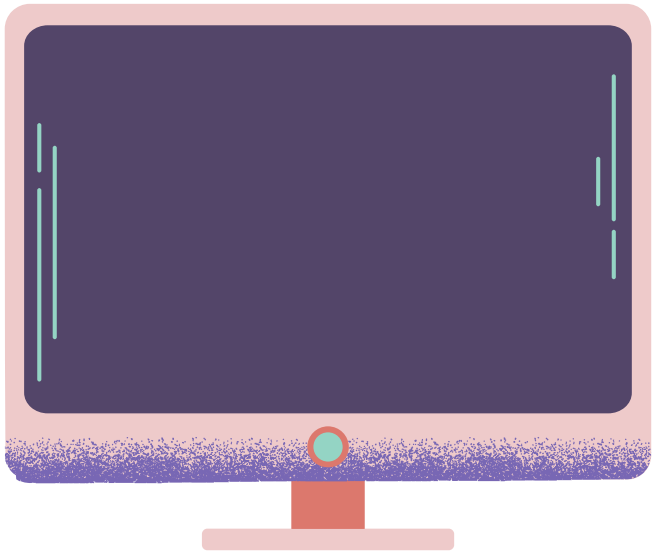
Welcome!

CMPSC 305 – Database Systems

ALLEGHENY COLLEGE

Agenda for today

- Introductions: Getting to know me
- Course overview and expectations
- Class Survey: Getting to know you



Instructor: Hang Zhao

Office: Quigley Hall 208 & Alden Hall 105

Email: hzhao@allegheny.edu

Office hours:

M/F 10:00am-12:00pm. Location: Quigley Hall 208
Tue/w 7:00pm-8:00pm. Location: Virtual

By appointment at https://calendar.app.google/PD6Ku9PSCZ716K5D7

A little about me

Visiting Assistant Professor
- Dep of Computer Science

Education:
- **University of Connecticut**
- Doctor of Philosophy, Agricultural and Resource Economics
- **Boston University**
- Master of Science in Actuarial Science
- **University of Colorado**
- Bachelor of Arts, Major in Economics, Minor in Mathematics

Research Interests:
- Drug policies, the well-being of older adults, nutrition and health outcomes

LOADING...

Resume

You Have A
New Messages!

OK READ

OK

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod

OK

LOADING...

Research Statement

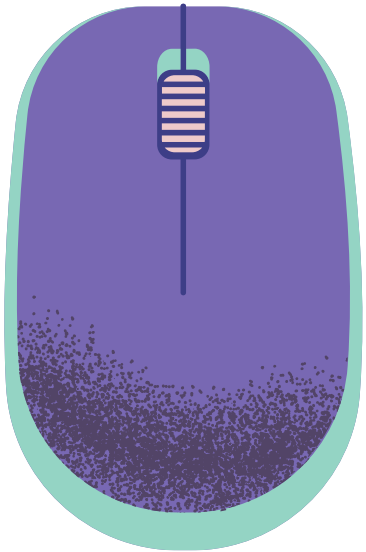
You Have A
New Messages!

