

EE3801 LAB 2



AY 2023/24

Submitted by

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Q1.a

Q.1a The following is after adding new columns in DataFrame:

	pickup	dropoff	passengers	distance	fare	tip	\
0	2019-03-23 20:21:09	2019-03-23 20:27:24	1	1.60	7.0	2.15	
1	2019-03-04 16:11:55	2019-03-04 16:19:00	1	0.79	5.0	0.00	
2	2019-03-27 17:53:01	2019-03-27 18:00:25	1	1.37	7.5	2.36	
3	2019-03-10 01:23:59	2019-03-10 01:49:51	1	7.70	27.0	6.15	
4	2019-03-30 13:27:42	2019-03-30 13:37:14	3	2.16	9.0	1.10	

	tolls	total	color	payment	pickup_zone	\
0	0.0	12.95	yellow	credit card	Lenox Hill West	
1	0.0	9.30	yellow	cash	Upper West Side South	
2	0.0	14.16	yellow	credit card	Alphabet City	
3	0.0	36.95	yellow	credit card	Hudson Sq	
4	0.0	13.40	yellow	credit card	Midtown East	

	dropoff_zone	pickup_borough	dropoff_borough	pickup_date	\
0	UN/Turtle Bay South	Manhattan	Manhattan	23	
1	Upper West Side South	Manhattan	Manhattan	4	
2	West Village	Manhattan	Manhattan	27	
3	Yorkville West	Manhattan	Manhattan	10	
4	Yorkville West	Manhattan	Manhattan	30	

	pickup_time	dropoff_date	dropoff_time
0	20:21:09	23	20:27:24
1	16:11:55	4	16:19:00
2	17:53:01	27	18:00:25
3	01:23:59	10	01:49:51
4	13:27:42	30	13:37:14

Q.1 b

Q1b The following are the results for Green Coloured Taxis:

The total fare of Green colored taxis is: 13788.15

The total number of passengers in Green colored taxis is: 1226

The total distance travelled by Green colored taxis is: 3345.95

The total time travelled by Green colored taxis is: 10 days 15:37:46

Q1b The following are the results for Yellow Coloured Taxis:

The total fare of Yellow colored taxis is: 70426.72

The total number of passengers in Yellow colored taxis is: 8676

The total distance travelled by Yellow colored taxis is: 16111.41

The total time travelled by Yellow colored taxis is: 53 days 10:53:19

Q. 2

Q2 The following is the GY_cash Dataframe, with displaying only top 5 rows

Color of the Cab	distance travelled	pickup	pickup_date	pickup_time
dropoff	dropoff_date	dropoff_time	fare	
green	16.01	2019-03-10	00:59:49	10
2019-03-10 01:36:25	10	01:36:25	47.0	
yellow	11.52	2019-03-10	00:13:12	10
2019-03-10 00:33:09	10	00:33:09	32.5	
green	4.71	2019-03-15	06:42:17	15
2019-03-15 06:54:38	15	06:54:38	15.0	
yellow	15.64	2019-03-15	16:45:55	15
2019-03-15 17:46:47	15	17:46:47	50.0	
green	6.66	2019-03-20	12:04:33	20
2019-03-20 12:28:07	20	12:28:07	20.0	

Q.3

Q3 The following is the GY_maxDist Dataframe, with displaying only top 5 rows

Color of the Cab	distance travelled	pickup	pickup_date	pickup_time
dropoff	dropoff_date	dropoff_time	fare	
green	16.01	2019-03-10	00:59:49	10
2019-03-10 01:36:25	10	01:36:25	47.0	
yellow	15.64	2019-03-15	16:45:55	15
2019-03-15 17:46:47	15	17:46:47	50.0	
yellow	17.01	2019-03-20	17:22:33	20
2019-03-20 18:07:19	20	18:07:19	52.0	
yellow	12.12	2019-03-25	05:33:43	25
2019-03-25 05:58:38	25	05:58:38	35.5	
yellow	17.14	2019-03-30	14:56:08	30
2019-03-30 15:49:32	30	15:49:32	52.0	

Q.4

Q4 The following is the GY_maxDist Dataframe with 'speed' as new feature, with displaying only top 5 rows

