Normalization – a process minimizing data redundancies

What are the stages? Normal form

The higher the normal form, the better; what are the problems? Requires more processing and logic because you increase the number of tables

1NF

2NF

3NF – used for most businesses

BCNF - theoretical

4NF - statistical

For most business applications, 3NF is enough.

Why do we sometimes do denormalization? If you combine tables and you need that data in the future, it’s faster to already have it instead of keeping on accessing it.

1NF – a table has key, no repeating group; all attributes depend on key

A determines B – B functionally depends on A

Partial dependency – dependencies based on only a part of composite primary key

Transitive dependency – B depends on A; C depends on B

2NF – in 1NF and include no partial dependency

3NF – in 2NF and contain no transitive dependency

BCNF – a special case of 3NF, no more than 1 candidate key

4NF – in 3NF; no multi valued dependencies

What leads to anomalies? Data redundancy

Primary attribute – part of composite key

A group of multiple entries of the same type can exist for any single key attribute occurrence – repeating group

When you add a new row, the DBMS will insert automatic surrogate key.

Access: auto number; SQL server: identity; Oracle: sequence

Integrity v. flexibility

Denormalization: compromise

Data warehouse – decision support system

What is an attribute that cannot be further subdivided? Atomic attribute

What is the name for a surrogate key in Oracle database? Sequence

What provides a micro view of the entities within the ERD? Normalization

What provides a macro view of requirements….? ERD

What is the most likely data type for a surrogate key? Numeric

Which normal form is in 3NF and no multi-valued dependencies? 4NF

Boyce Codd Normal Form

When designing a database you should make sure entities are \_\_\_\_ before table structures are created. Normal Form

What kind of dependency is relied upon part of an entity? Partial dependency

Diagram shown in class – dependency diagram

Integrity needs to be combined with flexibility