DAT602

Assignment 1

Documenting practice reviews

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Contents

Milestone 1 (SKETCHES + SQL)

For the first milestone many topics were covered in the initial introductions and design of the course project. The course project is to look at the implementation of a database into the use of a prototype game application. This allows for an understanding of database technologies and how to use them in a variety of projects and scenarios.

In a step-by-step process the outcomes of this project I will be able to:

- Analyse and evaluate an existing database application design.
- Apply structured query language (SQL) to access and update a database.
- Design and implement a prototype single – user design application.
- Explain and compare different approaches to the management of effective concurrent data access.

In the beginnings weeks of the course an introduction to database technologies was conducted along with information about MySQL, CRUD management, and flow control. Also included as the first milestone hand in is the project brief and design of the purposed database game. This was presented in a report format.

The introduction to MySQL, I found to be very interesting. Coming from my previous experience of another database course, I've had limited experience with database technologies. In fact, my previous experience I used Microsoft access and had very limited hands-on coding experience with MySQL. I enjoyed learning and diving into a new database technology and getting some hands-on experience with MySQL and applying it through some small-scale practical exercises.

Using MySQL workbench of which I had never used before, I found it straight forward with the tutor's guidance to set up and use effectively. One of the first exercises was to create tables effectively structuring the database from the ground up. Over the next few weeks, the exercises were built on top of each other effectively building upon our knowledge of MySQL. This was extremely important, and it made it easy to apply the learning to the project MySQL. The exercises included topics such as:

- Procedures
- Select statements
- From statements
- Where statements
- Joins
- Primary and foreign keys

The above topics and their practise were essential to carry out the first hand in for the project.

The project is a guided approach where the aim is to design and implement a database game application. This game application is based on a tiled map layout and is to be made as a prototype version. Contents of milestone 1 hand in included a game brief, storyboards, sketches, descriptions, logical ERD, CRUD tables and a MySQL DDL script.

In summary of the first milestone hand in I found it to be enjoyable and challenging in areas. The design work is always a favourite of mine, designing storyboards and seeing how the conception of the game will look. The challenging part was taking that experience of the exercise work and applying it into this milestone. Specifically, the logical ERD and DDL scripts. I had frustrating moments of getting the script to fire and compile completely as my experience with MySQL was

limited at the time. But I found it was a matter of taking a breath, breaking down the script into chunks to understand where my problems lay, then figuring out how I can trouble shoot them and apply the correct fix.

Milestone 2 (DML + CONSOLE APP)

During this milestone the main goal and purpose was to take the already made database schema that had test data and implement database procedures along with a command line application to test the database mapping.

There were multiple parts to this milestone including:

- Design and identify each activity from the previous database schema to develop SQL procedures and transactions. These procedures would demonstrate the game activities such as:
    - Game play
    - Player registration and selections
    - Confirmation of games
    - Admin functions
- ACID (Atomicity, Consistency, Isolation, Durability)
- Create suitable test data
- Console application that instantiates the test classes. This is for checking the code connection in C# in conjunction with the project MySQL database game.

Many of the class guided session included and covered the topics listed above. There were many sessions covering procedures and transactions as this would make up the bulk of milestone 2 hand in. The tutor clearly explained how they would relate to the users of the application and what procedures would need to be made in relation to the previous CRUD tables made in previous project iterations.

Other topics during class sessions were:

- Sub queries
- Referential integrity
- Cascades.

The DML script for this milestone was puzzling. I think that is a good word due to the nature of MySQL and the connection of so many parts can be tricky to align and have a full complete compile of the script. I had so many iterations of the DML script and at times thought I was overthinking and losing my grip on what things I would need to make to achieve certain aspects of the game.

The best way once again was to break down the creation of code into segments of which I included in my script a list of items to tick off this helped my progress and allowed me to focus on one thing at a time rather than feel overwhelmed. I spent a lot of time refactoring and making sure my code met all the requirements I would need.

Although, this proved to be difficult as timelines were tight, and I thought it was in my best interest to forgo some procedures and features to make up for them later.

Moving forward the next challenge and requirement was to provide a console application that tests and instantiates the test classes, calls and methods created from the console app itself and the database code as well. Again, this was another challenge as I had never used a database with C# before so understanding how my connection worked was important. Another factor was my limited experience with C# coding in general. Luckily with some guided support and tutorials I was able to produce a simplistic console app that connected with my database and called some of my procedures to display on the application.

The console app was a steppingstone into the section of the next milestone being a GUI interface to use with our database. I thought having this initial experience with the console app while a challenge was overall positive and would give me a good starting point for the last hurdle in milestone 3.

Milestone 3 (IMPLEMENTATION + GUI)

For the last stage in the project and for the remaining course weeks the focus was to produce and implement a GUI for the project. This GUI would come in the form of windows forms through Visual Studio's (CLR) .net features.

Also, the final stage would be a coming together/collection of all final work from milestones 1 and 2. This includes:

- All project brief work
- Sketches
- Story boards
- DDL MySQL scripts.
- DML MySQL scripts.

My project since initial conception has undergone a multitude of changes. Mainly in the form of iterations through the DML and DDL scripts to produce procedures that are needed for certain aspects of the GUI design and data use. Most of if not all UX/UI designs have been kept to their original conception minus the game board. This was due to time restrictions mainly and other factors like learning a new technology for the first time throughout this course and degree.

My experience in windows forms has been limited but in conjunction with this course I did another course that used windows forms to design and build a tour management application. Although I don't feel strong in C# windows forms development, this learning practice only helps to reinforce my understanding on how to produce and build windows forms apps.

An area I struggled in was the passing of data between the forms and making sure the correct data was presented. This was most evident with the game board. Using tools, I had not used before to try and implement a player move was a challenging task.

To overcome these issues, one of the most helpful parts was guided lessons in class where the tutor showcased multiple videos presenting windows forms. The presentation covered how to construct, code, and link up the forms to the database. I found these lessons, recordings, and other tutorials instrumental in the development of my own forms.

The project has had its fair share of challenges to complete and I've had some tough areas of debugging and trouble shooting. Up until this point nearing my 3rd year in my degree I had not touched on or learnt MySQL or used visual studio for windows forms. I was excited to build something as unique as a title base game it seems a far cry from the norm of stereotypical app development. To come away with a new experience, new skills and learning new technologies is always a good thing in my book. It will only help to solidify my personal development and further my abilities in my professional career.

There is a sticking point that continuously pops for me and that is problem solving. The best practise I can do is break down the problems one section at a time rather that look at it from a whole. I find it's very easy to get overwhelmed when using something new. Part of being a software developer is to be able to troubleshoot and debug problems in an effective manageable way.