Color of the Cab	distance travelled	pickup	pickup_date	pickup_time
dropoff	dropoff_date	dropoff_time	fare	speed
green	16.01	2019-03-10	00:59:49	10
2019-03-10 01:36:25	10	01:36:25	47.0	7.290528
yellow	15.64	2019-03-15	16:45:55	15
2019-03-15 17:46:47	15	17:46:47	50.0	4.282585
yellow	17.01	2019-03-20	17:22:33	20
2019-03-20 18:07:19	20	18:07:19	52.0	6.332837
yellow	12.12	2019-03-25	05:33:43	25
2019-03-25 05:58:38	25	05:58:38	35.5	8.107023
yellow	17.14	2019-03-30	14:56:08	30
2019-03-30 15:49:32	30	15:49:32	52.0	5.349563

Q.5

Q5 The following is the output the mean speed of green cars and mean speed of yellow cars.

Mean speed of green cars: 3.3573598559543405 m/s

Mean speed of yellow cars: 4.203137975821648 m/s

Q.6

Q.6 Color with the most pickups between 2:30 PM and 4:00 PM on March 17th is Yellow with 14 pickup counts

Q.7

Q.7 The resulting DataFrame is:

pickup_zone	passengers			fare		
	sum	min	max	sum	min	max
Allerton/Pelham Gardens	2	1	1	64.66	10.5	54.16
Alphabet City	11	1	2	107.50	5.0	28.50
Astoria	102	1	6	514.50	2.5	36.50
Auburndale	1	1	1	21.40	21.4	21.40
Battery Park	6	6	6	19.00	19.0	19.00

Q.8

Q.8 The following are the Dataframes for the Yellow and Grren Taxis :

Yellow Cab Statistics DataFrame:

pickup_zone	color	num_trips	total_passengers	total_distance	total_fare	total_fuel_cost
Alphabet City	yellow	9	11	25.17	107.5	4.15305
Astoria	yellow	13	18	23.38	109.0	3.85770
Battery Park	yellow	1	6	5.39	19.0	0.88935
Battery Park City	yellow	43	59	174.16	681.5	28.73640
Bedford	yellow	1	1	5.80	22.0	0.95700

Green Cab Statistics DataFrame:

pickup_zone	color	num_trips	total_passengers	total_distance	total_fare	total_fuel_cost
Allerton/Pelham Gardens	green	2	2	23.09	6	4.66
Astoria	green	52	84	81.49	40	13.44585
Auburndale	green	1	1	6.29	2	1.03785
Bay Ridge	green	3	3	15.16	5	2.50140
Bayside	green	1	1	0.02		0.00330

Q.9

Q.9 The following are the statistics for the Yellow and Grren Taxis :

Total Statistics for Yellow Cars:

Total Passengers: 8649
Total Distance (in kms): 16058.769999999999
Total Fare: \$69781.22
Total Fuel Cost: \$2649.69705

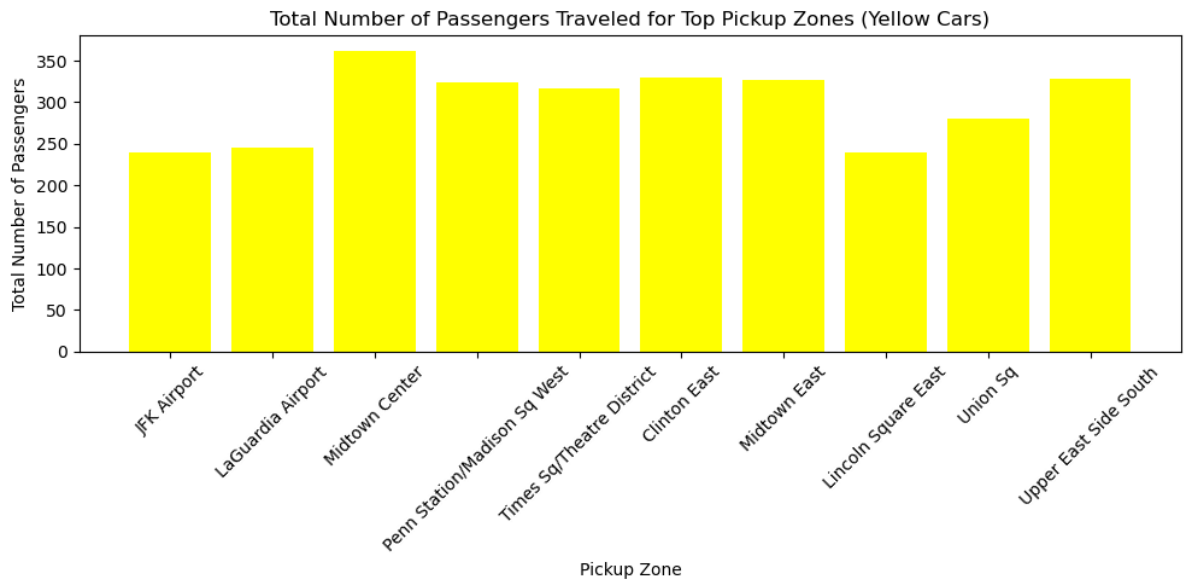
Total Statistics for Green Cars:

