Cyclistic (Lyft Bikes and Scooters) Project Analysis

Project:

Analyze user data to determine any trends that can be used to convert casual riders into recurring membership riders.

Data:

Cyclistic collected data directly for all user types in the Chicago area from March 2023 to February 2024. There is no concern that the data may be biased or skewed.

Steps:

1) A copy of the raw monthly data (data frame) was downloaded, ensuring that the original data remained intact.
2) Examination of the raw files utilizing Power Query, including searching for null or missing values, duplicates, and proper column formatting.
   a. rider_id is linked to personal identifiers not needed for this analysis
      i. Deleted
   b. started_at and ended_at columns do not have consistent formatting
      i. Corrected and split date/time
   c. start_station_id and end_station_id are not consistent nor match start_station_name and end_station_name. This is due to tie in with the personal rider_id
      i. Both station_id columns were deleted; analysis will utilize station_name
   d. _lng and _lat columns deleted, the analysis will utilize station_name
   e. 1276 rows have the same start_station_id and end_station_id, all with usage times less than five minutes
      i. Determined to be cases of customers having issues with processing ride, deleted from analysis
3) Created and labelled Tables/Pivot Charts
4) Calculated
   a. ride_length (accounting for rides that started before midnight and ended after)/per category
   b. number of riders per month/per category
   c. percent variance per month
   d. most/least popular days/by type/by month
   e. rideable_type by month/member_casual
   f. frequency by day/member_casual
   g. See Summary Data Sample
5) Graphs (visuals)
   a. See Summary Graphs Samples
6) Observation
   a. Ridership of both types follows the same general pattern throughout the year, with ridership slowing in the fall and reaching its lowest points in the cold of Chicago's winter.
   b. Members have shorter rides yet are more active during the traditional workweek, pointing to use by work commuters

    c. Suggestion to Marketing: the data suggests that casual users may not be aware of the value of purchasing a membership. To prove/disprove this theory, the financial division should review usage data based on the last four numbers of the users' credit cards. If patterns are confirmed, then a marketing plan using riders' email can be undertaken. Additionally, though not part of the data submitted, and in consideration of Chicago winters, studying if "winterizing" a portion of the fleet may prove beneficial
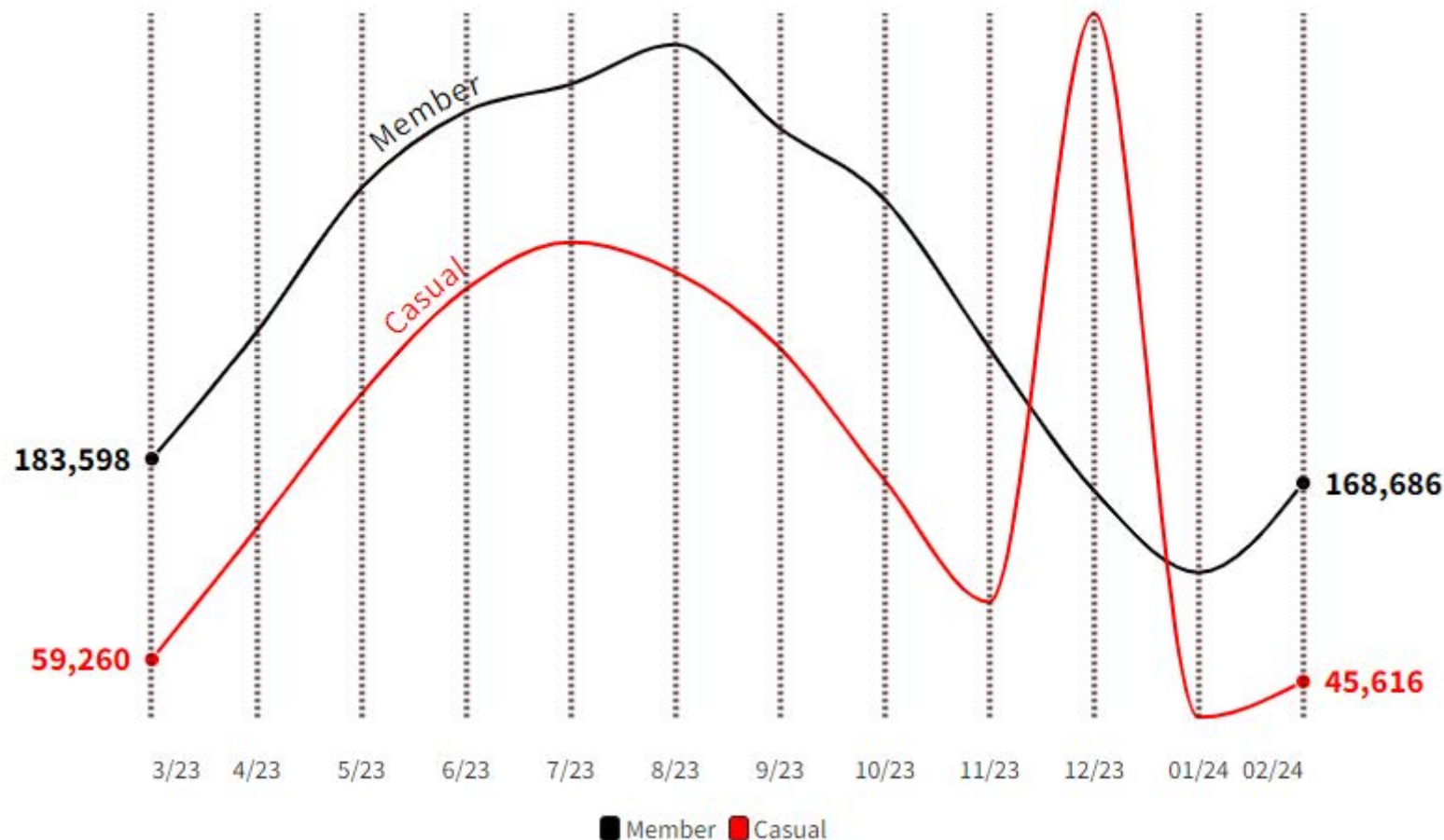
7) Create Change Log

