

ALINA HENNE, 11/03/2020

# CAPSTONE PROJECT BATTLE OF NEIGHBORHOODS

Which city is the best for a German consultancy, and has the busiest airport?



# THE PROBLEM

Context &  
Questions

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## THE PROBLEM

# CONTEXT

- Aviation consultancy wants to expand to US
- Headquarters are in Stuttgart, Germany
- Most important: employee motivation



**OUR EMPLOYEES SHOULD FEEL AT HOME  
WHERE OUR NEW OFFICES ARE. WHAT  
HUBS IN THE US QUALIFY?**

**QUESTION #1**

**WE WANT AN OPTIMAL ECONOMIC  
PERSPECTIVE WITH MANY POTENTIAL  
CUSTOMERS. WHAT IS THE BEST CHOICE?**

**QUESTION #2**



# THE DATA

Sources &  
Preparation

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# US Top 40 Airports

Recently Updated | [World Top Airports](#) | [US Top Airports](#) | [UK Top Airports](#)



According to the 2011-2015 National Plan of Integrated Airport Systems, there are 17,870 airports in the United States. 5,170 of these airports are open to the public and serve commercial flights.

A great deal of flights within the USA are domestic flights as opposed to international flights. This means that the total which would be a considerable amount of driving if you were to travel by road, is covered by air. This large amount of air travel travellers through the popular and busy airports in the US.

These are the Top 40 busiest airports by passenger number.

THE DATA

# SOURCES

- **List of 40 busiest airports (html)**
- **Coordinates of those cities**
- **Coordinates of Stuttgart, Germany**
- **Foursquare venue data for surrounding venue types of each of the 41 cities**

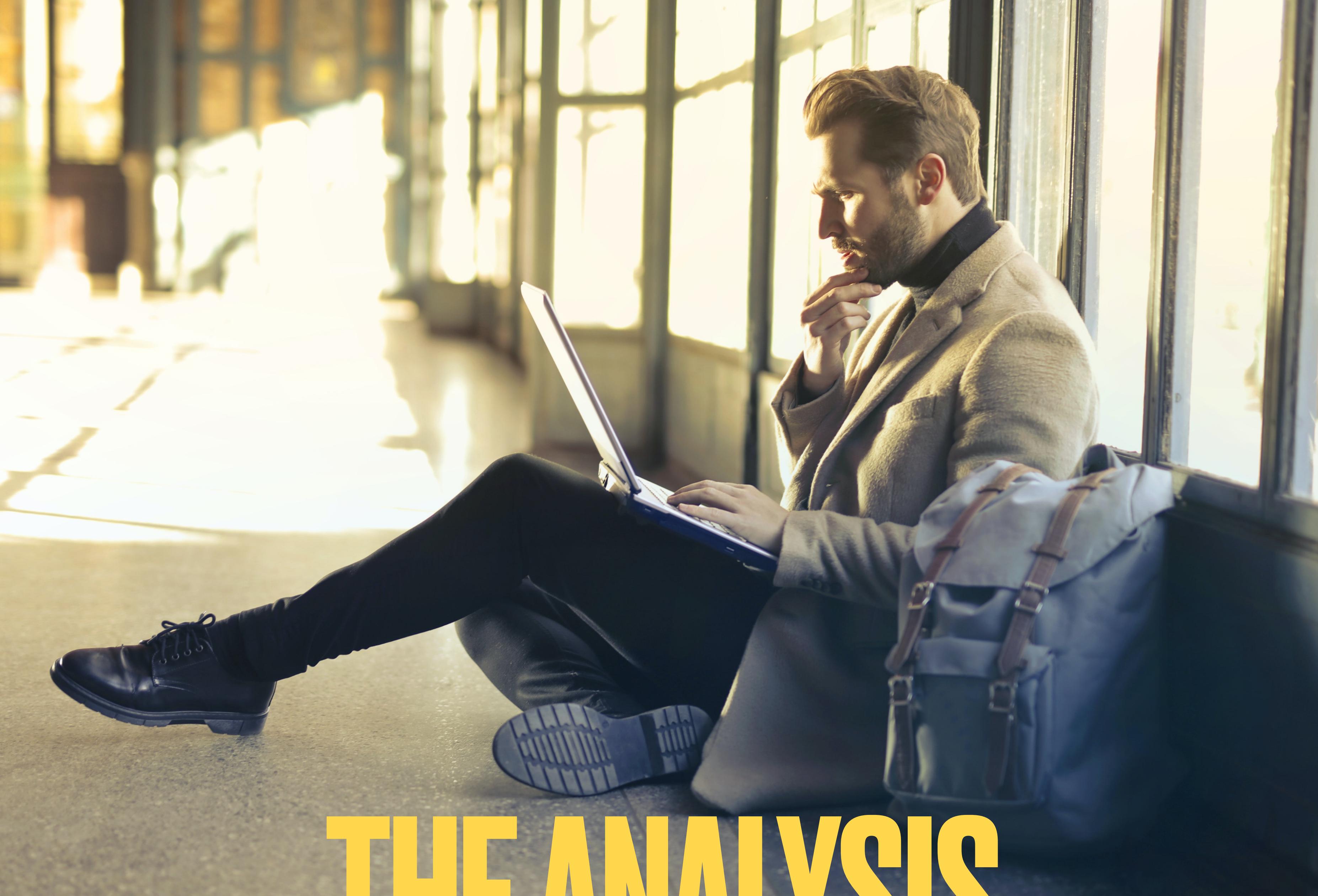
Rank (2018)	Airports (large hubs)	IATA Code	Major city served	State
1	Hartsfield-Jackson Atlanta International Airport	ATL	Atlanta	GA
2	Los Angeles International Airport	LAX	Los Angeles	CA
3	O'Hare International Airport	ORD	Chicago	IL
4	Dallas/Fort Worth International Airport	DFW	Dallas	TX
5	Denver International Airport	DEN	Denver	CO
6	John F. Kennedy International Airport	JFK	New York	NY
7	San Francisco International Airport	SFO	San Francisco	CA
8	Seattle-Tacoma International Airport	SEA	Seattle	WA



