Revision Lecture

Databases and Interface
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Overview

- Today we will cover:
  - Examination Format
  - Overview of Course Content

- Questions

Exam Format

- Answer all THREE questions

  - Q1 - Web Programming [15 Marks]

  - Q2 - Relational DB Design Theory and DBMS [15 marks]

  - Q3 - SQL and ER design [20 marks]

- Worth 50% of the final Module Mark

- Time: 2 hours

Exam Content

- Anything covered in the course may come up in the exam
  - SQL
  - Relational algebra
  - Normalization
  - ER Diagrams
  - HTML
  - CSS
  - …
- Mock exam questions
- Past exam papers

Databases:: Main Topics

- What is a Database? Why we need it?
- What is a DBMS? Why?
- Relational model
  - Relations, attributes, domains, relationship, cardinality ratio
  - Candidate keys, primary keys, foreign keys
  - Referential integrity
- Relational algebra
  - Operators: selection, projection, set operators, joins…
  - How to write relational algebra
- Entity-Relationship modelling

  - ER Diagram: Entity, relationship, Attributes, Cardinality…

Databases:: Main Topics

- SQL
  - What is SQL?
  - How to Create a table and Drop a table?
  - How to Insert and Select Data?
  - Alias, Subqueries, Aggregate Functions, Grouping, Join
  - How to Update and Delete Data?
  - What's the difference between SQL and Relational Algebra?
- Normalization (1NF, 2NF, 3NF)
  - What is Normalization? Why we need it?
  - What are 1NF, 2NF and 3NF?
  - How to do normalization to 1NF/2NF/3NF?

Interfaces:: Main Topics

- Languages
  - HTML
  - CSS
  - Python
  - JavaScript (High-Level understanding, only)

Web:: HTML

- HTML
  - What is HTTP?
  - What is HTML?
  - Syntax
  - Images
  - Hypertext links
  - Lists
  - Tables
  - Forms

Web:: CSS

- CSS
  - What is CSS
  - Syntax
  - Levels of style sheets
  - Selector forms
  - Property value forms
  - How to add CSS to HTML
  - Cascade order of CSS rules
  - What is DOM?

Web:: Web Application

- Python

- Flask

- Jinja2

- The Client-sever model

- What are Web-Applications? Why we need them?

- Client-side scripting

- Java-scripts

Web Applications

- What are the advantages of Web-Application Frameworks?
- Why do we need Web Apps?
- What does Flask allow us to do?
  - Dynamic Content!
- Reflect on CW2

How to Revise

- Databases
  - The book is an excellent resource
  - Do the practice exercise for the relevant chapters
    - Do **NOT** revise the entire book - there is a significant amount of material that this course has not covered
    - Refer to the lecture slides for references to the relevant chapters
- Web Technologies
  - CW2 is perfect practice
  - The rest is bookwork
- Past Papers
  - Last year's paper is on Moodle. Answers will not be provided.
  - Similar exam format

Questions?