DIVVY
PROJECT ONE
DIVVY'IN UP DATA

ANALYZING CHICAGO DIVVY RIDER DATA FROM THE SUMMER OF 2019

Ruth Hinkle   Charlie Denys   Nabila Farooqi   Drew McBride   Andrew Neher
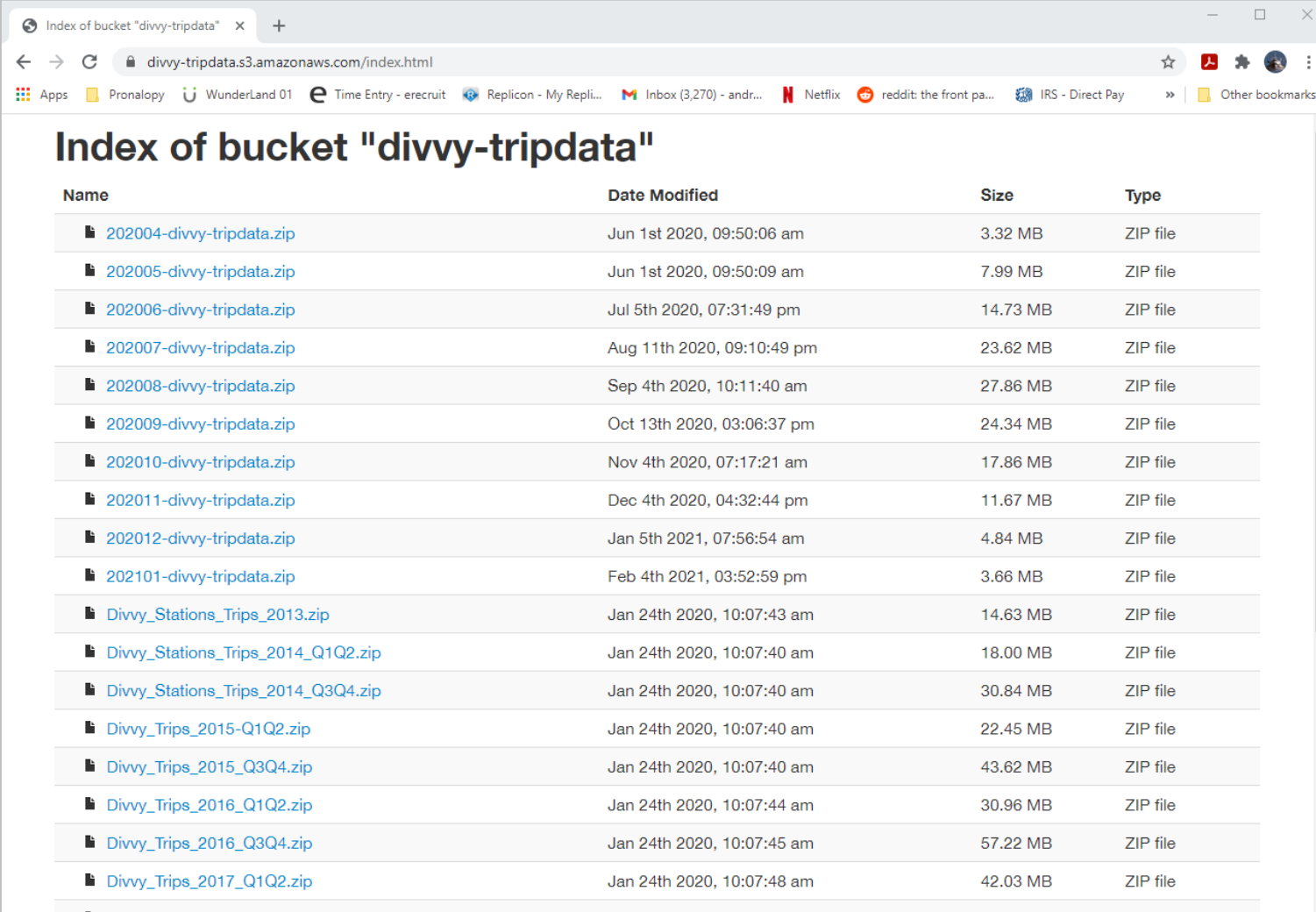
DATA SOURCE: DIVVYBIKES.COM

TRIP DURATION

CORRUPTED DATA?

trip_id	start_time	end_time	bikeid	tripduration	from_stat	from_station_name	to_station_id	to_station_name	usertype	gender	birthyear
23798837	7/16/19 18:17	10/29/19 14:01	1229	9,056,633.00	418	Ellis Ave & 53rd St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Subscriber	Male	1999
23889502	7/22/19 12:09	10/25/19 10:56	773	8,203,637.00	451	Sheridan Rd & Loyola Ave	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Subscriber	Female	1999
23710210	7/12/19 13:08	10/12/19 10:32	1219	7,939,448.00	317	Wood St & Taylor St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer		1992
24107150	8/1/19 18:45	10/29/19 12:36	6061	7,667,469.00	161	Rush St & Superior St	592	Knox Ave & Montrose Ave	Customer		1994
23661214	7/10/19 10:25	10/6/19 11:26	3102	7,606,871.00	71	Morgan St & Lake St	117	Wilton Ave & Belmont Ave	Customer		
23648641	7/9/19 17:28	pr	464	7,522,062.00	417	Cornell Ave & Hyde Park Blvd	205	Paulina St & 18th St	Customer		
23801970	7/16/19 20:44	10/10/19 18:01	6354	7,420,632.00	419	Lake Park Ave & 53rd St	390	Wentworth Ave & 63rd St	Customer	Male	1994
24194299	8/5/19 17:13	10/28/19 14:29	1677	7,247,750.00	623	Michigan Ave & 8th St	164	Franklin St & Lake St	Customer		
23723936	7/12/19 22:44	10/1/19 9:44	880	6,951,586.00	89	Financial Pl & Ida B Wells Dr	62	McCormick Place	Customer	Male	1983
23836329	7/19/19 5:42	10/7/19 13:38	433	6,940,545.00	89	Financial Pl & Ida B Wells Dr	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer	Male	1998
24106513	8/1/19 18:24	10/18/19 20:10	4164	6,745,549.00	435	Kedzie Ave & Roosevelt Rd	438	Central Park Ave & Ogden Ave	Customer		
24331742	8/11/19 21:41	10/27/19 15:19	2338	6,629,854.00	518	Conservatory Dr & Lake St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer	Female	2000
23660988	7/10/19 9:59	9/23/19 17:48	1544	6,508,144.00	395	Jeffery Blvd & 76th St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer		
24314104	8/11/19 0:40	10/24/19 7:47	4449	6,419,224.00	31	Franklin St & Chicago Ave (Temp)	433	Kedzie Ave & Harrison St	Customer		
24354530	8/13/19 14:33	10/23/19 13:52	4287	6,131,921.00	399	South Shore Dr & 74th St	388	Halsted St & 63rd St	Customer		
23957269	7/25/19 15:37	10/3/19 10:14	1806	6,028,601.00	650	Eggleston Ave & 69th St (*)	566	Ashland Ave & 69th St	Subscriber	Male	2000
24384093	8/14/19 21:17	10/23/19 13:51	4892	6,021,258.00	2	Buckingham Fountain	388	Halsted St & 63rd St	Customer		
23936444	7/24/19 16:19	10/1/19 9:45	2	5,937,966.00	45	Michigan Ave & Ida B Wells Dr	62	McCormick Place	Customer	Female	1988
23957600	7/25/19 15:53	9/29/19 16:55	5529	5,706,101.00	538	Cicero Ave & Flournoy St	378	California Ave & Lake St	Customer		
24502935	8/21/19 12:47	10/25/19 16:20	4984	5,628,778.00	86	Eckhart Park	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Subscriber	Female	1992
24605860	8/26/19 16:23	10/30/19 14:05	5553	5,607,711.00	197	Michigan Ave & Madison St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer	Female	1989
24323568	8/11/19 14:45	10/15/19 10:42	2991	5,601,373.00	309	Leavitt St & Armitage Ave	433	Kedzie Ave & Harrison St	Customer		
24068787	7/31/19 6:38	10/2/19 14:19	3353	5,470,866.00	571	Vernon Ave & 75th St	574	Vernon Ave & 79th St	Customer		1997
24549396	8/23/19 15:43	10/24/19 19:04	1013	5,368,873.00	329	Lake Shore Dr & Diversey Pkwy	49	Dearborn St & Monroe St	Customer	Female	1997
23771697	7/15/19 9:21	9/14/19 16:57	2277	5,297,731.00	373	Kedzie Ave & Chicago Ave	228	Damen Ave & Melrose Ave	Customer	Male	1987
24403615	8/15/19 19:17	10/15/19 6:43	5781	5,225,169.00	54	Ogden Ave & Chicago Ave	542	Central Ave & Madison St	Subscriber	Female	1987
24243367	8/7/19 20:27	10/5/19 9:57	4900	5,059,798.00	184	State St & 35th St	582	Phillips Ave & 83rd St	Customer		
24548316	8/23/19 14:57	10/20/19 15:32	4499	5,013,272.00	148	State St & 33rd St	555	Ashland Ave & 50th St	Customer		
24235645	8/7/19 16:52	10/3/19 14:49	3783	4,917,408.00	201	Indiana Ave & 40th St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer		
23840184	7/19/19 9:54	9/13/19 10:26	460	4,840,300.00	395	Jeffery Blvd & 76th St	652	Rhodes Ave & 71st St	Subscriber	Female	1973
24398696	8/15/19 17:10	10/9/19 16:58	3188	4,751,266.00	369	Wood St & 35th St	557	Seeley Ave & Garfield Blvd	Customer		
23971489	7/26/19 8:02	9/18/19 12:04	2153	4,680,077.00	14	Morgan St & 18th St	671	HUBBARD ST BIKE CHECKING (LBS-WH-TEST)	Customer		

