Computer Science 126, Database Systems (3 units)

Class Instructor: David Ruby

Class Hours: MWF 10:00-10:50

Office: Science II – 273

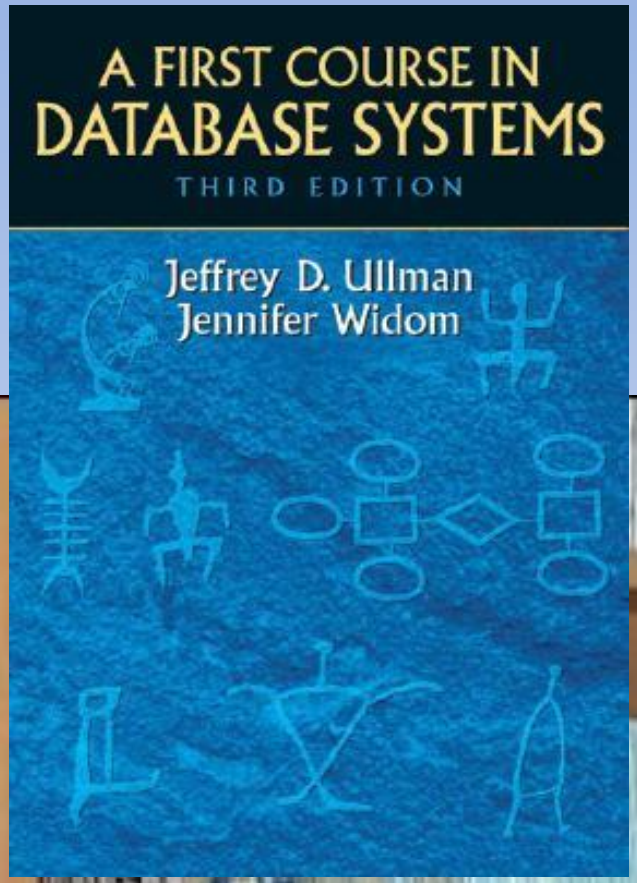
Email: druby@csufresno.edu

Focus: Data

- What is it?
- How should we organize it?
- What kinds of problems might we encounter?

Data w/ Relational Database

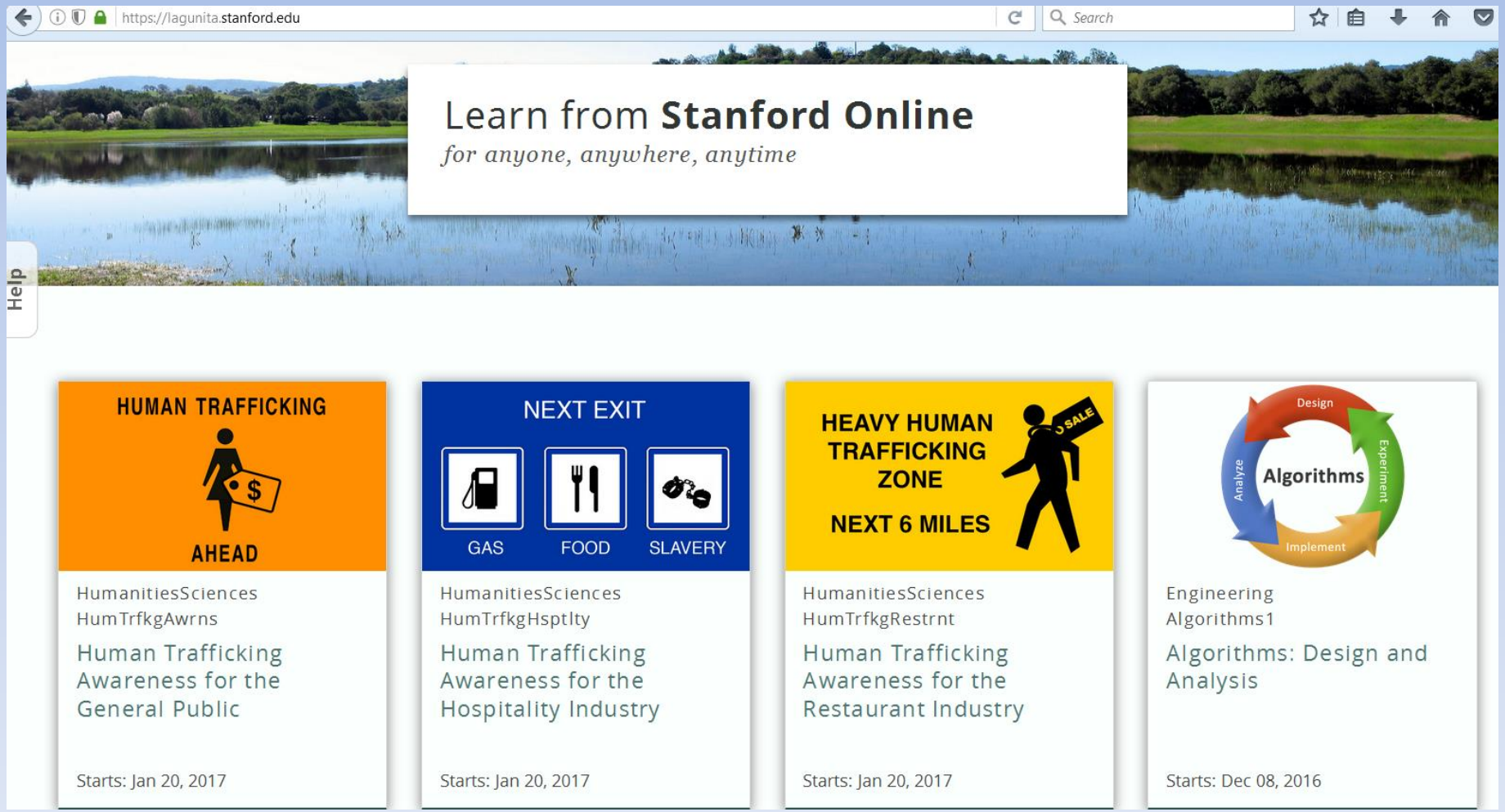
- Good Window on Data.
- A lot of data currently in RDMS.
- Also look at semi-structured data w/ XML & JSON.



Textbooks and Materials

A First Course in Database Systems (3rd)
by Jeffrey D. Ullman & Jennifer Widom

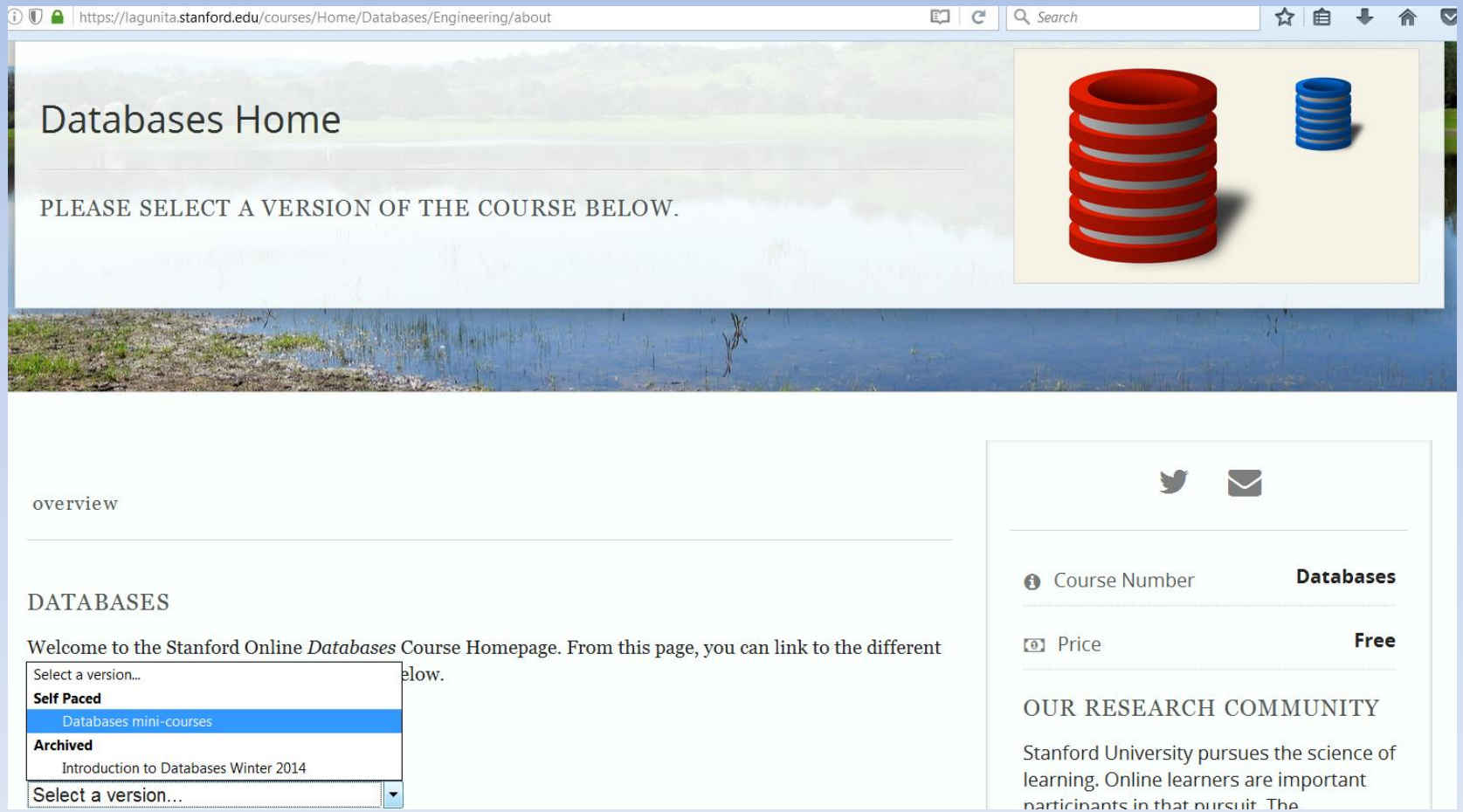
SQL Mini-Course
Stanford Online: lagunita.stanford.edu



