Databases for Many Majors: More to Explore

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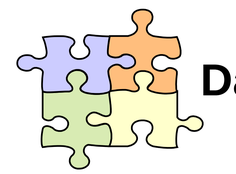
What is a database?

A database provides efficient shared access to persistent data.

Visualizations designed for students of any major to understand the fundamental concepts of databases

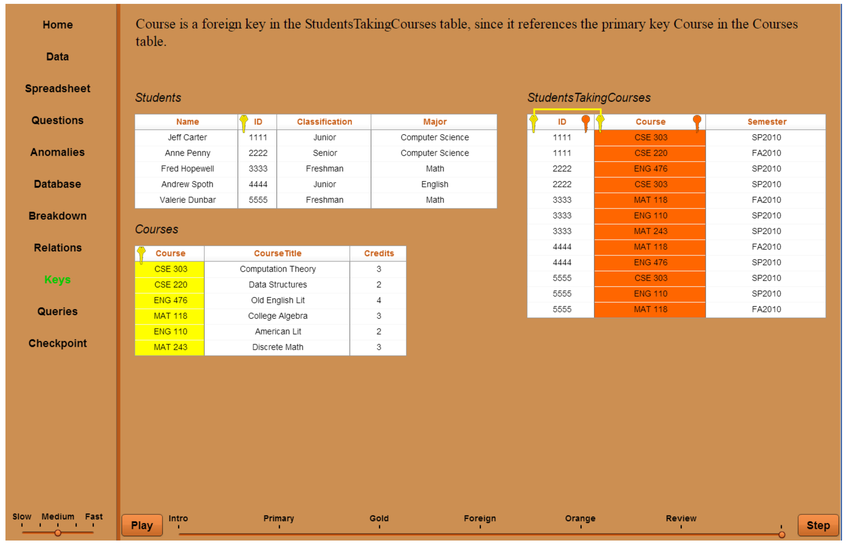
- IntroDB: Introduction to Databases
- QueryDB: Introduction to Querying
- DesignDB: Conceptual Database Design

Checkpoints: Quiz Yourself!



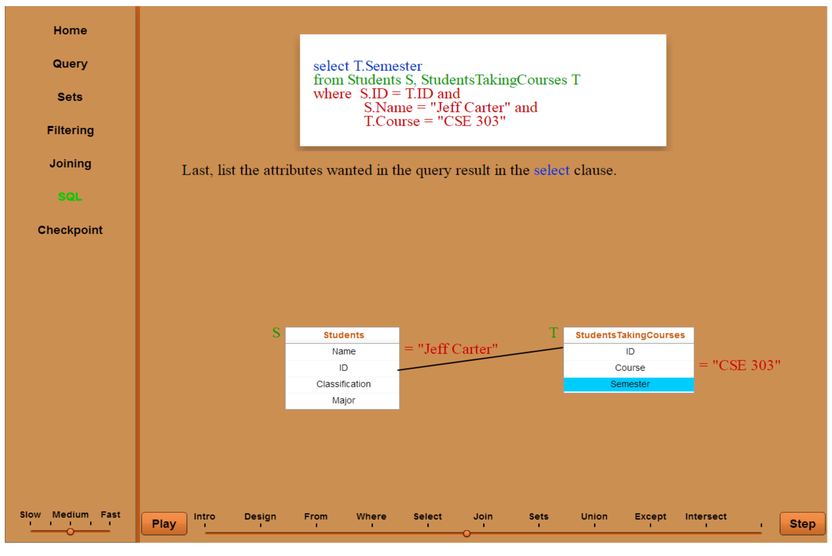
Database queries are puzzles!

Introduction to Databases



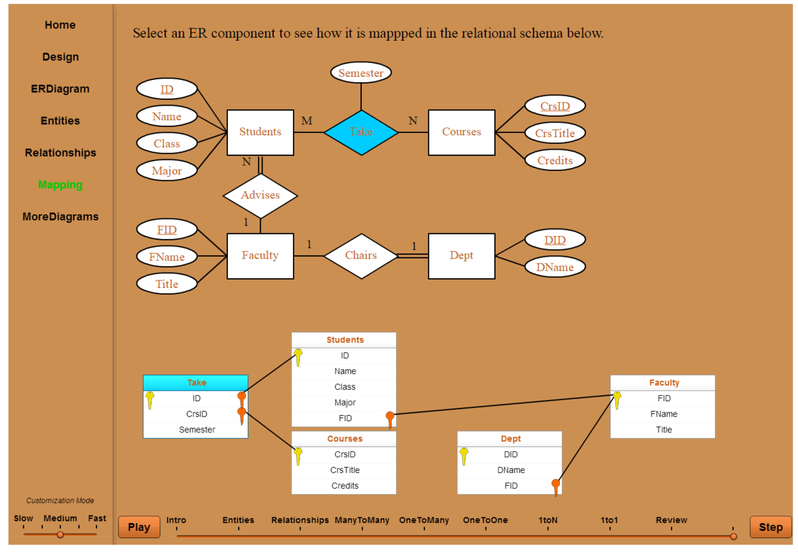
- *How are relational databases different from spreadsheets?*
- *How do databases use keys to identify and relate information?*
- *What is a query?*

