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Cover letter

Date: 21/02/2023

From,

Group 8 (Adedolapo Adewale, Shivangi Prasanna Koltharkar, Vishnu Priya Ashok Kumar)

To,

Senior DS

We are giving you a detailed case study report, in relation to the issues and requirements mentioned. The following are available : Case Study 1 Master Excel workbook

Requirement and Issues list

- Case study report
    - Statement of confidence and Concerns
    - Guided Tour
    - Document History
    - Executive Summary
    - Statement of Academic Integrity
    - Summary & Conclusion
    - References

The report details the comprehensive practical analysis group members carried out on the given in accordance with the call Centre, with their issues and requirements. A summary of the findings and recommendations is also included.

Review and Marking: Kindly review our work and give us a marking.

Review	Marking

Team Submission:

INFO8145

Diagnostic Analytics

Case Study and report 1

Adedolapo Adewale

Shivangi Prasanna Koltharkar

Vishnu Priya Ashok Kumar

Bill Nixon

February 25, 2023

Version 2

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Document History

Date	Version	Changes	Responsible Person
21-02-2023	1		
22-02-2023	1.2	Adding More Content, Grammar, Table Formatting	AA,SK,VP
23-02-2023	1.3	Grammar and Formatting	AA,SK,VP
24-02-2023	2	Final review	AA,SK,VP

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Executive Summary

The project centers on the analysis of the dataset to determine whether it would be worthwhile to provide a potential client with a quote for services from our call center outsourcing company. They provided the data, which included details about several agents and their operations under various mode numbers. To arrive at the choice, 7 issues depending on various conditions, such as the number of hours spent on the phone for each type of agent, the Time available between phone calls for various agent types shift and day-wise, etc., are analyzed. For a better view, pivot tables and charts are used.

The Excel document used for the data analysis is titled Practical Assignment BINFO8145. Greeters, OHT Med Tech, OHT Med Tech Expert, OHT Med Cust Service, and OHT CS Manager are the agent types considered in the study. The workbook is divided into various sheets according to agent types, and then a thorough investigation of each of the seven issues is done.

Guided Tour of Diagnostic Analytics Work

The excel workbook used for the analytical study named INFO8145 - Group 8 - Case Study Master Excel Workbook is organized into different sections/sheets as follows

- ReadMeFirst- This section contains the details of call center data provided like operations, agent types, shift timings and hours, etc to get familiar with the terms before entering into the real analysis.

- Greeters DM- Greeters are among agent types and got separate data to be analyzed. The Greeter's data is analyzed for 7 issues i.e. Issue 4-10 and the result is placed in different sheets. The data model (DM) for Greeters is generated by extracting data from the access file provided and extra columns for analysis are calculated which are documented in the top left corner of the sheet.

1 This data is imported from MS access from Greeter
2 Then, we calculated Hours on the phone for each shift, i.e we multiplied accepted calls and triage to service and then divided by 3600.
3 As every shift is of 8 hours we calculated The Time available Between phone Calls by subtracting hours on phone from Total shift hours (8).
4 Then, we calculated the year, month, quarter of year and week of year using excel functions for each shift and day.

Greeter ID	Date of Shift							Number of Shift	Inbound	Inbound Duration	Number of Calls	Rejected Calls	Aborted Calls	Aborted Call Duration
GreeterFactorID	ShiftDate	Year	Quarter	Month	Week	Weekday		ShiftNbr	Mode00	Mode00Dur	PhoneLinesCount	Mode01	Mode02	Mode02Dur
114801	02-Jan-17	2017	1	1	1	2		1	27	5	29	4	3	0
114802	02-Jan-17	2017	1	1	1	2		2	25	8	30	4	3	0
114803	03-Jan-17	2017	1	1	1	3		1	30	7	29	5	2	0
114804	03-Jan-17	2017	1	1	1	3		2	27	7	30	5	2	0
114805	04-Jan-17	2017	1	1	1	4		1	28	9	29	4	3	0
114806	04-Jan-17	2017	1	1	1	4		2	26	8	30	5	3	0
114807	05-Jan-17	2017	1	1	1	5		1	28	6	29	5	3	0
114808	05-Jan-17	2017	1	1	1	5		2	29	6	30	5	3	0
114809	06-Jan-17	2017	1	1	1	6		1	28	8	29	5	2	0
114810	06-Jan-17	2017	1	1	1	6		2	25	9	30	4	3	0
114811	07-Jan-17	2017	1	1	1	7		1	26	6	29	4	3	0
114812	09-Jan-17	2017	1	1	2	2		1	26	8	29	4	3	0
114813	09-Jan-17	2017	1	1	2	2		2	25	5	30	4	2	0
114814	10-Jan-17	2017	1	1	2	3		1	29	6	29	5	2	0
114815	10-Jan-17	2017	1	1	2	3		2	27	8	30	4	3	0
114816	11-Jan-17	2017	1	1	2	4		1	30	5	29	5	2	0
114817	11-Jan-17	2017	1	1	2	4		2	28	8	30	5	2	0
114818	12-Jan-17	2017	1	1	2	5		1	30	6	29	5	3	0
114819	12-Jan-17	2017	1	1	2	5		2	29	7	30	5	2	0
114820	13-Jan-17	2017	1	1	2	6		1	27	7	29	4	2	0
114821	13-Jan-17	2017	1	1	2	6		2	28	7	30	4	2	0
114822	14-Jan-17	2017	1	1	2	7		1	29	6	29	4	3	0
114823	16-Jan-17	2017	1	1	3	2		1	24	7	29	4	2	0
114824	16-Jan-17	2017	1	1	3	2		2	26	8	30	5	3	0
114825	17-Jan-17	2017	1	1	3	3		1	26	7	29	5	3	0
114826	17-Jan-17	2017	1	1	3	3		2	29	6	30	5	3	0
114827	18-Jan-17	2017	1	1	3	4		1	25	6	29	4	2	0

- Tech DM- Tech are among agent types and got separate data to be analyzed. The Tech data is analyzed for 7 issues i.e. Issue 4-10 and the result is placed in different sheets. The data model(DM) for Greeters is generated by extracting data from the access file provided and extra columns for analysis are calculated which are documented in the top left corner of the sheet.