## PREPARATION

- Order busiest to less busy
- Match latitudes and longitudes
- 40 US airport cities and Stuttgart with latitudes and longitudes in ONE table

	City	Latitude	Longitude
0	Atlanta, GA	33.749099	-84.390185
1	Los Angeles, CA	34.053691	-118.242767
2	Chicago, IL	41.875562	-87.624421
3	Dallas, TX	32.776272	-96.796856
4	Denver, CO	39.739236	-104.984862
5	New York, NY	40.712728	-74.006015
6	San Francisco, CA	46.844325	-71.274327
7	Seattle, WA	47.603832	-122.330062
8	Las Vegas, NV	36.167256	-115.148516
9	Orlando, FL	28.542111	-81.379030
10	New York, NJ	41.398174	-74.237609
11	Charlotte, NC	35.227200	-80.843083
12	Phoenix, AZ	33.448437	-112.074142
13	Houston, TX	29.758938	-95.367697
14	Miami, FL	25.774266	-80.193659



# THE ANALYSIS

Venues &  
Clustering

	City	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Atlanta, GA	Intersection	Breakfast Spot	College Basketball Court	Food Court	Music Venue	Boat or Ferry	Caribbean Restaurant	Tapas Restaurant	Event Space	Art Gallery
1	Baltimore, MD	American Restaurant	Coffee Shop	Lounge	Convenience Store	Café	Salad Place	Clothing Store	Music Venue	Hotel	Bar
2	Boston, MA	Italian Restaurant	Historic Site	Seafood Restaurant	Coffee Shop	Bakery	Sandwich Place	Hotel	Pub	Park	Restaurant
3	Charlotte, NC	Pizza Place	American Restaurant	Steakhouse	Hotel	Sandwich Place	Restaurant	Theater	Seafood Restaurant	Pub	French Restaurant
4	Chicago, IL	Coffee Shop	Sandwich Place	Hotel	Pub	Boutique	Pizza Place	Bookstore	Museum	Concert Hall	Garden

## VENUES

- Get venue types with Foursquare
- Find top ten venue types for each city
- Create table accordingly



## THE ANALYSIS

# CLUSTERING

- Create clusters with similar venue types
- Use k-means-clustering
- Create map with clusters