Total Passengers: 1222
Total Distance (in kms): 3345.95
Total Fare: \$13760.65
Total Fuel Cost: \$552.08175

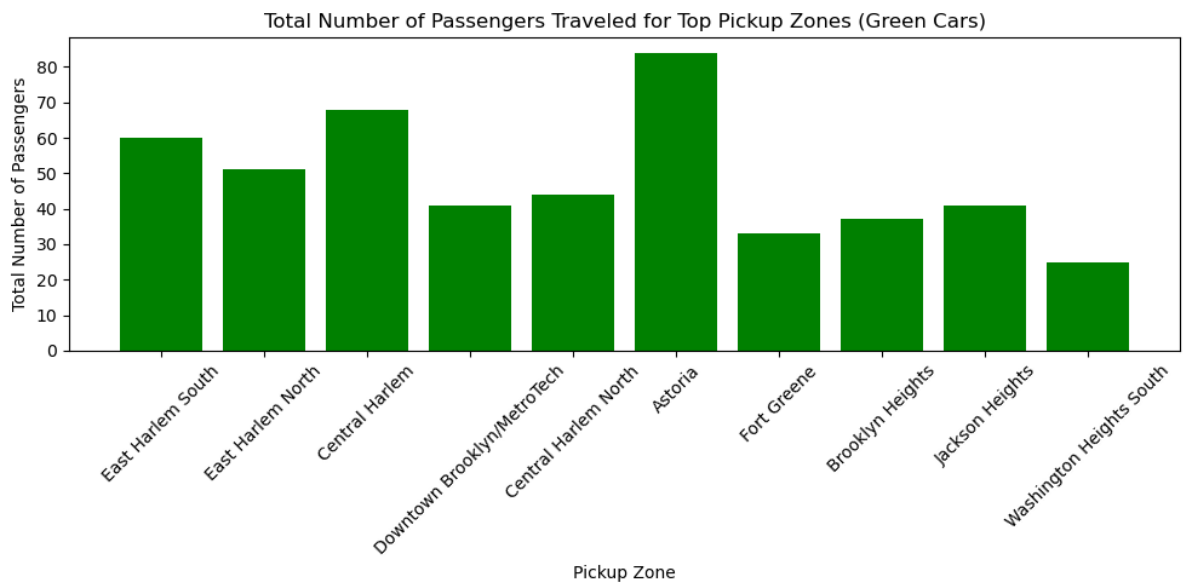
Q.10

Q.10 The following are the Charts that we plot for each colour:

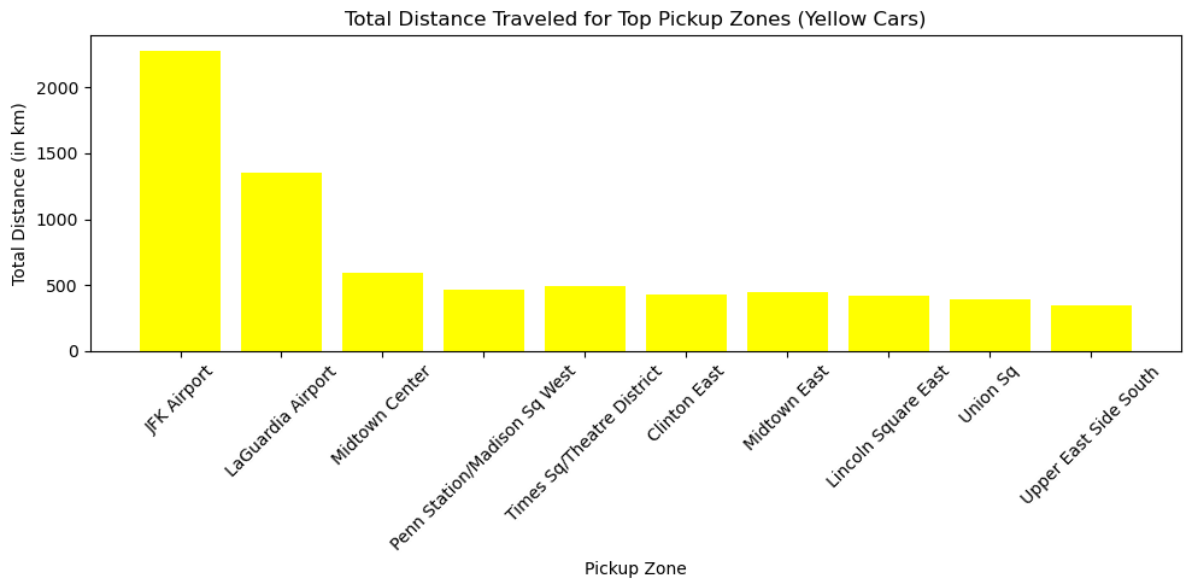
Bar Chart for Total Number of Passengers Traveled - Yellow