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1 This data is imported from MS access from DivBSupports
2 Then, we calculated Hours on the phone for each shift i.e we summed up all the duration and multiplied it by accepted calls and then divided by 3600.
3 As every shift is of 8 hours we calculated The Time available Between phone Calls by subtracting hours on phone from Total shift hours (8).
4 Then, we calculated the year, month, quarter of year and week of year using excel functions for each shift and day.
5 Average contact time is calculated from hours on phone divided by accepted calls
6 Success probability is calculated from good result divided by accepted calls
7 Forward probability is calculated from case number divided by accepted calls

DivBSupportI	ShiftDate	Year	Quarter	Month	Week	WeekDay	ShiftNb	Queued for Service Mode50	Mode50D	Wait Mode 50 aborted by Caller Mode5	Mode51D	Accepted by DivB Service Mode5	CallerID Establish Mode53D	NewCaller CRM Setup Mode54	Mode54D
66961	01-Feb-19	2019	1	2	5	6	1	1	37	1	44	0	26	0	32
66962	01-Feb-19	2019	1	2	5	6	2	2	25	2	29	0	15	0	48
66963	02-Feb-19	2019	1	2	5	7	1	1	39	1	16	0	21	0	58
66964	04-Feb-19	2019	1	2	6	2	1	2	40	2	32	0	10	0	59
66965	04-Feb-19	2019	1	2	6	2	2	3	35	3	17	0	20	0	68
66966	05-Feb-19	2019	1	2	6	3	1	2	18	2	23	0	19	0	45
66967	05-Feb-19	2019	1	2	6	3	2	2	43	2	22	0	29	0	77
66968	06-Feb-19	2019	1	2	6	4	1	1	19	1	26	0	23	0	84
66969	06-Feb-19	2019	1	2	6	4	2	3	29	3	17	0	19	0	76
66970	07-Feb-19	2019	1	2	6	5	1	2	35	2	44	0	29	0	72
66971	07-Feb-19	2019	1	2	6	5	2	2	27	2	45	0	20	0	73
66972	08-Feb-19	2019	1	2	6	6	1	2	38	2	38	0	18	0	86
66973	08-Feb-19	2019	1	2	6	6	2	2	32	2	33	0	22	0	61
66974	09-Feb-19	2019	1	2	6	7	1	1	24	1	15	0	30	0	49
66975	11-Feb-19	2019	1	2	7	2	1	1	41	1	18	0	23	0	79
66976	11-Feb-19	2019	1	2	7	2	2	2	36	2	35	0	17	0	65
66977	12-Feb-19	2019	1	2	7	3	1	1	36	1	29	0	16	0	55
66978	12-Feb-19	2019	1	2	7	3	2	3	23	3	33	0	14	0	62
66979	13-Feb-19	2019	1	2	7	4	1	2	36	2	38	0	28	0	62
66980	13-Feb-19	2019	1	2	7	4	2	3	35	3	43	0	26	0	53
66981	14-Feb-19	2019	1	2	7	5	1	1	29	1	18	0	24	0	53
66982	14-Feb-19	2019	1	2	7	5	2	2	31	2	37	0	20	0	52
66983	15-Feb-19	2019	1	2	7	6	1	1	40	1	45	0	16	0	81
66984	15-Feb-19	2019	1	2	7	6	2	2	44	2	38	0	19	0	79
66985	16-Feb-19	2019	1	2	7	7	1	2	22	2	17	0	24	0	61
66986	18-Feb-19	2019	1	2	8	2	1	1	41	1	23	0	19	0	52
66987	18-Feb-19	2019	1	2	8	2	2	3	23	3	37	0	27	0	77
66988	19-Feb-19	2019	1	2	8	3	1	2	33	2	19	0	14	0	80
66989	19-Feb-19	2019	1	2	8	3	2	2	17	2	28	0	15	0	78
66990	20-Feb-19	2019	1	2	8	4	1	2	30	2	24	0	20	0	89
66991	20-Feb-19	2019	1	2	8	4	2	2	16	2	16	0	21	0	50
66992	21-Feb-19	2019	1	2	8	5	1	1	31	1	16	0	12	0	59
66993	21-Feb-19	2019	1	2	8	5	2	3	30	3	30	0	20	0	39

- Expert DM- Expert are among agent types and got separate data to be analyzed. The Expert data is analyzed for 7 issues i.e. Issue 4-10 and the result is placed in different sheets. The data model(DM) for Greeters is generated by extracting data from the access file provided and extra columns for analysis are calculated which are documented in the top left corner of the sheet.

