: 12px;"><a href="te
l:+441252367218">+44 (0)1252 367 218</a></span>\n                                </li>\n                                </ul>\n</
div>\n<header class="site-header" itemscope itemtype="https://schema.org/WPHe
ader"><div class="wrap"><div class="title-area"></div></div></header><div cla
ss="row"><div class="small-12 columns"><form role="search" id="search-bar" cl
ass="input-group hide-for-large" method="get" action="/search/" >\n <input c
lass="input-group-field" type="text" name="s" placeholder="Enter an airport n
ame, IATA code or location...">\n <div class="input-group-button">\n <i
nput type="submit" class="button expanded" value="Submit">\n </div>\n</form>
\n<div class="site-inner"><div class="content-sidebar-wrap"><div class="small
-12 large-9 columns clearfix"><div align="center" id="div-gpt-ad-155361347010
5-0" style="margin-bottom: 20px"><script>googletag.cmd.push(function(){google
tag.display("div-gpt-ad-1553613470105-0"); })</script></div><div class="colum
ns content-wrap clearfix"><main class="content"><article class="post-64898 pa
ge type-page status-publish entry" itemscope itemtype="https://schema.org/Cre
ativeWork"><header class="entry-header"><h1 class="entry-title" itemprop="hea
dline">World Top 30 Airports</h1>\n</header><div class="entry-content" itempr
op="text"><p class="list-article-type"><a href="/">Recently Updated</a> <span
class="seperator">|</span> <a class="active" href="/world-top-30-airports.htm
l">World Top Airports</a> <span class="seperator">|</span> <a href="/us-top-4
0-airports.html">US Top Airports</a> <span class="seperator">|</span> <a href=

```



= "/uk-top-20-airports.html">UK Top Airports</a></p>\n<a href="/content/upload s/2013/07/World-Top-Airports.png"></a>\n<p dir="ltr"><strong>World\&#x2\&#x80\&#x9 9s Busiest Airports</strong></p>\n<p dir="ltr">Over the past 10 years our web site\&#x2\&#x80\&#x99s database has grown from around 10,000 airports around the w orld to now featuring over 40,000 airports, strips, fields or heliports.</p> \n<p dir="ltr">This is partly because of the popularity of air travel and the lower budget flights availability which has caused an expansion in the number of airports.</p>\n<p dir="ltr">These are the Top 30 busiest airports in the W orld for 2018:</p>\n<div style="min-height:90px"></div>\n<div style="overflow -x:auto;"><table class="wikitable sortable" style="font-size: 85%" width="ali gn="> <tbody><tr style="background:lightgrey;"> <th style="background-color: lightgrey">Rank</th> <th style="background-color: lightgrey">Airport</th> <th style="background-color: lightgrey">Location</th> <th style="background-colo r: lightgrey">Country</th> <th style="background-color: lightgrey">Code<br /> (IATA/ICAO)</th> <th style="background-color: lightgrey">Half-year<br />passengers</th> <th style="background-color: lightgrey">Rank<br />change</th> <th style="background-color: lightgrey">%<br />Change </th></tr> <tr> <td>1.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/unite d-states/hartsfield-jackson-atlanta-international-428.html" title="United Sta tes"></a></span> <a href="https:// www.world-airport-codes.com/united-states/hartsfield-jackson-atlanta-internat ional-428.html" title="Hartsfield\&#x2\&#x80\&#x93Jackson Atlanta International Ai rport">Hartsfield\&#x2\&#x80\&#x93Jackson Atlanta International Airport</a></td> <td>Atlanta, Georgia</td> <td>United States</td> <td>ATL/KATL</td> <td>54,388, 000</td> <td></td> <td>3.3% </td></tr> <tr> <td>2.</td> <td> <span class="flagicon"><a href="https://www.world-airport-codes.com/china/bei jing-capital-international-717.html" title="China"></a></span> <a href="https://www.world-a irport-codes.com/china/beijing-capital-international-717.html" title="Beijing Capital International Airport">Beijing Capital International Airport</a></td> <td>Chaoyang-Shunyi, Beijing</td> <td>China</td> <td>PEK/ZBAA</td> <td>49,24 2,000</td> <td></td><td>0.6% </td></tr><tr><td>3.</td><td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/los-angeles-international-4219.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/los-angeles-international-4219.html" title="Los Angeles International Airport">Los Angeles International Airport</a></td><td>Los Angeles, California</td><td>United States</td><td>LAX/KLAX</td><td>43,049,000</td><td>1</td><td>0.9% </td></tr><tr><td>4.</td><td><span class="flagicon"><a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Japan"></a></span> <a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Haneda Airport">Tokyo Haneda Airport</a></td><td>\xc5\x8cta, Tokyo</td><td>Japan</td><td>HND/RJTT</td><td>41,435,000</td><td>1</td><td>1.1% </td></tr><tr><td>5.</td><td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-arab-emirates/dubai-international-2003.html" title="United Arab Emirates"><img alt="United Arab Emirates" src

="//upload.wikimedia.org/wikipedia/commons/thumb/c/cb/Flag\_of\_the\_United\_Arab\_Emirates.svg/23px-Flag\_of\_the\_United\_Arab\_Emirates.svg.png" decoding="async" width="23" height="12" class="thumbborder" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/c/cb/Flag\_of\_the\_United\_Arab\_Emirates.svg/35px-Flag\_of\_the\_United\_Arab\_Emirates.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/c/cb/Flag\_of\_the\_United\_Arab\_Emirates.svg/46px-Flag\_of\_the\_United\_Arab\_Emirates.svg.png 2x" data-file-width="1200" data-file-height="600" /></a></span> <a href="https://www.world-airport-codes.com/united-arab-emirates/dubai-international-2003.html" title="Dubai International Airport">Dubai International Airport</a></td> <td>Garhoud, Dubai</td> <td>United Arab Emirates</td> <td>DXB/OMDB</td> <td>41,278,000</td> <td>2</td> <td>5.6% </td></tr> <tr> <td>6.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/chicago-ohare-international-1432.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/chicago-ohare-international-1432.html" title="O&#39;Hare International Airport">O\ 'Hare International Airport</a></td> <td>Chicago, Illinois</td> <td>United States</td> <td>ORD/KORD</td> <td>39,512,000</td> <td></td> <td>2.8% </td></tr> <tr> <td>7.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-kingdom/london-heathrow-4171.html" title="United Kingdom"></a></span> <a href="https://www.world-airport-codes.com/united-kingdom/london-heathrow-4171.html" class="mw-redirect" title="London Heathrow Airport">London Heathrow Airport</a></td> <td>Hillingdon, London</td> <td>United Kingdom</td> <td>LHR/EGLL</td> <td>38,750,000</td> <td></td> <td>1.8% </td></tr> <tr>  
<td>8.</td> <td><span class="flagicon"><a href="https://www.world-airport-c  
odes.com/china/pu-dong-international-8917.html" title="China"></a></span> <a href="https://w  
ww.world-airport-codes.com/china/pu-dong-international-8917.html" title="Shan  
ghai Pudong International Airport">Shanghai Pudong International Airport</a>  
</td> <td>Pudong, Shanghai</td> <td>China</td> <td>PVG/ZSPD</td> <td>38,220,0  
00</td> <td>1</td> <td>4.2% </td></tr>  
<tr> <td>9.</td> <td><span class="flagicon"><a href="https://www.world-airpor  
t-codes.com/hong-kong/chek-lap-kok-international-91267.html" title="Hong Kon  
g"></a></span> <a href="https://www.world-airport-codes.com/hong-kong/c  
hek-lap-kok-international-91267.html" title="Hong Kong International Airpor  
t">Hong Kong International Airport</a></td> <td>Chek Lap Kok, Islands, New Te  
rritories</td> <td>Hong Kong SAR, China</td> <td>HKG/VHHH</td> <td>37,800,000  
</td> <td>1</td> <td>2.5% </td></tr>

```

<tr> <td>10.</td> <td><span class="flagicon"><a href="https://www.world-airpo
rt-codes.com/france/charles-de-gaulle-5672.html" title="France"></a></span> <a href="https://www.world-airp
ort-codes.com/france/charles-de-gaulle-5672.html" class="mw-redirect" title
="Paris-Charles de Gaulle Airport">Paris-Charles de Gaulle Airport</a></td> <
td>Roissy-en-France, \xc3\x8ele-de-France</td> <td>France</td> <td>CDG/LFPG</
td> <td>36,339,000</td> <td></td> <td>7.2% </td></tr> <tr> <td>1
1.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.c
om/united-states/dallas-fort-worth-international-1794.html" title="United Sta
tes"></a></span> <a href="https://
www.world-airport-codes.com/united-states/dallas-fort-worth-international-179
4.html" title="Dallas/Fort Worth International Airport">Dallas/Fort Worth Int
ernational Airport</a></td> <td>Dallas-Fort Worth, Texas</td> <td>United Stat
es</td> <td>DFW/KDFW</td> <td>36,122,000</td> <td>4</td> <td>
6.3% </td></tr> <tr> <td>12.</td> <td><span class="flagico
n"><a href="https://www.world-airport-codes.com/china/guangzhou-baiyun-intern
ational-2750.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/
china/guangzhou-baiyun-international-2750.html" title="Guangzhou Baiyun Inter

```

national Airport">Guangzhou Baiyun International Airport</a></td> <td>Baiyun-Huadu, Guangzhou, Guangdong</td> <td>China</td> <td>CAN/ZGGG</td> <td>35,646,000</td> <td>1</td> <td>4.1% </td></tr>

<tr> <td>13.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" title="South Korea"></a></span> <a href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" class="mw-redirect" title="Seoul Incheon International Airport">Seoul Incheon International Airport</a></td> <td>Incheon</td> <td>Republic of Korea</td> <td>ICN/RKSI</td> <td>35,547,000</td> <td>3</td> <td>5.7% </td></tr>

<tr> <td>14.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Netherlands"></a></span> <a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Amsterdam Airport Schiphol">Amsterdam Airport Schiphol</a></td> <td>Haarlemmermeer, North Holland</td> <td>The Netherlands</td> <td>AMS/EHAM</td> <td>34,537,000</td> <td>3</td> <td>1.4% </td></tr> <tr> <td>15.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/germany/frankfurt-am-main-international-2392.html" title="Germany"></a></span> <a href="https://www.world-airport-codes.com/germany/frankfurt-am-main-international-2392.html" title="Frankfurt Airport">Frankfurt Airport</a></td> <td>Frankfurt, Hesse</td> <td>Germany</td> <td>FRA/EDDF</td> <td>33,644,000</td> <td>1</td> <td>3.0% </td></tr> <tr> <td>16.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/singapore/changi-international-6919.html" title="Singapore"></a></span> <a href="https://www.world-airport-codes.com/singapore/changi-international-6919.html" title="Singapore Changi Airport">Singapore Changi Airport</a></td> <td>Changi, East Region</td> <td>Singapore</td> <td>SIN/WSSS</td> <td>33,190,000</td> <td>3</td> <td>3.4% </td></tr> <tr> <td>17.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html" title="Thailand"></a></span> <a href="https://www.world-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html" title="Suvarnabhumi Airport">Suvarnabhumi Airport</a></td> <td>Bang Phli, Samut Prakan</td> <td>Thailand</td> <td>BKK/VTBS</td> <td>32,760,

```

000</td> <td>4</td> <td>2.5% </td></tr>
<tr> <td>18.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/denver-international-1888.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/denver-international-1888.html" title="Denver International Airport">Denver International Airport</a></td> <td>Denver, Colorado</td> <td>United States</td> <td>DEN/KDEN</td> <td>32,705,000</td> <td>2</td> <td>6.1% </td></tr>
<tr> <td>19.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/india/indira-gandhi-international-palam-1873.html" title="India"></a></span> <a href="https://www.world-airport-codes.com/india/indira-gandhi-international-palam-1873.html" title="Indira Gandhi International Airport">Indira Gandhi International Airport</a></td> <td>Delhi</td> <td>India</td> <td>DEL/VIDP</td> <td>32,558,857</td> <td>7</td> <td> 7.4% </td></tr>
<tr> <td>20.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/indo

```



nesia/soekarno-hatta-international-11402.html" title="Indonesia"></a></span> <a href="https://www.world-airport-codes.com/indonesia/soekarno-hatta-international-11402.html" title="Soekarno\&#x80\&#x93Hatta International Airport">Soekarno\&#x80\&#x93Hatta International Airport</a></td> <td>Tangerang, Banten</td> <td>Indonesia</td> <td>CGK/WIII</td> <td></td> <td>1</td> <td></td></tr> <tr> <td>21.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="John F. Kennedy International Airport">John F. Kennedy International Airport</a></td> <td>Queens, New York, New York</td> <td>United States</td> <td>JFK/KJFK</td> <td>30,481,000</td> <td>2</td> <td>4.4% </td></tr> <tr> <td>22.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Malaysia"></a></span> <a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Kuala Lumpur International Airport">Kuala Lumpur International Airport</a></td> <td>Sepang, Selangor</td> <td>Malaysia</td> <td>KUL/WMKK</td> <td>30,355,000</td> <td>2</td> <td>2.0% </td></tr> <tr> <td>23.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/spain/barajas-4336.html" title="Spain"></a></span> <a href="https://www.world-airport-codes.com/spain/barajas-4336.html" class="mw-redirect" title="Madrid Barajas Airport">Madrid Barajas Airport</a></td> <td>Barajas, Madrid</td> <td>Spain</td> <td>MAD/LEMD</td> <td>29,284,000</td> <td>1</td> <td>6.6% </td></tr> <tr> <td>24.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/san-francisco-international-6544.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/san-francisco-international-6544.html" title="San Francisco International Airport">San Francisco International Airport</a></td> <td>San Mateo County, California</td> <td>United States</td> <td>SFO/KSFO</td> <td>27,704,000</td> <td>2</td> <td> 0.8% </td></tr> <tr> <td>25.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/chengdu-shuangliu-international-1404.html" title="Ch

ina"></a></span>  
 > <a href="https://www.world-airport-codes.com/china/chengdu-shuangliu-international-1404.html" title="Chengdu Shuangliu International Airport">Chengdu Shuangliu International Airport</a></td> <td>Shuangliu-Wuhou, Chengdu, Sichuan</td> <td>China</td> <td>CTU/ZUUU</td> <td>27,340,000</td> <td>2</td> <td>4.7% </td></tr> <tr> <td>26.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/shenzhen-baoan-international-6851.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/shenzhen-baoan-international-6851.html" title="Shenzhen Bao'an International Airport">Shenzhen Bao'an International Airport</a></td> <td>Bao'an, Shenzhen, Guangdong</td> <td>China</td> <td>SZX/ZGSZ</td> <td>25,837,000</td> <td>6</td> <td>6.2% </td></tr> <tr> <td>27.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/orlando-international-5509.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/orlando-international-5509.htm

```

1" title="Orlando International Airport">Orlando International Airport</a></td>
<td>Orlando, Florida</td> <td>United States</td> <td>MCO/KMCO</td> <td>25,
800,000</td> <td>7</td> <td>6.7% </td></tr>
<tr> <td>28.</td> <td><span class="flagicon"><a href="https://www.world-airp
ort-codes.com/united-states/mccarran-international-4000.html" title="United S
tates"></a></span> <a href="htt
ps://www.world-airport-codes.com/united-states/mccarran-international-4000.ht
ml" title="McCarran International Airport">McCarran International Airport</a>
</td> <td>Las Vegas, Nevada</td> <td>United States</td> <td>LAS/KLAS</td> <td>
25,274,000</td> <td>2</td> <td>3.1% </
td></tr> <tr> <td>29.</td> <td><span class="flagicon"><a href="https://www.wo
rld-airport-codes.com/spain/barcelona-el-prat-international-610.html" title
="Spain"></a></span> <a href="http
s://www.world-airport-codes.com/spain/barcelona-el-prat-international-610.htm
l" class="mw-redirect" title="Barcelona\xe2\x80\x93El Prat Airport">Barcelona
\xe2\x80\x93El Prat Airport</a></td> <td>Barcelona</td> <td>Spain</td> <td>BC
N/LEBL</td> <td>24,821,000</td> <td>2</td> <td>5.5% </td></tr> <tr> <td>30.</td> <td><span class="flagicon"><a href
="https://www.world-airport-codes.com/canada/lester-b-pearson-international-9
377.html" title="Canada"></a></span> <a href="https://www.world-airport-codes.com/c
anada/lester-b-pearson-international-9377.html" title="Toronto Pearson Intern
ational Airport">Toronto Pearson International Airport</a></td> <td>Mississau
ga, Ontario</td> <td>Canada</td> <td>YYZ/CYYZ</td> <td>24,463,000</td> <td><i
mg alt="1" src="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase
2.svg/11px-Increase2.svg.png" decoding="async" title="1" width="11" height="1
1" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/
17px-Increase2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/
b/b0/Increase2.svg/22px-Increase2.svg.png 2x" data-file-width="300" data-file
-height="300" />1</td> <td>3.1% </td></tr></tbody></table></
div>\n<p><strong>Airport Information Index:</strong></p>\n<p>1. The busiest a
irport are ranked depending on the number of passengers flying to or from eac
h airport.</p>\n<p dir="ltr">2. Passenger may only be catching connecting fli
ghts from an airport to another destination.</p>\n<p dir="ltr">3. Passenger N
umber data is related to the Airport Council International estimated full yea
r figures for 2015.</p>\n<p dir="ltr"><strong>Or view the Top Busiest Airport
s in the UK?</strong></p>\n<p dir="ltr"><a href="http://www.world-airport-cod
es.com/uk-top-20-airports.html">Top UK Airports</a></p>\n</div></article></ma
in><div id="sticky-ad-scroll-bottom"></div></div><div align="center" id="div-
gpt-ad-1553613636713-0"><script>googletag.cmd.push(function(){googletag.displ
ay("div-gpt-ad-1553613636713-0"); })</script></div></div><aside class="sideba
r sidebar-primary widget-area" role="complementary" aria-label="Primary Sideb
ar" itemscope itemtype="https://schema.org/WPSideBar"><div class="small-3 sho
w-for-large columns"><section class="search box">\n    <h5>Search for an Airp
ort</h5>\n    <form id="sidebar-form" method="get" autocomplete="off" action
="/search/">\n        <input type="text" value="" name="s">\n        <input t
ype="submit" class="button expanded" value="Submit">\n    </form>\n</section>
\n<div id="'WAC_Sitewide_Skyscraper_container'">    <!-- /1015160/WAC_Sitewid
e_Skyscraper_300x600 -->\n    <div id="'div-gpt-ad-1553613580109-0'">\n
<script> googletag.cmd.push(function(){googletag.display('\div-gpt-ad-1553613
580109-0'); })</script>\n    </div>\n</div></div></aside></div></div></div>
</div></div></div><div><div class="row text-center">\n    <div class="small-12 colum
ns">\n        <ul class="inline clearfix">\n            <li><a href="/about-world-air
port-codes.html">About</a> <span>|</span> </li>\n            <li><a href="/advertis
ing">Advertising</a> <span>|</span> </li>\n            <li><a href="/private-jet-ch

```

```

arter">Private Jet Charter</a> <span>|</span> </li>\n      <li><a href="/airp
ort-codes-data-description.html">Aviation phrases & data descriptions</a>
<span>|</span> </li>\n      <li><a href="/problems.html">Problems</a> <span>|
</span> </li>\n      <li><a href="/links.html">Related Links</a> <span>|</spa
n> </li>\n      <li><a href="/suggestion.html">Contact</a></li>\n    </ul>\n
\n    <p><small>\n      Map powered by <a href="http://www.leafletjs.com/" re
l="nofollow external">Leaflet</a>.\n      Flag icons by <a href="http://icond
rawer.com/" rel="nofollow external">IconDrawer</a>.\n      Map data, imagery
and information provided by <a href="https://www.mapquest.com/" rel="nofollo
w external">MapQuest</a>, <a href="http://www.openstreetmap.org/" rel="nofoll
ow external">OpenStreetMap</a> and contributors, <a href="http://creativecomm
ons.org/licenses/by-sa/2.0/" rel="nofollow external">CC-BY-SA</a>.\n    </sma
ll></p>\n\n    <p class="site-footer-social">\n      <a href="https://twitte
r.com/wac_Official" target="_blank">\n        <i class="fa fa-2x fa-twitter-s
quare fa-fw"></i>\n        </a>\n      <a href="https://www.facebook.com/worlda
irports" target="_blank">\n        <i class="fa fa-2x fa-facebook-square fa-f
w"></i>\n        </a>\n      <a href="https://plus.google.com/u/0/b/11107361990
3160888686/111073619903160888686/posts" target="_blank">\n        <i class="f
a fa-2x fa-google-plus-square fa-fw"></i>\n        </a>\n    </p>\n\n    <p cla
ss="">\xc2\xa9 2003 - 2020 <a href="http://fubra.com">Fubra Limited</a>, all
rights reserved.</p>\n\n  </div>\n</div>\n</div></footer></div><!-- Cookie B
ar -->\r\n<div id="eu-cookie-bar">This website uses cookies to ensure you get
the best experience - by continuing to use our site, you are agreeing to our
<a href="https://www.world-airport-codes.com/cookie-policy/" target="_blan
k">use of cookies.</a> <button id="euCookieAcceptWP" onclick="euAcceptCookie
SWP();">Accept and Close</button></div>\r\n<!-- End Cookie Bar -->\r\n<script
type=\'text/javascript\' src=\'https://www.world-airport-codes.com/content/th
emes/wac-genesis-child/dist/main.min.js?ver=0.1.3\'></script>\n<script type=
\'text/javascript\'>\n/* <![CDATA[ *\nvar wpcf7 = {"apiSettings":{"root":"ht
tps://www.world-airport-codes.com/wp-json/contact-form-7/v1"},"names
pace":"contact-form-7/v1"}};\n/* ]]> */</script>\n<script type=\'text/jav
ascript\' src=\'https://www.world-airport-codes.com/content/plugins/contact-f
orm-7/includes/js/scripts.js?ver=5.1.6\'></script>\n<script type=\'text/javas
cript\' src=\'//platform.twitter.com/widgets.js\'></script>\n<script type=\'t
ext/javascript\' src=\'https://www.world-airport-codes.com/wp/wp-includes/js/
comment-reply.min.js?ver=5.3.2\'></script>\n<script type=\'text/javascript\'
src=\'https://www.world-airport-codes.com/content/plugins/super-socializer/j
s/front/social_login/general.js?ver=7.12.37\'></script>\n<script type=\'text/
javascript\' src=\'https://www.world-airport-codes.com/wp/wp-includes/js/wp-e
mbed.min.js?ver=5.3.2\'></script>\n\n    <script>\n\n      var element_commen
t_form = document.getElementById("comment-form");\n\n      if( element_commen
t_form ) {\n\n        window.addEventListener("load", element_comment_form.se
tAttribute("enctype", "multipart/form-data"));\n\n      }\n\n    </script>\n
</body></html>\n'

```

Before moving forward, we used the prettify attribute and html parser to make the html from the website more readable.

```
In [6]: # Format data into more readable form  
soup = BeautifulSoup(cont, "html.parser")  
print(soup.prettify)
```

```

<bound method Tag.prettify of <!DOCTYPE html>

<html lang="en-US" prefix="og: http://ogp.me/ns#">
<head>
<meta charset="utf-8"/>
<meta content="width=device-width, initial-scale=1" name="viewport"/>
<link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/dist/style.min.css?v=0.1.3" media="screen" rel="stylesheet" type="text/css"/> <script type="text/javascript">function theChampLoadEvent(e){var t=window.onload;if(typeof window.onload!="function"){window.onload=e}else{window.onload=function(){t();e()}}}</script>
<script type="text/javascript">var theChampDefaultLang = 'en_US', theChampCloseIconPath = 'https://www.world-airport-codes.com/content/plugins/super-socializer/images/close.png';</script>
<script> var theChampSiteUrl = 'https://www.world-airport-codes.com', theChampVerified = 0, theChampEmailPopup = 0; </script>
<style type="text/css">.the_champ_horizontal_sharing .theChampSharing{
                                color: #fff;
                                border-width: 0px;
                                border-style: solid;
                                border-color: transparent;
                            }
                            .the_champ_horizontal_sharing .theChampTCBackground{
                                color:#666;
                            }
                            .the_champ_horizontal_sharing .theChampSharing:hover{
                                border-color: transparent;
                            }
                            .the_champ_vertical_sharing .theChampSharing{
                                color: #fff;
                                border-width: 0px;
                                border-style: solid;
                                border-color: transparent;
                            }
                            .the_champ_vertical_sharing .theChampTCBackground{
                                color:#666;
                            }
                            .the_champ_vertical_sharing .theChampSharing:hover{
                                border-color: transparent;
                            }
                        </style>
<!-- This site is optimized with the Yoast SEO Premium plugin v7.2 - https://yoast.com/wordpress/plugins/seo/ -->
<title>List of Top 30 Airports in the World - World Airport Codes</title>
<meta content="Discover the world's busiest airports based on passenger numbers. World Airport Codes provides several ways of researching the airport of your interest." name="description"/>
<link href="https://www.world-airport-codes.com/world-top-30-airports.html" rel="canonical"/>
<meta content="en_US" property="og:locale"/>
<meta content="article" property="og:type"/>
<meta content="List of Top 30 Airports in the World - World Airport Codes" property="og:title"/>
<meta content="Discover the world's busiest airports based on passenger numbers. World Airport Codes provides several ways of researching the airport of your interest." property="og:description"/>
<meta content="https://www.world-airport-codes.com/world-top-30-airports.htm

```



```

1" property="og:url"/>
<meta content="World Airport Codes" property="og:site_name"/>
<meta content="https://www.facebook.com/worldairports" property="article:publ
isher"/>
<meta content="https://www.world-airport-codes.com/content/uploads/2013/07/Wo
rld-Top-Airports.png" property="og:image"/>
<meta content="https://www.world-airport-codes.com/content/uploads/2013/07/Wo
rld-Top-Airports.png" property="og:image:secure_url"/>
<meta content="summary" name="twitter:card"/>
<meta content="Discover the world's busiest airports based on passenger numbe
rs. World Airport Codes provides several ways of researching the airport of y
our interest." name="twitter:description"/>
<meta content="List of Top 30 Airports in the World - World Airport Codes" na
me="twitter:title"/>
<meta content="@WAC_Official" name="twitter:site"/>
<meta content="https://www.world-airport-codes.com/content/uploads/2013/07/Wo
rld-Top-Airports.png" name="twitter:image"/>
<meta content="@WAC_Official" name="twitter:creator"/>
<script type="application/ld+json">{"@context":"https://schema.org", "@typ
e": "Organization", "url": "https://www.world-airport-codes.com/", "sameAs":
["https://www.facebook.com/worldairports", "https://twitter.com/WAC_Offici
al"], "@id": "#organization", "name": "World Airport Codes", "logo": "https://ww
ww.world-airport-codes.com/content/uploads/2018/06/WAC-Logo-Transparent.
png"}</script>
<!-- / Yoast SEO Premium plugin. -->
<link href="//js.stripe.com" rel="dns-prefetch"/>
<link href="//www.world-airport-codes.com" rel="dns-prefetch"/>
<link href="//platform.twitter.com" rel="dns-prefetch"/>
<link href="//s.w.org" rel="dns-prefetch"/>
<script src="//www.googletagservices.com/tag/js/gpt.js"></script><script type
="text/javascript">
    var googletag = googletag || {};
    googletag.cmd = googletag.cmd || {};

    googletag.cmd.push(function() {

        var mapping2 = googletag.sizeMapping().
            addSize([1300, 0], [728, 90]).
            addSize([1077, 690], [728, 90]).
            addSize([640, 480], [468, 60]).
            addSize([812, 375], [728, 90]).
            addSize([800, 480], [728, 90]).
            addSize([736, 414], [468, 60]).
            addSize([414, 736], [300, 250]).
            addSize([667, 375], [468, 60]).
            addSize([375, 812], [300, 250]).
            addSize([1024, 768], [468, 60]).
            addSize([768, 1024], [728, 90]).
            addSize([320, 568], [300, 250]).
            addSize([568, 320], [468, 60]).
            addSize([0, 0], [300, 250]).
            build();

        var ATFLeaderboard, ATFLeader, BTFLLeader, sitewideSkyscraper,
        BTFFooter, mobileSticky;