TRIP DURATION

	trip_id	bikeid	start_date	start_time	time difference	end_date	end_time	tripduration	from_station_id	from_station_name	to_station_id	to_station_name	usertype	gender	birthyear	age	Age Group
0	23479388	3591	2019-07-01	00:00:27	20.233333	2019-07-01	00:20:41	1,214.0	117	Wilton Ave & Belmont Ave	497	Kimball Ave & Belmont Ave	Subscriber	Male	1992.0	27.0	20-29
5	23479393	4941	2019-07-01	00:02:21	5.166667	2019-07-01	00:07:31	310.0	300	Broadway & Barry Ave	232	Pine Grove Ave & Waveland Ave	Subscriber	Male	1990.0	29.0	20-29
18	23479406	2758	2019-07-01	00:06:51	19.516667	2019-07-01	00:26:22	1,171.0	624	Dearborn St & Van Buren St	237	MLK Jr Dr & 29th St	Subscriber	Male	1995.0	24.0	20-29
20	23479408	2447	2019-07-01	00:08:24	11.716667	2019-07-01	00:20:07	703.0	239	Western Ave & Leland Ave	455	Maplewood Ave & Peterson Ave	Subscriber	Male	1970.0	49.0	40-49
21	23479409	6336	2019-07-01	00:08:40	19.166667	2019-07-01	00:27:50	1,150.0	257	Lincoln Ave & Waveland Ave	295	Broadway & Argyle St	Subscriber	Male	1993.0	26.0	20-29
29	23479418	4525	2019-07-01	00:15:06	21.566667	2019-07-01	00:36:40	1,294.0	240	Sheridan Rd & Irving Park Rd	326	Clark St & Leland Ave	Customer	Male	1987.0	32.0	30-39
30	23479419	1132	2019-07-01	00:18:53	27.066667	2019-07-01	00:45:57	1,624.0	6	Dusable Harbor	321	Wabash Ave & 9th St	Customer	Female	1998.0	21.0	20-29
31	23479420	5166	2019-07-01	00:18:53	27.016667	2019-07-01	00:45:54	1,621.0	6	Dusable Harbor	321	Wabash Ave & 9th St	Customer	Female	1997.0	22.0	20-29
32	23479421	240	2019-07-01	00:19:41	26.216667	2019-07-01	00:45:54	1,573.0	6	Dusable Harbor	321	Wabash Ave & 9th St	Customer	Female	1997.0	22.0	20-29
34	23479423	1830	2019-07-01	00:22:56	16.716667	2019-07-01	00:39:39	1,003.0	203	Western Ave & 21st St	203	Western Ave & 21st St	Subscriber	Male	1970.0	49.0	40-49

TRIP DURATION OBSERVATIONS

1. THE VAST MAJORITY OF TRIPS ARE VERY SHORT.

2. BECAUSE OF A NUMBER OF VERY LONG OUTLIERS, THE DATA IS SKEWED TO THE RIGHT. THE MEDIAN AVERAGE IS THE MOST ACCURATE TO REFLECT THE DATA.
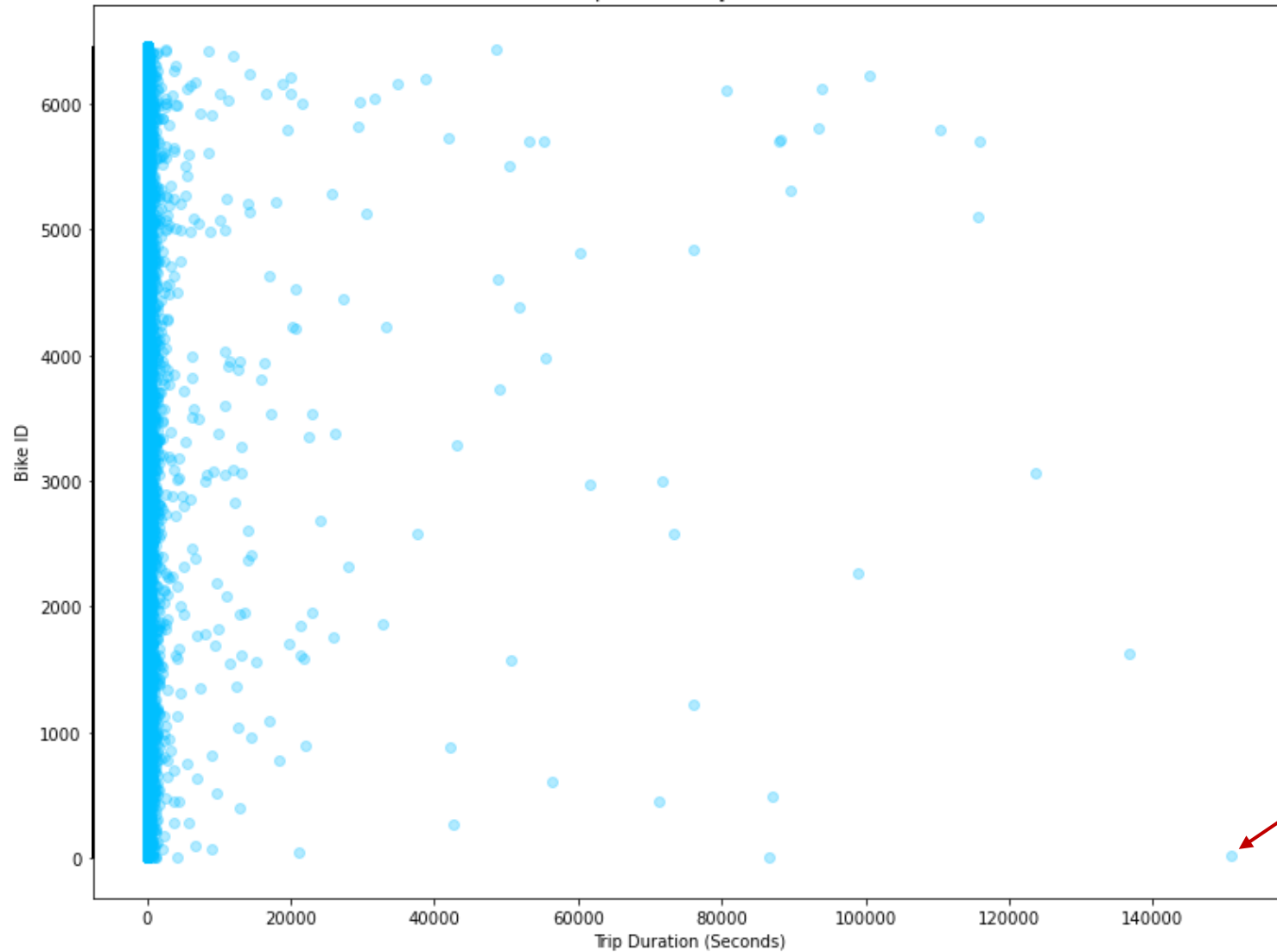
AVERAGE TRIP DURATION