1 This data is imported from MS access from DivBSupports
2 Then, we calculated Hours on the phone for each shift i.e we summed up all the duration and multiplied it by accepted calls and then divided by 3600.
3 As every shift is of 8 hours we calculated The Time available Between phone Calls by subtracting hours on phone from Total shift hours (8).
4 Then, we calculated the year, month, quarter of year and week of year using excel functions for each shift and day.
5 Average contact time is calculated from hours on phone divided by accepted calls
6 Success probability is calculated from good results divided by accepted calls
7 Forward probability is calculated from case number divided by accepted calls

DivBSupportID	ShiftDate	Year	Quarter	Month	Week	Weekda	ShiftNbr	Accepted by DivB Tech Expert Mode64	CallerID ReVerify Mode65Dur	More Scoping Mode66Dur	Tech Discussion Mode67Dur	Good Result EscService Mode68	Mode68Dur
66961	01-Feb-19	2019	1	2	5	6	1	0	36	85	44	0	34
66962	01-Feb-19	2019	1	2	5	6	2	0	42	34	45	0	36
66963	02-Feb-19	2019	1	2	5	7	1	0	42	33	50	0	35
66964	04-Feb-19	2019	1	2	6	2	1	0	18	55	51	0	35
66965	04-Feb-19	2019	1	2	6	2	2	0	39	41	82	0	33
66966	05-Feb-19	2019	1	2	6	3	1	0	20	60	60	0	35
66967	05-Feb-19	2019	1	2	6	3	2	0	21	79	44	0	35
66968	06-Feb-19	2019	1	2	6	4	1	0	39	83	57	0	32
66969	06-Feb-19	2019	1	2	6	4	2	0	24	64	53	0	32
66970	07-Feb-19	2019	1	2	6	5	1	0	39	33	67	0	33
66971	07-Feb-19	2019	1	2	6	5	2	0	41	79	51	0	33
66972	08-Feb-19	2019	1	2	6	6	1	0	42	65	75	0	33
66973	08-Feb-19	2019	1	2	6	6	2	0	20	42	35	0	34
66974	09-Feb-19	2019	1	2	6	7	1	0	25	83	37	0	37
66975	11-Feb-19	2019	1	2	7	2	1	0	28	37	80	0	36
66976	11-Feb-19	2019	1	2	7	2	2	0	26	60	46	0	33
66977	12-Feb-19	2019	1	2	7	3	1	0	42	37	40	0	37
66978	12-Feb-19	2019	1	2	7	3	2	0	22	88	79	0	34
66979	13-Feb-19	2019	1	2	7	4	1	0	26	69	61	0	32
66980	13-Feb-19	2019	1	2	7	4	2	0	36	74	39	0	37
66981	14-Feb-19	2019	1	2	7	5	1	0	31	42	48	0	35

- CSR DM- CSR are among agent types and got separate data to be analyzed. The CSR data is analysed for 7 issues i.e. Issue 4-10 and the result is placed in different sheets. The data model(DM) for Greeters is generated by extracting data from the access file provided and extra columns for analysis are calculated which are documented in the top left corner of the sheet.

1 This data is imported from MS access from DivBCustServs
2 Then, we calculated Hours on the phone for each shift i.e we summed up all the duration and multiplied it by accepted calls and then divided by 3600.
3 As every shift is of 8 hours we calculated The Time available Between phone Calls by subtracting hours on phone from Total shift hours (8).
4 Then, we calculated the year, month, quarter of year and week of year using excel functions for each shift and day.
5 Average contact time is calculated from hours on phone divided by accepted calls
6 Success probability is calculated from order confirmed divided by accepted calls
7 Forward probability is calculated from order to be cancelled divided by accepted calls

								Queued for DivB Sales		Sales Wait aborted by Caller		Accepted by Sales	Marketing / Order Status Discussion
DivBCustServsID	ShiftDate	Year	Quarter	Month	Week	Weekda	ShiftNbr	Mode71	Mode71Dur	Mode72	Mode72Dur	Mode73	Mode74Dur
70841	01-Dec-18	2018	4	12	48	7	1	26	11	0	0	26	79
70842	03-Dec-18	2018	4	12	49	2	1	26	28	0	0	26	36
70843	03-Dec-18	2018	4	12	49	2	2	30	13	0	0	30	88
70844	04-Dec-18	2018	4	12	49	3	1	28	30	0	0	28	45
70845	04-Dec-18	2018	4	12	49	3	2	26	28	0	0	26	84
70846	05-Dec-18	2018	4	12	49	4	1	25	25	0	0	25	41
70847	05-Dec-18	2018	4	12	49	4	2	27	22	0	0	27	58
70848	06-Dec-18	2018	4	12	49	5	1	26	27	0	0	26	49
70849	06-Dec-18	2018	4	12	49	5	2	28	24	0	0	28	67
70850	07-Dec-18	2018	4	12	49	6	1	26	21	0	0	26	84
70851	07-Dec-18	2018	4	12	49	6	2	29	26	0	0	29	75
70852	08-Dec-18	2018	4	12	49	7	1	27	23	0	0	27	32
70853	10-Dec-18	2018	4	12	50	2	1	24	28	0	0	24	84
70854	10-Dec-18	2018	4	12	50	2	2	27	25	0	0	27	41
70855	11-Dec-18	2018	4	12	50	3	1	25	22	0	0	25	58
70856	11-Dec-18	2018	4	12	50	3	2	28	27	0	0	28	49
70857	12-Dec-18	2018	4	12	50	4	1	26	24	0	0	26	67
70858	12-Dec-18	2018	4	12	50	4	2	28	21	0	0	28	84
70859	13-Dec-18	2018	4	12	50	5	1	27	26	0	0	27	75
70860	13-Dec-18	2018	4	12	50	5	2	29	23	0	0	29	32
70861	14-Dec-18	2018	4	12	50	6	1	24	28	0	0	24	84
70862	14-Dec-18	2018	4	12	50	6	2	27	25	0	0	27	41
70863	15-Dec-18	2018	4	12	50	7	1	25	22	0	0	25	58

- Manager DM- Manager are among agent types and got separate data to be analysed. The manager data is analysed for 7 issues i.e. Issue 4-10 and the result is placed in different sheets. The data model(DM) for Greeters is generated by extracting data from the access file provided and extra columns for analysis are calculated which are documented in the top left corner of the sheet.