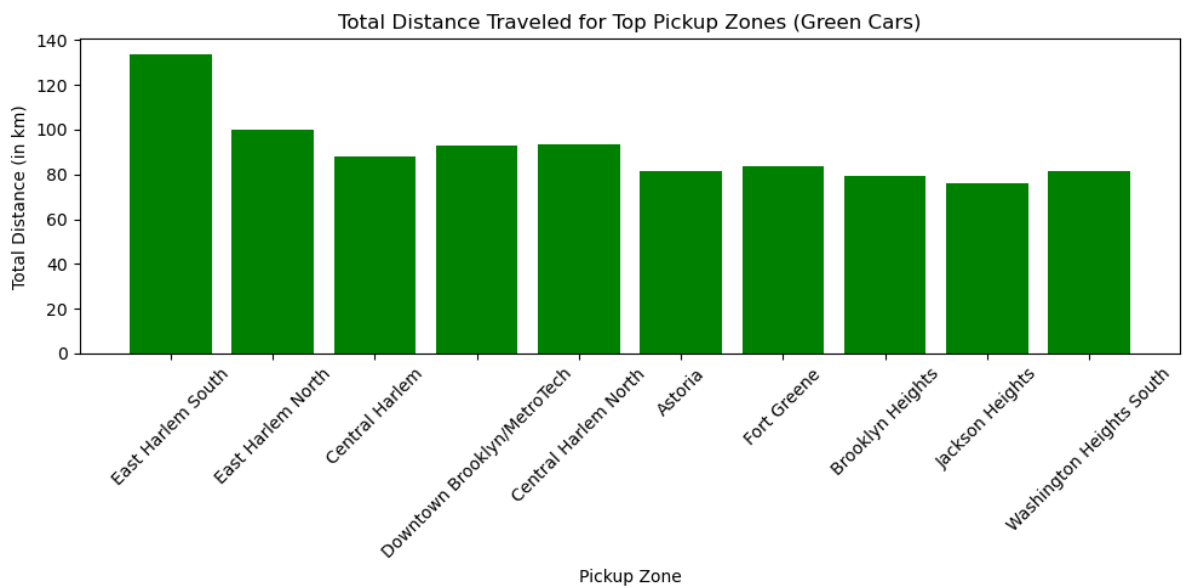
Bar Chart for Total Number of Passengers Traveled - Green