MEAN
21 MINUTES

MEDIAN
11.85 MINUTES

MODE
5.72 MINUTES

TRIP DURATION BY BIKE ID

150943.9
MINUTES

104 DAYS

TRIP DURATION BY BIKE ID

ZOOMED-IN VIEW: 1-100 MINUTES
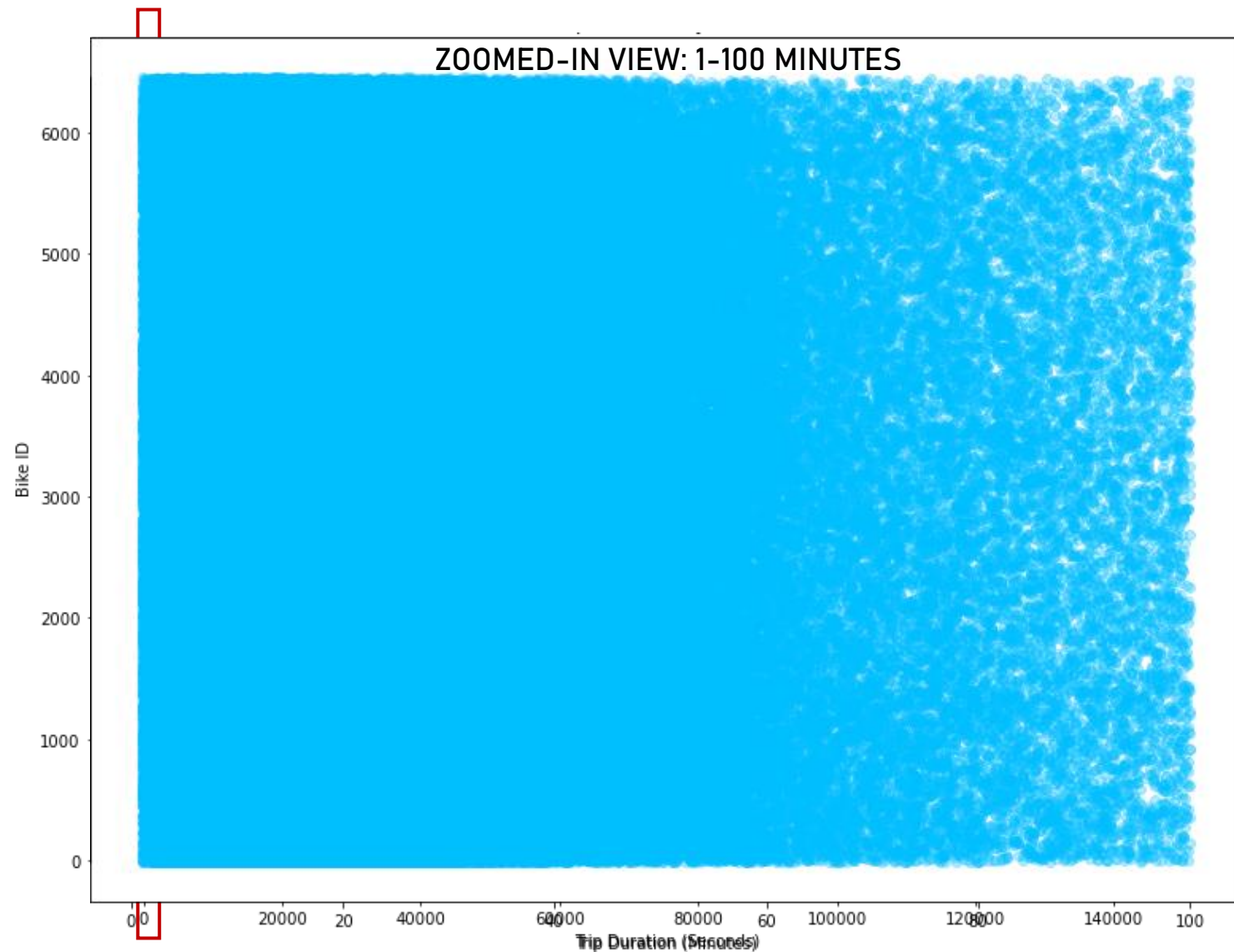
TRIP DURATION: OUTLYING DATA POINTS

