



# Call Center Performance Analysis (SQL Project)

This project analyzes call center performance data across three months (February, March, and April) using SQL in MS SQL Server.

The main objective is to extract meaningful insights related to agent performance, call handling efficiency, and service quality metrics such as ASA and abandoned calls. All queries are executed in Jupyter Notebook using SQL Magic (%sql) and Windows Authentication.

## Key Topics Covered:

- Data consolidation using UNION ALL
- Aggregation and filtering
- Performance metrics per agent
- CASE statements for service level classification
- Subqueries and Views

This project is part of my SQL practice portfolio and demonstrates my ability to work with real operational datasets.

## Importing the Data:-

```
In [1]: %load_ext sql
```

```
In [5]: %sql mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes
```

## Combine All Tables (View)

```
In [6]: %%sql
```

```
CREATE VIEW All_Months AS
SELECT * FROM CallCenter_Feb
UNION ALL
SELECT * FROM CallCenter_Mar
UNION ALL
SELECT * FROM CallCenter_Apr;
```

```
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes
Done.
```

```
Out[6]: []
```

```
In [7]: %%sql
```

```
SELECT TOP 5 * FROM All_Months;
```

```
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes
Done.
```

Out[7]:	Project	Date	Month	Forecasted_Calls	Calls_Offered	Calls_Handled	Calls_Handled_With_in_Threshold	Calls_Abandon
	Project A	2022-02-01	22-Feb	13473	8393	8381	8380	12
	Project A	2022-02-02	22-Feb	13255	5144	5134	5096	10
	Project A	2022-02-03	22-Feb	13209	8450	8436	8432	14
	Project A	2022-02-04	22-Feb	13002	10883	10614	7376	269 5
	Project A	2022-02-05	22-Feb	12758	11445	11393	11027	52

Q1: Retrieve all records related to the Agent Named "Rania"

In [8]: `%%sql`

```
SELECT * FROM All_Months
WHERE Agent_Name = 'Rania';
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[8]:	Project	Date	Month	Forecasted_Calls	Calls_Offered	Calls_Handled	Calls_Handled_With_in_Threshold	Calls_Abandon
	Project A	2022-02-03	22-Feb	13209	8450	8436	8432	14
	Project A	2022-02-04	22-Feb	13002	10883	10614	7376	269
	Project A	2022-02-11	22-Feb	13002	8178	8166	8163	12
	Project A	2022-02-16	22-Feb	13255	7792	7778	7758	14
	Project A	2022-02-21	22-Feb	11943	7101	7093	7093	8
	Project B	2022-02-01	22-Feb	13173	6890	6884	6884	6
	Project B	2022-02-13	22-Feb	10209	4809	4806	4785	3
	Project B	2022-02-27	22-Feb	10209	7363	7311	6579	52
	Project C	2022-02-05	22-Feb	281	168	168	164	0
	Project A	2022-03-03	Mar-22	12545	13946	13256	5411	690
	Project B	2022-03-04	Mar-22	12818	15270	13785	8615	1485 1
	Project B	2022-03-28	Mar-22	17370	18046	17926	17727	120
	Project C	2022-03-06	Mar-22	2825	3047	3035	2997	12
	Project C	2022-03-13	Mar-22	2825	2118	2109	2088	9
	Project C	2022-03-18	Mar-22	1989	1529	1518	1435	11
	Project C	2022-03-25	Mar-22	1989	1759	1743	1659	16
	Project C	2022-03-27	Mar-22	2825	1989	1984	1972	5
	Project A	2022-04-02	Apr-22	12028	6184	6160	6129	24
	Project A	2022-04-28	Apr-22	12847	9891	9757	8284	134
	Project B	2022-04-16	Apr-22	11769	4711	4700	4608	11
	Project B	2022-04-18	Apr-22	13042	5414	5410	5410	4

## Q2: Display the Number of Calls Offered for each day

In [9]: %%sql

```
SELECT Date, SUM(Calls_Offered) AS Total_Offered_Calls
FROM All_Months
```

```
GROUP BY Date  
ORDER BY Date;
```

```
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes  
Done.
```

Out[9]:

Date	Total_Offered_Calls
2022-02-01	15384
2022-02-02	9473
2022-02-03	15376
2022-02-04	19880
2022-02-05	20733
2022-02-06	20580
2022-02-07	22320
2022-02-08	20203
2022-02-09	17795
2022-02-10	17920
2022-02-11	14940
2022-02-12	13522
2022-02-13	10813
2022-02-14	11919
2022-02-15	13791
2022-02-16	14260
2022-02-17	14250
2022-02-18	13320
2022-02-19	15216
2022-02-20	12076
2022-02-21	12910
2022-02-22	14128
2022-02-23	13785
2022-02-24	17521
2022-02-25	15882
2022-02-26	24992
2022-02-27	16287
2022-02-28	16941
2022-03-01	32829
2022-03-02	37157
2022-03-03	35311
2022-03-04	29613
2022-03-05	35249
2022-03-06	40114
2022-03-07	37002
2022-03-08	29492
2022-03-09	27000
2022-03-10	30425

2022-03-11	22167
2022-03-12	26059
2022-03-13	25267
2022-03-14	24532
2022-03-15	24457
2022-03-16	23468
2022-03-17	22115
2022-03-18	21641
2022-03-19	22206
2022-03-20	24781
2022-03-21	25090
2022-03-22	22897
2022-03-23	23074
2022-03-24	43452
2022-03-25	25964
2022-03-26	22056
2022-03-27	30420
2022-03-28	28714
2022-03-29	28798
2022-03-30	27647
2022-03-31	27202
2022-04-01	15199
2022-04-02	11352
2022-04-03	13486
2022-04-04	14234
2022-04-05	19612
2022-04-06	18845
2022-04-07	20663
2022-04-08	12783
2022-04-09	13358
2022-04-10	15616
2022-04-11	13380
2022-04-12	12189
2022-04-13	12481
2022-04-14	12044
2022-04-15	10384
2022-04-16	10575
2022-04-17	11984
2022-04-18	12093

2022-04-19	12225
2022-04-20	12556
2022-04-21	12437
2022-04-22	10374
2022-04-23	11291
2022-04-24	13949
2022-04-25	15108
2022-04-26	15172
2022-04-27	19791
2022-04-28	18207
2022-04-29	15390
2022-04-30	15691

### Q3: List all unique Agent Names

In [10]: `%%sql`