        ATFLeaderboard = googletag.defineSlot('/1015160/WAC_Airport_A

```

```

TF_Leaderboard', [728,90], 'div-gpt-ad-1553613403998-0').setTargeting('ads',
'refresh').defineSizeMapping(mapping2).addService(googletag.pubads());
    ATFLeader = googletag.defineSlot('/1015160/WAC_ATFLeader2',
[728,90], 'div-gpt-ad-1553613470105-0').setTargeting('ads', 'refresh').define
SizeMapping(mapping2).addService(googletag.pubads());
    BTFLLeader = googletag.defineSlot('/1015160/WAC_BTFLLeader2',
[728,90], 'div-gpt-ad-1553613538235-0').setTargeting('ads', 'refresh').define
SizeMapping(mapping2).addService(googletag.pubads());
    sitewideSkyscraper = googletag.defineSlot('/1015160/WAC_Sitew
ide_Skyscraper_300x600', [300,600], 'div-gpt-ad-1553613580109-0').setTargetin
g('ads', 'refresh').addService(googletag.pubads());
    BTFFooter = googletag.defineSlot('/1015160/WAC_BTFFooter_728
x90', [728,90], 'div-gpt-ad-1553613636713-0').setTargeting('ads', 'refresh').
defineSizeMapping(mapping2).addService(googletag.pubads());
    mobileSticky = googletag.defineSlot('/1015160/WAC_Mobile_Lead
erboard', [320, 50], 'div-gpt-ad-1554978229183-0').setTargeting('ads', 'refre
sh').addService(googletag.pubads());

    googletag.pubads().enableSingleRequest();
    googletag.enableServices();

    setInterval(function() {
        googletag.pubads().refresh([ATFLeaderboard, ATFLeader, BT
FLLeader, sitewideSkyscraper, BTFFooter, mobileSticky])
    }, 120000)
});
</script> <script type="text/javascript">
    window._wpemojiSettings = {"baseUrl":"https:\\\\s.w.o
rg\\images\\core\\emoji\\12.0.0-1\\72x72\\","ext":".png","svgUrl":"https:\\\\
s.w.org\\images\\core\\emoji\\12.0.0-1\\svg\\","svgExt":".svg","source":{"con
catemoji":"https:\\\\www.world-airport-codes.com\\wp\\wp-includes\\js\\wp-emo
ji-release.min.js?ver=5.3.2"}};
    !function(e,a,t){var r,n,o,i,p=a.createElement("canva
s"),s=p.getContext&&p.getContext("2d");function c(e,t){var a=String.fromCharCode;
s.clearRect(0,0,p.width,p.height),s.fillText(a.apply(this,e),0,0);var r=
p.toDataURL();return s.clearRect(0,0,p.width,p.height),s.fillText(a.apply(thi
s,t),0,0),r===p.toDataURL()}function l(e){if(!s||!s.fillText)return!1;switch
(s.textBaseline="top",s.font="600 32px Arial",e){case"flag":return!c([127987,
65039,8205,9895,65039],[127987,65039,8203,9895,65039])&&(!c([55356,56826,5535
6,56819],[55356,56826,8203,55356,56819])&&!c([55356,57332,56128,56423,56128,5
6418,56128,56421,56128,56430,56128,56423,56128,56447],[55356,57332,8203,5612
8,56423,8203,56128,56418,8203,56128,56421,8203,56128,56430,8203,56128,56423,8
203,56128,56447]));case"emoji":return!c([55357,56424,55356,57342,8205,55358,5
6605,8205,55357,56424,55356,57340],[55357,56424,55356,57342,8203,55358,56605,
8203,55357,56424,55356,57340])}return!1}function d(e){var t=a.createElement
("script");t.src=e,t.defer=t.type="text/javascript",a.getElementsByTagName("h
ead")[0].appendChild(t)}for(i=Array("flag","emoji"),t.supports={everything:!
0,everythingExceptFlag:!0},o=0;o<i.length;o++)t.supports[i[o]]=l(i[o]),t.supp
orts.everything=t.supports.everything&&t.supports[i[o]],"flag"!==i[o]&&(t.supp
orts.everythingExceptFlag=t.supports.everythingExceptFlag&&t.supports[i
[o]]);t.supports.everythingExceptFlag=t.supports.everythingExceptFlag&&t.supp
orts.flag,t.DOMReady=!1,t.readyCallback=function(){t.DOMReady=!0},t.support
s.everything||(n=function(){t.readyCallback()},a.addEventListener?(a.addEvent
Listener("DOMContentLoaded",n,!1),e.addEventListener("load",n,!1)):(e.attachE
vent("onload",n),a.attachEvent("onreadystatechange",function(){"complete"===
a.readyState&&t.readyCallback()})),(r=t.source||{}).concatemoji?d(r.concatemo
ji):r.wpemoji&&r.twemoji&&(d(r.twemoji),d(r.wpemoji)))}(window,document,windo

```

```

w._wpemojiSettings);
    </script>
<style type="text/css">
img.wp-smiley,
img.emoji {
    display: inline !important;
    border: none !important;
    box-shadow: none !important;
    height: 1em !important;
    width: 1em !important;
    margin: 0 .07em !important;
    vertical-align: -0.1em !important;
    background: none !important;
    padding: 0 !important;
}
</style>
<link href="https://www.world-airport-codes.com/wp/wp-includes/css/dist/block-library/style.min.css?ver=5.3.2" id="wp-block-library-css" media="all" rel="stylesheet" type="text/css"/>
<link href="https://www.world-airport-codes.com/content/plugins/cookie-bar/css/cookie-bar.css?ver=5.3.2" id="cookie-bar-css-css" media="all" rel="stylesheet" type="text/css"/>
<link href="https://www.world-airport-codes.com/content/plugins/wp-quiz/assets/frontend/css/animate.css?ver=3.6.0" id="animate-css" media="all" rel="stylesheet" type="text/css"/>
<link href="https://www.world-airport-codes.com/content/plugins/wp-quiz/assets/frontend/css/wp-quiz.css?ver=2.0.5" id="wp-quiz-css" media="all" rel="stylesheet" type="text/css"/>
<link href="https://www.world-airport-codes.com/content/plugins/super-socializer/css/front.css?ver=7.12.37" id="the_champ_frontend_css-css" media="all" rel="stylesheet" type="text/css"/>
<script src="https://js.stripe.com/v3/?ver=5.3.2" type="text/javascript"></script>
<script type="text/javascript">
/*  */
var notam = {"ajaxurl":"https://www.world-airport-codes.com/wp/wp-admin/admin-ajax.php"};
/* ]]&gt; */
&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/wp/wp-includes/js/jquery/jquery.js?ver=1.12.4-wp" type="text/javascript"&gt;&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/wp/wp-includes/js/jquery/jquery-migrate.min.js?ver=1.4.1" type="text/javascript"&gt;&lt;/script&gt;
&lt;script type="text/javascript"&gt;
/* <![CDATA[ */
var email_preferences = {"ajaxurl":"https://www.world-airport-codes.com/wp/wp-admin/admin-ajax.php"};
/* ]]&gt; */
&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/content/plugins/wac-custom-members/js/email_preferences.js?ver=5.3.2" type="text/javascript"&gt;&lt;/script&gt;
&lt;script type="text/javascript"&gt;
/* <![CDATA[ */
var stripe_coupons = {"ajaxurl":"https://www.world-airport-codes.com/wp/wp-admin/admin-ajax.php"};
/* ]]&gt; */
&lt;/script&gt;
</pre>
</div>
<div data-bbox="39 965 691 980" data-label="Page-Footer">localhost:8889/nbconvert/html/Downloads/DericAnjaSoniKaran_INFO6210_Assignment1.ipynb?download=false</div>
<div data-bbox="914 965 966 979" data-label="Page-Footer">27/114</div>
```

```
<script src="https://www.world-airport-codes.com/content/plugins/cookie-bar/js/cookie-bar.js?ver=1580728937" type="text/javascript"></script>
<!--[if lt IE 9]>
<script type='text/javascript' src='https://www.world-airport-codes.com/content/themes/genesis/lib/js/html5shiv.js?ver=3.7.3'></script>
<![endif]-->
<link href="https://www.world-airport-codes.com/wp-json/" rel="https://api.w.org/" />
<link href="https://www.world-airport-codes.com/wp-json/oembed/1.0/embed?url=https%3A%2F%2Fwww.world-airport-codes.com%2Fworld-top-30-airports.html" rel="alternate" type="application/json+oembed" />
<link href="https://www.world-airport-codes.com/wp-json/oembed/1.0/embed?url=https%3A%2F%2Fwww.world-airport-codes.com%2Fworld-top-30-airports.html&format=xml" rel="alternate" type="text/xml+oembed" />
<link href="https://www.world-airport-codes.com/wp/xmlrpc.php" rel="pingback" />
<link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon.ico" rel="Shortcut Icon" type="image/x-icon" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-57x57.png" rel="apple-touch-icon-precomposed" sizes="57x57"><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-114x114.png" rel="apple-touch-icon-precomposed" sizes="114x114" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-72x72.png" rel="apple-touch-icon-precomposed" sizes="72x72" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-144x144.png" rel="apple-touch-icon-precomposed" sizes="144x144" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-60x60.png" rel="apple-touch-icon-precomposed" sizes="60x60" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-120x120.png" rel="apple-touch-icon-precomposed" sizes="120x120" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-76x76.png" rel="apple-touch-icon-precomposed" sizes="76x76" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/apple-touch-icon-152x152.png" rel="apple-touch-icon-precomposed" sizes="152x152" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon-196x196.png" rel="icon" sizes="196x196" type="image/png" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon-96x96.png" rel="icon" sizes="96x96" type="image/png" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon-32x32.png" rel="icon" sizes="32x32" type="image/png" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon-16x16.png" rel="icon" sizes="16x16" type="image/png" /><link href="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/favicon-128.png" rel="icon" sizes="128x128" type="image/png" /><meta content="World Airport Codes" name="application-name" /><meta content="#FFFFFF" name="msapplication-TileColor" /><meta content="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/mstile-144x144.png" name="msapplication-TileImage" /><meta content="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/mstile-70x70.png" name="msapplication-square70x70logo" /><meta content="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/mstile-150x150.png" name="msapplication-square150x150logo" /><meta content="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/mstile-310x150.png" name="msapplication-wide310x150logo" /><meta content="https://www.world-airport-codes.com/content/themes/wac-genesis-child/images/icons/msti
```

```

le-310x310.png" name="msapplication-square310x310logo"/> <script>var stripe =
Stripe('pk_live_LDyhLndRYcUemweHBP6T0XSH00a4j9mHQ0');</script>
</link></head>
<body class="page-template-default page page-id-64898 header-full-width conte
nt-sidebar page-standard" itemscope="" itemtype="https://schema.org/WebPage">
<div class="site-container"><div class="members-menu-top-container">
<div class="row">
<div id="members-menu-top-submenu">
<a href="https://www.world-airport-codes.com/members/my-account/my-details"><
i aria-hidden="true" class="fa fa-user" id="members-menu-top-user-logo"></i>
</a>
<div id="members-menu-top">
<ul>
<li><a href="https://www.world-airport-codes.com/login-required/?action=login
#login">Log In</a></li>
<li><a href="https://www.world-airport-codes.com/log
in-required/?action=register">Register</a></li>
</ul>
</div>
<div id="members-menu-mobile">
<ul>
<li>My Account</li>
</ul>
</div>
</div>
</div>
</div>
</div>
<ul id="mobile-members-menu-dropdown-content">
<li><a href="https://www.world-airport-codes.com/login-required/?action=login
#login">Log In</a></li>
<li><a href="https://www.world-airport-codes.com/login-required/?action=regis
ter">Register</a></li>
</ul>
<div class="top-bar">
<div class="row">
<div class="small-12 columns">
<div class="row">
<div class="small-10 medium-8 large-4 columns">
<div class="top-bar-left float-left">
<ul class="menu">
<li class="topbar-title raleway">
<a href="/">World Airport Codes</a>
</li>
</ul>
</div>
</div>
<div class="small-2 medium-4 large-8 columns">
<div class="top-bar-right hide-for-large float-right">
<ul class="menu">
<li><button class="menu-icon" id="toggle-resp-menu" type="button"></button></
li>
</ul>
</div>
<div class="top-bar-right show-for-large float-right">
<ul class="menu"><li class="menu-item menu-item-type-post_type menu-item-obje
ct-page current-menu-item page_item page-item-64898 current_page_item menu-it

```

```

em-78000" id="menu-item-78000"><a aria-current="page" href="https://www.world
-airport-codes.com/world-top-30-airports.html" itemprop="url">World Top 30 Ai
rports</a></li>
<li class="menu-item menu-item-type-post_type menu-item-object-page menu-item
-78001" id="menu-item-78001"><a href="https://www.world-airport-codes.com/us-
top-40-airports.html" itemprop="url">US Top 40 Airports</a></li>
<li class="menu-item menu-item-type-post_type menu-item-object-page menu-item
-78002" id="menu-item-78002"><a href="https://www.world-airport-codes.com/uk-
top-20-airports.html" itemprop="url">UK Top 20 Airports</a></li>
<li class="menu-item menu-item-type-post_type menu-item-object-page menu-item
-78003" id="menu-item-78003"><a href="https://www.world-airport-codes.com/blo
g.html" itemprop="url">Blog</a></li>
</ul> </div>
</div>
</div>
</div>
</div>
<div class="text-center hide-for-large" id="resp-menu">
<ul>
<li><a href="https://www.world-airport-codes.com/world-top-30-airports.html">
World Top 30 Airports</a></li>
<li><a href="https://www.world-airport-codes.com/us-top-40-airports.html">US
Top 40 Airports</a></li>
<li><a href="https://www.world-airport-codes.com/uk-top-20-airports.html">UK
Top 20 Airports</a></li>
<li><a href="https://www.world-airport-codes.com/blog.html">Blog</a></li>
<li>
<span style="font-size: 20px;color:white;">Advertise with us:</span><br/>
<span style="font-size: 12px;"><a href="mailto:advertise@fubra.com">advertise
@fubra.com</a></span>
<span style="font-size: 12px;"><a href="tel:+441252367218">+44 (0)1252 367 21
8</a></span>
</li>
</ul>
</div>
<header class="site-header" itemscope="" itemtype="https://schema.org/WPHeade
r"><div class="wrap"><div class="title-area"></div></div></header><div class
="row"><div class="small-12 columns"><form action="/search/" class="input-gro
up hide-for-large" id="search-bar" method="get" role="search">
<input class="input-group-field" name="s" placeholder="Enter an airport name,
IATA code or location..." type="text"/>
<div class="input-group-button">
<input class="button expanded" type="submit" value="Submit"/>
</div>
</form>
<div class="site-inner"><div class="content-sidebar-wrap"><div class="small-1
2 large-9 columns clearfix"><div align="center" id="div-gpt-ad-1553613470105-
0" style="margin-bottom: 20px"><script>googletag.cmd.push(function(){googleta
g.display("div-gpt-ad-1553613470105-0"); })</script></div><div class="columns
content-wrap clearfix"><main class="content"><article class="post-64898 page
type-page status-publish entry" itemscope="" itemtype="https://schema.org/Cr
eativeWork"><header class="entry-header"><h1 class="entry-title" itemprop="he
adline">World Top 30 Airports</h1>
</header><div class="entry-content" itemprop="text"><p class="list-article-ty
pe"><a href="/">Recently Updated</a> <span class="seperator">|</span> <a clas
s="active" href="/world-top-30-airports.html">World Top Airports</a> <span cl

```

```

ass="seperator">|</span> <a href="/us-top-40-airports.html">US Top Airports</a> <span class="seperator">|</span> <a href="/uk-top-20-airports.html">UK Top Airports</a></p>
<a href="/content/uploads/2013/07/World-Top-Airports.png"></a>
<p dir="ltr"><strong>World's Busiest Airports</strong></p>
<p dir="ltr">Over the past 10 years our website's database has grown from around 10,000 airports around the world to now featuring over 40,000 airports, s trips, fields or heliports.</p>
<p dir="ltr">This is partly because of the popularity of air travel and the lower budget flights availability which has caused an expansion in the number of airports.</p>
<p dir="ltr">These are the Top 30 busiest airports in the World for 2018:</p>
<div style="min-height:90px"></div>
<div style="overflow-x:auto;"><table class="wikitable sortable" style="font-size: 85%" width="align="> <tbody><tr style="background:lightgrey;"> <th style="background-color: lightgrey">Rank</th> <th style="background-color: lightgrey">Airport</th> <th style="background-color: lightgrey">Location</th> <th style="background-color: lightgrey">Country</th> <th style="background-color: lightgrey">Code<br>(IATA/ICAO)</br></th> <th style="background-color: lightgrey">Half-year<br>passengers</th> <th style="background-color: lightgrey">Rank<br>change</th> <th style="background-color: lightgrey">%<br>Change </th></tr> <tr> <td>1.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/hartsfield-jackson-atlanta-international-428.html" title="United States"></span> <a href="https://www.world-airport-codes.com/united-states/hartsfield-jackson-atlanta-international-428.html" title="Hartsfield-Jackson Atlanta International Airport">Hartsfield-Jackson Atlanta International Airport</a></td> <td>Atlanta, Georgia</td> <td>United States</td> <td>ATL/KATL</td> <td>54,388,000</td> <td></td> <td>3.3% </td></tr> <tr> <td>2.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/beijing-capital-international-717.html" title="China"></span> <a href="https://www.world-airport-c

```

odes.com/china/beijing-capital-international-717.html" title="Beijing Capital International Airport">Beijing Capital International Airport</a></td> <td>Chaoyang-Shunyi, Beijing</td> <td>China</td> <td>PEK/ZBAA</td> <td>49,242,000</td> <td></td> <td>0.6% </td></tr> <tr> <td>3.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/los-angeles-international-4219.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/los-angeles-international-4219.html" title="Los Angeles International Airport">Los Angeles International Airport</a></td> <td>Los Angeles, California</td> <td>United States</td> <td>LAX/KLAX</td> <td>43,049,000</td> <td>1</td> <td>0.9% </td></tr> <tr> <td>4.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Japan"></a></span> <a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Haneda Airport">Tokyo Haneda Airport</a></td> <td>Ōta, Tokyo</td> <td>Japan</td> <td>HND/RJTT</td> <td>41,435,000</td> <td>1</td> <td><img alt="1" data-file-height="300" data-file-width="300" decoding="async" height="11" src="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/11px-Increase2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/17px-Increase2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Inc



```

rease2.svg/22px-Increase2.svg.png 2x" title="1" width="11"/>1.1% </td></tr> <
tr> <td>5.</td> <td><span class="flagicon"><a href="https://www.world-airport
-codes.com/united-arab-emirates/dubai-international-2003.html" title="United
Arab Emirates"></a></span> <a href="https://ww
w.world-airport-codes.com/united-arab-emirates/dubai-international-2003.html"
title="Dubai International Airport">Dubai International Airport</a></td> <td>
Garhoud, Dubai</td> <td>United Arab Emirates</td> <td>DXB/OMDB</td> <td>41,27
8,000</td> <td>2</td> <td>5.6% </td></tr> <
tr> <td>6.</td> <td><span class="flagicon"><a href="https://www.world-airport
-codes.com/united-states/chicago-ohare-international-1432.html" title="United
States"></a></span> <a href="http
s://www.world-airport-codes.com/united-states/chicago-ohare-international-143
2.html" title="O'Hare International Airport">O'Hare International Airport</a>
</td> <td>Chicago, Illinois</td> <td>United States</td> <td>ORD/KORD</td> <td>
39,512,000</td> <td></td> <td>2.8% </td></tr> <tr> <td>7.</td> <td>
<span class="flagicon"><a href="https://www.world-airport-codes.com/united-k
ingdom/london-heathrow-4171.html" title="United Kingdom"></a></span> <a class="mw-redirect" href="http

```

s://www.world-airport-codes.com/united-kingdom/london-heathrow-4171.html" title="London Heathrow Airport">London Heathrow Airport</a></td> <td>Hillingdon, London</td> <td>United Kingdom</td> <td>LHR/EGLL</td> <td>38,750,000</td> <td></td> <td>1.8% </td></tr> <tr> <td>8.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/pu-dong-international-8917.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/pu-dong-international-8917.html" title="Shanghai Pudong International Airport">Shanghai Pudong International Airport</a></td> <td>Pudong, Shanghai</td> <td>China</td> <td>PVG/ZSPD</td> <td>38,220,000</td> <td>1</td> <td>4.2% </td></tr> <tr> <td>9.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/hong-kong/chek-lap-kok-international-91267.html" title="Hong Kong"></a></span> <a href="https://www.world-airport-codes.com/hong-kong/chek-lap-kok-international-91267.html" title="Hong Kong International Airport">Hong Kong International Airport</a></td> <td>Chek Lap Kok, Islands, New Territories</td> <td>Hong Kong SAR, China</td> <td>HKG/VHHH</td> <td>37,800,000</td> <td>1</td> <td>1</td>

x-Increase2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/17px-Increase2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/22px-Increase2.svg.png 2x" title="1" width="11"/>2.5% </td></tr> <tr> <td>10.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html" title="France"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html" title="Paris-Charles de Gaulle Airport">Paris-Charles de Gaulle Airport</a></td> <td>Roissy-en-France, île-de-France</td> <td>France</td> <td>CDG/LFPG</td> <td>36,339,000</td> <td></td> <td>7.2% </td></tr> <tr> <td>11.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/dallas-fort-worth-international-1794.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/dallas-fort-worth-international-1794.html" title="Dallas/Fort Worth International Airport">Dallas/Fort Worth International Airport</a></td> <td>Dallas-Fort Worth, Texas</td> <td>United States</td> <td>DFW/KDFW</td> <td>36,122,000</td> <td>4</td> <td>6.3% </td></tr> <tr> <td>12.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/guangzhou-baiyun-international-2750.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/guangzhou-baiyun-international-2750.html" title="Guangzhou Baiyun International Airport">Guangzhou Baiyun International Airport</a></td> <td>Baiyun-Huadu, Guangzhou, Guangdong</td> <td>China</td> <td>CAN/ZGGG</td> <td>35,646,000</td> <td>1</td> <td>4.1% </td></tr> <tr> <td>13.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" title="South Korea"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" title="Seoul Incheon International Airport">Seoul Incheon International Airport</a></td> <td>Incheon</td> <td>Republic of Korea</td> <td>ICN/RKSI</td> <td>35,547,000</td> <td>3</td> <td>5.7% </td></tr> <tr> <td>14.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Netherlands"></a></span> <a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Amsterdam Airport Schiphol">Amsterdam Airport Schiphol</a></td> <td>Haarlemmermeer, North Holland</td> <td>The Netherlands</td> <td>AMS/EHAM</td> <td>34,537,000</td> <td>3</td> <td>1.4% </td></tr> <tr> <td>15.</td> <td><span c
lass="flagicon"><a href="https://www.world-airport-codes.com/germany/frankfur
t-am-main-international-2392.html" title="Germany"></a></span> <a href="https://www.world-airport-c
odes.com/germany/frankfurt-am-main-international-2392.html" title="Frankfurt
Airport">Frankfurt Airport</a></td> <td>Frankfurt, Hesse</td> <td>Germany</t
d> <td>FRA/EDDF</td> <td>33,644,000</td> <td>1</td> <td>3.0% </td></tr> <tr> <td>16.</td> <td><span class="flagicon"><a hr
ef="https://www.world-airport-codes.com/singapore/changi-international-6919.h
tml" title="Singapore"></a></span> <a href="https://www.world-airport-c
odes.com/singapore/changi-international-6919.html" title="Singapore Changi Ai
rport">Singapore Changi Airport</a></td> <td>Changi, East Region</td> <td>Sin
gapore</td> <td>SIN/WSSS</td> <td>33,190,000</td> <td>3</td>
<td>3.4% </td></tr> <tr> <td>17.</td> <td><span class="flagi
con"><a href="https://www.world-airport-codes.com/thailand/suvarnabhumi-bangk
ok-international-586.html" title="Thailand"></a></span> <a href="https://www.wo

```

|                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                    |                       |                    |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------|--------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">World-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html</a> | <a href="#">title="Suvarnabhumi Airport"&gt;Suvarnabhumi Airport&lt;/a&gt;&lt;/td&gt;</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Bang Phli, Samut Prakan</td>                       | Thailand</td>         | BKK/VTBS</td>      | 32,760,000</td> |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <a href="#">World-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html</a> | <a href="#">title="Suvarnabhumi Airport"&gt;Suvarnabhumi Airport&lt;/a&gt;&lt;/td&gt;</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Bang Phli, Samut Prakan</td>                       | Thailand</td>         | BKK/VTBS</td>      | 32,760,000</td> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <a href="#">World-airport-codes.com/united-states/denver-international-1888.html</a>         | <a href="#">title="United States"&gt;&lt;img alt="United States" class="thumbborder" data-file-height="650" data-file-width="1235" decoding="async" height="12" src="//upload.wikimedia.org/wikipedia/en/thumb/a/a4/Flag_of_the_United_States.svg/23px-Flag_of_the_United_States.svg.png" srcset="//upload.wikimedia.org/wikipedia/en/thumb/a/a4/Flag_of_the_United_States.svg/35px-Flag_of_the_United_States.svg.png 1.5x, //upload.wikimedia.org/wikipedia/en/thumb/a/a4/Flag_of_the_United_States.svg/46px-Flag_of_the_United_States.svg.png 2x" width="23"/&gt;&lt;/a&gt;&lt;/span&gt;</a> | <a href="#">United States&lt;/a&gt;&lt;/td&gt;</a> | Denver, Colorado</td> | United States</td> | DEN/KDEN</td>   | 32,705,000</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <a href="#">World-airport-codes.com/united-states/denver-international-1888.html</a>         | <a href="#">title="Denver International Airport"&gt;Denver International Airport&lt;/a&gt;&lt;/td&gt;</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Denver, Colorado</td>                              | United States</td>    | DEN/KDEN</td>      | 32,705,000</td> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <a href="#">World-airport-codes.com/india/indira-gandhi-international-palam-1873.html</a>    | <a href="#">title="India"&gt;&lt;img alt="India" class="thumbborder" data-file-height="900" data-file-width="1350" decoding="async" height="15" src="//upload.wikimedia.org/wikipedia/en/thumb/4/41/Flag_of_India.svg/23px-Flag_of_India.svg.png" srcset="//upload.wikimedia.org/wikipedia/en/thumb/4/41/Flag_of_India.svg/35px-Flag_of_India.svg.png 1.5x, //upload.wikimedia.org/wikipedia/en/thumb/4/41/Flag_of_India.svg/45px-Flag_of_India.svg.png 2x" width="23"/&gt;&lt;/a&gt;&lt;/span&gt;</a>                                                                                         | <a href="#">India&lt;/a&gt;&lt;/td&gt;</a>         | Delhi</td>            | India</td>         | DEL/VIDP</td>   | 32,558,857</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <a href="#">World-airport-codes.com/india/indira-gandhi-international-palam-1873.html</a>    | <a href="#">title="Indira Gandhi International Airport"&gt;Indira Gandhi International Airport&lt;/a&gt;&lt;/td&gt;</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Delhi</td>                                         | India</td>            | DEL/VIDP</td>      | 32,558,857</td> |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                |

g/wikipedia/commons/thumb/e/ed/Decrease2.svg/22px-Decrease2.svg.png 2x" title="-1" width="11"/> 7.4% </td></tr> <tr> <td>20.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/indonesia/soekarno-hatta-international-11402.html" title="Indonesia"></a></span> <a href="https://www.world-airport-codes.com/indonesia/soekarno-hatta-international-11402.html" title="Soekarno-Hatta International Airport">Soekarno-Hatta International Airport</a></td> <td>Tangerang, Banten</td> <td>Indonesia</td> <td>CGK/WIII</td> <td></td> <td>1</td> <td></td></tr> <tr> <td>21.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="John F. Kennedy International Airport">John F. Kennedy International Airport</a></td> <td>Queens, New York, New York</td> <td>United States</td> <td>JFK/KJFK</td> <td>30,481,000</td> <td>2</td> <td>4.4% </td></tr> <tr> <td>22.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Malaysia"></a></span> <a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Kuala Lumpur International

```

1 Airport">Kuala Lumpur International Airport</a></td> <td>Sepang, Selangor</
td> <td>Malaysia</td> <td>KUL/WMKK</td> <td>30,355,000</td> <td><img alt="1"
data-file-height="300" data-file-width="300" decoding="async" height="11" sr
c="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/11px-Inc
rease2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/I
ncrease2.svg/17px-Increase2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/co
mmons/thumb/b/b0/Increase2.svg/22px-Increase2.svg.png 2x" title="1" width="1
1"/>2</td> <td>2.0% </td></tr> <tr> <td>23.</td> <td><span c
lass="flagicon"><a href="https://www.world-airport-codes.com/spain/barajas-43
36.html" title="Spain"></a></span> <a
class="mw-redirect" href="https://www.world-airport-codes.com/spain/barajas-4
336.html" title="Madrid Barajas Airport">Madrid Barajas Airport</a></td> <td>
Barajas, Madrid</td> <td>Spain</td> <td>MAD/LEMD</td> <td>29,284,000</td> <td>
1</td> <td>6.6% </td></tr> <tr> <td>24.</td>
<td><span class="flagicon"><a href="https://www.world-airport-codes.com/uni
ted-states/san-francisco-international-6544.html" title="United States"></a></span> <a href="https://www.world-
airport-codes.com/united-states/san-francisco-international-6544.html" title
="San Francisco International Airport">San Francisco International Airport</a
></td> <td>San Mateo County, California</td> <td>United States</td> <td>SFO/K
SFO</td> <td>27,704,000</td> <td>2</td> <td><img alt="-1" d
ata-file-height="300" data-file-width="300" decoding="async" height="11" src
="//upload.wikimedia.org/wikipedia/commons/thumb/e/ed/Decrease2.svg/11px-Decr
ease2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/e/ed/De
crease2.svg/17px-Decrease2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/com
mons/thumb/e/ed/Decrease2.svg/22px-Decrease2.svg.png 2x" title="-1" width="1

