

INFO8146-24W-Sec1

Diagnostics Analytics

Team 7

Siddhesh Otari- Individual

Guided Tour

Cover Letter

To:

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From:

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Re: Submission of Case study 2 on Call Center Data set.

Respected Prof Mohamed,

In this case study I have created an Individual Workbook in which I created various sheets below:

- ReadMeFirst
- Deliverables
- Modes
- DS Inspection
- AreaCodes
- OtherData
- Customers
- GreetersDM
- Places
- CSR DM
- CSR PTs

We were expected to extract the data from the Access workbook provided and recognize the foreign keys and add the cell references using formulas.

After this we created the busyness hrs, mins, secs using appropriate which is explained further in the guided tour.

I expect to be graded on the work I created and will be open to suggestions from the professors for any improvements.

Guided Tour

1. ReadMeFirst

Sheets in this Workbook			
ID	Sheet Name	Description	
1	ReadMeFirst	Excel workbook information and history	
2	Deliverables	List of Deliverables	
3	Modes	Gives description of different modes	
4	DS Inspection	Inspection conducted on different tables based on inspection test provided in Samples and Guidance	
5	AreaCodes	Information about Area	
6	Other Data	Information about product, terms and countries	
7	Customers	Information about Customers	
8	Greeters Dm	gives information about greeters	
9	Places	Information about Places	
10	CSR DM	Gives information about CSR operations	
11	CSR PTs	Pivot Tables	

- In this sheet we created links which directly navigates you to then appropriate sheet required.
- I have also added the descriptions for each respective sheet.
- The sources of Data a given in the Sources and References section.

2. Deliverables

Deliverable ID	Deliverable Name	Description	Type	Requirement ID	Started Date	Started Time	Done Date	Done Time	QC OK Date	QC OK Time	Done By	QC By
S	Do Inspection Test and Record Finding	Record the findings in plan list/table.	Sheet+List/Table	11	19-Feb	9:00 AM	19-Feb	10:00 AM	19-Feb	5:00 PM	Siddhesh	Team
T	Workflow for Vlookup	Select the Excel sheet of the major table assigned to create a Vlookup foreign key validation formulas	Sheet+List/Table	11.6	19-Feb	10:00 AM	19-Feb	11:00 AM	19-Feb	5:10 PM	Siddhesh	Team
U	Install the weekday calcs in DM	Create a DM column with heading of "Weekday" . Calculate the Weekday using appropriate formula	Sheet+List/Table	13.6	19-Feb	12:00 PM	19-Feb	1:00 PM	19-Feb	5:20 PM	Siddhesh	Team
V	Pivot Tables Issue 5	Produce Pivot Tables for your Agent Type and create work sheet "PTs Busyness"	Sheet+List/Table	14.1	19-Feb	1:00 PM	19-Feb	2:00 PM	19-Feb	5:30 PM	Siddhesh	Team
W	Prepare a written Guided Tour of your diagnostic analytics	There must be a section with at least 2 screen captures and a paragraph of text for each Issue	Guided Tour	16.3	19-Feb	2:00 PM	19-Feb	5:00 PM	19-Feb	5:40 PM	Siddhesh	Team
X	Prepare Minimal Case study packaging	Cover Letter	Guided Tour	16.4	19-Feb	6:00 PM	19-Feb	6:10 PM	19-Feb	7:00 PM	Siddhesh	Team
Y	Prepare Minimal Case study packaging	Title page	Guided Tour	16.4	19-Feb	6:20 PM	19-Feb	6:40 PM	19-Feb	7:00 PM	Siddhesh	Team
Z	Prepare Minimal Case study packaging	Statement of Academic Integrity	Guided Tour	16.4	19-Feb	6:40 PM	19-Feb	7:00 PM	19-Feb	7:00 PM	Siddhesh	Team

- The above is the list of deliverables with appropriate description for each deliverables.