```
SELECT DISTINCT Agent_Name
FROM All_Months;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[10]: `Agent_Name`

Ahmed

Ali

Dina

Fatma

Hassan

Huda

Khaled

Laila

Mona

Nour

Omar

Rania

Samir

Sara

Tariq

Youssef

### Q4: Average ASA (Average Speed of Answer)

In [11]: `%%sql`

```
SELECT cast(Avg(ASA) as decimal(10,3)) AS AVG_ASA  
FROM All_Months;
```

```
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes  
Done.
```

Out[11]: **AVG\_ASA**

```
9.221
```

## Q5: Sort the data by the Number of Abandoned Calls in Descending Order

In [13]: **%%sql**

```
SELECT *  
FROM All_Months  
ORDER BY Calls_Abandon desc;
```

```
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes  
Done.
```

Overall Performance Summary - Q1 2022								
Project ID	Project Name	Date	Month	Forecasted Calls	Calls Offered	Calls Handled	Calls Handled Within Threshold	Calls Abandoned
				Actual Calls	Completion %	Avg Call Duration (min)	Call Volume Trend	Notes
P-A-001	Project A	2022-03-01	Mar-22	13389	11747	11596	9291	151
P-B-001	Project B	2022-03-01	Mar-22	15654	17965	14864	5868	3101 1
P-B-002	Project B	2022-03-02	Mar-22	16778	19001	17785	10398	1216
P-A-002	Project A	2022-03-02	Mar-22	12209	14504	13476	6228	1028 1
P-A-003	Project A	2022-03-03	Mar-22	9970	11663	10884	7211	779
P-B-003	Project B	2022-03-03	Mar-22	16064	30381	29630	22741	751
P-A-004	Project A	2022-03-04	Mar-22	12545	13946	13256	5411	690
P-A-005	Project A	2022-03-05	Mar-22	13843	15328	14652	9230	676
P-A-006	Project A	2022-03-06	Mar-22	13134	14735	14092	7895	643
P-B-006	Project B	2022-03-06	Mar-22	16064	17374	16909	15521	465
P-A-007	Project A	2022-02-26	22-Feb	12758	13437	12994	7440	443
P-B-007	Project B	2022-02-26	22-Feb	12477	11418	11046	6252	372
P-B-008	Project B	2022-03-01	Mar-22	17117	18438	18071	14792	367
P-A-008	Project A	2022-02-04	22-Feb	13002	10883	10614	7376	269
P-A-009	Project A	2022-04-07	Apr-22	12847	11176	10939	9383	237
P-B-009	Project B	2022-03-07	Mar-22	17370	17701	17475	16504	226
P-B-010	Project B	2022-02-04	22-Feb	12718	8843	8635	5974	208
P-B-011	Project B	2022-04-07	Apr-22	12559	9319	9130	7802	189
P-A-011	Project A	2022-03-24	Mar-22	12545	10378	10197	8564	181
P-A-012	Project A	2022-04-27	Apr-22	13093	10756	10579	9435	177
P-B-012	Project B	2022-03-09	Mar-22	16778	15106	14952	14350	154
P-A-013	Project A	2022-03-01	Mar-22	13389	11747	11596	9291	151

Project B	2022-03-08	Mar-22	17117	16261	16118		15893	143
Project B	2022-03-27	Mar-22	17685	18343	18200		17873	143
Project B	2022-03-11	Mar-22	12818	13395	13260		12637	135
Project B	2022-04-27	Apr-22	12802	8869	8734		7807	135
Project A	2022-04-28	Apr-22	12847	9891	9757		8284	134
Project A	2022-04-29	Apr-22	10496	8428	8294		6923	134
Project A	2022-03-10	Mar-22	12545	10402	10275		9585	127
Project B	2022-03-28	Mar-22	17370	18046	17926		17727	120
Project B	2022-03-17	Mar-22	16064	13611	13494		13462	117
Project B	2022-03-18	Mar-22	12818	14427	14319		14155	108
Project B	2022-03-20	Mar-22	17685	15677	15573		15556	104
Project B	2022-04-29	Apr-22	10277	6825	6722		5582	103
Project B	2022-04-28	Apr-22	12559	8167	8066		6859	101
Project A	2022-03-07	Mar-22	13585	16324	16223		15445	101
Project B	2022-03-19	Mar-22	15655	14008	13908		13880	100
Project B	2022-03-13	Mar-22	17685	14825	14725		14702	100
Project B	2022-03-16	Mar-22	16778	14304	14211		14204	93
Project B	2022-03-22	Mar-22	17117	14294	14202		14190	92
Project B	2022-03-21	Mar-22	17370	16320	16229		16177	91
Project B	2022-03-30	Mar-22	16778	16005	15914		15904	91
Project B	2022-03-31	Mar-22	16064	16001	15910		15907	91
Project B	2022-03-25	Mar-22	12818	15592	15501		15358	91
Project B	2022-03-26	Mar-22	15655	13821	13732		13716	89
Project B	2022-03-14	Mar-22	17370	14415	14326		14326	89

