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DTSC660: Data and Database Management with SQL

Spring II 2022

Assignment 3

1)

Primary key is defined as a UNIQUE IDENTIFIER that uniquely identifies the rows or tuples in the table. If, in the advisor relation, a student (represented by a s\_id primary key) has more than one advisor then each row will have the same student (s\_id) but with different advisors. If each row has the same student (s\_id) then s\_id is no longer a UNIQUE IDENTIFIER that identifies the rows or tuples in the table. If s\_id is no longer a UNIQUE IDENTIFIER then it is no longer a primary key.

Also, in the advisor relation, advisors (represented by an i\_id key) can have more than one student to advise.

If an advisor has more than one student to advise in addition to the student having more than one advisor then there could be more than one i\_id that are the same and more than one s\_id that are the same, respectively, in the tuples (rows) in the advisor relation. If there are more than one i\_id (for advisor) and s\_id (for student) that are the same in the tuples then both are not considered unique identifiers. If both are not unique identifiers then both can't be primary keys. However, they can be considered as foreign keys and both can be combined to form a compound primary key for the advisor relation.

2)

#### **Banking Database Schema:**

branch ( branch\_name, branch\_city, assets )

customer ( cust\_ID, customer\_name, customer\_street, customer\_city )

loan ( loan\_number, branch\_name, amount )

borrower ( cust\_ID, loan\_number )

account ( account\_number, branch\_name, balance )

depositor ( cust\_ID, account\_number )

#### **Foreign key identification:**

-For loan relation: branch\_name attribute referencing branch relation.

-For borrower relation: cust\_ID attribute referencing customer relation and loan\_number referencing loan relation.

-For account relation: branch\_name attribute referencing branch relation.

-For depositor relation: cust\_ID attribute referencing customer relation and account\_number referencing account relation.