3. Modes

Mode	Agent Type	Prev Mode(s)	Call Done	DB FieldName	Description	Comment
0				Mode00	Inbound	
1			0	Mode01	Rejected. Busy	
2			0	Mode02	Aborted by Caller	
3	1		0	Mode03	Call Answered by Greeter	
4	1		3	Mode04	Triage to Tech, Expert, Cust Srvice/Sales, Manager <Div B>/<Div A>	
5			4	Mode05	Queued for Service	
6		4	Yes	Mode06	Wait Mode 5 aborted by Caller	
7	8		5	Mode07	Accepted by <Div B> Service	
8	8		7	Mode08	CallerID Establish	
9	8		8	Mode09	NewCaller CRM Setup	
10	8		8	Mode10	Repeat Caller CRM Verify/Update	
11	8	9,10		Mode11	FirstCallOnIssueVerify	
12	8		11	Mode12	Issue Scoping	
13	8		12	Mode13	Tech Discussion, Note Taking	
14	8		13	Mode14	Good Result	
15	8		13	Mode15	Caller Abandons Discussion	
16	8		13	Mode16	<Div B> Case Number Assigned	
17		4,11,13		Mode17	Queued for Escalated Service	
18			17	Mode18	Wait Mode 17 aborted by Caller	=Mode16 Is the Prev Modes Correct???
19	9		17	Mode19	Accepted by <Div B> Tech Expert	=Mode17-Mode18
20	9		19	Mode20	CallerID ReVerify	
21	9		20	Mode21	More Scoping	
22	9		21	Mode22	Tech Discussion	
23	9		22	Mode23	Good Result EscService	=Mode19-Mode24-Mode25
24	9		22	Mode24	Open Issue and Case	
25	9		22	Mode25	Caller Abandons Discussion	

- The above images refer to the Modes tables where we are getting the hierarchical working model of a Call Center.

4. DS Inspection

ID	Table(s) Involved	Data Test Name	Data Test Type	Data Test Description	Issue Name	Issue Description	Sample Size	Found Date	Found Time	Four
1	Area Code	Tables with no record	No Record		Have Records			18-Feb	9:00 AM	
2	Area Code	Columns with no entries, that are entirely	No entries/ Blanks Columns		Column- Inactive, Zlink			18-Feb	9:10 AM	
3	Area Code	Columns with some rows that have blank	Columns with Rows Blank		No Blank rows			18-Feb	9:20 AM	
4	Area Code	Columns that have both positive and negative numbers	Having positive and negative numbers		No Negative Values			18-Feb	9:30 AM	
5	Other Data	Tables with no record	No Record		Have Records			18-Feb	9:40 AM	
6	Other Data	Columns with no entries, that are entirely	No entries/ Blanks Columns		Column- CountUnitsInPackages, Inactive, Time Stamp, Zlink			18-Feb	9:50 AM	
7	Other Data	Columns with some rows that have blank	Columns with Rows Blank		No Blank rows in remaining columns			18-Feb	10:00 AM	
8	Other Data	Columns that have both positive and negative numbers	Having positive and negative numbers		No Negative Values			18-Feb	10:10 AM	
9	Places	Tables with no record	No Record		Have Records			18-Feb	10:20 AM	
10	Places	Columns with no entries, that are entirely	No entries/ Blanks Columns		Column- CountryID, Inactive, Time Stamp, Zlink			18-Feb	10:30 AM	
11	Places	Columns with some rows that have blank	Columns with Rows Blank		No Blank rows in remaining columns			18-Feb	10:40 AM	
12	Places	Columns that have both positive and negative numbers	Having positive and negative numbers		No Negative Values			18-Feb	10:50 AM	

- The above Images is about the Individual Inspection on the data file which we get from the Access Database.
- Here we have provided appropriate description in the Excel sheet.

5. Area Codes

AreaCodeID	AreaCode	ProvStateID	Timestamp	Inactive	zLnk	Click to Add
1	201	37	!-2023 10:09:19		1	
2	202	11	!-2023 10:09:40		1	
3	203	10	!-2023 10:09:40		1	
4	204	24	!-2023 10:09:40		1	
5	205	4	!-2023 10:09:40		1	
6	206	62	!-2023 10:09:40		1	
7	207	26	!-2023 10:09:40		1	
8	208	17	!-2023 10:09:40		1	
9	209	8	!-2023 10:09:40		1	
10	210	58	!-2023 10:09:40		1	
11	212	45	!-2023 10:09:40		1	
12	213	8	!-2023 10:09:40		1	
13	214	58	!-2023 10:09:40		1	
14	215	50	!-2023 10:09:40		1	
15	216	46	!-2023 10:09:40		1	

AreaCodeID	AreaCode	ProvStateID
1	201	37
2	202	11
3	203	10
4	204	24
5	205	4
6	206	62
7	207	26
8	208	17
9	209	8
10	210	58

- The above 1st image is from the Access Data base provide where we can see some empty columns.
- The 2nd image is the imported sheet from the Access Database to the Excel sheet where we have eliminated the empty columns.