SQL Mini-Course
Stanford Online: lagunita.stanford.edu

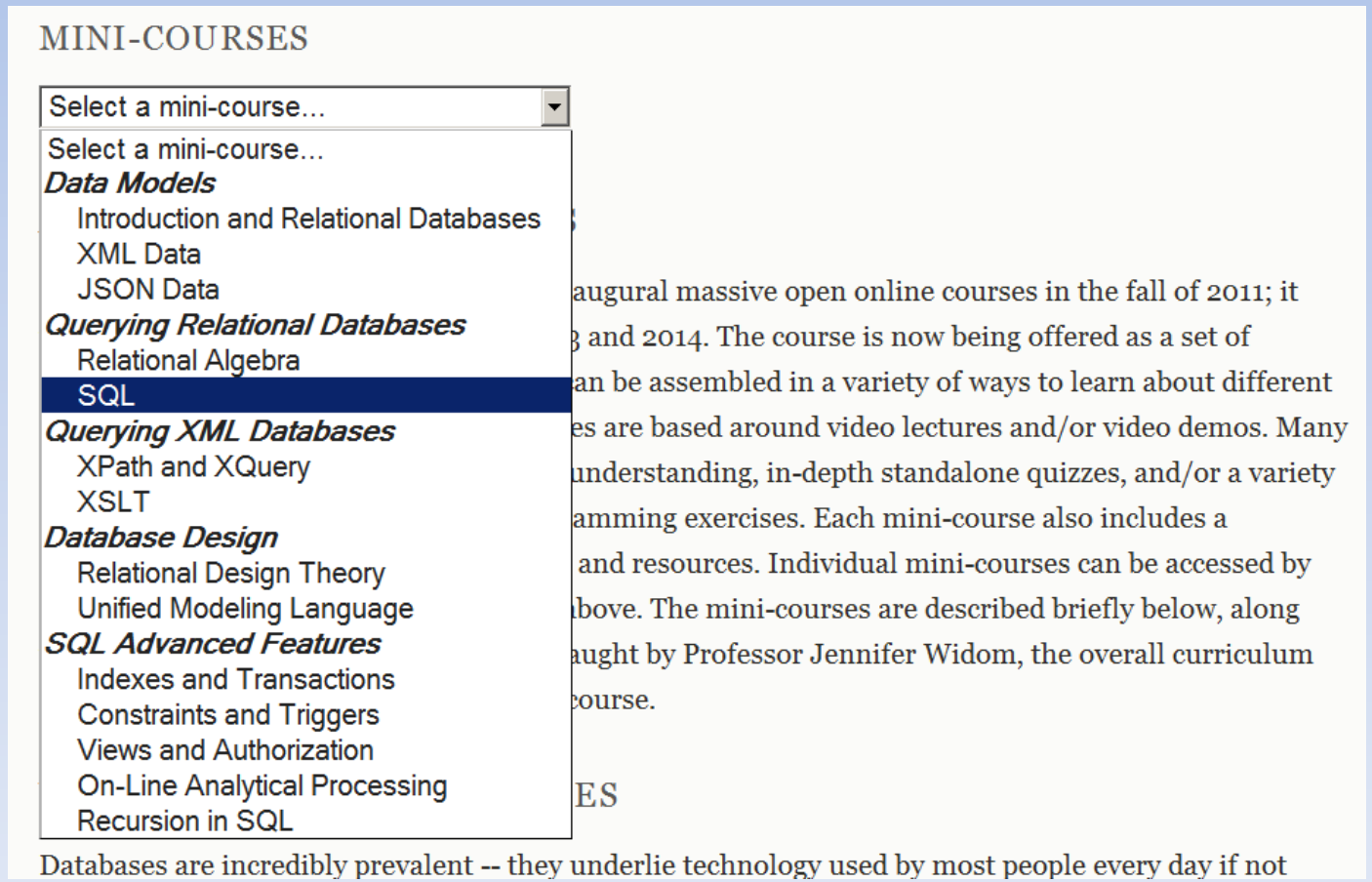
SQL Mini-Course
Stanford Online

https://lagunita.stanford.edu/courses/Home/Databases/Engineering/about

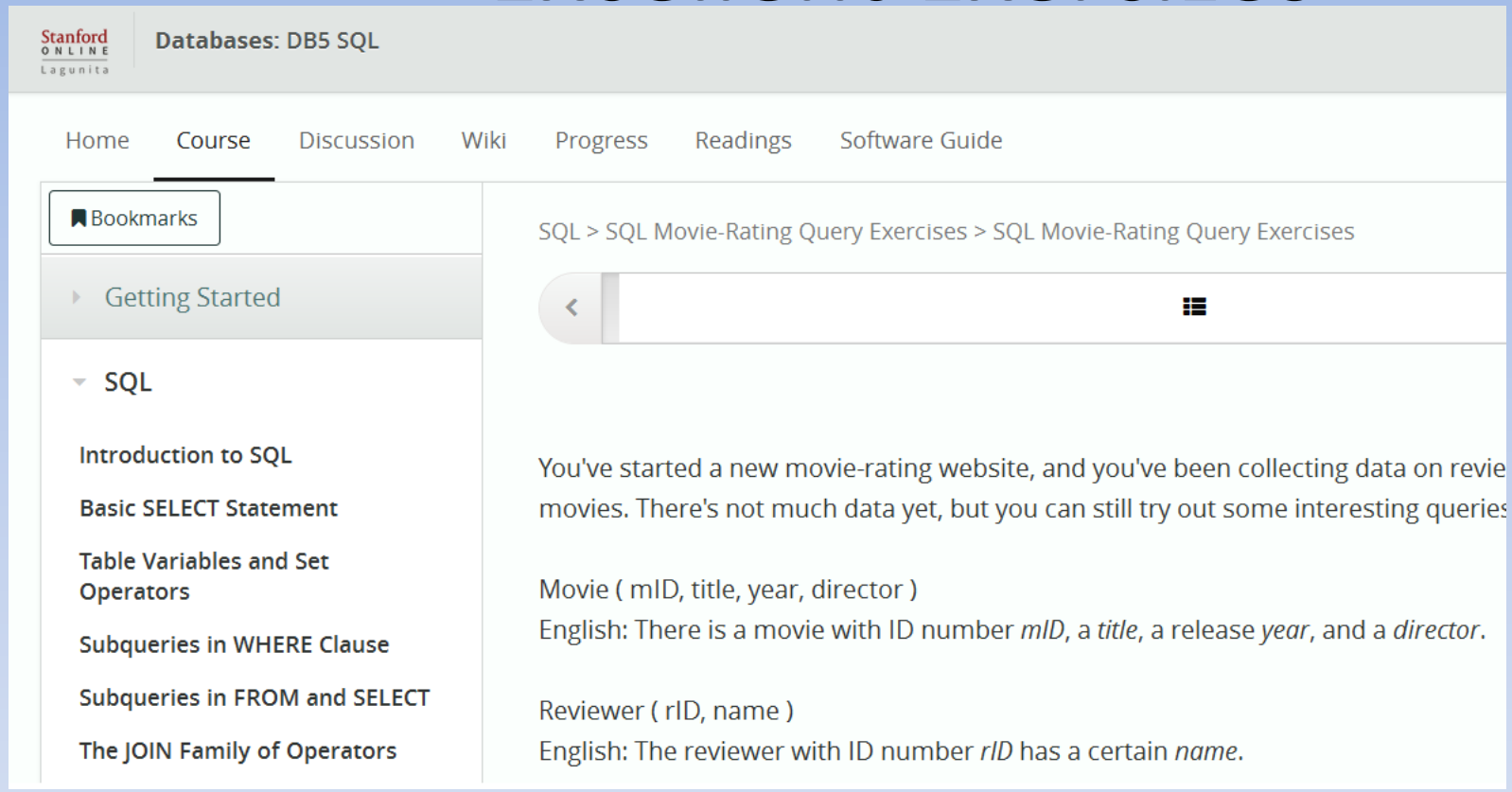


SQL Mini-Course
Stanford Online

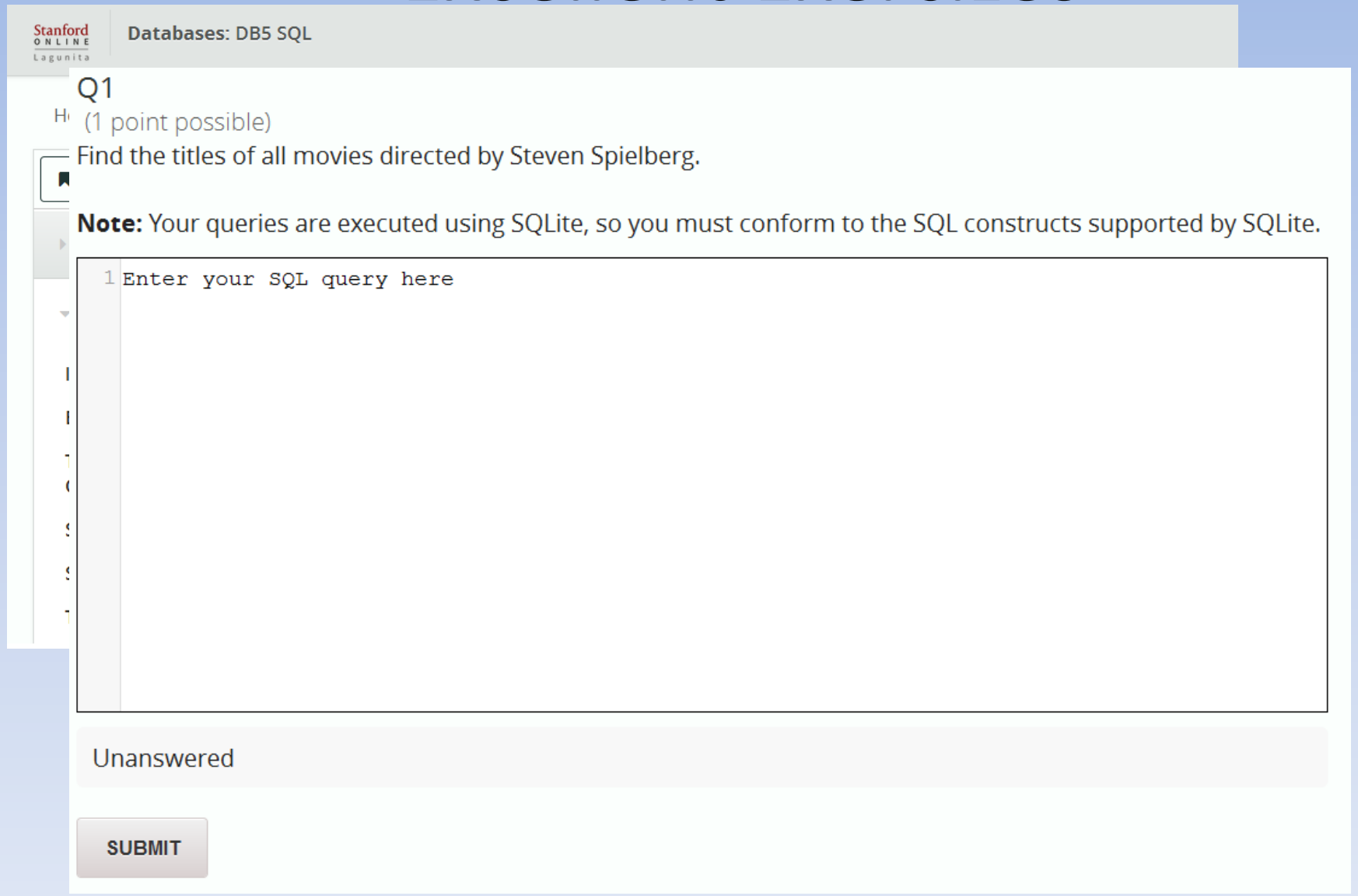
https://lagunita.stanford.edu/courses/DB/2014/SelfPaced/about



Excellent Exercizes



Excellent Exercizes



```
1 select * from movie;
```

Incorrect

Incorrect

Your Query Result:

101	Gone with the Wind	1939	Victor Fleming
102	Star Wars	1977	George Lucas
103	The Sound of Music	1965	Robert Wise
104	E.T.	1982	Steven Spielberg
105	Titanic	1997	James Cameron
106	Snow White	1937	<NULL>

SUBMIT

Incorrect

Your Query Result:

101	Gone with the Wind	1939	Victor Fleming
102	Star Wars	1977	George Lucas
103	The Sound of Music	1965	Robert Wise
104	E.T.	1982	Steven Spielberg
105	Titanic	1997	James Cameron
106	Snow White	1937	<NULL>