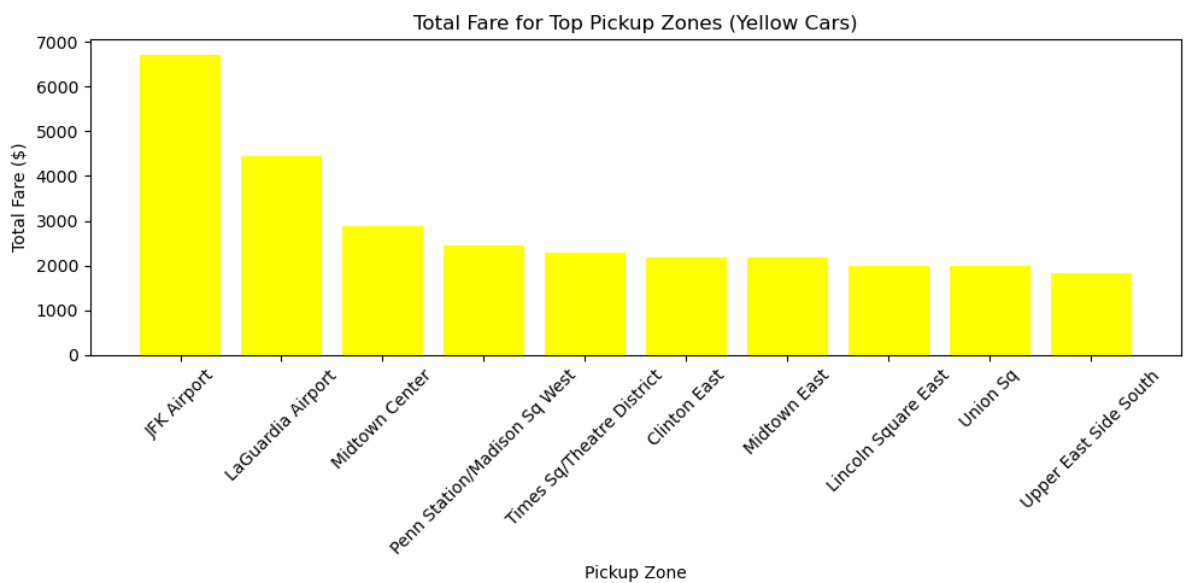
Bar Chart for Total Distance Traveled - Yellow



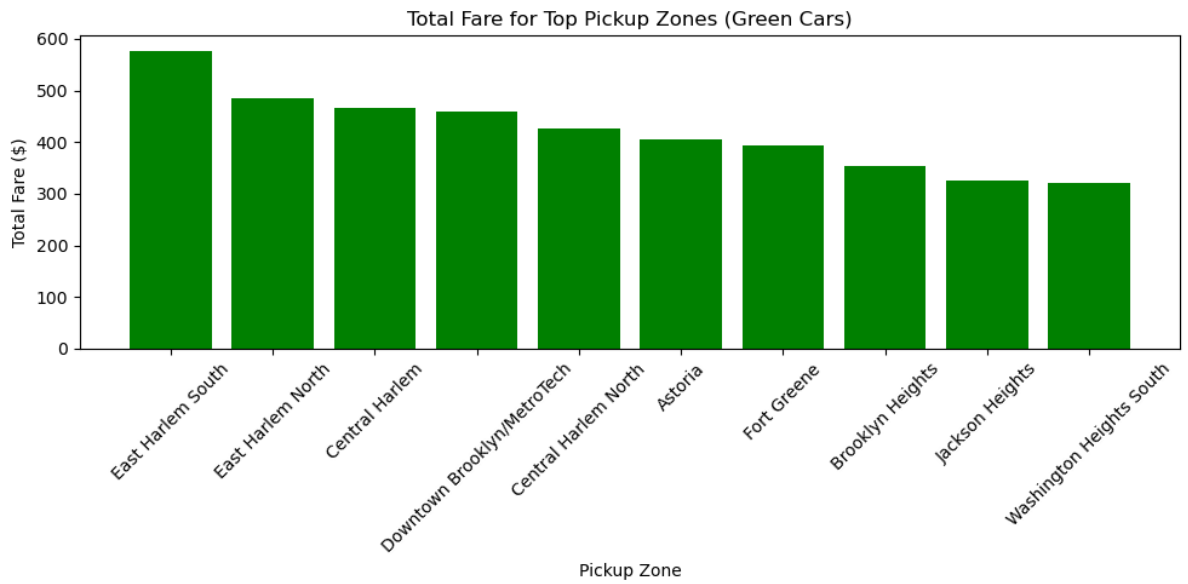
Bar Chart for Total Distance Traveled - Green