6. Other Data

CountryID	Country	Timestamp	Inactive	zLnk	Click to Add
1	Australia			1	
2	BWI			1	
3	Canada			1	
4	New Zealand			1	
5	Singapore			1	
6	USA			1	
✱	(New)	20-02-2024 14:12:10		1	

ProductID	ProductCode	ProductFullName	ApproxSellPr	CountUnitslr	TimeStamp	Inactive	zLnk	Click to Add
1	ProductA	Product A	\$10.00		27-09-2017 12:10:04		1	
2	ProductB	Product B	\$12.00		27-09-2017 12:10:04		1	
3	ProductC	Product C	\$14.00		27-09-2017 12:10:04		1	
4	ProductD	Product D	\$16.00		27-09-2017 12:10:44		1	
5	ProductE	Product E	\$18.00		27-09-2017 12:10:44		1	
6	ProductF	Product F	\$20.00		28-04-2022 06:18:45		1	
7	ProductG	Product G	\$22.00		28-04-2022 06:19:18		1	
✱	(New)			0	20-02-2024 14:12:45		1	

TermsID	TermCode	DaysToPay	DiscountPerc	TimeStamp	Inactive	zLnk	Click to Add
1	COD	3	0	!-2017 05:24:41		1	
2	Net30	30	0	!-2017 05:24:45		1	
3	Net45	45	0	!-2017 05:25:03		1	
4	Net60	60	0	!-2017 05:25:13		1	
5	Net90	90	0	!-2017 05:25:19		1	
✱	(New)			!-2024 14:13:40		1	

- The above 3 sheets are about the Countries, Products and Terms table from the Access Database.
- I have eliminated the empty columns after importing it into the Excel sheet.

7. Customers

CountryID	AreaCodeID	PhoneNumbr	TermsID	TimeStamp	Inactive	zLnk	Click to Add
1			1			1	
1			1			1	
2	28	623-6843	1			1	
2	3	27 908-7221	1			1	
3	249	292-6538	1			1	
3	249	612-3123	1			1	
3	249	167-1475	1			1	
3	249		1			1	
3	249	949-5688	1			1	
3	249	425-1951	1			1	
3	249	801-6154	1			1	
3	249	846-6081	1			1	

			'=IF(ISERROR(VLOOKUP(J8,ProvStates!\$B\$8:\$D\$95,3,FALSE)), "", VLOOKUP(J8,ProvStates!\$B\$8:\$D\$95,3,FALSE))	
	'=VLOOKUP(H8,Places!\$B\$8:\$C\$929,2,FALSE)			
ceID ▼	Place ▼	ProvStateID ▼	ProvStateName ▼	PostCodeZip ▼
795	Sydney	41	New South Wales	2100
846	Villawood	41	New South Wales	2163
459	Miami	13	Florida	33142
892	White Rock	7	British Columbia	VB4 3Z2
111	Carbonear	38	Newfoundland and Labrador	A0A 1B0
49	Bay Roberts	38	Newfoundland and Labrador	A0A 1G0

[illegible]

- The first two images are from the Access Database where we found some empty columns which were eliminated after importing the data to the excel sheet.
- In the remaining images we can see that using VLOOKUP where added the columns such as Places, ProvStateNames, CountryName, Terms using the foreign key references.
- In these formulas we have used IF and ISERROR to eliminate the NA values to provide a clean data.

