Uber supply Demand Analysis
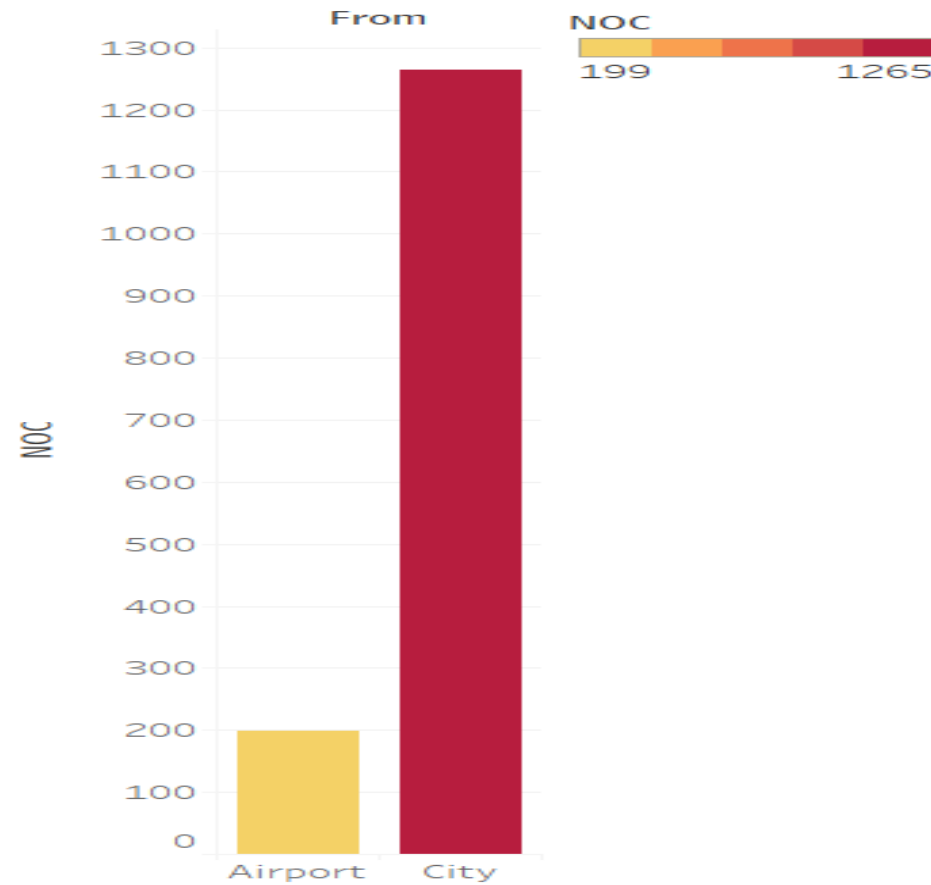
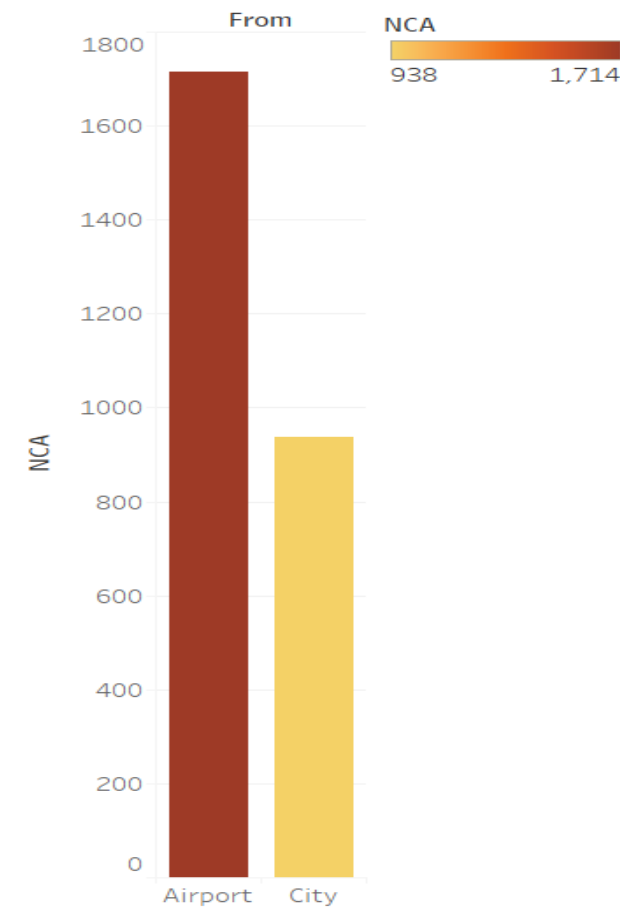- Bindhu B

