

## MIS2502: Exam 1 Study Guide

The exam will be a combination of multiple-choice and short-answer questions. It is a closed-book, closed-notes exam. You will not be able to use a computer during the 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 is a transaction?
- What are the characteristics of a transactional database?
  - What are the goals of this type of database?
- What are the characteristics of an analytical data store?
  - What are the goals of this type of database?
- What is the relationship between a transaction database and an analytical data store?

### Relational Data Modeling

- Identify and define entities, relationships, and attributes
- Cardinality
  - One-to-one, one-to-many, many-to-many, optional (i.e., 0)
- Be able to draw an ERD based on a scenario description using the correct symbols and cardinality
- Identify when attributes describe entities and when they describe relationships
- 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
- Best practices for normalization
- Given data from two tables, be able to draw the results of a join of those tables with the data correctly “matched up” (see the examples from the slides)

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Basic SQL

- **SELECTing from a single table will be on this exam (“SQL 1 – Out” slides up to slide 16).**
- **JOINS, subselects, etc. will be on the second midterm exam. Creating, updating, and deleting tables and rows will also be on the second midterm exam.**
  
- Given a schema of a database, be able to create a SQL statement to answer a question
  - i.e., In what state does customer Bob Smith live?  
How many people live in each state?
  - You will be provided the general syntax of the SELECT statement, but you will need to know how to apply it!
- Understand how to use
  - WHERE
  - GROUP BY
  - ORDER BY (ASC/DESC)
  - COUNT, AVG, MIN, MAX, SUM
  - LIMIT