1 This data is imported from MS access from DivBCustServs
2 Then, we calculated Hours on the phone for each shift i.e we summed up all the duration and multiplied it by accepted calls and then divided by 3600.
3 As every shift is of 8 hours we calculated The Time available Between phone Calls by subtracting hours on phone from Total shift hours (8).
4 Then, we calculated the year, month, quarter of year and week of year using excel functions for each shift and day.
5 Average contact time is calculated from hours on phone divided by accepted calls

								Queued for Refund / Return		Wait Mode 83 aborted by Caller		CallerID Establish	
DivBCustServsID	ShiftDate	Year	Quarter	Month	Week	Weekda	ShiftNbr	Mode83	Mode83Dur	Mode84	Mode84Dur	Mode85	Mode85Dur
70841	01-Dec-18	2018	4	12	48	7	1	0	27	2	25	1	12
70842	03-Dec-18	2018	4	12	49	2	1	1	27	2	10	0	15
70843	03-Dec-18	2018	4	12	49	2	2	1	13	2	28	1	17
70844	04-Dec-18	2018	4	12	49	3	1	1	13	1	13	1	20
70845	04-Dec-18	2018	4	12	49	3	2	1	16	1	23	2	30
70846	05-Dec-18	2018	4	12	49	4	1	1	17	2	28	0	13
70847	05-Dec-18	2018	4	12	49	4	2	1	17	2	13	2	16
70848	06-Dec-18	2018	4	12	49	5	1	1	23	2	12	1	18
70849	06-Dec-18	2018	4	12	49	5	2	1	24	1	17	1	21
70850	07-Dec-18	2018	4	12	49	6	1	1	24	1	22	1	23
70851	07-Dec-18	2018	4	12	49	6	2	1	30	1	20	1	25
70852	08-Dec-18	2018	4	12	49	7	1	1	11	2	25	1	28
70853	10-Dec-18	2018	4	12	50	2	1	0	16	1	23	1	30
70854	10-Dec-18	2018	4	12	50	2	2	2	17	2	28	1	13
70855	11-Dec-18	2018	4	12	50	3	1	0	17	2	13	1	16
70856	11-Dec-18	2018	4	12	50	3	2	2	23	2	12	2	18
70857	12-Dec-18	2018	4	12	50	4	1	0	24	1	17	0	21
70858	12-Dec-18	2018	4	12	50	4	2	2	24	1	22	2	23
70859	13-Dec-18	2018	4	12	50	5	1	0	30	1	20	0	25
70860	13-Dec-18	2018	4	12	50	5	2	2	11	2	25	2	28
70861	14-Dec-18	2018	4	12	50	6	1	0	16	1	23	1	30
70862	14-Dec-18	2018	4	12	50	6	2	2	17	2	28	1	13
70863	15-Dec-18	2018	4	12	50	7	1	0	17	2	13	1	16
70864	17-Dec-18	2018	4	12	51	2	1	1	23	2	12	1	18
70865	17-Dec-18	2018	4	12	51	2	2	1	24	1	17	1	21
70866	18-Dec-18	2018	4	12	51	3	1	1	24	1	22	1	23
70867	18-Dec-18	2018	4	12	51	3	2	1	30	1	20	1	25

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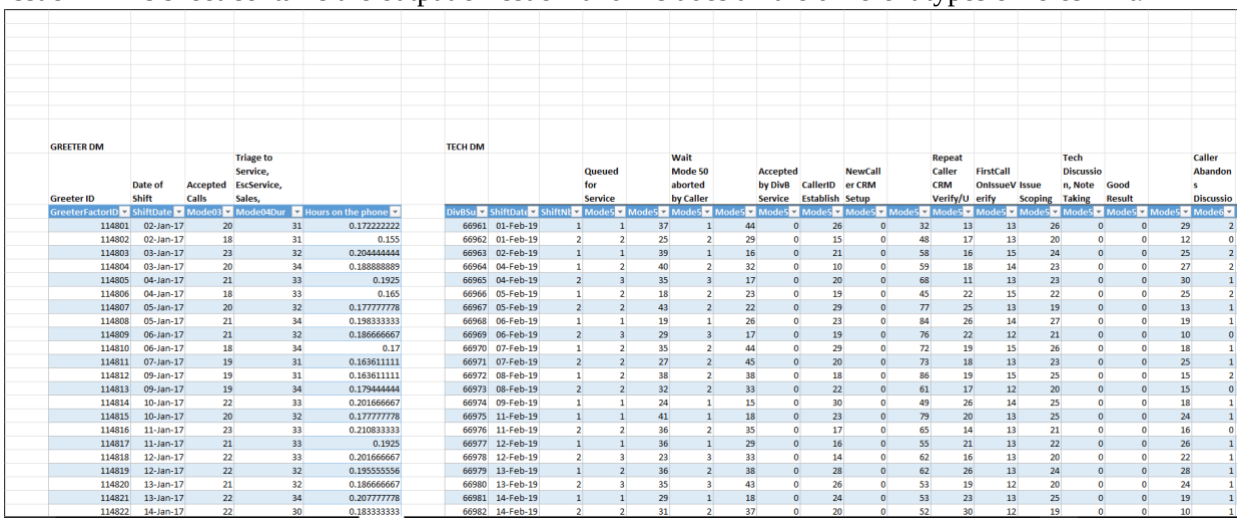
- Issue 4- This sheet contains the output of issue 4 and includes all the different types of roles in it.