Problem Statement

- From the given data – we have following problems with respect to Demand supply in Uber cabs plying between City and Airport.
    - High number of cancellations in city and high "No Cars Available" at Airports.
    - Success Rate (No. of Trips Completed / No. of requests) is low in off-time (10 pm to 6 am) and during peak hours (8 am to 10 am and 6 pm to 10 pm)

No. Of Cancellations and No Cars Available

Sheet 2

From

NOC
199 — 1265

NOC
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
Airport   City

Sum of NOC for each From.
Color shows details about
NOC.

Sheet 2

From

NCA
938 — 1,714

NCA
1800
1600
1400
1200
1000
800
600
400
200
0
Airport   City

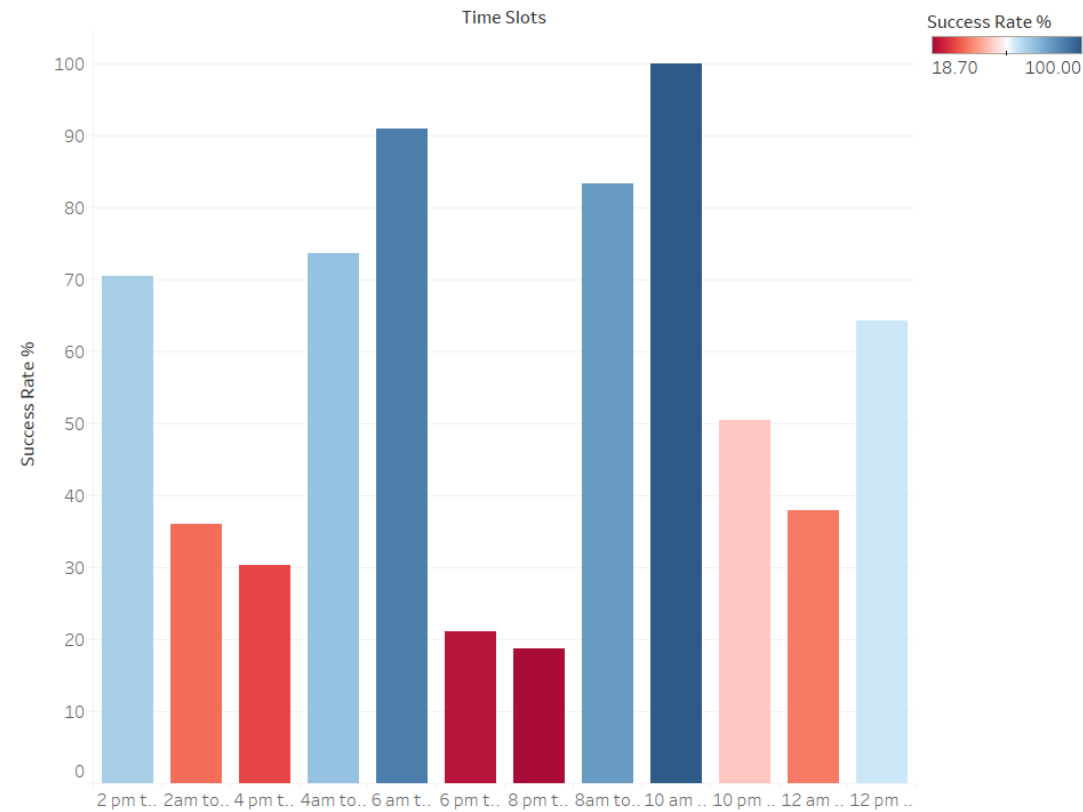Sum of NCA for each From.
Color shows sum of NCA.