Project B	2022-03-12	Mar-22	15655	15160	15072		15006	88
Project B	2022-03-29	Mar-22	17117	17228	17142		17102	86
Project B	2022-03-15	Mar-22	17117	14483	14398		14387	85
Project B	2022-03-23	Mar-22	16778	14484	14402		14379	82
Project A	2022-02-27	22-Feb	10422	8794	8723		7837	71
Project A	2022-04-05	Apr-22	13300	10632	10570		9629	62
Project A	2022-02-06	22-Feb	10422	11324	11266		10789	58
Project A	2022-03-27	Mar-22	13841	10088	10032		9874	56
Project C	2022-03-04	Mar-22	1989	2680	2625		2269	55
Project A	2022-02-05	22-Feb	12758	11445	11393		11027	52
Project B	2022-02-27	22-Feb	10209	7363	7311		6579	52
Project A	2022-04-09	Apr-22	12028	7233	7185		7015	48
Project A	2022-04-21	Apr-22	12847	6713	6666		6202	47
Project A	2022-04-06	Apr-22	13093	10227	10180		9543	47
Project A	2022-03-08	Mar-22	13389	10822	10775		10647	47
Project B	2022-04-05	Apr-22	13006	8792	8746		7977	46
Project A	2022-03-11	Mar-22	9970	6966	6922		6577	44
Project A	2022-02-19	22-Feb	12758	8307	8264		7705	43
Project A	2022-03-09	Mar-22	13134	9565	9523		9269	42
Project C	2022-03-03	Mar-22	2674	3075	3033		2839	42
Project B	2022-04-21	Apr-22	12559	5611	5571		5180	40
Project B	2022-02-05	22-Feb	12477	9120	9081		8788	39
Project B	2022-02-06	22-Feb	10209	9097	9059		8691	38
Project A	2022-03-28	Mar-22	13585	8739	8701		8650	38

Project A	2022-03-29	Mar-22	13389	9200	9164		9156	36
Project C	2022-03-10	Mar-22	2674	2649	2613		2406	36
Project C	2022-03-05	Mar-22	2297	2780	2746		2399	34
Project B	2022-04-06	Apr-22	12802	8467	8433		7880	34
Project C	2022-03-02	Mar-22	2711	3421	3387		3081	34
Project A	2022-03-15	Mar-22	13389	7914	7883		7883	31
Project A	2022-03-16	Mar-22	13134	7166	7135		7132	31
Project A	2022-03-25	Mar-22	9970	8613	8582		8504	31
Project A	2022-03-26	Mar-22	12209	6648	6617		6613	31
Project A	2022-03-21	Mar-22	13585	6992	6963		6958	29
Project A	2022-03-31	Mar-22	12545	8901	8872		8871	29
Project C	2022-03-07	Mar-22	2799	2977	2948		2756	29
Project A	2022-04-08	Apr-22	10496	6980	6951		6664	29
Project A	2022-04-03	Apr-22	13569	7339	7310		7271	29
Project A	2022-03-30	Mar-22	13134	9099	9071		9068	28
Project A	2022-03-20	Mar-22	13841	7325	7297		7289	28
Project A	2022-03-12	Mar-22	12209	8046	8019		7983	27
Project A	2022-03-17	Mar-22	12545	6641	6615		6600	26
Project A	2022-03-18	Mar-22	9970	5685	5659		5637	26
Project A	2022-03-22	Mar-22	13389	6923	6897		6897	26
Project A	2022-04-01	Apr-22	10496	8358	8332		8329	26
Project A	2022-04-02	Apr-22	12028	6184	6160		6129	24
Project A	2022-02-07	22-Feb	11943	12155	12131		11945	24
Project B	2022-02-19	22-Feb	12477	6753	6729		6291	24

Project A	2022-02-28	22-Feb	11943	9196	9173		9030	23
Project C	2022-03-08	Mar-22	2771	2409	2386		2237	23
Project C	2022-03-12	Mar-22	2297	2853	2831		2602	22
Project C	2022-03-01	Mar-22	2771	2644	2622		2469	22
Project A	2022-03-13	Mar-22	13841	8324	8303		8280	21
Project B	2022-04-03	Apr-22	13261	6022	6001		5971	21
Project C	2022-04-09	Apr-22	259	142	121		105	21
Project C	2022-03-09	Mar-22	2710	2329	2309		2241	20
Project A	2022-03-14	Mar-22	13585	7904	7884		7884	20
Project A	2022-03-23	Mar-22	13134	6788	6768		6765	20
Project A	2022-02-08	22-Feb	13473	11064	11044		10881	20
Project C	2022-03-24	Mar-22	2674	2693	2674		2646	19
Project B	2022-04-01	Apr-22	10277	6707	6689		6689	18
Project B	2022-04-09	Apr-22	11769	5983	5965		5839	18
Project A	2022-04-16	Apr-22	12028	5736	5718		5603	18
Project A	2022-04-14	Apr-22	12847	6552	6535		6454	17
Project A	2022-03-19	Mar-22	12209	6476	6459		6452	17
Project A	2022-04-26	Apr-22	13300	8236	8220		8093	16
Project A	2022-04-30	Apr-22	12028	8592	8576		8443	16
Project C	2022-03-25	Mar-22	1989	1759	1743		1659	16
Project C	2022-03-29	Mar-22	2771	2370	2355		2341	15
Project C	2022-03-14	Mar-22	2798	2213	2198		2172	15
Project A	2022-04-25	Apr-22	13349	8179	8164		8144	15
Project C	2022-03-17	Mar-22	2674	1863	1849		1819	14