Introduction to Querying



- *What operations are needed to filter and combine data to answer queries?*
- *What language is used to ask the database questions?*

Conceptual Database Design



- *What concepts are to be stored in the database and how are they related?*
- *How do you map/translate the diagram/picture of the design to relational tables?*

B. S. Applied Computing

School of Mathematical and Natural Sciences
New College of Interdisciplinary Arts and Sciences
Arizona State University at the West campus

http://newcollege.asu.edu/mns

What is computing?

Solving real world problems using a computer.

What are the characteristics of students in computing?

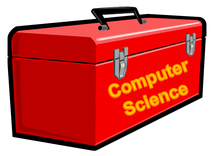
- Creative
- Puzzle solvers
- Love to learn

What tools do you need for a computer science toolbox?

Programming

Logic

Abstraction



APPLIED COMPUTING MAJORS

Applied Computing students learn fundamental computer science and achieve advanced technical expertise, while also understanding how these important skills operate in the real-world. Students engage in interdisciplinary connections at ASU's West campus to apply their knowledge through internships and research, preparing for high-demand careers in computing, especially cybersecurity, databases and networks.

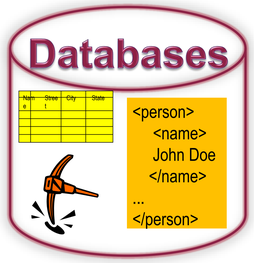
APPLIED COMPUTING MINOR

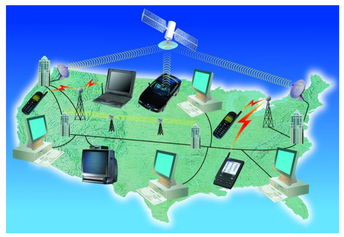
ACO 201*, ACO 240, ACO 320, ACO 330, ACO 350

* Prerequisites: ACO 101 and ACO 102

Degree Requirements

- Lower-level Applied Computing:
  CS1 (AC0 101), CS2 (ACO 102),
  Data Structures & Algorithms (ACO 201),
  Programming Languages (ACO 240)
- Math:
  Brief Calculus (MAT 210),
  Discrete Math (MAT 243),
  Statistics (STP 226)
- Upper-level Applied Computing:
  1 Database (ACO 320),
  1 Network (ACO 330),
  1 Operating Systems (ACO 350),
  3 Databases/Networks/Cybersecurity
- Internships (ACO 484) and/or
  Research (ACO 499) [2 3-credit courses]





Networks

Explore interdisciplinary opportunities by adding a minor or even a concurrent degree in another field, such as applied math, business, communications, life sciences, psychology, sociology or statistics!

Research Opportunities for Undergraduates!

New College Undergraduate Inquiry and Research Experiences

Engaging undergraduates in research collaboration with faculty

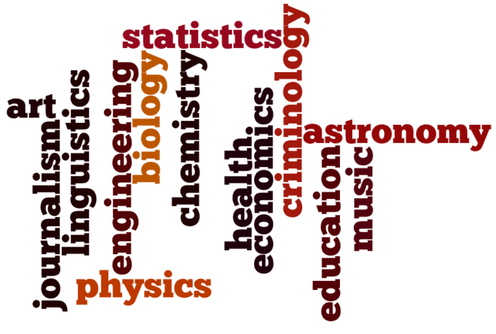
http://newcollege.asu.edu/ncuire

Sample Research Projects

- Database Animations for Many Majors
- BullyBlocker: Cyberbullying detection in Facebook
- Discover the Interest of Twitter Users
- Modeling Network Traffic of Mobile Internet Devices
- SimDB: Fast identification of similar pictures in database systems
- Vulnerability of Wireless Home Networks: Hacking into WPA

INTERDISCIPLINARY!

Computing can be combined with many disciplines!



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Arizona State University