

Data-Modeling Checklist

"All that is needed is there, and all that is there is needed!"

Business Rules:

- Properly document/verify all business rules with users (and/or requesting authority)
- Determine entities, attributes, relationships, data types, and constraints

Naming Conventions:

- For this course, use ***all*** lower case names
- Use shortest possible names that are still ***intuitive***
- Must be unique (at least for that particular database)
- **CANNOT** contain spaces, if more than one word, use underscore (_)
- **CANNOT** contain special characters (/ , @ , ! , & , \ , etc.)
- **Simple solution: use only alphanumeric chars. and underscore.**
Begin name with alpha char.
- Attributes: use 3 char prefix of table, followed by underscore (_)
- Relationships: use active or passive verbs that indicate relationship

Design:

- All entities must have **entity** integrity (must have PK, and cannot be null)
- All entities must have **referential** integrity (FKs must match PKs, or "may" be null)
- Nonkey attributes must be fully dependent upon the PK
- Relationships should indicate participation, connectivity, and cardinality
- PKs/FKs must match ***identically*** (while their names don't have to match, it makes identification easier)
- Attributes should contain simple, single-valued data (when possible)
- Composite attributes must be resolved (create new attributes)
- Multi-valued attributes must be resolved (create new table)
- Always add data to "parent" tables first, then "child" tables
- ***ALL* inserted data must match their associated attribute data types EXACTLY!**

Normalization:

- Minimize data redundancy
- "Single-theme tables"
- **All** non-key attributes should depend upon the key, the whole key, and nothing but the key

Check:

1. Are there any spaces in the table/attribute names?
2. Are attribute names prefaced using three-character table names?
3. Do ***ALL*** tables have **entity and referential** integrity (see above)?
4. Do PK/FK data types match **EXACTLY**?
5. Do the inserted attribute data match their required data types?

Note: When adding data using MySQL Workbench, ***be sure*** to "Apply Changes to Data" (green check mark) after adding data.