Project	Date	Start Date	Revenue	Cost	Profit	Total Assets	Debt
Project A	2022-02-03	22-Feb	13209	8450	8436	8432	14
Project A	2022-02-12	22-Feb	12758	7393	7379	7377	14
Project A	2022-02-16	22-Feb	13255	7792	7778	7758	14
Project B	2022-02-28	22-Feb	11691	7599	7585	7464	14
Project A	2022-02-15	22-Feb	13473	7562	7549	7546	13
Project A	2022-02-22	22-Feb	13473	7697	7684	7684	13
Project B	2022-02-07	22-Feb	11691	10002	9989	9845	13
Project A	2022-04-10	Apr-22	13569	8505	8492	8371	13
Project B	2022-04-02	Apr-22	11769	5084	5071	5050	13
Project C	2022-04-07	Apr-22	288	168	155	134	13
Project A	2022-04-11	Apr-22	13349	7263	7251	7163	12
Project C	2022-03-06	Mar-22	2825	3047	3035	2997	12
Project A	2022-02-11	22-Feb	13002	8178	8166	8163	12
Project A	2022-02-09	22-Feb	13255	9729	9717	9717	12
Project A	2022-02-01	22-Feb	13473	8393	8381	8380	12
Project C	2022-02-26	22-Feb	281	137	125	85	12
Project B	2022-02-08	22-Feb	13173	8953	8942	8809	11
Project A	2022-02-25	22-Feb	13002	8658	8647	8629	11
Project C	2022-03-18	Mar-22	1989	1529	1518	1435	11
Project A	2022-04-04	Apr-22	13349	7770	7759	7666	11
Project A	2022-04-20	Apr-22	13093	6787	6776	6769	11
Project A	2022-04-13	Apr-22	13093	6781	6770	6697	11
Project B	2022-04-08	Apr-22	10277	5687	5676	5469	11
Project B	2022-04-25	Apr-22	13042	6816	6805	6788	11

Project B	2022-04-26	Apr-22	13006	6772	6761	6656	11	
Project B	2022-04-16	Apr-22	11769	4711	4700	4608	11	
Project C	2022-04-08	Apr-22	219	116	106	82	10	
Project C	2022-03-31	Mar-22	2674	2300	2290	2251	10	
Project A	2022-02-02	22-Feb	13255	5144	5134	5096	10	
Project A	2022-02-10	22-Feb	13208	9832	9822	9818	10	
Project A	2022-02-14	22-Feb	11943	6506	6496	6496	10	
Project A	2022-02-20	22-Feb	10422	6601	6592	6570	9	
Project C	2022-03-30	Mar-22	2710	2543	2534	2510	9	
Project C	2022-03-15	Mar-22	2771	2060	2051	2035	9	
Project C	2022-03-21	Mar-22	2798	1778	1769	1761	9	
Project C	2022-03-13	Mar-22	2825	2118	2109	2088	9	
Project B	2022-04-30	Apr-22	11769	6999	6990	6892	9	
Project B	2022-04-14	Apr-22	12559	5361	5352	5287	9	
Project B	2022-04-20	Apr-22	12802	5635	5626	5621	9	
Project B	2022-04-13	Apr-22	12802	5605	5597	5539	8	
Project C	2022-04-27	Apr-22	291	166	158	145	8	
Project C	2022-03-19	Mar-22	2297	1722	1714	1645	8	
Project B	2022-04-11	Apr-22	13042	6021	6013	5939	8	
Project A	2022-02-21	22-Feb	11943	7101	7093	7093	8	
Project A	2022-02-13	22-Feb	10422	5904	5896	5869	8	
Project B	2022-02-12	22-Feb	12477	6015	6007	6007	8	
Project B	2022-02-03	22-Feb	12921	6790	6783	6781	7	
Project C	2022-02-06	22-Feb	213	159	152	141	7	

Project A	2022-02-23	22-Feb	13255	7516	7509	7509	7	
Project A	2022-02-24	22-Feb	13208	9538	9531	9531	7	
Project B	2022-04-04	Apr-22	13042	6333	6326	6245	7	
Project A	2022-04-15	Apr-22	10496	5638	5631	5578	7	
Project C	2022-03-20	Mar-22	2825	1779	1772	1768	7	
Project C	2022-04-28	Apr-22	288	149	142	130	7	
Project C	2022-03-16	Mar-22	2711	1998	1992	1967	6	
Project C	2022-03-11	Mar-22	1989	1806	1800	1766	6	
Project C	2022-03-26	Mar-22	2297	1587	1581	1552	6	
Project A	2022-04-17	Apr-22	13568	6526	6520	6519	6	
Project A	2022-04-19	Apr-22	13300	6623	6617	6617	6	
Project B	2022-04-10	Apr-22	13261	6979	6973	6881	6	
Project B	2022-02-01	22-Feb	13173	6890	6884	6884	6	
Project B	2022-02-02	22-Feb	12956	4248	4242	4207	6	
Project B	2022-02-09	22-Feb	12956	7915	7909	7909	6	
Project B	2022-02-10	22-Feb	12920	7946	7940	7937	6	
Project B	2022-02-11	22-Feb	12718	6624	6618	6618	6	
Project C	2022-02-04	22-Feb	284	154	148	120	6	
Project B	2022-02-20	22-Feb	10209	5349	5343	5326	6	
Project B	2022-02-25	22-Feb	12718	7119	7113	7097	6	
Project A	2022-02-18	22-Feb	13002	7265	7259	7258	6	
Project B	2022-02-16	22-Feb	12956	6320	6314	6298	6	
Project B	2022-02-24	22-Feb	12920	7856	7851	7851	5	
Project B	2022-02-22	22-Feb	13173	6268	6263	6263	5	

