Answer of Introduction of Analytics Mandatory

1. **Which day had the maximum number of logins on the app?**

Date	Time(hour)	Logins	Requests	Zeroes	Accepted Requests	Cancelled Requests	Funnel Conversion
Wednesday, 6 January, 2021	9	200	23	4	18	2	11.97916667
Wednesday, 6 January, 2021	2	200	83	18	56	7	43.22916667

I used the max formula =MAX (C2:C101) to bring out the maximum login in the app.
Then I used the filter to choose 200 number.
After which it shows that on 6th January,2021 Wednesday the maximum number of logins on the app was 200.

2. **Which hour had the highest logins on Tuesday?**

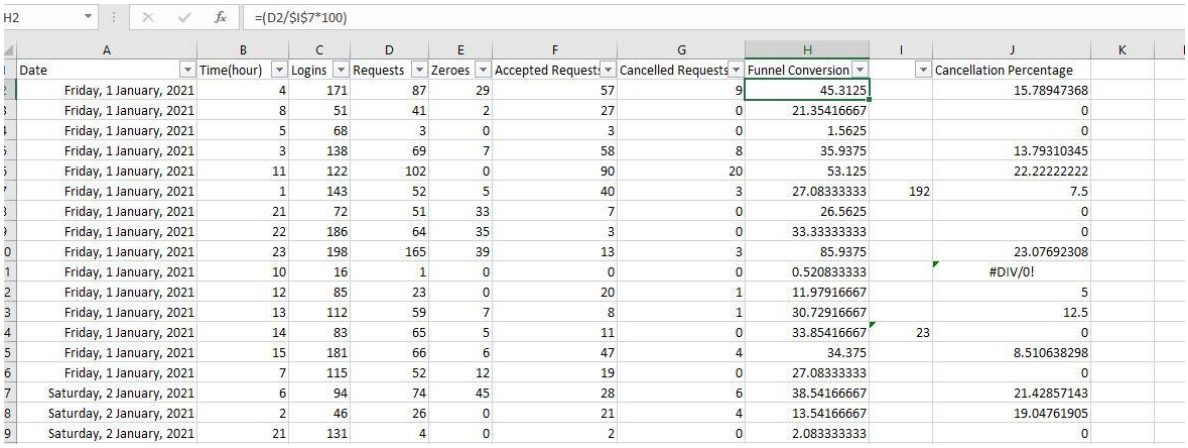
First, I use filter option to bring the data of Tuesday Only.
Then use the formula =MAX (B59:B80) to bring the highest login on Tuesday.
After which it shows it shows on Tuesday, 5th January,2021, 23 Hours has the highest login with 46 logins.

3. **"Top of the funnel conversion is defined as % of logged in users that requested a ride.**

a) Which day had the highest top of the funnel conversion?

Ans:

First, I make a new cell name Funnel Conversion which shows the value of conversion using formula =MAX(D2/$I$7*100).



Date	Time(hour)	Logins	Requests	Zeroes	Accepted Requests	Cancelled Requests	Funnel Conversion		Cancellation Percentage
Friday, 1 January, 2021	4	171	87	29	57	9	45.3125		15.78947368
Friday, 1 January, 2021	8	51	41	2	27	0	21.35416667		0
Friday, 1 January, 2021	5	68	3	0	3	0	1.5625		0
Friday, 1 January, 2021	3	138	69	7	58	8	35.9375		13.79310345
Friday, 1 January, 2021	11	122	102	0	90	20	53.125		22.22222222
Friday, 1 January, 2021	1	143	52	5	40	3	27.08333333	192	7.5
Friday, 1 January, 2021	21	72	51	33	7	0	26.5625		0
Friday, 1 January, 2021	22	186	64	35	3	0	33.33333333		0
Friday, 1 January, 2021	23	198	165	39	13	3	85.9375		23.07692308
Friday, 1 January, 2021	10	16	1	0	0	0	0.520833333		#DIV/0!
Friday, 1 January, 2021	12	85	23	0	20	1	11.97916667		5
Friday, 1 January, 2021	13	112	59	7	8	1	30.72916667		12.5
Friday, 1 January, 2021	14	83	65	5	11	0	33.85416667	23	0
Friday, 1 January, 2021	15	181	66	6	47	4	34.375		8.510638298
Friday, 1 January, 2021	7	115	52	12	19	0	27.08333333		0
Saturday, 2 January, 2021	6	94	74	45	28	6	38.54166667		21.42857143
Saturday, 2 January, 2021	2	46	26	0	21	4	13.54166667		19.04761905
Saturday, 2 January, 2021	21	131	4	0	2	0	2.083333333		0

Then I used Filter Function which shows on Tuesday, 5th January,2021 has the highest final conversion with 100 value.