8. Greeters DM

▼	Mode05 ▼	Mode26 ▼	Mode50 ▼	Mode71 ▼	Mode99 ▼	Timestamp ▼	Inactive ▼	zLnk ▼	Click to Add ▼
32						19-2022 15:01:35		1	
35						18-2022 23:00:42		1	
31						17-2022 15:00:58		1	
30						18-2022 23:01:18		1	
31						16-2022 15:01:50		1	
35						19-2022 23:01:43		1	
30						20-2022 15:01:44		1	
32						19-2022 23:01:30		1	
33						16-2022 15:00:13		1	
33						19-2022 23:01:05		1	
31						17-2022 15:01:44		1	
31						19-2022 15:00:01		1	
34						16-2022 23:00:56		1	
34						20-2022 15:00:45		1	
34						18-2022 23:00:04		1	
31						18-2022 15:01:45		1	
33						18-2022 23:01:46		1	
33						17-2022 15:00:34		1	
33						18-2022 23:01:37		1	
32						20-2022 15:00:43		1	
32						21-2022 23:00:02		1	
33	34	25				20-2022 15:01:17		1	
31	34	26				21-2022 15:00:58		1	
31	34	26				19-2022 23:01:30		1	
32	33	28				21-2022 15:01:00		1	

NY-FD-ID	ShiftDate	ShiftNbr	Mode00	Mode00Dur	PhoneLinesCount	Mode01	Mode02	Mode02Dur	Mode03	Mode04Dur	Mode05	Mode26	Mode50	Mode71	Mode99
132653	20-Sep-22	2	26	8	30	5	3	0	18	30					18
132654	21-Sep-22	1	23	8	30	4	3	0	16	31					16
132655	21-Sep-22	2	25	8	30	4	2	0	19	35					19
132656	22-Sep-22	1	28	9	30	5	3	0	20	30					20
132657	22-Sep-22	2	26	8	30	4	3	0	19	32					19
132658	23-Sep-22	1	23	8	30	5	2	0	16	33					16
132659	23-Sep-22	2	27	7	30	5	3	0	19	33					19
132660	24-Sep-22	1	24	7	30	5	2	0	17	31					17
132661	26-Sep-22	1	26	7	30	5	2	0	19	31					19
132662	26-Sep-22	2	23	8	30	5	2	0	16	34					16
132663	27-Sep-22	1	26	7	30	4	2	0	20	34					20
132664	27-Sep-22	2	25	6	30	5	2	0	18	34					18
132665	28-Sep-22	1	24	8	30	4	2	0	18	31					18
132666	28-Sep-22	2	25	7	30	5	2	0	18	33					18
132667	29-Sep-22	1	25	9	30	5	3	0	17	33					17
132668	29-Sep-22	2	25	6	30	4	3	0	18	33					18
132669	30-Sep-22	1	28	6	30	5	3	0	20	32					20
132670	30-Sep-22	2	28	8	30	5	2	0	21	32					21
132671	01-Oct-22	1	86	9	30	5	2	0	79	33	34	25			20
132672	03-Oct-22	1	89	5	30	5	3	0	81	31	34	26			21
132673	03-Oct-22	2	87	7	30	5	3	0	79	31	34	26			19
132674	04-Oct-22	1	89	6	30	4	3	0	82	32	33	28			21

- The 1st image is from the Access Database where we can see some empty columns and blank rows.
- After importing we have eliminated the Empty columns in the Excel workbook.
- In the 2nd image we can see the changes made.

9. Places

PlacesID	Place	ProvStateID	CountryID	TimeStamp	Inactive	zLnk	Click to Add
655	Riccarton						
721	Singapore						
921	Riccarton			27-09-2017 08:07:31		1	
922	Singapore			27-09-2017 08:07:45		1	
104	Calgary	2					
108	Camrose	2					
134	Cherhill	2					
150	Cochrane	2					
193	Devon	2					
199	Drayton Valley	2					
200	Drumheller	2					

			'=VLOOKUP(D8,ProvStates!\$B\$8:\$D\$95,3,FALSE)	'=VLOOKUP(D8,Customers!\$B\$8:\$N\$1412,5,FALSE)	'=VLOOKUP(F8,Customers!\$N\$8:\$O\$1412,2,FALSE)		
PlacesID	Place	ProvStateID	ProvStatesNames	CountryID	CountryName		
1	Abbotsford	7	British Columbia	3	Canada		
2	Acton	23	Massachusetts	6	USA		
3	Ajax	48	Ontario	3	Canada		
4	Alamo	8	California	6	USA		
5	Albanel	52	Quebec	3	Canada		
6	Albertson	45	New York	6	USA		
7	Albuquerque	39	New Mexico	6	USA		
8	Aldergrove	7	British Columbia	3	Canada		
9	Aldie	60	Virginia	6	USA		
10	Alexandria	19	Indiana	6	USA		
11	Alexanoria						
11	Bav	45	New York	6	USA		

- The 1st image is from the Access Database where we can see some empty cells and some empty columns.
- In the 2nd image we have eliminated the empty columns and added some columns using VLOOKUP with the help of foreign keys.