```



```

1"/> 0.8% </td></tr> <tr> <td>25.</td> <td><span class="flagicon"><a href="ht
tps://www.world-airport-codes.com/china/chengdu-shuangliu-international-1404.
html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/chengdu
-shuangliu-international-1404.html" title="Chengdu Shuangliu International Ai
rport">Chengdu Shuangliu International Airport</a></td> <td>Shuangliu-Wuhou,
Chengdu, Sichuan</td> <td>China</td> <td>CTU/ZUUU</td> <td>27,340,000</td> <
td>2</td> <td>4.7% </td></tr> <tr> <td>26.</td>
<td><span class="flagicon"><a href="https://www.world-airport-codes.com/chi
na/shenzhen-baoan-international-6851.html" title="China"></a></span> <a href="https://www.w
orld-airport-codes.com/china/shenzhen-baoan-international-6851.html" title="S
henzhen Bao'an International Airport">Shenzhen Bao'an International Airport</
a></td> <td>Bao'an, Shenzhen, Guangdong</td> <td>China</td> <td>SZX/ZGSZ</td>
<td>25,837,000</td> <td>6</td> <td>6.2% </td>
</tr> <tr> <td>27.</td> <td><span class="flagicon"><a href="https://www.worl
d-airport-codes.com/united-states/orlando-international-5509.html" title="Uni
ted States"></a></span> <a href="https://www.world-airport-codes.com/united-states/orlando-international-5509.html" title="Orlando International Airport">Orlando International Airport</a></td> <td>Orlando, Florida</td> <td>United States</td> <td>MCO/KMCO</td> <td>25,800,000</td> <td>7</td> <td>6.7% </td></tr> <tr> <td>28.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/mccarran-international-4000.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/mccarran-international-4000.html" title="McCarran International Airport">McCarran International Airport</a></td> <td>Las Vegas, Nevada</td> <td>United States</td> <td>LAS/KLAS</td> <td>25,274,000</td> <td>2</td> <td>3.1% </td></tr> <tr> <td>29.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/spain/barcelona-el-prat-international-610.html" title="Spain"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/spain/barcelona-el-prat-international-610.html" title="Barcelona-El Prat Airport">Barcelona-El Prat Airport</a></td> <td>Barcelona</td> <td>Spain</td> <td>BCN/LEBL</td> <td>24,821,000</td> <td>2</td> <td>5.5% </td></tr> <tr> <td>30.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/canada/lester-b-pearson-international-9377.html" title="Canada"></a></span> <a href="https://www.world-airport-codes.com/canada/lester-b-pearson-international-9377.html" title="Toronto Pearson International Airport">Toronto Pearson International Airport</a></td> <td>Mississauga, Ontario</td> <td>Canada</td> <td>YYZ/CYYZ</td> <td>24,463,000</td> <td>1</td> <td>3.1% </td></tr></tbody></table></div>
<p><strong>Airport Information Index:</strong></p>
<p>1. The busiest airport are ranked depending on the number of passengers flying to or from each airport.</p>
<p dir="ltr">2. Passenger may only be catching connecting flights from an airport to another destination.</p>
<p dir="ltr">3. Passenger Number data is related to the Airport Council International estimated full year figures for 2015.</p>
<p dir="ltr"><strong>Or view the Top Busiest Airports in the UK?</strong></p>
<p dir="ltr"><a href="http://www.world-airport-codes.com/uk-top-20-airports.html">Top UK Airports</a></p>
</div></article></main><div id="sticky-ad-scroll-bottom"></div></div><div align="center" id="div-gpt-ad-1553613636713-0"><script>googletag.cmd.push(function(){googletag.display("div-gpt-ad-1553613636713-0");})</script></div></div>
<aside aria-label="Primary Sidebar" class="sidebar sidebar-primary widget-area" itemscope="" itemtype="https://schema.org/WPSideBar" role="complementary">
<div class="small-3 show-for-large columns"><section class="search box">
<h5>Search for an Airport</h5>
<form action="/search/" autocomplete="off" id="sidebar-form" method="get">
<input name="s" type="text" value=""/>
<input class="button expanded" type="submit" value="Submit"/>
</form>
</section>
<div id="WAC_Sitewide_Skyscraper_container"> <!-- /1015160/WAC_Sitewide_Skyscraper_300x600 -->
<div id="div-gpt-ad-1553613580109-0">
<script> googletag.cmd.push(function(){googletag.display('div-gpt-ad-1553613580109-0');})</script>
</div>
</div></div></aside></div></div></div></div></div></div></body></html><footer class="site-footer" itemscope="" itemtype="https://schema.org/WPFooter"><div class

```

```

="wrap"><div class="show-for-small-only" id="WAC_Mobile_Leaderboard" style="p
osition: fixed; bottom: 10px; left: 0; right: 0; margin: 0 auto; width: 320p
x; z-index: 9999">
<div id="div-gpt-ad-1554978229183-0" style="margin: 0 auto; text-align: cente
r;">
<script>
    googletag.cmd.push(function() {
        googletag.display('div-gpt-ad-1554978229183-0');
    });
</script>
</div>
</div>
<div class="row text-center">
<div class="small-12 columns">
<ul class="inline clearfix">
<li><a href="/about-world-airport-codes.html">About</a> <span>|</span> </li>
<li><a href="/advertising">Advertising</a> <span>|</span> </li>
<li><a href="/private-jet-charter">Private Jet Charter</a> <span>|</span> </li>
<li><a href="/airport-codes-data-description.html">Aviation phrases & dat
a descriptions</a> <span>|</span> </li>
<li><a href="/problems.html">Problems</a> <span>|</span> </li>
<li><a href="/links.html">Related Links</a> <span>|</span> </li>
<li><a href="/suggestion.html">Contact</a></li>
</ul>
<p><small>
    Map powered by <a href="http://www.leafletjs.com/" rel="nofollow extern
al">Leaflet</a>.
    Flag icons by <a href="http://icondrawer.com/" rel="nofollow external">
IconDrawer</a>.
    Map data, imagery and information provided by <a href="https://www.mapq
uest.com/" rel="nofollow external">MapQuest</a>, <a href="http://www.openstre
etmap.org/" rel="nofollow external">OpenStreetMap</a> and contributors, <a hr
ef="http://creativecommons.org/licenses/by-sa/2.0/" rel="nofollow external">C
C-BY-SA</a>.
</small></p>
<p class="site-footer-social">
<a href="https://twitter.com/wac_Official" target="_blank">
<i class="fa fa-2x fa-twitter-square fa-fw"></i>
</a>
<a href="https://www.facebook.com/worldairports" target="_blank">
<i class="fa fa-2x fa-facebook-square fa-fw"></i>
</a>
<a href="https://plus.google.com/u/0/b/1110736199031608886/1110736199031608
8866/posts" target="_blank">
<i class="fa fa-2x fa-google-plus-square fa-fw"></i>
</a>
</p>
<p class="">© 2003 - 2020 <a href="http://fubra.com">Fubra Limited</a>, all r
ights reserved.</p>
</div>
</div>
</div></footer><!-- Cookie Bar -->
<div id="eu-cookie-bar">This website uses cookies to ensure you get the best
experience - by continuing to use our site, you are agreeing to our <a href
="https://www.world-airport-codes.com/cookie-policy/" target="_blank">use of
cookies.</a> <button id="euCookieAcceptWP" onclick="euAcceptCookiesWP();">Ac

```

```

cept and Close</button></div>
<!-- End Cookie Bar -->
<script src="https://www.world-airport-codes.com/content/themes/wac-genesis-child/dist/main.min.js?ver=0.1.3" type="text/javascript"></script>
<script type="text/javascript">
/*  */
var wpcf7 = {"apiSettings":{"root":"https://www.world-airport-codes.com/wp-json/contact-form-7/v1","namespace":"contact-form-7/v1"}};
/* ]]&gt; */
&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/content/plugins/contact-form-7/includes/js/scripts.js?ver=5.1.6" type="text/javascript"&gt;&lt;/script&gt;
&lt;script src="//platform.twitter.com/widgets.js" type="text/javascript"&gt;&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/wp/wp-includes/js/comment-reply.min.js?ver=5.3.2" type="text/javascript"&gt;&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/content/plugins/super-socializer/js/front/social_login/general.js?ver=7.12.37" type="text/javascript"&gt;&lt;/script&gt;
&lt;script src="https://www.world-airport-codes.com/wp/wp-includes/js/wp-embed.min.js?ver=5.3.2" type="text/javascript"&gt;&lt;/script&gt;
&lt;script&gt;

    var element_comment_form = document.getElementById("comment-form");

    if( element_comment_form ) {

        window.addEventListener("load", element_comment_form.setAttribute("enctype", "multipart/form-data"));

    }

&lt;/script&gt;

&gt;
</pre>
</div>
<div data-bbox="67 636 926 671" data-label="Text">
<p>Next, we found the specific html tag that enclosed all the data we needed, and we used the <code>find_all()</code> function to extract that part of the website.</p>
</div>
<div data-bbox="39 965 691 980" data-label="Page-Footer">localhost:8889/nbconvert/html/Downloads/DericAnjaSoniKaran_INFO6210_Assignment1.ipynb?download=false</div>
<div data-bbox="914 965 967 979" data-label="Page-Footer">45/114</div>
```

```
In [7]: # Find table to extract data from  
table = soup.find_all("table",{"class":"wikitable sortable"})  
print(table)
```

```
[<table class="wikitable sortable" style="font-size: 85%" width="align="> <tbody><tr style="background:lightgrey;"> <th style="background-color: lightgrey">Rank</th> <th style="background-color: lightgrey">Airport</th> <th style="background-color: lightgrey">Location</th> <th style="background-color: lightgrey">Country</th> <th style="background-color: lightgrey">Code<br>(IATA/ICAO)</br></th> <th style="background-color: lightgrey">Half-year<br>passenger</th> <th style="background-color: lightgrey">Rank<br>change</th> <th style="background-color: lightgrey">%<br>Change </th></tr> <tr> <td>1.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/hartsfield-jackson-atlanta-international-428.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/hartsfield-jackson-atlanta-international-428.html" title="Hartsfield-Jackson Atlanta International Airport">Hartsfield-Jackson Atlanta International Airport</a></td> <td>Atlanta, Georgia</td> <td>United States</td> <td>ATL/KATL</td> <td>54,388,000</td> <td></td> <td>3.3% </td></tr> <tr> <td>2.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/beijing-capital-international-717.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/beijing-capital-international-717.html" title="Beijing Capital International Airport">Beijing Capital International Airport</a></td> <td>Chaoyang-Shunyi, Beijing</td> <td>China</td> <td>PEK/ZBAA</td> <td>49,242,000</td> <td></td> <td>0.6% </td></tr> <tr> <td>3.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/los-angeles-international
```

-4219.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/los-angeles-international-4219.html" title="Los Angeles International Airport">Los Angeles International Airport</a></td> <td>Los Angeles, California</td> <td>United States</td> <td>LAX/KLAX</td> <td>43,049,000</td> <td>1</td> <td>0.9% </td></tr> <tr> <td>4.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Japan"></a></span> <a href="https://www.world-airport-codes.com/japan/tokyo-haneda-international-9348.html" title="Haneda Airport">Tokyo Haneda Airport</a></td> <td>Ōta, Tokyo</td> <td>Japan</td> <td>HND/RJTT</td> <td>41,435,000</td> <td>1</td> <td>1.1% </td></tr> <tr> <td>5.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-arab-emirates/dubai-international-2003.html" title="United Arab Emirates"></a></span> <a href="https://www.world-airport-codes.com/united-arab-emirates/dubai-international-2003.html" title="Dubai International Airport">Dubai International Airport</a></td> <td>Garhoud, Dubai</td> <td>United Arab Emirates</td> <td>DXB/OMDB</td> <td>41,278,000</td> <td>2</td></tr>



1" src="//upload.wikimedia.org/wikipedia/commons/thumb/e/ed/Decrease2.svg/11px-Decrease2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/e/ed/Decrease2.svg/17px-Decrease2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/e/ed/Decrease2.svg/22px-Decrease2.svg.png 2x" title="2" width="11"/></td> <td>5.6% </td></tr> <tr> <td>6.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/chicago-ohare-international-1432.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/chicago-ohare-international-1432.html" title="O'Hare International Airport">O'Hare International Airport</a></td> <td>Chicago, Illinois</td> <td>United States</td> <td>ORD/KORD</td> <td>39,512,000</td> <td></td> <td>2.8% </td></tr> <tr> <td>7.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-kingdom/london-heathrow-4171.html" title="United Kingdom"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/united-kingdom/london-heathrow-4171.html" title="London Heathrow Airport">London Heathrow Airport</a></td> <td>Hillingdon, London</td> <td>United Kingdom</td> <td>LHR/EGLL</td> <td>38,750,000</td> <td></td> <td>1.8% </td></tr> <tr> <td>8.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/pu-dong-international-8917.html" title="Chi

na"></a></span>  
 <a href="https://www.world-airport-codes.com/china/pu-dong-international-8917.html" title="Shanghai Pudong International Airport">Shanghai Pudong International Airport</a></td> <td>Pudong, Shanghai</td> <td>China</td> <td>PVG/ZSPD</td> <td>38,220,000</td> <td>1</td> <td>4.2%</td></tr> <tr> <td>9.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/hong-kong/chek-lap-kok-international-91267.html" title="Hong Kong"></a></span> <a href="https://www.world-airport-codes.com/hong-kong/chek-lap-kok-international-91267.html" title="Hong Kong International Airport">Hong Kong International Airport</a></td> <td>Chek Lap Kok, Islands, New Territories</td> <td>Hong Kong SAR, China</td> <td>HKG/VHHH</td> <td>37,800,000</td> <td>-1</td> <td>2.5%</td></tr> <tr> <td>10.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html" title="France"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html" title="Paris-Charles de Gaulle Airport">Paris-Charles de Gaulle Airport</a></td> <td>Roissy-en-France, Île-de-France</td> <td>France</td> <td>CDG/LFPG</td> <td>36,339,000</td> <td></td> <td>7.2% </td></tr> <tr> <td>11.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/dallas-fort-worth-international-1794.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/dallas-fort-worth-international-1794.html" title="Dallas/Fort Worth International Airport">Dallas/Fort Worth International Airport</a></td> <td>Dallas-Fort Worth, Texas</td> <td>United States</td> <td>DFW/KDFW</td> <td>36,122,000</td> <td>4</td> <td>6.3% </td></tr> <tr> <td>12.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/guangzhou-baiyun-international-2750.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/guangzhou-baiyun-international-2750.html" title="Guangzhou Baiyun International Airport">Guangzhou Baiyun International Airport</a></td> <td>Baiyun-Huadu, Guangzhou, Guangdong</td> <td>China</td> <td>CAN/ZGGG</td> <td>35,646,000</td> <td>1</td> <td>4.1% </td></tr> <tr> <td>13.</td>  
<td><span class="flagicon"><a href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" title="South Korea"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/south-korea/incheon-international-6796.html" title="Seoul Incheon International Airport">Seoul Incheon International Airport</a></td> <td>Incheon</td>  
<td>Republic of Korea</td> <td>ICN/RKSI</td> <td>35,547,000</td> <td>3</td> <td>5.7% </td></tr> <tr> <td>14.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Netherlands"></a></span> <a href="https://www.world-airport-codes.com/netherlands/schiphol-225.html" title="Amsterdam Airport Schiphol">Amsterdam Airport Schiphol</a></td> <td>Haarlemmermeer, North Holland</td> <td>The Netherlands</td> <td>AMS/EHAM</td> <td>34,537,000</td> <td>3</td> <td>1.4% </td></tr> <tr> <td>15.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/germany/frankfurt-am-main-international-2392.html" title="Germany"></a></span> <a href="https://www.world-airport-codes.com/germany/frankfurt-am-main-international-2392.html" title="Frankfurt Airport">Frankfurt Airport</a></td> <td>Frankfurt, Hesse</td> <td>Germany</td> <td>FRA/EDDF</td> <td>3

3,644,000</td> <td>1</td> <td>3.0% </td></tr> <tr> <td>16.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/singapore/changi-international-6919.html" title="Singapore"></a></span> <a href="https://www.world-airport-codes.com/singapore/changi-international-6919.html" title="Singapore Changi Airport">Singapore Changi Airport</a></td> <td>Changi, East Region</td> <td>Singapore</td> <td>SIN/WS</td> <td>33,190,000</td> <td>3</td> <td>3.4% </td></tr> <tr> <td>17.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html" title="Thailand"></a></span> <a href="https://www.world-airport-codes.com/thailand/suvarnabhumi-bangkok-international-586.html" title="Suvarnabhumi Airport">Suvarnabhumi Airport</a></td> <td>Bang Phli, Samut Prakan</td> <td>Thailand</td> <td>BKK/VTBS</td> <td>32,760,000</td> <td>4</td> <td>2.5% </td></tr> <tr> <td>18.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/denver-international" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/denver-international" title="Denver International Airport">Denver International Airport</a></td> <td>Denver, Colorado</td> <td>United States</td> <td>DEN</td> <td>25,000,000</td> <td>4</td> <td>2.5% </td></tr>

ional-1888.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/denver-international-1888.html" title="Denver International Airport">Denver International Airport</a></td> <td>Denver, Colorado</td> <td>United States</td> <td>DEN/KDEN</td> <td>32,705,000</td> <td>2</td> <td>6.1% </td></tr> <tr> <td>19.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/india/indira-gandhi-international-palam-1873.html" title="India"></a></span> <a href="https://www.world-airport-codes.com/india/indira-gandhi-international-palam-1873.html" title="Indira Gandhi International Airport">Indira Gandhi International Airport</a></td> <td>Delhi</td> <td>India</td> <td>DEL/VIDP</td> <td>32,558,857</td> <td>7</td> <td> 7.4% </td></tr> <tr> <td>20.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/indonesia/soekarno-hatta-international-11402.html" title="Indonesia"></a></span> <a href="https://www.world-airport-codes.com/indonesia/soekarno-hatta-international-11402.html" title="Soekarno-Hatta International Airport">Soekarno-Hatta International Airport</a></td> <td>Tangerang, Banten</td> <td>Indonesia</td> <td>CGK/WIII</td> <td></td> <td>1</td> <td> </td></tr> <tr> <td>21.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/john-f-kennedy-international-5202.html" title="John F. Kennedy International Airport">John F. Kennedy International Airport</a></td> <td>Queens, New York, New York</td> <td>United States</td> <td>JFK/KJFK</td> <td>30,481,000</td> <td>2</td> <td>4.4% </td></tr> <tr> <td>22.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Malaysia"></a></span> <a href="https://www.world-airport-codes.com/malaysia/kuala-lumpur-international-klia-8435.html" title="Kuala Lumpur International Airport">Kuala Lumpur International Airport</a></td> <td>Sepang, Selangor</td> <td>Malaysia</td> <td>KUL/WMKK</td> <td>30,355,000</td> <td>2</td> <td>2.0% </td></tr> <tr> <td>23.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/spain/barajas-4336.html" title="Spain"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/spain/barajas-4336.html" title="Madrid Barajas Airport">Madrid Barajas Airport</a></td> <td>Barajas, Madrid</td> <td>Spain</td> <td>MAD/LEMD</td> <td>29,284,000</td> <td>1</td> <td>6.6% </td></tr> <tr> <td>24.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/san-francisco-international-6544.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/san-francisco-international-6544.html" title="San Francisco International Airport">San Francisco International Airport</a></td> <td>San Mateo County, California</td> <td>United States</td> <td>SFO/KSFO</td> <td>27,704,000</td> <td>2</td> <td> 0.8% </td></tr> <tr> <td>25.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/chengdu-shuangliu-international-1404.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/chengdu-shuangliu-international-1404.html" title="Chengdu Shuangliu International Airport">Chengdu Shuangliu International Airport</a></td> <td>Shuangliu-Wuhou, Chengdu, Sichuan</td> <td>China</td> <td>CTU/ZUUU</td> <td>27,340,000</td> <td><img alt="1" data-file-height="300" data-file-width="300" decoding="async" height="11" src="//upload.wi



kimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/11px-Increase2.svg.png" srcset="//upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/17px-Increase2.svg.png 1.5x, //upload.wikimedia.org/wikipedia/commons/thumb/b/b0/Increase2.svg/22px-Increase2.svg.png 2x" title="1" width="11"/>2</td> <td>4.7% </td></tr> <tr> <td>26.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/china/shenzhen-baoan-international-6851.html" title="China"></a></span> <a href="https://www.world-airport-codes.com/china/shenzhen-baoan-international-6851.html" title="Shenzhen Bao'an International Airport">Shenzhen Bao'an International Airport</a></td> <td>Bao'an, Shenzhen, Guangdong</td> <td>China</td> <td>SZX/ZGSZ</td> <td>25,837,000</td> <td>6</td> <td>6.2% </td></tr> <tr> <td>27.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/united-states/orlando-international-5509.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/orlando-international-5509.html" title="Orlando International Airport">Orlando International Airport</a></td> <td>Orlando, Florida</td> <td>United States</td> <td>MCO/KMCO</td> <td>25,800,000</td> <td>7</td> <td>6.7% </td></tr> <tr> <td>28.</td> <td><

<a href="https://www.world-airport-codes.com/united-states/mccarran-international-4000.html" title="United States"></a></span> <a href="https://www.world-airport-codes.com/united-states/mccarran-international-4000.html" title="McCarran International Airport">McCarran International Airport</a></td> <td>Las Vegas, Nevada</td> <td>United States</td> <td>LAS/KLAS</td> <td>25,274,000</td> <td>2</td> <td>3.1% </td></tr> <tr> <td>29.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/spain/barcelona-el-prat-international-610.html" title="Spain"></a></span> <a class="mw-redirect" href="https://www.world-airport-codes.com/spain/barcelona-el-prat-international-610.html" title="Barcelona-El Prat Airport">Barcelona-El Prat Airport</a></td> <td>Barcelona</td> <td>Spain</td> <td>BCN/LEBL</td> <td>24,821,000</td> <td>2</td> <td>5.5% </td></tr> <tr> <td>30.</td> <td><span class="flagicon"><a href="https://www.world-airport-codes.com/canada/lester-b-pearson-international-9377.html" title="Canada"></a></span> <a href="https://www.world-airport-codes.com/canada/lester-b-pearson-international-9377.html" title="Toronto Pearson International Airport">Toronto Pearson International Airport</a></td> <td>Mississauga, Ontario</td> <td>Canada</td> <td>YYZ/CYYZ</td> <td>24,463,000</td>

```

td> <td>1</td> <td>3.1% </td></tr></tbody></t
able>]

```

To confirm we have the right data, we used the `read_html()` function to get the table in a list form. Following that, we immediately converted the table into a data frame for easier manipulation of the data.

```
In [8]: # Read all table entries  
table_list = pd.read_html(str(table))  
table_df = table_list[0]  
table_df
```

Out[8]:

	Rank	Airport	Location	Country	Code(IATA/ICAO)	Half-yearpassengers	Rankcl
0	1.0	Hartsfield–Jackson Atlanta International Airport	Atlanta, Georgia	United States	ATL/KATL	54388000.0	
1	2.0	Beijing Capital International Airport	Chaoyang-Shunyi, Beijing	China	PEK/ZBAA	49242000.0	
2	3.0	Los Angeles International Airport	Los Angeles, California	United States	LAX/KLAX	43049000.0	
3	4.0	Tokyo Haneda Airport	Ōta, Tokyo	Japan	HND/RJTT	41435000.0	
4	5.0	Dubai International Airport	Garhoud, Dubai	United Arab Emirates	DXB/OMDB	41278000.0	
5	6.0	O'Hare International Airport	Chicago, Illinois	United States	ORD/KORD	39512000.0	
6	7.0	London Heathrow Airport	Hillingdon, London	United Kingdom	LHR/EGLL	38750000.0	
7	8.0	Shanghai Pudong International Airport	Pudong, Shanghai	China	PVG/ZSPD	38220000.0	
8	9.0	Hong Kong International Airport	Chek Lap Kok, Islands, New Territories	Hong Kong SAR, China	HKG/VHHH	37800000.0	
9	10.0	Paris-Charles de Gaulle Airport	Roissy-en-France, Île-de-France	France	CDG/LFPG	36339000.0	
10	11.0	Dallas/Fort Worth International Airport	Dallas-Fort Worth, Texas	United States	DFW/KDFW	36122000.0	
11	12.0	Guangzhou Baiyun International Airport	Baiyun-Huadu, Guangzhou, Guangdong	China	CAN/ZGGG	35646000.0	
12	13.0	Seoul Incheon International Airport	Incheon	Republic of Korea	ICN/RKSI	35547000.0	
13	14.0	Amsterdam Airport Schiphol	Haarlemmermeer, North Holland	The Netherlands	AMS/EHAM	34537000.0	
14	15.0	Frankfurt Airport	Frankfurt, Hesse	Germany	FRA/EDDF	33644000.0	
15	16.0	Singapore Changi Airport	Changi, East Region	Singapore	SIN/WSSS	33190000.0	

	Rank	Airport	Location	Country	Code(IATA/ICAO)	Half-yearpassengers	Rankct
16	17.0	Suvarnabhumi Airport	Bang Phli, Samut Prakan	Thailand	BKK/VTBS	32760000.0	
17	18.0	Denver International Airport	Denver, Colorado	United States	DEN/KDEN	32705000.0	
18	19.0	Indira Gandhi International Airport	Delhi	India	DEL/VIDP	32558857.0	
19	20.0	Soekarno–Hatta International Airport	Tangerang, Banten	Indonesia	CGK/WIII	NaN	
20	21.0	John F. Kennedy International Airport	Queens, New York, New York	United States	JFK/KJFK	30481000.0	
21	22.0	Kuala Lumpur International Airport	Sepang, Selangor	Malaysia	KUL/WMKK	30355000.0	
22	23.0	Madrid Barajas Airport	Barajas, Madrid	Spain	MAD/LEMD	29284000.0	
23	24.0	San Francisco International Airport	San Mateo County, California	United States	SFO/KSFO	27704000.0	
24	25.0	Chengdu Shuangliu International Airport	Shuangliu-Wuhou, Chengdu, Sichuan	China	CTU/ZUUU	27340000.0	
25	26.0	Shenzhen Bao'an International Airport	Bao'an, Shenzhen, Guangdong	China	SZX/ZGSZ	25837000.0	
26	27.0	Orlando International Airport	Orlando, Florida	United States	MCO/KMCO	25800000.0	
27	28.0	McCarran International Airport	Las Vegas, Nevada	United States	LAS/KLAS	25274000.0	
28	29.0	Barcelona–El Prat Airport	Barcelona	Spain	BCN/LEBL	24821000.0	
29	30.0	Toronto Pearson International Airport	Mississauga, Ontario	Canada	YYZ/CYYZ	24463000.0	

We did not export this data to its own csv file because we wanted to extract and connect some of its items to the data we got from a raw data file (next section of report). More specifically, we wanted to add rank and half-year passanger values of the top 30 airports to the raw data csv file.