H2 =(D2/$I$7*100)

	A	B	C	D	E	F	G	H	I	J	K
1	Date	Time(hour)	Logins	Requests	Zeroes	Accepted Request	Cancelled Requests	Funnel Conversion		Cancellation Percentage	
64	Tuesday, 5 January, 2021	6	195	192	137	4	0	100		0	

b) Which hour on Tuesday had the lowest top of the funnel conversion"

Date	Time(hour)	Logins	Requests	Zeroes	Accepted Request	Cancelled Requests	Funnel Conversion		Cancellation Percentage
Tuesday, 5 January, 2021	1	164	117	4	22	3	60.9375		13.63636364
Tuesday, 5 January, 2021	2	85	27	0	24	5	14.0625		20.83333333
Tuesday, 5 January, 2021	3	88	81	9	59	17	42.1875		28.81355932
Tuesday, 5 January, 2021	4	80	42	20	15	4	21.875		26.66666667
Tuesday, 5 January, 2021	5	195	138	68	65	15	71.875		23.07692308
Tuesday, 5 January, 2021	6	195	192	137	4	0	100		0
Tuesday, 5 January, 2021	7	161	75	4	67	18	39.0625		26.86567164
Tuesday, 5 January, 2021	8	101	91	4	8	0	47.39583333		0
Tuesday, 5 January, 2021	18	154	9	0	5	1	4.6875		20
Tuesday, 5 January, 2021	9	43	43	0	26	6	22.39583333		23.07692308
Tuesday, 5 January, 2021	10	164	145	15	55	1	75.52083333		1.818181818
Tuesday, 5 January, 2021	11	191	2	0	0	0	1.041666667		#DIV/0!
Tuesday, 5 January, 2021	12	20	20	4	9	1	10.41666667		11.11111111
Tuesday, 5 January, 2021	13	112	102	18	74	17	53.125		22.97297297
Tuesday, 5 January, 2021	14	133	30	1	27	5	15.625		18.51851852
Tuesday, 5 January, 2021	19	162	96	62	11	0	50		0
Tuesday, 5 January, 2021	15	49	49	0	49	7	25.52083333		14.28571429
Tuesday, 5 January, 2021	16	138	123	1	113	7	64.0625		6.194690265
Tuesday, 5 January, 2021	23	46	46	8	27	3	23.95833333		11.11111111
Tuesday, 5 January, 2021	20	26	5	0	5	1	2.604166667		20
Tuesday, 5 January, 2021	21	33	33	0	27	4	17.1875		14.81481481
Tuesday, 5 January, 2021	17	119	102	50	48	1	53.125		2.083333333

From the above image this shows that,

First I use filter option to bring the data of Tuesday then it gives a detail picture about the funnel conversion values.

Now from the below picture I used filter option of funnel conversion to choose the lowest values

Date	Time(hour)	Logins	Requests	Zeroes	Accepted Request	Cancelled Requests	Funnel Conversion		Cancellation Percentage
Tuesday, 5 January, 2021	11	191	2	0	0	0	1.041666667		#DIV/0!

Which shows Tuesday,5th January,2021 is the lowest top of the funnel conversion of 1.04166667 with 11 hour.