10.CSR DM

				=IF(ISERROR(VLOOKUP(E7,Modes!\$E\$8:\$F\$108,2,FALSE)),"",VLOOKUP(E7,Modes!\$E\$8:\$F\$108,2,FALSE))												
				Queued for <Div A> Sales		Sales Wait aborted by		Accepted by Sales		Info Accepted				<Div A> Order to be		
	NY-T-Cust	ServID	ShiftDate	ShiftNbr	Mode71	Mode71Dur	Mode72	Mode72Dur	Mode73	Mode73Dur	Mode74Dur	Mode75	Mode75Dur	Mode76	Mode76Dur	Mo
		84650	01-Jun-23	1	28	26	0	0	28	0	88	24	39	1	22	
		84651	01-Jun-23	2	25	11	0	0	25	0	79	23	39	2	22	
		84652	02-Jun-23	1	30	28	0	0	30	0	36	23	37	1	10	
		84653	02-Jun-23	2	26	25	0	0	26	0	53	23	40	1	18	
		84654	03-Jun-23	1	31	10	0	0	31	0	45	25	40	2	18	
		84655	05-Jun-23	1	31	27	0	0	31	0	62	25	38	1	26	
		84656	05-Jun-23	2	24	12	0	0	24	0	54	24	38	2	26	
		84657	06-Jun-23	1	28	29	0	0	28	0	71	24	41	2	14	
		84658	06-Jun-23	2	24	26	0	0	24	0	88	24	39	1	22	
		84659	07-Jun-23	1	29	11	0	0	29	0	79	23	39	2	22	
		84660	07-Jun-23	2	26	28	0	0	26	0	36	23	37	1	10	
		84661	08-Jun-23	1	30	25	0	0	30	0	53	23	40	1	18	
		84662	08-Jun-23	2	27	10	0	0	27	0	45	25	40	2	18	

								=I8*K8+L8*(M8+P8+Q8)		=R8*S8+T8*U8				
											=L8*(V8+W8)+(N8*O8)		=SUM(Z8:AB8)	=AC8/60
NewCaller CRM		Repeat Caller CRM					Queued for Refund /							
Mode79	Mode79Dur	Mode80	Mode80Dur	Mode81Dur	Mode82Dur	Mode83	Mode83Dur	Part1	Part 2	Part 3	Busyness Secs	Busyness M		
0	0	1	16	29	13	2	21	4144	16	1030	5190	8		
0	0	2	15	71	19	0	26	3700	30	2114	5844	9		
0	0	1	9	56	23	2	27	2874	9	1827	4710	7		
0	0	1	19	40	27	0	28	3356	19	1559	4934	82.23333		
0	0	2	18	33	13	2	13	3170	36	1186	4392	7		
0	0	1	12	67	18	1	14	3747	12	2151	5910	9		
0	0	2	12	60	24	1	19	3192	24	2068	5284	88.06666		
0	0	2	22	44	28	1	20	4076	44	1756	5876	97.93333		
0	0	1	16	29	13	1	21	3792	16	1030	4838	80.63333		
0	0	2	15	71	19	1	26	4016	30	2114	6160	102.6666		
0	0	1	9	56	23	1	27	2730	9	1827	4566	7		
0	0	1	19	40	27	1	28	3568	19	1559	5146	85.76666		
0	0	2	18	33	13	1	13	2990	36	1186	4212	7		
0	0	1	12	67	18	1	14	3747	12	2151	5910	9		
0	0	2	12	60	24	1	19	3192	24	2068	5284	88.06666		
0	0	2	22	44	28	1	20	4076	44	1756	5876	97.93333		