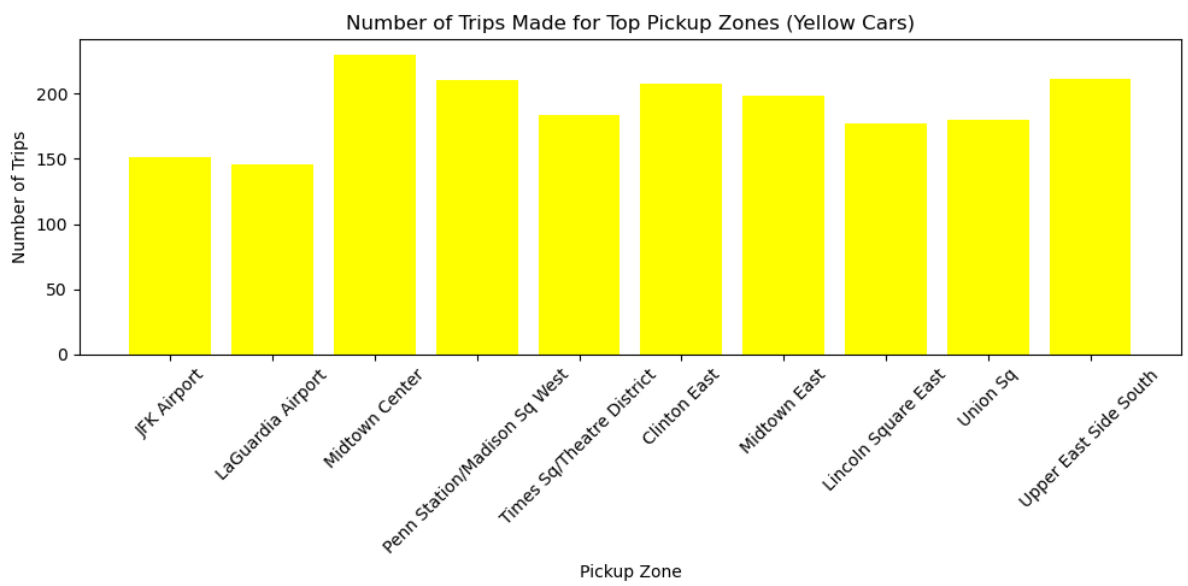
Bar Chart for Total Fare - Yellow



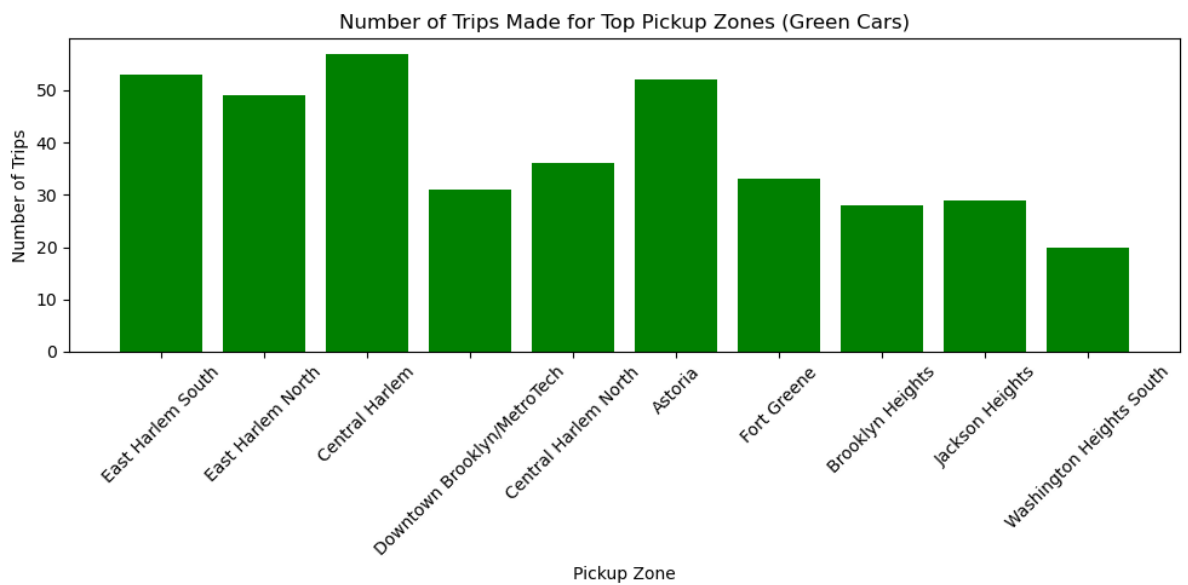
Bar Chart for Total Fare - Green



Bar Chart for Number of Trips Made - Yellow

