Performance Assessment:

Average Survey Response Answer by Contract Duration

Ryan James Calabio

D205: Data Acquisition

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A:

My question that I will answer using SQL is what is the average out of ten for responses to the survey questions of timely responses, timely fixes, timely replacements, and reliability answered by customers based on their contract duration? This is a question that is useful for business to answer because we can see how the length of the contract affects how the customer perceives the quality of the maintenance services during the contract.
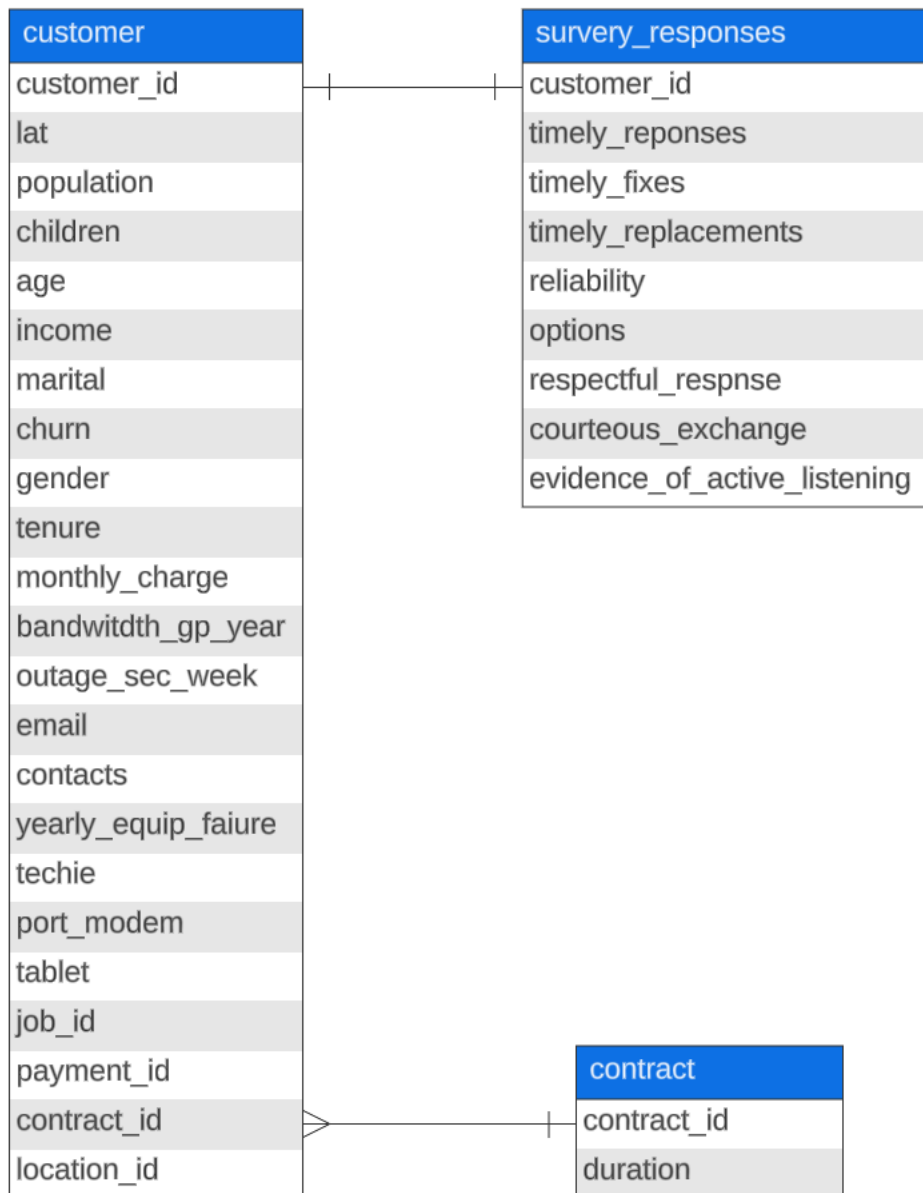
A1:

This will be answered by connecting the customer_id column on the customer table in the churn database to the customer_id column on the survery_responses add-on csv. I will also need to connect the contract_id column on the customer table to the contract_id column on the contract table in the churn database.