Demand Supply gap Analysis:

- Airport to City

Time slot	Total Request	Trips Completed	No. of cancellations	No cars available	Success rate %
12 am to 2 am	95	36	0	59	37.9
2am to 4 am	86	31	0	55	36
4am to 6 am	164	121	6	37	73.78
6 am to 8 am	89	81	4	4	91
8am to 10 am	162	141	10	11	83.4
10 am to 12 pm	124	124	0	0	100
12 pm to 2 pm	152	98	19	35	64.4
2 pm to 4 pm	126	89	17	20	70.6
4 pm to 6 pm	369	112	33	224	30.3
6 pm to 8 pm	771	164	30	577	21.2
8 pm to 10 pm	721	135	57	529	18.7
10 pm to 12 am	281	142	3	136	50.5

Bar Graph – Airport to City Success Rates

Sheet 2

Sum of Success Rate % for each Time Slots. Color shows details about Success Rate %.
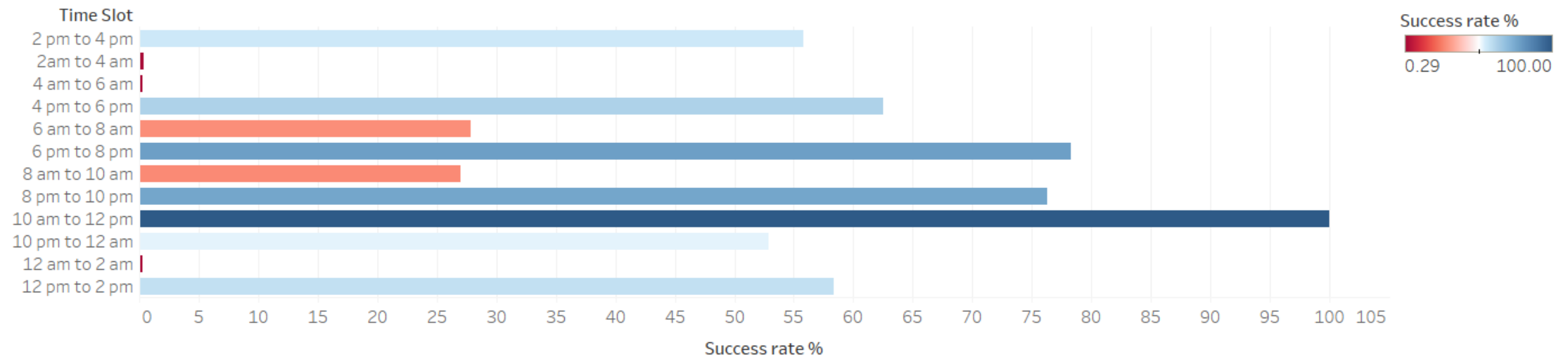
- Problems:
  - 12am to 4 am and 4 pm to 10 pm are timings with success rates less than 50 percent.
  - Low Success Rate in 12 am to 4 pm time slot is due to No Cars Available and in 4 pm to 10 pm is due to cancellations.
  - 4 pm to 10 pm is officer goers traffic majorly and that might be the reason for high number of cancellations

City to Airport

Time slot	Total Request	Trips Completed	No. of cancellations	No cars available	Success rate
12 am to 2 am	89	29	7	53	32.6%
2am to 4 am	105	40	7	58	38%
4 am to 6 am	484	142	221	121	29.3%
6 am to 8 am	309	86	141	82	27.83
8 am to 10 am	692	187	343	162	27
10 am to 12 pm	156	156	0	0	100
12 pm to 2 pm	192	112	18	62	58.33
2 pm to 4 pm	181	101	15	65	55.8
4 pm to 6 pm	208	130	24	54	62.5
6 pm to 8 pm	212	166	18	28	78.3
8 pm to 10 pm	220	168	26	26	76.3
10 pm to 12 am	217	115	19	83	52.9