**THE RESULT**



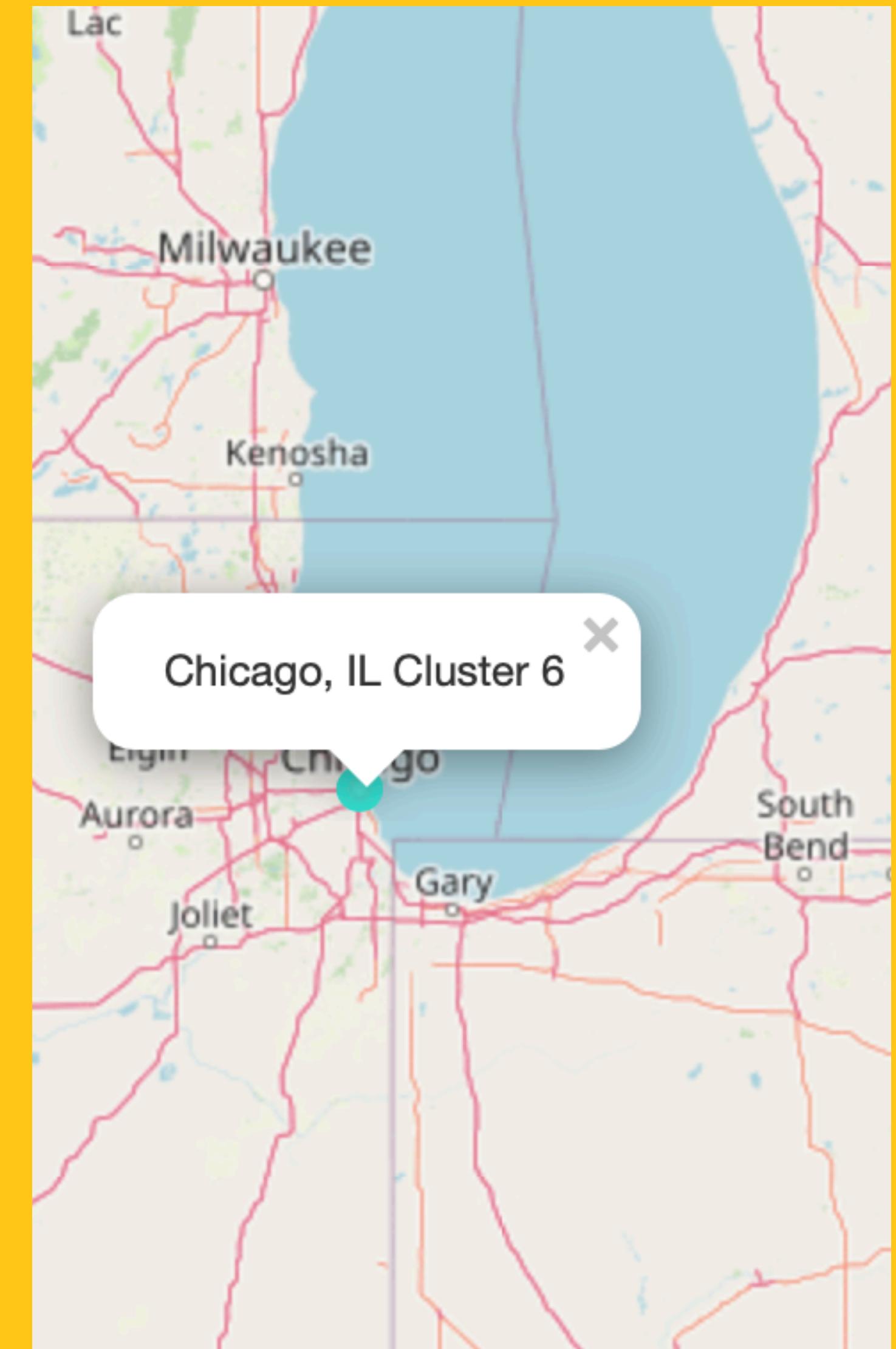
# OUR EMPLOYEES SHOULD FEEL AT HOME WHERE OUR NEW OFFICES ARE. WHAT HUBS IN THE US QUALIFY?

## QUESTION #1

	City	Latitude	Longitude	Cluster
2	Chicago, IL	41.875562	-87.624421	6
4	Denver, CO	39.739236	-104.984862	6
5	New York, NY	40.712728	-74.006015	6
7	Seattle, WA	47.603832	-122.330062	6
19	Philadelphia, PA	39.952724	-75.163526	6
20	New York, NY	40.712728	-74.006015	6
23	San Diego, CA	32.717421	-117.162771	6
26	Chicago, IL	41.875562	-87.624421	6
30	Stuttgart, Germany	48.778449	9.180013	6

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**QUESTION #2**



**THANK YOU FOR VIEWING THIS KEYNOTE.**