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Spaces

Introduction to data modeling in information systems.

Conceptual Modeling

Conceptual modeling is done often through an Entity Relationship Diagram (ERD). Using ERD's is important as it allows you to identify the entities of the database and the relationships between them before production of the database.

According to the Conceptual Database Design Methodology presentation found on the DAT601 Moodle page, we identify entities to "define the main objects the user is interested in". This is often best defined by following the principle of "Identify objects that have existence in their own right".

Once an ERD has been constructed, all entities, relationships and entity attributes and domains are documented in a data dictionary.

Logical Modeling

Logical modeling is the act of taking a conceptual model and "normalizing" it. This means changing the model to include primary and foreign keys based on previously established relationships. The next step to normalize is to ensure that all attributes are atomic which means that attributes contain only one value.

Physical Modeling

Physical modeling is when you take a logical model and implement it into a physical database for production testing. This includes creating all the tables, defining data types, applying constraints and defining relationships.

Conceptual modeling and the Chen entity-relationship

The Chen entity relationship model is used to depict a logical model, it does this though it's use of shapes and symbols that relate to different relationships, attributes, entities and cardinality. Below is a list of these things.

Entity – Rectangle

Attribute – Oval

Relationship – Diamond

Cardinality – Numbers or symbols (crows' foot)

Conceptual Model

Found in GitHub repo as image file

Data Dictionary

Found in separate document to save space

References

Conceptual Database Design Methodology presentation
https://ecampus.nmit.ac.nz/moodle/mod/resource/view.php?id=1333858