To narrow down the data necessary for this, we started by getting all the ICAO codes from the table and converting them into a list since this was our primary key. Since the Code column in the table had both the IATA and the ICAO code for each airport (in the format IATA/ICAO), we had to use the `split('/')` function in order to extract only the ICAO code for each airport.

```
In [9]: # Get column with all codes in IATA code/ICAO code format and convert to list
all_codes = table_df['Code(IATA/ICAO)'].to_numpy()

# Extract only IATA code from each string
icao_codes = []
for code in all_codes:
    split_code = code.split('/')
    icao_code = split_code[1]
    icao_codes.append(icao_code)

# Print IATA codes to confirm success
print(icao_codes)

['KATL', 'ZBAA', 'KLAX', 'RJTT', 'OMDB', 'KORD', 'EGLL', 'ZSPD', 'VHHH', 'LFP
G', 'KDFW', 'ZGGG', 'RKSI', 'EHAM', 'EDDF', 'WSSS', 'VTBS', 'KDEN', 'VIDP',
'WIII', 'KJFK', 'WMKK', 'LEMD', 'KSFO', 'ZUUU', 'ZGSZ', 'KMCO', 'KLAS', 'LEB
L', 'CYYZ']
```

After extracting the ICAO codes, we added them to the data frame as our primary key, and then we dropped all the columns from the table that we wouldn't need using the `drop()` function. We decided to drop the airport name, location, and country since that data could be found in the raw csv file we would be using in the next section.

```
In [10]: # Add ICAO codes only to table
         table_df['ICAO'] = icao_codes

         # Drop unnecessary columns and reorder and rename existing columns
         table_df.drop(['Airport', 'Location', 'Country', 'Code(IATA/ICAO)', 'Rankchange',
                        '%Change'], inplace=True, axis = 1)
         table_df = table_df[['ICAO', 'Rank', 'Half-yearpassengers']]
         table_df.rename(columns = {'Half-yearpassengers': 'half_year_count'}, inplace =
                        True)
         table_df
```



Out[10]:

	ICAO	Rank	half_year_count
0	KATL	1.0	54388000.0
1	ZBAA	2.0	49242000.0
2	KLAX	3.0	43049000.0
3	RJTT	4.0	41435000.0
4	OMDB	5.0	41278000.0
5	KORD	6.0	39512000.0
6	EGLL	7.0	38750000.0
7	ZSPD	8.0	38220000.0
8	VHHH	9.0	37800000.0
9	LFPG	10.0	36339000.0
10	KDFW	11.0	36122000.0
11	ZGGG	12.0	35646000.0
12	RKSI	13.0	35547000.0
13	EHAM	14.0	34537000.0
14	EDDF	15.0	33644000.0
15	WSSS	16.0	33190000.0
16	VTBS	17.0	32760000.0
17	KDEN	18.0	32705000.0
18	VIDP	19.0	32558857.0
19	WIII	20.0	NaN
20	KJFK	21.0	30481000.0
21	WMKK	22.0	30355000.0
22	LEMD	23.0	29284000.0
23	KSFO	24.0	27704000.0
24	ZUUU	25.0	27340000.0
25	ZGSZ	26.0	25837000.0
26	KMCO	27.0	25800000.0
27	KLAS	28.0	25274000.0
28	LEBL	29.0	24821000.0
29	CYYZ	30.0	24463000.0

Once we had all the ICAO code, rank, and half-year passenger information for the top 30 airports, we were ready to move to the next portion of the assignment.

## Data Source 2: Raw Data File

For our second source of data, we found a file, linked [here](https://raw.githubusercontent.com/jpatokal/openflights/master/data/airports.dat) (<https://raw.githubusercontent.com/jpatokal/openflights/master/data/airports.dat>) containing raw data about airports around the world. In order to use this data in our program, we first had to save it as a csv file.

```
In [11]: # URL and csv path for file
download_url = "https://raw.githubusercontent.com/jpatokal/openflights/master/
data/airports.dat"
target_csv_path = "raw-data-1.csv"
```

We then used the `get()` function from the `requests` library to collect the data from the website. After making sure that the request was successful, we were able to save that information to a csv file using the `wrtie()` function.

```
In [12]: # Get data from website and confirm success
response = requests.get(download_url)
response.raise_for_status()

# Save data to csv file
with open(target_csv_path, "wb") as f:
    f.write(response.content)
print("File saved!")
```

File saved!

After saving the file, we loaded it in using the `read_csv()` function form `pandas`.

```
In [13]: # Load data in and define column names
all_airport_data = pd.read_csv("raw-data-1.csv")
all_airport_data.columns = ['id', 'name', 'city', 'country', 'IATA', 'ICAO',
'longitude', 'latitude', 'altitude', 'tz', 'DST', 'timezone', 'type', 'source']
```

Next, we checked the first few lines of our newly imported data using the `head()` function. We confirmed that the data was brought in successfullys since the first few airports and their corresponding information were printed as expected.

```
In [14]: all_airport_data.head()
```

```
Out[14]:
```

	id	name	city	country	IATA	ICAO	longitude	latitude	altitude	tz	DST
0	2	Madang Airport	Madang	Papua New Guinea	MAG	AYMD	-5.207080	145.789001	20	10	U Pz
1	3	Mount Hagen Kagamuga Airport	Mount Hagen	Papua New Guinea	HGU	AYMH	-5.826790	144.296005	5388	10	U Pz
2	4	Nadzab Airport	Nadzab	Papua New Guinea	LAE	AYNZ	-6.569803	146.725977	239	10	U Pz
3	5	Port Moresby Jacksons International Airport	Port Moresby	Papua New Guinea	POM	AYPY	-9.443380	147.220001	146	10	U Pz
4	6	Wewak International Airport	Wewak	Papua New Guinea	WWK	AYWK	-3.583830	143.669006	19	10	U Pz

Before auditing and adding to our data, we decided to drop any attributes/columns that we didn't need in our table.

```
In [15]: # Drop attributes that we don't need
all_airport_data.drop(['id', 'type', 'source', 'tz', 'DST', 'timezone'], inplace=True, axis = 1)
```

We also rearranged the columns of our data frame so that our primary key (the ICAO code) is in the first column.

```
In [16]: all_airport_data = all_airport_data[['ICAO', 'IATA', 'name', 'city', 'country', 'longitude', 'latitude', 'altitude']]
```

To confirm that our table had everything we wanted, we used the `.shape` attribute and `.head()` function to check the size of the table and inspect the first few elements.

```
In [17]: # Check shape to make sure it matches csv file
all_airport_data.shape
```

```
Out[17]: (7697, 8)
```

```
In [18]: # Inspect first few elements
all_airport_data.head()
```

Out[18]:

	ICAO	IATA	name	city	country	longitude	latitude	altitude
0	AYMD	MAG	Madang Airport	Madang	Papua New Guinea	-5.207080	145.789001	20
1	AYMH	HGU	Mount Hagen Kagamuga Airport	Mount Hagen	Papua New Guinea	-5.826790	144.296005	5388
2	AYNZ	LAE	Nadzab Airport	Nadzab	Papua New Guinea	-6.569803	146.725977	239
3	AYPY	POM	Port Moresby Jacksons International Airport	Port Moresby	Papua New Guinea	-9.443380	147.220001	146
4	AYWK	WWK	Wewak International Airport	Wewak	Papua New Guinea	-3.583830	143.669006	19

Next, we were ready to combine the new table with the rank and passenger information from the first portion of the assignment. In order to find rows in our data table that the top 30 airports were located in, we used the `.loc` and `.index` attribute for data frames. We stored row numbers for each of the top 30 airports in a list called `top_30_index`.

```
In [20]: # Locate top 30 airports
top_30_index = []

# Loop through top 30 IATA codes and locate row that those airports are in
for icao in icao_codes:
    index = all_airport_data.loc[all_airport_data['ICAO']==icao].index
    top_30_index.append(index[0])

# Print row location of top 30 airports
print(top_30_index)
```

```
[3481, 3169, 3284, 2256, 2099, 3629, 501, 3206, 2914, 1345, 3469, 3173, 3724,
573, 335, 3123, 3684, 3550, 2930, 3087, 3596, 3111, 1195, 3269, 3198, 3177, 3
677, 3676, 1185, 190]
```

After finding the row values for top 30 airports, we made a new data frame which only contained information on those 30 airports. We used the `drop()` function to remove all other airports from the list.

```
In [21]: # Make new data frame for top 30 airports only
top_airports = all_airport_data

# Loop thorough all airports in the csv file
for row in range(0,all_airport_data.shape[0]):
    # Drop any airports not on the top 30 list
    if row not in top_30_index:
        top_airports.drop(row, axis=0, inplace=True)

top_airports.head()
```

Out[21]:

	ICAO	IATA	name	city	country	longitude	latitude	altitude
190	CYYZ	YYZ	Lester B. Pearson International Airport	Toronto	Canada	43.677200	-79.630600	569
335	EDDF	FRA	Frankfurt am Main Airport	Frankfurt	Germany	50.033333	8.570556	364
501	EGLL	LHR	London Heathrow Airport	London	United Kingdom	51.470600	-0.461941	83
573	EHAM	AMS	Amsterdam Airport Schiphol	Amsterdam	Netherlands	52.308601	4.763890	-11
1185	LEBL	BCN	Barcelona International Airport	Barcelona	Spain	41.297100	2.078460	12

Lastly, in order to combine our two data sources, we used the pandas merge() function and merged the two frames based on the ICAO airport code (our primary key).

```
In [23]: # Combine rank and half-year passanger data with top airport information based  
on ICAO code  
top_airport_data_combined = pd.merge(top_airports,table_df,left_on='ICAO',right_on='ICAO')  
top_airport_data_combined
```

Out[23]:

	ICAO	IATA	name	city	country	longitude	latitude	altitude	Rank
0	CYYZ	YYZ	Lester B. Pearson International Airport	Toronto	Canada	43.677200	-79.630600	569	30.0
1	EDDF	FRA	Frankfurt am Main Airport	Frankfurt	Germany	50.033333	8.570556	364	15.0
2	EGLL	LHR	London Heathrow Airport	London	United Kingdom	51.470600	-0.461941	83	7.0
3	EHAM	AMS	Amsterdam Airport Schiphol	Amsterdam	Netherlands	52.308601	4.763890	-11	14.0
4	LEBL	BCN	Barcelona International Airport	Barcelona	Spain	41.297100	2.078460	12	29.0
5	LEMD	MAD	Adolfo Suárez Madrid–Barajas Airport	Madrid	Spain	40.471926	-3.562640	1998	23.0
6	LFPG	CDG	Charles de Gaulle International Airport	Paris	France	49.012798	2.550000	392	10.0
7	OMDB	DXB	Dubai International Airport	Dubai	United Arab Emirates	25.252800	55.364399	62	5.0
8	RJTT	HND	Tokyo Haneda International Airport	Tokyo	Japan	35.552299	139.779999	35	4.0
9	VHHH	HKG	Hong Kong International Airport	Hong Kong	Hong Kong	22.308901	113.915001	28	9.0
10	VIDP	DEL	Indira Gandhi International Airport	Delhi	India	28.566500	77.103104	777	19.0
11	WIII	CGK	Soekarno-Hatta International Airport	Jakarta	Indonesia	-6.125570	106.655998	34	20.0
12	WMKK	KUL	Kuala Lumpur International Airport	Kuala Lumpur	Malaysia	2.745580	101.709999	69	22.0
13	WSSS	SIN	Singapore Changi Airport	Singapore	Singapore	1.350190	103.994003	22	16.0
14	ZBAA	PEK	Beijing Capital International Airport	Beijing	China	40.080101	116.584999	116	2.0
15	ZGGG	CAN	Guangzhou Baiyun International Airport	Guangzhou	China	23.392401	113.299004	50	12.0

	ICAO	IATA	name	city	country	longitude	latitude	altitude	Rank
16	ZGSZ	SZX	Shenzhen Bao'an International Airport	Shenzhen	China	22.639299	113.810997	13	26.0
17	ZUUU	CTU	Chengdu Shuangliu International Airport	Chengdu	China	30.578501	103.946999	1625	25.0
18	ZSPD	PVG	Shanghai Pudong International Airport	Shanghai	China	31.143400	121.805000	13	8.0
19	KSFO	SFO	San Francisco International Airport	San Francisco	United States	37.618999	-122.375000	13	24.0
20	KLAX	LAX	Los Angeles International Airport	Los Angeles	United States	33.942501	-118.407997	125	3.0
21	KDFW	DFW	Dallas Fort Worth International Airport	Dallas-Fort Worth	United States	32.896801	-97.038002	607	11.0
22	KATL	ATL	Hartsfield Jackson Atlanta International Airport	Atlanta	United States	33.636700	-84.428101	1026	1.0
23	KDEN	DEN	Denver International Airport	Denver	United States	39.861698	-104.672997	5431	18.0
24	KJFK	JFK	John F Kennedy International Airport	New York	United States	40.639801	-73.778900	13	21.0
25	KORD	ORD	Chicago O'Hare International Airport	Chicago	United States	41.978600	-87.904800	672	6.0
26	KLAS	LAS	McCarran International Airport	Las Vegas	United States	36.080101	-115.152000	2181	28.0
27	KMCO	MCO	Orlando International Airport	Orlando	United States	28.429399	-81.308998	96	27.0
28	VTBS	BKK	Suvarnabhumi Airport	Bangkok	Thailand	13.681100	100.747002	5	17.0
29	RKSI	ICN	Incheon International Airport	Seoul	South Korea	37.469101	126.450996	23	13.0

To audit our data, we used the .shape attribute to once again make sure we had top 30 airports only.



```
In [24]: top_airport_data_combined.shape
```

```
Out[24]: (30, 10)
```

We then used the `info()` and `isnull()` functions to check for completeness and consistency.

```
In [25]: # Make sure all attributes present for all airports  
top_airport_data_combined.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
Int64Index: 30 entries, 0 to 29  
Data columns (total 10 columns):  
ICAO                30 non-null object  
IATA                30 non-null object  
name                30 non-null object  
city                30 non-null object  
country             30 non-null object  
longitude           30 non-null float64  
latitude            30 non-null float64  
altitude            30 non-null int64  
Rank                30 non-null float64  
half_year_count     29 non-null float64  
dtypes: float64(4), int64(1), object(5)  
memory usage: 2.6+ KB
```

```
In [26]: # Make sure no null attributes present  
top_airport_data_combined.isnull().any()
```

```
Out[26]: ICAO                False  
IATA                False  
name                False  
city                False  
country             False  
longitude           False  
latitude            False  
altitude            False  
Rank                False  
half_year_count     True  
dtype: bool
```

We additionally made sure that our primary key was, in fact, unique for each airport listed.

```
In [27]: top_airport_data_combined['ICAO'].is_unique
```

```
Out[27]: True
```

Based on the results, we noticed that one airport listed in the top 30 did not have information about its half-year passenger value. Looking back at the table we scraped, we noticed that the table was missing that value as well. Consequently, we decided to still keep that row in the data table since the rest of our data was complete and consistent. If the row presented an issue or was missing critical information, we would've used the `dropna()` function to remove it from the list.

As a last step, we saved our data to a csv file named `top_airports`.

```
In [28]: # Writing the formatted and corrected data to a csv file
top_airport_data_combined.to_csv(r'C:\Users\anja\Documents\top_airports.csv')
```

## Data Source 3: Using an API

For the API part of the assignment, we decided to use the aviationstack API, which provides flight data, as well as airline, airport, and many other types of data. We were able to get an access key by signing up on their website, which gave us access to a large portion of the API features (some are restricted to paid users only).

We started our search by defining parameters in order to narrow down the results of our request. We settled on requesting data for 100 flights in total. We also decided to only look at flights that have landed, and we chose to focus on flights departing the Atlanta airport (#1 airport from our top 30 list). As mentioned, we took these steps and chose these parameters so as to narrow down our data set and make it more digestible.

```
In [29]: # Define search parameters for request
params = {
    'access_key': '21a3ed98c94fcf48fac648f24e8541c4',
    'limit': 100,
    'flight_status': "landed",
    'dep_icao': icao_codes[0]
}
```

After defining our search, we used the `get()` method from the requests library in order to communicate with the API and get our data. We also immediately converted this response into json format using the `json()` function.

```
In [30]: # Make an API request and convert data to json
api_response = requests.get('http://api.aviationstack.com/v1/flights', params)
all_flight_data = api_response.json()
```

To confirm that the response made sense, we printed unfiltered and unprocessed version of it.

```
In [31]: print(all_flight_data)
```

```
{'pagination': {'limit': 100, 'offset': 0, 'count': 100, 'total': 3217}, 'data': [{'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': 10, 'scheduled': '2020-02-03T04:00:00+00:00', 'estimated': '2020-02-03T04:00:00+00:00', 'actual': '2020-02-03T03:57:00+00:00', 'estimated_runway': '2020-02-03T03:57:00+00:00', 'actual_runway': '2020-02-03T03:57:00+00:00'}, 'arrival': {'airport': 'Nashville International', 'timezone': 'America/Chicago', 'iata': 'BNA', 'icao': 'KBNA', 'terminal': 'S', 'gate': None, 'baggage': None, 'delay': 14, 'scheduled': '2020-02-03T04:11:00+00:00', 'estimated': '2020-02-03T04:11:00+00:00', 'actual': '2020-02-03T04:10:00+00:00', 'estimated_runway': '2020-02-03T04:10:00+00:00', 'actual_runway': '2020-02-03T04:10:00+00:00'}, 'airline': {'name': 'Central Airlines', 'iata': None, 'icao': 'CTL'}, 'flight': {'number': '407', 'iata': None, 'icao': 'CTL407', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': 16, 'scheduled': '2020-02-03T03:00:00+00:00', 'estimated': '2020-02-03T03:00:00+00:00', 'actual': '2020-02-03T03:15:00+00:00', 'estimated_runway': '2020-02-03T03:15:00+00:00', 'actual_runway': '2020-02-03T03:15:00+00:00'}, 'arrival': {'airport': 'Jackson-evers', 'timezone': 'America/Chicago', 'iata': 'JAN', 'icao': 'KJAN', 'terminal': None, 'gate': None, 'baggage': None, 'delay': 5, 'scheduled': '2020-02-03T03:17:00+00:00', 'estimated': '2020-02-03T03:17:00+00:00', 'actual': '2020-02-03T03:42:00+00:00', 'estimated_runway': '2020-02-03T03:42:00+00:00', 'actual_runway': '2020-02-03T03:42:00+00:00'}, 'airline': {'name': 'Delta Private Jets', 'iata': None, 'icao': 'DPJ'}, 'flight': {'number': '949', 'iata': None, 'icao': 'DPJ949', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': 23, 'scheduled': '2020-02-03T03:50:00+00:00', 'estimated': '2020-02-03T03:50:00+00:00', 'actual': '2020-02-03T03:59:00+00:00', 'estimated_runway': '2020-02-03T03:59:00+00:00', 'actual_runway': '2020-02-03T03:59:00+00:00'}, 'arrival': {'airport': 'Charleston, AFB Municipal', 'timezone': 'America/New_York', 'iata': 'CHS', 'icao': 'KCHS', 'terminal': '4', 'gate': None, 'baggage': None, 'delay': 2, 'scheduled': '2020-02-03T05:09:00+00:00', 'estimated': '2020-02-03T05:09:00+00:00', 'actual': '2020-02-03T04:51:00+00:00', 'estimated_runway': '2020-02-03T04:51:00+00:00', 'actual_runway': '2020-02-03T04:51:00+00:00'}, 'airline': {'name': 'Suburban Air Freight', 'iata': 'SUB', 'icao': 'SUB'}, 'flight': {'number': '1318', 'iata': 'SUB1318', 'icao': 'SUB1318', 'codeshared': None}, 'aircraft': {'registration': 'N124GP', 'iata': 'B190', 'icao': 'B190', 'icao24': 'A06332'}, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': 17, 'scheduled': '2020-02-03T03:45:00+00:00', 'estimated': '2020-02-03T03:45:00+00:00', 'actual': '2020-02-03T04:01:00+00:00', 'estimated_runway': '2020-02-03T04:01:00+00:00', 'actual_runway': '2020-02-03T04:01:00+00:00'}, 'arrival': {'airport': 'Pensacola International Airport', 'timezone': 'America/Chicago', 'iata': 'PNS', 'icao': 'KPNS', 'terminal': 'N', 'gate': None, 'baggage': None, 'delay': 7, 'scheduled': '2020-02-03T04:04:00+00:00', 'estimated': '2020-02-03T04:04:00+00:00', 'actual': '2020-02-03T04:04:00+00:00', 'estimated_runway': '2020-02-03T04:04:00+00:00', 'actual_runway': '2020-02-03T04:04:00+00:00'}, 'airline': {'name': 'Suburban Air Freight', 'iata': 'SUB', 'icao': 'SUB'}, 'flight': {'number': '1311', 'iata': 'SUB1311', 'icao': 'SUB1311', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport':
```

```

'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York',
'iata': 'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': None,
'scheduled': '2020-02-03T00:54:00+00:00', 'estimated': '2020-02-03T00:54:00+00:00', 'actual': '2020-02-03T00:34:00+00:00', 'estimated_runway': '2020-02-03T00:34:00+00:00', 'actual_runway': '2020-02-03T00:34:00+00:00'}, 'arrival': {'airport': 'Baltimore/Washington International Thurgood Marshall', 'timezone': 'America/New_York', 'iata': 'BWI', 'icao': 'KBWI', 'terminal': '4', 'gate': None, 'baggage': None, 'delay': None, 'scheduled': '2020-02-03T02:01:00+00:00', 'estimated': '2020-02-03T02:01:00+00:00', 'actual': '2020-02-03T01:52:00+00:00', 'estimated_runway': '2020-02-03T01:52:00+00:00', 'actual_runway': '2020-02-03T01:52:00+00:00'}, 'airline': {'name': 'DHL Air', 'iata': 'D0', 'icao': 'DHK'}, 'flight': {'number': '3944', 'iata': 'D03944', 'icao': 'DHK3944', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'N', 'gate': 'D21', 'delay': 9, 'scheduled': '2020-02-03T05:14:00+00:00', 'estimated': '2020-02-03T05:14:00+00:00', 'actual': '2020-02-03T05:23:00+00:00', 'estimated_runway': '2020-02-03T05:23:00+00:00', 'actual_runway': '2020-02-03T05:23:00+00:00'}, 'arrival': {'airport': 'Charlotte Douglas', 'timezone': 'America/New_York', 'iata': 'CLT', 'icao': 'KCLT', 'terminal': 'EM', 'gate': 'C4', 'baggage': 'C', 'delay': None, 'scheduled': '2020-02-03T06:32:00+00:00', 'estimated': '2020-02-03T06:32:00+00:00', 'actual': '2020-02-03T06:03:00+00:00', 'estimated_runway': '2020-02-03T06:03:00+00:00', 'actual_runway': '2020-02-03T06:03:00+00:00'}, 'airline': {'name': 'American Airlines', 'iata': 'AA', 'icao': 'AAL'}, 'flight': {'number': '1994', 'iata': 'AA1994', 'icao': 'AAL1994', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-03', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A5', 'delay': 27, 'scheduled': '2020-02-03T04:30:00+00:00', 'estimated': '2020-02-03T04:30:00+00:00', 'actual': '2020-02-03T04:56:00+00:00', 'estimated_runway': '2020-02-03T04:56:00+00:00', 'actual_runway': '2020-02-03T04:56:00+00:00'}, 'arrival': {'airport': 'Miami International Airport', 'timezone': 'America/New_York', 'iata': 'MIA', 'icao': 'KMIA', 'terminal': 'S', 'gate': None, 'baggage': None, 'delay': 6, 'scheduled': '2020-02-03T06:12:00+00:00', 'estimated': '2020-02-03T06:12:00+00:00', 'actual': '2020-02-03T06:17:00+00:00', 'estimated_runway': '2020-02-03T06:17:00+00:00', 'actual_runway': '2020-02-03T06:17:00+00:00'}, 'airline': {'name': 'Delta Air Lines', 'iata': 'DL', 'icao': 'DAL'}, 'flight': {'number': '8839', 'iata': 'DL8839', 'icao': 'DAL8839', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'E14', 'delay': 11, 'scheduled': '2020-02-02T20:20:00+00:00', 'estimated': '2020-02-02T20:20:00+00:00', 'actual': '2020-02-02T20:31:00+00:00', 'estimated_runway': '2020-02-02T20:31:00+00:00', 'actual_runway': '2020-02-02T20:31:00+00:00'}, 'arrival': {'airport': 'Schiphol', 'timezone': 'Europe/Amsterdam', 'iata': 'AMS', 'icao': 'EHAM', 'terminal': '3', 'gate': 'D3', 'baggage': '17', 'delay': None, 'scheduled': '2020-02-03T10:50:00+00:00', 'estimated': '2020-02-03T10:50:00+00:00', 'actual': '2020-02-03T10:49:00+00:00', 'estimated_runway': '2020-02-03T10:49:00+00:00', 'actual_runway': '2020-02-03T10:49:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '3948', 'iata': 'VS3948', 'icao': 'VIR3948', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '74', 'flight_iata': 'dl74', 'flight_icao': 'dal74'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':

```

```

'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'E14', 'delay': 11, 'schedule
d': '2020-02-02T20:20:00+00:00', 'estimated': '2020-02-02T20:20:00+00:00', 'a
ctual': '2020-02-02T20:31:00+00:00', 'estimated_runway': '2020-02-02T20:31:00
+00:00', 'actual_runway': '2020-02-02T20:31:00+00:00'}, 'arrival': {'airpor
t': 'Schiphol', 'timezone': 'Europe/Amsterdam', 'iata': 'AMS', 'icao': 'EHA
M', 'terminal': '3', 'gate': 'D3', 'baggage': '17', 'delay': None, 'schedule
d': '2020-02-03T10:50:00+00:00', 'estimated': '2020-02-03T10:50:00+00:00', 'a
ctual': '2020-02-03T10:49:00+00:00', 'estimated_runway': '2020-02-03T10:49:00
+00:00', 'actual_runway': '2020-02-03T10:49:00+00:00'}, 'airline': {'name':
'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '6012', 'iata': 'KL
6012', 'icao': 'KLM6012', 'codeshared': {'airline_name': 'delta air lines',
'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '74', 'flight_i
ata': 'dl74', 'flight_icao': 'dal74'}}}, 'aircraft': None, 'live': None}, {'fl
ight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport':
'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York',
'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'E14', 'delay': 11,
'scheduled': '2020-02-02T20:20:00+00:00', 'estimated': '2020-02-02T20:20:00+0
0:00', 'actual': '2020-02-02T20:31:00+00:00', 'estimated_runway': '2020-02-02
T20:31:00+00:00', 'actual_runway': '2020-02-02T20:31:00+00:00'}, 'arrival':
{'airport': 'Schiphol', 'timezone': 'Europe/Amsterdam', 'iata': 'AMS', 'ica
o': 'EHAM', 'terminal': '3', 'gate': 'D3', 'baggage': '17', 'delay': None, 's
cheduled': '2020-02-03T10:50:00+00:00', 'estimated': '2020-02-03T10:50:00+00:
00', 'actual': '2020-02-03T10:49:00+00:00', 'estimated_runway': '2020-02-03T1
0:49:00+00:00', 'actual_runway': '2020-02-03T10:49:00+00:00'}, 'airline': {'n
ame': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'number': '365
5', 'iata': 'AF3655', 'icao': 'AFR3655', 'codeshared': {'airline_name': 'delt
a air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number':
'74', 'flight_iata': 'dl74', 'flight_icao': 'dal74'}}}, 'aircraft': None, 'liv
e': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departur
e': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Amer
ica/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E18',
'delay': 15, 'scheduled': '2020-02-02T20:19:00+00:00', 'estimated': '2020-02-
02T20:19:00+00:00', 'actual': '2020-02-02T20:33:00+00:00', 'estimated_runwa
y': '2020-02-02T20:33:00+00:00', 'actual_runway': '2020-02-02T20:33:00+00:0
0'}, 'arrival': {'airport': 'Sacramento International', 'timezone': 'America/
Los_Angeles', 'iata': 'SMF', 'icao': 'KSMF', 'terminal': 'A', 'gate': 'A3',
'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:38:00+00:00', 'es
timated': '2020-02-02T22:38:00+00:00', 'actual': '2020-02-02T22:21:00+00:00',
'estimated_runway': '2020-02-02T22:21:00+00:00', 'actual_runway': '2020-02-02
T22:21:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'A
FR'}, 'flight': {'number': '2144', 'iata': 'AF2144', 'icao': 'AFR2144', 'code
shared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_i
cao': 'dal', 'flight_number': '2318', 'flight_iata': 'dl2318', 'flight_icao':
'dal2318'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02',
'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlan
ta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KA
TL', 'terminal': 'S', 'gate': 'A19', 'delay': 23, 'scheduled': '2020-02-02T1
9:50:00+00:00', 'estimated': '2020-02-02T19:50:00+00:00', 'actual': '2020-02-
02T20:12:00+00:00', 'estimated_runway': '2020-02-02T20:12:00+00:00', 'actual_
runway': '2020-02-02T20:12:00+00:00'}, 'arrival': {'airport': 'John Wayne',
'timezone': 'America/Los_Angeles', 'iata': 'SNA', 'icao': 'KSNA', 'terminal':
'A', 'gate': '3', 'baggage': '2', 'delay': None, 'scheduled': '2020-02-02T21:
47:00+00:00', 'estimated': '2020-02-02T21:47:00+00:00', 'actual': '2020-02-02
T21:42:00+00:00', 'estimated_runway': '2020-02-02T21:42:00+00:00', 'actual_ru
nway': '2020-02-02T21:42:00+00:00'}, 'airline': {'name': 'Air France', 'iat
a': 'AF', 'icao': 'AFR'}, 'flight': {'number': '2178', 'iata': 'AF2178', 'ica
o': 'AFR2178', 'codeshared': {'airline_name': 'delta air lines', 'airline_iat