=AC8/60	=AD8/60	=YEAR(C8)	=MONTH(C8)	=INT((AG8+2)/3)	=WEEKDAY(C8)
Busyness Mins	Busyness Hrs	Year	Month	Quarter	WeekDay
86.5	1.441666667	2023	6	2	5
97.4	1.623333333	2023	6	2	5
78.5	1.308333333	2023	6	2	6
82.23333333	1.370555556	2023	6	2	6
73.2	1.22	2023	6	2	7
98.5	1.641666667	2023	6	2	2
88.06666667	1.467777778	2023	6	2	2
97.93333333	1.632222222	2023	6	2	3
80.63333333	1.343888889	2023	6	2	3
102.6666667	1.711111111	2023	6	2	4
76.1	1.268333333	2023	6	2	4
85.76666667	1.429444444	2023	6	2	5
70.2	1.17	2023	6	2	5
98.5	1.641666667	2023	6	2	6
88.06666667	1.467777778	2023	6	2	6
97.93333333	1.632222222	2023	6	2	7
86.5	1.441666667	2023	6	2	2
97.4	1.623333333	2023	6	2	2

- The above showcases the calculations that were done using appropriate formulas and cell referencing.
- In this sheet we have given column names using VLOOKUP referencing from the modes sheet.
- Further, we have calculated the Busyness Hrs, Busyness Mins, Busyness Secs, Year, Month, Quarter and Weekday using the formulas provided in the Digital PBX Config Dec 4 2016 + Busy-ness Guidance sheet.

11.CSR Pivot Tables

Data for Quarter 2				
PT of Years and Months(rows) versus Shifts(columns) showing Count, Min, Max and Average of Busyness Hrs				
Quarter	2			
Row Labels	Count of Busyness Hrs	Min of Busyness Hrs2	Max of Busyness Hrs3	Average of Busyness Hrs4
2023	48	1.17	1.83055556	1.465815972
2024	143	1.349722222	2.2575	1.781114996
4	48	1.39	2.0575	1.770729167
5	50	1.349722222	2.2575	1.783455556
6	45	1.426666667	2.23222222	1.789592593
Grand Total	191	1.17	2.2575	1.701877545

Data for Quarter 3				
PT of Years and Months(rows) versus Shifts(columns) showing Count, Min, Max and Average of Busyness Hrs				
Quarter	3			
Row Labels	Count of Busyness Hrs	Min of Busyness Hrs2	Max of Busyness Hrs3	Average of Busyness Hrs4
2023	144	1.348888889	2.4075	1.766521991
2024	99	1.376111111	2.411388889	1.773588664
7	50	1.376111111	2.411388889	1.81495
8	49	1.451388889	2.099722222	1.73138322
Grand Total	243	1.348888889	2.411388889	1.769401006

Showing all because no data for Quarter 1 or 4				
PT of Years and Months(rows) versus Shifts(columns) showing Count, Min, Max and Average of Busyness Hrs				
Quarter	(All)			
	Count of	Min of	Max of	Average of
Row Labels	Busyness Hrs	Busyness Hrs2	Busyness Hrs3	Busyness Hrs4
2023	335	1.17	2.4075	1.750776119
6	48	1.17	1.830555556	1.465815972
7	47	1.374166667	2.141388889	1.744125296
8	50	1.348888889	2.4075	1.791511111
9	47	1.391388889	2.124722222	1.762334515
10	48	1.355555556	2.250277778	1.85353588
11	48	1.464722222	2.351944444	1.861672454
12	47	1.357777778	2.048611111	1.77535461
2024	385	1.349722222	2.411388889	1.80681746
1	50	1.392777778	2.214722222	1.852088889
2	46	1.515	2.149166667	1.861201691
3	47	1.4625	2.286388889	1.853622931
4	48	1.39	2.0575	1.770729167
5	50	1.349722222	2.2575	1.783455556
6	45	1.426666667	2.232222222	1.789592593
7	50	1.376111111	2.411388889	1.81495
8	49	1.451388889	2.099722222	1.73138322
(blank)				
Grand Total	720	1.17	2.411388889	1.78074267

- The above Pivot tables were created using the CSR DM table where values are used in columns field, filters are for the quarter, Year and month are in the rows field and values are count, min, max, average of Busyness Hrs.
- Here we have 3 pivot tables where each tables shows different quarter results, where as the 3rd PT show for all quarters as this is no data for quarter 1 and 4.
- It appears that Quarter 3 is busier than Quarter 2.
- The Max Busyness hours in 2023 Quarter 2 is less than 2023 Quarter 3.
- There is no data available for the Quarter 1 in the year 2023.
- Also, there's no data available for quarter 4 in the year 2024.