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UNIVERSITY OF MICHIGAN

Written Final Exam

SI502 - Charles Severance

Student Evaluations (Online)

- Please do these when they become available (Starting Wednesday)

- Michgan 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 Architeture

- 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 1)

- 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