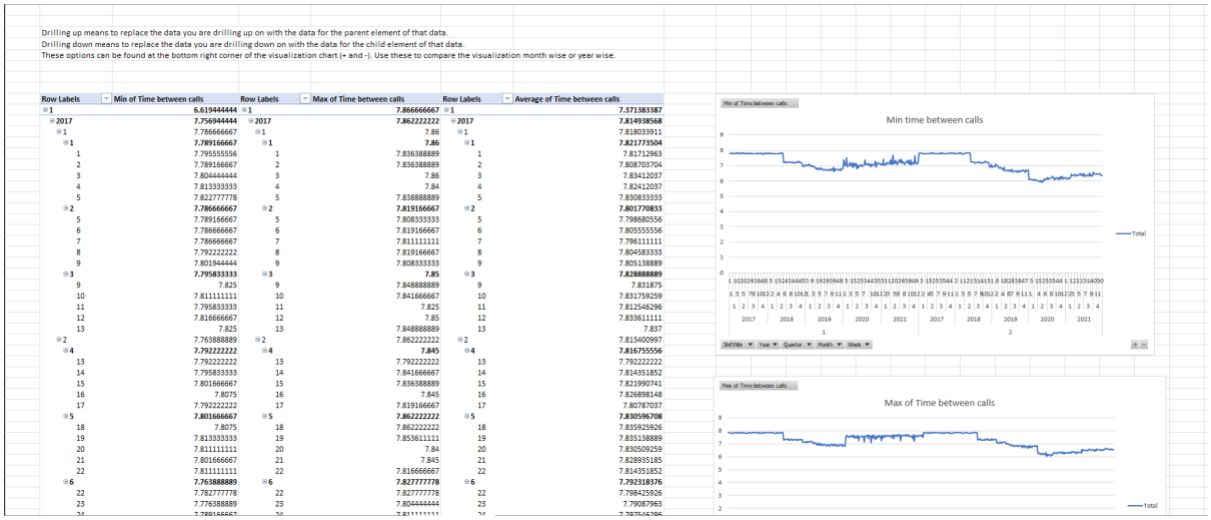
GREETER DM

Greeter ID	Date of Shift	Accepted Calls	Triage to Service, EscService, Sales,	
GreeterFactorID	ShiftDate	Mode03	Mode04Dur	Hours on the phone
114801	02-Jan-17	20	31	0.172222222
114802	02-Jan-17	18	31	0.155
114803	03-Jan-17	23	32	0.204444444
114804	03-Jan-17	20	34	0.188888889
114805	04-Jan-17	21	33	0.1925
114806	04-Jan-17	18	33	0.165
114807	05-Jan-17	20	32	0.177777778
114808	05-Jan-17	21	34	0.198333333
114809	06-Jan-17	21	32	0.186666667
114810	06-Jan-17	18	34	0.17
114811	07-Jan-17	19	31	0.163611111
114812	09-Jan-17	19	31	0.163611111
114813	09-Jan-17	19	34	0.179444444
114814	10-Jan-17	22	33	0.201666667
114815	10-Jan-17	20	32	0.177777778
114816	11-Jan-17	23	33	0.210833333
114817	11-Jan-17	21	33	0.1925
114818	12-Jan-17	22	33	0.201666667
114819	12-Jan-17	22	32	0.195555556
114820	13-Jan-17	21	32	0.186666667
114821	13-Jan-17	22	34	0.207777778
114822	14-Jan-17	22	30	0.183333333

TECH DM

DivBSu	ShiftDate	ShiftNb	Queued for Service		Wait Mode 50 aborted by Caller		Accepted by DivB Service	CallerID Establish	NewCaller CRM Setup		Repeat Caller CRM Verify/U	FirstCall OnIssueV erify	Issue Scoping	Tech Discussion, Note Taking	Good Result		Caller Abandons Discussio
			Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode5	Mode6
66961	01-Feb-19	1	1	37	1	44	0	26	0	32	13	13	26	0	0	29	2
66962	01-Feb-19	2	2	25	2	29	0	15	0	48	17	13	20	0	0	12	0
66963	02-Feb-19	1	1	39	1	16	0	21	0	58	16	15	24	0	0	25	2
66964	04-Feb-19	1	2	40	2	32	0	10	0	59	18	14	23	0	0	27	2
66965	04-Feb-19	2	3	35	3	17	0	20	0	68	11	13	23	0	0	30	1
66966	05-Feb-19	1	2	18	2	23	0	19	0	45	22	15	22	0	0	25	2
66967	05-Feb-19	2	2	43	2	22	0	29	0	77	25	13	19	0	0	13	1
66968	06-Feb-19	1	1	19	1	26	0	23	0	84	26	14	27	0	0	19	1
66969	06-Feb-19	2	3	29	3	17	0	19	0	76	22	12	21	0	0	10	0
66970	07-Feb-19	1	2	35	2	44	0	29	0	72	19	15	26	0	0	18	1
66971	07-Feb-19	2	2	27	2	45	0	20	0	73	18	13	23	0	0	25	1
66972	08-Feb-19	1	2	38	2	38	0	18	0	86	19	15	25	0	0	15	2
66973	08-Feb-19	2	2	32	2	33	0	22	0	61	17	12	20	0	0	15	0
66974	09-Feb-19	1	1	24	1	15	0	30	0	49	26	14	25	0	0	18	1
66975	11-Feb-19	1	1	41	1	18	0	23	0	79	20	13	25	0	0	24	1
66976	11-Feb-19	2	2	36	2	35	0	17	0	65	14	13	21	0	0	16	0
66977	12-Feb-19	1	1	36	1	29	0	16	0	55	21	13	22	0	0	26	1
66978	12-Feb-19	2	3	23	3	33	0	14	0	62	16	13	20	0	0	22	1
66979	13-Feb-19	1	2	36	2	38	0	28	0	62	26	13	24	0	0	28	1
66980	13-Feb-19	2	3	35	3	43	0	26	0	53	19	12	20	0	0	24	1
66981	14-Feb-19	1	1	29	1	18	0	24	0	53	23	13	25	0	0	19	1
66982	14-Feb-19	2	2	31	2	37	0	20	0	52	30	12	19	0	0	10	1

- Greeter Issue-5 TO Manager Issue-5- Contains the pivot tables and the pivot graph for the 5 types of roles. The calculations here include time between calls.