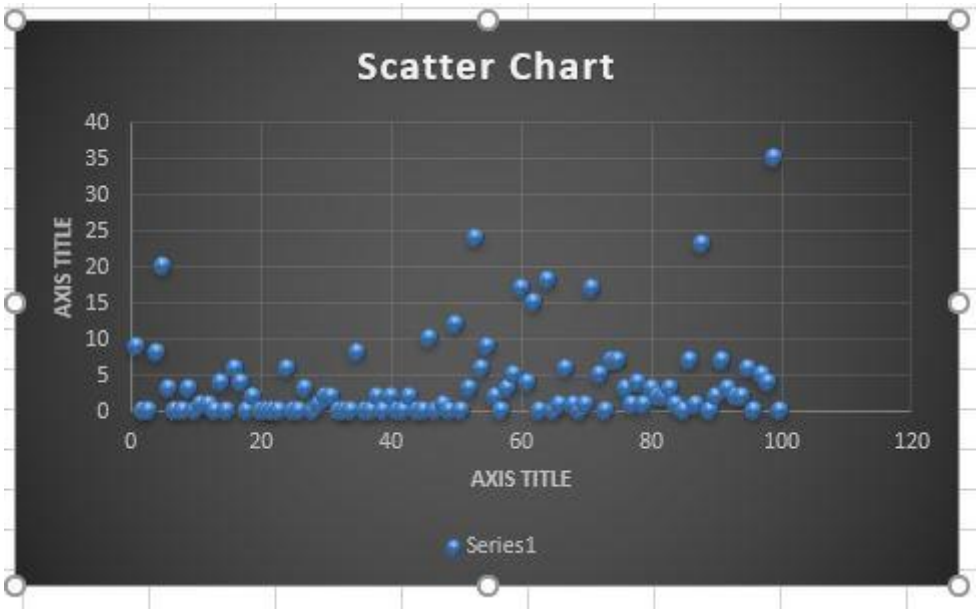
4. **"Users raise customer support tickets when they request a cab, but there are no cabs available. If you plot a curve of tickets/day, which day would have the maxima?"**

Ans : First, I used the filter function in Cancellation Request column to understand the highest cancellation trip on the app.

	A	B	C	D	E	F	G	H	I	J
	Date	Time(hour)	Logins	Requests	Zeroes	Accepted Request	Cancelled Requests	Funnel Conversion		Cancellation Percentage
	Thursday, 7 January, 2021	20	164	154	0	146	35	80.20833333		23.97260274

From the above clip it shows that on Thursday, 7th January,2021 had the maximum cancellation requests is 35.

I also make a scatter chart below which shows that 35 has the highest cancellation chart.



5. **"Cancellation percentage is defined as %of rides that are cancelled after being accepted by the drivers. If you calculate cancellation rates on the basis of aggregate data daily, what is the median?"**

Ans:

To calculate cancellation rates on the basis of aggregate daily basis is that,

Firstly, I calculate data with using cancellation request column to understand the overall performance of the dataset.

After which it used the median formula of =Median (G2:G101) which give the output of 2.

Date	Time(hour)	Logins	Requests	Zeroes	Accepted Requests	Cancelled Requests	Funnel Conversion		Cancellation Percentage
Friday, 1 January, 2021	4	171	87	29	57	9	45.3125		15.78947368
Friday, 1 January, 2021	8	51	41	2	27	0	21.35416667		0
Friday, 1 January, 2021	5	68	3	0	3	0	1.5625		0
Friday, 1 January, 2021	3	138	69	7	58	8	35.9375		13.79310345
Friday, 1 January, 2021	11	122	102	0	90	20	53.125		22.22222222
Friday, 1 January, 2021	1	143	52	5	40	3	27.08333333	192	7.5
Friday, 1 January, 2021	21	72	51	33	7	0	26.5625		0
Friday, 1 January, 2021	22	186	64	35	3	0	33.33333333		0

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=MEDIAN(G2:G101)
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6. **What is the highest rating among the drivers who spent at least 50 hours on the app in the week?**

Ans: First I used the filter option in Hours Active column to generate the 50 hours and greater than 50 values in the dataset which has been showed in the below clip.

