Course Work

Database - ECS740P

Group - 39

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GROUP PROJECT GITHUB REPO LINK: <https://github.com/Booolzay/DBS-Group-Work-Repo>

**INTRO**

For this course work we designed and developed a database management system for a library using Oracle SQL. This system contains information like the library’s members including staff and students, resources and their types, availability, location.

Submission Contains all files and versions to display the work progress. But Final versions to run and represent the DBS system are as follows:

**FOCUSED FILES:**

* ERD V5.0.drawio.pdf (Found in Folder “ER DIAGRAMS”)
* ERD V5.0.drawio.xml (Found in Folder “ER DIAGRAMS” ,drag and drop in <https://app.diagrams.net> )
* SQL Library Database Management System - Tables - Views - Queries script.sql (Simply Run the script in Oracle as it has all the tables, triggers, data, views and queries already set up)
* LIBRARY DBS TABLES,TRIGGERS AND SAMPLE DATA IN SEQUENCWE v2(final).txt (for code and raw data and to serve as the final schema and data record, Found in Folder “SQL TABLES and SAMPLE DATA”)
* queries.txt
* QUERIES WITH SCREENSHOTS (Folder containing output evidenced as screenshots)
* VIEWS.txt
* VIEWS WITH SCREEN SHOTS (Folder containing output evidenced as screenshots)
* schema v1.txt (1st conceptual schema)

Access to group git hub Repository is set to public to allow access for checking and attached atop.

**Part 1:**

For part one we worked on a conceptual ER Diagram, to get a foundation of the tables we will need and the type of data we could choose to populate them with. Based on which we progressed to make a conceptual schema. We had to go through a few versions of the ER diagram making changes to them, all of Which are available for viewing in our projects GitHub repo for reviewing and will also be provided in the submission folder.

For normalisation we had to recreate all the tables primarily created. For this process we tried to get rid of potential redundancies as much as we could. And the hardest part was to create relationship between the entities but after that was sorted (FILE: ERD V5.0.pdf for access).

The first conceptual relational schema was built based on the first ER diagram. And so, it will have a lot of relational issues. However, on the final version we have Normalised the schema into something that is more appropriate and usable but making sure entities can relate to one another and reduce redundancy as much as possible. Best way to achieve this we found, was to create a single entity at a time and create the ones that will depend on it or it’s primary keys in sequence rather than our first method where we went and decided on each entity and their attributes all at once. The final version of the schema can be found in the file “LIBRARY DBS TABLES,TRIGGERS AND SAMPLE DATA IN SEQUENCWE v2(final)” inside the “SQL TABLES and SAMPLE DATA” folder.

The normalisation process took a bit of time as it was vital for the creation of the database and taking out all the queries, creating views and triggers also depended on the entities we came to finalise through this process as mentioned before. We applied a similar process used in regular programming which is dividing the whole task of creating the tables and insertion of their data into corresponding sections and implement each sections only after making the previous section usable and work. The file “LIBRARY DBS TABLES, TRIGGERS AND SAMPLE DATA IN SEQUENCWE v2(final)” has all the tables, triggers and data in the right sequence how they should be entered on Oracle to make them work.

Note:- Triggers needed to be created separately, as in one after another. So, to make sure the triggers work during marking or checking process please enter them separately one after another in the provided sequence.

**Part 2:**

After creating the table, we made views. The views we made are all listed in a different text file called “VIEWS.txt” and evidence of all the views are provided with in the folder called “VIEWS WITH SCREEN SHOTS”. We created the views with a goal of making access to certain data tables that may require easy access for regular use but like all resources, all members, all restricted members etc.

For the sample data we tried to create them based on the tables created in prior. As this was process made more sense and helped the development process to more accurately populate the tables. As trying to make all tables at once and inserting all data at once were giving errors and bugs that were being very difficult to almost impossible to figure out and fix. The sample data are all available within the file “LIBRARY DBS TABLES,TRIGGERS AND SAMPLE DATA IN SEQUENCWE v2(final)”. We wanted to make the “FINES” table to be able to display fine amount, but it is a set back we faced as our current fines table only displays members who has unpaid fines.

For the queries we were able to create 11 queries in total. All of which is available within the “queries.txt” file and all screenshot evidence of the queries are also provided and can be found within the folder “QUERIES WITH SCREENSHOTS”. The queries have also been carried out in the sql file. Brief description of each query as in what they retrieve are provided above each sql code withing the “quries.txt” file. For this part we tried to make all the queries retrieve data that a library management staff may want to retrieve like students restricted, subject category and floor of videos materials available etc.