Assignment 5

Course: ENSF 608 - Fall 2020

Assignment #: 5

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Question 1. XML and XQuery

`XML` stands for Extensive Markup Language. It is a text-based markup language that was derived from Standard Generalized markup Language
Its tags identify the data and are used to store and organize the data, rather than specifying how to display it. it is extensible, carries the data but does not present it, and it is a public standard. `XML` encodes documents in a way that is both human and machine readable. example:

```
<message>
   <text>Hello, world! XML</text>
</message>
```

`XQuery` coined from XML Query is a query language, also a functional programming language purposely for quering and transforming structured and unstructured data collections, usually in the form of XML, text and vendor-specific extensions for other data formats like JSON and binary.

`XQuery` can be used on XML documents, relational databases containing data in XML formats, or XML databases.

Question 2. SQL and NoSQL

`SQL` stands for Structured Query Language and it is a programming language used for relational databases. `NoSQL` on the other hand is non relational.

`SQL database` primarily called Relational Databases(RDBMS) whilst `NoSQL databases` are primarily called non relational databases or distributed database.

`SQL` requires you to use predefined schemas to determine the structure of the data before you work with it, and all of your data must follow the same structure. this is not the case in `NoSQL` which has a dynamic schema for unstructured data. so documents can be created without having a defined structure first.

In terms of scalability, `SQL databases` are vertically scalable whilst `NoSQL databases` are horizontally scalable.

In terms of structure, `SQL databases` are table-based whilst `NoSQL databases` are key-value pairs, document-based, graph databases or wide-column stores.

Question 3. Hash table collision

collision is said to occur in a hash table when a hash function maps two different keys to the same table address

Question 4. Advice to aspiring software engineers

He indicated that to stay relevant you must learn how to learn and use new technology and tools

in the field.

Question 5. Take away fromn ENSF 608

My take away from the course is learning how to systematically come up with a relational model for relational databases. I think being able to add conceptual and logical database design to my software designs is a good deal especially in 3 tier and cloud architecture that I would always be either coming up with or working on in teams.