LOYOLA UNIVERSITY CHICAGO

CENTER FOR TEXTUAL STUDIES AND DIGITAL HUMANITIES

402 - Introduction to Digital Humanities Design and Programming

Spring Semester 2016

Week 1

Course Schedule

Wednesday 4.15pm - 6.45pm

Spring break - 7th to 12th March 2016

* No class on Wednesday 9th March 2016

DEV Week - 23rd to 30th March 2016

* No class on Wednesday 23rd March 2016

Final taught class is scheduled for Wednesday 27th April 2016

Final Assessment due on Wednesday 4th May 2016 by 6.45pm

Goals of the course - Part 1

Some core course goals include:

- introduce DH students to project design and computer programming
- focus upon core programming skills built upon PHP
- development patterns and methods
- MVC design and implementation
- Object-oriented design and programming
- Database design and usage with practical experience of MySQL
- Repository maintenance and usage with practical experience of GitHub
- Web design and publication for final framework course project, including HTML, CSS, Javascript, responsive design...

Goals of the course - Part 2

Extra reading - e-Learning and Instructional Design

- best practices in educational software
- explore existing platforms for e-Learning
- learn to effectively communicate content with words and visuals
- multimedia usage for learning purposes and effective balance of media
- design examples and practice exercises for online learning
- test collaborative learning and networked skills
- evaluate simulations and games for instructional usage

Course Assessment and Evaluation

Ongoing assessment

- design project (50%)
- ongoing weekly assessment/reading (30%)
- class presentation/demonstration (20%)

Course Assessment and Evaluation

Ongoing assessment - design project (50%)

- development, publication, and demonstration of an online DH resource

Basic

- online DH resource for any age or target audience…
- free choice of content and material
    - organisation and logic of content will also be assessed (eg: flow, presentation, taxonomy etc…)

Additional

- coding is important ie: it needs to at least work!
- documentation of code
- repository publication, developer and user instructions…
- user testing (basic UI testing required)

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Course Assessment and Evaluation

Ongoing assessment - ongoing weekly assessment/reading (30%)

- class questions and tasks
- occasional weekly exercises and quizzes
- class contributions
- course understanding and class performance
- weekly reading material to help inform design and e-Learning concepts, best practices, research, and testing

and

- ongoing development of final project code and modules

Course Assessment and Evaluation

Ongoing assessment - class presentation/demonstration (20%)

- scheduled for the end of the semester
- practical demonstration of online DH resource
- teach the class about your chosen resource, subject material

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Course Site and Repositories

Course Website is available at http://csteach402.github.io

GitHub account is available at https://github.com/csteach402/

Online DH Resource

- LAMP (XAMPP/WAMP) stack
    - Linux, Apache, MySQL, PHP
    - use Raspberry Pi, XAMPP/WAMP, or LAMP...
- PHP, XHTML, CSS, Javascript, MySQL
- documentation
- testing
- content structure
- online publication
- repository publication

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402 framework & 402mini

Online DH Resource

Already

- PHP, HTML, CSS basics
- XML and TEI
- semantic (taxonomy etc) organisation
- metadata
- digitisation practices

and now

- Databases (and then SQL in particular…)

Databases - Intro

- storing organised data, and subsequently knowing how to retrieve it again
- managing databases can get complicated very quickly
- data is often not only critical but data retrieval may also be time-sensitive
- database management involves designing and programming ways to store and retrieve data

A few basics

- a big bucket to dump data
- storing information and retrieving data
- three main types of database designs
    - free-form
    - flat-file
    - relational

Databases - free-form

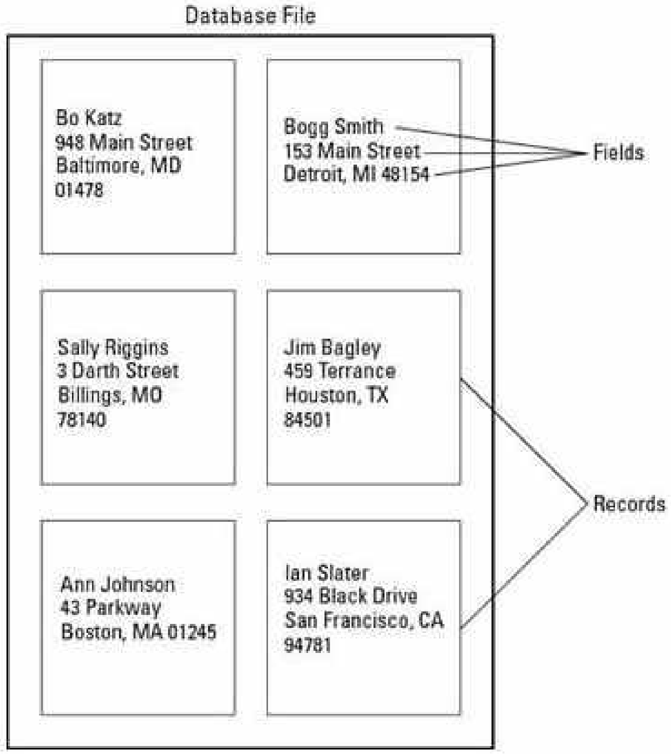
- designed to make it easy to store and retrieve information, albeit limited
- acts like a notepad or post-it board
- freedom to store dissimilar information in one place
- finding what you want can be problematic
- to find information you need to know at least part of the data you want to find

