Relational Databases – DATA2201: Course Project

Rubric (Out of 100 total Marks (30%))

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| Question number | Mark |
| Phase 1 | 50 |
| Phase 2 | 50 |

**Relational DB project case study**

An email from your project liaison at the SKS National Bank is given below.

SKS is organized into branches. Each branch is located in a particular city and is identified by a unique name. Each branch keeps a total of all the deposits and loan amounts.

Bank customers have a name, a customer ID, and a home address. A customer may have an account (checking or savings) and may take out loans. Customers may have personal bankers or loan officers that they always work with.

Bank employees (including bankers and loan officers) have unique employee IDs. Each employee has a manager, a start date (so length of employment can be calculated), a name, a home address, and a set of locations where they work. A location may be a branch or may be an office that is not in a branch.

Checking and savings accounts can be held by more than one customer and a customer can have more than one account. Each account has a balance and a most recent date that the account was accessed by the customer. Savings accounts have an associated interest rate and checking accounts keep track of dates, amounts, and check numbers for overdrafts.

A loan originates at a particular branch and can be held by one or more customers. The bank tracks the loan amount and payments. A loan payment number does not uniquely identify a particular payment among all loans, but it does identify a particular payment for a specific loan. The date and amount are recorded for each payment.

(adapted from *Database System Concepts*, A. Silberschatz, H. Korth, and S. Sudarshan, 4th edition, McGraw-Hill, 2002, pp. 59-60.)

**Phase I – Conceptual Design and Logical Design (50 marks)**

**Step 1.** Create a set of requirements for the attached case study that will be used to create the ER Diagram in Step 2. (5 marks)

**Step 2.** Create an ER diagram or Relational schema that contains at least five entities and at least four binary relationships (1 to 1 , or 1 to n). At least one of the relationships should be many to many. Show all attributes for all entities. Include the relations (with their attributes) and the referential integrity constraint lines.

(10 marks)

**Step 3.** Based on that schema, create a set of tables. Name the database and its tables appropriately. Make sure to specify primary keys and create all the necessary relationships between the tables.

(10 marks)

**Step 4**. Populate the tables with initial data (no less than five and no more than twenty records per table). (10 marks)

**Step 5.** Create at least 10 queries for this database. (Before you start writing a query you should think of a user story by studying the case study. (15 marks)

**Deliverables:** Database requirements and ER model, creation of database, tables, establishing relationship between them. Identification of 10 queries. Final deliverable as .sql file or .bak file.

Phase 2 will be posted later