Name	Hours Active	Trips completed	Avg Rating	Hours Weightage 50%	Trips Weightage 25	Ratings Weightage 25	Active Hours	Trips %	Rating %	Averag
Lori Castro	69	47	3.4	50%	25%	25%	34.5	11.75	0.85	15.7
Perry White	56	31	4	50%	25%	25%	28	7.75	1	12.25
Veronica Walters	62	35	3.4	50%	25%	25%	31	8.75	0.85	13.53333
Kimberly Russell	68	33	3.4	50%	25%	25%	34	8.25	0.85	14.36667
Michael Jarvis	56	30	4.5	50%	25%	25%	28	7.5	1.125	12.20833
Lauren Mills	58	45	4.3	50%	25%	25%	29	11.25	1.075	13.775
Kevin Smith	65	37	2.5	50%	25%	25%	32.5	9.25	0.625	14.125
Terry Dixon	64	36	4.2	50%	25%	25%	32	9	1.05	14.01667
Ricky Carroll	50	39	3.3	50%	25%	25%	25	9.75	0.825	11.85833
Lisa Munoz	54	37	2.8	50%	25%	25%	27	9.25	0.7	12.31667
Katherine Wright	69	33	4	50%	25%	25%	34.5	8.25	1	14.58333
Angela Jackson	69	42	2.8	50%	25%	25%	34.5	10.5	0.7	15.23333
Michael Edwards	51	42	3.9	50%	25%	25%	25.5	10.5	0.975	12.325
Eric Brown	70	43	3.9	50%	25%	25%	35	10.75	0.975	15.575
Jonathan Gomez	62	30	4	50%	25%	25%	31	7.5	1	13.16667
Lisa Gallagher	54	44	2.6	50%	25%	25%	27	11	0.65	12.88333
Willie Reed	69	45	3.1	50%	25%	25%	34.5	11.25	0.775	15.50833
Madison Strong	70	42	3.6	50%	25%	25%	35	10.5	0.9	15.46667
Brad Bradshaw	66	37	3.7	50%	25%	25%	33	9.25	0.925	14.39167
Valerie Li	53	49	4.1	50%	25%	25%	26.5	12.25	1.025	13.25833
Garrett Smith	53	47	4.4	50%	25%	25%	26.5	11.75	1.1	13.11667

After this I used filter option in Avg Rating which shows that Michael Jarvis has the highest rating among the drivers who spent at least 50 hours on the app with 4.5 Avg Rating .

Name	Hours Active	Trips completed	Avg Rating	Hours Weightage 50%	Trips Weightage 25	Ratings Weightage 25	Active Hours	Trips %	Rating %	Averag
Michael Jarvis	56	30	4.5	50%	25%	25%	28	7.5	1.125	12.20833

7. The App assigns a score to each driver on the basis of 3 parameters - #hours active, #trips competed, and average rating. If 50% weightage is given to #hours active and other two parameters are given equal weightage, who are the top 3 drivers of the week.

Ans:

	A	B	C	D	E	F	G	H	I	J	K
	Name	Hours Active	Trips completed	Avg Rating	Hours Weightage 50%	Trips Weightage 25	Ratings Weightage 25	Active Hours	Trips %	Rating %	Averag
	Lori Castro	69	47	3.4	50%	25%	25%	34.5	11.75	0.85	15.7
	Eric Brown	70	43	3.9	50%	25%	25%	35	10.75	0.975	15.575
	Willie Reed	69	45	3.1	50%	25%	25%	34.5	11.25	0.775	15.50833

Hours weightage 50% column is the 50% of hours active column.

Trips weightage 25% column is the 25% of trips completed column.

Ratings weightage 25% column is the 25% of trips completed column.

Average column is the average of active hours, trips % and ratings % column.

I used filter in Average column to find the top 3 drivers of the week which gives:

Lori Castro 15.7

Eric Brown 15.575

Willie Reed 15.50833

8. **"The company measures demand supply ratio of the business by comparing #requests to #drivers on a weekly basis. What was the ratio of demand to supply for this week?"**
   Ans :

A	B	C	D	E	F
Requests	Hours Active	GCD(Greatest Common Divisor)	Num1	Num2	Ratio
87	45	3	29	15	29:15
41	69	1	41	69	41:69
3	37	1	3	37	3:37
69	56	1	69	56	69:56
102	44	2	51	22	51:22
52	29	1	52	29	52:29
51	37	1	51	37	51:37
64	62	2	32	31	32:31
165	41	1	165	41	165:41
1	33	1	1	33	1:33
23	68	1	23	68	23:68
59	43	1	59	43	59:43
65	56	1	65	56	65:56
66	46	2	33	23	33:23
52	39	13	4	3	4:3
74	58	2	37	29	37:29
26	65	13	2	5	2:5
4	38	2	2	19	2:19
48	64	16	3	4	3:4
10	50	10	1	5	1:5
12	40	4	3	10	3:10
52	33	1	52	33	52:33
147	44	1	147	44	147:44
46	54	2	23	27	23:27
21	48	3	7	16	7:16
38	43	1	38	43	38:43
29	33	1	29	33	29:33
7	32	1	7	32	7:32
38	32	2	19	16	19:16
40	69	1	40	69	40:69
145	40	5	29	8	29:8
2	69	1	2	69	2:69
10	51	1	10	51	10:51
4	70	2	2	35	2:35
31	62	31	1	2	1:2

I used the GCD formula to find the common divisible value between Requests and Active hours, which is represented by GCD column[[=GCD(A2,B2)]].