Project	Date	Start Date	Revenue	Cost	Profit	Total Profit	Avg Profit
Project B	2022-02-18	22-Feb	12718	5922	5917	5916	5
Project A	2022-02-17	22-Feb	13208	7763	7758	7758	5
Project A	2022-04-24	Apr-22	13568	7557	7552	7552	5
Project A	2022-04-18	Apr-22	13349	6568	6563	6563	5
Project A	2022-04-12	Apr-22	13300	6635	6630	6560	5
Project C	2022-03-27	Mar-22	2825	1989	1984	1972	5
Project C	2022-03-28	Mar-22	2797	1929	1924	1921	5
Project C	2022-03-22	Mar-22	2771	1680	1675	1668	5
Project B	2022-04-15	Apr-22	10277	4662	4657	4612	5
Project B	2022-04-18	Apr-22	13042	5414	5410	5410	4
Project B	2022-04-19	Apr-22	13006	5479	5475	5475	4
Project C	2022-04-02	Apr-22	259	84	80	75	4
Project C	2022-04-04	Apr-22	307	131	127	126	4
Project C	2022-04-05	Apr-22	294	188	184	156	4
Project C	2022-04-06	Apr-22	291	151	147	137	4
Project C	2022-04-14	Apr-22	288	131	127	125	4
Project C	2022-04-16	Apr-22	259	128	124	121	4
Project A	2022-04-22	Apr-22	10496	5625	5621	5618	4
Project B	2022-02-21	22-Feb	11691	5672	5668	5668	4
Project B	2022-02-17	22-Feb	12920	6366	6362	6362	4
Project B	2022-02-14	22-Feb	11691	5302	5298	5298	4
Project B	2022-02-15	22-Feb	13173	6090	6087	6085	3
Project B	2022-02-13	22-Feb	10209	4809	4806	4785	3
Project B	2022-02-23	22-Feb	12956	6122	6119	6119	3

Project	Date	Start Date	Revenue	Profit	Loss	Margin	Count
Project C	2022-02-07	22-Feb	252	163	160	158	3
Project C	2022-02-22	22-Feb	300	163	160	160	3
Project A	2022-04-23	Apr-22	12028	6140	6137	6133	3
Project B	2022-04-12	Apr-22	13006	5427	5424	5375	3
Project C	2022-04-10	Apr-22	308	132	129	120	3
Project C	2022-04-13	Apr-22	291	95	92	91	3
Project B	2022-04-17	Apr-22	13261	5340	5337	5337	3
Project B	2022-04-23	Apr-22	11769	5020	5017	5017	3
Project B	2022-04-24	Apr-22	13261	6267	6264	6264	3
Project C	2022-04-30	Apr-22	259	100	97	89	3
Project B	2022-04-22	Apr-22	10277	4646	4644	4644	2
Project C	2022-03-23	Mar-22	2711	1802	1800	1789	2
Project C	2022-02-19	22-Feb	281	156	154	143	2
Project C	2022-02-15	22-Feb	300	139	137	137	2
Project C	2022-02-16	22-Feb	299	148	146	145	2
Project C	2022-02-27	22-Feb	213	130	128	124	2
Project C	2022-02-25	22-Feb	284	105	103	103	2
Project C	2022-02-08	22-Feb	300	186	184	184	2
Project C	2022-02-10	22-Feb	288	142	140	140	2
Project C	2022-02-02	22-Feb	299	81	79	78	2
Project C	2022-02-03	22-Feb	288	136	135	135	1
Project C	2022-02-01	22-Feb	300	101	100	99	1
Project C	2022-02-11	22-Feb	284	138	137	135	1
Project C	2022-02-13	22-Feb	213	100	99	98	1

Project	Start Date	Last Update	Total Tasks	Completed Tasks	In Progress Tasks	Blocked Tasks	Open Tickets
Project C	2022-02-09	22-Feb	299	151	150	150	1
Project C	2022-02-28	22-Feb	252	146	145	141	1
Project C	2022-02-20	22-Feb	213	126	125	125	1
Project C	2022-04-12	Apr-22	294	127	126	119	1
Project C	2022-04-17	Apr-22	307	118	117	116	1
Project C	2022-04-01	Apr-22	219	134	133	131	1
Project C	2022-04-26	Apr-22	294	164	163	163	1
Project C	2022-04-29	Apr-22	219	137	136	132	1
Project C	2022-04-19	Apr-22	294	123	122	122	1
Project C	2022-04-22	Apr-22	219	103	102	99	1
Project C	2022-04-23	Apr-22	259	131	131	128	0
Project C	2022-04-24	Apr-22	307	125	125	125	0
Project C	2022-04-25	Apr-22	307	113	113	111	0
Project C	2022-04-20	Apr-22	291	134	134	132	0
Project C	2022-04-21	Apr-22	288	113	113	110	0
Project C	2022-04-03	Apr-22	308	125	125	122	0
Project C	2022-04-18	Apr-22	307	111	111	111	0
Project C	2022-04-15	Apr-22	219	84	84	83	0
Project C	2022-04-11	Apr-22	307	96	96	92	0
Project C	2022-02-21	22-Feb	252	137	137	137	0
Project C	2022-02-23	22-Feb	299	147	147	147	0
Project C	2022-02-24	22-Feb	288	127	127	127	0
Project C	2022-02-17	22-Feb	288	121	121	121	0
Project C	2022-02-18	22-Feb	284	133	133	133	0

Project C	2022-02-14	22-Feb	252	111	111	111	0
Project C	2022-02-12	22-Feb	281	114	114	112	0
Project C	2022-02-05	22-Feb	281	168	168	164	0

## 6. Total Forecasted Calls & Total Offered Calls for the month of February

In [14]: `%%sql`

```
SELECT
    SUM(Forecasted_Calls) AS Total_Forecasted_Calls,
    SUM(Calls_Offered) AS Total_Offered_Calls
FROM CallCenter_Feb;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[14]: `Total_Forecasted_Calls Total_Offered_Calls`

704490	446217
--------	--------

## Q7: Call Handling Rate per Agent

In [15]: `%%sql`

```
SELECT
    Agent_Name,
    CAST(
        (CAST(SUM(Calls_Handled) AS DECIMAL(10,2)) * 100.0) / CAST(SUM(Calls_Offered) AS DECIMAL(10,2))
        AS DECIMAL(10,2))
    AS Handling_Rate
FROM All_Months
GROUP BY Agent_Name;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[15]: Agent\_Name Handling\_Rate