Drilling up means to replace the data you are drilling up on with the data for the parent element of that data.
Drilling down means to replace the data you are drilling down on with the data for the child element of that data.
These options can be found at the bottom right corner of the visualization chart (+ and -). Use these to compare the visualization month wise or year wise.

Row Labels	Min of Time between calls
1	6.619444444
2017	7.756944444
1	7.786666667
1	7.789166667
1	7.795555556
2	7.789166667
3	7.804444444
4	7.813333333
5	7.822777778
2	7.786666667
5	7.789166667
6	7.786666667
7	7.786666667
8	7.792222222
9	7.801944444
3	7.795833333
9	7.825
10	7.811111111
11	7.795833333
12	7.816666667
13	7.825
2	7.763888889
4	7.792222222
13	7.792222222
14	7.795833333
15	7.801666667
16	7.8075
17	7.792222222
5	7.801666667
18	7.8075
19	7.813333333
20	7.811111111
21	7.801666667
22	7.811111111
6	7.763888889
22	7.782777778
23	7.776388889

Row Labels	Max of Time between calls
1	7.866666667
2017	7.862222222
1	7.86
1	7.86
1	7.836388889
2	7.836388889
3	7.86
4	7.84
5	7.838888889
2	7.819166667
5	7.808333333
6	7.819166667
7	7.811111111
8	7.819166667
9	7.808333333
3	7.85
9	7.848888889
10	7.841666667
11	7.825
12	7.85
13	7.848888889
2	7.862222222
4	7.845
13	7.792222222
14	7.841666667
15	7.836388889
16	7.845
17	7.819166667
5	7.862222222
18	7.862222222
19	7.853611111
20	7.84
21	7.845
22	7.816666667
6	7.827777778
22	7.827777778
23	7.804444444

Row Labels	Average of Time between calls
1	7.371383387
2017	7.814938568
1	7.818033911
1	7.821773504
1	7.81712963
2	7.808703704
3	7.83412037
4	7.82412037
5	7.830833333
2	7.801770833
5	7.798680556
6	7.805555556
7	7.796111111
8	7.804583333
9	7.805138889
3	7.828888889
9	7.831875
10	7.831759259
11	7.812546296
12	7.833611111
13	7.837
2	7.813400997
4	7.816755556
13	7.792222222
14	7.814351852
15	7.821990741
16	7.826898148
17	7.80787037
5	7.830596708
18	7.835925926
19	7.835138889
20	7.830509259
21	7.828935185
22	7.814351852
6	7.792318376
22	7.798425926
23	7.79087963

- Tech Issue-7 TO CSR Issue-7 – Contains the pivot tables and descriptive statistics for the three types of roles. Calculations include forward probability and probability success.

1. Using Tech DM to create a pivot table
2. Rows are year, quarter, month
3. column is weekday
4. Values are count, Min, Max and Average of probability of success and forward probability
5. Using the Tech DM to create a descriptive statistic for the probability of success and forward probability

bability of success		*Forward Probability*	
Mean	0.769100794	Mean	0.22423
Standard Error	0.003965558	Standard E	0.00206
Median	0.818181818	Median	0.24
Mode	0.833333333	Mode	0.16667
Standard Devi	0.162200541	Standard D	0.08432
Sample Variar	0.026309016	Sample Va	0.00711
Kurtosis	11.12212327	Kurtosis	0.06335
Skewness	-2.982492324	Skewness	-0.6201
Range	1	Range	0.5
Minimum	0	Minimum	0
Maximum	1	Maximum	0.5
Sum	1286.705629	Sum	375.134
Count	1673	Count	1673

Column Labels	Count of Probability of success						Count of Forward Probability						Min of Probability of success2						Min of Forward Probability2
Row Labels	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	
2019	96	96	94	94	96	48	96	96	94	94	96	48	0	0	0	0	0	0	
1	16	16	16	16	18	9	16	16	16	16	18	9	0	0	0	0	0	0	
2	8	8	8	8	8	4	8	8	8	8	8	4	0	0	0	0	0	0	
3	8	8	8	8	10	5	8	8	8	8	10	5	0.285714286	0.4	0.285714286	0.285714286	0.285714286	0.333333333	0.14285714
2	26	26	26	26	26	13	26	26	26	26	26	13	0.615384615	0.571428571	0.571428571	0.642857143	0.642857143	0.571428571	0.07692307
4	10	10	8	8	8	4	10	10	8	8	8	4	0.615384615	0.571428571	0.571428571	0.642857143	0.642857143	0.571428571	0.07692307
5	8	8	10	10	10	4	8	8	10	10	10	4	0.75	0.75	0.72	0.75	0.72	0.782608696	0.17391304
6	8	8	8	8	8	5	8	8	8	8	8	5	0.75	0.75	0.75	0.72	0.75	0.791666667	0.20833333
3	28	26	26	26	26	13	28	26	26	26	26	13	0.76	0.75	0.76	0.75	0.75	0.75	0.1
7	10	10	10	8	8	4	10	10	10	8	8	4	0.76	0.791666667	0.76	0.76	0.8	0.76	0.1
8	8	8	8	10	10	5	8	8	8	10	10	5	0.782608696	0.75	0.782608696	0.75	0.782608696	0.782608696	0.17391304
9	10	8	8	8	8	4	10	8	8	8	8	4	0.782608696	0.75	0.782608696	0.75	0.75	0.75	0.18181818
4	26	28	26	26	26	13	26	28	26	26	26	13	0.8	0.8	0.8	0.8	0.8	0.777777778	0.23076923
10	8	10	10	10	8	4	8	10	10	10	8	4	0.8	0.8	0.8	0.8	0.8	0.833333333	0.2
11	8	8	8	8	10	5	8	8	8	8	10	5	0.833333333	0.8	0.8	0.8	0.833333333	0.88	0.2
12	10	10	8	8	8	4	10	10	8	8	8	4	0.807692308	0.807692308	0.807692308	0.807692308	0.807692308	0.777777778	0.23076923
2020	104	104	106	106	104	52	104	104	106	106	104	52	0.766666667	0.740740741	0.740740741	0.766666667	0.740740741	0.793103448	0.2
1	26	26	26	26	26	13	26	26	26	26	26	13	0.769230769	0.769230769	0.769230769	0.769230769	0.769230769	0.8	0.2
1	8	8	10	10	10	4	8	8	10	10	10	4	0.769230769	0.769230769	0.807692308	0.769230769	0.769230769	0.875	0.2
2	8	8	8	8	8	5	8	8	8	8	8	5	0.8	0.769230769	0.769230769	0.8	0.769230769	0.8	0.2

