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CSPB 3287

Git_link: https://github.com/Jprindle264/CSPB3287_Project

School Management System Project

Original Motivation

Overall, I am going to create a school management database system. I have taught in four different states, at various grade levels, and in various content areas, and the one thing they all have in common is poor digital infrastructure. Three out of the four years I taught in public ed schedules were created last minute, rooms were assigned days before school started, and adding new students was a complete nightmare. My main motivation is to create a more functional school database management system. In addition, I would like to explore the unique issues that come along with creating a school management system from scratch.

Database Multiple Relations/Sample Table Ideas

This has been revised from the original proposal phase. Given the amount of implementation and design going into this project, I decided to reduce some of the tables from the original proposal phase. Additionally, I have decided to make this management system model more of an Elementary school format as opposed to Secondary school. For the following T represents Table and A represents the attributes of that table.

1) T: Teachers A: Teacher_ID, Teacher_First, Teacher_Last, Teacher_Salary, Room_Assignment
2) T: Students A: Student_ID, Student_First, Student_Last, Grade_Level, Room_Assignment
3) T: Staff A: Staff_ID, Staff_First, Staff_Last, Position, Staff_Pay_Rate
4) T: Room Assignment A: Room_Number, Grade Level, Grade Section
5) T: Student Fees A: Student_ID, Fee Name, Current_balance

These tables and relations will allow provide a large overview of the internal mechanisms of a basic school management database system. Dummy data was inputted to give a base for the systems. The rest of the data is up to user input (i.e add/delete/update students/teachers/staff/rooms).

Original Learning Outcomes

The current implementation and design allow me to meet all of my original learning outcomes, which were…

1) Getting more experience with relational database design and implementation.
2) Create a system from scratch from beginning to end.
3) Gain a better understanding of school management systems.

4) Gain a better understanding of various tools involved in DBMS Overall, I hope to understand databases and their management better.

Were Learning Outcomes Met?

1) Throughout the course of this project I was able to learn more about designing and implementing database systems in general. I found that creating a comprehensive system with an online user interface takes much longer then what I had originally expected. Additionally, there were various features that seemed relevant for future iterations. For a first iteration, however, I feel like this design provides a solid foundation for a school management system.
2) I was able to create the entirety of this system from scratch. In fairness I used the template from Lab four as a starting point but found myself deviating quite a bit from that original implementation. In particular, creating a user-friendly query system for users without any querying knowledge proved to be challenging but informing.
3) Throughout the course of this project I realized how big/how much of a time commitment a full-blown school management system would be. I also started to realize that an independent school management system would probably be integrated into a district wide management system thus making the overall management system something beyond that scope of what this project could create. It was a good learning experience in understanding the need to truly define the overall parameters of a project before beginning. This design suffices for a simple school management system, but there is room to add much more functionality as well.
4) Throughout the course of this project, I had issues with google cloud and MySql Workbench, and a few integration issues with the jupyter notebook. It was a good learning experience mess around and figure out the various obstacles on the road to the final product. I had a better understanding of how google houses the database system and how MySQL actually engineers the tables. I gained a bit more understanding of certain networking principles as well. One of the biggest takeaways was finding a way to integrate queries so that an everyday average user could input data.

Overall, I'm satisfied that I've met the goals I set out meet in this project. Your everyday user can easily add/delete/update or query information. Your advanced user can look up more specific information if they need it. The system lets you know who is who and where everyone is at. As mentioned before, I believe this is a solid start to a school management system.