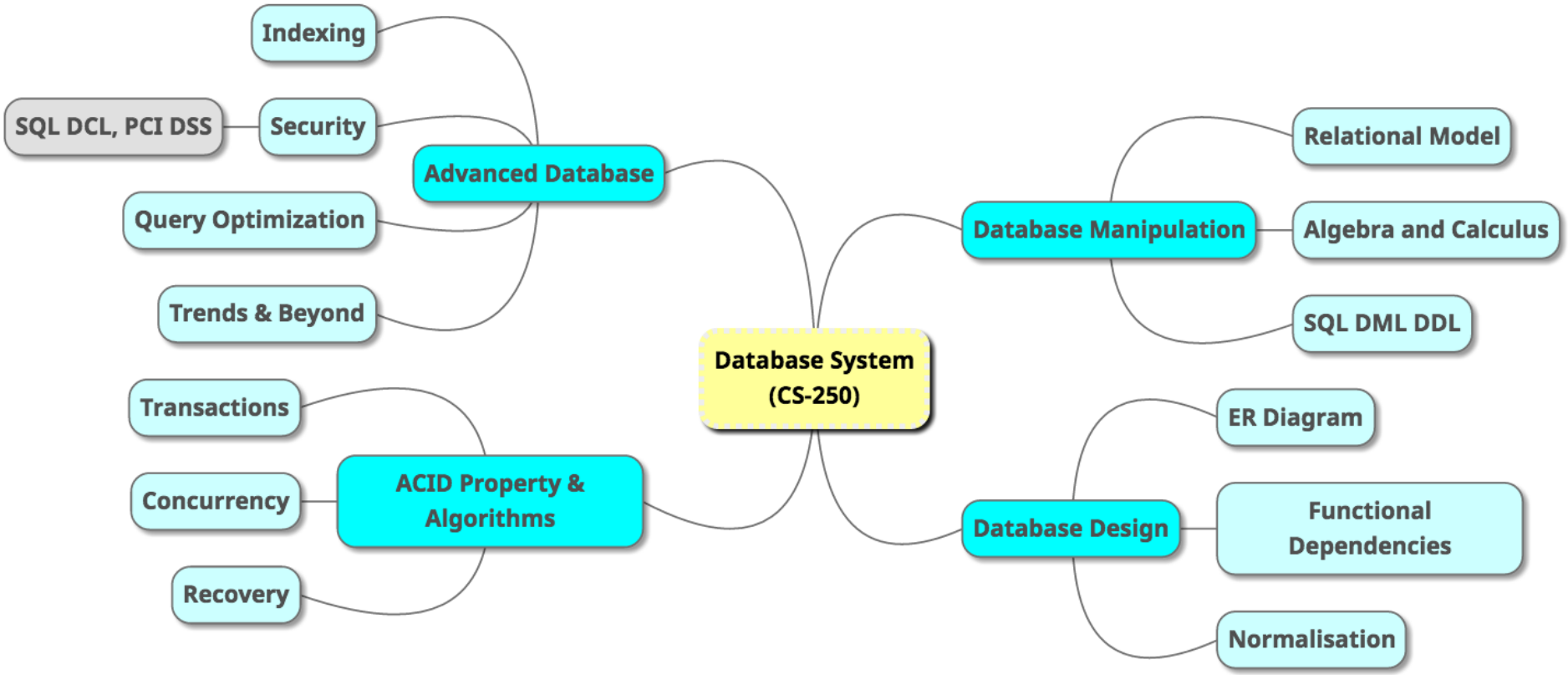

Database System
(CS-250)
Advanced Database
Indexing
Security
SQL DCL, PCI DSS
Query Optimization
Trends & Beyond
ACID Property &
Algorithms
Transactions
Concurrency
Recovery
Database Manipulation
Relational Model
Algebra and Calculus
SQL DML DDL
Database Design
ER Diagram
Functional
Dependencies
Normalisation

Motivations?

