

Student ID:

CS281 – Quiz 1, Monday, February 23, 2026

Signature:

Dr. Mustafa Degerli

Q1 (40 pts):

Mustafa, owner of Dr. D Donuts Co., wants to store information about the people working for his company. The business has grown, and he now needs a structured way to keep people records instead of using scattered spreadsheets and paper notes.

Because the amount of data is increasing, Mustafa decides to buy a database management system (DBMS) and run it as a stand-alone application on a single office computer.

To keep costs low, he wants to purchase a DBMS with the fewest possible features. He also states that he does not plan to share the system with other employees and expects to be the only person using it.

For each of the DBMS features listed below, indicate whether Mustafa should pay for that feature in the DBMS he purchases. For each decision, briefly explain why he should or should not include it.

1. A security facility.
2. Concurrency control.
3. Crash recovery.
4. A view mechanism.
5. A query language.

Q2 (30 pts):

Although you always wanted to be an artist, you ended up being an expert on databases because you love to cook data and somehow confused database with data baste. Your old love is still there, however, so you set up a database company, ArtBase, that builds a product for art galleries. The core of this product is a database with a schema that captures all the information that galleries need to maintain. Galleries keep information about artists, including their names (which are unique), birthplaces, age, and style of art. For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g., painting, lithograph, sculpture, photograph), and its price must be stored. Pieces of artwork are also classified into groups of various kinds, for example, portraits, still lifes, works by Picasso, or works of the 19th century; a given piece may belong to more than one group. Each group is identified by a name (like those just given) that describes the group. Finally, galleries keep information about customers. For each customer, galleries keep that person's unique name, address, total amount of dollars spent in the gallery (very important!), and the artists and groups of art that the customer tends to like.

You ask a friend to draw the ER diagram for the database. The sketch below is their first attempt. Since you've enjoyed the CS281 course, you perfectly know how to evaluate ER diagrams properly. Identify and justify problems (if any) in this initial draft.



