MIS2502: Exam 1 Study Guide (Spring 2023)

Instructor: Leila Hosseini

The exam will be a combination of multiple-choice and short-answer questions. It is a closed-book, closed-notes exam.

The following is a list of items that you should review in preparation for the exam. Note that ***not every item on this list may be on the exam, and there may be items on the exam not on this list.***

**The Things You Can Do with Data/The Information Architecture of an Organization**

* What is the difference between data and information? Give examples.
* What are the characteristics of a transactional database?
  + What are the goals and benefits of this type of database?
* What are the characteristics of an analytical data store?
  + What are the goals and benefits of this type of database?
* What is the relationship between a transactional database and an analytical data store?

**Relational Data Modeling**

Schema

* Be able to draw the corresponding schema of an ERD
  + Identify tables based on entities and relationships
  + Understand and implement primary key/foreign key relationships
  + Decomposing many-to-many relationships in an ERD into one-to-many relationships in the schema
* Understand the concept of normalization
* Cardinality
  + Maximum cardinality: One-to-one, one-to-many, many-to-many
  + Minimum cardinality: optional or mandatory (i.e., 0 or 1)
* Identify when attributes describe entities and when they describe relationships

**Basic SQL & JOIN**

* **Simple SQL queries and Joining tables will be on this exam.**
* **Subselect will be on the second exam.**
* Given a schema of a database, be able to create a SQL statement to answer a question
  + e.g., In what state does customer Bob Smith live?   
     How many people live in each state?

What is the average SAT score among freshmen?

* + Implement a join of multiple tables
  + Understand the difference between inner join and outer join (left join)
* Understand how to use
  + SELECT
  + FROM
  + DISTINCT
  + WHERE (and how to specify conditions)
  + AND/OR/LIKE
  + COUNT, AVG, MIN, MAX, SUM
  + GROUP BY
  + ORDER BY (ASC/DESC)
  + LIMIT
  + JOIN/LEFT JOIN
* Put single quotes around string (non-numeric) values.
  + For example, 'NJ'