Assignment for Module 10

The assignment for Module 10 involves problems for schema conversion. Problems 1 to 4 involve the ERD in Figure 1.

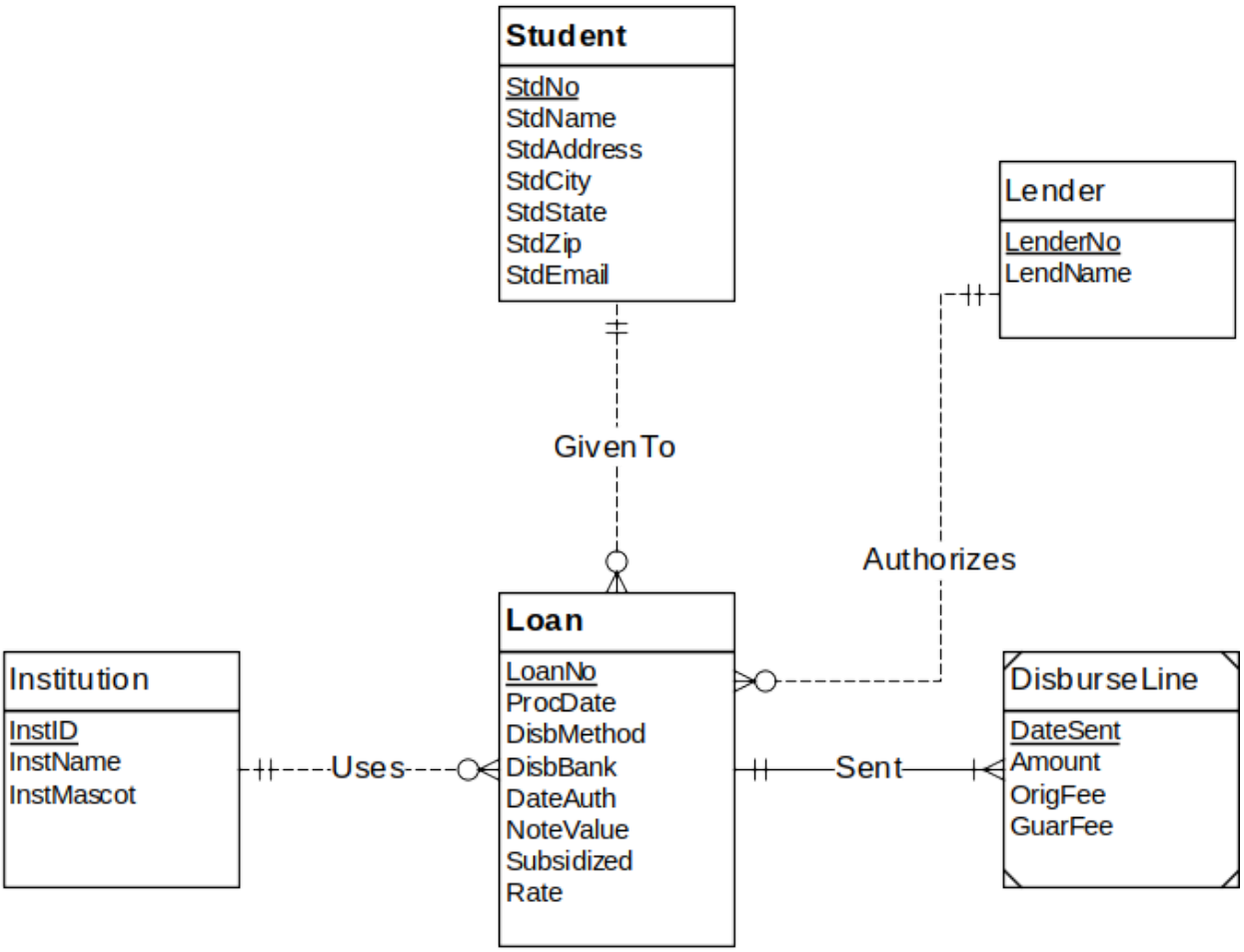

Figure 1: ERD for Problems 1 to 4

1. Requirements for Data Modeling Problems

1. For the ERD in Figure 1, you should indicate the applications of the entity type rule. For each entity type rule application, you should identify the table name, primary key, and other columns. You do not need to write CREATE TABLE statements.

