Database Management

Project Report

By

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Due:

12/05/2019 12:00 a.m.

For completing my project for Database Management, I have chosen to build a small database design and SQL programming project. I have completed this project using XAMPP and SQL for building the ER diagram and then turn it into a schema diagram. (Built my entity relationship diagram and database schema un draw.io in UML diagrams Building table data and then queries in excel for now) This system uses multiple tables and is made with some moderate complexity to create different kinds queries for testing and data checks in addition to what was tested for this report specifically.

**Entity Relationship Diagram**:

Image:

A close up of text on a white background

Description automatically generated

**Description**:

Here I have my Enity Relationship Diagram that shows the connections of each enitity that is used in this process. As well as the differnet attributes that represent each entity to help identifying them as standard, weak or associative enity types.I have no weak entities in this diagram as each enity has a primary attribute connected to it. This also shows that there are no weak relationships either, as a weak relationship is only created when connected to a weak entity.

**Database Schema Diagram**:

Image:

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**Description**:

Here is my Database Schema Diagram, here is where I have the different entities with there attributes and the relationships with attributes that are apart of the schema. Here I connect the attributes of entities by there keys. Each entity with fake key versions of a primary key that is connected to one of the other listed entities.

**Relation Tuple Data**:

Here I have each of the entity and relationship tables that were shown in the schema but each one is filled with example test data that will be used later in this report when the data is tested using queries. Each Table is labeled by the name given from the schema to help with organization and all attribute names are different in order to avoid duplicate naming and confusion, but the names are similar enough to see a connection when one appears. Here all the values that are created and that can be used for creating Queries for testing are shown below.

EMPLOYEE TABLE:

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DEPARTMENT TABLE:

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COMPANY TABLE:

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STORE TABLE:

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VIDEO GAME PROJECT TABLE:

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WORKS ON TABLE:

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**Query Work + Query Discussion**:

To demonstrate the functionality of the Entity Relationship Diagram and Database Schema, I have created three queries for testing the data and I have results for each one. After each query given and results of the test, there will be a discussion to explain the logic and the process of each query to make sure the process is fully understood and explained.

Query 1) Retrieve the average of the employee salary.

Query Code:

SELECT

AVG(Salary)

FROM

employee;

Query Results:

A close up of a sign

Description automatically generated

Query 2) For each department, retrieve the department name and the average salary of all employees working in that department.

SELECT Name, AVG(Salary)

FROM

DEPARTMENT, EMPLOYEE

WHERE

DEPARTMENT.Number = EMPLOYEE.Dept\_Numb

GROUP BY

DEPARTMENT.Name;

Query Results:

A screenshot of a social media post

Description automatically generated

Query 3) Retrieve names of all the female employees in the company.

Query Code:

SELECT

Fname, Mname, Lname

FROM

EMPLOYEE

WHERE

EMPLOYEE.Sex = ‘Female’;

Query Results:

A screenshot of a social media post

Description automatically generated

**Discussion**:

Overall, I found this project a very good learning experience and I was able to learn a lot more with the use of SQL databases and entity relationships. I felt that I was able to learn a lot from completing this project and that by doing so, I have a better understanding of working with Queries, Entity Relationship Tables and Database Schema Tables.

I think this Project was a good option and the structure was setup very well and it would be a good one to hold onto to use again for future students that take this class. I had some trouble with figuring out how to work with SQL and the syntax but with the help of the class lecture, the textbook and looking through online sources I was able to get a hang of what I needed to do in order to get what I needed to get done.