```

```

a': 'dl', 'airline_icao': 'dal', 'flight_number': '895', 'flight_iata': 'dl89
5', 'flight_icao': 'dal895'}}, 'aircraft': None, 'live': None}, {'flight_dat
e': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsf
ield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':
'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B25', 'delay': 14, 'schedule
d': '2020-02-02T21:59:00+00:00', 'estimated': '2020-02-02T21:59:00+00:00', 'a
ctual': '2020-02-02T22:12:00+00:00', 'estimated_runway': '2020-02-02T22:12:00
+00:00', 'actual_runway': '2020-02-02T22:12:00+00:00'}, 'arrival': {'airpor
t': 'Memphis International', 'timezone': 'America/Chicago', 'iata': 'MEM', 'i
cao': 'KMEM', 'terminal': 'A', 'gate': 'A23', 'baggage': None, 'delay': None,
'scheduled': '2020-02-02T22:22:00+00:00', 'estimated': '2020-02-02T22:22:00+0
0:00', 'actual': '2020-02-02T22:10:00+00:00', 'estimated_runway': '2020-02-02
T22:10:00+00:00', 'actual_runway': '2020-02-02T22:10:00+00:00'}, 'airline':
{'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'numbe
r': '5181', 'iata': 'VS5181', 'icao': 'VIR5181', 'codeshared': {'airline_nam
e': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_n
umber': '926', 'flight_iata': 'dl926', 'flight_icao': 'dal926'}}, 'aircraft':
None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed',
'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'B25', 'delay': 14, 'scheduled': '2020-02-02T21:59:00+00:00', 'estimate
d': '2020-02-02T21:59:00+00:00', 'actual': '2020-02-02T22:12:00+00:00', 'esti
mated_runway': '2020-02-02T22:12:00+00:00', 'actual_runway': '2020-02-02T22:1
2:00+00:00'}, 'arrival': {'airport': 'Memphis International', 'timezone': 'Am
erica/Chicago', 'iata': 'MEM', 'icao': 'KMEM', 'terminal': 'A', 'gate': 'A2
3', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:22:00+00:00',
'estimated': '2020-02-02T22:22:00+00:00', 'actual': '2020-02-02T22:10:00+00:0
0', 'estimated_runway': '2020-02-02T22:10:00+00:00', 'actual_runway': '2020-0
2-02T22:10:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KL
M'}, 'flight': {'number': '6746', 'iata': 'KL6746', 'icao': 'KLM6746', 'codesh
ared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_ic
ao': 'dal', 'flight_number': '926', 'flight_iata': 'dl926', 'flight_icao': 'd
al926'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'fli
ght_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta I
nternational', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL',
'terminal': 'S', 'gate': 'T5', 'delay': 13, 'scheduled': '2020-02-02T22:05:00
+00:00', 'estimated': '2020-02-02T22:05:00+00:00', 'actual': '2020-02-02T22:1
7:00+00:00', 'estimated_runway': '2020-02-02T22:17:00+00:00', 'actual_runwa
y': '2020-02-02T22:17:00+00:00'}, 'arrival': {'airport': 'Dallas/Fort Worth I
nternational', 'timezone': 'America/Chicago', 'iata': 'DFW', 'icao': 'KDFW',
'terminal': 'E', 'gate': 'E14', 'baggage': 'E15', 'delay': None, 'scheduled':
'2020-02-02T23:25:00+00:00', 'estimated': '2020-02-02T23:25:00+00:00', 'actua
l': '2020-02-02T23:07:00+00:00', 'estimated_runway': '2020-02-02T23:07:00+00:
00', 'actual_runway': '2020-02-02T23:07:00+00:00'}, 'airline': {'name': 'Virg
in Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '5071', 'iat
a': 'VS5071', 'icao': 'VIR5071', 'codeshared': {'airline_name': 'delta air li
nes', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2010',
'flight_iata': 'dl2010', 'flight_icao': 'dal2010'}}, 'aircraft': None, 'liv
e': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departur
e': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Amer
ica/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'T5',
'delay': 13, 'scheduled': '2020-02-02T22:05:00+00:00', 'estimated': '2020-02-
02T22:05:00+00:00', 'actual': '2020-02-02T22:17:00+00:00', 'estimated_runwa
y': '2020-02-02T22:17:00+00:00', 'actual_runway': '2020-02-02T22:17:00+00:0
0'}, 'arrival': {'airport': 'Dallas/Fort Worth International', 'timezone': 'A
merica/Chicago', 'iata': 'DFW', 'icao': 'KDFW', 'terminal': 'E', 'gate': 'E1
4', 'baggage': 'E15', 'delay': None, 'scheduled': '2020-02-02T23:25:00+00:0

```

```

0', 'estimated': '2020-02-02T23:25:00+00:00', 'actual': '2020-02-02T23:07:00+00:00', 'estimated_runway': '2020-02-02T23:07:00+00:00', 'actual_runway': '2020-02-02T23:07:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '6336', 'iata': 'KL6336', 'icao': 'KLM6336', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2010', 'flight_iata': 'dl2010', 'flight_icao': 'dal2010'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'T5', 'delay': 13, 'scheduled': '2020-02-02T22:05:00+00:00', 'estimated': '2020-02-02T22:05:00+00:00', 'actual': '2020-02-02T22:17:00+00:00', 'estimated_runway': '2020-02-02T22:17:00+00:00', 'actual_runway': '2020-02-02T22:17:00+00:00'}, 'arrival': {'airport': 'Dallas/Fort Worth International', 'timezone': 'America/Chicago', 'iata': 'DFW', 'icao': 'KDFW', 'terminal': 'E', 'gate': 'E14', 'baggage': 'E15', 'delay': None, 'scheduled': '2020-02-02T23:25:00+00:00', 'estimated': '2020-02-02T23:25:00+00:00', 'actual': '2020-02-02T23:07:00+00:00', 'estimated_runway': '2020-02-02T23:07:00+00:00', 'actual_runway': '2020-02-02T23:07:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '3706', 'iata': 'KE3706', 'icao': 'KAL3706', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2010', 'flight_iata': 'dl2010', 'flight_icao': 'dal2010'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B12', 'delay': 14, 'scheduled': '2020-02-02T22:07:00+00:00', 'estimated': '2020-02-02T22:07:00+00:00', 'actual': '2020-02-02T22:21:00+00:00', 'estimated_runway': '2020-02-02T22:21:00+00:00', 'actual_runway': '2020-02-02T22:21:00+00:00'}, 'arrival': {'airport': 'Chicago O'hare International', 'timezone': 'America/Chicago', 'iata': 'ORD', 'icao': 'KORD', 'terminal': '2', 'gate': 'E15', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:04:00+00:00', 'estimated': '2020-02-02T23:04:00+00:00', 'actual': '2020-02-02T22:55:00+00:00', 'estimated_runway': '2020-02-02T22:55:00+00:00', 'actual_runway': '2020-02-02T22:55:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '4461', 'iata': 'VS4461', 'icao': 'VIR4461', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2357', 'flight_iata': 'dl2357', 'flight_icao': 'dal2357'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B12', 'delay': 14, 'scheduled': '2020-02-02T22:07:00+00:00', 'estimated': '2020-02-02T22:07:00+00:00', 'actual': '2020-02-02T22:21:00+00:00', 'estimated_runway': '2020-02-02T22:21:00+00:00', 'actual_runway': '2020-02-02T22:21:00+00:00'}, 'arrival': {'airport': 'Chicago O'hare International', 'timezone': 'America/Chicago', 'iata': 'ORD', 'icao': 'KORD', 'terminal': '2', 'gate': 'E15', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:04:00+00:00', 'estimated': '2020-02-02T23:04:00+00:00', 'actual': '2020-02-02T22:55:00+00:00', 'estimated_runway': '2020-02-02T22:55:00+00:00', 'actual_runway': '2020-02-02T22:55:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '6430', 'iata': 'KL6430', 'icao': 'KLM6430', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2357', 'flight_iata': 'dl2357', 'flight_icao': 'dal2357'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B12', 'delay': 14, 'scheduled': '2020-02-02T22:07:00+00:00', 'estimated': '2020-02-

```



```

02T22:07:00+00:00', 'actual': '2020-02-02T22:21:00+00:00', 'estimated_runwa
y': '2020-02-02T22:21:00+00:00', 'actual_runway': '2020-02-02T22:21:00+00:0
0'}, 'arrival': {'airport': 'Chicago O'hare International', 'timezone': 'Amer
ica/Chicago', 'iata': 'ORD', 'icao': 'KORD', 'terminal': '2', 'gate': 'E15',
'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:04:00+00:00', 'es
timated': '2020-02-02T23:04:00+00:00', 'actual': '2020-02-02T22:55:00+00:00',
'estimated_runway': '2020-02-02T22:55:00+00:00', 'actual_runway': '2020-02-02
T22:55:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'K
AL'}, 'flight': {'number': '3775', 'iata': 'KE3775', 'icao': 'KAL3775', 'code
shared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_i
cao': 'dal', 'flight_number': '2357', 'flight_iata': 'dl2357', 'flight_icao':
'dal2357'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02',
'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlan
ta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KA
TL', 'terminal': 'S', 'gate': 'B12', 'delay': 14, 'scheduled': '2020-02-02T2
2:07:00+00:00', 'estimated': '2020-02-02T22:07:00+00:00', 'actual': '2020-02-
02T22:21:00+00:00', 'estimated_runway': '2020-02-02T22:21:00+00:00', 'actual_
runway': '2020-02-02T22:21:00+00:00'}, 'arrival': {'airport': 'Chicago O'hare
International', 'timezone': 'America/Chicago', 'iata': 'ORD', 'icao': 'KORD',
'terminal': '2', 'gate': 'E15', 'baggage': None, 'delay': None, 'scheduled':
'2020-02-02T23:04:00+00:00', 'estimated': '2020-02-02T23:04:00+00:00', 'actua
l': '2020-02-02T22:55:00+00:00', 'estimated_runway': '2020-02-02T22:55:00+00:
00', 'actual_runway': '2020-02-02T22:55:00+00:00'}, 'airline': {'name': 'Aero
mexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '3294', 'iata':
'AM3294', 'icao': 'AMX3294', 'codeshared': {'airline_name': 'delta air line
s', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2357', 'fl
ight_iata': 'dl2357', 'flight_icao': 'dal2357'}}, 'aircraft': None, 'live': N
one}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure':
{'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/
New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B12', 'de
lay': 14, 'scheduled': '2020-02-02T22:07:00+00:00', 'estimated': '2020-02-02T
22:07:00+00:00', 'actual': '2020-02-02T22:21:00+00:00', 'estimated_runway':
'2020-02-02T22:21:00+00:00', 'actual_runway': '2020-02-02T22:21:00+00:00'},
'arrival': {'airport': 'Chicago O'hare International', 'timezone': 'America/C
hicago', 'iata': 'ORD', 'icao': 'KORD', 'terminal': '2', 'gate': 'E15', 'bagg
age': None, 'delay': None, 'scheduled': '2020-02-02T23:04:00+00:00', 'estimat
ed': '2020-02-02T23:04:00+00:00', 'actual': '2020-02-02T22:55:00+00:00', 'est
imated_runway': '2020-02-02T22:55:00+00:00', 'actual_runway': '2020-02-02T22:
55:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AF
R'}, 'flight': {'number': '2712', 'iata': 'AF2712', 'icao': 'AFR2712', 'codes
hared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_ic
ao': 'dal', 'flight_number': '2357', 'flight_iata': 'dl2357', 'flight_icao':
'dal2357'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02',
'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlan
ta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KA
TL', 'terminal': 'S', 'gate': 'C37', 'delay': 5, 'scheduled': '2020-02-02T22:
35:00+00:00', 'estimated': '2020-02-02T22:35:00+00:00', 'actual': '2020-02-02
T22:40:00+00:00', 'estimated_runway': '2020-02-02T22:40:00+00:00', 'actual_ru
nway': '2020-02-02T22:40:00+00:00'}, 'arrival': {'airport': 'Louisville Inter
national (Standiford Field)', 'timezone': 'America/Kentucky/Louisville', 'iat
a': 'SDF', 'icao': 'KSDF', 'terminal': 'S', 'gate': 'A1', 'baggage': None, 'd
elay': None, 'scheduled': '2020-02-02T23:56:00+00:00', 'estimated': '2020-02-
02T23:56:00+00:00', 'actual': '2020-02-02T23:35:00+00:00', 'estimated_runwa
y': '2020-02-02T23:35:00+00:00', 'actual_runway': '2020-02-02T23:35:00+00:0
0'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'fligh
t': {'number': '3311', 'iata': 'AM3311', 'icao': 'AMX3311', 'codeshared': {'a
irline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal',

```

```

'flight_number': '2491', 'flight_iata': 'dl2491', 'flight_icao': 'dal2491'}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B25', 'delay': 14, 'scheduled': '2020-02-02T21:59:00+00:00', 'estimated': '2020-02-02T21:59:00+00:00', 'actual': '2020-02-02T22:12:00+00:00', 'estimated_runway': '2020-02-02T22:12:00+00:00', 'actual_runway': '2020-02-02T22:12:00+00:00'}, 'arrival': {'airport': 'Memphis International', 'timezone': 'America/Chicago', 'iata': 'MEM', 'icao': 'KMEM', 'terminal': 'A', 'gate': 'A23', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:22:00+00:00', 'estimated': '2020-02-02T22:22:00+00:00', 'actual': '2020-02-02T22:10:00+00:00', 'estimated_runway': '2020-02-02T22:10:00+00:00', 'actual_runway': '2020-02-02T22:10:00+00:00'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '3198', 'iata': 'AM3198', 'icao': 'AMX3198', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '926', 'flight_iata': 'dl926', 'flight_icao': 'dal926'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B14', 'delay': 16, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T22:01:00+00:00', 'estimated_runway': '2020-02-02T22:01:00+00:00', 'actual_runway': '2020-02-02T22:01:00+00:00'}, 'arrival': {'airport': 'General Mitchell International', 'timezone': 'America/Chicago', 'iata': 'MKE', 'icao': 'KMKE', 'terminal': '1', 'gate': 'D45', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:37:00+00:00', 'estimated_runway': '2020-02-02T22:37:00+00:00', 'actual_runway': '2020-02-02T22:37:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '5451', 'iata': 'VS5451', 'icao': 'VIR5451', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '769', 'flight_iata': 'dl769', 'flight_icao': 'dal769'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B14', 'delay': 16, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T22:01:00+00:00', 'estimated_runway': '2020-02-02T22:01:00+00:00', 'actual_runway': '2020-02-02T22:01:00+00:00'}, 'arrival': {'airport': 'General Mitchell International', 'timezone': 'America/Chicago', 'iata': 'MKE', 'icao': 'KMKE', 'terminal': '1', 'gate': 'D45', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:37:00+00:00', 'estimated_runway': '2020-02-02T22:37:00+00:00', 'actual_runway': '2020-02-02T22:37:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '6408', 'iata': 'KL6408', 'icao': 'KLM6408', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '769', 'flight_iata': 'dl769', 'flight_icao': 'dal769'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B14', 'delay': 16, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T22:01:00+00:00', 'estimated_runway': '2020-02-02T22:01:00+00:00', 'actual_runway': '2020-02-02T22:01:00+00:00'}, 'arrival': {'airport': 'General Mitchell International', 'timezone': 'America/Chicago', 'iata': 'MKE', 'icao': 'KMKE', 'terminal': '1', 'gate': 'D45', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:45:00+00:00', 'estimated_runway': '2020-02-02T22:45:00+00:00', 'actual_runway': '2020-02-02T22:45:00+00:00'}},

```

```

0:00', 'actual': '2020-02-02T22:37:00+00:00', 'estimated_runway': '2020-02-02
T22:37:00+00:00', 'actual_runway': '2020-02-02T22:37:00+00:00'}, 'airline':
{'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '53
11', 'iata': 'AM5311', 'icao': 'AMX5311', 'codeshared': {'airline_name': 'del
ta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number':
'769', 'flight_iata': 'dl769', 'flight_icao': 'dal769'}}}, 'aircraft': None,
'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'depa
rture': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone':
'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate':
'B14', 'delay': 16, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2
020-02-02T21:45:00+00:00', 'actual': '2020-02-02T22:01:00+00:00', 'estimated_
runway': '2020-02-02T22:01:00+00:00', 'actual_runway': '2020-02-02T22:01:00+0
0:00'}, 'arrival': {'airport': 'General Mitchell International', 'timezone':
'America/Chicago', 'iata': 'MKE', 'icao': 'KMKE', 'terminal': '1', 'gate': 'D
45', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:45:00+00:0
0', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:37:00+
00:00', 'estimated_runway': '2020-02-02T22:37:00+00:00', 'actual_runway': '20
20-02-02T22:37:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'i
cao': 'AFR'}, 'flight': {'number': '2510', 'iata': 'AF2510', 'icao': 'AFR251
0', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl',
'airline_icao': 'dal', 'flight_number': '769', 'flight_iata': 'dl769', 'fligh
t_icao': 'dal769'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-0
2-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackso
n Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'ica
o': 'KATL', 'terminal': 'S', 'gate': 'B20', 'delay': 3, 'scheduled': '2020-02
-02T22:41:00+00:00', 'estimated': '2020-02-02T22:41:00+00:00', 'actual': '202
0-02-02T22:43:00+00:00', 'estimated_runway': '2020-02-02T22:43:00+00:00', 'ac
tual_runway': '2020-02-02T22:43:00+00:00'}, 'arrival': {'airport': 'George Bu
sh Intercontinental', 'timezone': 'America/Chicago', 'iata': 'IAH', 'icao':
'KIAH', 'terminal': 'A', 'gate': 'A10', 'baggage': None, 'delay': None, 'sche
duled': '2020-02-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:00+00:0
0', 'actual': '2020-02-02T23:22:00+00:00', 'estimated_runway': '2020-02-02T2
3:22:00+00:00', 'actual_runway': '2020-02-02T23:22:00+00:00'}, 'airline': {'n
ame': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number':
'2816', 'iata': 'VS2816', 'icao': 'VIR2816', 'codeshared': {'airline_name':
'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_numbe
r': '716', 'flight_iata': 'dl716', 'flight_icao': 'dal716'}}}, 'aircraft': Non
e, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'd
eparture': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'B20', 'delay': 3, 'scheduled': '2020-02-02T22:41:00+00:00', 'estimated':
'2020-02-02T22:41:00+00:00', 'actual': '2020-02-02T22:43:00+00:00', 'estimate
d_runway': '2020-02-02T22:43:00+00:00', 'actual_runway': '2020-02-02T22:43:00
+00:00'}, 'arrival': {'airport': 'George Bush Intercontinental', 'timezone':
'America/Chicago', 'iata': 'IAH', 'icao': 'KIAH', 'terminal': 'A', 'gate': 'A
10', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:56:00+00:0
0', 'estimated': '2020-02-02T23:56:00+00:00', 'actual': '2020-02-02T23:22:00+
00:00', 'estimated_runway': '2020-02-02T23:22:00+00:00', 'actual_runway': '20
20-02-02T23:22:00+00:00'}, 'airline': {'name': 'Virgin Australia', 'iata': 'V
A', 'icao': 'VOZ'}, 'flight': {'number': '6418', 'iata': 'VA6418', 'icao': 'V
OZ6418', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'd
l', 'airline_icao': 'dal', 'flight_number': '716', 'flight_iata': 'dl716', 'f
light_icao': 'dal716'}}}, 'aircraft': None, 'live': None}, {'flight_date': '20
20-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-ja
ckson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL',
'icao': 'KATL', 'terminal': 'S', 'gate': 'B20', 'delay': 3, 'scheduled': '202
0-02-02T22:41:00+00:00', 'estimated': '2020-02-02T22:41:00+00:00', 'actual':

```

```

'2020-02-02T22:43:00+00:00', 'estimated_runway': '2020-02-02T22:43:00+00:00',
'actual_runway': '2020-02-02T22:43:00+00:00'}, 'arrival': {'airport': 'George
Bush Intercontinental', 'timezone': 'America/Chicago', 'iata': 'IAH', 'icao':
'KIAH', 'terminal': 'A', 'gate': 'A10', 'baggage': None, 'delay': None, 'sche
duled': '2020-02-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:00+00:0
0', 'actual': '2020-02-02T23:22:00+00:00', 'estimated_runway': '2020-02-02T2
3:22:00+00:00', 'actual_runway': '2020-02-02T23:22:00+00:00'}, 'airline': {'n
ame': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5142', 'iat
a': 'KL5142', 'icao': 'KLM5142', 'codeshared': {'airline_name': 'delta air li
nes', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '716', 'f
light_iata': 'dl716', 'flight_icao': 'dal716'}}}, 'aircraft': None, 'live': No
ne}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure':
{'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Americ
a/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B20',
'delay': 3, 'scheduled': '2020-02-02T22:41:00+00:00', 'estimated': '2020-02-
02T22:41:00+00:00', 'actual': '2020-02-02T22:43:00+00:00', 'estimated_runwa
y': '2020-02-02T22:43:00+00:00', 'actual_runway': '2020-02-02T22:43:00+00:0
0'}, 'arrival': {'airport': 'George Bush Intercontinental', 'timezone': 'Amer
ica/Chicago', 'iata': 'IAH', 'icao': 'KIAH', 'terminal': 'A', 'gate': 'A10',
'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:56:00+00:00', 'e
stimated': '2020-02-02T23:56:00+00:00', 'actual': '2020-02-02T23:22:00+00:0
0', 'estimated_runway': '2020-02-02T23:22:00+00:00', 'actual_runway': '2020-0
2-02T23:22:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'ica
o': 'KAL'}, 'flight': {'number': '6927', 'iata': 'KE6927', 'icao': 'KAL6927',
'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airl
ine_icao': 'dal', 'flight_number': '716', 'flight_iata': 'dl716', 'flight_ica
o': 'dal716'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-0
2', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson A
tlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao':
'KATL', 'terminal': 'S', 'gate': 'B20', 'delay': 3, 'scheduled': '2020-02-02T
22:41:00+00:00', 'estimated': '2020-02-02T22:41:00+00:00', 'actual': '2020-02
-02T22:43:00+00:00', 'estimated_runway': '2020-02-02T22:43:00+00:00', 'actual
_runway': '2020-02-02T22:43:00+00:00'}, 'arrival': {'airport': 'George Bush I
ntercontinental', 'timezone': 'America/Chicago', 'iata': 'IAH', 'icao': 'KIA
H', 'terminal': 'A', 'gate': 'A10', 'baggage': None, 'delay': None, 'schedule
d': '2020-02-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:00+00:00', 'a
ctual': '2020-02-02T23:22:00+00:00', 'estimated_runway': '2020-02-02T23:22:00
+00:00', 'actual_runway': '2020-02-02T23:22:00+00:00'}, 'airline': {'name':
'Alitalia', 'iata': 'AZ', 'icao': 'AZA'}, 'flight': {'number': '3071', 'iat
a': 'AZ3071', 'icao': 'AZA3071', 'codeshared': {'airline_name': 'delta air li
nes', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '716', 'f
light_iata': 'dl716', 'flight_icao': 'dal716'}}}, 'aircraft': None, 'live': No
ne}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure':
{'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Americ
a/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B20',
'delay': 3, 'scheduled': '2020-02-02T22:41:00+00:00', 'estimated': '2020-02-
02T22:41:00+00:00', 'actual': '2020-02-02T22:43:00+00:00', 'estimated_runwa
y': '2020-02-02T22:43:00+00:00', 'actual_runway': '2020-02-02T22:43:00+00:0
0'}, 'arrival': {'airport': 'George Bush Intercontinental', 'timezone': 'Amer
ica/Chicago', 'iata': 'IAH', 'icao': 'KIAH', 'terminal': 'A', 'gate': 'A10',
'baggage': None, 'delay': None, 'scheduled': '2020-02-02T23:56:00+00:00', 'e
stimated': '2020-02-02T23:56:00+00:00', 'actual': '2020-02-02T23:22:00+00:0
0', 'estimated_runway': '2020-02-02T23:22:00+00:00', 'actual_runway': '2020-0
2-02T23:22:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'ica
o': 'AFR'}, 'flight': {'number': '2088', 'iata': 'AF2088', 'icao': 'AFR2088',
'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airl
ine_icao': 'dal', 'flight_number': '716', 'flight_iata': 'dl716', 'flight_ica

```

```

o': 'dal716'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A26', 'delay': 10, 'scheduled': '2020-02-02T19:30:00+00:00', 'estimated': '2020-02-02T19:30:00+00:00', 'actual': '2020-02-02T19:40:00+00:00', 'estimated_runway': '2020-02-02T19:40:00+00:00', 'actual_runway': '2020-02-02T19:40:00+00:00'}, 'arrival': {'airport': 'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LAS', 'icao': 'KLAS', 'terminal': '1', 'gate': 'D34', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T20:43:00+00:00', 'estimated_runway': '2020-02-02T20:43:00+00:00', 'actual_runway': '2020-02-02T20:43:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '5129', 'iata': 'VS5129', 'icao': 'VIR5129', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2187', 'flight_iata': 'dl2187', 'flight_icao': 'dal2187'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A26', 'delay': 10, 'scheduled': '2020-02-02T19:30:00+00:00', 'estimated': '2020-02-02T19:30:00+00:00', 'actual': '2020-02-02T19:40:00+00:00', 'estimated_runway': '2020-02-02T19:40:00+00:00', 'actual_runway': '2020-02-02T19:40:00+00:00'}, 'arrival': {'airport': 'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LAS', 'icao': 'KLAS', 'terminal': '1', 'gate': 'D34', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T20:43:00+00:00', 'estimated_runway': '2020-02-02T20:43:00+00:00', 'actual_runway': '2020-02-02T20:43:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5756', 'iata': 'KL5756', 'icao': 'KLM5756', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2187', 'flight_iata': 'dl2187', 'flight_icao': 'dal2187'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A26', 'delay': 10, 'scheduled': '2020-02-02T19:30:00+00:00', 'estimated': '2020-02-02T19:30:00+00:00', 'actual': '2020-02-02T19:40:00+00:00', 'estimated_runway': '2020-02-02T19:40:00+00:00', 'actual_runway': '2020-02-02T19:40:00+00:00'}, 'arrival': {'airport': 'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LAS', 'icao': 'KLAS', 'terminal': '1', 'gate': 'D34', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T20:43:00+00:00', 'estimated_runway': '2020-02-02T20:43:00+00:00', 'actual_runway': '2020-02-02T20:43:00+00:00'}, 'airline': {'name': 'Alitalia', 'iata': 'AZ', 'icao': 'AZA'}, 'flight': {'number': '3098', 'iata': 'AZ3098', 'icao': 'AZA3098', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2187', 'flight_iata': 'dl2187', 'flight_icao': 'dal2187'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A26', 'delay': 10, 'scheduled': '2020-02-02T19:30:00+00:00', 'estimated': '2020-02-02T19:30:00+00:00', 'actual': '2020-02-02T19:40:00+00:00', 'estimated_runway': '2020-02-02T19:40:00+00:00', 'actual_runway': '2020-02-02T19:40:00+00:00'}, 'arrival': {'airport': 'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LAS', 'icao': 'KLAS', 'terminal': '1', 'gate': 'D34', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T20:4