TRIP DURATION: OUTLYING DATA POINTS

ZOOMED-IN VIEW: 1–100 MINUTES
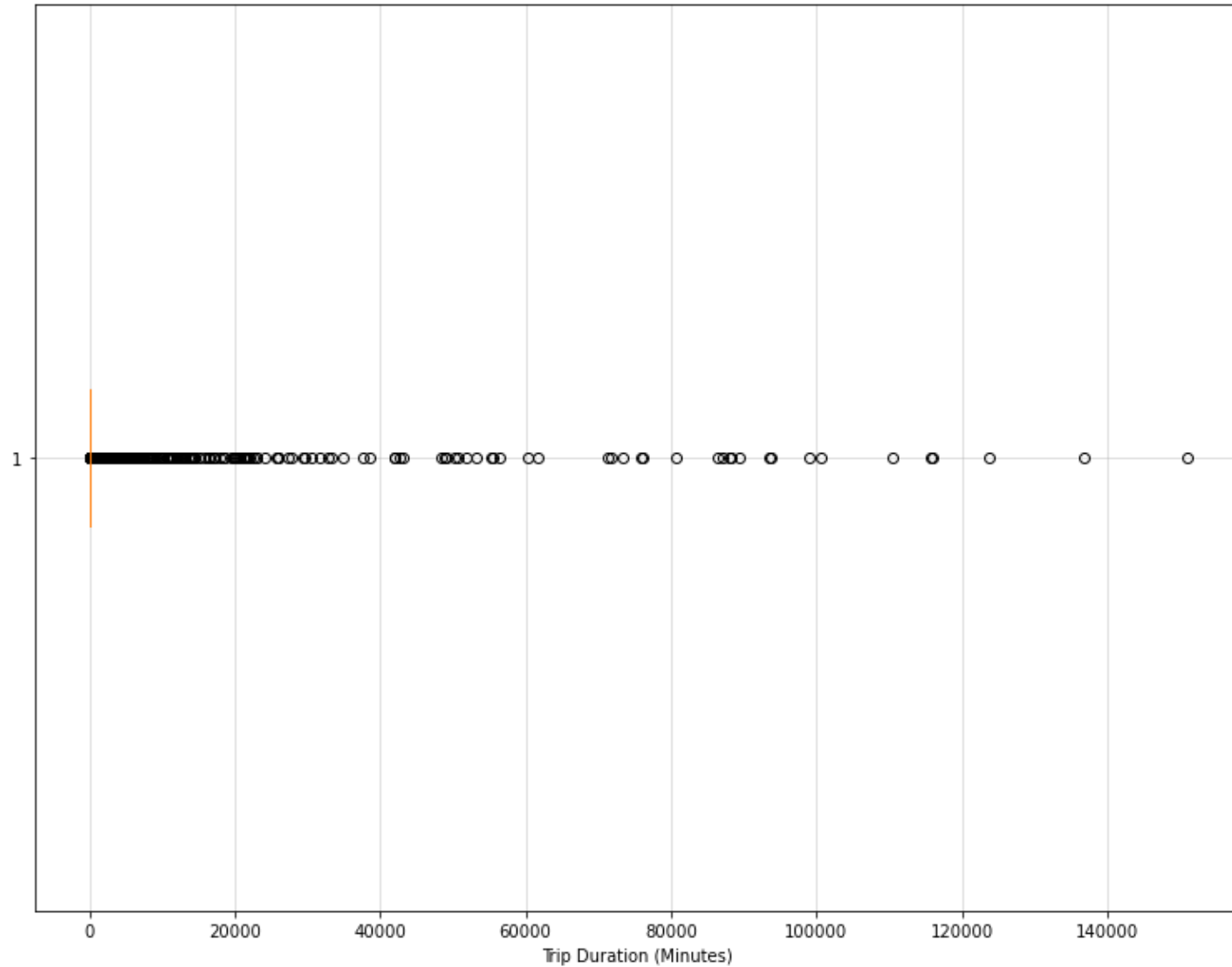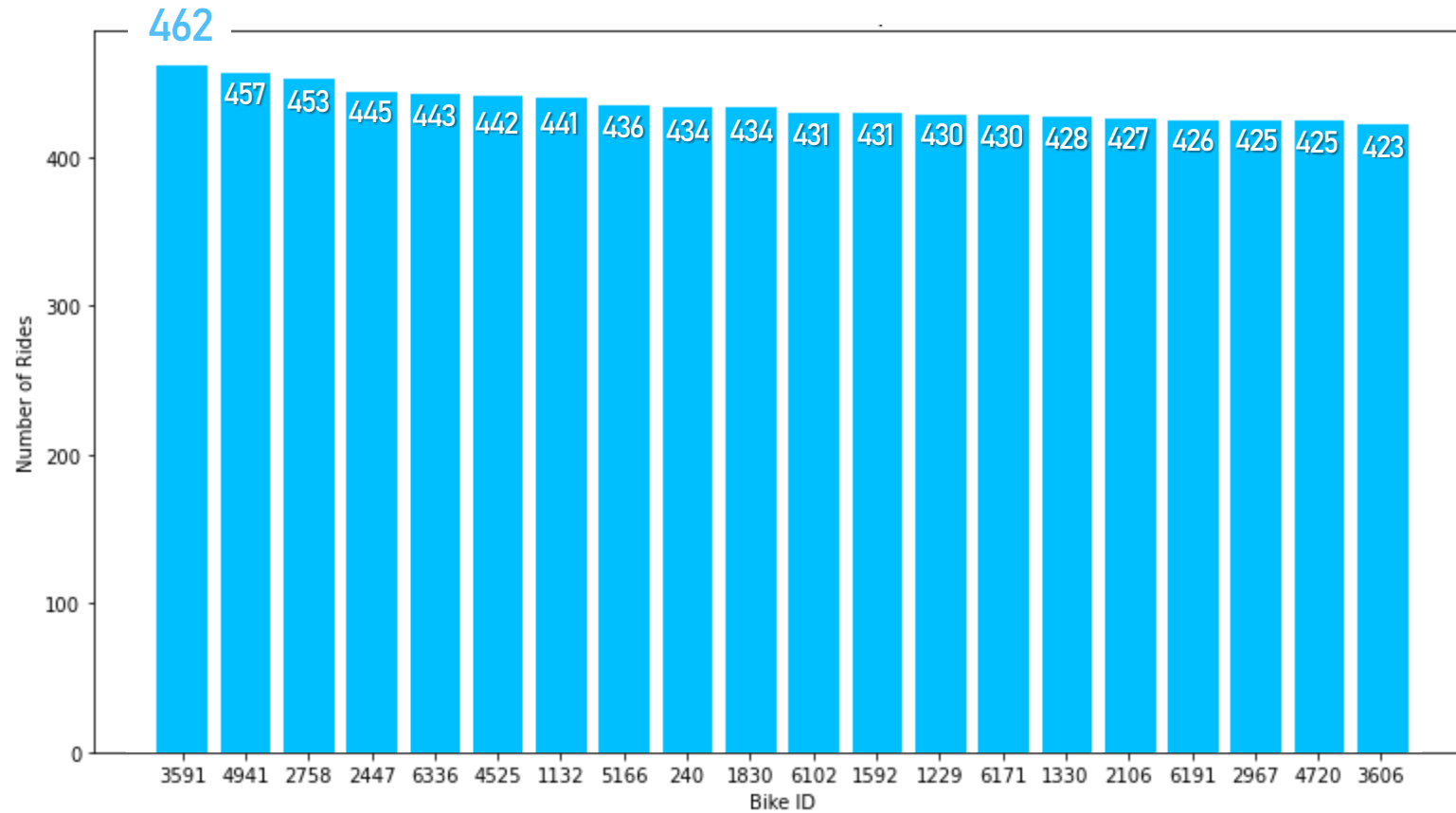
Trip Duration (Minutes)
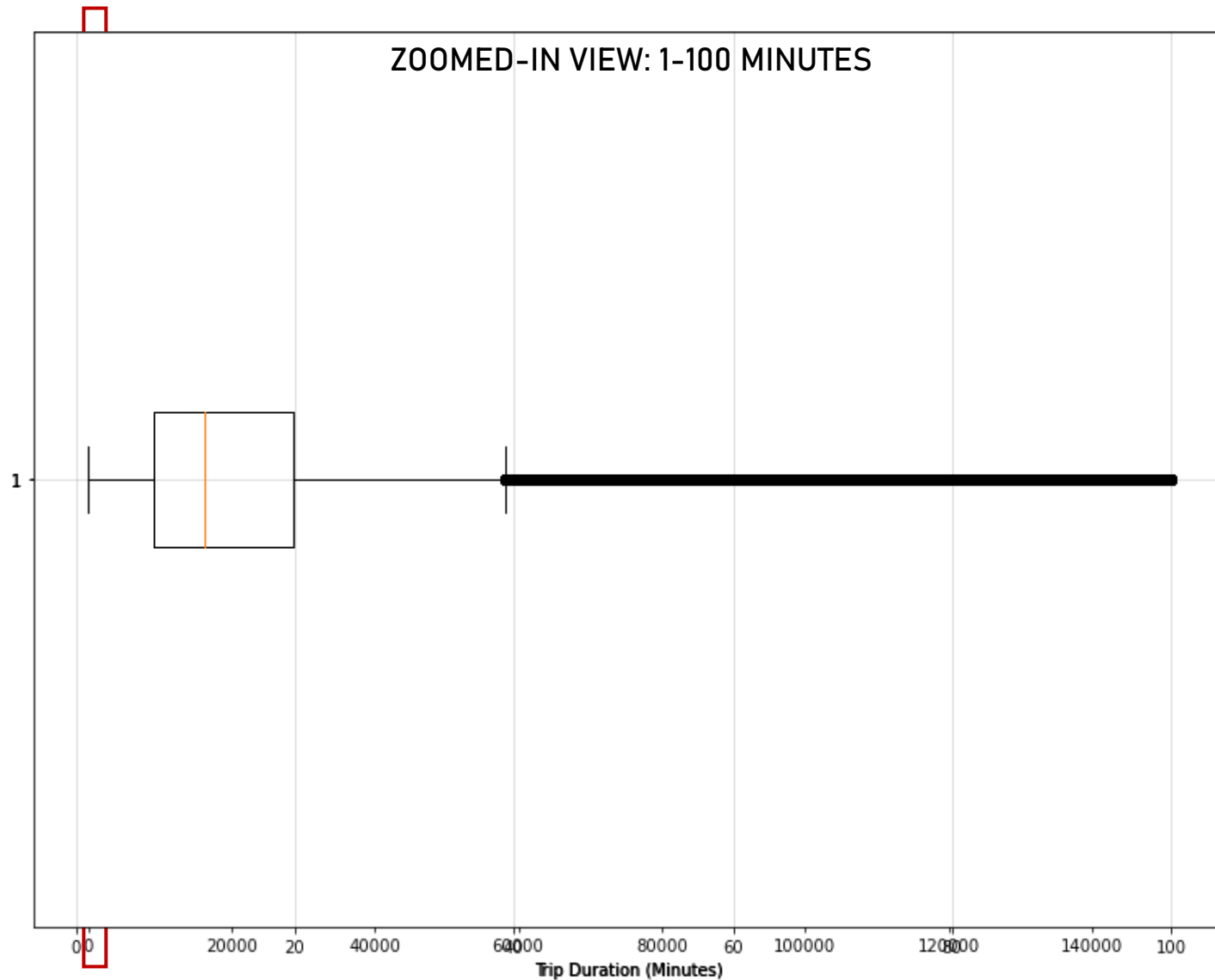
BIKE USAGE