Ahmed	99.47
Ali	99.50
Dina	97.41
Fatma	98.22
Hassan	99.34
Huda	97.03
Khaled	99.41
Laila	99.66
Mona	99.43
Nour	98.44
Omar	99.38
Rania	98.01
Samir	99.62
Sara	99.61
Tariq	98.93
Youssef	97.25

## Q8: ASA Classification (Using CASE)

In [16]: %%sql

```
SELECT
    Date,
    CAST(ASA AS DECIMAL(10,2)) AS ASA,
    CASE
        WHEN CAST(ASA AS DECIMAL(10,2)) < 5 THEN 'Excellent'
        WHEN CAST(ASA AS DECIMAL(10,2)) BETWEEN 5 AND 10 THEN 'Good'
        ELSE 'Poor'
    END AS ASA_Status
FROM All_Months;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[16]:

Date	ASA	ASA_Status
2022-02-01	1.69	Excellent
2022-02-02	2.34	Excellent
2022-02-03	1.87	Excellent
2022-02-04	51.21	Poor
2022-02-05	7.24	Good
2022-02-06	8.04	Good
2022-02-07	2.79	Excellent
2022-02-08	2.88	Excellent
2022-02-09	1.68	Excellent
2022-02-10	1.72	Excellent
2022-02-11	1.73	Excellent
2022-02-12	1.70	Excellent
2022-02-13	2.19	Excellent
2022-02-14	1.68	Excellent
2022-02-15	1.73	Excellent
2022-02-16	1.85	Excellent
2022-02-17	1.69	Excellent
2022-02-18	1.69	Excellent
2022-02-19	6.80	Good
2022-02-20	2.00	Excellent
2022-02-21	1.68	Excellent
2022-02-22	1.68	Excellent
2022-02-23	1.69	Excellent
2022-02-24	1.69	Excellent
2022-02-25	1.79	Excellent
2022-02-26	49.68	Poor
2022-02-27	13.53	Poor
2022-02-28	2.93	Excellent
2022-02-01	1.68	Excellent
2022-02-02	2.40	Excellent
2022-02-03	1.88	Excellent
2022-02-04	51.92	Poor
2022-02-05	7.31	Good
2022-02-06	7.83	Good
2022-02-07	2.75	Excellent
2022-02-08	2.88	Excellent
2022-02-09	1.69	Excellent
2022-02-10	1.73	Excellent

2022-02-11	1.69	Excellent
2022-02-12	1.68	Excellent
2022-02-13	2.16	Excellent
2022-02-14	1.68	Excellent
2022-02-15	1.72	Excellent
2022-02-16	1.85	Excellent
2022-02-17	1.68	Excellent
2022-02-18	1.69	Excellent
2022-02-19	6.69	Good
2022-02-20	2.01	Excellent
2022-02-21	1.68	Excellent
2022-02-22	1.68	Excellent
2022-02-23	1.69	Excellent
2022-02-24	1.69	Excellent
2022-02-25	1.80	Excellent
2022-02-26	50.34	Poor
2022-02-27	13.33	Poor
2022-02-28	2.96	Excellent
2022-02-01	2.13	Excellent
2022-02-02	2.95	Excellent
2022-02-03	1.67	Excellent
2022-02-04	17.59	Poor
2022-02-05	3.54	Excellent
2022-02-06	11.20	Poor
2022-02-07	3.57	Excellent
2022-02-08	1.71	Excellent
2022-02-09	1.68	Excellent
2022-02-10	1.58	Excellent
2022-02-11	3.09	Excellent
2022-02-12	3.01	Excellent
2022-02-13	2.52	Excellent
2022-02-14	1.72	Excellent
2022-02-15	1.63	Excellent
2022-02-16	2.08	Excellent
2022-02-17	1.67	Excellent
2022-02-18	1.76	Excellent
2022-02-19	7.48	Good
2022-02-20	1.83	Excellent
2022-02-21	1.72	Excellent

2022-02-22	1.64	Excellent
2022-02-23	1.69	Excellent
2022-02-24	1.62	Excellent
2022-02-25	1.67	Excellent
2022-02-26	35.63	Poor
2022-02-27	4.34	Excellent
2022-02-28	3.82	Excellent
2022-03-01	17.83	Poor
2022-03-02	65.17	Poor
2022-03-03	76.14	Poor
2022-03-04	92.36	Poor
2022-03-05	102.79	Poor
2022-03-06	67.76	Poor
2022-03-07	6.54	Good
2022-03-08	3.32	Excellent
2022-03-09	4.06	Excellent
2022-03-10	17.34	Poor
2022-03-11	6.94	Good
2022-03-12	2.13	Excellent
2022-03-13	2.00	Excellent
2022-03-14	1.76	Excellent
2022-03-15	1.87	Excellent
2022-03-16	1.87	Excellent
2022-03-17	2.02	Excellent
2022-03-18	1.95	Excellent
2022-03-19	1.80	Excellent
2022-03-20	1.95	Excellent
2022-03-21	1.88	Excellent
2022-03-22	1.94	Excellent
2022-03-23	1.88	Excellent
2022-03-24	18.47	Poor
2022-03-25	2.49	Excellent
2022-03-26	1.82	Excellent
2022-03-27	4.86	Excellent
2022-03-28	2.57	Excellent
2022-03-29	2.00	Excellent
2022-03-30	1.75	Excellent
2022-03-31	1.91	Excellent
2022-03-01	16.39	Poor

2022-03-02	68.29	Poor
2022-03-03	79.14	Poor
2022-03-04	103.45	Poor
2022-03-05	180.90	Poor
2022-03-06	89.54	Poor
2022-03-07	7.08	Good