Then I make num1 and num2 column which signify =A2/C2 and =B2/C2 respectively.

After which I make another column “Ratio” which signify concatenation formula =D2&":"&E2 to find the ratio of the dataset.

9. **"The company has decided to give incentives to the drivers to boost supply side of the business. There are two alternatives.**
   Option A: For every hour after the 50th hour, drivers get an additional Rs 10/hour. For every trip after 30th trip, drivers get an additional Rs 10/Trip.
   Any driver with a rating of less than 3 would not be eligible for incentive.
   Ans Option A :

A	B	C	D	E	F	G	H	I	J	K
Name	Hours Active	Total Hours	Difference	Incentive on the basis of hours	Trips completed	Total Trips	Differnce of Trips	Incentive on the basis of trip completed	Total Incentives	Avg Rating
Lori Castro	69	50	19	190	47	30	17	170	360	3.4
Perry White	56	50	6	60	31	30	1	10	70	4
Dustin Brown	44	50	-6	No Incentive	44	30	14	140	140	4.8
Jill Bonilla	29	50	-21	No Incentive	50	30	20	200	200	3.3
Mary Smith	37	50	-13	No Incentive	35	30	5	50	50	3.8
Veronica Walters	62	50	12	120	35	30	5	50	170	3.4
Kimberly Russell	68	50	18	180	33	30	3	30	210	3.4
Aaron Wagner	43	50	-7	No Incentive	40	30	10	100	100	4.6
Michael Jarvis	56	50	6	60	30	30	0	No Incentive	60	4.5
Teresa Henderson	39	50	-11	No Incentive	37	30	7	70	70	4.8
Lauren Mills	58	50	8	80	45	30	15	150	230	4.3
Shawn Phillips	38	50	-12	No Incentive	43	30	13	130	130	3.4
Terry Dixon	64	50	14	140	36	30	6	60	200	4.2
Ricky Carroll	50	50	0	No Incentive	39	30	9	90	90	3.3
Nicole Caldwell	40	50	-10	No Incentive	38	30	8	80	80	5
Mr. Jamie Williams	33	50	-17	No Incentive	43	30	13	130	130	5
Terry Lee	44	50	-6	No Incentive	32	30	2	20	20	4
Lori Rowland	43	50	-7	No Incentive	32	30	2	20	20	4.6
Jason Wheeler	33	50	-17	No Incentive	34	30	4	40	40	3.4
Mason Johnson	32	50	-18	No Incentive	46	30	16	160	160	3.5
Brian Williams	32	50	-18	No Incentive	40	30	10	100	100	3.2
Katherine Wright	69	50	19	190	33	30	3	30	220	4
Audrey Hunter	40	50	-10	No Incentive	50	30	20	200	200	3.2
Michael Edwards	51	50	1	10	42	30	12	120	130	3.9
Eric Brown	70	50	20	200	43	30	13	130	330	3.9
Jonathan Gomez	62	50	12	120	30	30	0	No Incentive	120	4
Leonard Osborne	38	50	-12	No Incentive	45	30	15	150	150	4.2
Willie Reed	69	50	19	190	45	30	15	150	340	3.1
Elizabeth Smith	45	50	-5	No Incentive	36	30	6	60	60	3.3
Richard Golden	28	50	-22	No Incentive	50	30	20	200	200	3.6
Madison Strong	70	50	20	200	42	30	12	120	320	3.6
Brad Bradshaw	66	50	16	160	37	30	7	70	230	3.7
Valerie Li	53	50	3	30	49	30	19	190	220	4.1
Garrett Smith	53	50	3	30	47	30	17	170	200	4.4
Sherry Russell	35	50	-15	No Incentive	32	30	2	20	20	5

Difference column is the difference of Hours Active and Total hours by using the formula =B3-C3.
I have used this formula =IF(B3>C3,D3*10,”No Incentive”) to find Incentive on basis of hours.