```

```

3:00+00:00', 'estimated_runway': '2020-02-02T20:43:00+00:00', 'actual_runwa
y': '2020-02-02T20:43:00+00:00'}, 'airline': {'name': 'Air France', 'iata':
'AF', 'icao': 'AFR'}, 'flight': {'number': '8838', 'iata': 'AF8838', 'icao':
'AFR8838', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata':
'dl', 'airline_icao': 'dal', 'flight_number': '2187', 'flight_iata': 'dl218
7', 'flight_icao': 'dal2187'}}}, 'aircraft': None, 'live': None}, {'flight_dat
e': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsf
ield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':
'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'T5', 'delay': 13, 'schedule
d': '2020-02-02T22:05:00+00:00', 'estimated': '2020-02-02T22:05:00+00:00', 'a
ctual': '2020-02-02T22:17:00+00:00', 'estimated_runway': '2020-02-02T22:17:00
+00:00', 'actual_runway': '2020-02-02T22:17:00+00:00'}, 'arrival': {'airpor
t': 'Dallas/Fort Worth International', 'timezone': 'America/Chicago', 'iata':
'DFW', 'icao': 'KDFW', 'terminal': 'E', 'gate': 'E14', 'baggage': 'E15', 'del
ay': None, 'scheduled': '2020-02-02T23:25:00+00:00', 'estimated': '2020-02-02
T23:25:00+00:00', 'actual': '2020-02-02T23:07:00+00:00', 'estimated_runway':
'2020-02-02T23:07:00+00:00', 'actual_runway': '2020-02-02T23:07:00+00:00'},
'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight':
{'number': '3460', 'iata': 'AF3460', 'icao': 'AFR3460', 'codeshared': {'airl
ine_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'f
light_number': '2010', 'flight_iata': 'dl2010', 'flight_icao': 'dal2010'}}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_statu
s': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Internatio
nal', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'termina
l': 'S', 'gate': 'B21', 'delay': 13, 'scheduled': '2020-02-02T21:43:00+00:0
0', 'estimated': '2020-02-02T21:43:00+00:00', 'actual': '2020-02-02T21:56:00+
00:00', 'estimated_runway': '2020-02-02T21:56:00+00:00', 'actual_runway': '20
20-02-02T21:56:00+00:00'}, 'arrival': {'airport': 'John F Kennedy Internation
al', 'timezone': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'termina
l': '2', 'gate': 'C64', 'baggage': 'E1', 'delay': None, 'scheduled': '2020-02
-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:00+00:00', 'actual': '202
0-02-02T23:52:00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:00', 'ac
tual_runway': '2020-02-02T23:52:00+00:00'}, 'airline': {'name': 'Virgin Atlan
tic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '4760', 'iata': 'VS4
760', 'icao': 'VIR4760', 'codeshared': {'airline_name': 'delta air lines', 'a
irline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1888', 'flight_i
ata': 'dl1888', 'flight_icao': 'dal1888'}}}, 'aircraft': None, 'live': None},
{'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airp
ort': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_Yo
rk', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B21', 'delay':
13, 'scheduled': '2020-02-02T21:43:00+00:00', 'estimated': '2020-02-02T21:4
3:00+00:00', 'actual': '2020-02-02T21:56:00+00:00', 'estimated_runway': '2020
-02-02T21:56:00+00:00', 'actual_runway': '2020-02-02T21:56:00+00:00'}, 'arriv
al': {'airport': 'John F Kennedy International', 'timezone': 'America/New_Yor
k', 'iata': 'JFK', 'icao': 'KJFK', 'terminal': '2', 'gate': 'C64', 'baggage':
'E1', 'delay': None, 'scheduled': '2020-02-02T23:56:00+00:00', 'estimated':
'2020-02-02T23:56:00+00:00', 'actual': '2020-02-02T23:52:00+00:00', 'estimat
ed_runway': '2020-02-02T23:52:00+00:00', 'actual_runway': '2020-02-02T23:52:0
0+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'f
light': {'number': '7306', 'iata': 'KE7306', 'icao': 'KAL7306', 'codeshared':
{'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'da
l', 'flight_number': '1888', 'flight_iata': 'dl1888', 'flight_icao': 'dal188
8'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_
status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Inter
national', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'te
rminal': 'S', 'gate': 'B21', 'delay': 13, 'scheduled': '2020-02-02T21:43:00+0
0:00', 'estimated': '2020-02-02T21:43:00+00:00', 'actual': '2020-02-02T21:56:

```

```

00+00:00', 'estimated_runway': '2020-02-02T21:56:00+00:00', 'actual_runway':
  '2020-02-02T21:56:00+00:00'}, 'arrival': {'airport': 'John F Kennedy Interna
tional', 'timezone': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'term
inal': '2', 'gate': 'C64', 'baggage': 'E1', 'delay': None, 'scheduled': '2020
-02-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:00+00:00', 'actual':
  '2020-02-02T23:52:00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:0
0', 'actual_runway': '2020-02-02T23:52:00+00:00'}, 'airline': {'name': 'China
Southern Airlines', 'iata': 'CZ', 'icao': 'CSN'}, 'flight': {'number': '100
3', 'iata': 'CZ1003', 'icao': 'CSN1003', 'codeshared': {'airline_name': 'delt
a air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number':
  '1888', 'flight_iata': 'dl1888', 'flight_icao': 'dal1888'}}, 'aircraft': Non
e, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'd
eparture': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'B21', 'delay': 13, 'scheduled': '2020-02-02T21:43:00+00:00', 'estimate
d': '2020-02-02T21:43:00+00:00', 'actual': '2020-02-02T21:56:00+00:00', 'esti
mated_runway': '2020-02-02T21:56:00+00:00', 'actual_runway': '2020-02-02T21:5
6:00+00:00'}, 'arrival': {'airport': 'John F Kennedy International', 'timezon
e': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'terminal': '2', 'gat
e': 'C64', 'baggage': 'E1', 'delay': None, 'scheduled': '2020-02-02T23:56:00+
00:00', 'estimated': '2020-02-02T23:56:00+00:00', 'actual': '2020-02-02T23:5
2:00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:00', 'actual_runwa
y': '2020-02-02T23:52:00+00:00'}, 'airline': {'name': 'Alitalia', 'iata': 'A
Z', 'icao': 'AZA'}, 'flight': {'number': '3369', 'iata': 'AZ3369', 'icao': 'A
ZA3369', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'd
l', 'airline_icao': 'dal', 'flight_number': '1888', 'flight_iata': 'dl1888',
  'flight_icao': 'dal1888'}}, 'aircraft': None, 'live': None}, {'flight_date':
  '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield
-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'AT
L', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B21', 'delay': 13, 'scheduled':
  '2020-02-02T21:43:00+00:00', 'estimated': '2020-02-02T21:43:00+00:00', 'actua
l': '2020-02-02T21:56:00+00:00', 'estimated_runway': '2020-02-02T21:56:00+00:
00', 'actual_runway': '2020-02-02T21:56:00+00:00'}, 'arrival': {'airport': 'J
ohn F Kennedy International', 'timezone': 'America/New_York', 'iata': 'JFK',
  'icao': 'KJFK', 'terminal': '2', 'gate': 'C64', 'baggage': 'E1', 'delay': No
ne, 'scheduled': '2020-02-02T23:56:00+00:00', 'estimated': '2020-02-02T23:56:
00+00:00', 'actual': '2020-02-02T23:52:00+00:00', 'estimated_runway': '2020-0
2-02T23:52:00+00:00', 'actual_runway': '2020-02-02T23:52:00+00:00'}, 'airlin
e': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number':
  '4160', 'iata': 'AM4160', 'icao': 'AMX4160', 'codeshared': {'airline_name':
    'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_numb
er': '1888', 'flight_iata': 'dl1888', 'flight_icao': 'dal1888'}}, 'aircraft':
  None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed',
  'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'A18', 'delay': 16, 'scheduled': '2020-02-02T21:37:00+00:00', 'estimate
d': '2020-02-02T21:37:00+00:00', 'actual': '2020-02-02T21:52:00+00:00', 'esti
mated_runway': '2020-02-02T21:52:00+00:00', 'actual_runway': '2020-02-02T21:5
2:00+00:00'}, 'arrival': {'airport': 'Salt Lake City International', 'timezon
e': 'America/Denver', 'iata': 'SLC', 'icao': 'KSLC', 'terminal': '2', 'gate':
  'C7', 'baggage': '6', 'delay': None, 'scheduled': '2020-02-02T23:52:00+00:0
0', 'estimated': '2020-02-02T23:52:00+00:00', 'actual': '2020-02-02T23:24:00+
00:00', 'estimated_runway': '2020-02-02T23:24:00+00:00', 'actual_runway': '20
20-02-02T23:24:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'V
S', 'icao': 'VIR'}, 'flight': {'number': '4485', 'iata': 'VS4485', 'icao': 'V
IR4485', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'd
l', 'airline_icao': 'dal', 'flight_number': '1928', 'flight_iata': 'dl1928',

```

```

'flight_icao': 'dal1928'}}, 'aircraft': None, 'live': None}, {'flight_date':
'2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield
-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'AT
L', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A18', 'delay': 16, 'scheduled':
'2020-02-02T21:37:00+00:00', 'estimated': '2020-02-02T21:37:00+00:00', 'actua
l': '2020-02-02T21:52:00+00:00', 'estimated_runway': '2020-02-02T21:52:00+00:
00', 'actual_runway': '2020-02-02T21:52:00+00:00'}, 'arrival': {'airport': 'S
alt Lake City International', 'timezone': 'America/Denver', 'iata': 'SLC', 'i
cao': 'KSLC', 'terminal': '2', 'gate': 'C7', 'baggage': '6', 'delay': None,
'scheduled': '2020-02-02T23:52:00+00:00', 'estimated': '2020-02-02T23:52:00+
00:00', 'actual': '2020-02-02T23:24:00+00:00', 'estimated_runway': '2020-02-0
2T23:24:00+00:00', 'actual_runway': '2020-02-02T23:24:00+00:00'}, 'airline':
{'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5444',
'iata': 'KL5444', 'icao': 'KLM5444', 'codeshared': {'airline_name': 'delta a
ir lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '192
8', 'flight_iata': 'dl1928', 'flight_icao': 'dal1928'}}, 'aircraft': None, 'l
ive': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'depart
ure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Am
erica/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A1
8', 'delay': 16, 'scheduled': '2020-02-02T21:37:00+00:00', 'estimated': '2020
-02-02T21:37:00+00:00', 'actual': '2020-02-02T21:52:00+00:00', 'estimated_run
way': '2020-02-02T21:52:00+00:00', 'actual_runway': '2020-02-02T21:52:00+00:0
0'}, 'arrival': {'airport': 'Salt Lake City International', 'timezone': 'Amer
ica/Denver', 'iata': 'SLC', 'icao': 'KSLC', 'terminal': '2', 'gate': 'C7', 'b
aggage': '6', 'delay': None, 'scheduled': '2020-02-02T23:52:00+00:00', 'estim
ated': '2020-02-02T23:52:00+00:00', 'actual': '2020-02-02T23:24:00+00:00', 'e
stimated_runway': '2020-02-02T23:24:00+00:00', 'actual_runway': '2020-02-02T2
3:24:00+00:00'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AM
X'}, 'flight': {'number': '3379', 'iata': 'AM3379', 'icao': 'AMX3379', 'codes
hared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_ic
ao': 'dal', 'flight_number': '1928', 'flight_iata': 'dl1928', 'flight_icao':
'dal1928'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02',
'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atla
nta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'K
ATL', 'terminal': 'S', 'gate': 'A18', 'delay': 16, 'scheduled': '2020-02-02T2
1:37:00+00:00', 'estimated': '2020-02-02T21:37:00+00:00', 'actual': '2020-02-
02T21:52:00+00:00', 'estimated_runway': '2020-02-02T21:52:00+00:00', 'actual_
runway': '2020-02-02T21:52:00+00:00'}, 'arrival': {'airport': 'Salt Lake City
International', 'timezone': 'America/Denver', 'iata': 'SLC', 'icao': 'KSLC',
'terminal': '2', 'gate': 'C7', 'baggage': '6', 'delay': None, 'scheduled':
'2020-02-02T23:52:00+00:00', 'estimated': '2020-02-02T23:52:00+00:00', 'actu
al': '2020-02-02T23:24:00+00:00', 'estimated_runway': '2020-02-02T23:24:00+0
0:00', 'actual_runway': '2020-02-02T23:24:00+00:00'}, 'airline': {'name': 'Ai
r France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'number': '2608', 'iata':
'AF2608', 'icao': 'AFR2608', 'codeshared': {'airline_name': 'delta air line
s', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1928', 'fl
ight_iata': 'dl1928', 'flight_icao': 'dal1928'}}, 'aircraft': None, 'live': N
one}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure':
{'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Americ
a/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B25',
'delay': 14, 'scheduled': '2020-02-02T21:59:00+00:00', 'estimated': '2020-02
-02T21:59:00+00:00', 'actual': '2020-02-02T22:12:00+00:00', 'estimated_runwa
y': '2020-02-02T22:12:00+00:00', 'actual_runway': '2020-02-02T22:12:00+00:0
0'}, 'arrival': {'airport': 'Memphis International', 'timezone': 'America/Chi
cago', 'iata': 'MEM', 'icao': 'KMEM', 'terminal': 'A', 'gate': 'A23', 'baggag
e': None, 'delay': None, 'scheduled': '2020-02-02T22:22:00+00:00', 'estimate
d': '2020-02-02T22:22:00+00:00', 'actual': '2020-02-02T22:10:00+00:00', 'esti

```



```

mated_runway': '2020-02-02T22:10:00+00:00', 'actual_runway': '2020-02-02T22:10:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'number': '2862', 'iata': 'AF2862', 'icao': 'AFR2862', 'codeshare': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '926', 'flight_iata': 'dl926', 'flight_icao': 'dal926'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A32', 'delay': 19, 'scheduled': '2020-02-02T21:49:00+00:00', 'estimated': '2020-02-02T21:49:00+00:00', 'actual': '2020-02-02T22:07:00+00:00', 'estimated_runway': '2020-02-02T22:07:00+00:00', 'actual_runway': '2020-02-02T22:07:00+00:00'}, 'arrival': {'airport': 'Newark Liberty International', 'timezone': 'America/New_York', 'iata': 'EWR', 'icao': 'KEWR', 'terminal': 'B', 'gate': '44', 'baggage': '2', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:50:00+00:00', 'estimated_runway': '2020-02-02T23:50:00+00:00', 'actual_runway': '2020-02-02T23:50:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '4504', 'iata': 'VS4504', 'icao': 'VIR4504', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2415', 'flight_iata': 'dl2415', 'flight_icao': 'dal2415'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A32', 'delay': 19, 'scheduled': '2020-02-02T21:49:00+00:00', 'estimated': '2020-02-02T21:49:00+00:00', 'actual': '2020-02-02T22:07:00+00:00', 'estimated_runway': '2020-02-02T22:07:00+00:00', 'actual_runway': '2020-02-02T22:07:00+00:00'}, 'arrival': {'airport': 'Newark Liberty International', 'timezone': 'America/New_York', 'iata': 'EWR', 'icao': 'KEWR', 'terminal': 'B', 'gate': '44', 'baggage': '2', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:50:00+00:00', 'estimated_runway': '2020-02-02T23:50:00+00:00', 'actual_runway': '2020-02-02T23:50:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '3534', 'iata': 'KE3534', 'icao': 'KAL3534', 'codeshare': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2415', 'flight_iata': 'dl2415', 'flight_icao': 'dal2415'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A32', 'delay': 19, 'scheduled': '2020-02-02T21:49:00+00:00', 'estimated': '2020-02-02T21:49:00+00:00', 'actual': '2020-02-02T22:07:00+00:00', 'estimated_runway': '2020-02-02T22:07:00+00:00', 'actual_runway': '2020-02-02T22:07:00+00:00'}, 'arrival': {'airport': 'Newark Liberty International', 'timezone': 'America/New_York', 'iata': 'EWR', 'icao': 'KEWR', 'terminal': 'B', 'gate': '44', 'baggage': '2', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:50:00+00:00', 'estimated_runway': '2020-02-02T23:50:00+00:00', 'actual_runway': '2020-02-02T23:50:00+00:00'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '5296', 'iata': 'AM5296', 'icao': 'AMX5296', 'codeshared': {'airline_name': 'delta air line s', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2415', 'flight_iata': 'dl2415', 'flight_icao': 'dal2415'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A32', 'delay': 19, 'scheduled': '2020-02-02T21:49:00+00:00', 'estimated': '2020-02-02T21:49:00+00:00', 'actual': '2020-02-02T22:07:00+00:00', 'estimated_runwa

```

```

y': '2020-02-02T22:07:00+00:00', 'actual_runway': '2020-02-02T22:07:00+00:00'}, 'arrival': {'airport': 'Newark Liberty International', 'timezone': 'America/New_York', 'iata': 'EWR', 'icao': 'KEWR', 'terminal': 'B', 'gate': '44', 'baggage': '2', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:50:00+00:00', 'estimated_runway': '2020-02-02T23:50:00+00:00', 'actual_runway': '2020-02-02T23:50:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'number': '2656', 'iata': 'AF2656', 'icao': 'AFR2656', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2415', 'flight_iata': 'dl2415', 'flight_icao': 'dal2415'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 11, 'scheduled': '2020-02-02T21:22:00+00:00', 'estimated': '2020-02-02T21:22:00+00:00', 'actual': '2020-02-02T21:33:00+00:00', 'estimated_runway': '2020-02-02T21:33:00+00:00', 'actual_runway': '2020-02-02T21:33:00+00:00'}, 'arrival': {'airport': 'San Francisco International', 'timezone': 'America/Los_Angeles', 'iata': 'SFO', 'icao': 'KSFO', 'terminal': '1', 'gate': 'C3', 'baggage': '17', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:24:00+00:00', 'estimated_runway': '2020-02-02T23:24:00+00:00', 'actual_runway': '2020-02-02T23:24:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '5285', 'iata': 'VS5285', 'icao': 'VIR5285', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2266', 'flight_iata': 'dl2266', 'flight_icao': 'dal2266'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 11, 'scheduled': '2020-02-02T21:22:00+00:00', 'estimated': '2020-02-02T21:22:00+00:00', 'actual': '2020-02-02T21:33:00+00:00', 'estimated_runway': '2020-02-02T21:33:00+00:00', 'actual_runway': '2020-02-02T21:33:00+00:00'}, 'arrival': {'airport': 'San Francisco International', 'timezone': 'America/Los_Angeles', 'iata': 'SFO', 'icao': 'KSFO', 'terminal': '1', 'gate': 'C3', 'baggage': '17', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:24:00+00:00', 'estimated_runway': '2020-02-02T23:24:00+00:00', 'actual_runway': '2020-02-02T23:24:00+00:00'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '3218', 'iata': 'AM3218', 'icao': 'AMX3218', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2266', 'flight_iata': 'dl2266', 'flight_icao': 'dal2266'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 11, 'scheduled': '2020-02-02T21:22:00+00:00', 'estimated': '2020-02-02T21:22:00+00:00', 'actual': '2020-02-02T21:33:00+00:00', 'estimated_runway': '2020-02-02T21:33:00+00:00', 'actual_runway': '2020-02-02T21:33:00+00:00'}, 'arrival': {'airport': 'San Francisco International', 'timezone': 'America/Los_Angeles', 'iata': 'SFO', 'icao': 'KSFO', 'terminal': '1', 'gate': 'C3', 'baggage': '17', 'delay': None, 'scheduled': '2020-02-02T23:57:00+00:00', 'estimated': '2020-02-02T23:57:00+00:00', 'actual': '2020-02-02T23:24:00+00:00', 'estimated_runway': '2020-02-02T23:24:00+00:00', 'actual_runway': '2020-02-02T23:24:00+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'number': '2395', 'iata': 'AF2395', 'icao': 'AFR2395', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2266', 'flight_iata': 'dl2266', 'flight_icao': 'dal2266'}}},

```

[illegible]

```

way': '2020-02-02T22:15:00+00:00'}, 'airline': {'name': 'Air France', 'iata':
'AF', 'icao': 'AFR'}, 'flight': {'number': '2934', 'iata': 'AF2934', 'icao':
'AFR2934', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata':
'dl', 'airline_icao': 'dal', 'flight_number': '776', 'flight_iata': 'dl776',
'flight_icao': 'dal776'}}}, 'aircraft': None, 'live': None}, {'flight_date':
'2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfiel
d-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'AT
L', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B33', 'delay': 7, 'scheduled':
'2020-02-02T21:06:00+00:00', 'estimated': '2020-02-02T21:06:00+00:00', 'actu
al': '2020-02-02T21:12:00+00:00', 'estimated_runway': '2020-02-02T21:12:00+0
0:00', 'actual_runway': '2020-02-02T21:12:00+00:00'}, 'arrival': {'airport':
'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LAS',
'icao': 'KLAS', 'terminal': '1', 'gate': 'D39', 'baggage': None, 'delay': Non
e, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:0
0+00:00', 'actual': '2020-02-02T22:22:00+00:00', 'estimated_runway': '2020-02
-02T22:22:00+00:00', 'actual_runway': '2020-02-02T22:22:00+00:00'}, 'airlin
e': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'num
ber': '5029', 'iata': 'VS5029', 'icao': 'VIR5029', 'codeshared': {'airline_na
me': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_
number': '1682', 'flight_iata': 'dl1682', 'flight_icao': 'dal1682'}}}, 'aircra
ft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'lan
ded', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 't
imezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S',
'gate': 'B33', 'delay': 7, 'scheduled': '2020-02-02T21:06:00+00:00', 'estimat
ed': '2020-02-02T21:06:00+00:00', 'actual': '2020-02-02T21:12:00+00:00', 'est
imated_runway': '2020-02-02T21:12:00+00:00', 'actual_runway': '2020-02-02T21:
12:00+00:00'}, 'arrival': {'airport': 'Mc Carran International', 'timezone':
'America/Los_Angeles', 'iata': 'LAS', 'icao': 'KLAS', 'terminal': '1', 'gat
e': 'D39', 'baggage': None, 'delay': None, 'scheduled': '2020-02-02T22:45:00+
00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:2
2:00+00:00', 'estimated_runway': '2020-02-02T22:22:00+00:00', 'actual_runwa
y': '2020-02-02T22:22:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata':
'KE', 'icao': 'KAL'}, 'flight': {'number': '7190', 'iata': 'KE7190', 'icao':
'KAL7190', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata':
'dl', 'airline_icao': 'dal', 'flight_number': '1682', 'flight_iata': 'dl168
2', 'flight_icao': 'dal1682'}}}, 'aircraft': None, 'live': None}, {'flight_dat
e': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsf
ield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':
'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'B33', 'delay': 7, 'schedule
d': '2020-02-02T21:06:00+00:00', 'estimated': '2020-02-02T21:06:00+00:00', 'a
ctual': '2020-02-02T21:12:00+00:00', 'estimated_runway': '2020-02-02T21:12:00
+00:00', 'actual_runway': '2020-02-02T21:12:00+00:00'}, 'arrival': {'airpor
t': 'Mc Carran International', 'timezone': 'America/Los_Angeles', 'iata': 'LA
S', 'icao': 'KLAS', 'terminal': '1', 'gate': 'D39', 'baggage': None, 'delay':
None, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:4
5:00+00:00', 'actual': '2020-02-02T22:22:00+00:00', 'estimated_runway': '2020
-02-02T22:22:00+00:00', 'actual_runway': '2020-02-02T22:22:00+00:00'}, 'airli
ne': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'flight': {'numbe
r': '2671', 'iata': 'AF2671', 'icao': 'AFR2671', 'codeshared': {'airline_nam
e': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_n
umber': '1682', 'flight_iata': 'dl1682', 'flight_icao': 'dal1682'}}}, 'aircraf
t': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'land
ed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'ti
mezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I',
'gate': 'F7', 'delay': 4, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimat
ed': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T21:08:00+00:00', 'est
imated_runway': '2020-02-02T21:08:00+00:00', 'actual_runway': '2020-02-02T21:

```

```

08:00+00:00'}, 'arrival': {'airport': 'Heathrow', 'timezone': 'Europe/London', 'iata': 'LHR', 'icao': 'EGLL', 'terminal': '5', 'gate': None, 'baggage': '7', 'delay': None, 'scheduled': '2020-02-03T10:00:00+00:00', 'estimated': '2020-02-03T10:00:00+00:00', 'actual': '2020-02-03T09:37:00+00:00', 'estimated_runway': '2020-02-03T09:37:00+00:00', 'actual_runway': '2020-02-03T09:37:00+00:00'}, 'airline': {'name': 'American Airlines', 'iata': 'AA', 'icao': 'AAL'}, 'flight': {'number': '6171', 'iata': 'AA6171', 'icao': 'AAL6171', 'codeshared': {'airline_name': 'british airways', 'airline_iata': 'ba', 'airline_icao': 'baw', 'flight_number': '226', 'flight_iata': 'ba226', 'flight_icao': 'baw226'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'F7', 'delay': 4, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T21:08:00+00:00', 'estimated_runway': '2020-02-02T21:08:00+00:00', 'actual_runway': '2020-02-02T21:08:00+00:00'}, 'arrival': {'airport': 'Heathrow', 'timezone': 'Europe/London', 'iata': 'LHR', 'icao': 'EGLL', 'terminal': '5', 'gate': None, 'baggage': '7', 'delay': None, 'scheduled': '2020-02-03T10:00:00+00:00', 'estimated': '2020-02-03T10:00:00+00:00', 'actual': '2020-02-03T09:37:00+00:00', 'estimated_runway': '2020-02-03T09:37:00+00:00', 'actual_runway': '2020-02-03T09:37:00+00:00'}, 'airline': {'name': 'Iberia', 'iata': 'IB', 'icao': 'IBE'}, 'flight': {'number': '7410', 'iata': 'IB7410', 'icao': 'IBE7410', 'codeshared': {'airline_name': 'british airways', 'airline_iata': 'ba', 'airline_icao': 'baw', 'flight_number': '226', 'flight_iata': 'ba226', 'flight_icao': 'baw226'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'F7', 'delay': 4, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T21:08:00+00:00', 'estimated_runway': '2020-02-02T21:08:00+00:00', 'actual_runway': '2020-02-02T21:08:00+00:00'}, 'arrival': {'airport': 'Heathrow', 'timezone': 'Europe/London', 'iata': 'LHR', 'icao': 'EGLL', 'terminal': '5', 'gate': None, 'baggage': '7', 'delay': None, 'scheduled': '2020-02-03T10:00:00+00:00', 'estimated': '2020-02-03T10:00:00+00:00', 'actual': '2020-02-03T09:37:00+00:00', 'estimated_runway': '2020-02-03T09:37:00+00:00', 'actual_runway': '2020-02-03T09:37:00+00:00'}, 'airline': {'name': 'Aer Lingus', 'iata': 'EI', 'icao': 'EIN'}, 'flight': {'number': '8926', 'iata': 'EI8926', 'icao': 'EI8926', 'codeshared': {'airline_name': 'british airways', 'airline_iata': 'ba', 'airline_icao': 'baw', 'flight_number': '226', 'flight_iata': 'ba226', 'flight_icao': 'baw226'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'F7', 'delay': 4, 'scheduled': '2020-02-02T21:05:00+00:00', 'estimated': '2020-02-02T21:05:00+00:00', 'actual': '2020-02-02T21:08:00+00:00', 'estimated_runway': '2020-02-02T21:08:00+00:00', 'actual_runway': '2020-02-02T21:08:00+00:00'}, 'arrival': {'airport': 'Heathrow', 'timezone': 'Europe/London', 'iata': 'LHR', 'icao': 'EGLL', 'terminal': '5', 'gate': None, 'baggage': '7', 'delay': None, 'scheduled': '2020-02-03T10:00:00+00:00', 'estimated': '2020-02-03T10:00:00+00:00', 'actual': '2020-02-03T09:37:00+00:00', 'estimated_runway': '2020-02-03T09:37:00+00:00', 'actual_runway': '2020-02-03T09:37:00+00:00'}, 'airline': {'name': 'Finnair', 'iata': 'AY', 'icao': 'FIN'}, 'flight': {'number': '5426', 'iata': 'AY5426', 'icao': 'FIN5426', 'codeshared': {'airline_name': 'british airways', 'airline_iata': 'ba', 'airline_icao': 'baw', 'flight_number': '226', 'flight_iata': 'ba226', 'flight_icao': 'baw226'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':