NUMBER OF TRIPS FOR THE MOST USED BIKES

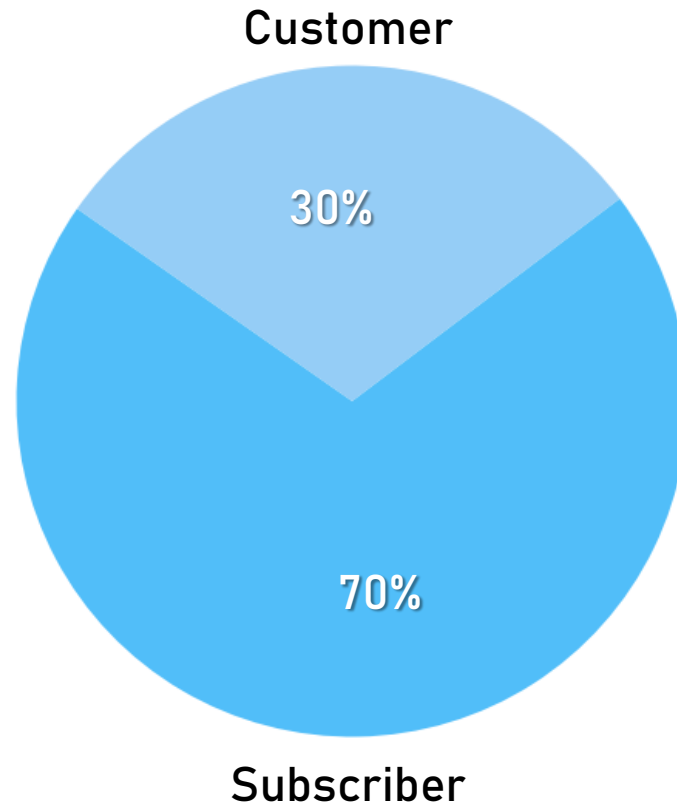AVERAGE TRIPS PER BICYCLE
234 TRIPS

USERTYPE

USERTYPE

	trip_id	bikeid	start_date	start_time	time difference	end_date	end_time	tripduration	from_station_id	from_station_name	to_station_id	to_station_name	usertype	gender	birthyear	age	Age Group
0	23479388	3591	2019-07-01	00:00:27	20.233333	2019-07-01	00:20:41	1,214.0	117	Wilton Ave & Belmont Ave	497	Kimball Ave & Belmont Ave	Subscriber	Male	1992.0	27.0	20-29
5	23479393	4941	2019-07-01	00:02:21	5.166667	2019-07-01	00:07:31	310.0	300	Broadway & Barry Ave	232	Pine Grove Ave & Waveland Ave	Subscriber	Male	1990.0	29.0	20-29
18	23479406	2758	2019-07-01	00:06:51	19.516667	2019-07-01	00:26:22	1,171.0	624	Dearborn St & Van Buren St	237	MLK Jr Dr & 29th St	Subscriber	Male	1995.0	24.0	20-29
20	23479408	2447	2019-07-01	00:08:24	11.716667	2019-07-01	00:20:07	703.0	239	Western Ave & Leland Ave	455	Maplewood Ave & Peterson Ave	Subscriber	Male	1970.0	49.0	40-49
21	23479409	6336	2019-07-01	00:08:40	19.166667	2019-07-01	00:27:50	1,150.0	257	Lincoln Ave & Waveland Ave	295	Broadway & Argyle St	Subscriber	Male	1993.0	26.0	20-29
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31	23479420	5166	2019-07-01	00:18:53	27.016667	2019-07-01	00:45:54	1,621.0	6	Dusable Harbor	321	Wabash Ave & 9th St	Customer	Female	1997.0	22.0	20-29
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34	23479423	1830	2019-07-01	00:22:56	16.716667	2019-07-01	00:39:39	1,003.0	203	Western Ave & 21st St	203	Western Ave & 21st St	Subscriber	Male	1970.0	49.0	40-49

TOTAL DIVVY RIDERS BASED ON USERTYPE

Customer

30%

70%

Subscriber

GENDER

GENDER OBSERVATIONS

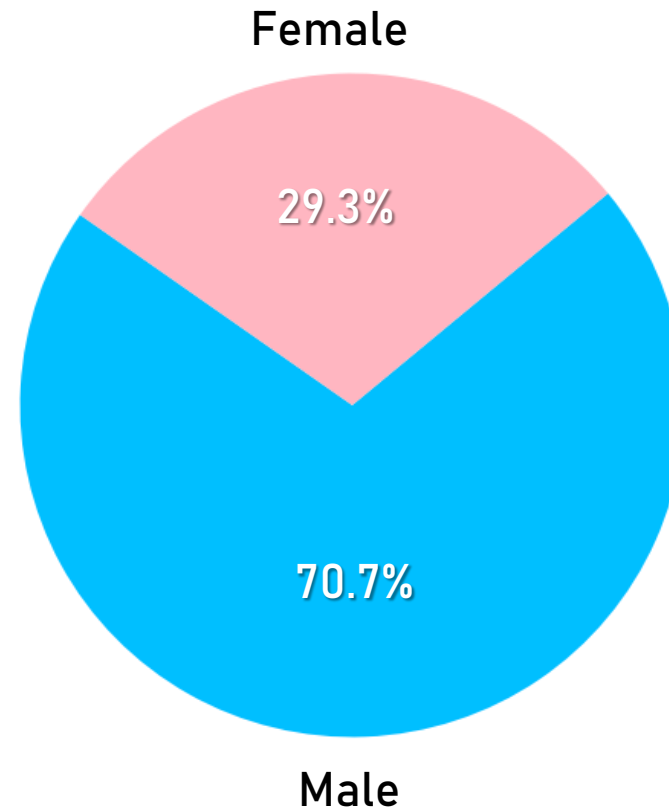1. THERE ARE <u>FAR MORE</u> MALE DIVVY RIDERS THAN FEMALE – ABOUT 70% TO 30%.