- Greeter Issue-8 TO Manager Issue-8- Contains the pivot tables and the descriptive statistics for the 5 types of roles. The calculations here include hours on phone.

1. Using Greeter DM create pivot table
2. Rows are Year, month
3. Column is ShiftNbr
4. values are count, min, max, and average of hours in the phone
5. The descriptive statistics for the hours on the phone is calculated
6. Based on the pivot table, Shift 1 (1565) is busier than Shift 2 (1305)

Hours on the phone	
Mean	0.826912214
Standard Error	0.010257694
Median	0.764722222
Mode	0.180833333
Standard Devi	0.549529115
Sample Varian	0.301982248
Kurtosis	-0.988348285
Skewness	0.388313056
Range	1.95
Minimum	0.133333333
Maximum	2.083333333
Sum	2373.238056
Count	2870

Column Labels	Count of Hours on the phone		Min of Hours on the phone2		Max of Hours on the phone3		Average of Hours on the phone4	
Row Labels	1	2	1	2	1	2	1	2
2017	312	260	0.137777778	0.133333333	0.243055556	0.236111111	0.185061432	0.185055556
2018	313	261	0.133333333	0.137777778	1.048333333	1.118055556	0.526046326	0.531305875
2019	313	261	0.818055556	0.875	1.380555556	1.438888889	1.120419773	1.199568966
2020	314	262	0.336111111	1.6125	1.191666667	2.083333333	0.705751062	1.823386344
2021	313	261	0.283333333	1.3375	0.987777778	1.888888889	0.60414093	1.577981056
Grand Total	1565	1305	0.133333333	0.133333333	1.380555556	2.083333333	0.628616613	1.064714985

- Greeter Issue-9 TO Manager Issue-9- Contains the pivot tables and the descriptive statistics for the 5 types of roles. The calculations here include hours on phone.

-

1. Using Greeter DM create pivot table
2. Rows are Year, month
3. Column is ShiftNbr
4. values are count, min, max, and average of hours in the phone
5. The descriptive statistics for the hours on the phone is calculated
6. Based on the pivot table, Shift 1 (1565) is busier than Shift 2 (1305)

Hours on the phone	
Mean	0.826912214
Standard Error	0.010257694
Median	0.764722222
Mode	0.180833333
Standard Devia	0.549529115
Sample Varian	0.301982248
Kurtosis	-0.988348285
Skewness	0.388313056
Range	1.95
Minimum	0.133333333
Maximum	2.083333333
Sum	2373.238056
Count	2870

	Column Labels							
	Count of Hours on the phone		Min of Hours on the phone2		Max of Hours on the phone3		Average of Hours on the phone4	
Row Labels	1	2	1	2	1	2	1	2
2017	312	260	0.137777778	0.133333333	0.243055556	0.236111111	0.185061432	0.185055556
2018	313	261	0.133333333	0.137777778	1.048333333	1.118055556	0.526046326	0.531305875
2019	313	261	0.818055556	0.875	1.380555556	1.438888889	1.120419773	1.199568966
2020	314	262	0.336111111	1.6125	1.191666667	2.083333333	0.705751062	1.823386344
2021	313	261	0.283333333	1.3375	0.987777778	1.888888889	0.60414093	1.577981056
Grand Total	1565	1305	0.133333333	0.133333333	1.380555556	2.083333333	0.628616613	1.064714985

- Greeter Issue-10 TO Manager Issue-10- Contains the pivot tables for counting null or 0 values for all the types of agents.

1. Using Greeter DM create pivot table
2. Rows are Year, quarter, month, ShiftNbr
3. values are count of average contact time
4. Filter is average contact time
5. The average contact time in Greeter has no 0(zero) or negative value

Average Contact Time	(All)

Row Labels	Count of Average Contact Time
2017	572
2018	574
2019	574
2020	576
2021	574
Grand Total	2870

Guided Tour of Work Management

A guided tour of work management contains a written walkthrough through the project's various work sections, like the deliverables and work tasks. And it also includes information on excel, where to find the sections mentioned above can be located, and the standards used for creating the teams.

Throughout the project, we used the same excel workbook which contains the Deliverables List and Work Tasks List in the second and third sheets, respectively. The Deliverables List contains 23 items with columns as Deliverable ID, Name, Requirement ID, Started Date, Started Time, Done Date, Done Time, and Notes which are done according to issues and the requirement sheet provided as a standard for analysis.

