HW1b Written

Donald Ferguson

Fall 2020 COMS W4111

Due 9/27/2020 at 11:59pm

Please post all clarification questions about this homework on the class Piazza under the "hw1" folder. You may post your question privately to the instructors if you wish.

This is an individual assignment. You should not discuss the answers with other students. All code and written answers must be entirely your own.

For the questions requiring a written response (not a table, diagram, etc), your answer should be 4-5 sentences. Bullet points are acceptable. Please don't write essays, we will not read it.

For questions requiring a table, diagram, etc, your answer **cannot be handwritten.**

Late policy: You may use late days on this assignment. However, you MUST include as a comment in your submission on courseworks how many late days you are using. *If you don't tell us, or have used all your late days, 20% per late day will be deducted from the homework grade.* You have 5 late days in the semester, use them wisely.

Your file name must have the format [uni]_hw1b_written.pdf. Submissions with incorrect names will be deducted .5 points off the entire assignment.

Questions

1. What is a database management system? What are 5 reasons people use DBMS?

2. How do DBMS ensure atomicity?

3. What is an ER model? Draw an example ER model for Columbia classes including Students, Professors, and Course IDs. In this example, explicitly show an example of a one-to-many, and many-to-many relationship. *(There are many correct answers here)*

4. Insert a table that might occur in the relational database version of your ER diagram. What is an example of a key-constraint in this instance?

   Example:

example_col_1	example_col_2	example_col_3	example_col_4
entry_1	entry_2	entry_3	entry_4

   Key-constraint: for a given student and course, there is only one grade

5. What is the difference between a query language and a programming language?