107	Avatar	2009	James Cameron
108	Raiders of the Lost Ark	1981	Steven Spielberg

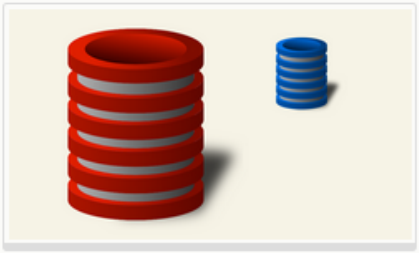
Expected Query Result:

E.T.
Raiders of the Lost Ark

SUBMIT RESET

SQL Mini-Course
Stanford Online

CURRENT COURSES



Databases

Course Started - Jun 09, 2014 at 15:00 UTC

DB5 SQL

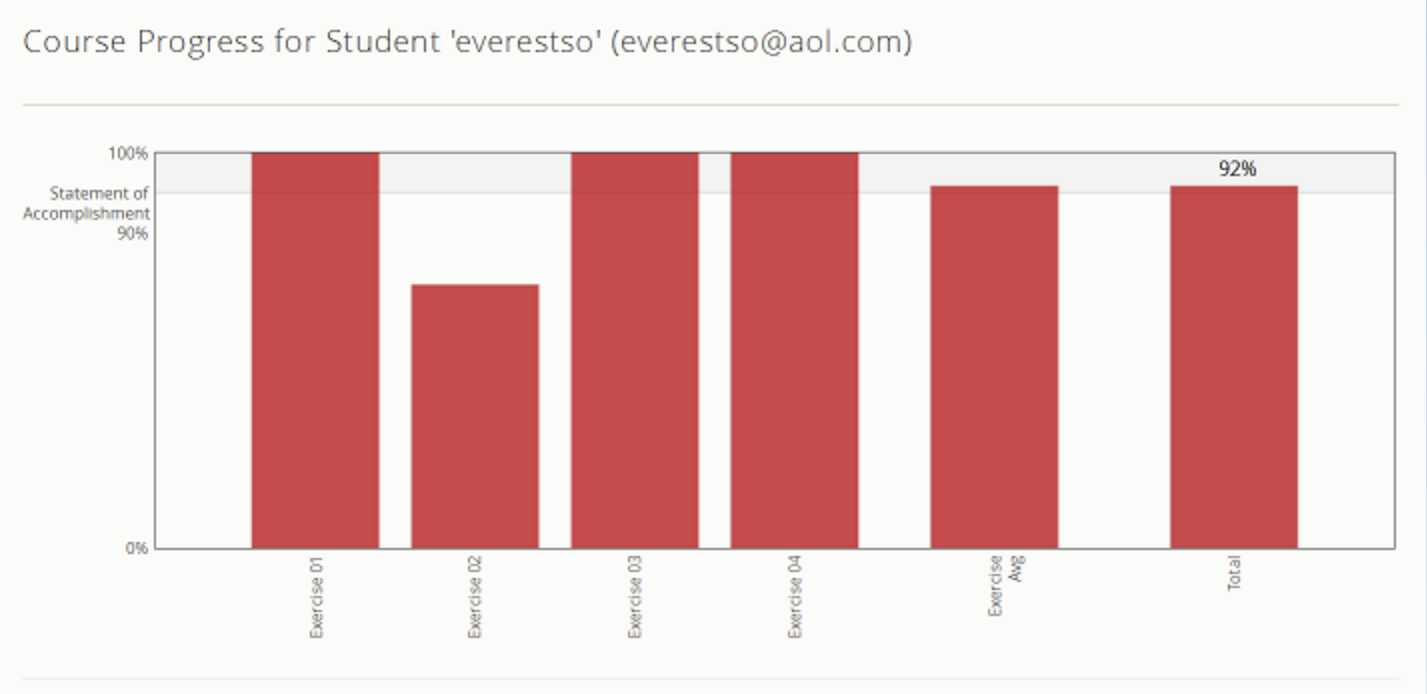
Your final grade: **92%**.

Download Your Statement (PDF)

View Course

Email Settings *Unenroll*

SQL Mini-Course
Stanford Online



Grading

Date	Assignment/Examination/Presentation	Points
	In-Class Participation	100
	DB2, 3: XML/JSON	50
	DB4: Relational Algebra	50
	DB5: SQL	50
	DB6: Xpath/Xquery	50
	DB8: Design Theory	50
	DB9: UML	50
	DB10: Indexes and Transactions	50
	DB11: Constraints and Triggers	50
	Midterm	200
	Final	300

In-Class Participation

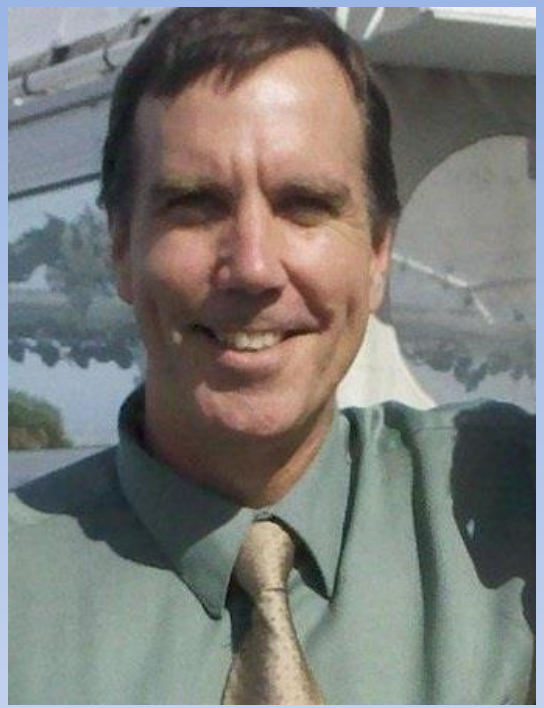
- Attendance
- Presentations

Tests

- Midterm
- Final

Laptops

- Tests will use laptops w/ blackboard.



