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CIS 4331-001  
Assignment 3  
04/28/2019

1. BANK ACCOUNTS table rewritten to first normal form

Accounts

<u>AccountID</u>	<u>AccountHolderID</u>	<u>AccountType</u>	<u>CurrentBalance</u>
A1	C1	Checking	\$10,000.00
A1	C2	Checking	\$10,000.00
A2	C3	Checking	\$5,500.00
A3	C4	Money Market	\$25,000.00
A3	C5	Money Market	\$25,000.00
A3	C6	Money Market	\$25,000.00
A4	C1	Savings	\$60,000.00
A4	C2	Savings	\$60,000.00

AccountHolder

<u>AccountHolderID</u>	<u>AccountHolderName</u>
C1	Donald Smith
C2	Melania Smith
C3	Mary Hernandez
C4	Amy Clark
C5	Steve Clark
C6	Jamie Clark

2. Given the following relation named LANGUAGE CENTER MIX with sample data:
  - a. (10 pts) Give an example of an insertion anomaly
    - i. If you were to add a new student to any pre-existing class, you would be repeating the class data for every student.
  - b. (10 pts) Give an example of a deletion anomaly
    - i. If you were to delete courseID 3, there would no longer be any records of client C6.
  - c. (10 pts) Give an example of a modification anomaly
    - i. If you were to modify the first row to change the CourseLevel entity, you would also need to update row 4 as that is the same course, but with a different client.
  - d. (30 pts) List all the full, partial, and transitive functional dependencies and mark them. Do NOT include trivial, augmented, and equivalent functional dependencies
    - i. CourseID -> CourseLanguage, CourseLevel
      1. Partial dependency, only uses CourseID component of the primary key
    - ii. ClientID -> ClientName
      1. Partial dependency, only uses ClientID component of the primary key
    - iii. CourseID, ClientID -> Attendance, FinalScore
      1. Full Key dependency