

Challenge 1

1. Using the tables listed below, write a SQL statement(s) to compare the prior day balance for a set of accounts to the balance for a set of accounts from 2 days prior. The clients to be included in the results are: bissell, reach, yootech, kidde, gigabyte, dell, and Milwaukee tools

Table Structure:

Clients: clientid, client_name

Dates: dateid, date, month, year

Accounts: accountid, dateid, clientid, balance_starting, balance_ending, account_type, account_status, last_modified

```
SELECT C.clientid, C.client_name,yesterday_s,yesterday_e,twodays_s,twodays_e,(yesterday_s -
twodays_s) AS start_diff,(yesterday_e - twodays_e) AS end_diff
FROM Clients AS C
LEFT JOIN
(SELECT A.clientid, A.balance_starting AS yesterday_s, A.balance_ending AS yesterday_e
FROM Accounts AS A
LEFT JOIN Dates AS D ON A.dateid = D.dateid
WHERE date = CAST( GETDATE()-1 AS Date)) AS temp1 ON C.clientid = temp1.clientid
LEFT JOIN
(SELECT A.clientid, A.balance_starting AS twodays_s, A.balance_ending AS twodays_e
FROM Accounts AS A
LEFT JOIN Dates AS D ON A.dateid = D.dateid
WHERE date = CAST( GETDATE()-2 AS Date)) AS temp2 ON C.clientid = temp2.clientid
WHERE C.client_name IN ('Bissell', 'Reach', 'Yootech', 'Kidde', 'Gigabyte', 'Dell', 'Milwaukee
Tools')
GROUP BY C.clientid, C.client_name,yesterday_s,yesterday_e,twodays_s,twodays_e
```

2.

a) How would you test your solution?

In this case, I found a sample database that had similar data to what the above db should have. I ran my query through MySQL with the sample data to ensure that the return was accurate.

In a 'real life scenario', I would run this query with the database and evaluate the returned data to ensure it answers the ask.

b) Do you need more information to be certain of the answer? What is missing?

I think that there is enough information for a vague table return. However, some information that may be helpful for the report and shareholder would be the products purchased (i.e. what the client's balance consisted of). Another area that would need clarity is which balance we are wanting to compare - the starting balance of the day or the ending.

c) Are there scenarios where you can foresee errors?

A possible scenario that may cause issues is if clients do not have a balance for a certain date - there would be nothing to compare and we would get a null value back.

d) If you do not think you have a correct answer, specify what you see as the main problem

Challenge 2

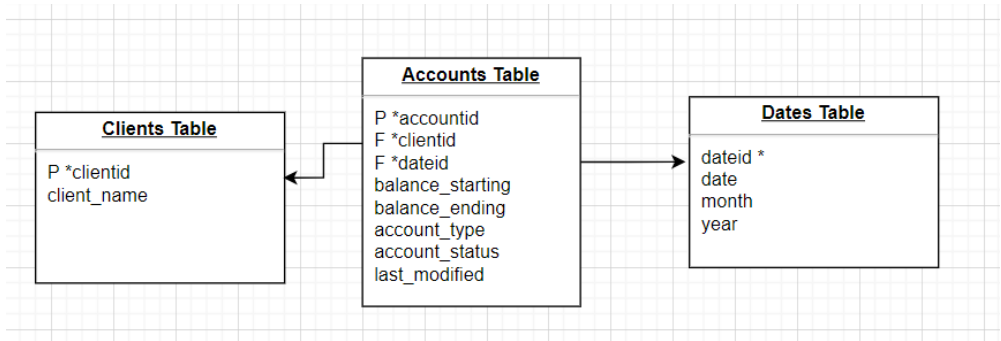
1. What data points would you collect for a data requirements document?

This document is going to ensure that the data being used, and then produced, is going to satisfy the objective at hand. For this, we will need to define the business objective, the stakeholders, current business processes, allowed values, value formats, data sources, table & column names, database name, and any other 'rules' decided at the beginning of the objective.

2. What data points would you collect in a data mapping document?

Data mapping is about matching fields from one table or database to another. You will need the table data (i.e. table name and fields for that table) for each table within the databases for all databases that will be a part of the process.

Using challenge 1 as the example, below is how the data mapping will look for those tables.



3. What data points would you collect in a data dictionary?

For a data dictionary, we need information that describes the database - its contents, how it's laid out, and how it's formatted.

Using challenge 1 as an example, the data dictionary would collect data on the columns/fields. The data will describe the data type, format, possibly field size, description, examples, and any other pertinent information to provide clarity into the fields. See below for an example

Name	Type	Format	Description	Example
clientid	INT	NNNNN	Unique identifying number for each client	54676
client_name	STRING	XXXXXX...	Business name of client	Dell
date	DATE	DD/MM/YYYY	Current date or specified date	10/26/2007
starting_balance	INT	N,NNN	Clients balance at the beginning of the day	\$5,670