Discussion IST769 Unit B - NoSQL Foundations

## Agenda

1. Your Questions
2. Unit Coursework Activities

FRONT MATTER

1. Start Your Azure Lab! (Or Local Setup) We will perform some docker commands, time permitting.
   1. Start MSSQL to help understand the CAP Theorem we will do a demo.  
      $ **docker-compose up mssql -d**
2. PlayPosit Reports.
   1. screenshot from 12pm and downloaded report
   2. I can download the report at any time and see what submissions looked like on the due date.
   3. I’ll show you how what is present in the report translates into a grade.

## 1. Your Questions

Ask any questions you have here!

* Can you please explain the CAP theorem?
* Difference between CP / AP / CA
* ACID / Base
  + Transactions and ACID compliance
  + Eventual Consistency
* What is really noSQL nothing to do with SQL everything to do with relational.
* Can you please explain Bottleneck Processing distributed data?

## 2. Coursework Activities

**Key Terms:**

Define Each of the following in your own words:

1. CAP Theorem
2. Big Data
3. Polyglot Persistence
4. Multi Model DBMS
5. NoSQL
6. NewSQL
7. ACID
8. BASE

**Applying Concepts:**

1. Which is more difficult to accomplish, scaling up or scaling out? Explain.
2. Think of the amount of orders Amazon.com processes each minute. Assuming they are using a distributed database, which guarantee is required for order processing and why?
3. What specifically do we mean when describing big data volume or big data velocity?
4. Why is it important to re-think how big data is processed? Why can’t we use conventional methods like R or Python?
5. This course will survey a variety of database systems through the lens of scalability. If NewSQL and Multi-Model databases are now a trend, will this mark the end of polyglot persistence? Explain.

**Research:**

For each of the following, identify: 1) Data Model used, 2) CAP Architecture (CA, CP, AP, NewSQL). Please note this will not be obvious from the product descriptions and will require some investigation on your part!

1. <https://www.sqlite.org/index.html>
2. <https://etcd.io/>
3. <https://solr.apache.org/>
4. <https://giraph.apache.org/>
5. <https://accumulo.apache.org/>