5. Conceptual Schema and Modelling

When learning to model, it is crucial to be precise, accurate, complete, and have an attention to detail. These skills are necessary for success in information technology. Make sure to understand each part, apply it, and develop techniques in doing so.

Defining the Universe of Discourse

The universe of discourse is a collection of propositions that include static and dynamic aspects, rules, laws, and how derived values are determined. It is important to ensure that everything related to the universe of discourse is included.

Examples of a conceptual schema:

- A simple proposition: "Students enrol in units."
- A constraint: "Students must be enrolled in at least one unit and no more than five units."
- Describing derived values: "Students may graduate after completing 6 credit points times 24 units, giving a total of 144 credit points."

A conceptual schema typically includes:

- Basic fact types
- Representation of fact types
- Relationships between fact types
- Constraints involved
- Rules for derived values

Information about fact types, rules, constraints, and derivations may come from various sources, and thoroughness is essential to ensure a complete conceptual schema.

Considerations for the Conceptual Schema

- The interface may be a single user or an application programmatically accessing the DBMS to retrieve data.
- The conceptual schema is an abstraction of the universe of discourse and is independent of the implementation.
- The independence between the conceptual schema and its implementation allows for the use of any form of DBMS.

Examples of conceptual schemas with data instances:

1. Each student is involved in one course: Student 1357 is involved in course one.
2. Fact types with constraints and an inference rule.

The data stored in the three-level architecture is shown in the examples provided.

See Also

Week 1