Deliverable ID	Deliverable Name	Requirement ID	Started Dat	Started Tir	Done Dat	Done Tim
1	Build sheet and List of Deliverables. Add Deliverables Records	2	2023-02-24	11:00 AM	2023-02-24	11:15
2	Update Team's Deliverables List - Actual - Week 5	3	2023-02-24	11:15	2023-02-24	11:30
3	Update Team's Deliverables List - Plan - Week 6	4	2023-02-24	11:30	2023-02-24	11:45
4	Create / Update the ReadMeFirst Documentation sheet	6	2023-02-24	11:45	2023-02-24	12:00
5	Pick the first DA issue (#4). Plan to produce deliverables	7	2023-02-24	12:00	2023-02-24	12:15
6	Produce deliverables for DA Issue #4. Document	8	2023-02-24	12:15	2023-02-24	12:30
7	Document deliverables for DA Issue #4.	9	2023-02-24	12:30	2023-02-24	12:45
8	Pick the second DA issue (#5). Plan to produce deliverables	10	2023-02-24	12:45	2023-02-24	13:00
9	Produce deliverables for DA Issue #5	11	2023-02-24	13:00	2023-02-24	13:15
10	Document deliverables for DA Issue #5.	12	2023-02-24	13:15	2023-02-24	1:30 PM
11	Pick the third DA issue (#7). Plan to produce deliverables.	13	2023-02-24	1:30 PM	2023-02-24	13:45
12	Produce the deliverables for the third DA Issue	14	2023-02-24	13:45	2023-02-24	14:00
13	Document deliverables for DA Issue #7.	15	2023-02-24	14:00	2023-02-24	14:15
14	Pick the fourth DA issue (#8). Plan to produce deliverables	16	2023-02-24	14:15	2023-02-24	14:30
15	Pick the fifth DA issue (#9). Plan to produce deliverables.	17	2023-02-24	14:30	2023-02-24	14:45
16	Produce the 5 (or 3) deliverables for the fourth DA Issue.	18	2023-02-24	14:45	2023-02-24	15:00
17	Document deliverables for DA Issue #8.	19	2023-02-24	15:00	2023-02-24	15:15
18	Produce the 5 (or 3) deliverables for the fifth DA Issue.	20	2023-02-24	15:15	2023-02-24	15:30
19	Document deliverables for DA Issue #9	21	2023-02-24	15:30	2023-02-24	15:45
20	Look for, and report on, patterns or trends for the fifth DA Issue.	22	2023-02-24	15:45	2023-02-24	4:00 PM
21	Pick the sixth DA issue (#10). Plan to produce deliverables.	23	2023-02-24	4:00 PM	2023-02-24	16:15
22	Produce the first of the 9 (or 5) deliverables for the sixth DA Issue	24	2023-02-24	16:15	2023-02-24	11:00 AM
23	Document deliverables for DA Issue #10.	25	2023-02-25	11:00 AM	2023-02-25	11:15
24	Look for, and report on, patterns or trends for the sixth DA Issue.	26	2023-02-25	11:15	2023-02-25	11:30
25	Prepare a Statement of Confidence and Concerns about the DataSet.	27	2023-02-25	11:30	2023-02-25	11:45
26	Prepare a written "Guided Tour" of your Team's Diagnostic Analystics work.	28	2023-02-26	11:45	2023-02-26	13:45
27	Prepare a written "Guided Tour" of your Team's Project / Work management	29	2023-02-26	13:45	2023-02-26	14:00
28	Prepare a cover letter, title page, Table of Contents, Document History, Executive Summary, Statement of Academic Integrity, and a Summary/Conclusi on.	30	2023-02-26	14:00	2023-02-26	14:15
29	Package your deliverables from 28 to 31 in a PDF. Submit to eConestoga Case Study B assignment.	31	2023-02-26	14:15	2023-02-26	14:30

Statement of Confidence and Concerns about the Datasets

The quality of the dataset(s) and/or data model(s) used in this project are evaluated in this report section.

List of the involved dataset(s) and data model(s)–

Dataset(s) involved	Data model(s) involved	Code letter	Confidence Column
Call Centre Data	Greeter	Gr	Good
Call Centre Data	OHT Med Tech	OMT	Ok
Call Centre Data	OHT Med Tech Expert	OMTE	Ok
Call Centre Data	OHT Med Cust Service	OMCS	Ok

Concerns about the dataset-

Name/Code of Dataset or Data Model	Description of concern	Rating of the importance of the concern
Gr	Missing Values	8
OMT	Null Values	6
OMTE	Null Values	7
OMCS	Null Values	7

Statement of Integrity

We acknowledge that we have read and understood the Exam, Test, and Assignment Rules and Conestoga's Academic Integrity Policy posted in the Course Information module. By submitting this response, we confirm that we will comply with the posted rules and acknowledge the consequences of not doing so.

Confirmation from: Group 8, Section 1

Adedolapo Adewale
Shivangi Prasanna Koltharkar
Vishnu Priya Ashok Kumar

Conclusion

The report discusses the Call Center Data provided to us as Data Analysts to work upon. The client successfully ran their call center for several years and would like to understand what other services can be provided. We were provided with a list of issues and requirements along with deliverables in an extensive manner. Below are a few conclusions that can be drawn from the deliverables.

1. Calculating the number of hours greeters spend on the phone during each day.
2. We are calculating the 'Hours on the phone for every available role and creating a Pivot table to support that data using excel functions.
3. Find out the anomalies for the modes where values are 0.
4. It understands the phone calls for each day shift for roles.
5. Computing various columns like 'Time between calls,' 'Avg. Contact Time', 'Year', 'Month', 'Quarter', etc. These will help create tables and calculations for given requirements and issues per deliverables.
6. Understanding the various shift hours of agents, which agent has a more significant role in the call center, and how they spend Time on the phone.

References

1. Issues and Requirements, and Video Reference available under Assignments- Group 08: C. Case Study Report on Explaining Behaviour - https://conestoga.desire2learn.com/d2l/le/content/693500/viewContent/15510731/View
2. Dataset used is available under Assignments - Feedback files in econestoga- https://conestoga.desire2learn.com/d2l/lms/dropbox/user/folder_user_view_feedback.d2l?db=707446&grpid=0&isprv=0&bp=0&ou=693500