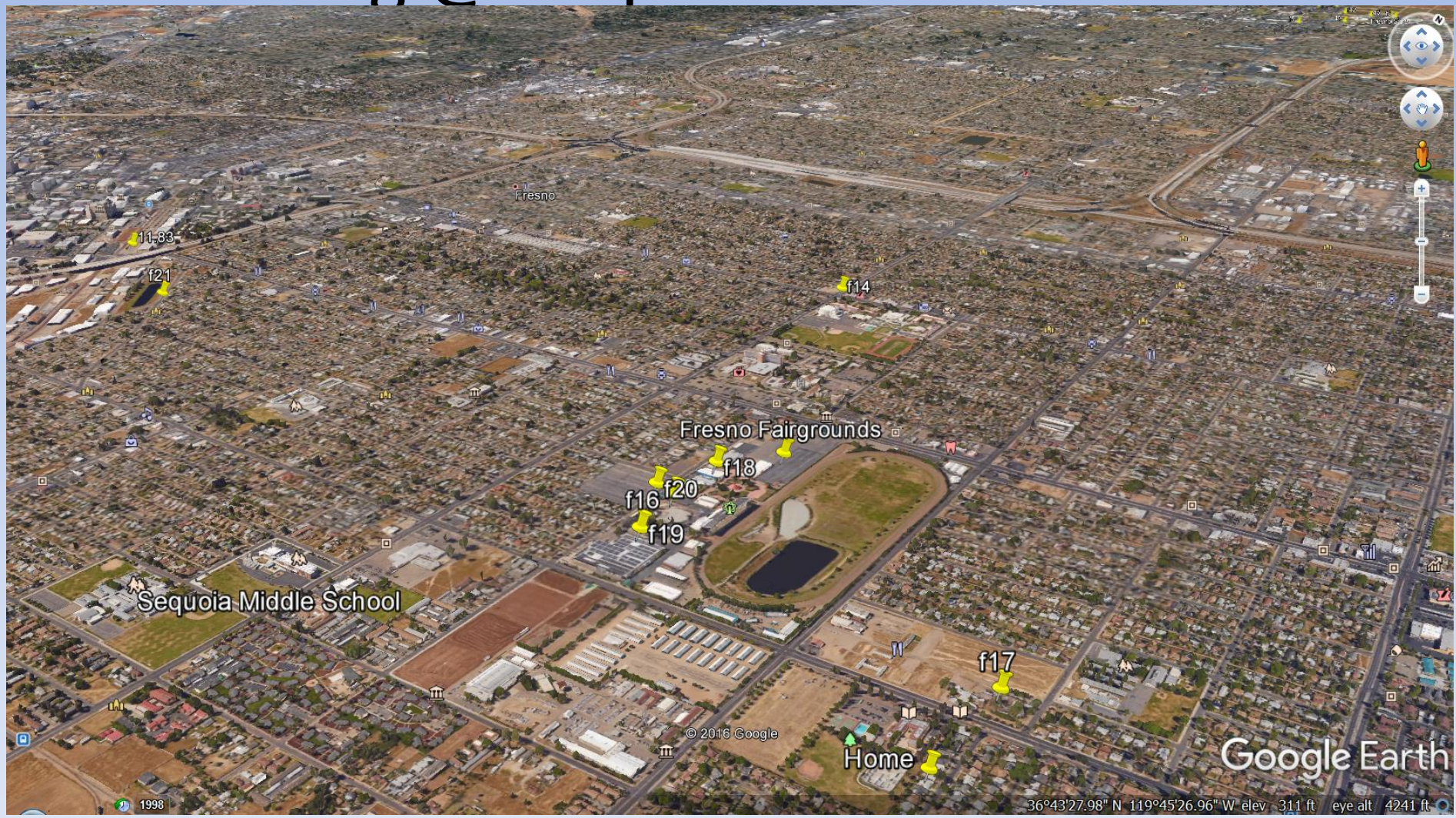
David Ruby

Class Instructor

- Office
  - Science II – 273
- Email:
  - druby@csufresno.edu

- First-Generation College Student
- How PhD?

Father Floyd Fresno Career Custodian Ending @ Sequoia Middle School




Home
Goldleaf
Fresno Fairgrounds
Fresno
North
Palmas
Tarpey
Fresno State
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Compute Science Focus: Jobs/Degrees

- Students want…
  - Jobs!
  - Advanced Degrees!!

- How???

Dr. Joy Goto, Professor Biochemistry, Fresno State

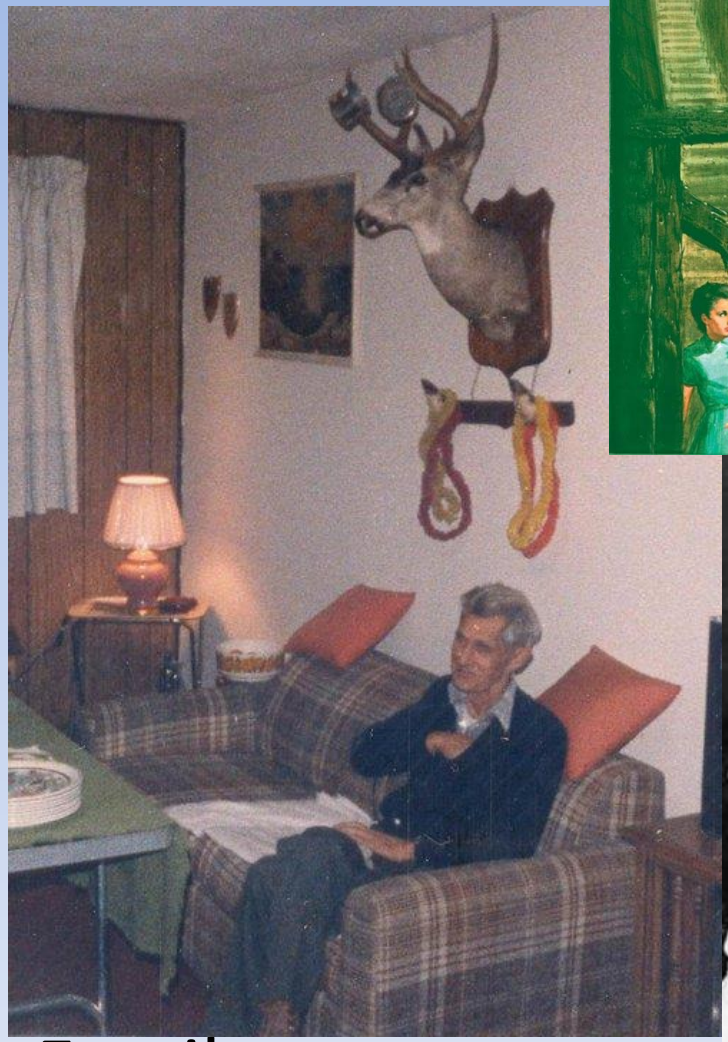
- https://youtu.be/FXUiEPrK_II

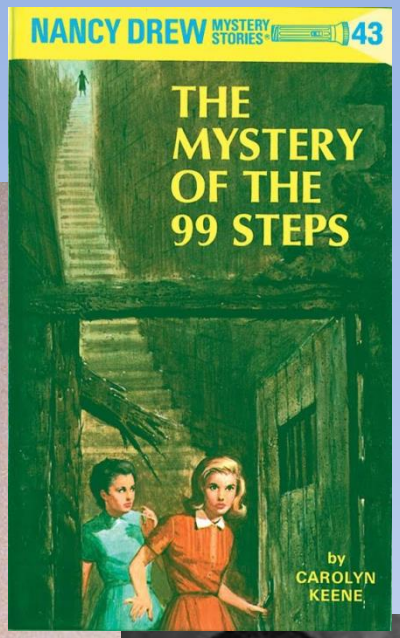
Dr. Joy Goto, Professor Biochemistry, Fresno State

- https://youtu.be/FXUiEPrK_II

- Engaging story of discovering joy in science growing up here in the central valley.

My Story



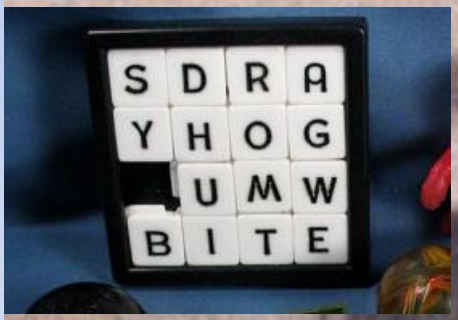


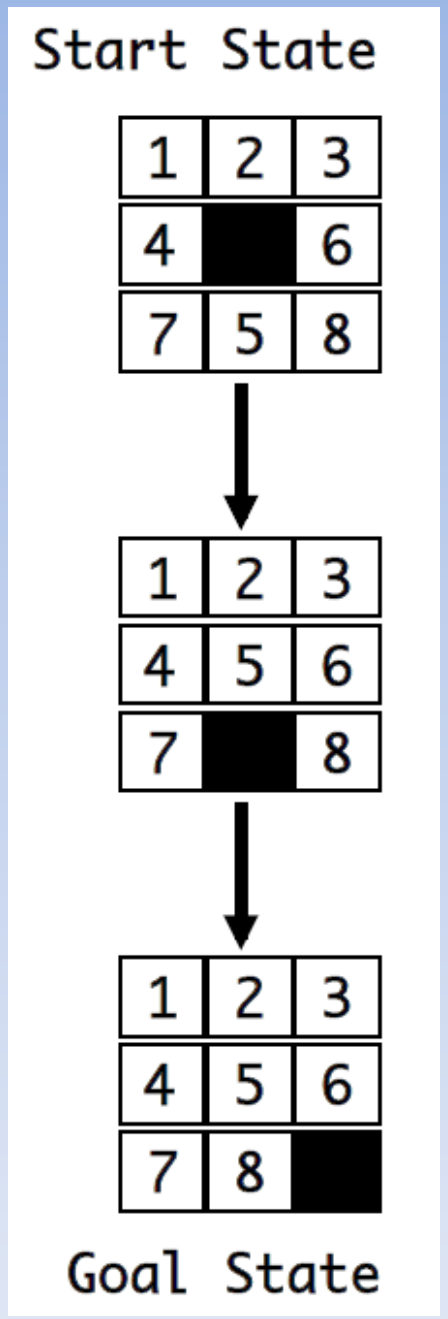
Interest In Puzzles

- Family Memories

Memories..
eXciting Puzzles !

- Home Hedges Maze Crawwwwwl !
- Also – First time w/ Sliding Tile Puzzle





Thesis: Tile-Sliding Puzzle

Artificial Intelligence

Branch: master ▾ ics1293 / Papers / Ruby.AAAI91-082.pdf Find file Copy path

everestso paper 017b894 4 days ago

1 contributor

1000 KB Raw History

SteppingStone: An Empirical and Analytical Evaluation*

David Ruby and **Dennis Kibler**
Department of Information & Computer Science
University of California, Irvine
Irvine, CA 92717 U.S.A.
druby@ics.uci.edu

Abstract

Decomposing a difficult problem into simpler subproblems is a classic problem solving technique. Unfortunately, the most difficult subproblems can be as difficult, if not more difficult, than the original problem. This is not an obstacle to problem solving if the difficult subproblems recur in other problems. If the difficult subproblems recur often, then its solution need only be learned once and reused. SteppingStone is a learning problem solver that decomposes a problem into simple and difficult-but-recurring subproblems. It solves the

SteppingStone operates on problems defined with a state space representation consisting of a set of goals, a set of operators, and an initial state. The goal orderer takes as input a set of goals. It orders these goals so that the constrained search method will likely solve them. It does this by ordering them so as to reduce the likelihood of subgoal interactions using a domain independent heuristic we call *openness* [Ruby and Kibler, 1989]. It produces an ordered set of subgoals as output.

