Project Closing Report.

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1. Introduction.

The project was done for the course “Data Management and Databases”.

The goal of the project is to implement the knowledge gained on the course to create a Database that fulfills customer’s requirements.

Study materials for the course were used as guidance in database creation.

2. Working time records.

All tasks were completed by Sofia Altusar-Anderson.

TASK	WORKING TIME
ER diagram	40 min
Relational schemas	10 min
BCNF validation	10 min
Repository	40 min
SQL script to create tables	1 hour
SQL script to create indexes	10 min
SQL script to insert data into database	50 min
Database diagram	2 min
SQL script with user transactions and testing	2 hours

3. Working process and project files descriptions.

The first step of database development included conceptual and logical database design. I went through the case description and got familiar with potential user transactions. Based on these requirements I defined entity types, attributes, attribute domains, and relationships. Using this data I did the ER diagram where I defined primary keys, then I derived relational schemas where I mentioned foreign keys then completed BCNF validation and finally created a repository.

Files that contain results of the first step: DM_Case_Step1_AltusarAnderson.

On the second step I created the following SQL scripts:

- *CaseAssignment_CreateTables_AltusarAnderson.sql* The script includes CREATE statements that create tables according to the requirements from the repository. I defined primary keys, foreign keys, data types and integrity constraints for tables. The script was successfully executed and saved after execution.
- *CaseAssignment_CreateIndexes_AltusarAnderson.sql* The script includes index creation. I did not have to create indexes for primary keys as they were created automatically. The script was executed, successfully completed and saved.

- *CaseAssignment_InsertTables_AltusarAnderson.sql* The script inserts data into tables. I had to insert some data separately into tables because initially, I did not notice that some concrete data is required for transactions (exact artists and exact events). That's why I had to insert some data after the first insert operations were done. All Insert statements were successfully executed and completed.
- *CaseAssignment_Transactions_AltusarAnderson.sql* The script includes transactions with UPDADE, INSERT and DELETE statements that complete tasks 1 – 7. The file includes comments that explain the algorithm of transactions. The document has SELECT queries that make transactions 1 – 8 to find the required information. All transactions were successfully executed ad completed.

4. Test report.

Transaction	Completed or not	Problems
Booking a ticket	Completed	-
Cancelling a ticket booking	Completed	-
Changing the number of tickets in a booking	Completed	-
Changing the status of booking to sold when tickets are purchased (the booking is payed for)	Completed	-
Removing the unpurchased bookings from the database after three days from booking .	Completed	-
Cancelling an event (in an extreme exceptional case).	Completed	-
Refunding a client in a case of a cancelled event.	Completed	-
What is Ed Sheeran's contact email?	Completed	-
What dance performances are coming up next month?	Completed	-
What concerts are coming up this month?	Completed	-
When will Saara Aalto 3 perform in Cardiff and what are her special requests for catering?	Completed	-
How many tickets have been sold to Riverdance's dance performance ''Riverdance 2020" that takes place on 10.7.2020?	Completed	-

How many tickets are there left for ZZ Top's4 concert on 22.1.2020?	Completed	-
How much money has the Cardiff Festival Association got from sold tickets this year?	Completed	-
Which artist has sold the highest number of tickets this year. Please notice that the artist can have performed several times this year. All the artist's performances count here.	Completed	The working solution selects sum from tickets that are sold, sorts solution in ascending order and shows the first row with maximum sum from sold tickets. The solution will not work if several artists have the same amount of money from sold tickets.

5. Problems found during development process.

During testing I faced with the following problems:

- The database tables did not contain rows with the data mentioned in transactions in the assignment description. Solution: New rows that follow the requirements were added to the database.
- The attribute “cancellation deadline” in table Booking has a name that does not reflect the purpose of data inserted in this column. The name should be “payment deadline” to complete the requirements. As this problem was found at the last moment I did not change it as it required to change many details in a whole project. Conclusion: next time I need to be more accurate while deciding names for tables and attributes.
- I found out that the last transaction works only if there is only one artist with the highest sales. By the moment of the project deadline, I haven’t found a better solution for the transaction yet.

6. Conclusion.

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I successfully created a database design that fulfills customer requirements. During the project development process, I used knowledge in conceptual database design, logical database design and database normalization. To make physical database design I used skills in work with Microsoft SQL server management studio as well as skills in SQL to create tables, insert data and execute queries. The testing showed that the database works properly and allows to complete all the needed transactions. To improve performance in the future I recommend I study materials more carefully to define clear and proper names for attributes and tables and to insert the data that is required in transactions. I also think that it may be useful to practice writing SELECT statements more.