Sample of raw data

	A	B	C	D	E	F	G	H	I	J	K	L	M
13	9A219780E480950C	classic_bike	2024-02-12 8:19	2024-02-12 8:28	Franklin St & Chicago Ave		Clinton St & Washington Blvd	WL-012	41.896747	-87.6356676	41.88338	-87.64117	member
14	C1EC2112A133047B	classic_bike	2024-02-05 8:26	2024-02-05 8:44	Sangamon St & Washington Blvd		Aberdeen St & Jackson Blvd	13157	41.883165	-87.6511	41.8777261	-87.6547874	member
15	DE5AE7A53E62FD5F	electric_bike	2024-02-09 9:30	2024-02-09 9:32	Michigan Ave & Ida B Wells Dr		Michigan Ave & Ida B Wells Dr	TA1305000010	41.8762143	-87.6244725	41.876243	-87.624426	member
16	C5C15AA02BDF6D26	classic_bike	2024-02-06 19:26	2024-02-06 19:26	Michigan Ave & Ida B Wells Dr		Michigan Ave & Ida B Wells Dr	TA1305000010	41.876243	-87.624426	41.876243	-87.624426	member
17	C4B8D95B96E96AA1	classic_bike	2024-02-13 14:06	2024-02-13 14:21	Franklin St & Jackson Blvd		Franklin St & Jackson Blvd	TA1305000025	41.877708	-87.6353211	41.877708	-87.6353211	member
18	611EDFC85DF3C3F8	electric_bike	2024-02-27 21:39	2024-02-27 21:41	Ogden Ave & Race Ave		Ogden Ave & Race Ave	13194	41.8917426	-87.6587898	41.891795	-87.658751	member
19	DF06C62E6D8A99AC	classic_bike	2024-02-02 16:35	2024-02-02 16:44	Dearborn St & Monroe St		Wells St & Huron St	TA1306000012	41.8813198	-87.6295209	41.894722	-87.634362	member
20	DA3E2BE7C5555D29	electric_bike	2024-02-27 8:12	2024-02-27 8:15	Franklin St & Chicago Ave		Rush St & Superior St	15530	41.8967578	-87.6359632	41.8957647	-87.625908	member
21	E1C5F7C9DFCADDB8	classic_bike	2024-02-23 17:58	2024-02-23 18:06	Franklin St & Jackson Blvd		Wabash Ave & 9th St	TA1309000010	41.877708	-87.6353211	41.870769	-87.625734	member
22	6DAFE223F0FD0C73	classic_bike	2024-02-07 18:27	2024-02-07 18:35	Franklin St & Jackson Blvd		Wabash Ave & 9th St	TA1309000010	41.877708	-87.6353211	41.870769	-87.625734	member
23	87AD7990E71C0ED4	classic_bike	2024-02-17 2:34	2024-02-17 2:41	Franklin St & Jackson Blvd		Wabash Ave & 9th St	TA1309000010	41.877708	-87.6353211	41.870769	-87.625734	member
24	370C484003060922	classic_bike	2024-02-28 16:20	2024-02-28 16:24	Michigan Ave & Ida B Wells Dr		Wabash Ave & 9th St	TA1309000010	41.876243	-87.624426	41.870769	-87.625734	member
25	AB6B0AD4DA94E5D1	electric_bike	2024-02-26 18:47	2024-02-26 18:53	Franklin St & Jackson Blvd		Clinton St & Roosevelt Rd	WL-008	41.8776263	-87.6350973	41.8671178	-87.641088	member
26	125B95424BD5162D	classic_bike	2024-02-05 19:29	2024-02-05 19:49	Franklin St & Jackson Blvd		Clark St & Elm St	TA1307000039	41.877708	-87.6353211	41.902973	-87.63128	casual
27	74B30D3B40546C22	classic_bike	2024-02-12 19:10	2024-02-12 19:18	Halsted St & 18th St		Laflin St & Cullerton St	13307	41.8575057	-87.6459914	41.8549146	-87.6635599	member
28	7FF61E54CBB5A957	classic_bike	2024-02-19 18:20	2024-02-19 18:28	Halsted St & 18th St		Laflin St & Cullerton St	13307	41.8575057	-87.6459914	41.8549146	-87.6635599	member
29	052816AA75101457	electric_bike	2024-02-21 19:08	2024-02-21 19:15	Damen Ave & Foster Ave		Lincoln Ave & Sunnyside Ave	TA1307000156	41.9757338	-87.679493	41.963004	-87.684781	member
30	BD8AC7F8A6996C83	classic_bike	2024-02-14 16:58	2024-02-14 17:01	Desplaines St & Kinzie St		Franklin St & Illinois St	RN-	41.888716	-87.6444479	41.8910233	-87.6354799	member
31	1A53139D3AE3080F	electric_bike	2024-02-22 13:14	2024-02-22 13:16	Halsted St & 18th St		Clinton St & 18th St	TA1307000044	41.8575168	-87.6459987	41.85795	-87.640826	member