Disadvantages include:

- they're clumsy for retrieving information
- they can't sort or filter information

Databases - flat-file

- biggest difference between free-form and flat-file is structure in flat-file
- flat-file forces you to add information by first defining the structure of your data
- then you can add the data itself
- each chunk of data, eg: a first name, is known as a 'field'
- a group of fields is a 'record'



Bo Katz
948 Main Street
Baltimore, MD
01478

Bogg Smith
153 Main Street
Detroit, MI 48154

Sally Riggins
3 Darth Street
Billings, MO
78140

Jim Bagley
459 Terrance
Houston, TX
84501

Ann Johnson
43 Parkway
Boston, MA 01245

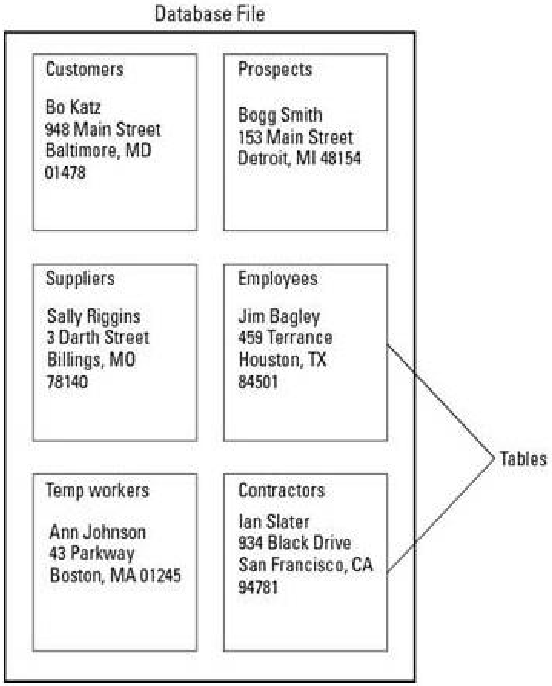
Ian Slater
934 Black Drive
San Francisco, CA
94781

Databases - flat-file

- impose structure on the type of information you can store to make retrieval easier
- you need to design the structure of your database carefully
- size relative to field is also important for the type of information you can store
- information larger than storage size, eg: 10 characters, will simply be cut off
- definition of fields is also particularly important
- separation of fields is often useful to enable better sort and search options
- makes flat-file databases easier to search and sort information

Databases - relational

- suitable if you need to store large amounts of data
- majority of current database programs are relational
- you must define number and size of fields relative to type of information required
- unlike flat-file databases, relational databases can further organise data into tables
- organisation of information as tables with further sub-division in fields



Database File

Customers

Bo Katz
948 Main Street
Baltimore, MD
01478

Prospects

Bogg Smith
153 Main Street
Detroit, MI 48154

Suppliers

Sally Riggins
3 Darth Street
Billings, MO
78140

Employees

Jim Bagley
459 Terrance
Houston, TX
84501

Temp workers

Ann Johnson
43 Parkway
Boston, MA 01245

Contractors

Ian Slater
934 Black Drive
San Francisco, CA
94781

Tables

Databases - relational

- dividing data into tables with a table grouping the minimum amount of data
- column in a table represents a single field or 'attribute'
- row in a table represents a single record or 'tuple'
- tables can be linked together
- link between separate tables automatically keeps that information updated and accurate in all other linked tables
- by linking or relating tables together you can combine data in different ways
- relating tables together allows you to create 'virtual' databases
- Primary/Unique key and Foreign key

