International University, VNU-HCMC

School of Computer Science and Engineering

Principles of Database Management
IT079IU

Instructor: Nguyen Thi Thuy Loan

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https://nttloan.wordpress.com/

Zalo group

Course Website

- Blackboard IU
- Please check frequently for updates!

Instructor

- Nguyen Thi Thuy Loan (Loan Nguyen)
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  - http://nttloan.wordpress.com/
  - office: O1. 610
- About myself
  - PhD in CS, Wroclaw, Poland. 2015
  - Postdoc: University of Warsaw, 2017
  - Assoc. Prof. IT, 2020
  - Joined IU in December 2018
  - Research interests:
    - Data Mining and Knowledge Discovery
    - Class Association rules
    - Pattern mining, graph mining
    - Data Analytics
    - Healthcare

Teaching assistant

Assoc. Prof. Nguyen Thi Thuy Loan, PhD

Trần Nam Anh

- Email: tnanh.gdsciu@gmail.com
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Description

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- Introduces concepts and principles of database design, implementation, and management.
- Covers:
  - (Extended) Entity–Relationship (E-R) modeling
  - Relational Model
  - Relational Algebra
  - Structured Query Language (SQL)
  - Advanced SQL techniques
  - Normalization
- Combines theoretical knowledge with practical skills.
- Learning activities include lectures, lab exercises, projects, and discussions.

Learning outcomes

CLO1	CLO2	CLO3
Develop an (Extended) ER model from the given requirements.	Apply normalization principles to transform an ER model into a relational database schema.	Construct efficient SQL queries, relational algebra expressions, and query trees for data retrieval and manipulation.

Learning outcomes

Competency focus:

- Knowledge: CLO1, CLO3
- Skills: CLO2, CLO3
- Attitude: CLO3

Class Rules

- Stay focused – avoid distractions.
- Keep phones silent – no calls or messaging.
- Use laptops only for learning – not for personal activities.
- Respect classmates – avoid unnecessary talking.

Requirements

- Prerequisite: IT149IU – Fundamentals of Programming
- Attendance: A minimum of 80% attendance is required.
- Pass condition: Total score must exceed 50/100.
- Active participation is expected; questions and discussions are encouraged.

Requirements

- Students are expected to attend every class section on time and prepared.
- Students are expected to spend *time outside of class* to complete assignments.
- If you cannot complete an assignment, contact the instructor (BEFORE THE DUE DATE)
- Tests are to be taken on the day and time scheduled. DO NOT copy from other students.

Main topics

- Introduction to Database Systems
- (Extended) ER Model
- Relational Database Design
- Relational Model and Relational Algebra
- Keys and FDs
- (Advanced) Structured Query Language (SQL)
- Normalization

Logistics

- Credit Points: 4 (Theory: 3, Practice: 1) = 6.18 ECTS
- Total Workload: 182.5 hours
- Contact Hours: Lecture – 37.5 hours, Lab – 25 hours
- Self-study & Exam Prep: 120 hours
- Language: English
- Teaching Methods: Lectures, laboratory sessions, projects.

Grading

- Midterm Test: 25%
- Lab + Homework + Quiz + Project Assignment (In-class): 35%
- Final Exam: 40%

Assessment Contribution to CLOs

- Labs: CLO1 – 40%, CLO3 – 60%
- Midterm: CLO1 – 40%, CLO3 – 60%
- Quizzes: CLO2 – 40%, CLO3 – 60%
- Project: CLO1 – 30%, CLO2 – 20%, CLO3 – 50%
- Final: CLO1 – 20%, CLO2 – 50%, CLO3 – 30%

Grading Strategy

- Final grades will be determined based on the overall performance of the entire class across all components.
- The highest-performing student will receive 100 points, regardless of the total score.
- Only "above expectation" performances will earn the full 100 points.
- There is no fixed lowest grade or predetermined grade distribution
- Everyone has the opportunity to achieve a good grade through effort and dedication!

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Grading Strategy

- Continuous assessment via quizzes, lab work, and projects ensures ongoing feedback.
- The midterm exam evaluates progress in conceptual understanding and application.
- Final exam assesses comprehensive mastery of both theory and practice.

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Schedule – Important Dates

- Week 8 Midterm Exam
- Weeks 13, 14, and 15: Presentation
- Weeks 16 and 17: Final Exam (by university schedule)
- **These times are fixed. If you miss a test, you cannot retake it.**

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Exams

Midterm test – Week 8

- Covers all materials from lectures and sections up to the exam date.
- You may use one handwritten notebook during the exam (electronic devices, photocopies, printouts, and A4 paper are not allowed).
- Total weight: 25%
- Designed to assess your understanding of the material.

Exams

Final exam

- Comprehensive, covering all lectures until the end of the course.
- You may use one handwritten notebook during the exam (electronic devices, photocopies, printouts, and A4 paper are not allowed).
- Weight: 40%

Projects/ Assignments

Group project guidelines:

- Weight: 20% of your final grade
- Group size: 7 or 8 students, depending on class size.

Finding group members:

- Use BB IU or Zalo to connect with classmates. Announcing your general area of interest or any specific problem you'd like to address.

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Projects/ Assignments

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Responsibilities:

- Each group member is expected to contribute approximately equal effort.
- We encourage you to showcase your creativity and research skills.

Grading:

- Please note that grades will vary among group members based on individual contributions.

Projects/ Assignments

Project topics:

- Examples of project topics will be posted on Blackboard IU. However, we encourage you to propose a new and creative idea of your own.

Project Deliverables

1. Project proposal (around 2 weeks, 1-3 pages)
   - problem selection is part of the project
   - 3 weeks from now
   - but start asap, look for problems, do related work study, find an interesting question, let me know your initial thoughts, all by the deadline
2. Midterm progress report (around 5 weeks, 3-5 pages)
3. Final project report (around 10 weeks, more than 25 pages)
4. A final 15 mins project presentation and/or demonstration (in the last 1-3 classes)

Project Evaluation Criteria

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Scale of 100 (70%):

1. Well-motivated? 10
2. Comprehensive related work survey? 15
3. Quality of writing? 10

– should reflect all other factors too except class presentation

5. Class presentation/demo? 20

– should reflect all other factors too except writing

6. Technical contributions? 45

– ERD/ Relational Database Schema/ Database/ Program etc.

Evaluating others' projects during the project presentation (30%)

Class Participation/ Quiz

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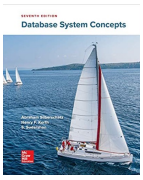
Includes:

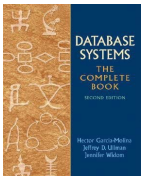
- Class participation: Engaging in Q&A during lectures.
- Quizzes: Periodic assessments to reinforce learning.

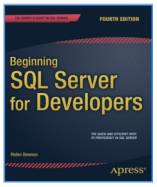
General expectations:

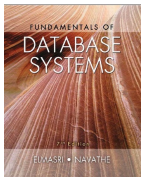
- Actively participate in class discussions.
- Q&A during lectures or on Zalo.
- Support your peers by answering questions on Zalo.

Learning Resources









- Abraham Silberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts* (7th ed., 2020)
- Jeffrey A. Hoffer, Ramesh Venkataraman, Heikki Topi, *Modern Database Management* (13th ed., 2019)
- Ramez Elmasri, Shamkant B. Navathe, *Fundamentals of Database Systems* (7th ed., 2016)

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Thank you for your attention!