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# Written Final Exam

SI502 - Charles Severance

# Student Evaluations (Online)

- Please do these when they become available (Starting Wednesday)
- Michigan students have responded wonderfully to online evaluations
- Lets keep up the good work and be an example for other schools to  
(a) save trees and (b) improve the data

# Written Final Overview

- Thursday April 23 12:05 AM to Friday April 24 11:55 PM - Online
- Closed Book - Three Pages of Notes - three sheets of paper - two-sided is OK
- Question Types
  - Multiple Choice
  - Short Answer - Conceptual
  - What would this code do?
  - Focus on Lecture Notes
  - No writing of code from scratch

# Cumulative?

- Yes - by definition
- Focus on the material since the Midterm

# HyperText Protocol (HTTP)

- Understand the Request/Response Cycle
- Be able to describe in some detail what happens when you press on a link in the browser - how the browser contacts the server, what is sent, and what comes back to the browser
- Understand GET and POST
- Understand Cookies and Sessions

# Data Formats

- XML - Be able to read and explain
- Tags, attributes, and data
- Understand the concept of “wire protocol” and serialization
- Understand XML as nodes, a tree, or paths

# Data Formats

- Understand the purpose of XML Schema (W3C)
- Understand the concept of validation
- Be able to look at example Schema and XML and know if it validates
- You won't have to write XML Schema



# RSS

- Recognize and be able to parse RSS feeds
- Understand the general purpose and use of RSS feeds

# Web Services

- Be able to talk about Service Oriented Architecture
- Be able to talk about APIs and Abstraction
- Be able to talk about REST

# Databases

- Be able to define and describe - database, table, row and column
- Be able to read and understand the SQL presented in lecture
  - SELECT, DELETE, UPDATE, INSERT, WHERE, ORDER BY, JOIN
- Understand Keys: Primary, Logical, Foreign

# Databases

- Understand what foreign key columns look like and be able to follow foreign key relationships in sample data
- Understand the basic ideas of database normalization - only one copy of strings - when we want something more than once - add a foreign key
- Be able to read a data model and find the logical, primary, and foreign keys

# Databases

- Be able to write a simple JOIN when given sample data in two tables - nothing more complex than the simple two table example discussed in class
- Ignore using SQLite3 in Python

# Searching

- Chuck Lecture: Terminology - read Wikipedia pages
- Rich Lecture: Through Slide 47
- Marissa Lecture: <http://www.youtube.com/watch?v=6x0cAzQ7PVs>
- Maile Lecture: <http://www.youtube.com/watch?v=NIWtZPIf4Nk>
- Review the homework questions

# Security “Homework”

- Will send out questions on Friday - just samples - not required

# Security (part I)

- Understand Threats: Snooping, Unauthorized Modification, Man-in-the-middle, Masquerading/Spoofing, Delay, and Denial of Service



# Security Part (2)

- Symmetric / Secret Keys - encode / decode
- Public/Private Key - encode / decode
- Certificate Authority to lend credibility to public keys
- Some Root Certificates are in our browsers

# Security (part 3)

- Understand: Authentication, Authorization, Audit
- Multi-Factor Authentication: Something you know, Something you have, Something you are
- Understand attacks: Online Guessing, Off-Line Guessing, Surveillance, Non-Electronic Trickery
- Secure Sockets - Skip