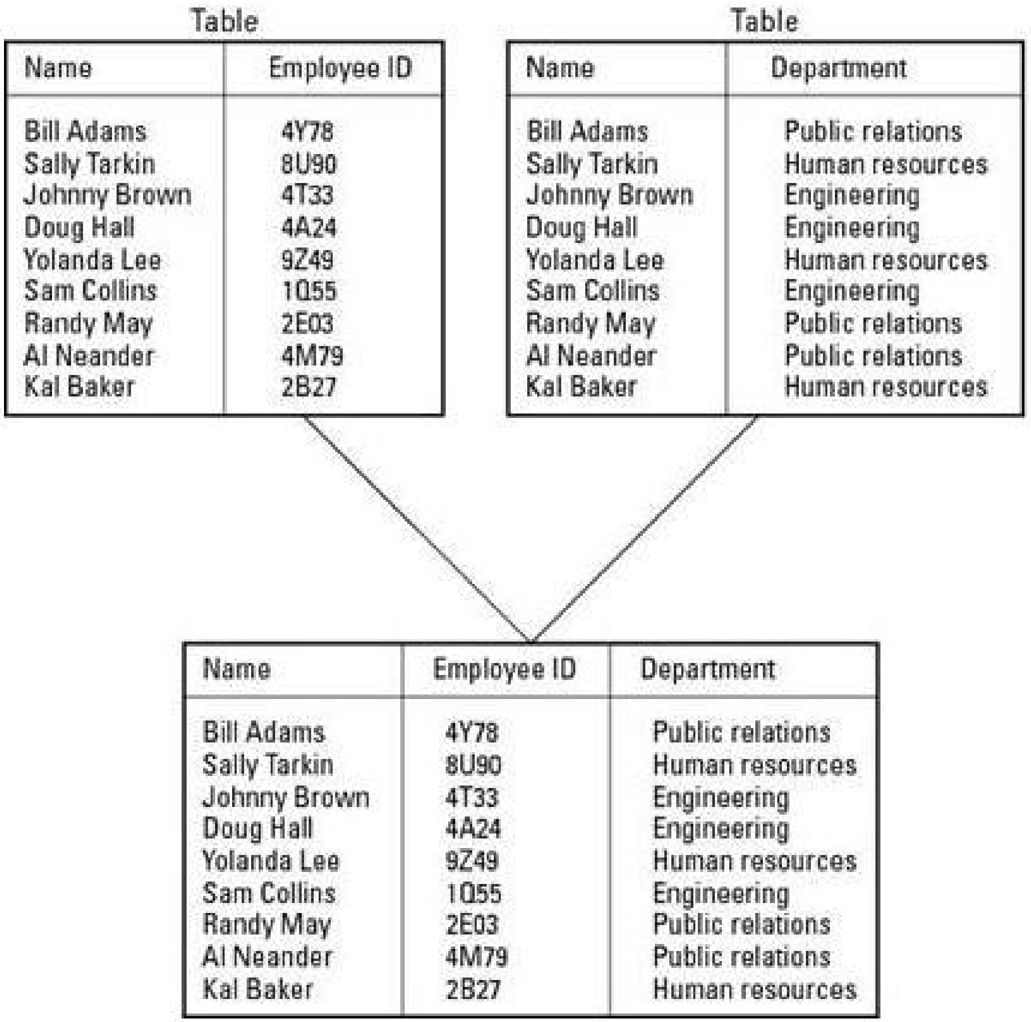
Databases - relational

- create tables to contain required data
    - eg: content, content type, taxonomy, project, user....
- create lookup tables to cross-reference tables
- query lookup table to get information from multiple tables
- sort and organise lookup table to get different query results

and on, and on...

For example, **http://dhdev.ctsdh.luc.edu/phpmyadmin/**

Databases - relational



Table

Name	Employee ID
Bill Adams	4Y78
Sally Tarkin	8U90
Johnny Brown	4T33
Doug Hall	4A24
Yolanda Lee	9Z49
Sam Collins	1Q55
Randy May	2E03
Al Neander	4M79
Kal Baker	2B27

Table

Name	Department
Bill Adams	Public relations
Sally Tarkin	Human resources
Johnny Brown	Engineering
Doug Hall	Engineering
Yolanda Lee	Human resources
Sam Collins	Engineering
Randy May	Public relations
Al Neander	Public relations
Kal Baker	Human resources

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Databases - manipulating data

- write commands for modifying and manipulating the information
- three basic commands for manipulating data
    - select
    - project
    - join
- select command retrieves a single row or multiple rows from a table
- project command retrieves the entire column from a table
- project acts like a filter
- join command combines separate tables together to create a virtual table

Databases - Data Integrity

- multiple users accessing and editing a database
- ensuring data is both accurate and updated
- can cause an issue when multiple users are updating data
- data locking
- lock all data a user plans to modify
- rollback update choice to previous data state
- requires a lot of testing...