The constrained search component takes as input an

My Idea…

Memories are constructed.. Not stored complete!

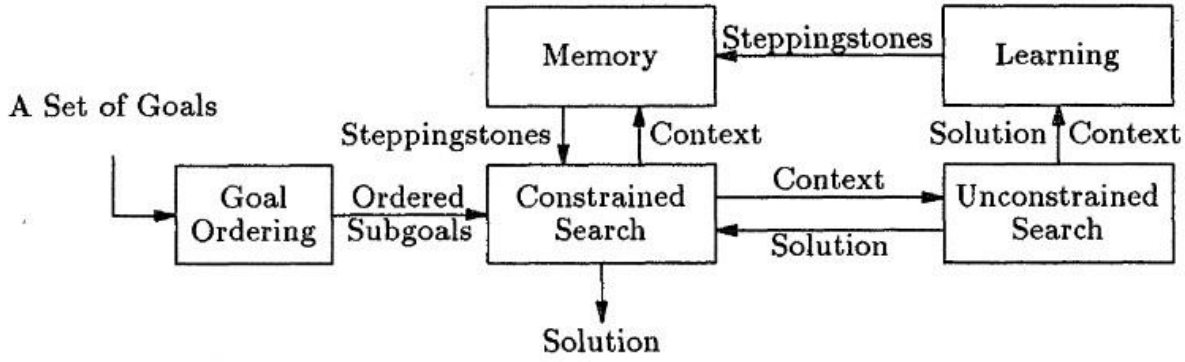


Figure 1: Overview of SteppingStone

the original impasse state.

When memory fails to return any useful stepping-stones the constrained search component calls the unconstrained search component. The unconstrained search component takes as input a context, just as the memory component did. Unconstrained search relaxes the protection on the solved subgoals in its search for a solution. If it resolves the impasse, it returns the sequence of moves found to the constrained search component. The unconstrained search component also sends its impasse solution, along with the context, to the learner.

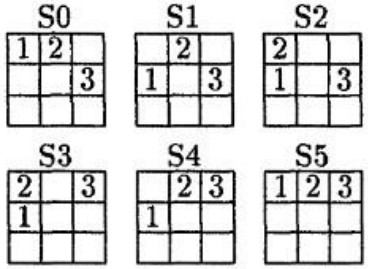
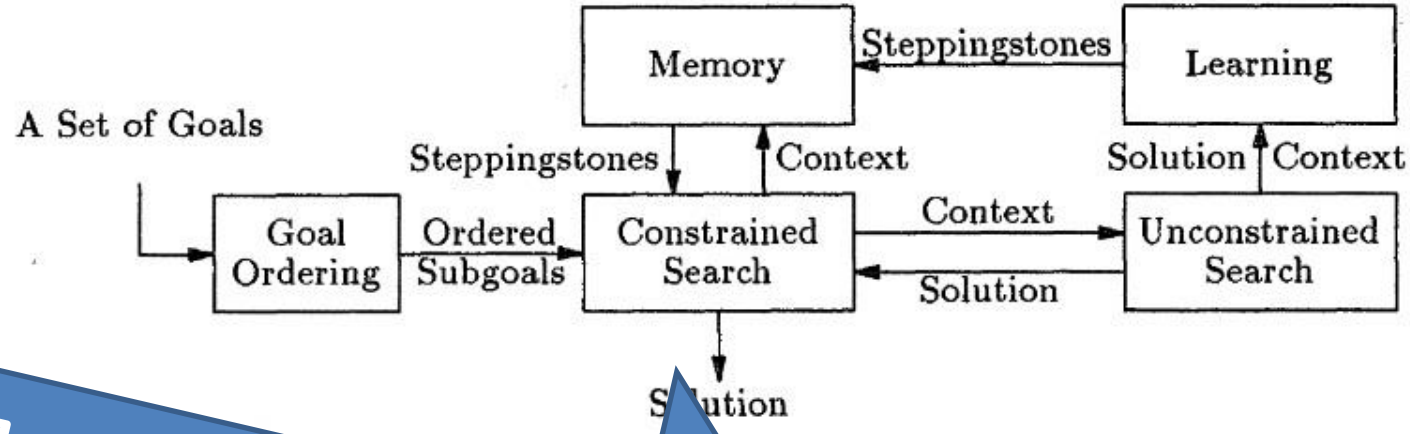


Figure 2: Steppingstones from Memory

Thesis: Tile Sliding Domain



Memories have gaps!!!

f SteppingStone

stones the constra
constrained search compo
search component takes as input a co
memory component did. Unconstrained search
the protection on the solved subgoals in its searc
a solution. If it resolves the impasse, it returns t
quence of moves found to the constrained search c po-
nent. The unconstrained search component also sends its impasse solution, along with the context, to the learner.

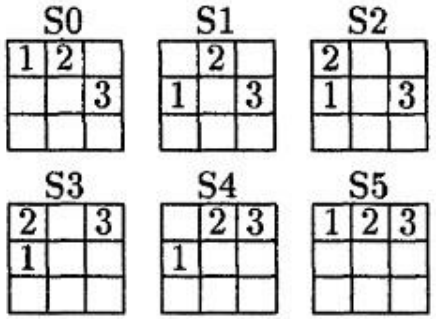
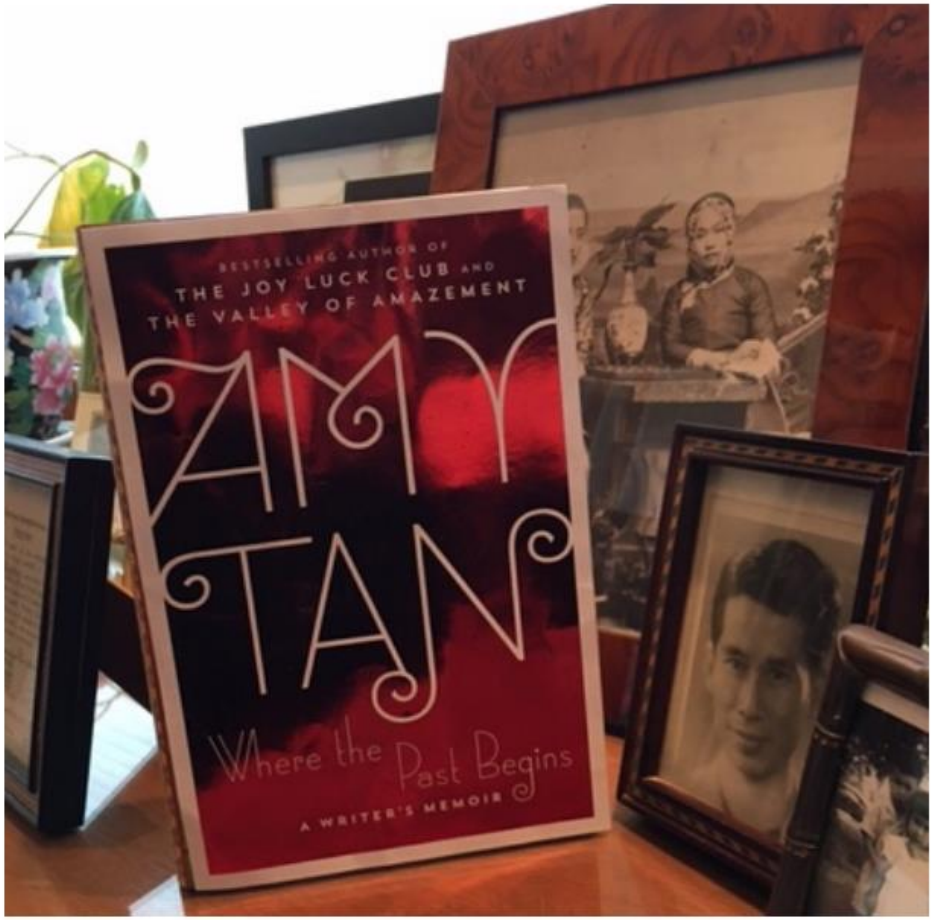
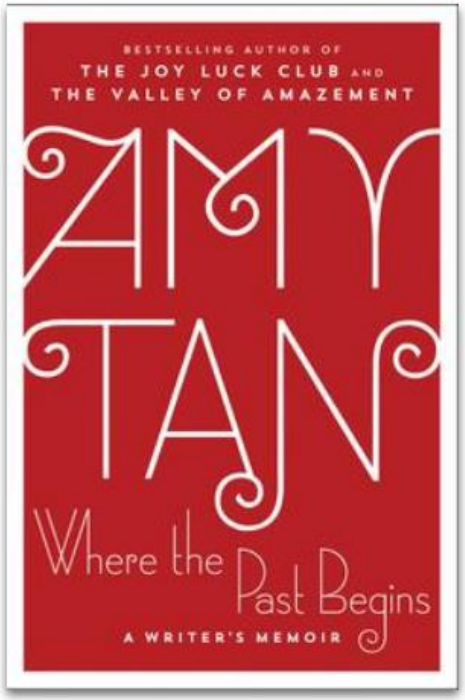