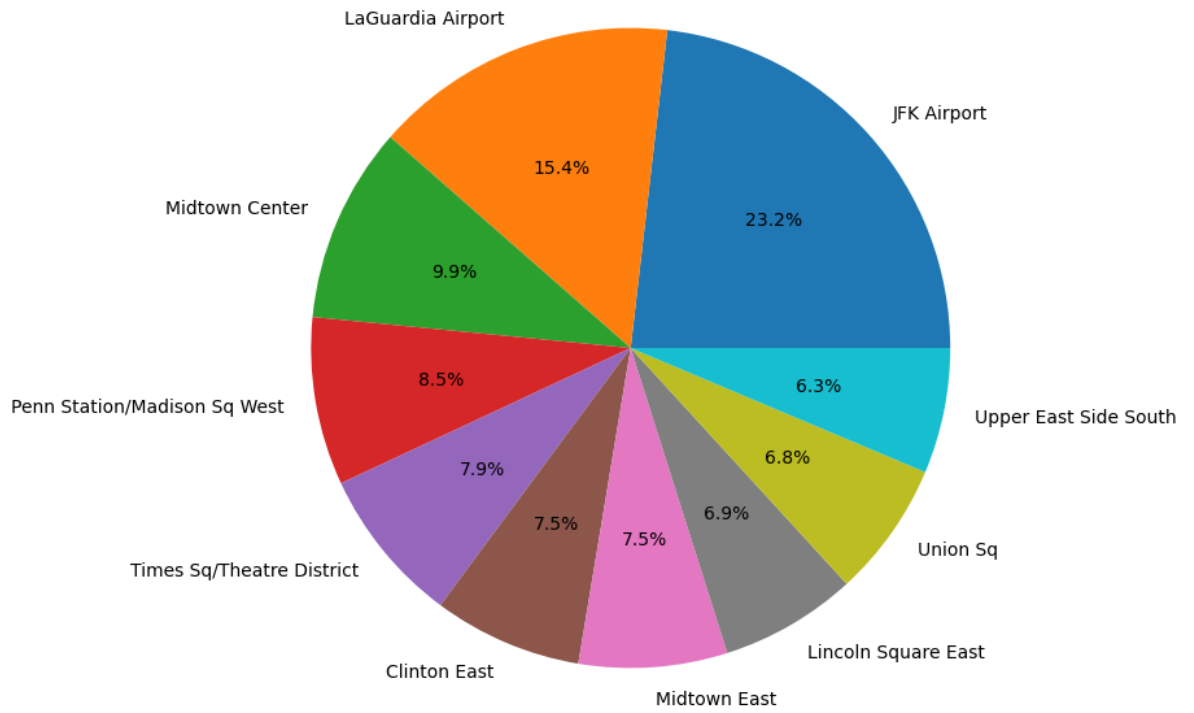


Bar Chart for Number of Trips Made - Green



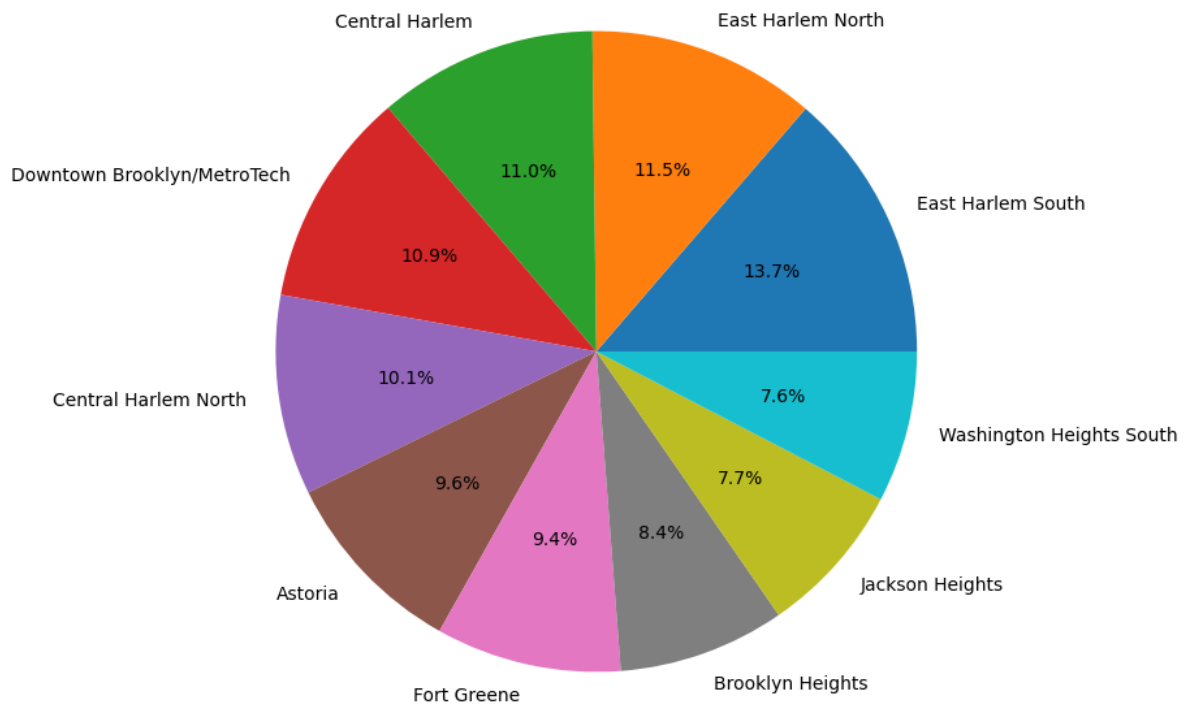
Pie Chart for Total Cost Fare Yielded by Zones - Yellow

