BUSN 0506

Fall 2021

Final Exam

## NOTES:

* This is an open-book, open-notes, open Internet exam.
* I request you work individually on this exam. Please do not talk with each other as to how you approach each question. If I see any similarities, I will contact you to ask what was going on!
* Just send me a text if you need some clarification.
* I am testing your learning more so than anything else.
* If you cannot provide a very specific answer, provide me at least with some relevant answers that I can use to gauge your learning.
* Please type all answers and create data models at https://draw.io. Export each ERD as a PNG file and include in your Word document.
* You can just email me your answers, no need to upload to Blackboard.

## EXAM

1. Explain in layman’s terms what **Functional Dependency** is. Provide the explanation of vocabulary used (i.e., define each term like determinant, etc.). Use an example table or two (maybe from a source other than the book or PPTs) to illustrate and explain it.
2. Below is the Loan Shark list that just looks a bit different from what I had presented earlier. Normalize this list (into tables) using the process of normalization as discussed in the textbook section titled **The Normalization Process** (pgs. 89 – 91 of the 9th edition). Explain each step as you do it.

The list is attached as an Excel spreadsheet so that you do not have to type the data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CustomerID** | **CustomerName** | **Phone** | **Amount** | **Spouse** | **ChildID** | **ChildName** |
| A2001 | John Bingo | (330) 528-6273 | $5,000 | Jenny | C1001 | Philip |
| A2001 | John Bingo | (330) 528-6273 | $5,000 | Jenny | C1002 | Megan |
| A2002 | Philip Cusack | (330) 672-5432 | $7,500 |  |  |  |
| A2004 | Charles Dominic | (330) 654-0980 | $25,000 |  |  |  |
| A2005 | Chick Eduardo | (440) 752-6542 | $150,000 | Bella |  |  |
| A2110 | Will Hanks | (818) 223-7809 | $2,200,000 | Lily | C1003 | Julie |
| A2117 | Bruce Willis | (828) 457-1234 | $990,000 |  |  |  |
| A2120 | Remo Williams | (425) 217-5473 | $750,000 |  |  |  |
| B1201 | John Wit | (312) 765-9087 | $450,000 | Lisa | C1004 | Pierce |
| B1201 | John Wit | (312) 765-9087 | $450,000 | Lisa | C1005 | Johnny |
| B1221 | Tom Zack | (330) 298-1891 | $550,000 |  |  |  |

1. In your own words, explain the steps in the **Database Development Process** as discussed on pg. 279 of the textbook in the section titled **What are the Steps in the Database Development Process**? What are the outcomes of each stage?
2. Kim (hypothetical person!) works in the Graduate School at Tree Top University and keeps track of the following:
   1. PROFESSORs
   2. Graduate STUDENTs, their major professor, and two other committee members (both professors)
   3. THESIS students have written and which professors were on the committee (you can almost do a ternary relationship here although I am not sure)
   4. FORMs that have to be completed by students and who has / has not completed them (students generally have to complete multiple forms)
   5. COLLEGEs & DEPARTMENTs students are in (you may have two entities if you wish)

Your task is to create a data model (the first version) for an application that will track all of the above. Use appropriate attributes (primary key, etc.) for each entity. Here, I will be looking more at your thought process rather than the most correct diagram, so write down every thought you have, every step you can think of, every idea you have, why / why not, and describe them all. In a nutshell, tell me how you approached this situation and what made you draw the data model as you drew it.