A2:

This will require the customer_id and contract_id column from the customer table. Both of these columns have a VARCHAR datatype. It will also require the contract_id and duration columns from the contract table from the churn database. The contract_id column is a VARCHAR datatype, and the duration is a STRING datatype. Finally, we will need the customer_id, timely_responses, timely_fixes, timely_replacements, and reliability columns from the add-on csv. The customer_id column has a VARCHAR datatype, and the timely_responses, timely_fixes, timely_replacements, and reliability columns have an INTEGER data type.

B:

customer		survery_responses
customer_id		customer_id
lat		timely_reponses
population		timely_fixes
children		timely_replacements
age		reliability
income		options
marital		respectful_respnse
churn		courteous_exchange
gender		evidence_of_active_listening
tenure		
monthly_charge		
bandwitdth_gp_year		
outage_sec_week		
email		
contacts		
yearly_equip_faiure		
techie		
port_modem		
tablet		
job_id		
payment_id		contract
contract_id		contract_id
location_id		duration

B1:

The relationship between customer.contract_id and contract.contract_id is 1:M. This is because

inside of the contract table, the contract_id defines the duration of the contract by month-to-

month, one year, or two year. The relationship between customer.customer_id and

survey_responses.customer_id is 1:1 because they both have the same amount of distinct values for the customer ids. There were no issues that I came across when creating this table, importing data, or creating a join between the database table and the add-on csv table.

B2:

This is the SQL query I used in order to create the table to import the data:

```
CREATE TABLE public.survey_responses
(
        customer_id VARCHAR NOT NULL,
        timely_responses INTEGER NOT NULL,
        timely_fixes INTEGER NOT NULL,
        timely_replacements INTEGER NOT NULL,
        reliability INTEGER NOT NULL,
        options INTEGER NOT NULL,
        respectful_response INTEGER NOT NULL,
        courteous_exchange INTEGER NOT NULL,
        active_listening INTEGER NOT NULL,
        PRIMARY KEY (customer_id),
        FOREIGN KEY (customer_id) REFERENCES customer (customer_id)
);
```

B3:

This is the code that is used to import the data from the add-on csv into the table that was just created:

```
COPY survey_responses
FROM 'C:\LabFiles\Survey_Responses.csv'
DELIMITER ',' CSV HEADER;
```

C:

This is the SQL query that I used to answer the question proposed in A.

```
SELECT
        c2.duration,
        ROUND(AVG(s.timely_responses),2) AS avg_timely_responses,
        ROUND(AVG(s.timely_fixes),2) AS avg_timely_fixes,
        ROUND(AVG(s.timely_replacements),2) AS avg_timely_replacements,
        ROUND(AVG(s.reliability),2) AS avg_reliability
FROM customer c1
LEFT JOIN survey_responses s
ON c1.customer_id = s.customer_id
LEFT JOIN contract c2
ON c1.contract_id = c2.contract_id
GROUP BY c2.duration
```

This query creates an output of:

duration	avg_timely_responses	avg_timely_fixes	avg_timely_replacements	avg_reliability
One year	3.5	3.53	3.49	3.49
Month-to-month	3.48	3.49	3.48	3.48
Two Year	3.51	3.51	3.51	3.53

This can also be viewed in the included CSV file.

D:

Another important aspect to consider is how often the add-on file should be acquired and refreshed in the database for the data to remain relevant to the business activities and to the original question we are answering. A good cadence for this to be refreshed at is quarterly.

D1:

This could be used as a quarterly KPI indicator to see how the quality of maintenance provided by the business is changing based on changes that may have been implemented by the business. This data can then be imported into a report and classified by quarter to measure quarterly growth or decline in customer satisfaction. Each quarter, the business can review whether or not changes implemented have increased the average customer satisfaction related to maintenance and then determine whether or not those changes should be permanent or reverted.

F:

The following web sources were used in order to answer the research question.

Weber, Izzy, et al. "D205 Prep Work." *Data Camp*, 2024, app.datacamp.com/learn/custom-tracks/custom-d205-prep-work.

"SQL CREATE TABLE Statement." *SQL Create Table Statement*, w3schools, www.w3schools.com/sql/sql_create_table.asp. Accessed 17 Mar. 2024.