32	446F88434E2D0A1F	electric_bike	2024-02-07 13:18	2024-02-07 13:25	Franklin St & Jackson Blvd		Wells St & Polk St	SL-011	41.8778844	-87.6352445	41.8727315	-87.6335165	member
33	F32F3B1422BA1A2F	electric_bike	2024-02-11 8:40	2024-02-11 8:42	Franklin St & Jackson Blvd		Wells St & Polk St	SL-011	41.8778487	-87.6352747	41.8727315	-87.6335165	member
34	71C416FEEED3A4A3	classic_bike	2024-02-01 18:00	2024-02-01 18:06	Desplaines St & Kinzie St		Ogden Ave & Chicago Ave	TA1305000020	41.888716	-87.6444479	41.8963625	-87.6540613	member
35	8955920E956B4538	classic_bike	2024-02-09 14:53	2024-02-09 15:11	Morgan St & 18th St		Wacker Dr & Washington St	KA1503000072	41.858086	-87.651073	41.8831434	-87.6372421	member
36	5A134CC703F0E822	classic_bike	2024-02-26 16:30	2024-02-26 17:24	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
37	CC1DEB169D474C7A	classic_bike	2024-02-25 18:08	2024-02-25 18:09	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
38	46897EA01C8644D1	classic_bike	2024-02-23 16:29	2024-02-23 16:29	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
39	33C8DFDE20A5EBB2	classic_bike	2024-02-17 12:40	2024-02-17 12:40	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
40	457293AF5CE4A207	classic_bike	2024-02-09 17:23	2024-02-09 17:24	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
41	38EDC99937C3B0EC	classic_bike	2024-02-11 16:57	2024-02-11 16:58	University Ave & 57th St		University Ave & 57th St	KA1503000071	41.791478	-87.599861	41.791478	-87.599861	member
42	7142593745B492B9	electric_bike	2024-02-07 13:08	2024-02-07 13:20	Franklin St & Jackson Blvd		St. Clair St & Erie St	13016	41.8778895	-87.63527	41.8943451	-87.6227984	casual
43	149F810833D25FA9	classic_bike	2024-02-26 18:07	2024-02-26 18:32	Franklin St & Jackson Blvd		Noble St & Milwaukee Ave	13290	41.877708	-87.6353211	41.9007	-87.662607	member
44	84847422762DE867	classic_bike	2024-02-08 14:26	2024-02-08 14:28	Southport Ave & Waveland Ave		Southport Ave & Irving Park Rd	TA1309000043	41.94815	-87.66394	41.954177	-87.664358	member
45	C57DD1E853509B11	classic_bike	2024-02-18 10:09	2024-02-18 10:30	Southport Ave & Waveland Ave		Ritchie Ct & Banks St	KA1504000134	41.94815	-87.66394	41.906866	-87.626217	member
46	E2A62F893D562A64	electric_bike	2024-02-22 13:35	2024-02-22 14:46	Broadway & Granville Ave		Wabash Ave & Grand Ave	TA1307000117	41.9947464	-87.6602591	41.891466	-87.626761	casual
47	89C17391B6ADE7FD	classic_bike	2024-02-18 12:41	2024-02-18 12:45	St. Clair St & Erie St		Wabash Ave & Grand Ave	TA1307000117	41.8943451	-87.6227984	41.891466	-87.626761	member
48	BFDBEDFC2D6B2252	electric_bike	2024-02-01 11:11	2024-02-01 11:27	Franklin St & Jackson Blvd		Wabash Ave & Grand Ave	TA1307000117	41.8779743	-87.635589	41.891466	-87.626761	casual
49	D1797C3956170030	classic_bike	2024-02-07 17:14	2024-02-07 17:26	Franklin St & Jackson Blvd		Wabash Ave & Grand Ave	TA1307000117	41.877708	-87.6353211	41.891466	-87.626761	member
50	7F5C287648A1EFE3	classic_bike	2024-02-22 18:38	2024-02-22 19:04	Avondale Ave & Irving Park Rd		Lincoln Ave & Roscoe St*	chargingstx5	41.953393	-87.732002	41.9433502	-87.6706678	member
51	3A930ABFE63E843C	classic_bike	2024-02-06 15:22	2024-02-06 16:00	Clark St & Schreiber Ave		Clark St & Schreiber Ave	KA1504000156	41.999245	-87.671249	41.999245	-87.671249	casual

