Reflection 4

From module 4, I learned the basics of HTML, CSS, JavaScript, Databases, frameworks and libraries. The content of this module is very helpful because it's a systematic summary of the methods of web development including the front-end and back-end designs. The topics like JavaScript, frameworks and libraries were also covered in the course, CISC 3610-Introduction to Multimedia Programming, that I am taking this semester. And I have learnt the basics of Databases from the course, CISC 3810-Database System Management, that I have taken in the last semester. The database that I used frequently in the last semester is H2 Database, which is a relational database management system written in Java and can be embedded in Java applications or runs in client-server mode, but this time I learned more about Microsoft SQL Server, which is a database management and analysis system for e-commerce, line-of-business, and data warehousing solutions. The syntax in H2 Database and Microsoft SQL Server are very similar, and the overall purpose of using Databases is to organize a large number of recordings so that they can be searched upon the queries. I also learned that there are different types of Database Workloads, such as Online Transaction Processing (OLTP), Online Analytics Processing (OLAP), and Decision Support Systems (DSS). Learning these Database Workloads helps us to determine which databases for which our applications and to evaluate a new workload for the best managed database option based on specific application needs related to data shape, data size at limit, computational requirements, and programmability, etc. In addition, I learned about the CAP, the Iron Triangle of Data, which represents Consistency, Availability, and Partition tolerance. Consistency illustrates that all clients always have the same view of data. Availability illustrates that all clients can always read and write, and Partition tolerance explains that the system works well despite physical network partitions. However, it is difficult to meet all three aspects and many databases only satisfy two aspects at the same time, for example, some databases only meet the Consistency and Availability, such as Microsoft SQL, Oracle, DB2, MySQL, etc; some databases only meet the availability and Partition tolerance, like Cassandra, Riak, and Amazon DynamoDB, etc; other databases only meet the Consistency and Partition tolerance, such as MongoDB, Scalaris, and Big Table, etc.