

IT2140 - Database Design and Development

Department of Information Technology, Faculty of Computing

Year 2 semester 1 (2025)

Tutorial 04

Learning outcomes:

- Evaluate real-world scenarios and model them using Entity Relationship (ER) diagrams.

1. Consider the following requirements for a university database. Draw an ER diagram considering the scenario below.
 - Professors have an SSN, a name, an age, a rank, and a research specialty.
 - Projects have a project number (unique), a sponsor (e.g. NSF), a starting date, ending date and a budget.
 - Graduate students have an SSN, a name, an age, and a degree program (e.g., M.S. or Ph.D.).
 - Each project is managed by one professor.
 - Each project is worked on by one or more professors.
 - Professors can manage and/or work on multiple projects.
 - Each project is worked on by one or more graduate students.
 - Graduate students can work on multiple projects.
2. Consider the following requirements for a library database. Draw an ER diagram considering the scenario below.
 - A Library is organized into several sections such as fiction, children and technology. Each section has a name and a number(unique) and it's headed by a head librarian.
 - Each book belongs to a section and has a title, authors, ISBN, year and a publisher.
 - A book may have several copies. Each copy is identified by an access number.
 - For each copy borrowed, current borrower and due date should be tracked.
 - Members have a membership number, an address and a phone number.
 - Members can borrow 5 books and could put hold request on a book
 - Librarian has a name, id number, phone and an address.