Difference of trips column is the difference of Trips completed and total trips by using the formula =F3-G3.
I have used this formula =IF(F3>G3, H3*10, “No Incentive”) Incentives on the basis of trip completed.
Total Incentives column is a sum of incentive on the basis of trip completed and incentive on the basis of hour columns
I have use the Avg Rating column to find the rating greater than 3 by using the filter.

Option B: For every hour after the 40th hour, drivers get an additional Rs 5/hour. For every trip after 40th trip, drivers get an additional Rs 20/Trip.

Any driver with a rating of less than 3 would not be eligible for incentive.

Ans Option B:

A	B	C	D	E	F	G	H	I	J	K
Name	Hours Acti	Total Hou	Differen	Incentive on the basis of hou	Trips complete	Total Tri	Differnce of Tri	Incentive on the basis of trip complete	Total Incentives	Avg Rating
Lori Cas	69	40	29	145	47	40	7	140	285	3.4
Perry W	56	40	16	80	31	40	-9	No Incentive	80	4
Dustin E	44	40	4	20	44	40	4	80	100	4.8
Jill Bonil	29	40	-11	No Incentive	50	40	10	200	200	3.3
Mary Sn	37	40	-3	No Incentive	35	40	-5	No Incentive	0	3.8
Veronica	62	40	22	110	35	40	-5	No Incentive	110	3.4
Kimberl	68	40	28	140	33	40	-7	No Incentive	140	3.4
Aaron W	43	40	3	15	40	40	0	No Incentive	15	4.6
Michael	56	40	16	80	30	40	-10	No Incentive	80	4.5
Teresa I	39	40	-1	No Incentive	37	40	-3	No Incentive	0	4.8
Lauren I	58	40	18	90	45	40	5	100	190	4.3
Shawn I	38	40	-2	No Incentive	43	40	3	60	60	3.4
Terry Di	64	40	24	120	36	40	-4	No Incentive	120	4.2
Ricky C	50	40	10	50	39	40	-1	No Incentive	50	3.3
Nicole C	40	40	0	No Incentive	38	40	-2	No Incentive	0	5
Mr. Jam	33	40	-7	No Incentive	43	40	3	60	60	5
Terry Le	44	40	4	20	32	40	-8	No Incentive	20	4
Lori Rov	43	40	3	15	32	40	-8	No Incentive	15	4.6
Jason W	33	40	-7	No Incentive	34	40	-6	No Incentive	0	3.4
Mason J	32	40	-8	No Incentive	46	40	6	120	120	3.5
Brian W	32	40	-8	No Incentive	40	40	0	No Incentive	0	3.2
Katherir	69	40	29	145	33	40	-7	No Incentive	145	4
Audrey I	40	40	0	No Incentive	50	40	10	200	200	3.2
Michael	51	40	11	55	42	40	2	40	95	3.9
Eric Bro	70	40	30	150	43	40	3	60	210	3.9
Jonatha	62	40	22	110	30	40	-10	No Incentive	110	4
Leonard	38	40	-2	No Incentive	45	40	5	100	100	4.2
Willie R	69	40	29	145	45	40	5	100	245	3.1
Elizabet	45	40	5	25	36	40	-4	No Incentive	25	3.3
Richard	28	40	-12	No Incentive	50	40	10	200	200	3.6
Madisor	70	40	30	150	42	40	2	40	190	3.6
Brad Bri	66	40	26	130	37	40	-3	No Incentive	130	3.7
Valerie L	53	40	13	65	49	40	9	180	245	4.1
Garrett S	53	40	13	65	47	40	7	140	205	4.4
Sherry F	35	40	-5	No Incentive	32	40	-8	No Incentive	0	5

Difference column is the difference of Hours Active and Total hours by using the formula =B3-C3.

I have used this formula =IF(B3>C3,D3*5,”No Incentive”) to find Incentive on basis of hours.

Difference of trips column is the difference of Trips completed and total trips by using the formula =F3-G3.

I have used this formula =IF(F3>G3, H3*20, “No Incentive”) Incentives on the basis of trip completed.

Total Incentives column is a sum of incentive on the basis of trip completed and incentive on the basis of hour columns

I have use the Avg Rating column to find the rating greater than 3 by using the filter.