

Final Project: What we've learned

This class has covered an exhaustive overview of general relational database management. To start, we learned what relational data management includes; Normalization, ACID principles, etc. We learned about the paramount importance of data integrity, as well as the balance between compact data storage and fluid structure. Learning about normalization, we spent time learning to structure a data-based project from start to finish; Personally, I was surprised by how much of the work involved with data management is not code based at all. We changed our thought process to think forward; predicting the needs of data users, of all tiers.

We focused down to Microsoft's SQL server, utilizing SQL Server Management Studio (SSMS) to construct our databases. Installing the necessary software and learning about its inner workings was not fun, but it was necessary. I would not advise constructing an easier way for students to download the programs necessary, as that is a skill that students will need in the field. We learned about the specific objects SQL Server supports; tables, columns, constraints, views, stored procedures, functions. We honed the skills involved with using the program, giving us industry-ready capabilities with a fully realized system. We created systems entirely on our own, working from the ground up in most cases. This was particularly helpful in realizing the relevance of the knowledge and skills.

Advanced stored procedures came next. These advanced methods include utilizing output vs return variables, error handling with try and catch blocks, error reporting with custom error messages, transaction processing, and more. We also learned about more advanced select statement work, such as aggregate functions, extra clauses, and more. Although the syntax involved with most of these advanced features is specific to SQL Server, most common database systems will use the same features in some way. Now, we know what we can do, and the answer is just a Google search away. For our futures, this means we know what we can tell our boss that we can do, and when to say it's not possible.

We learned about process enhancing features as well, such as automation available in SSMS, cloud-based software, a host of software packages that utilize your data system; CSS, JavaScript, PHP, and python; reporting packages like PowerBI and Report Builder; and more.

In reasonable detail, we discussed the concept of a data warehouse, the implementation of such an object, and the use they can have in reporting circumstances. Personally, I can see how the average database professional would spend a majority of their time on these solutions.

In conclusion, this class was an exhaustive survey into relational database implementation and design, including a broad search through applications for these structures.