2. THERE IS A SIMILAR GENDER BREAKDOWN WHEN IT COMES TO CUSTOMERS* (ABOUT 70/30) AND SUBSCRIBERS (ABOUT 60/40).

GENDER BREAKDOWNS

Female

29.3%

70.7%

Male

	Total Count	Percentage
gender		
Male	957353	70.738557
Female	396015	29.261443

GENDER IS NOT BINARY

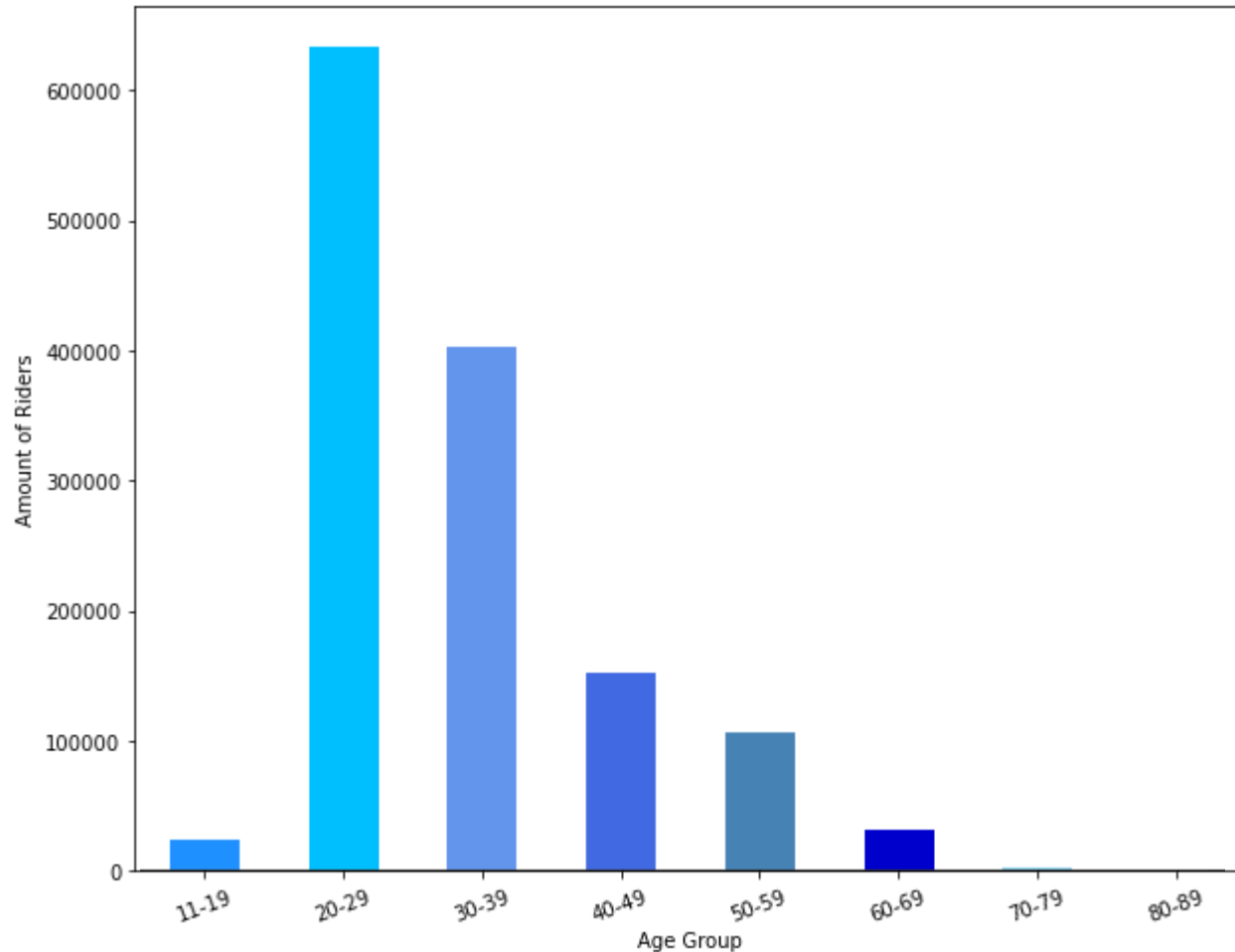# AGE GROUPS

AGE GROUPS

	trip_id	bikeid	start_date	start_time	time difference	end_date	end_time	tripduration	from_station_id	from_station_name	to_station_id	to_station_name	usertype	gender	birthyear	age	Age Group
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AGE OBSERVATIONS

1. AGE GROUP 20-29 HAS THE HIGHEST NUMBER OF RIDERS, WITH ABOUT 47% OF ALL RIDERS. AGE GROUP 30-39 COMES IN SECOND WITH ALMOST 30%.

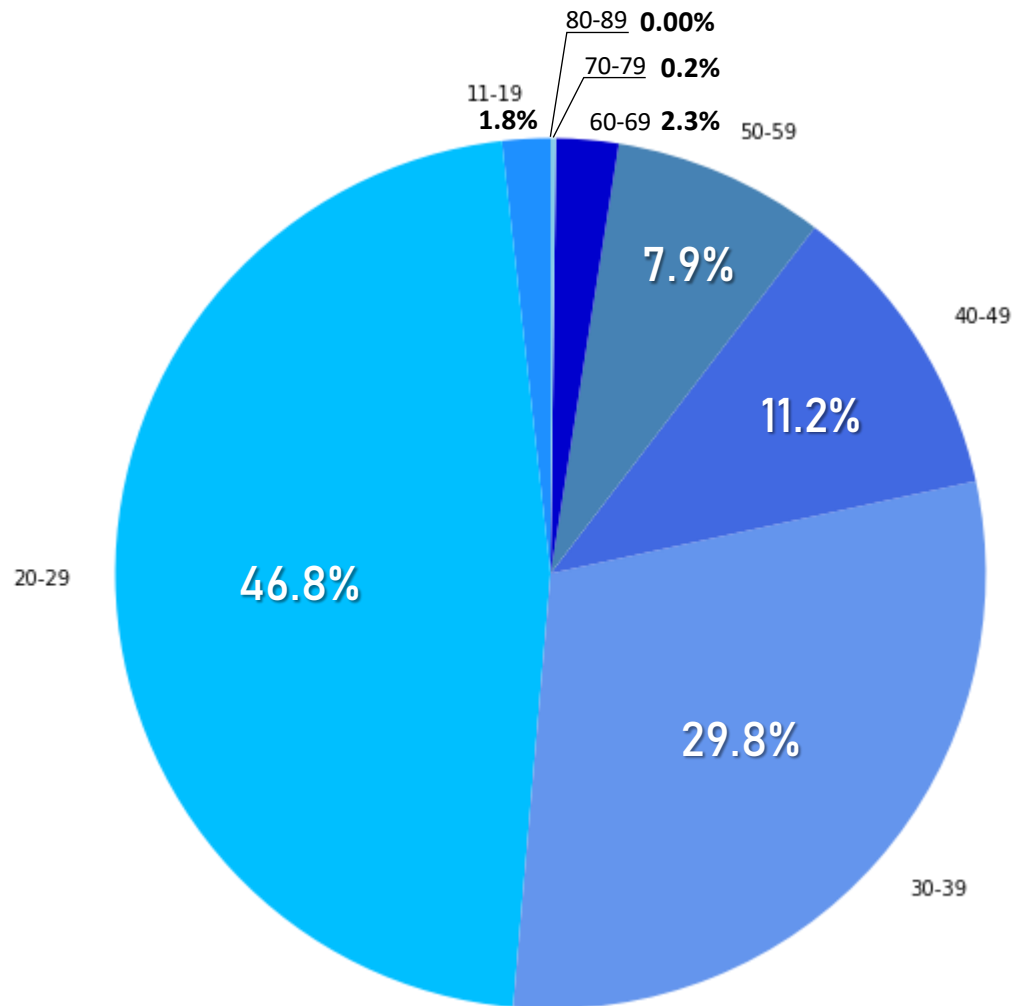2. THIS DISTRIBUTION OF AGES MATCHED BETWEEN CUSTOMERS AND SUBSCRIBERS.

TOTAL DIVVY RIDERS BASED ON AGE

Age Group	Total Count	Percentage of Age
11-19	24148	1.784289
20-29	633811	46.832125
30-39	402889	29.769361
40-49	151754	11.213063
50-59	106465	7.866670
60-69	31272	2.310680
70-79	2656	0.196251
80-89	33	0.002438