‹ › **202402-divvy-tripdata** +

Sample of Monthly breakdown

rideable_type	started_at	ended_at	ride_length	day_of_week	member_casual		FREQUENCY BY DAY				
electric_bike	2024-02-01 0:01	2024-02-01 0:27	00:25:38	5	member		Sunday	23246			
classic_bike	2024-02-01 0:04	2024-02-01 0:08	00:03:40	5	member		Monday	30845			
electric_bike	2024-02-01 0:05	2024-02-01 0:11	00:06:11	5	member		Tuesday	37336			
electric_bike	2024-02-01 0:05	2024-02-01 0:08	00:02:50	5	member		Wednesday	34026			
classic_bike	2024-02-01 0:05	2024-02-01 0:10	00:05:00	5	member		Thursday	42078			
classic_bike	2024-02-01 0:06	2024-02-01 0:10	00:04:33	5	casual		Friday	28112			
electric_bike	2024-02-01 0:07	2024-02-01 0:23	00:15:41	5	member		Saturday	18659			
electric_bike	2024-02-01 0:08	2024-02-01 0:15	00:06:27	5	member						
electric_bike	2024-02-01 0:08	2024-02-01 0:40	00:31:57	5	member		Most Popular This Mth	Thursday			
classic_bike	2024-02-01 0:09	2024-02-01 0:23	00:14:20	5	member		Least Popular This Mth	Sunday			
classic_bike	2024-02-01 0:10	2024-02-01 1:08	00:58:03	5	member						
classic_bike	2024-02-01 0:10	2024-02-01 0:18	00:08:36	5	member		MOST/LEAST POPULAR BY RIDER TYPE				
electric_bike	2024-02-01 0:10	2024-02-01 0:14	00:03:56	5	member		Most Popular Member	5	Note: Sunday = 1,	Note: Sunday = 1, Monday = 2, etc	
electric_bike	2024-02-01 0:11	2024-02-01 0:20	00:08:51	5	member		Least Popular Member	1			
electric_bike	2024-02-01 0:12	2024-02-01 0:19	00:06:32	5	member		Most Popular Casual	5			
electric_bike	2024-02-01 0:19	2024-02-01 0:22	00:03:43	5	member		Least Popular Casual	1			
classic_bike	2024-02-01 0:20	2024-02-01 0:29	00:09:28	5	casual						
electric_bike	2024-02-01 0:21	2024-02-01 0:29	00:07:36	5	casual		RIDEABLE TYPE BY MEMBER/CASUAL				
electric_bike	2024-02-01 0:22	2024-02-01 0:41	00:18:57	5	casual				Classic Bike	Electric Bike	
electric_bike	2024-02-01 0:27	2024-02-01 0:40	00:12:51	5	casual		Member		108380	60306	
electric_bike	2024-02-01 0:28	2024-02-01 0:34	00:06:22	5	member		Casual		27211	18405	
electric_bike	2024-02-01 0:29	2024-02-01 0:33	00:04:31	5	member						
electric_bike	2024-02-01 0:33	2024-02-01 0:46	00:13:27	5	casual						
electric_bike	2024-02-01 0:40	2024-02-01 0:45	00:04:11	5	member						
classic_bike	2024-02-01 0:42	2024-02-01 0:53	00:10:58	5	member						
electric_bike	2024-02-01 0:51	2024-02-01 0:55	00:03:52	5	casual						
electric_bike	2024-02-01 0:51	2024-02-01 1:21	00:29:30	5	member						
classic_bike	2024-02-01 0:53	2024-02-01 1:00	00:06:43	5	member						
classic_bike	2024-02-01 0:57	2024-02-01 1:03	00:06:13	5	casual						
electric_bike	2024-02-01 1:14	2024-02-01 1:22	00:08:02	5	member						
classic_bike	2024-02-01 1:15	2024-02-01 1:20	00:05:15	5	member						
electric_bike	2024-02-01 1:18	2024-02-01 1:47	00:29:39	5	member						
classic_bike	2024-02-01 1:28	2024-02-01 1:42	00:14:37	5	casual						
classic_bike	2024-02-01 1:33	2024-02-01 1:44	00:11:21	5	casual						

