

Reminders

Midterm → Monday, October 23, 3:00 – 3:50 p.m.

No lab next week (but there ARE some exceptions – check with your TA)

Guest Lecture → Friday, Oct. 27 – “Testing Software”
Lee Black, IT Professional, Software Tester, Software Quality Assurance Manager, former Googler

Homework # 3 – SQL. Assigned last week,
Due 5 p.m. Oct 30

Reminders

Week 10 Lecture → Monday, Oct 30, Web Services and REST vs SOAP

Week 10 Lab → RESTful Web Services

Week 11 Guest Lecture → Friday, Nov. 3 –
“Software as Intellectual Property”, Bryn Weaver, J.D. -
Corporate Attorney, CS undergrad

Milestone # 3 – Database Summary
Assigned today, Due on Friday, november 3rd

Milestone 3

- **Due Friday, November 3, 5:00 p.m. (end of Week Ten)**
- **Requirements for Milestone Three:**
 - Identify the DBMS software you have selected (mySQL, MongoDB, etc.)
 - Scripts to create your database, tables, columns
 - Scripts to populate your database with data
 - Database Design Diagram
 - Visually depicts the structures within your database and their relationships to each other
 - Preferably an Entity Relationship Diagram
- **Submission:** (one per team)
 - A pdf file/document posted on your github
 - A few sentences describing your project's database
 - A database design diagram
 - Links to SQL scripts to create and populate your database

Review For Midterm

Facts about the Midterm

- Only allowed access 3:00 – 3:50 p.m. on Monday, October 23
 - ALL exceptions must be approved by me
- Available via Moodle with a password = “Grpf3308”
- Paper backup if connectivity problems
- Five separate classrooms (wifi mitigation)
 - CLRE 208
 - ECON 117
 - HLMS 137
 - Lecture Hall VAC1B20
 - DUAN G1B25 (A.S.)
- **Room assignments will be posted on Moodle by Monday morning, 8 a.m.**

Review For Midterm

Facts about the Midterm

- 50 minutes*, 30 questions, points as marked
- True/False, Multiple Choice, Fill-in
- * A.S. folks – see me TODAY after lecture
- “Open Book” – Caution!
- Collaboration not allowed

How can I best prepare?

- Review slides from each lecture
- Review 8 labs
- Review 5 quizzes

Review For Midterm

Week 1

- What is the Linux shell?
- Navigating the shell – using directories, files
 - pwd, mkdir, cd, ls, cp, rm, mv, rmdir
- Processing files
 - cat, more, head, tail, wc, grep, diff, sort, find
- Running programs
 - redirecting output, pipes, ps
- History of commands typed

Week 2

- Shell Scripting
 - #! – shebang
 - Chmod
 - Variables, comments
- Regular Expressions
 - . [a-z] * ? + ^ \$ \ [^] \< \> x\{m\}
- awk & sed
 - Processing files and records using regex
 - awk is a full-blown programming language
 - awk is good for searching input files/fields and reporting
 - sed is a less robust language
 - sed is good for modifying a streamed file

Week 3

- Version Control
 - Remote versus local repo
- Git
 - Init, status, diff
 - Working copy, staged file, commit
 - Checkout, head, merge and how git handles conflicts

Week 4

- **Project Management Principles**
 - What makes a project a project?
 - What makes a project successful?
 - What makes a project fail? Why so many?
 - Triple constraint model
 - Managing scope
- **Project Management Methodologies**
 - Waterfall – its benefits
 - Agile, Scrum – its benefits
 - Daily Scrums: 15 minutes, 3 questions
 - What is a sprint?

Week 5 & 6

- Database Fundamentals
 - Tables, Rows, Columns
 - Primary and Foreign keys
 - Data model, ERD
- SQL
 - Select statement
 - Where clause conditions (like, in)
 - Group functions, Group By, Having
 - SubQuery, Join, Cartesian Product, Outer Join
 - DDL – create, alter, drop
 - DML – insert, update, delete

Week 7 & 8

- Defining Requirements
- HTML
 - uses pre-defined tags
 - Markup language rendered by the browser
 - Can use “forms” to allow user data input
 - Can invoke a php script to handle form data
 - Passes form data in an array `$_REQUEST`
- **Php**
 - Web server versus browser
 - Scripting language executed on the web server
 - Embedded within HTML, can generate HTML
 - `mysqli_connect ()` to connect to the database
 - `mysqli_query ()` to submit a query to the database
 - `mysqli_fetch_array ()` to return a row
 - `Var_dump`

Review For Midterm

Week 6

- Web Services
 - http, xml, json, api
- REST & SOAP
 - REST is an architectural style
 - Stateless, layered, cacheable, scalable
 - Uniform interface methods (http), data format (json, xml)
 - 70% of public APIs
 - SOAP is a protocol
 - Relies on XML
 - Requires WSDL
 - Less flexible than RESTful web services