**Siphahle Nomnganga Assessment**

**Assignment 1 (Test Design and Reasoning)**

1. What questions would you ask to aid in your testing better?

* What is the performance impact of microservices?
* How do we test stateful microservices?
* How do we handle our data with distributed with microservices?

1. In your opinion, what are the three most important things that need to be tested and why?
   1. Before anything else I will test if the micro service meets the business requirements on the specification because we need satisfy the customer needs first.
   2. I would perform unit tests, because in microservice architecture, every service is considered a Blackbox testing and determine the fundamental links in the architecture and test them. For instance, test if a solid link exists between the login service, the frontend that displays the user’s details, and the database for the details, test these links.
   3. I would also do integration test to verify the communication paths and interactions between components to detect interface defects
2. Which layer would you focus your testing efforts on and why?
   1. I would focus my testing on communication layer because it is a special and is sort of confusing, because it touches every other layer in the ecosystem. It's the layer that contains everything related to communication between applications, systems, and services.
3. What dependencies on other micro services could you see that may impact testing?
   1. Data sharing

**Assignment 2(SQL Comprehension)**

1. How many users does this database contain?

Select Count(Id) from Users;

Answer = 16220236

1. How many users were created each calendar year (since the beginning of 2010) in this database?

SELECT Count(Id) FROM Users WHERE CreationDate >= '2010-01-01 00:00:01';

Answer = 16120593

1. How many posts of type "Question" has the user "Mat Mannion" asked since he joined?

SELECT count(p.id) from Posts as P

inner join postTypes as pt

On p.postTypeId =pt.id

Where p.ownerDisplayName = 'Mat Mannion' and pt.Name = 'Question';

Answer = 3

1. What is the name of the most reputable "South Africa" user and how many "Enlightened" badges did they receive in 2016?

Select DisplayName,MAX(Reputation) AS MostRep,Count(Badges.Name) AS BadgesQuantity

from users join badges on users.AccountId = badges.UserId

where Location = 'South Africa' and name = 'Enlightened' and Badges.Date >= '2016-01-01 00:00:01' and Badges.date <= '2016-12-31 00:00:00'

GROUP BY DisplayName;

Answer = Martin

1. Provide another query that returns the same result as the question above. Which is the more optimal query and why?

Select DisplayName,MAX(Reputation) AS MostRep,Count(Badges.Name) AS BadgesQuantity

from users join badges on users.AccountId = badges.UserId

where Location = 'South Africa' and name = 'Enlightened' and Badges.Date >= '2016-01-01 00:00:01' and Badges.date <= '2016-12-31 00:00:00'

GROUP BY DisplayName;

1. The second query is the more optimal as it will always bring complete results. The first query uses inner join which may affect the result is one of the columns is null.
2. Did you have to make any assumptions in the queries above? If you did, what were they and what was your thinking?

**Answer** : Yes I did make assumptions more especially with question 3 when I ran the query for the first time on question I got 0 I then tried to manipulate and finally got the correct answer which is 3

**Assignment 3 (Code Comprehension)**

1. **What is this test attempting to do?**

**Answer:**

This test is attempting to test an API with jasmine framework using a request option to deal with HTTP client. It sends a request to this URL <https://api.com/v1/people> to GET a person and passing query parameters with attribute label with the value to search stores the response ID to DELETE the response status code and review after the delete if the status code is not valid anymore by comparing to the not found status code.

1. **What are the problems with this test? Answer:**

Syntax errors on the following lines:

expect (deleteResponse.statusCode).to.eql(204);

expect (afterDeleteGet.statusCode).to.eql(404);

It should be to.equal()

1. Ping the API Server / Check Network Connection.

**Assignment 4 (Ability to write an automated test)**