2022-03-08	3.34	Excellent
2022-03-09	5.19	Good
2022-03-10	27.29	Poor
2022-03-11	6.40	Good
2022-03-12	2.12	Excellent
2022-03-13	1.93	Excellent
2022-03-14	1.77	Excellent
2022-03-15	1.94	Excellent
2022-03-16	1.89	Excellent
2022-03-17	2.04	Excellent
2022-03-18	2.43	Excellent
2022-03-19	1.85	Excellent
2022-03-20	1.97	Excellent
2022-03-21	2.11	Excellent
2022-03-22	2.02	Excellent
2022-03-23	1.99	Excellent
2022-03-24	25.41	Poor
2022-03-25	2.48	Excellent
2022-03-26	1.89	Excellent
2022-03-27	5.09	Good
2022-03-28	3.09	Excellent
2022-03-29	2.13	Excellent
2022-03-30	1.79	Excellent
2022-03-31	1.96	Excellent
2022-03-01	6.17	Good
2022-03-02	11.66	Poor
2022-03-03	10.72	Poor
2022-03-04	19.26	Poor
2022-03-05	12.27	Poor
2022-03-06	2.84	Excellent
2022-03-07	6.82	Good
2022-03-08	8.55	Good
2022-03-09	4.34	Excellent

2022-03-10	10.92	Poor
2022-03-11	4.07	Excellent
2022-03-12	10.11	Poor
2022-03-13	2.89	Excellent
2022-03-14	2.72	Excellent
2022-03-15	2.52	Excellent
2022-03-16	2.73	Excellent
2022-03-17	2.98	Excellent
2022-03-18	6.45	Good
2022-03-19	5.27	Good
2022-03-20	1.77	Excellent
2022-03-21	2.27	Excellent
2022-03-22	2.60	Excellent
2022-03-23	2.08	Excellent
2022-03-24	2.90	Excellent
2022-03-25	7.09	Good
2022-03-26	3.30	Excellent
2022-03-27	2.55	Excellent
2022-03-28	1.76	Excellent
2022-03-29	2.13	Excellent
2022-03-30	2.55	Excellent
2022-03-31	3.23	Excellent
2022-04-01	1.76	Excellent
2022-04-02	2.05	Excellent
2022-04-03	2.45	Excellent
2022-04-04	2.94	Excellent
2022-04-05	11.69	Poor
2022-04-06	10.94	Poor
2022-04-07	36.48	Poor
2022-04-08	6.50	Good
2022-04-09	5.73	Good
2022-04-10	3.65	Excellent
2022-04-11	3.30	Excellent
2022-04-12	2.83	Excellent
2022-04-13	3.18	Excellent
2022-04-14	3.09	Excellent
2022-04-15	2.50	Excellent
2022-04-16	4.27	Excellent
2022-04-17	1.99	Excellent

2022-04-18	2.03	Excellent
2022-04-19	2.02	Excellent
2022-04-20	1.97	Excellent
2022-04-21	10.10	Poor
2022-04-22	1.83	Excellent
2022-04-23	1.75	Excellent
2022-04-24	1.69	Excellent
2022-04-25	1.97	Excellent
2022-04-26	3.07	Excellent
2022-04-27	21.49	Poor
2022-04-28	21.30	Poor
2022-04-29	26.35	Poor
2022-04-30	3.09	Excellent
2022-04-01	1.74	Excellent
2022-04-02	1.93	Excellent
2022-04-03	2.49	Excellent
2022-04-04	3.09	Excellent
2022-04-05	11.63	Poor
2022-04-06	11.37	Poor
2022-04-07	37.52	Poor
2022-04-08	5.75	Good
2022-04-09	5.12	Good
2022-04-10	3.67	Excellent
2022-04-11	3.40	Excellent
2022-04-12	2.74	Excellent
2022-04-13	3.22	Excellent
2022-04-14	3.16	Excellent
2022-04-15	2.55	Excellent
2022-04-16	4.29	Excellent
2022-04-17	2.05	Excellent
2022-04-18	2.10	Excellent
2022-04-19	2.09	Excellent
2022-04-20	2.00	Excellent
2022-04-21	10.07	Poor
2022-04-22	1.74	Excellent
2022-04-23	1.69	Excellent
2022-04-24	1.69	Excellent
2022-04-25	1.98	Excellent
2022-04-26	3.10	Excellent

2022-04-27	21.12	Poor
2022-04-28	21.20	Poor
2022-04-29	26.98	Poor
2022-04-30	2.99	Excellent
2022-04-01	2.58	Excellent
2022-04-02	11.21	Poor
2022-04-03	3.57	Excellent
2022-04-04	2.05	Excellent
2022-04-05	24.34	Poor
2022-04-06	7.79	Good
2022-04-07	15.02	Poor
2022-04-08	32.16	Poor
2022-04-09	36.92	Poor
2022-04-10	8.52	Good
2022-04-11	4.48	Excellent
2022-04-12	7.37	Good
2022-04-13	2.42	Excellent
2022-04-14	3.41	Excellent
2022-04-15	3.00	Excellent
2022-04-16	3.02	Excellent
2022-04-17	2.31	Excellent
2022-04-18	1.61	Excellent
2022-04-19	1.66	Excellent
2022-04-20	2.81	Excellent
2022-04-21	4.04	Excellent
2022-04-22	6.37	Good
2022-04-23	4.05	Excellent
2022-04-24	1.62	Excellent
2022-04-25	2.98	Excellent
2022-04-26	1.88	Excellent
2022-04-27	8.41	Good
2022-04-28	7.43	Good
2022-04-29	4.43	Excellent
2022-04-30	8.63	Good

## Q9: Above Average Abandoned Calls

In [17]: `%%sql`