Basic programmer's skills

Junior LAMP Developer

Company:	Smith & Keller
Location:	New York City, NY
Date Posted:	September 9, 2014
Source:	Dice

What is **LAMP**?
Linux, **A**pache, **M**ySQL, **P**HP/**P**erl

What is **XAMPP**?
Cross **(X)** Platform, **A**pache, **M**ySQL, **P**HP, **P**erl

Smith Keller has a great growth opportunity for a Junior LAMP Developer Required Skills- PHP 1+ years experience, MVC Frameworks, Object-Oriented Programming SQL knowledge MSSQL Server and MySQL The Junior LAMP Developer should have database design, ER diagrams, and normalization experience Build systems experience Ant, Phing, RPMs Advanced Javascript skills OOP, Namespacing, and JQuery library specifically Solid HTML skills Strong Apache knowledge Team development experience Agile methodologies

Gmail by Google

KL Tam <kltam327@gmail.com>

Question about relational schema

To: Gary KL Tam <kltam327@gmail.com>

Hi Gary,

The question was in reference to my Week of Work placement which has since finished. Although I'll give you an insight in what I had to do :).

I had to design a way for researchers to log time spent in a project add/remove projects and create reports based upon differ... involved a relatively simple database system ... utilised php, all of which was part of ...

In the process I learnt ab... ...also drew upon the course material heavily.

Kind regards
Christian

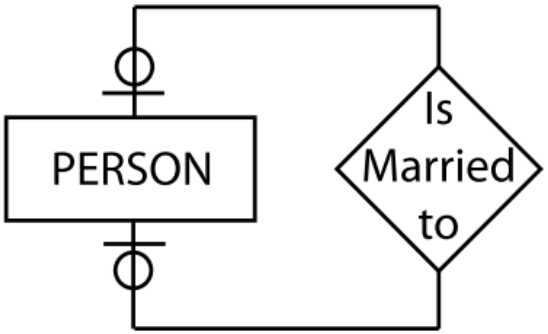
Keep a copy of my notes!

Schema design: ER diagram, Normalisation
Database implementation: SQL, HTML, PHP

Disclaimer / Legal: [COS & University Policy] Gary ***cannot*** provide consultation outside CS-250, unless it is associated to a CS module or approved by Head Of Department/HOC. Any help, if any, will be voluntary from Gary's leisure time – please kindly expect very slow / no response; No guarantee, liability, or warranty implied from my response / advice.

ER Diagram

- Example of job search
  - Draft a ER diagram with 100+ entities
  - And convert them all to tables
  - Where to find?
    - voluntarily work, freelance job,
    - receipts, websites and their functionalities (e.g. ASDA superstore)



Normalisation

- Why need to study?
  - critical to the successful implementation of a database management system

    Read more at http://www.guru99.com/database-normalization.html#sC9dh9eiyAe0wpHK.99

  - Benefits:
    - arrange the data into logical entities that form part of the whole
    - ***minimize*** the amount of ***duplicate*** data stored in a database
    - design a database whose data users can access and modify quickly
    - ensure the ***integrity*** of the data in the database
    - ***optimize*** query times

http://www.alc.amadeus.com/content/public/alw/skillsoft/cbtlib/108595/110939/eng/wpaper/nito.html

Normalisation

- How it speeds up database?
  - ***reduce*** the total amount of redundant data in the database. The less data there is, the less work database server has to do, ***speeding up performance***.
  - ***reduce*** the use of NULLS in the database. The use of NULLs in a database can reduce database performance, especially in WHERE clauses.
  - ***reduce*** the number of columns in tables, which means that more rows can fit on a single data page, which helps to ***boost*** database server ***read performance***.
  - ***reduce*** the amount of SQL code that needs to be written to deal with non-normalized data. The less code there is, the less that has to run***, speeding your application's performance.***
  - ***maximize*** the use of clustered indexes, the most powerful and useful type of index available to database server. The more data is separated into multiple tables because of normalization, the more clustered indexes become available to help ***speed up data access***.
  - ***reduce*** the total number of indexes in your database. The less columns tables have, the less need there is for multiple indexes to retrieve it. The fewer indexes there are, the **less negative** is the **performance effect** of INSERTs, UPDATES, and DELETES.

http://www.nullskull.com/a/1629/sql-server-database-normalization-basics-for-developers.aspx

Functional Dependencies

- Concept… why need to study?

- Because it is the core of normalisation!
  - Functional dependencies