

COMP 353

Midterm Review

Spring, 2018

This review is a gift, not a guarantee!! I have rewritten the midterm review to reflect the recent changes that I made to the midterm. This review is written off of the actual midterm.

Part I: Interpreting an ER Diagram, True/False and multi-answer.

You are given the Pine Valley ERD, and you are asked questions about the requirements, which you only answer if you understand the entities, relationships, cardinalities and degrees on the ER Diagram.

Part II: Interpreting an ER Diagram, True/False

You are given a smaller version of the MountainView ERD than the one you worked on for homework, and you are asked questions about the requirements, which you only answer if you understand the entities, relationships, cardinalities and degrees on the ER Diagram.

Part III: Interpreting an ER Diagram, Short answers

You are given an ERD that you haven't seen before. You are asked two questions about the diagram. The questions may be to state whether or not something is modeled correctly; how to add a cardinality for a specific scenario;

Part IV: Mapping an ER Diagram to relations

You are given an ER Diagram that you have seen before. You must map it to relations. The diagram may or may not show primary keys, foreign keys or composite keys. You must construct the relations with the appropriate fields, including all keys, and you must also write the FDs.

Part V: Understanding higher-degree relationships

You are given an ER Diagram that has at least one relationship that is ternary, 4-way, or more. You are asked to identify the higher-degree relationship, and you are asked to deconstruct it into binary relationships. You must then explain why the model is correct with just the binary relationships, or why the higher-degree relationship is needed to model the system. Your answer must be stated in terms of the non-key attribute(s) of the relationship. This is similar to our discussion of Supplier-Parts-Warehouse, where there was a non-key attribute of shipping cost. We discussed how you needed all 3 parts of the composite key in order to be constrained to one and only one value for shipping cost. But you cannot simply state it. You must explain it is (or is not!) true.

Part VI: Understanding queries

You are given an ER Diagram, and you are also given some queries. You are asked to explain, in terms of the semantics of the model, what is returned by the query. For instance, if you were given the query: `SELECT CustomerName FROM CUSTOMER WHERE ZipCode = 60611`, your answer should be, "This query returns a list of the names of all customers with an address located in the zip code 60611."

There is a possibility that you will be given data, and you may have to write what actual data are being returned in the query response.

Part VII: Writing Queries

You are given an ER Diagram of a sample database, and you are given the query description and must write the appropriate query. Queries may include any type of query that we covered in class. I will probably not include anything like Question #17 from the homework (maybe for extra credit? Oh that's right, we don't have EC in this course). But there will be some simple queries, joins, aggregate queries, GroupBy, OrderBy, calculated fields, subqueries and correlated subqueries. There's one query at the end that's a little much, but it's not as bad as the complicated homework ones.