```
SELECT *
FROM All_Months
```

```
WHERE Calls_Abandon >
(
    SELECT AVG(Calls_Abandon)
    FROM All_Months
);
* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted_connection=yes
Done.
```

Call Center Performance Metrics - Q1 2022							
Project	Date	Month	Forecasted_Calls	Calls_Offered	Calls_Handled	Calls_Handled_With_in_Threshold	Calls_Abandon
Project A	2022-02-04	22-Feb	13002	10883	10614	7376	269
Project A	2022-02-26	22-Feb	12758	13437	12994	7440	443
Project B	2022-02-04	22-Feb	12718	8843	8635	5974	208
Project B	2022-02-26	22-Feb	12477	11418	11046	6252	372
Project A	2022-03-01	Mar-22	13389	11747	11596	9291	151
Project A	2022-03-02	Mar-22	13134	14735	14092	7895	643
Project A	2022-03-03	Mar-22	12545	13946	13256	5411	690
Project A	2022-03-04	Mar-22	9970	11663	10884	7211	779
Project A	2022-03-05	Mar-22	12209	14504	13476	6228	1028
Project A	2022-03-06	Mar-22	13843	15328	14652	9230	676
Project A	2022-03-07	Mar-22	13585	16324	16223	15445	101
Project A	2022-03-10	Mar-22	12545	10402	10275	9585	127
Project A	2022-03-24	Mar-22	12545	10378	10197	8564	181
Project B	2022-03-01	Mar-22	17117	18438	18071	14792	367
Project B	2022-03-02	Mar-22	16778	19001	17785	10398	1216
Project B	2022-03-03	Mar-22	16064	18290	16900	6847	1390
Project B	2022-03-04	Mar-22	12818	15270	13785	8615	1485
Project B	2022-03-05	Mar-22	15654	17965	14864	5868	3101
Project B	2022-03-06	Mar-22	17684	21739	19805	11749	1934
Project B	2022-03-07	Mar-22	17370	17701	17475	16504	226
Project B	2022-03-08	Mar-22	17117	16261	16118	15893	143
Project B	2022-03-09	Mar-22	16778	15106	14952	14350	154
Project B	2022-03-10	Mar-22	16064	17374	16909	15521	465
Project B	2022-03-11	Mar-22	12818	13395	13260	12637	135

Global Project Performance Report - Q1 2023							
Project ID	Project Name	Start Date	End Date	Regional Metrics		Overall Status	Last Update
				North America	Europe & MEA		
PJ-B-001	Project Alpha	2022-03-12	Mar-22	15655	15160	15072	2023-03-15
PJ-B-002	Project Beta	2022-03-13	Mar-22	17685	14825	14725	2023-03-16
PJ-B-003	Project Gamma	2022-03-14	Mar-22	17370	14415	14326	2023-03-19
PJ-B-004	Project Delta	2022-03-16	Mar-22	16778	14304	14211	2023-03-20
PJ-B-005	Project Epsilon	2022-03-17	Mar-22	16064	13611	13494	2023-03-21
PJ-B-006	Project Zeta	2022-03-18	Mar-22	12818	14427	14319	2023-03-24
PJ-B-007	Project Eta	2022-03-19	Mar-22	15655	14008	13908	2023-03-25
PJ-B-008	Project Theta	2022-03-20	Mar-22	17685	15677	15573	2023-03-26
PJ-B-009	Project Iota	2022-03-21	Mar-22	17370	16320	16229	2023-03-27
PJ-B-010	Project Kappa	2022-03-22	Mar-22	17117	14294	14202	2023-03-28
PJ-B-011	Project Lambda	2022-03-24	Mar-22	16064	30381	29630	2023-03-29
PJ-B-012	Project Mu	2022-03-25	Mar-22	12818	15592	15501	2023-03-30
PJ-B-013	Project Nu	2022-03-26	Mar-22	15655	13821	13732	2023-03-31
PJ-B-014	Project Xi	2022-03-27	Mar-22	17685	18343	18200	2023-04-07
PJ-B-015	Project Omicron	2022-03-28	Mar-22	17370	18046	17926	2023-04-27
PJ-B-016	Project Pi	2022-03-29	Mar-22	16778	16005	15914	2023-04-28
PJ-B-017	Project Rho	2022-03-30	Mar-22	16064	16001	15910	2023-04-29
PJ-A-001	Project Alpha	2022-04-07	Apr-22	12847	11176	10939	2023-04-10
PJ-A-002	Project Beta	2022-04-27	Apr-22	13093	10756	10579	2023-04-11
PJ-A-003	Project Gamma	2022-04-28	Apr-22	12847	9891	9757	2023-04-12
PJ-A-004	Project Delta	2022-04-29	Apr-22	10496	8428	8294	2023-04-13
PJ-A-005	Project Epsilon	2022-04-07	Apr-22	12559	9319	9130	2023-04-14
PJ-A-006	Project Zeta	2022-04-27	Apr-22	12802	8869	8734	2023-04-15
PJ-A-007	Project Eta	2022-04-28	Apr-22	12559	8167	8066	2023-04-16

## Q10: Create View for Handled & Abandoned Calls per Agent

In [20]: `%%sql`

```
CREATE VIEW AgentCall_Summary AS
SELECT Agent_Name,
       SUM(Calls_Handled) AS Total_HandledCalls,
       SUM(Calls_Abandon) AS Total_AbandonedCalls
FROM All_Months
GROUP BY Agent_Name;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[20]: []

### View AgentCall\_Summary

In [21]: `%%sql`

```
SELECT * FROM AgentCall_Summary;
```

\* mssql+pyodbc://@DESKTOP-OF81S6G/SallaProject?driver=ODBC+Driver+17+for+SQL+Server&trusted\_connection=yes  
Done.

Out[21]: 

Agent_Name	Total_HandledCalls	Total_AbandonedCalls
Ahmed	74962	403
Ali	148844	741
Dina	171785	4565
Fatma	91208	1655
Hassan	59649	396
Huda	149952	4582
Khaled	121234	721
Laila	54180	185
Mona	120095	684
Nour	34054	541
Omar	89674	558
Rania	142639	2899
Samir	141668	544
Sara	73427	291
Tariq	157377	1703
Youssef	91094	2575

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