Figure 2: Steppingstones from Memory

Emotional Memory





coming

Oct 17, 2017

Pre-order

Malleable Memory (Gaps)
Learning & Memory w/ Elizabeth Loftus

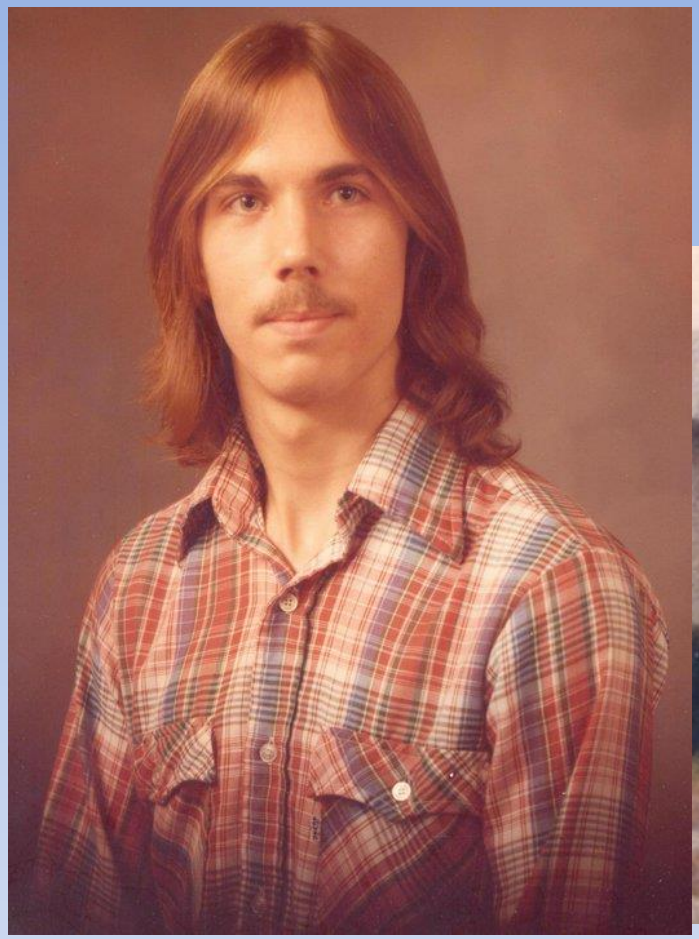
CORRUPTED MEMORY

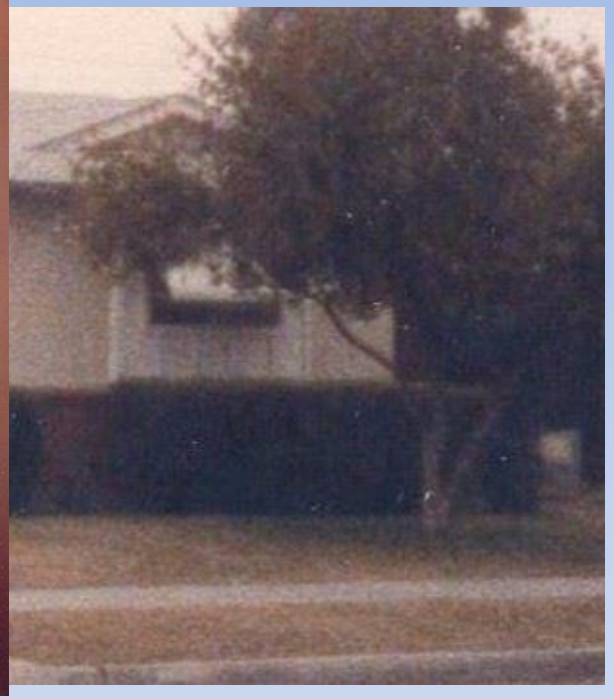
Elizabeth Loftus has spent decades exposing flaws in eyewitness testimony. Her ideas are gaining fresh traction in the US legal system.

BY MOHEB COSTANDI

Elizabeth Loftus is a cognitive psychologist at the University of California Irvine.

eXciting Mazes Memories!





- ME:
  - Do you remember the FUN maze?
- NEIGHBOR:
  - Do YOU remember this other HORRIBLE thing??
- ME:
  - Hmmm .. I guess not.
- Language influencing memory ??

Memories & Learning

JOURNAL OF VERBAL LEARNING AND VERBAL BEHAVIOR 13, 585–589 (1974)

Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory'

ELIZABETH F. LOFTUS AND JOHN C. PALMER

University of Washington

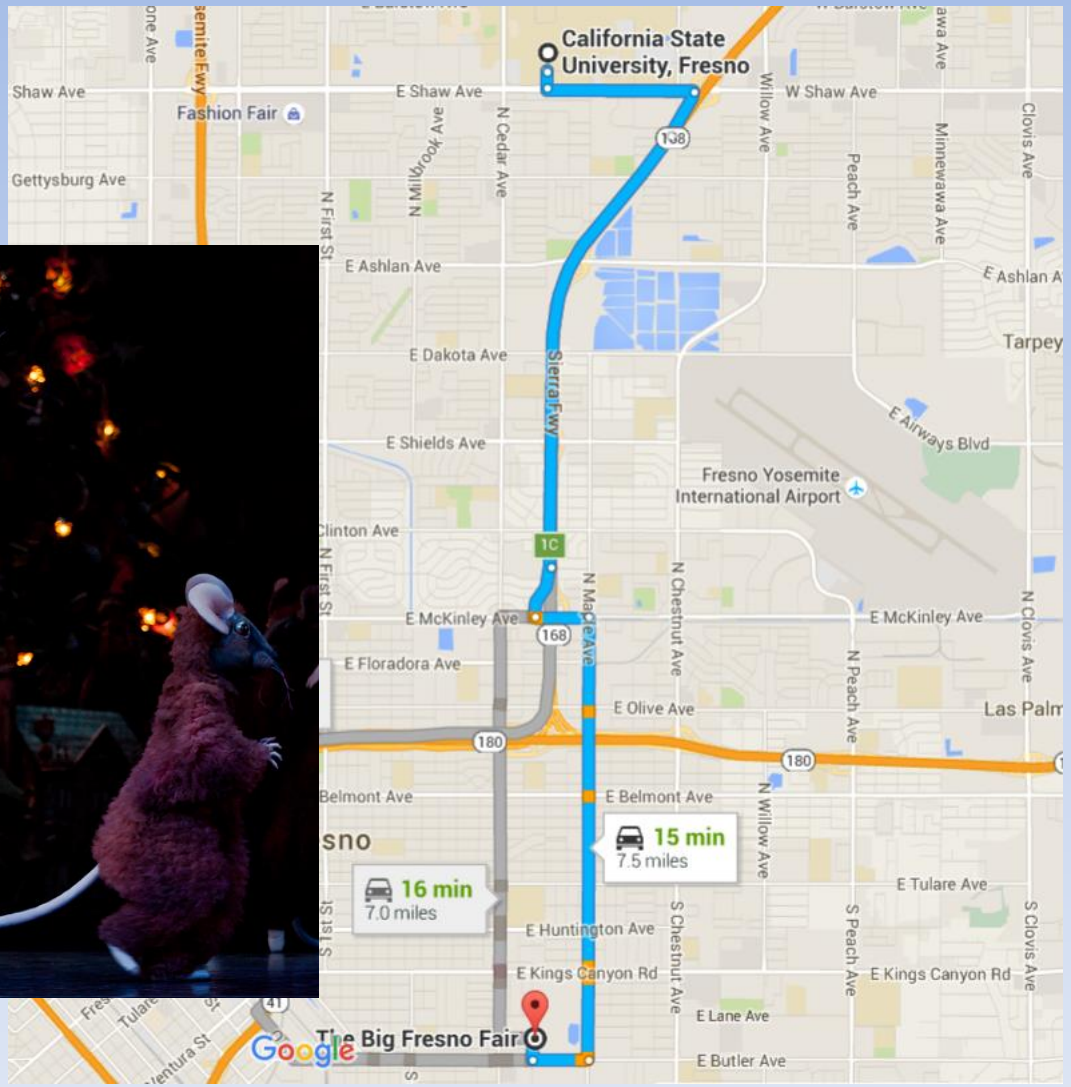
Two experiments are reported in which subjects viewed films of automobile accidents and then answered questions about events occurring in the films. The question, "About how fast were the cars going when they smashed into each other?" elicited higher estimates of speed than questions which used the verbs ***collided***, ***bumped***, ***contucted***, or ***hit*** in place of ***smashed***. On a retest one week later, those subjects who received the verb ***smashed*** were more likely to say "yes" to the question, "Did you see any broken glass?", even though broken glass was not present in the film. These results are consistent with the view that the questions asked subsequent to an event can cause a reconstruction in one's memory of that event.

Computer Science / Memories

- Puzzles
- Abstractions
- Memories

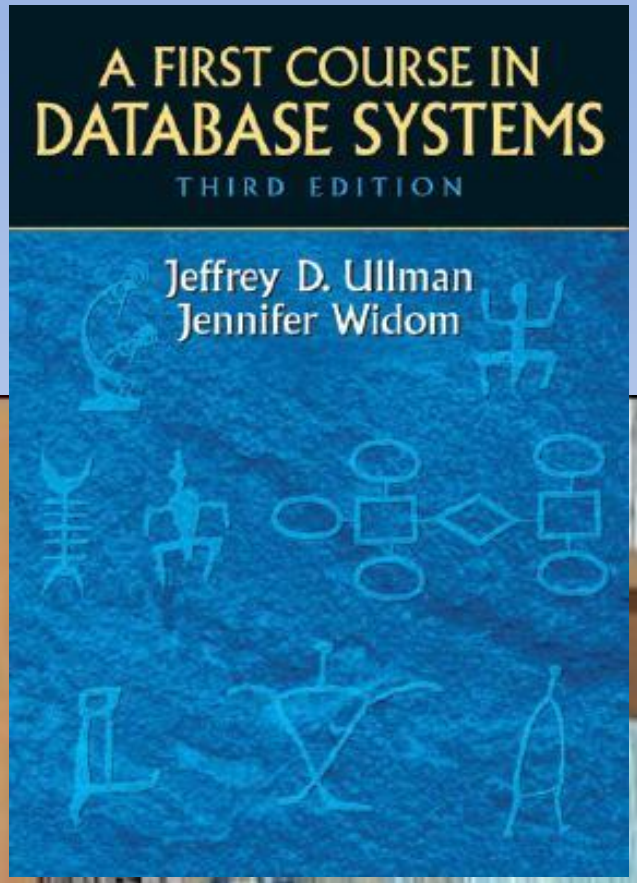
Current Interest: Abstraction

- Hello, World!



