



Reaching Out to Many Majors: A Database Approach

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With the pervasive role played by databases in our information-centric society and the increasing demand for students with interdisciplinary skills, the next challenge on the horizon for database educators may be the design of database curriculum materials for students of many majors. This goal is consistent with the enhanced consciousness of computational thinking, which introduces computational methods and models to non-computing majors. This poster shares experiences as well as future plans for reaching out to students of many majors using a database approach, including preliminary results of a collaborative NSF grant to introduce students with diverse backgrounds to database concepts using extensible FLASH animations.



Collaborative Research:
Databases for Many Majors:
A Student Centered Approach

NSF DUE-0941584/NSF DUE-0941401
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ACO 100 Overview of Applied Computing

- Alternative to conventional computer literacy course
- *Networks*: How does the Internet work?
- *Databases and Information*: XML, Spreadsheet, Databases
- *Digital Media & Graphic Design*: Composite image
- Project: Web site written in valid XHTML
 - awareness issue of the student's choice
 - incorporates their original composite image
- Offered annually with enrollment ~20

FLASH Animations

- Introduction to Relational Databases: Data, Spreadsheet, Questions, Anomalies, Database, Breakdown, Relations, Keys, Queries
- Introduction to Querying: Query, Sets, Filtering, Joining, SQL
- Extensible: Exploring the use of XML to parameterize the animations with different examples
- Domain partners to specialize animations
 - ASU: Computational Molecular Biology
 - Villanova: Geographic Information Systems
- Assessment: Pending
- Availability? Coming to the Web this summer

CSC 1035 Databases for Beginners

- For math/csc group requirement
- Primarily for non-computing majors
- Collaborative learning as pedagogical approach
- Group semester project
- MS-Access platform
- Coverage: ERD's, MS-Access, SQL, and (semi-technical) relational design theory
- Offered every semester: 2 sections with a total of 56 students
- Top majors: Economics, Political Science, Communication

Introduction to Relational Databases

Students				Students Taking Courses			
Name	ID	Classification	Major	ID	Course	Semester	
Jeff Carter	1111	Junior	Computer Science	1111	CSE 303	SP2010	
Anne Perry	2222	Senior	Computer Science	1111	CSE 303	FA2010	
Frank Hapwell	3333	Freshman	Math	2222	ENG 476	SP2010	
Andrew Spith	4444	Junior	English	2222	CSE 303	SP2010	
Valerie Dunbar	5555	Freshman	Math	3333	MAT 118	FA2010	
				3333	ENG 110	SP2010	
				3333	MAT 243	SP2010	
				4444	MAT 118	FA2010	
				4444	ENG 476	SP2010	
				5555	CSE 303	SP2010	
				5555	ENG 110	SP2010	
				5555	MAT 118	FA2010	

Course	CourseTitle	Credit
CSE 303	Computer Theory	3
CSE 200	Data Structures	2
ENG 476	Old English Lit	4
MAT 118	College Algebra	3
ENG 110	American Lit	2
MAT 243	Calculus	3

Hover over a key to review

primary key - uniquely identifies a row in the table
 foreign key - referenced a primary key in another table

- Databases, Non-majors and Collaborative Learning: A Ternary Relationship, Don Goelman, Proc. ITICSE 2008
- Teaching Computation to Undergraduate Students, D. Kaplan, Proc. SIGCSE Symposium, 2004
- Fluency with Information Technology: Skills, Concepts, & Capabilities, L. Snyder, Addison-Wesley, 2004.

<http://databasesmanymajors.faculty.asu.edu/>

Introduction to Querying

select T.Semester
 from Students S, StudentsTakingCourses T
 where S.Id = T.Id and
 S.Name = "Jeff Carter" and
 T.Course = "CSE 303"

Last, list the attributes wanted in the query result in the select clause.

S: Students	T: StudentsTakingCourses
Name	Id
Id	Course
Classification	Semester
Major	

PLAY