TOTAL DIVVY RIDERS BASED ON AGE

Age Group	Total Count	Percentage of Age
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20-29	633811	46.832125
30-39	402889	29.769361
40-49	151754	11.213063
50-59	106465	7.866670
60-69	31272	2.310680
70-79	2656	0.196251
80-89	33	0.002438
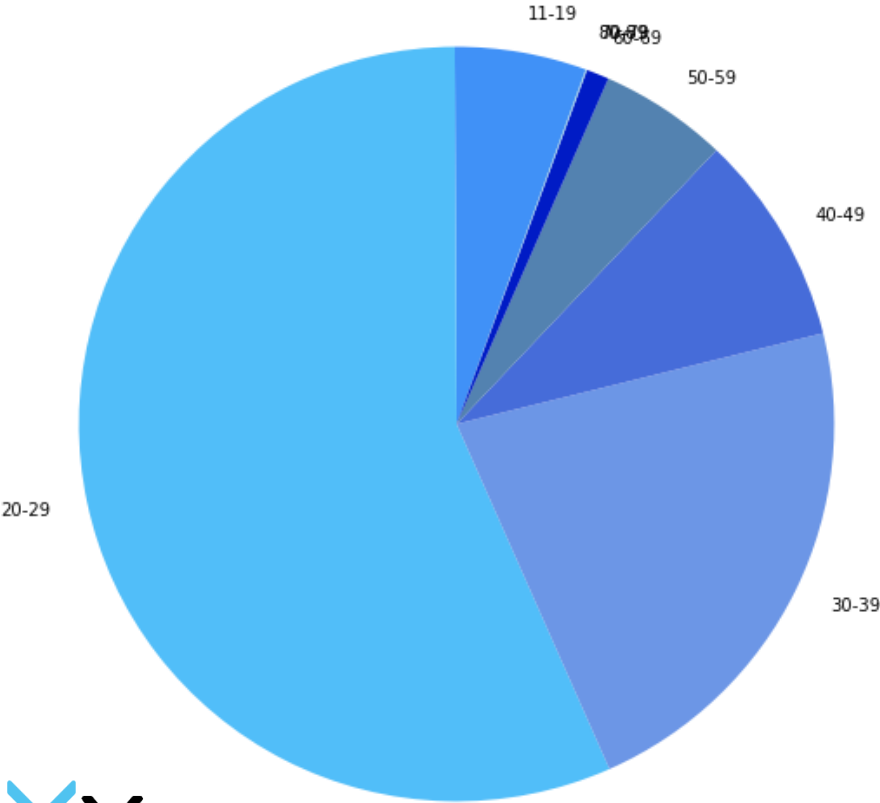
ROUTES & STATIONS
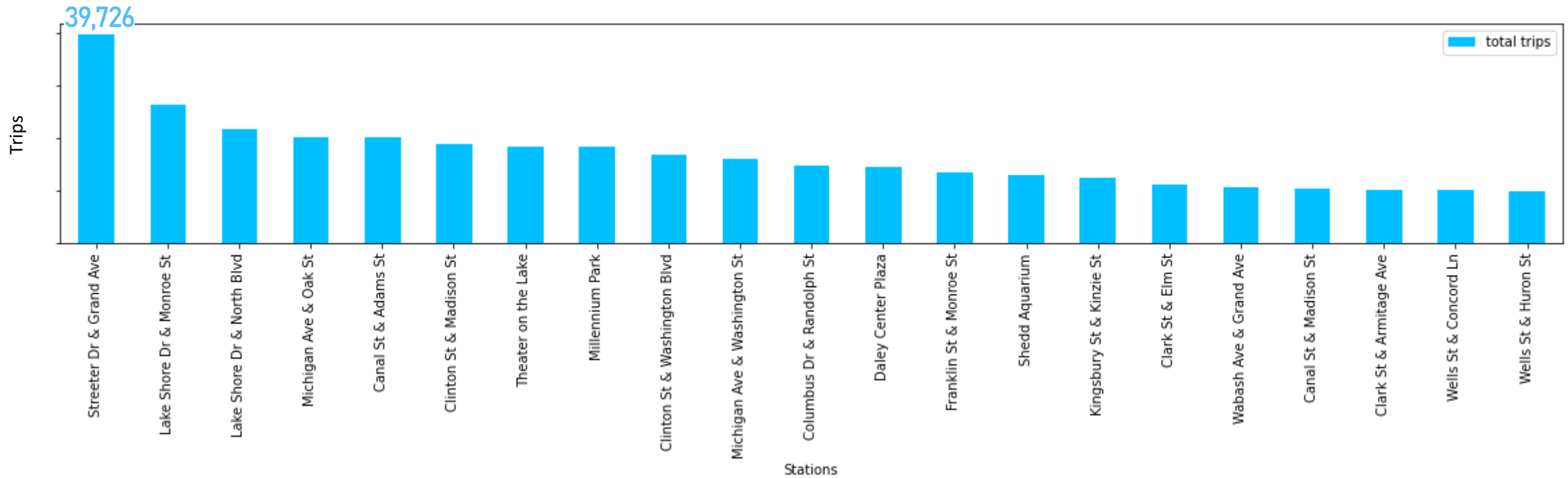
ROUTES & STATIONS

|	trip_id	bikeid	start_date	start_time	time difference	end_date	end_time	tripduration	from_station_id	from_station_name	to_station_id	to_station_name	usertype	gender	birthyear	age	Age Group
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32	23479421	240	2019-07-01	00:19:41	26.216667	2019-07-01	00:45:54	1,573.0	6	Dusable Harbor	321	Wabash Ave & 9th St	Customer	Female	1997.0	22.0	20-29
34	23479423	1830	2019-07-01	00:22:56	16.716667	2019-07-01	00:39:39	1,003.0	203	Western Ave & 21st St	203	Western Ave & 21st St	Subscriber	Male	1970.0	49.0	40-49

ROUTES & STATION OBSERVATIONS

1. MOST POPULAR ROUTES ARE LOCATED WITHIN THE LOOP, POSSIBLY DUE TO A COMBINATION OF TOURISTS AND COMMUTERS.

2. MOST POPULAR STATION IS STREETER DR. & GRAND AVE. IS LOCATED ON NAVY PIER, A POPULAR DESTINATION FOR LOCALS AND TOURISTS.

MOST POPULAR STATIONS

39,726

Trips

total trips

Stations: Streeter Dr & Grand Ave, Lake Shore Dr & Monroe St, Lake Shore Dr & North Blvd, Michigan Ave & Oak St, Canal St & Adams St, Clinton St & Madison St, Theater on the Lake, Millennium Park, Clinton St & Washington Blvd, Michigan Ave & Washington St, Columbus Dr & Randolph St, Daley Center Plaza, Franklin St & Monroe St, Shedd Aquarium, Kingsbury St & Kinzie St, Clark St & Elm St, Wabash Ave & Grand Ave, Canal St & Madison St, Clark St & Armitage Ave, Wells St & Concord Ln, Wells St & Huron St

