Intro to Databases for Business Analytics  
Spring 2017

Required Course Material
- This course does not use a textbook
- Any required readings will be provided via Canvas
- Students must have a laptop that they can bring to class – Mac or PC is fine, as long as your operating system is up to date (at least Windows 7 and Mac OS 10.8)
- Slides and files will be uploaded to Canvas after class

Required Prerequisites

This course assumes no previous knowledge of programming or code.

Course Description

We don’t think about databases much, right? At least not when they’re working right. But they’re all around us. They’re in every product we use. And when they don’t work (think about the iCloud, LinkedIn, or Ashley Madison data breaches in which hundreds of millions of emails and passwords were exposed) the consequences can be extreme.

Every every modern company stores their data in a database (it’s like a really big version of Excel), and if you want to analyze the data, you may be expected to know how to access it yourself. In fact, at many companies are requiring even their business leaders to have an understanding of databases. At the very least, knowing how to set up and interact with databases will improve your ability to GSD (get stuff done), strengthen your understanding of how technology works, and make you less of a pain for developers to work with.

In this class, we’ll explore basic SQL (the most common database language) for business analytics. At the end of the course, should should have a deeper understanding of how databases work, how they fit into the general technology stack, how to connect to databases, and know how to browse and exporting data from databases.

Course Objectives

In this course we aim to develop both conceptual understanding of databases and procedural skill in interacting with them with a focus on real-world use-cases. Each session will explore several new concepts and active exercises for practicing them. Note that the order of these topics and assignments may change.
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<tr>
<th>Session</th>
<th>Topic</th>
<th>Assignment</th>
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| 1       | Setup & Intro to SQL: Getting a hang of things | **Assignment 1 (Set up a Database):** Download the required software and create a database on your own computer according to a specific set of business requirements.  
**Pre-class survey** |
| 2       | CRUD (part 1): Creating and reading data | |
| 3       | CRUD (part 2): Updating and deleting data | **Assignment 2 (Migrating and Evolving Data):** Make a set of required changes to a pre-existing database.  
**Post-class survey** |
| 4       | Advanced Operations (part 1): Transactions and grouping data | |
| 5       | Advanced Operations (part 2): Aggregate functions, math, and joins | **Assignment 3 (TBA)** |
| 6       | Beyond Databases: Flavors of SQL and accessing SQL from Python | **Assignment 4 (TBA)** |
| Due Apr 30 | Final Project | (TBA) |

**Grading**

**Participation (30%):**
- I will ask that you prepare problems or questions prior to coming to class that we will use in our class discussions. Your contribution will contribute to the corresponding part of your grade.

**Assignments (70%)**
- There will be four major assignments and a take-home final project.
- The take-home final project will cover many of the topics in the course, and may be completed with a partner.