Bar graph – City to Airport Success rate

Sheet 2

Sum of Success rate % for each Time Slot. Color shows details about Success rate %.
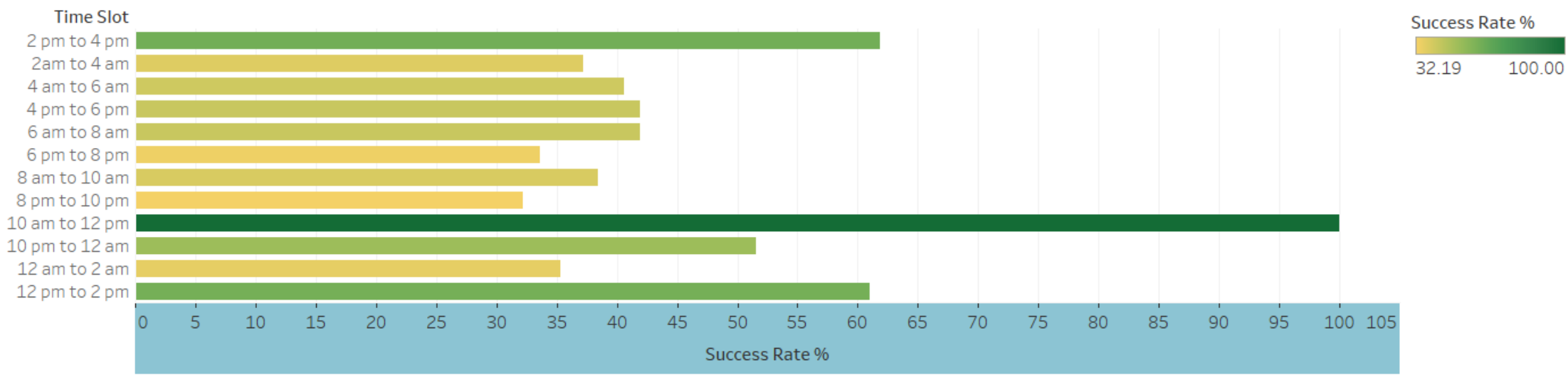
- Problems:
  - 10 pm to 10 am are the timings with less than 50 percent success rate
  - Low Success Rate in 10 pm to 6 am time slot is due to No Cars Available and in 6 am to 10 am is due to cancellations.
  - 6 am to 10 am is officer goers traffic and that might be the reason for high number of cancellations

Overall Success Rate

Time Slot	Total Request	No. of trip completed	Success Rate %
12 am to 2 am	184	65	35.32
2am to 4 am	191	71	37.17
4 am to 6 am	648	263	40.58
6 am to 8 am	398	167	41.95
8 am to 10 am	854	328	38.40
10 am to 12 pm	280	280	100
12 pm to 2 pm	344	210	61.04
2 pm to 4 pm	307	190	61.88
4 pm to 6 pm	577	242	41.94
6 pm to 8 pm	983	330	33.57
8 pm to 10 pm	941	303	32.19
10 pm to 12 am	498	257	51.60

Time Slot Vs Success rate

Sheet 2

Time Slot / **Success Rate %**

Time Slot	
2 pm to 4 pm	
2am to 4 am	
4 am to 6 am	
4 pm to 6 pm	
6 am to 8 am	
6 pm to 8 pm	
8 am to 10 am	
8 pm to 10 pm	
10 am to 12 pm	
10 pm to 12 am	
12 am to 2 am	
12 pm to 2 pm	

Success Rate % axis: 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105

Success Rate %

32.19   100.00

Success Rate %

Sum of Success Rate % for each Time Slot. Color shows details about Success Rate %.

Suggestions

- In time slots where there are less than 50 percent success rate across city and airport – we need to introduce more fleet to cater to the high demand and reach 80 percent success rate. Like 12 am to 10 am, and evening 4 pm to 10 pm

- Introduce "Odd Hour Charges" for booking between 10 pm to 6 am and give incentive to drivers for plying the cars at odd hours

- Introduce "Peak Hour Charges" for bookings between 8 am to 10 am and 6 pm to 10 pm and give incentive to drivers to cater to demand at this hour without cancelling the trips.

- Introduce "Airport Cabs" that specially caters for Airport to City and Vice vera. These cars should have more luggage space and has to be priced higher than the normal rates. Drivers has to be encouraged to ply to airports by paying him higher than the local rides.

- Introduce "Premium Cars" – where there is less waiting time for customers and charges are higher.

- Check for the efficiency of the routing algorithm – in times of high cancellation rates in cities.