Total Cost Fare Yielded by Pickup Zones (Yellow Cars)



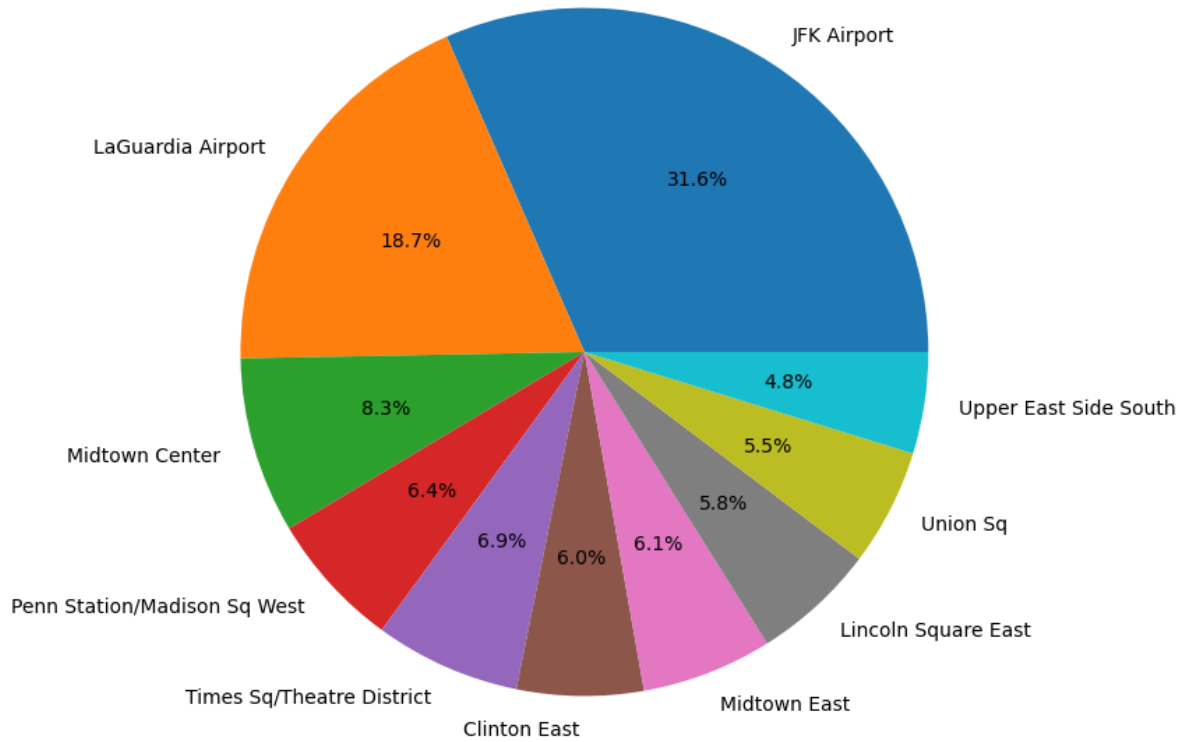
Pie Chart for Total Cost Fare Yielded by Zones - Green

Total Cost Fare Yielded by Pickup Zones (Green Cars)



Pie Chart for Total Fuel Cost by Zones - Yellow

Total Fuel Cost by Pickup Zones (Yellow Cars)



Pie Chart for Total Fuel Cost by Zones - Green

Total Fuel Cost by Pickup Zones (Green Cars)