```

```

'ATL', 'icao': 'KATL', 'terminal': None, 'gate': None, 'delay': 23, 'scheduled': '2020-02-02T21:00:00+00:00', 'estimated': '2020-02-02T21:00:00+00:00', 'actual': '2020-02-02T21:22:00+00:00', 'estimated_runway': '2020-02-02T21:22:00+00:00', 'actual_runway': '2020-02-02T21:22:00+00:00'}, 'arrival': {'airport': 'Frankfurt International Airport', 'timezone': 'Europe/Berlin', 'iata': 'FRA', 'icao': 'EDDF', 'terminal': '1', 'gate': None, 'baggage': None, 'delay': None, 'scheduled': '2020-02-03T11:30:00+00:00', 'estimated': '2020-02-03T11:30:00+00:00', 'actual': '2020-02-03T11:20:00+00:00', 'estimated_runway': '2020-02-03T11:20:00+00:00', 'actual_runway': '2020-02-03T11:20:00+00:00'}, 'airline': {'name': 'Lufthansa Cargo', 'iata': 'GEC', 'icao': 'GEC'}, 'flight': {'number': '8175', 'iata': 'GEC8175', 'icao': 'GEC8175', 'codeshared': None}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E10', 'delay': 11, 'scheduled': '2020-02-02T20:45:00+00:00', 'estimated': '2020-02-02T20:45:00+00:00', 'actual': '2020-02-02T20:55:00+00:00', 'estimated_runway': '2020-02-02T20:55:00+00:00', 'actual_runway': '2020-02-02T20:55:00+00:00'}, 'arrival': {'airport': 'Aeroporto Internacional Guarulhos', 'timezone': 'America/Sao_Paulo', 'iata': 'GRU', 'icao': 'SBGR', 'terminal': '2', 'gate': '238', 'baggage': None, 'delay': None, 'scheduled': '2020-02-03T08:20:00+00:00', 'estimated': '2020-02-03T08:20:00+00:00', 'actual': '2020-02-03T08:14:00+00:00', 'estimated_runway': '2020-02-03T08:14:00+00:00', 'actual_runway': '2020-02-03T08:14:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '7289', 'iata': 'KE7289', 'icao': 'KAL7289', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '105', 'flight_iata': 'dl105', 'flight_icao': 'dal105'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E10', 'delay': 11, 'scheduled': '2020-02-02T20:45:00+00:00', 'estimated': '2020-02-02T20:45:00+00:00', 'actual': '2020-02-02T20:55:00+00:00', 'estimated_runway': '2020-02-02T20:55:00+00:00', 'actual_runway': '2020-02-02T20:55:00+00:00'}, 'arrival': {'airport': 'Aeroporto Internacional Guarulhos', 'timezone': 'America/Sao_Paulo', 'iata': 'GRU', 'icao': 'SBGR', 'terminal': '2', 'gate': '238', 'baggage': None, 'delay': None, 'scheduled': '2020-02-03T08:20:00+00:00', 'estimated': '2020-02-03T08:20:00+00:00', 'actual': '2020-02-03T08:14:00+00:00', 'estimated_runway': '2020-02-03T08:14:00+00:00', 'actual_runway': '2020-02-03T08:14:00+00:00'}, 'airline': {'name': 'Gol', 'iata': 'G3', 'icao': 'GLO'}, 'flight': {'number': '8003', 'iata': 'G38003', 'icao': 'GLO8003', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '105', 'flight_iata': 'dl105', 'flight_icao': 'dal105'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E5', 'delay': 18, 'scheduled': '2020-02-02T19:28:00+00:00', 'estimated': '2020-02-02T19:28:00+00:00', 'actual': '2020-02-02T19:46:00+00:00', 'estimated_runway': '2020-02-02T19:46:00+00:00', 'actual_runway': '2020-02-02T19:46:00+00:00'}, 'arrival': {'airport': 'John F Kennedy International', 'timezone': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'terminal': '4', 'gate': 'B25', 'baggage': 'E1', 'delay': None, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T21:36:00+00:00', 'estimated_runway': '2020-02-02T21:36:00+00:00', 'actual_runway': '2020-02-02T21:36:00+00:00'}, 'airline': {'name': 'West Jet', 'iata': 'WS', 'icao': 'WJA'}, 'flight': {'number': '7557', 'iata': 'WS7557', 'icao': 'WJA7557', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1391', 'flight_i

```

```

ata': 'dl1391', 'flight_icao': 'dal1391'}}, 'aircraft': None, 'live': None},
  {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E5', 'delay': 18, 'scheduled': '2020-02-02T19:28:00+00:00', 'estimated': '2020-02-02T19:28:00+00:00', 'actual': '2020-02-02T19:46:00+00:00', 'estimated_runway': '2020-02-02T19:46:00+00:00', 'actual_runway': '2020-02-02T19:46:00+00:00'}, 'arrival': {'airport': 'John F Kennedy International', 'timezone': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'terminal': '4', 'gate': 'B25', 'baggage': 'E1', 'delay': None, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T21:36:00+00:00', 'estimated_runway': '2020-02-02T21:36:00+00:00', 'actual_runway': '2020-02-02T21:36:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '4860', 'iata': 'VS4860', 'icao': 'VIR4860', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1391', 'flight_iata': 'dl1391', 'flight_icao': 'dal1391'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'E5', 'delay': 18, 'scheduled': '2020-02-02T19:28:00+00:00', 'estimated': '2020-02-02T19:28:00+00:00', 'actual': '2020-02-02T19:46:00+00:00', 'estimated_runway': '2020-02-02T19:46:00+00:00', 'actual_runway': '2020-02-02T19:46:00+00:00'}, 'arrival': {'airport': 'John F Kennedy International', 'timezone': 'America/New_York', 'iata': 'JFK', 'icao': 'KJFK', 'terminal': '4', 'gate': 'B25', 'baggage': 'E1', 'delay': None, 'scheduled': '2020-02-02T21:45:00+00:00', 'estimated': '2020-02-02T21:45:00+00:00', 'actual': '2020-02-02T21:36:00+00:00', 'estimated_runway': '2020-02-02T21:36:00+00:00', 'actual_runway': '2020-02-02T21:36:00+00:00'}, 'airline': {'name': 'China Eastern Airlines', 'iata': 'MU', 'icao': 'CES'}, 'flight': {'number': '8870', 'iata': 'MU8870', 'icao': 'CES8870', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1391', 'flight_iata': 'dl1391', 'flight_icao': 'dal1391'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway': '2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated': '2020-02-03T00:53:00+00:00', 'actual': '2020-02-03T00:49:00+00:00', 'estimated_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:00+00:00'}, 'airline': {'name': 'WestJet', 'iata': 'WS', 'icao': 'WJA'}, 'flight': {'number': '6366', 'iata': 'WS6366', 'icao': 'WJA6366', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal2300'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway': '2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated': '2020-02-03T00:53:00+00:00', 'actual': '2020-

```

```

02-03T00:49:00+00:00', 'estimated_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '4226', 'iata': 'VS4226', 'icao': 'VIR4226', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal2300'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway': '2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated': '2020-02-03T00:53:00+00:00', 'actual': '2020-02-03T00:49:00+00:00', 'estimated_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5152', 'iata': 'KL5152', 'icao': 'KLM5152', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal2300'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway': '2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated': '2020-02-03T00:53:00+00:00', 'actual': '2020-02-03T00:49:00+00:00', 'estimated_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '3682', 'iata': 'KE3682', 'icao': 'KAL3682', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal2300'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway': '2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated': '2020-02-03T00:53:00+00:00', 'actual': '2020-02-03T00:49:00+00:00', 'estimated_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:00+00:00'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '3034', 'iata': 'AM3034', 'icao': 'AMX3034', 'codeshared': {'airline_name': 'delta air line s', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal2300'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A3', 'delay': 21, 'scheduled': '2020-02-02T22:30:00+00:00', 'estimated': '2020-02-02T22:30:00+00:00', 'actual': '2020-02-02T22:50:00+00:00', 'estimated_runway':

```



```

'2020-02-02T22:50:00+00:00', 'actual_runway': '2020-02-02T22:50:00+00:00'},
'arrival': {'airport': 'Logan International', 'timezone': 'America/New_Yor
k', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A3', 'baggage':
'3', 'delay': None, 'scheduled': '2020-02-03T00:53:00+00:00', 'estimated':
'2020-02-03T00:53:00+00:00', 'actual': '2020-02-03T00:49:00+00:00', 'estim
ed_runway': '2020-02-03T00:49:00+00:00', 'actual_runway': '2020-02-03T00:49:0
0+00:00'}, 'airline': {'name': 'Air France', 'iata': 'AF', 'icao': 'AFR'}, 'f
light': {'number': '2528', 'iata': 'AF2528', 'icao': 'AFR2528', 'codeshared':
{'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'da
l', 'flight_number': '2300', 'flight_iata': 'dl2300', 'flight_icao': 'dal230
0'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_
status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Inter
national', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'te
rminal': 'S', 'gate': 'T4', 'delay': 26, 'scheduled': '2020-02-02T22:23:00+0
0:00', 'estimated': '2020-02-02T22:23:00+00:00', 'actual': '2020-02-02T22:48:
00+00:00', 'estimated_runway': '2020-02-02T22:48:00+00:00', 'actual_runway':
'2020-02-02T22:48:00+00:00'}, 'arrival': {'airport': 'Minneapolis - St. Paul
International', 'timezone': 'America/Chicago', 'iata': 'MSP', 'icao': 'KMSP',
'terminal': '1', 'gate': 'G4', 'baggage': '9', 'delay': None, 'scheduled': '2
020-02-02T23:58:00+00:00', 'estimated': '2020-02-02T23:58:00+00:00', 'actua
l': '2020-02-02T23:52:00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:
00', 'actual_runway': '2020-02-02T23:52:00+00:00'}, 'airline': {'name': 'Virg
in Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '2633', 'iat
a': 'VS2633', 'icao': 'VIR2633', 'codeshared': {'airline_name': 'delta air li
nes', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1130',
'flight_iata': 'dl1130', 'flight_icao': 'dal1130'}}, 'aircraft': None, 'liv
e': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departur
e': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'Amer
ica/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'T4',
'delay': 26, 'scheduled': '2020-02-02T22:23:00+00:00', 'estimated': '2020-02
-02T22:23:00+00:00', 'actual': '2020-02-02T22:48:00+00:00', 'estimated_runwa
y': '2020-02-02T22:48:00+00:00', 'actual_runway': '2020-02-02T22:48:00+00:0
0'}, 'arrival': {'airport': 'Minneapolis - St. Paul International', 'timezon
e': 'America/Chicago', 'iata': 'MSP', 'icao': 'KMSP', 'terminal': '1', 'gat
e': 'G4', 'baggage': '9', 'delay': None, 'scheduled': '2020-02-02T23:58:00+0
0:00', 'estimated': '2020-02-02T23:58:00+00:00', 'actual': '2020-02-02T23:52:
00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:00', 'actual_runway':
'2020-02-02T23:52:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'ica
o': 'KLM'}, 'flight': {'number': '6971', 'iata': 'KL6971', 'icao': 'KLM6971',
'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airl
ine_icao': 'dal', 'flight_number': '1130', 'flight_iata': 'dl1130', 'flight_i
cao': 'dal1130'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-
02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson
Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'ica
o': 'KATL', 'terminal': 'S', 'gate': 'T4', 'delay': 26, 'scheduled': '2020-02
-02T22:23:00+00:00', 'estimated': '2020-02-02T22:23:00+00:00', 'actual': '202
0-02-02T22:48:00+00:00', 'estimated_runway': '2020-02-02T22:48:00+00:00', 'ac
tual_runway': '2020-02-02T22:48:00+00:00'}, 'arrival': {'airport': 'Minneapol
is - St. Paul International', 'timezone': 'America/Chicago', 'iata': 'MSP',
'icao': 'KMSP', 'terminal': '1', 'gate': 'G4', 'baggage': '9', 'delay': Non
e, 'scheduled': '2020-02-02T23:58:00+00:00', 'estimated': '2020-02-02T23:58:0
0+00:00', 'actual': '2020-02-02T23:52:00+00:00', 'estimated_runway': '2020-02
-02T23:52:00+00:00', 'actual_runway': '2020-02-02T23:52:00+00:00'}, 'airlin
e': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number':
'3156', 'iata': 'KE3156', 'icao': 'KAL3156', 'codeshared': {'airline_name':
'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_numbe
r': '1130', 'flight_iata': 'dl1130', 'flight_icao': 'dal1130'}}, 'aircraft':

```

```

None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed',
'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'T4', 'delay': 26, 'scheduled': '2020-02-02T22:23:00+00:00', 'estimated':
'2020-02-02T22:23:00+00:00', 'actual': '2020-02-02T22:48:00+00:00', 'estimate
d_runway': '2020-02-02T22:48:00+00:00', 'actual_runway': '2020-02-02T22:48:00
+00:00'}}, 'arrival': {'airport': 'Minneapolis - St. Paul International', 'tim
ezone': 'America/Chicago', 'iata': 'MSP', 'icao': 'KMSP', 'terminal': '1', 'g
ate': 'G4', 'baggage': '9', 'delay': None, 'scheduled': '2020-02-02T23:58:00+
00:00', 'estimated': '2020-02-02T23:58:00+00:00', 'actual': '2020-02-02T23:5
2:00+00:00', 'estimated_runway': '2020-02-02T23:52:00+00:00', 'actual_runwa
y': '2020-02-02T23:52:00+00:00'}}, 'airline': {'name': 'Aeromexico', 'iata':
'AM', 'icao': 'AMX'}, 'flight': {'number': '5458', 'iata': 'AM5458', 'icao':
'AMX5458', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata':
'dl', 'airline_icao': 'dal', 'flight_number': '1130', 'flight_iata': 'dl113
0', 'flight_icao': 'dal1130'}}}, 'aircraft': None, 'live': None}, {'flight_dat
e': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsf
ield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':
'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A29', 'delay': 11, 'schedul
ed': '2020-02-02T22:40:00+00:00', 'estimated': '2020-02-02T22:40:00+00:00',
'actual': '2020-02-02T22:51:00+00:00', 'estimated_runway': '2020-02-02T22:5
1:00+00:00', 'actual_runway': '2020-02-02T22:51:00+00:00'}}, 'arrival': {'airp
ort': 'Orlando International', 'timezone': 'America/New_York', 'iata': 'MCO',
'icao': 'KMCO', 'terminal': 'A', 'gate': '92', 'baggage': '32', 'delay': Non
e, 'scheduled': '2020-02-03T00:08:00+00:00', 'estimated': '2020-02-03T00:08:0
0+00:00', 'actual': '2020-02-02T23:48:00+00:00', 'estimated_runway': '2020-02
-02T23:48:00+00:00', 'actual_runway': '2020-02-02T23:48:00+00:00'}}, 'airlin
e': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'num
ber': '5173', 'iata': 'VS5173', 'icao': 'VIR5173', 'codeshared': {'airline_na
me': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_
number': '1585', 'flight_iata': 'dl1585', 'flight_icao': 'dal1585'}}}, 'aircra
ft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'lan
ded', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 't
imezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S',
'gate': 'A29', 'delay': 11, 'scheduled': '2020-02-02T22:40:00+00:00', 'estima
ted': '2020-02-02T22:40:00+00:00', 'actual': '2020-02-02T22:51:00+00:00', 'es
timated_runway': '2020-02-02T22:51:00+00:00', 'actual_runway': '2020-02-02T2
2:51:00+00:00'}}, 'arrival': {'airport': 'Orlando International', 'timezone':
'America/New_York', 'iata': 'MCO', 'icao': 'KMCO', 'terminal': 'A', 'gate':
'92', 'baggage': '32', 'delay': None, 'scheduled': '2020-02-03T00:08:00+00:00
0', 'estimated': '2020-02-03T00:08:00+00:00', 'actual': '2020-02-02T23:48:00+
00:00', 'estimated_runway': '2020-02-02T23:48:00+00:00', 'actual_runway': '20
20-02-02T23:48:00+00:00'}}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao':
'KLM'}, 'flight': {'number': '6474', 'iata': 'KL6474', 'icao': 'KLM6474', 'c
odeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airlin
e_icao': 'dal', 'flight_number': '1585', 'flight_iata': 'dl1585', 'flight_ica
o': 'dal1585'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-0
2', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson A
tlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao':
'KATL', 'terminal': 'S', 'gate': 'A29', 'delay': 11, 'scheduled': '2020-02-02
T22:40:00+00:00', 'estimated': '2020-02-02T22:40:00+00:00', 'actual': '2020-0
2-02T22:51:00+00:00', 'estimated_runway': '2020-02-02T22:51:00+00:00', 'actua
l_runway': '2020-02-02T22:51:00+00:00'}}, 'arrival': {'airport': 'Orlando Inte
rnational', 'timezone': 'America/New_York', 'iata': 'MCO', 'icao': 'KMCO', 't
erminal': 'A', 'gate': '92', 'baggage': '32', 'delay': None, 'scheduled': '20
20-02-03T00:08:00+00:00', 'estimated': '2020-02-03T00:08:00+00:00', 'actual':
'2020-02-02T23:48:00+00:00', 'estimated_runway': '2020-02-02T23:48:00+00:00',

```

```

'actual_runway': '2020-02-02T23:48:00+00:00'}, 'airline': {'name': 'Korean Ai
r', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '6949', 'iata': 'KE694
9', 'icao': 'KAL6949', 'codeshared': {'airline_name': 'delta air lines', 'air
line_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1585', 'flight_iat
a': 'dl1585', 'flight_icao': 'dal1585'}}}, 'aircraft': None, 'live': None},
{'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airp
ort': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_Yo
rk', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A29', 'delay':
11, 'scheduled': '2020-02-02T22:40:00+00:00', 'estimated': '2020-02-02T22:4
0:00+00:00', 'actual': '2020-02-02T22:51:00+00:00', 'estimated_runway': '2020
-02-02T22:51:00+00:00', 'actual_runway': '2020-02-02T22:51:00+00:00'}, 'arriv
al': {'airport': 'Orlando International', 'timezone': 'America/New_York', 'ia
ta': 'MCO', 'icao': 'KMC0', 'terminal': 'A', 'gate': '92', 'baggage': '32',
'delay': None, 'scheduled': '2020-02-03T00:08:00+00:00', 'estimated': '2020-
02-03T00:08:00+00:00', 'actual': '2020-02-02T23:48:00+00:00', 'estimated_runw
ay': '2020-02-02T23:48:00+00:00', 'actual_runway': '2020-02-02T23:48:00+00:0
0'}, 'airline': {'name': 'Aeromexico', 'iata': 'AM', 'icao': 'AMX'}, 'fligh
t': {'number': '3648', 'iata': 'AM3648', 'icao': 'AMX3648', 'codeshared': {'a
irline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal',
'flight_number': '1585', 'flight_iata': 'dl1585', 'flight_icao': 'dal1585'}}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_statu
s': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Internatio
nal', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'termina
l': 'S', 'gate': 'B5', 'delay': 18, 'scheduled': '2020-02-02T21:10:00+00:00',
'estimated': '2020-02-02T21:10:00+00:00', 'actual': '2020-02-02T21:27:00+00:0
0', 'estimated_runway': '2020-02-02T21:27:00+00:00', 'actual_runway': '2020-0
2-02T21:27:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezon
e': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gat
e': 'A19', 'baggage': '3', 'delay': None, 'scheduled': '2020-02-02T23:37:00+0
0:00', 'estimated': '2020-02-02T23:37:00+00:00', 'actual': '2020-02-02T23:36:
00+00:00', 'estimated_runway': '2020-02-02T23:36:00+00:00', 'actual_runway':
'2020-02-02T23:36:00+00:00'}, 'airline': {'name': 'WestJet', 'iata': 'WS',
'icao': 'WJA'}, 'flight': {'number': '6377', 'iata': 'WS6377', 'icao': 'WJA6
377', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl',
'airline_icao': 'dal', 'flight_number': '1200', 'flight_iata': 'dl1200', 'fli
ght_icao': 'dal1200'}}}, 'aircraft': None, 'live': None}, {'flight_date': '202
0-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jac
kson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL',
'icao': 'KATL', 'terminal': 'S', 'gate': 'B5', 'delay': 18, 'scheduled': '20
20-02-02T21:10:00+00:00', 'estimated': '2020-02-02T21:10:00+00:00', 'actual':
'2020-02-02T21:27:00+00:00', 'estimated_runway': '2020-02-02T21:27:00+00:00',
'actual_runway': '2020-02-02T21:27:00+00:00'}, 'arrival': {'airport': 'Logan
International', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBO
S', 'terminal': 'A', 'gate': 'A19', 'baggage': '3', 'delay': None, 'schedule
d': '2020-02-02T23:37:00+00:00', 'estimated': '2020-02-02T23:37:00+00:00', 'a
ctual': '2020-02-02T23:36:00+00:00', 'estimated_runway': '2020-02-02T23:36:00
+00:00', 'actual_runway': '2020-02-02T23:36:00+00:00'}, 'airline': {'name':
'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '237
7', 'iata': 'VS2377', 'icao': 'VIR2377', 'codeshared': {'airline_name': 'delt
a air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number':
'1200', 'flight_iata': 'dl1200', 'flight_icao': 'dal1200'}}}, 'aircraft': Non
e, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'd
eparture': {'airport': 'Hartsfield-jackson Atlanta International', 'timezon
e': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gat
e': 'B5', 'delay': 18, 'scheduled': '2020-02-02T21:10:00+00:00', 'estimated':
'2020-02-02T21:10:00+00:00', 'actual': '2020-02-02T21:27:00+00:00', 'estimate
d_runway': '2020-02-02T21:27:00+00:00', 'actual_runway': '2020-02-02T21:27:00

```

```

+00:00'}, 'arrival': {'airport': 'Logan International', 'timezone': 'America/
New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'A', 'gate': 'A19', 'ba
ggage': '3', 'delay': None, 'scheduled': '2020-02-02T23:37:00+00:00', 'estima
ted': '2020-02-02T23:37:00+00:00', 'actual': '2020-02-02T23:36:00+00:00', 'es
timated_runway': '2020-02-02T23:36:00+00:00', 'actual_runway': '2020-02-02T2
3:36:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KA
L'}, 'flight': {'number': '6841', 'iata': 'KE6841', 'icao': 'KAL6841', 'codesh
ared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_ica
o': 'dal', 'flight_number': '1200', 'flight_iata': 'dl1200', 'flight_icao':
'dal1200'}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02',
'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atla
nta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'K
ATL', 'terminal': 'S', 'gate': 'B5', 'delay': 18, 'scheduled': '2020-02-02T2
1:10:00+00:00', 'estimated': '2020-02-02T21:10:00+00:00', 'actual': '2020-02-
02T21:27:00+00:00', 'estimated_runway': '2020-02-02T21:27:00+00:00', 'actual_
runway': '2020-02-02T21:27:00+00:00'}, 'arrival': {'airport': 'Logan Internat
ional', 'timezone': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'termi
nal': 'A', 'gate': 'A19', 'baggage': '3', 'delay': None, 'scheduled': '2020-0
2-02T23:37:00+00:00', 'estimated': '2020-02-02T23:37:00+00:00', 'actual': '20
20-02-02T23:36:00+00:00', 'estimated_runway': '2020-02-02T23:36:00+00:00', 'a
ctual_runway': '2020-02-02T23:36:00+00:00'}, 'airline': {'name': 'Aeromexic
o', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '3861', 'iata': 'AM386
1', 'icao': 'AMX3861', 'codeshared': {'airline_name': 'delta air lines', 'air
line_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1200', 'flight_iat
a': 'dl1200', 'flight_icao': 'dal1200'}}, 'aircraft': None, 'live': None},
{'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airp
ort': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_Yo
rk', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'N', 'gate': 'D3', 'delay':
4, 'scheduled': '2020-02-02T20:45:00+00:00', 'estimated': '2020-02-02T20:45:
00+00:00', 'actual': '2020-02-02T20:48:00+00:00', 'estimated_runway': '2020-0
2-02T20:48:00+00:00', 'actual_runway': '2020-02-02T20:48:00+00:00'}, 'arriva
l': {'airport': 'Logan International', 'timezone': 'America/New_York', 'iat
a': 'BOS', 'icao': 'KBOS', 'terminal': 'C', 'gate': 'C34', 'baggage': '6', 'd
elay': None, 'scheduled': '2020-02-02T23:17:00+00:00', 'estimated': '2020-02-
02T23:17:00+00:00', 'actual': '2020-02-02T22:55:00+00:00', 'estimated_runwa
y': '2020-02-02T22:55:00+00:00', 'actual_runway': '2020-02-02T22:55:00+00:0
0'}, 'airline': {'name': 'Qatar Airways', 'iata': 'QR', 'icao': 'QTR'}, 'flig
ht': {'number': '3862', 'iata': 'QR3862', 'icao': 'QTR3862', 'codeshared':
{'airline_name': 'jetblue airways', 'airline_iata': 'b6', 'airline_icao': 'j
bu', 'flight_number': '96', 'flight_iata': 'b696', 'flight_icao': 'jbu96'}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_statu
s': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Internatio
nal', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'termina
l': 'N', 'gate': 'D3', 'delay': 4, 'scheduled': '2020-02-02T20:45:00+00:00',
'estimated': '2020-02-02T20:45:00+00:00', 'actual': '2020-02-02T20:48:00+00:
00', 'estimated_runway': '2020-02-02T20:48:00+00:00', 'actual_runway': '2020-
02-02T20:48:00+00:00'}, 'arrival': {'airport': 'Logan International', 'timezo
ne': 'America/New_York', 'iata': 'BOS', 'icao': 'KBOS', 'terminal': 'C', 'gat
e': 'C34', 'baggage': '6', 'delay': None, 'scheduled': '2020-02-02T23:17:00+0
0:00', 'estimated': '2020-02-02T23:17:00+00:00', 'actual': '2020-02-02T22:55:
00+00:00', 'estimated_runway': '2020-02-02T22:55:00+00:00', 'actual_runway':
'2020-02-02T22:55:00+00:00'}, 'airline': {'name': 'Hawaiian Airlines', 'iat
a': 'HA', 'icao': 'HAL'}, 'flight': {'number': '2370', 'iata': 'HA2370', 'ica
o': 'HAL2370', 'codeshared': {'airline_name': 'jetblue airways', 'airline_iat
a': 'b6', 'airline_icao': 'jbu', 'flight_number': '96', 'flight_iata': 'b69
6', 'flight_icao': 'jbu96'}}, 'aircraft': None, 'live': None}, {'flight_dat
e': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsf

```

```

field-jackson Atlanta International', 'timezone': 'America/New_York', 'iata':
'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'D13', 'delay': 12, 'schedul
ed': '2020-02-02T22:15:00+00:00', 'estimated': '2020-02-02T22:15:00+00:00',
'actual': '2020-02-02T22:27:00+00:00', 'estimated_runway': '2020-02-02T22:2
7:00+00:00', 'actual_runway': '2020-02-02T22:27:00+00:00'}, 'arrival': {'airp
ort': 'Lester B. Pearson International', 'timezone': 'America/Toronto', 'iat
a': 'YYZ', 'icao': 'CYYZ', 'terminal': '3', 'gate': 'B13', 'baggage': None,
'delay': None, 'scheduled': '2020-02-03T00:25:00+00:00', 'estimated': '2020-
02-03T00:25:00+00:00', 'actual': '2020-02-03T00:16:00+00:00', 'estimated_runw
ay': '2020-02-03T00:16:00+00:00', 'actual_runway': '2020-02-03T00:16:00+00:0
0'}, 'airline': {'name': 'WestJet', 'iata': 'WS', 'icao': 'WJA'}, 'flight':
{'number': '6311', 'iata': 'WS6311', 'icao': 'WJA6311', 'codeshared': {'airl
ine_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'f
light_number': '1976', 'flight_iata': 'dl1976', 'flight_icao': 'dal1976'}}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_statu
s': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Internatio
nal', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'termina
l': 'I', 'gate': 'D13', 'delay': 12, 'scheduled': '2020-02-02T22:15:00+00:0
0', 'estimated': '2020-02-02T22:15:00+00:00', 'actual': '2020-02-02T22:27:00+
00:00', 'estimated_runway': '2020-02-02T22:27:00+00:00', 'actual_runway': '20
20-02-02T22:27:00+00:00'}, 'arrival': {'airport': 'Lester B. Pearson Internat
ional', 'timezone': 'America/Toronto', 'iata': 'YYZ', 'icao': 'CYYZ', 'termin
al': '3', 'gate': 'B13', 'baggage': None, 'delay': None, 'scheduled': '2020-0
2-03T00:25:00+00:00', 'estimated': '2020-02-03T00:25:00+00:00', 'actual': '20
20-02-03T00:16:00+00:00', 'estimated_runway': '2020-02-03T00:16:00+00:00', 'a
ctual_runway': '2020-02-03T00:16:00+00:00'}, 'airline': {'name': 'KLM', 'iat
a': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5484', 'iata': 'KL5484', 'ica
o': 'KLM5484', 'codeshared': {'airline_name': 'delta air lines', 'airline_iat
a': 'dl', 'airline_icao': 'dal', 'flight_number': '1976', 'flight_iata': 'dl1
976', 'flight_icao': 'dal1976'}}}, 'aircraft': None, 'live': None}, {'flight_d
ate': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hart
sfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iat
a': 'ATL', 'icao': 'KATL', 'terminal': 'I', 'gate': 'D13', 'delay': 12, 'sche
duled': '2020-02-02T22:15:00+00:00', 'estimated': '2020-02-02T22:15:00+00:0
0', 'actual': '2020-02-02T22:27:00+00:00', 'estimated_runway': '2020-02-02T2
2:27:00+00:00', 'actual_runway': '2020-02-02T22:27:00+00:00'}, 'arrival': {'a
irport': 'Lester B. Pearson International', 'timezone': 'America/Toronto', 'i
ata': 'YYZ', 'icao': 'CYYZ', 'terminal': '3', 'gate': 'B13', 'baggage': None,
'delay': None, 'scheduled': '2020-02-03T00:25:00+00:00', 'estimated': '2020-0
2-03T00:25:00+00:00', 'actual': '2020-02-03T00:16:00+00:00', 'estimated_runwa
y': '2020-02-03T00:16:00+00:00', 'actual_runway': '2020-02-03T00:16:00+00:0
0'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'fligh
t': {'number': '3765', 'iata': 'KE3765', 'icao': 'KAL3765', 'codeshared': {'a
irline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal',
'flight_number': '1976', 'flight_iata': 'dl1976', 'flight_icao': 'dal1976'}}},
'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_statu
s': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta Internatio
nal', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'termina
l': 'I', 'gate': 'D13', 'delay': 12, 'scheduled': '2020-02-02T22:15:00+00:0
0', 'estimated': '2020-02-02T22:15:00+00:00', 'actual': '2020-02-02T22:27:00+
00:00', 'estimated_runway': '2020-02-02T22:27:00+00:00', 'actual_runway': '20
20-02-02T22:27:00+00:00'}, 'arrival': {'airport': 'Lester B. Pearson Internat
ional', 'timezone': 'America/Toronto', 'iata': 'YYZ', 'icao': 'CYYZ', 'termin
al': '3', 'gate': 'B13', 'baggage': None, 'delay': None, 'scheduled': '2020-0
2-03T00:25:00+00:00', 'estimated': '2020-02-03T00:25:00+00:00', 'actual': '20
20-02-03T00:16:00+00:00', 'estimated_runway': '2020-02-03T00:16:00+00:00', 'a
ctual_runway': '2020-02-03T00:16:00+00:00'}, 'airline': {'name': 'Aeromexic

```

```

o', 'iata': 'AM', 'icao': 'AMX'}, 'flight': {'number': '4268', 'iata': 'AM4268', 'icao': 'AMX4268', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1976', 'flight_iata': 'dl1976', 'flight_icao': 'dal1976'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 10, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:54:00+00:00', 'estimated_runway': '2020-02-02T22:54:00+00:00', 'actual_runway': '2020-02-02T22:54:00+00:00'}, 'arrival': {'airport': 'Detroit Metropolitan Wayne County', 'timezone': 'America/Detroit', 'iata': 'DTW', 'icao': 'KDTW', 'terminal': 'EM', 'gate': 'A31', 'baggage': '11', 'delay': None, 'scheduled': '2020-02-03T00:35:00+00:00', 'estimated': '2020-02-03T00:35:00+00:00', 'actual': '2020-02-03T00:20:00+00:00', 'estimated_runway': '2020-02-03T00:20:00+00:00', 'actual_runway': '2020-02-03T00:20:00+00:00'}, 'airline': {'name': 'Virgin Atlantic', 'iata': 'VS', 'icao': 'VIR'}, 'flight': {'number': '5465', 'iata': 'VS5465', 'icao': 'VIR5465', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1772', 'flight_iata': 'dl1772', 'flight_icao': 'dal1772'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 10, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:54:00+00:00', 'estimated_runway': '2020-02-02T22:54:00+00:00', 'actual_runway': '2020-02-02T22:54:00+00:00'}, 'arrival': {'airport': 'Detroit Metropolitan Wayne County', 'timezone': 'America/Detroit', 'iata': 'DTW', 'icao': 'KDTW', 'terminal': 'EM', 'gate': 'A31', 'baggage': '11', 'delay': None, 'scheduled': '2020-02-03T00:35:00+00:00', 'estimated': '2020-02-03T00:35:00+00:00', 'actual': '2020-02-03T00:20:00+00:00', 'estimated_runway': '2020-02-03T00:20:00+00:00', 'actual_runway': '2020-02-03T00:20:00+00:00'}, 'airline': {'name': 'KLM', 'iata': 'KL', 'icao': 'KLM'}, 'flight': {'number': '5349', 'iata': 'KL5349', 'icao': 'KLM5349', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1772', 'flight_iata': 'dl1772', 'flight_icao': 'dal1772'}}}, 'aircraft': None, 'live': None}, {'flight_date': '2020-02-02', 'flight_status': 'landed', 'departure': {'airport': 'Hartsfield-jackson Atlanta International', 'timezone': 'America/New_York', 'iata': 'ATL', 'icao': 'KATL', 'terminal': 'S', 'gate': 'A21', 'delay': 10, 'scheduled': '2020-02-02T22:45:00+00:00', 'estimated': '2020-02-02T22:45:00+00:00', 'actual': '2020-02-02T22:54:00+00:00', 'estimated_runway': '2020-02-02T22:54:00+00:00', 'actual_runway': '2020-02-02T22:54:00+00:00'}, 'arrival': {'airport': 'Detroit Metropolitan Wayne County', 'timezone': 'America/Detroit', 'iata': 'DTW', 'icao': 'KDTW', 'terminal': 'EM', 'gate': 'A31', 'baggage': '11', 'delay': None, 'scheduled': '2020-02-03T00:35:00+00:00', 'estimated': '2020-02-03T00:35:00+00:00', 'actual': '2020-02-03T00:20:00+00:00', 'estimated_runway': '2020-02-03T00:20:00+00:00', 'actual_runway': '2020-02-03T00:20:00+00:00'}, 'airline': {'name': 'Korean Air', 'iata': 'KE', 'icao': 'KAL'}, 'flight': {'number': '7150', 'iata': 'KE7150', 'icao': 'KAL7150', 'codeshared': {'airline_name': 'delta air lines', 'airline_iata': 'dl', 'airline_icao': 'dal', 'flight_number': '1772', 'flight_iata': 'dl1772', 'flight_icao': 'dal1772'}}}, 'aircraft': None, 'live': None}}]}

```

Next, we stored our data into individual arrays for easy access and manipulation. This also made it easier to create a dictionary from the data, and eventually a data frame. For a large amount of data, this method would probably be inefficient, but since we only collected data on 100 flights, this wasn't an issue.

We also filtered our data so that from the 100 flights we got, we only saved the data for which the arrival airport was also in the top 30 airports. Since our airport database only consisted of those airports, we wanted every arrival airport to be accounted for as well. This narrowed our results down to 47 flight routes.

```
In [32]: # Make empty arrays to store data
flight_id, dep_airport_icao, arrival_airport_icao, airline_icao = [], [], [], []
departure_time, departure_timezone, arrival_time, arrival_timezone = [], [], [], []

for flight in all_flight_data['data']:
    # Only look at flights arriving at one of top 30 airports
    if flight['arrival']['icao'] in icao_codes:
        # Add flight information to arrays
        flight_id.append(flight['flight']['icao'])
        dep_airport_icao.append(flight['departure']['icao'])
        arrival_airport_icao.append(flight['arrival']['icao'])
        airline_icao.append(flight['airline']['icao'])

        # Extract departure and arrival times from the API response
        departure_exact = flight['departure']['scheduled'].split('T')
        departure_timeonly = departure_exact[1].split('+')
        arrival_exact = flight['arrival']['scheduled'].split('T')
        arrival_timeonly = arrival_exact[1].split('+')

        # Store departure and arrival time in arrays
        departure_time.append(departure_timeonly[0])
        departure_timezone.append(flight['departure']['timezone'])
        arrival_time.append(arrival_timeonly[0])
        arrival_timezone.append(flight['arrival']['timezone'])
```

As mentioned above, we then transferred all of the data into a dictionary and converted it into a data frame using the `DataFrame()` function in pandas.

```
In [33]: # Create dictionary from data arrays
flight_data = {'flight_id': flight_id,
               'dep_airport_icao': dep_airport_icao,
               'arrival_airport_icao': arrival_airport_icao,
               'airline_icao': airline_icao,
               'departure_time': departure_time,
               'departure_timezone': departure_timezone,
               'arrival_time': arrival_time,
               'arrival_timezone': arrival_timezone}

# Convert to data frame
flight_data_frame = pd.DataFrame(flight_data)
```

To ensure all data made it into the right place and we had all our flights, we printed some of the information, including the flight number, departure airport, arrival airport, and the airline. This way, we were able to confirm that all flights listed were departing from Atlanta and arriving to one of the top 30 airports.



```
In [34]: # Print basic info for all flights to confirm data is complete and accurate
for flight in range(0, len(flight_id)):
    print('Flight Number %s from %s to %s operated by %s'%(
        flight_data['flight_id'][flight], flight_data['dep_airport_icao'][flight],
        flight_data['arrival_airport_icao'][flight], flight_data['airline_icao'][flight]
    ))
```

Flight Number	VIR3948	from KATL	to EHAM	operated by VIR
Flight Number	KLM6012	from KATL	to EHAM	operated by KLM
Flight Number	AFR3655	from KATL	to EHAM	operated by AFR
Flight Number	VIR5071	from KATL	to KDFW	operated by VIR
Flight Number	KLM6336	from KATL	to KDFW	operated by KLM
Flight Number	KAL3706	from KATL	to KDFW	operated by KAL
Flight Number	VIR4461	from KATL	to KORD	operated by VIR
Flight Number	KLM6430	from KATL	to KORD	operated by KLM
Flight Number	KAL3775	from KATL	to KORD	operated by KAL
Flight Number	AMX3294	from KATL	to KORD	operated by AMX
Flight Number	AFR2712	from KATL	to KORD	operated by AFR
Flight Number	VIR5129	from KATL	to KLAS	operated by VIR
Flight Number	KLM5756	from KATL	to KLAS	operated by KLM
Flight Number	AZA3098	from KATL	to KLAS	operated by AZA
Flight Number	AFR8838	from KATL	to KLAS	operated by AFR
Flight Number	AFR3460	from KATL	to KDFW	operated by AFR
Flight Number	VIR4760	from KATL	to KJFK	operated by VIR
Flight Number	KAL7306	from KATL	to KJFK	operated by KAL
Flight Number	CSN1003	from KATL	to KJFK	operated by CSN
Flight Number	AZA3369	from KATL	to KJFK	operated by AZA
Flight Number	AMX4160	from KATL	to KJFK	operated by AMX
Flight Number	VIR5285	from KATL	to KSFO	operated by VIR
Flight Number	AMX3218	from KATL	to KSFO	operated by AMX
Flight Number	AFR2395	from KATL	to KSFO	operated by AFR
Flight Number	VIR4699	from KATL	to KDEN	operated by VIR
Flight Number	KLM6882	from KATL	to KDEN	operated by KLM
Flight Number	AMX3093	from KATL	to KDEN	operated by AMX
Flight Number	AFR2934	from KATL	to KDEN	operated by AFR
Flight Number	VIR5029	from KATL	to KLAS	operated by VIR
Flight Number	KAL7190	from KATL	to KLAS	operated by KAL
Flight Number	AFR2671	from KATL	to KLAS	operated by AFR
Flight Number	AAL6171	from KATL	to EGLL	operated by AAL
Flight Number	IBE7410	from KATL	to EGLL	operated by IBE
Flight Number	EIN8926	from KATL	to EGLL	operated by EIN
Flight Number	FIN5426	from KATL	to EGLL	operated by FIN
Flight Number	GEC8175	from KATL	to EDDF	operated by GEC
Flight Number	WJA7557	from KATL	to KJFK	operated by WJA
Flight Number	VIR4860	from KATL	to KJFK	operated by VIR
Flight Number	CES8870	from KATL	to KJFK	operated by CES
Flight Number	VIR5173	from KATL	to KMCO	operated by VIR
Flight Number	KLM6474	from KATL	to KMCO	operated by KLM
Flight Number	KAL6949	from KATL	to KMCO	operated by KAL
Flight Number	AMX3648	from KATL	to KMCO	operated by AMX
Flight Number	WJA6311	from KATL	to CYYZ	operated by WJA
Flight Number	KLM5484	from KATL	to CYYZ	operated by KLM
Flight Number	KAL3765	from KATL	to CYYZ	operated by KAL
Flight Number	AMX4268	from KATL	to CYYZ	operated by AMX

To audit the completeness and consistency/uniformity of data, we checked to make sure our data set had no null values or objects, as well as confirming that each attribute is present for all flights- that is, every flight attribute should have 47 entries (since we got information about 47 flights)

```
In [35]: # Make sure no null values are present
flight_data_frame.isnull().any()
```

```
Out[35]: flight_id           False
dep_airport_icao           False
arrival_airport_icao       False
airline_icao               False
departure_time            False
departure_timezone        False
arrival_time              False
arrival_timezone          False
dtype: bool
```

```
In [36]: # Make sure every column has right number of entries
flight_data_frame.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 47 entries, 0 to 46
Data columns (total 8 columns):
flight_id           47 non-null object
dep_airport_icao     47 non-null object
arrival_airport_icao 47 non-null object
airline_icao         47 non-null object
departure_time      47 non-null object
departure_timezone  47 non-null object
arrival_time        47 non-null object
arrival_timezone    47 non-null object
dtypes: object(8)
memory usage: 3.1+ KB
```

In addition, we also checked to make sure that all flights have unique flight numbers, since that is our primary key and should thus be unique for each flight.

```
In [37]: # Make sure all primary keys are unique
flight_data_frame['flight_id'].is_unique
```

```
Out[37]: True
```

To check validity, accuracy, and consistency of our data, we looked at the flight ids and airport codes. We checked to make sure all airport codes are 4 letter strings with only letters, since this is the standard format of ICAO airport codes.

We also checked to make sure all flight IDs are alphanumeric 7-value strings, since that is the standard format for ICAO flight IDs.

```
In [38]: # Test validity of airport code and flight ID
valid_airport_code = True
valid_flight_id = True

for flight in range(0, len(flight_data_frame['flight_id'])):
    # Airport code should be 4 characters, letters only
    if len(flight_data_frame['dep_airport_icao'][flight]) != 4 or flight_data_f
    rame['dep_airport_icao'][flight].isalpha() == False:
        valid_airport_code = False
    # Flight ID should be alphanumeric
    if flight_data_frame['flight_id'][flight].isalnum() == False or len(flight
    _data_frame['flight_id'][flight]) != 7:
        valid_flight_id = False

print(valid_airport_code)
print(valid_flight_id)
```

True

True

To ensure validity, accuracy, and consistency, we also looked at flight arrival and departure times. We confirmed that all times were within the acceptable range (hour has to be between 0 and 23, minute between 0 and 60, second between 0 and 60).

```
In [39]: # Test validity of departure and arrival times
valid_times = True
for flight in range(0, len(flight_data_frame['flight_id'])):
    # Split departure times into hours, minutes, and seconds
    dep_time_full = flight_data_frame['departure_time'][flight].split(':')
    dep_hour = int(dep_time_full[0])
    dep_min = int(dep_time_full[1])
    dep_sec = int(dep_time_full[2])

    # Split arrival times into hours, minutes, and seconds
    arrival_time_full = flight_data_frame['arrival_time'][flight].split(':')
    arrival_hour = int(arrival_time_full[0])
    arrival_min = int(arrival_time_full[1])
    arrival_sec = int(arrival_time_full[2])

    # Make sure all variables are within expected range
    if 0 <= dep_hour <= 23 == False or 0 <= dep_min <= 59 == False or 0 <= dep_sec <= 59 =
    = False:
        valid_times = False

    if 0 <= arrival_hour <= 23 == False or 0 <= arrival_min <= 59 == False or 0 <= arriv
    al_sec <= 59 == False:
        valid_times = False

print(valid_times)
```

True

To visualize the results before exporting them, we printed all the flight information we collected.

```
In [40]: # Print data frame  
flight_data_frame
```

Out[40]:

	flight_id	dep_airport_icao	arrival_airport_icao	airline_icao	departure_time	departure_timezone
0	VIR3948	KATL	EHAM	VIR	20:20:00	America/New_York
1	KLM6012	KATL	EHAM	KLM	20:20:00	America/New_York
2	AFR3655	KATL	EHAM	AFR	20:20:00	America/New_York
3	VIR5071	KATL	KDFW	VIR	22:05:00	America/New_York
4	KLM6336	KATL	KDFW	KLM	22:05:00	America/New_York
5	KAL3706	KATL	KDFW	KAL	22:05:00	America/New_York
6	VIR4461	KATL	KORD	VIR	22:07:00	America/New_York
7	KLM6430	KATL	KORD	KLM	22:07:00	America/New_York
8	KAL3775	KATL	KORD	KAL	22:07:00	America/New_York
9	AMX3294	KATL	KORD	AMX	22:07:00	America/New_York
10	AFR2712	KATL	KORD	AFR	22:07:00	America/New_York
11	VIR5129	KATL	KLAS	VIR	19:30:00	America/New_York
12	KLM5756	KATL	KLAS	KLM	19:30:00	America/New_York
13	AZA3098	KATL	KLAS	AZA	19:30:00	America/New_York
14	AFR8838	KATL	KLAS	AFR	19:30:00	America/New_York
15	AFR3460	KATL	KDFW	AFR	22:05:00	America/New_York
16	VIR4760	KATL	KJFK	VIR	21:43:00	America/New_York
17	KAL7306	KATL	KJFK	KAL	21:43:00	America/New_York
18	CSN1003	KATL	KJFK	CSN	21:43:00	America/New_York
19	AZA3369	KATL	KJFK	AZA	21:43:00	America/New_York
20	AMX4160	KATL	KJFK	AMX	21:43:00	America/New_York
21	VIR5285	KATL	KSFO	VIR	21:22:00	America/New_York
22	AMX3218	KATL	KSFO	AMX	21:22:00	America/New_York
23	AFR2395	KATL	KSFO	AFR	21:22:00	America/New_York
24	VIR4699	KATL	KDEN	VIR	21:14:00	America/New_York
25	KLM6882	KATL	KDEN	KLM	21:14:00	America/New_York
26	AMX3093	KATL	KDEN	AMX	21:14:00	America/New_York
27	AFR2934	KATL	KDEN	AFR	21:14:00	America/New_York
28	VIR5029	KATL	KLAS	VIR	21:06:00	America/New_York
29	KAL7190	KATL	KLAS	KAL	21:06:00	America/New_York
30	AFR2671	KATL	KLAS	AFR	21:06:00	America/New_York
31	AAL6171	KATL	EGLL	AAL	21:05:00	America/New_York
32	IBE7410	KATL	EGLL	IBE	21:05:00	America/New_York
33	EIN8926	KATL	EGLL	EIN	21:05:00	America/New_York
34	FIN5426	KATL	EGLL	FIN	21:05:00	America/New_York

	flight_id	dep_airport_icao	arrival_airport_icao	airline_icao	departure_time	departure_timezone
35	GEC8175	KATL	EDDF	GEC	21:00:00	America/New_Y
36	WJA7557	KATL	KJFK	WJA	19:28:00	America/New_Y
37	VIR4860	KATL	KJFK	VIR	19:28:00	America/New_Y
38	CES8870	KATL	KJFK	CES	19:28:00	America/New_Y
39	VIR5173	KATL	KMCO	VIR	22:40:00	America/New_Y
40	KLM6474	KATL	KMCO	KLM	22:40:00	America/New_Y
41	KAL6949	KATL	KMCO	KAL	22:40:00	America/New_Y
42	AMX3648	KATL	KMCO	AMX	22:40:00	America/New_Y
43	WJA6311	KATL	CYYZ	WJA	22:15:00	America/New_Y
44	KLM5484	KATL	CYYZ	KLM	22:15:00	America/New_Y
45	KAL3765	KATL	CYYZ	KAL	22:15:00	America/New_Y
46	AMX4268	KATL	CYYZ	AMX	22:15:00	America/New_Y

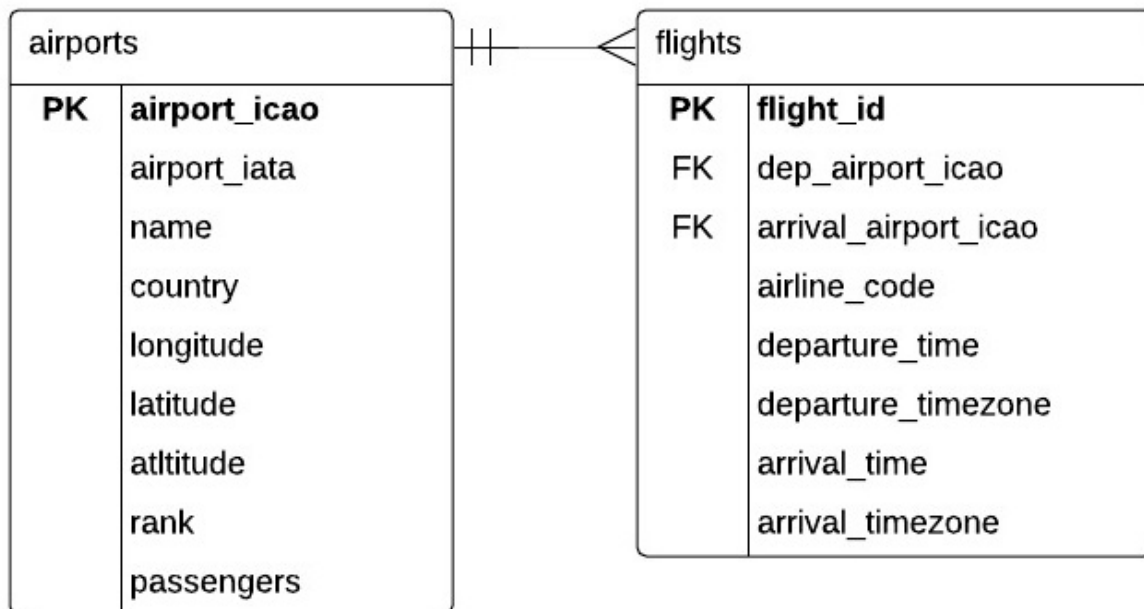
For the last step of this section, we exported all our data into a csv file.

```
In [41]: # Export API data to csv file
export_flight_data = flight_data_frame.to_csv(r'C:\Users\anja\Documents\flight
s.csv')
```

## E-R Database Model

```
In [42]: from IPython.display import Image
Image(r'C:\Users\anja\Downloads\ERmodel.jpg')
```

Out[42]:



## Data Audit Process

### Validity/Accuracy

To assess the validity and accuracy of our data, we used functions like `isnull()`, which confirmed that none of the values in our data were null. For most of our data, we didn't have to delete any rows or columns since none of the data we collected had any null values. Only one airport from our top 30 airports list had a missing value for half-year passengers, but we decided that the missing value was not critical enough to drop the entire row. If this was the case and relevant information like the ICAO code was missing, we would've used the `dropna()` function to remove that row from the data set, or we would've found another website to scrape and provide that information.

Additionally, depending on which attribute we were looking at, we wrote tests to ensure that they follow a standard form in order to determine their accuracy. For example, when looking at airport codes, we tested to make sure they were a 4-character string with letters only. We followed a similar procedure to test flight numbers, making sure they were alphanumeric strings that contained a total of 7 characters. When looking at departure and arrival times for flights, we tested to make sure the hours were between 0 and 23, and minutes and seconds were between 0 and 59, since those values correspond to a time.

### Completeness

To assess the completeness of our data, we used the `info()` function, which showed how many items each of our data columns contained. Since we knew how many rows of data we were importing, we were able to confirm that every column had the appropriate number of entries.

As described in the section above, we also used the `isnull()` function to make sure no null values were present in our data, which also served as confirmation that all of our data was complete, and our rows and columns weren't just filled with empty values.

### Consistency/Uniformity

We were also able to determine that our data was consistent and uniform by connecting items from the different data sets. For example, we used a web scraper and a csv file to collect airport information. From the web scraper, we were able to identify top 30 airports in the world and extract their rank and half-year traffic statistics. Then, we were able to use the airport ICAO code from the web scraper and match it against the ICAO code of airports from the raw csv file, which ultimately enabled us to add a rank to the 30 top airports from the raw csv file.

These same ICAO codes could then be matched up against departure and arrival airport information from the flights data set we obtained through the API we used. We were able to narrow down the list of flights in our database by checking to make sure the arrival airport was on the list of top 30 airports by matching the airport ICAO codes. This also implied that our data was consistent and uniform across our data sets and across different data collection means.



## Report Summary

API Used: [aviationstack API \(https://aviationstack.com/documentation\)](https://aviationstack.com/documentation)

Website Used: [Top 30 Airports in the World \(https://www.world-airport-codes.com/world-top-30-airports.html\)](https://www.world-airport-codes.com/world-top-30-airports.html)

.CSV File Used: [Open FLights Airport Data Set \(https://openflights.org/data.html#airport\)](https://openflights.org/data.html#airport)

Files Generated: top\_airports.csv, flights.csv

In this assignment, we were able to demonstrate how data can be gathered from multiple sources and then analyzed and used to create a database. For the first part of the assignment, we made a web scraper to gather data on top 30 airports in the world. We specifically focused on getting the airport IATA code, rank, and half-year passenger count. For this portion of the assignment, we used functions like `urlopen()` and `get()` from the `requests` library to open and request information from the website. We used `BeautifulSoup()` to scrape the contents, followed by `find_all()` in order to find where the tags where the bulk of our data could be found. We additionally used `to_numpy()` function from the `numpy` library to get some of the data from data frame format into a list.

Next, for the raw csv file portion of the assignment, `read_csv()` to read the data in as a data frame. Following that, we used various attributes and functions like `.shape` and `.head()` to inspect our data. Additionally, we used `.is_null()`, `info()`, and `is_unique` in order to audit our data for validity, completeness, and uniformity. We used the `.drop()` function to drop rows from our data that weren't related to the top 30 airports. We also used `.merge()` in order to merge our two data frames from the first 2 parts of the assignment.

Lastly, we used an API and the `request()` method from `requests` library to gather data from the `aviationstack` API. We converted the data into json format with the `json()` function, and then eventually into a data frame by storing it in a dictionary first. We once again used the functions described in the previous paragraph in order to audit our data.

In conclusion, through this assignment, we were able to learn how to gather data from multiple sources, and how to successfully manage and audit it in order to form a simple database with complete and accurate information.

## Contribution

On our own: 40%

External Source (TA sample and help): 20% (functions/attributes like `.merge()`, `is_null()`, `is_unique`, `info()`; image display)

External Source (online, cited below): 30% (various python data frame functions and attributes linked in the section below; we did not use the exact code provided, we only looked at examples of function use as well as descriptions of function attributes)

Provided by Professor: 10% (functions like `urlopen()`, `BeautifulSoup()`, `find_all()`)

## Citations

<https://aviationstack.com/documentation> (<https://aviationstack.com/documentation>) (API Documentation- help with creating API requests)

TA Assignment 1 Sample (audit functions like `is_null()`, `info()`, etc.; merge function; image display)

<https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.html> (<https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.html>) (used as reference for dataframe functions used; `drop()`, `merge()`, `rename()`, `loc()`, `.index`)

<https://www.world-airport-codes.com/world-top-30-airports.html> (<https://www.world-airport-codes.com/world-top-30-airports.html>) (top 30 airports)

<https://openflights.org/data.html#airport> (<https://openflights.org/data.html#airport>) (open flights data)

[https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to\\_csv.html](https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to_csv.html) ([https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to\\_csv.html](https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to_csv.html)) (exporting to csv file)

<https://thispointer.com/python-pandas-how-to-create-dataframe-from-dictionary/> (<https://thispointer.com/python-pandas-how-to-create-dataframe-from-dictionary/>) (converting dictionary to dataframe)

<https://stackoverflow.com/questions/12329853/how-to-rearrange-pandas-column-sequence/23741704> (<https://stackoverflow.com/questions/12329853/how-to-rearrange-pandas-column-sequence/23741704>) (switch columns of dataframe)

[https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to\\_numpy.html](https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to_numpy.html) ([https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to\\_numpy.html](https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.DataFrame.to_numpy.html)) (dataframe to list)