MOST POPULAR DIVVY ROUTES

	from_station	to_station	rides_taken
0	Lake Shore Dr & Monroe St	Streeter Dr & Grand Ave	5055
1	Streeter Dr & Grand Ave	Lake Shore Dr & North Blvd	2132
2	Shedd Aquarium	Streeter Dr & Grand Ave	1813
3	Millennium Park	Streeter Dr & Grand Ave	1775
4	Lake Shore Dr & North Blvd	Streeter Dr & Grand Ave	1703
5	Theater on the Lake	Streeter Dr & Grand Ave	1559
6	Dusable Harbor	Streeter Dr & Grand Ave	1414
7	Canal St & Adams St	Michigan Ave & Washington St	1355
8	Michigan Ave & Oak St	Streeter Dr & Grand Ave	1334
9	Michigan Ave & Washington St	Clinton St & Washington Blvd	1056
10	Adler Planetarium	Streeter Dr & Grand Ave	907
11	Columbus Dr & Randolph St	Clinton St & Washington Blvd	850
12	MLK Jr Dr & 29th St	State St & 33rd St	801
13	Canal St & Madison St	Michigan Ave & Washington St	775
14	Clinton St & Madison St	Michigan Ave & Washington St	769
15	Loomis St & Lexington St	Morgan St & Polk St	758
16	Clinton St & Washington Blvd	Michigan Ave & Washington St	750
17	Morgan St & Polk St	Loomis St & Lexington St	746
18	State St & 33rd St	MLK Jr Dr & 29th St	712
19	Wacker Dr & Washington St	Michigan Ave & Washington St	693
20	Calumet Ave & 33rd St	State St & 33rd St	645
21	Broadway & Belmont Ave	Wilton Ave & Belmont Ave	631
22	Wabash Ave & Roosevelt Rd	Wabash Ave & 16th St	605
23	Michigan Ave & 8th St	Streeter Dr & Grand Ave	592
24	Michigan Ave & Lake St	Canal St & Adams St	589
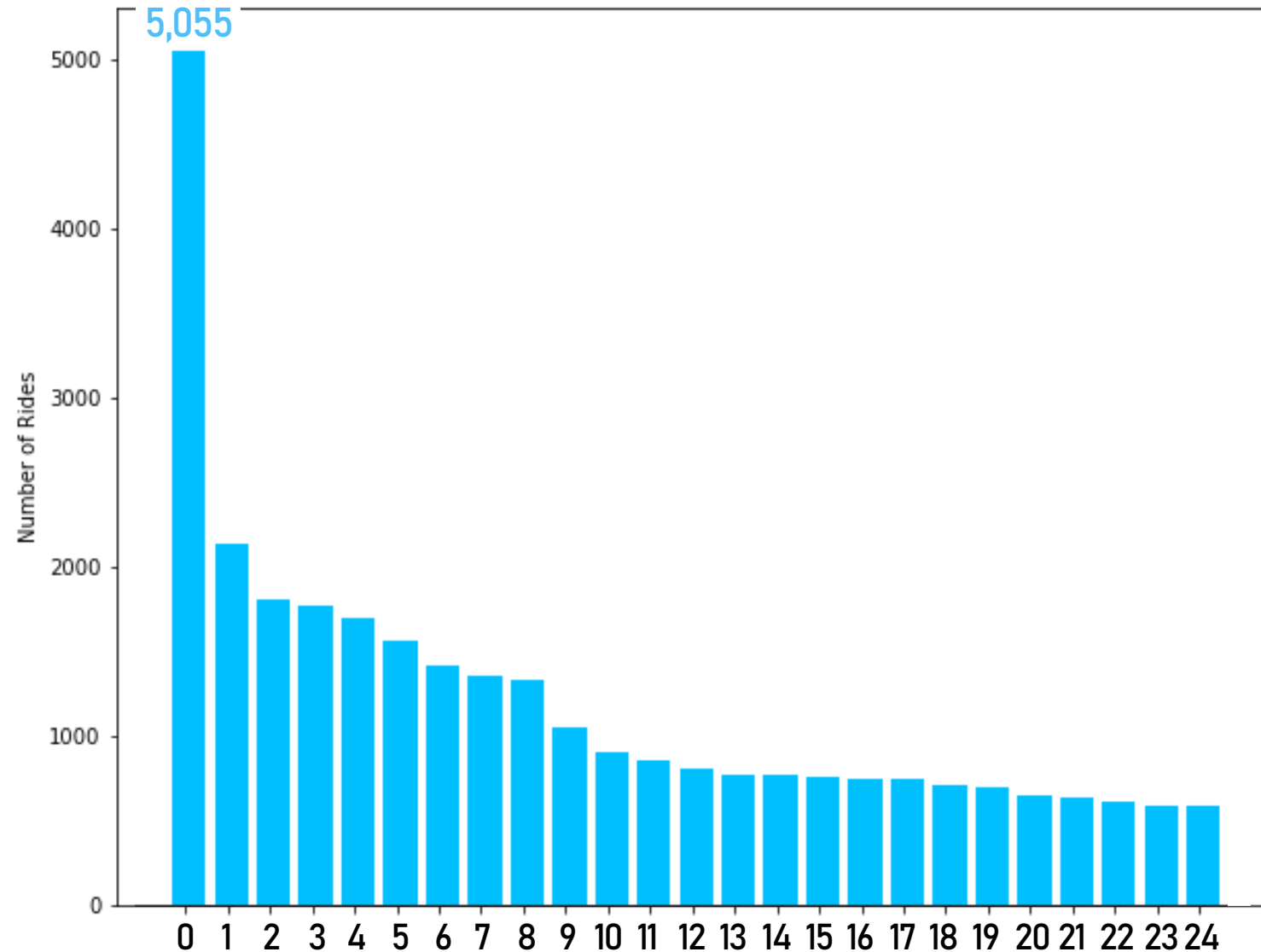
MOST POPULAR STATIONS
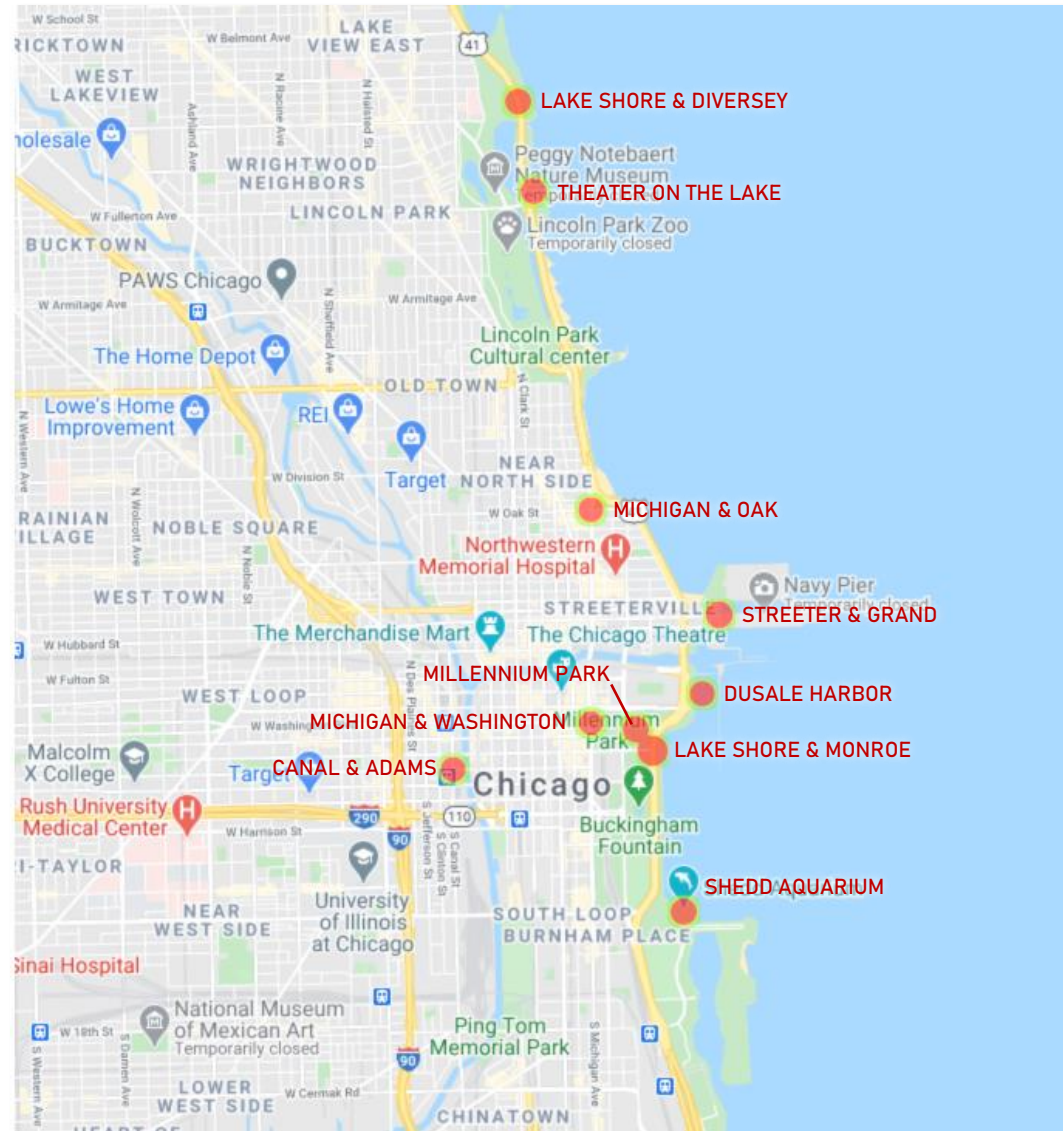
FURTHER ANALYSIS

1. SEPARATING OUT TOURISTS FROM LOCALS/COMMUTERS
2. EXAMINING ASSUMPTION THAT COMMUTERS ARE RELYING ON DIVVY BY LOOKING AT RELATIONSHIP TO MOST TRAFFICKED CTA STATIONS
3. RELATIONSHIP BETWEEN TRIP DURATION AND STATION DISTANCE
4. COMPARING DATA TO OTHER TIMES OF YEAR FOR ABOVE REASONS
5. CORRELATING WEATHER DATA