OK READ

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod

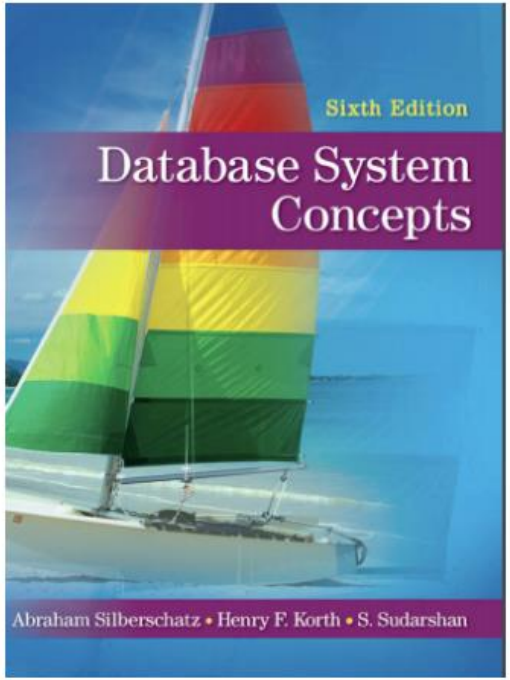
OK

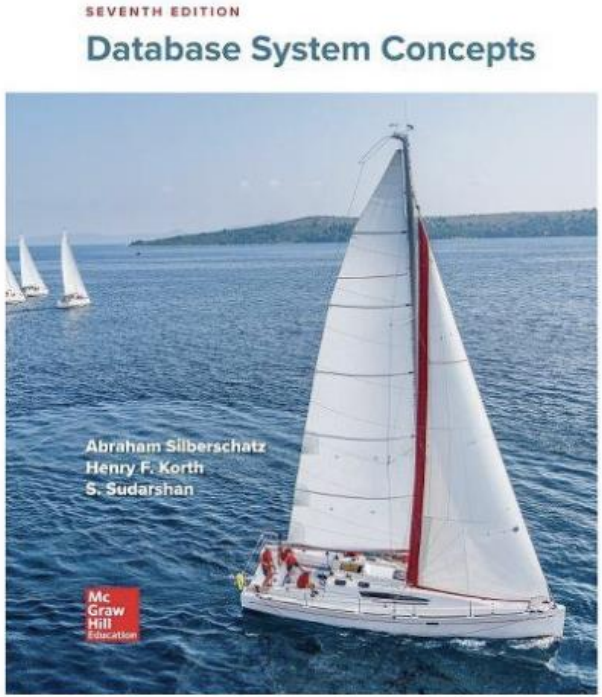
OK



Course overview and expectations

Textbook





Database Systems Concepts, sixth or seventh Edition. Avi Silberschatz, Henry F. Korth, and S. Sudarshan.

Course Overview

- Database systems
- Data models and schemas
- Database design and implementation
- SQL programming
- Python for automatic queries, Streamlit
- Object-based databases
- Data Warehousing and Mining
- NoSQL databases (i.e., MongoDB, Neo4j)

Learning Outcomes and Objectives

Objective 1: Correctly describe object-oriented data storage, low-level data storage, transactions and concurrency control, data warehousing and data mining.

Objective 2: Design and implement SQL databases and formulate advanced structured queries to extract knowledge from databases.

Objective 3: Implement Python programs to access databases, define and execute queries, and produce web-based visualizations of the data and query results.

Objective 4: Create and/or use post-relational database management systems and contrast them with relational database systems.

Objective 5: Clearly and persuasively communicate the results of database inquiries and critically examine and reflect on their ethical implications.

Why study database systems

- Databases are useful
  - Many computing applications deal with large amounts of information
  - Database systems give a set of tools for storing, searching and managing this information

- Databases in CS
  - Databases are a core topic in computer science
  - Basic concepts and skills with database systems are part of the skill set you will be assumed to have as a CS graduate

Technical Interview Question

Q1: Top 2 amount spent by each user.

Table: User

Users	Date	Amount	Manager
A1	2/1/2010	5.15	Null
A1	1/5/2010	10	Null
A2	1/21/2012	50	Mike
A2	1/21/2010	1	Mike
A2	6/10/2019	100	Mike
A3	8/12/2015	40	Null
A4	11/12/2015	45	Chris
A5	8/12/2015	90	Null

Technical Interview Question

Q2: Total amount spent by Apple Pay users vs non Apple Pay users.

Table: Apple pay

User	Apay
A1	Yes
A2	Yes
A3	Yes
A4	No
A5	No

Class structure

- Lectures
- Activities
- Lab Assignments

classDocs/

- First stop for all materials
- Syllabus
- Lecture slides

Assessment

- Class Participation and Activities (10%)
- Exam (25%)
- Lab Assignments (35%)
- Final Project (30%)

Course grades will approximately fall into the following ranges: A (96%), A- (90%), B+ (87%), B (83%), B- (80%), C+ (77%), C (73%), C- (70%), D+ (67%), D (63%), F(60%).

How to do well

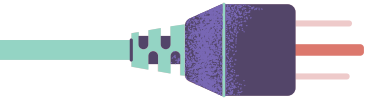
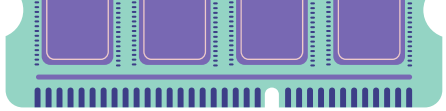
- Attend lectures
- Come to office hours
- Study with your peers

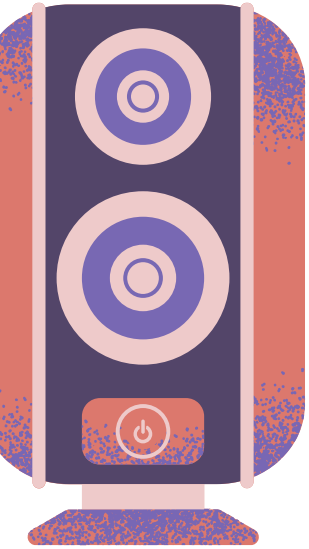
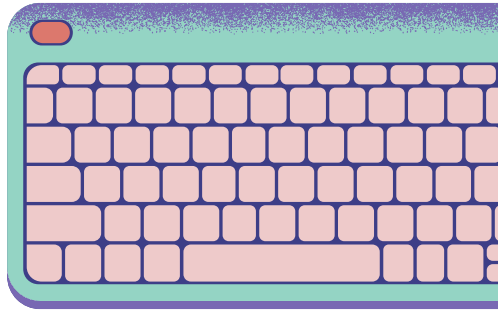
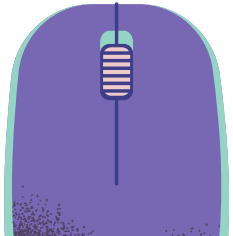
Class Survey: Who are you?

Class Survey

This Friday

- Database System.
- Set up GitHub & Discord

THANKS