Table Name: Student

Primary Key: StdNo

Columns: StdNo, StdName, StdAddress, StdCity, StdState, StdZip, StdEmail

Table Name: Loan

Primary Key: LoanNo

Columns: LoanNo, ProcDate, DisbMethod, DisbBank, DateAuth, NoteValue, Subsidized, Rate

Table Name: Institution

Primary Key: InstID

Columns: InstID, InstName, InstMascot

Table Name: Lender

Primary Key: LenderNo

Columns: LenderNo, LendName

2. For the ERD in Figure 1, you should indicate applications of the 1-M relationship rule. For each 1-M relationship rule application, you should indicate the changes to the tables you listed in problem 1 including foreign key columns and NOT NULL constraints for foreign keys if necessary.

   LOAN TABLE:

   StdNo NOT NULL,

   LenderNo NOT NULL,

   InstID NOT NULL,

   FOREIGN KEY(StdNo) REFERENCES Student,

   FOREIGN KEY(LenderNo) REFERENCES Lender,

   FOREIGN KEY(InstID) REFERENCES Institution

3. For the ERD in Figure 1, you should indicate applications of the M-N relationship rule. For each M-N relationship rule application, you should list the table name, primary key, and other columns.

   There doesn't exist any M-N relationships between the tables.

4. For the ERD in Figure 1, you should indicate applications of the identifying relationship rule. For each identifying relationship rule application, you should indicate the changes to the tables you listed in problem 2.

   DISBURSELINE TABLE:

   LoanNo NOT NULL,

   FOREIGN KEY(LoanNo) REFERENCES Loan

5. Convert the ERD shown in Figure 2 into tables. List the conversion rules used and table design. For each table, you should list the primary key, foreign keys, other columns, and NOT NULL constraints for foreign keys if necessary. You do not need to write CREATE TABLE statements.

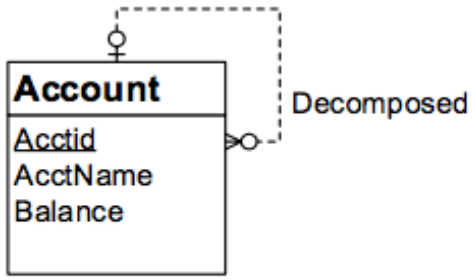

Figure 2: ERD for Conversion Problem 5

The following table conversion uses the **Entity Type Rule and the 1-M Rule**.

Table: **Account**
Primary Key: **Acctid**
FOREIGN KEY(Decomposed) REFERENCES Account
Columns: **Acctid, AcctName, Balance, Decomposed**

6. Convert the ERD shown in Figure 3 into tables. List the conversion rules used and table design. For each table, you should list the primary key, foreign keys, other columns, and NOT NULL constraints for foreign keys if necessary. You do not need to write CREATE TABLE statements.

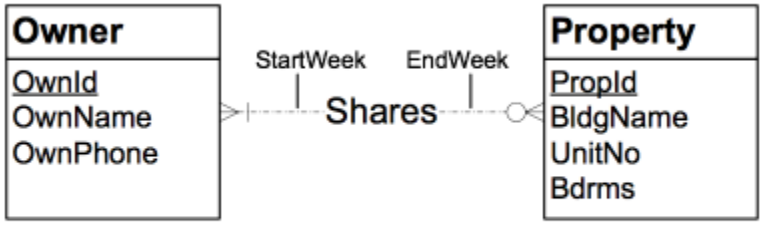

Figure 3: ERD for Conversion Problem 6

The following table conversion uses the **Entity Type Rule and the M-N Rule**.

Table: **Owner**
Primary Key: **OwnId**
Columns: **OwnId, OwnName, OwnPhone**

Table: **Property**
Primary Key: **PropId**
Columns: **PropId, BldgName, UnitNo, Bdrms**

Table: **Shares**
Primary Key: **PropId and OwnId**
FOREIGN KEY(PropId) REFERENCES Property
FOREIGN KEY(OwnId) REFERENCES Owner
Columns: **PropId, OwnId, StartWeek, EndWeek**