Cyclistic Rider Comparision
Mar 23 - Feb 24

Member

Casual

183,598

59,260

168,686

45,616

3/23 4/23 5/23 6/23 7/23 8/23 9/23 10/23 11/23 12/23 01/24 02/24

■ Member ■ Casual

rideable_type	started_at	ended_at	ride_length	day_of_week	member_casual
electric_bike	2024-02-01 0:01	2024-02-01 0:27	00:25:38	5	member
classic_bike	2024-02-01 0:04	2024-02-01 0:08	00:03:40	5	member
electric_bike	2024-02-01 0:05	2024-02-01 0:11	00:06:11	5	member
electric_bike	2024-02-01 0:05	2024-02-01 0:08	00:02:50	5	member
classic_bike	2024-02-01 0:05	2024-02-01 0:10	00:05:00	5	member
classic_bike	2024-02-01 0:06	2024-02-01 0:10	00:04:33	5	casual
electric_bike	2024-02-01 0:07	2024-02-01 0:23	00:15:41	5	member
electric_bike	2024-02-01 0:08	2024-02-01 0:15	00:06:27	5	member
electric_bike	2024-02-01 0:08	2024-02-01 0:40	00:31:57	5	member
classic_bike	2024-02-01 0:09	2024-02-01 0:23	00:14:20	5	member
classic_bike	2024-02-01 0:10	2024-02-01 1:08	00:58:03	5	member
classic_bike	2024-02-01 0:10	2024-02-01 0:18	00:08:36	5	member
electric_bike	2024-02-01 0:10	2024-02-01 0:14	00:03:56	5	member
electric_bike	2024-02-01 0:11	2024-02-01 0:20	00:08:51	5	member
electric_bike	2024-02-01 0:12	2024-02-01 0:19	00:06:32	5	member
electric_bike	2024-02-01 0:19	2024-02-01 0:22	00:03:43	5	member
classic_bike	2024-02-01 0:20	2024-02-01 0:29	00:09:28	5	casual
electric_bike	2024-02-01 0:21	2024-02-01 0:29	00:07:36	5	casual
electric_bike	2024-02-01 0:22	2024-02-01 0:41	00:18:57	5	casual
electric_bike	2024-02-01 0:27	2024-02-01 0:40	00:12:51	5	casual
electric_bike	2024-02-01 0:28	2024-02-01 0:34	00:06:22	5	member
electric_bike	2024-02-01 0:29	2024-02-01 0:33	00:04:31	5	member
electric_bike	2024-02-01 0:33	2024-02-01 0:46	00:13:27	5	casual
electric_bike	2024-02-01 0:40	2024-02-01 0:45	00:04:11	5	member
classic_bike	2024-02-01 0:42	2024-02-01 0:53	00:10:58	5	member
electric_bike	2024-02-01 0:51	2024-02-01 0:55	00:03:52	5	casual
electric_bike	2024-02-01 0:51	2024-02-01 1:21	00:29:30	5	member
classic_bike	2024-02-01 0:53	2024-02-01 1:00	00:06:43	5	member
classic_bike	2024-02-01 0:57	2024-02-01 1:03	00:06:13	5	casual
electric_bike	2024-02-01 1:14	2024-02-01 1:22	00:08:02	5	member
classic_bike	2024-02-01 1:15	2024-02-01 1:20	00:05:15	5	member
electric_bike	2024-02-01 1:18	2024-02-01 1:47	00:29:39	5	member
classic_bike	2024-02-01 1:28	2024-02-01 1:42	00:14:37	5	casual
classic_bike	2024-02-01 1:33	2024-02-01 1:44	00:11:21	5	casual

FREQUENCY BY DAY

Sunday	23246
Monday	30845
Tuesday	37336
Wednesday	34026
Thursday	42078
Friday	28112
Saturday	18659

Most Popular This Mth	Thursday
Least Popular This Mth	Sunday

MOST/LEAST POPULAR BY RIDER TYPE

Most Popular Member	5	Note: Sunday = 1, Note: Sunday = 1, Monday = 2, etc
Least Popular Member	1	
Most Popular Casual	5	
Least Popular Casual	1	

RIDEABLE TYPE BY MEMBER/CASUAL

	Classic Bike	Electric Bike
Member	108380	60306
Casual	27211	18405

Members vs. Casual Monthly Ridership

Rideable Type by Member/Casual by Month

Most and Least Popular Days Overall

Member vs. Casual by Ride Length (mins)

Frequency by Day and Rider Type

Most and Least Popular Days by Rider Type per Month