

DSO 552: SQL Databases for Business Analysts

Homework 5 (Due 11:59pm PST November 16th, 2020)

There are 6 problems in this HW. Each problem is worth 2 points. If you earn more than 10 points, you'll receive a 10/10 for this assignment and any extra points will be applied to other homework assignments.

Trojan Entertainment Agency Database

This database manages entertainers, agents, customers, and bookings. Check Figure 1 (on the last page) for more details on the database structure.

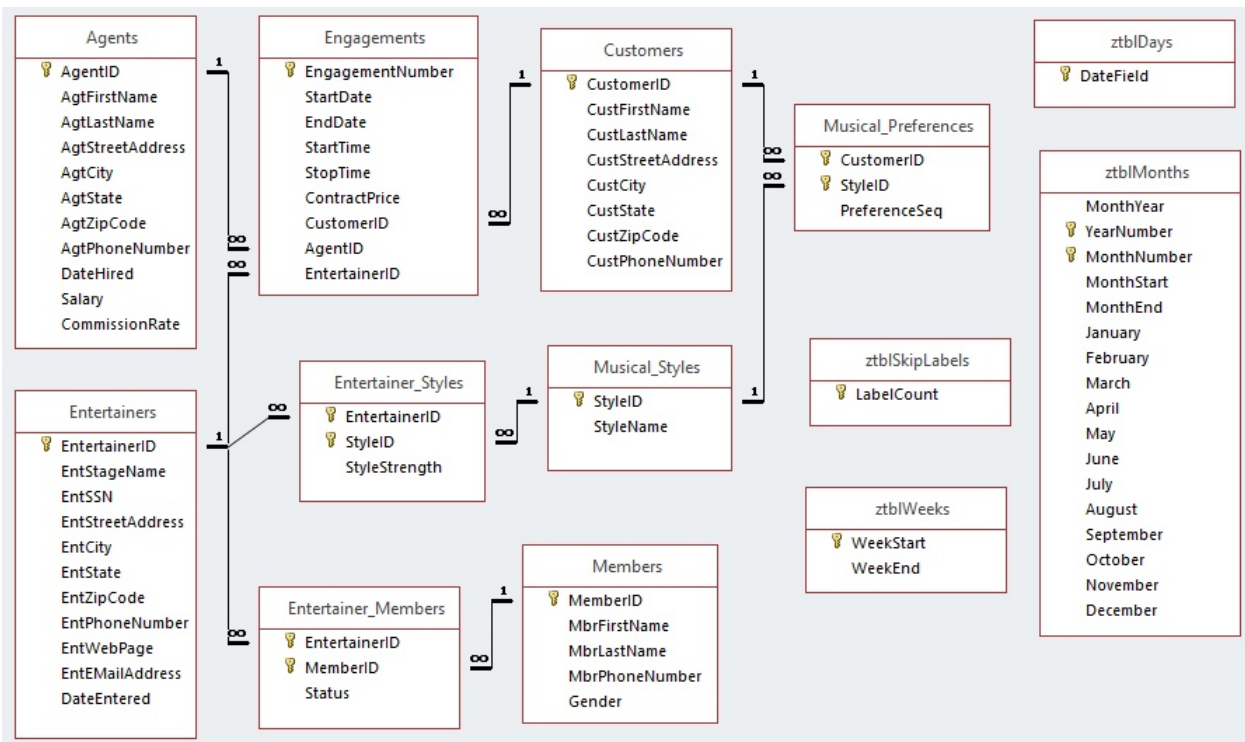


Figure 1: Trojan Entertainment Schema

1. (2 points) Provide a count of customers and the number of engagements they have placed where the contract price is in the top quartile of all contract prices.

Expected Result:

customerid	top_quartile_engagements
10001	3
10002	4
10003	1
10004	2
10005	3
10006	4
10012	2
10013	2
10014	4
10015	2

2. (2 points) Whenever entertainers in our agency complete their 10th engagement, a blog post is written about the entertainers and the members. We also give their contractprice for the engagement a 10% bonus. Please list the details of the 10th engagement for each entertainer and the adjusted contracted price. Hint: You'll need to use a window function and likely filter for row_number = 10 at some point.

Expected:

engagementnumber	entstagename	adjusted_contractprice
87	Country Feeling	302.5
110	Carol Peacock Trio	1837.0
115	Caroline Coie Cuartet	1639.0
126	Modern Dance	1111.0
131	JV & the Deep Six	2035.0

3. (2 points) Show the total revenue generated by our agency after each engagement (use startdate for when the engagement occurs. Note that the revenue generated is not the contract price. It is 10% for all engagements typically. However, for entertainers who have at least 10 bookings with us, it is 8% of the contract price. Hint: Compute a list of entertainers that have at least 10 bookings first. You can then use this list to determine whether or not we charge 10% of th contract price or 8% of the contract price.

Expected Result:

engagementnumber	startdate	agency_revenue	running_total
2	2017-09-02	20.0	20.0
3	2017-09-11	59.0	79.0
6	2017-09-11	184.0	263.0
4	2017-09-12	47.0	310.0
5	2017-09-12	90.4	400.4
7	2017-09-12	77.0	477.4
11	2017-09-16	76.0	553.4
10	2017-09-18	292.0	845.4
13	2017-09-18	61.6	907.0
8	2017-09-19	185.0	1092.0

4. (2 points) Produce a report that lists the top five agents and the top five musical styles in terms of number of engagements. Hint: You'll likely use a UNION in this problem. First find the query to get the top five agents and their counts, then a query to get the top five musical styles and their counts.

Expected Result:

type	name	num_engagements
musical_style	60's Music	25
musical_style	Country	23
musical_style	Contemporary	22
musical_style	Standards	20
musical_style	Show Tunes	19
agent	Carol Viescas	19
agent	Marianne Wier	18
agent	Karen Smith	17
agent	William Thompson	16
agent	Maria Patterson	15

5. (2 points) We use the first two digits after the area code of a phone number to determine if the number is a landline or a mobile phone number. For example, if a phone number is 234-2191, then the type block to consider is 21. If the type block is greater than 25, it will be a landline phone number. If it is 25 or less, it is a mobile phone number. Classify all agents and customers phone numbers and count the number of landline and mobile numbers.

Hint - First extract the type block from the phone number. With a phone number 827-8102, then mobile block is 81. You'll likely need a UNION here to combine the results from the agents and customers. Finally, the type block you extract may be a text data type. You can cast it to an integer using `type_block::INTEGER`.

Expected Result:

phone_types	num_phone_numbers
landline	10
mobile	14

6. (2 points) The HR department wants to list out the final compensation for each of the agents. Final compensation is determined by taking their salary and adding it to the commission rate x contractprice for each of their bookings. For any agent that achieves more than 15 engagement bookings, a final 10% bonus is applied to the total compensation. Hint: First calculate the total compensation without any 10% bonus. Then find all the agents who should be eligible for the 10% bonus. Finally, calculate the adjusted final compensation with the bonus included.

Expected Result:

agentid	salary	commission	high_performer_bonus	final_compensation
4	22000	1022.725	0.1	25325.00
6	33000	1466.100	0.0	34466.10
2	27000	268.800	0.0	27268.80
7	22100	372.575	0.0	22472.58
3	30000	1240.000	0.1	34364.00
1	35000	795.800	0.1	39375.38
5	24500	1018.575	0.1	28070.43
8	30000	513.000	0.0	30513.00