Abstraction: Computational Thinking

- Abstraction
- Automation
- Algorithms/Analysis



Textbooks and Materials

A First Course in Database Systems (3rd)
by Jeffrey D. Ullman & Jennifer Widom

Chapter 1
DATA

- Databases, Big Data, Data Mining, Data Science
- What's all this about DATA???
- Stanford Online (DB 1)

Chapter 11: Semistructured Data

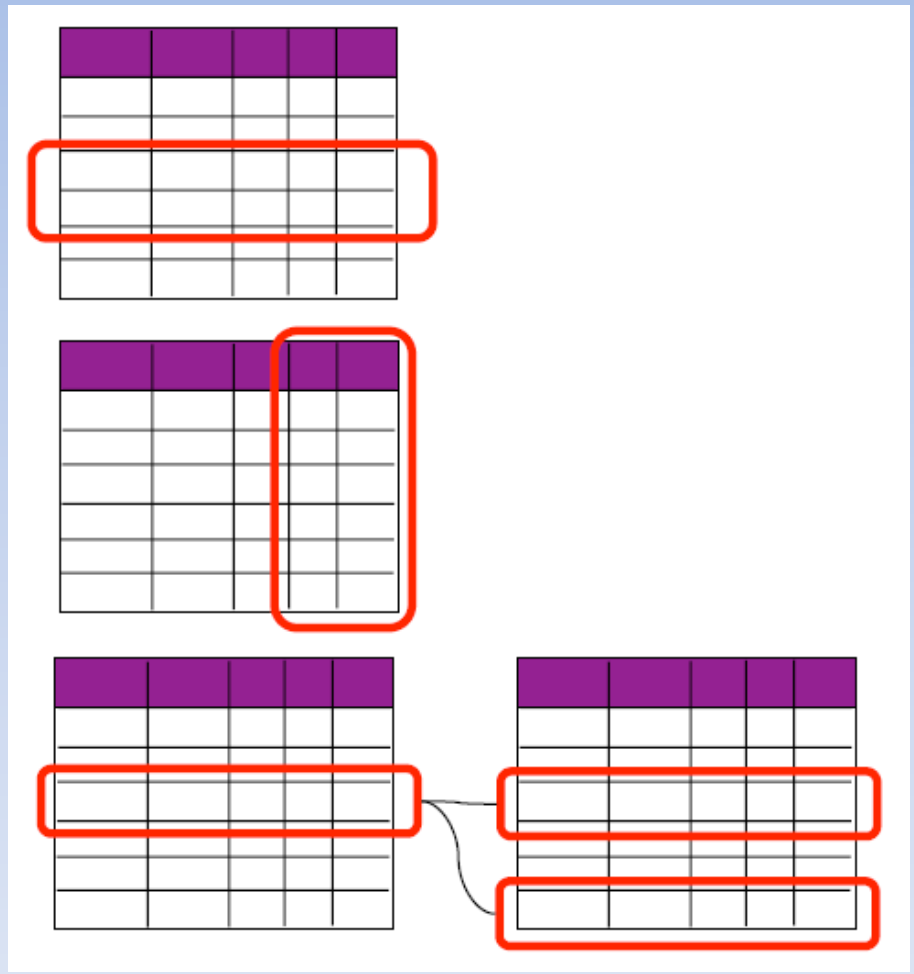
- XML
  - Well-Formed
  - DTD/XML Schema
- JSON
  - JSON Schema
- Assignment XML/JSON
  - Stanford Online DB2, DB3

Chapter 2: Relational Data Model

- Data Models
- Relational Data Model
- Relational Algebra

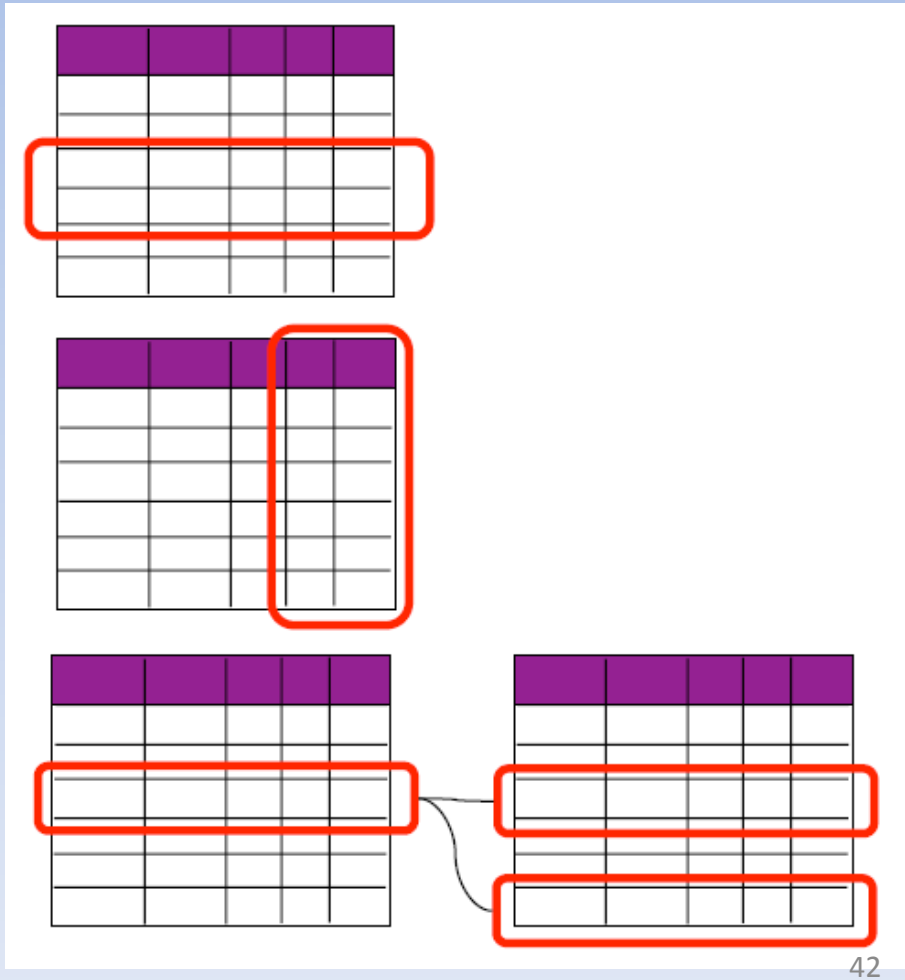
Chapter 2: Relational Data Model

- Language of Relational Algebra
- Assignment Relational Algebra
  - Stanford Online DB4



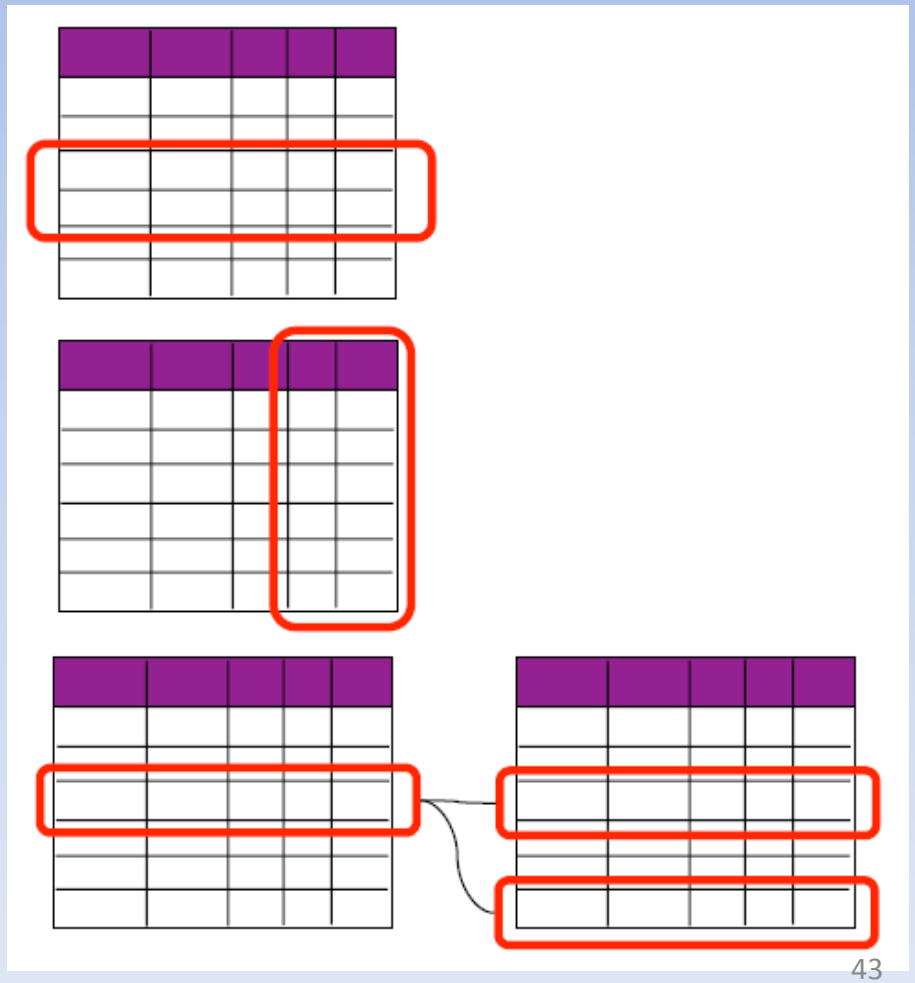
Chapter 5, 6:
SQL & Relational Algebra/Datalog

- SELECT * FROM table
- Data Analysis Examples
- Data Mining Examples



Chapter 5, 6: Assignment

- Assignment : SQL DB5
  - Modifications
  - Queries



Chapter 12: Querying Semistructured Data

- Xpath/Xquery
- Assignment DB6

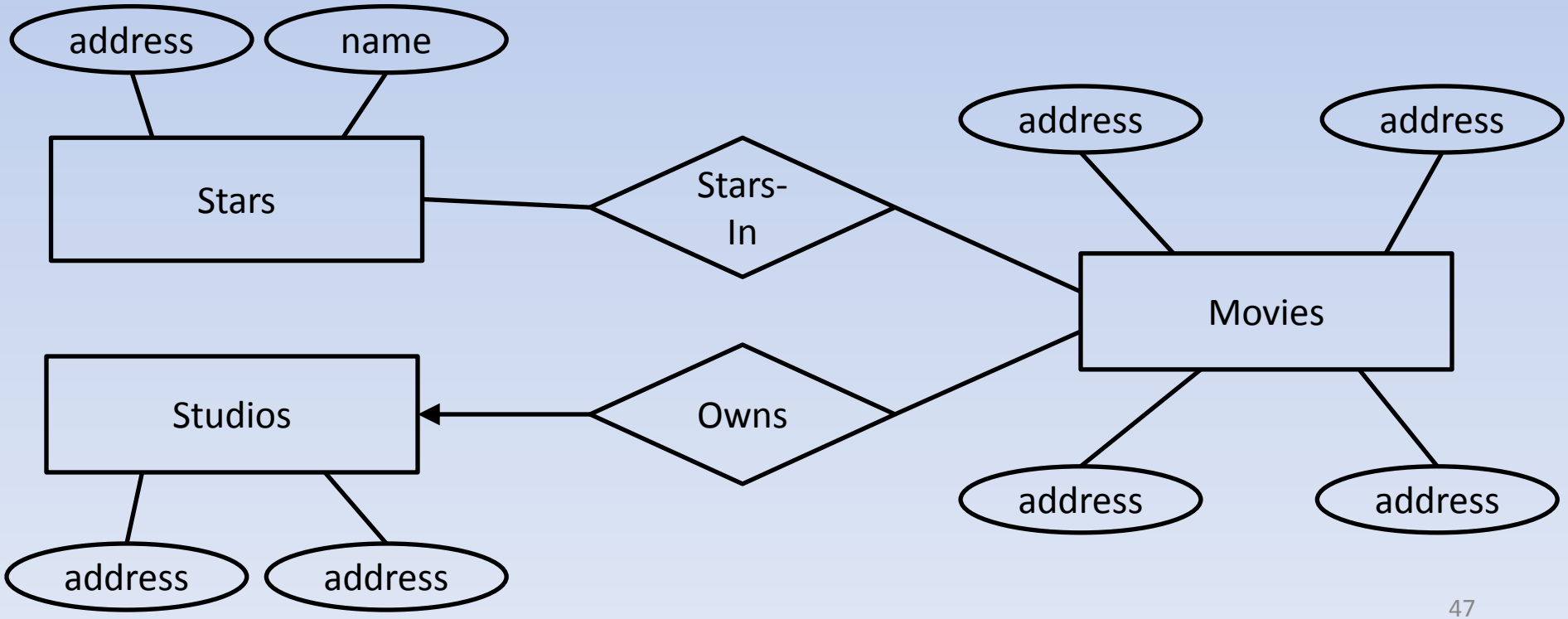
MIDTERM

- Midterm
  - Chapter 1: Introduction to Databases
  - Chapter 11: Semistructured Data
  - Chapter 2: Relational Data Models
  - Chapter 2, 5: Relational Algebra/Datalog
  - Chapter 6: SQL (not transactions)
  - Chapter 12: Querying Semistructured Data

Chapter 3: Design Theory for Relation Databases

- Database Theory
- Assignment DB8

Chapter 4: Database Design w/ E/R & UML Diagrams



Chapter 6: Transactions

- ACID Properties

Chapter 7: Constraints/Triggers

- Maintaining Consistency

Chapter 9:
Stored Procedures

Chapter 8: Index/Views

- Indexes for Performance

Chapter 10: Advanced Topics/Authoring

- Users & Passwords

Introduction to NoSQL

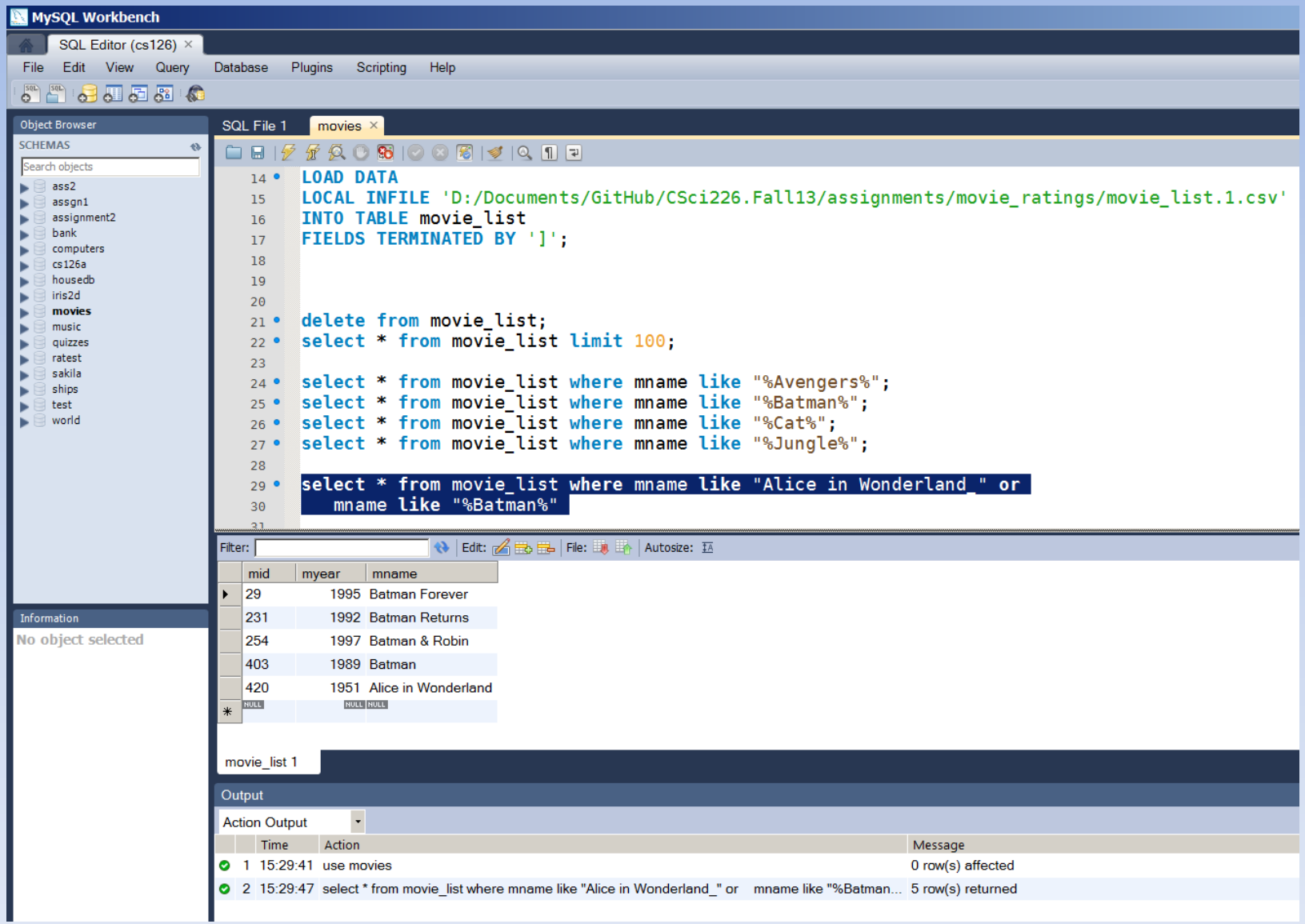
- Hadoop: Map-Reduce
- MongoDB

Machine Learning/ Data Mining

- Supervised/Unsupervised Learning
- Validating Data Mining Results

Final

MySQL


MySQL Workbench
SQL Editor (cs126)
File Edit View Query Database Plugins Scripting Help
Object Browser
SCHEMAS
Search objects
ass2
assgn1
assignment2
bank
computers
cs126a
housedb
iris2d
movies
music
quizzes
ratest
sakila
ships
test
world
Information
No object selected
SQL File 1
movies
14 LOAD DATA
15 LOCAL INFILE 'D:/Documents/GitHub/CSci226.Fall13/assignments/movie_ratings/movie_list.1.csv'
16 INTO TABLE movie_list
17 FIELDS TERMINATED BY ']';
21 delete from movie_list;
22 select * from movie_list limit 100;
24 select * from movie_list where mname like "%Avengers%";
25 select * from movie_list where mname like "%Batman%";
26 select * from movie_list where mname like "%Cat%";
27 select * from movie_list where mname like "%Jungle%";
29 select * from movie_list where mname like "Alice in Wonderland_" or
30 mname like "%Batman%"
Filter: Edit: File: Autosize:
mid myear mname
29 1995 Batman Forever
231 1992 Batman Returns
254 1997 Batman & Robin
403 1989 Batman
420 1951 Alice in Wonderland
movie_list 1
Output
Action Output
Time Action Message
1 15:29:41 use movies 0 row(s) affected
2 15:29:47 select * from movie_list where mname like "Alice in Wonderland_" or mname like "%Batman... 5 row(s) returned

Day 1: Discussion

1. Highlight academic & professional background.
2. Highlight Professional & Research interests.

Next Time

- https://lagunita.stanford.edu/
- Register w/ Stanford Online
- Register for DB1 : Introduction and Relational Databases
- It has no quizzes… Just check out the vids and how everything work.
- The next set is DB2 (XML), DB3 (JSON)