**PROJECT REPORT DATABASE**

Group P *(10-5-2019)*

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| --- | --- | --- |
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1. **Introduction**

Nowadays, people live in the active and busy society. They do not have too much time for shopping, trading goods or buying directly some necessary items in malls, shops. In addition, the technology innovation leads to many activities of human are now performing on the Internet. People are used to searching an information of product before buying or they will order that product immediately on the Website in order to save their time. Therefore, we are going to develop a **Retail Database** which is used for trading base on the requirement of shop owner. Specifically, the Database is used to manages many products, customer, bill etc. The owner can manage their shop through the **Retail Database** in convenient and economical way.

1. **Schedule and Milestones**

|  |  |  |
| --- | --- | --- |
| **ID** | **Week** | **Milestone Criteria** |
| 1 | Week 1 | Choosing a topic in the document and create a team. |
| 2 | Week 2 | Team can have an overall view of what they need to accomplish, Write a report |
| 3 | Week 3 | Design an ERD conceptual schema based on the specification of the chosen topic |
| 4 | Week 4 |
| 5 | Week 5 | Design a conceptual schema in the basic relational model that corresponds to the ERD schema designed |
| 6 | Week 6 |
| 7 | Week 7 |
| 8 | Week 8 | Create a database containing the tables listed in the schema designed |
| 9 | Week 9 |
| 10 | Week 10 |
| 11 | Week 11 | Implement a Java program that provides the capability to run queries on the database management system. |
| 12 | Week 12 |
| 13 | Week 13 | Fix problem in a project |
| 14 | Week 14 | Presentation |
| 15 | Week 15 | Presentation (If not Presentation on week 14) |

1. **ERD (Entity Relationship Diagram)**

We decided to choose ERD design because ERD has many advantages:

-Conceptually it is very simple

-Better visual representation

-Effective communication tool

-Highly integrated with relational mode

-Easy conversion to any data model

But some disadvantages that may arise from ERD in the futures:

-Limited constraints and specification

Loss of information content

-Limited relationship representation

-No representation of data manipulation

-No industry standard for notation

**A close up of a map

Description automatically generated**

1. **Relational Database Schema**
2. **Tables description**

Customers: stores customer’s data.

Products: stores a list of item.

Orders: stores sales orders placed by customers.

Category: stores a list of product categories.

Comment: stores a list of comment about a product.

Account: stores account’s information of customers after they register.

Bank Account : stores bank’s information of customers.

1. **Relational Database Schema**

**Customer=**(customer ID,Name , Sddress , Phone)

**Order=**(product\_ID , customer ID ,Bank account number,Date, quantity)

**-**From Order.product\_ID to Product.product\_ID

**-**From Order.customer ID to Customer. customer ID

**-**From Order. Bank account number to Bank account. Bank account number

**Product=**(product\_ID , productName,productprice,quaitity)

**Comment=**(product\_ID , customer ID,content,date,time)

**-**From Comment.product\_ID to Product.product\_ID

**-**From Comment.customer ID to Product. customer ID

**Category=(**product\_ID,Kind **)**

**-**From Category.product\_ID to Product.product\_ID

**Bank account=(** Bank account number, customer ID,Bank name)

**-**From Bank account.customer ID to Customer. customer ID

**Account=(** UserID ,Bank account number, customer ID)

**-**From Account. Bank account number to Bank account. Bank account number

**-**From Account.customer ID to Customer. customer ID

**c. Database schema diagram**

**A close up of a map

Description automatically generated**

1. **Querying the database using JDBC**
2. Finds the top 10 most expensive products follow Product\_ID descending order.

SELECT TOP 10 ProductID,Name,Quantity

FROM Product

Order by ProductID desc;

1. Finds the number of customers in every place

SELECT count ( CustomerID ) as "Number of customer ",Address

FROM Customer

group by Address

Order by Address asc;

1. Finds the products whose prices are greater than or equal to the maximum list price of any product brand

SELECT Name, ProductID,Price

FROM Product

WHERE Price >= ANY (

SELECT AVG (Price)

FROM Product

GROUP BY ProductID )

1. **Conclusion**

We created a database that a store can use for keeping track on its stocks and sales .The job gets easier, when the owner can use a database on a computer, rather than managing stocks and sales on paper. The database structure is quite simple, which makes it easy for also other programmers to understand it. During our database course we have learned about the basics of database design. This project gave us the opportunity to try our new skills in practice. While doing this project we also gained deeper understanding on database design and how it can be implemented in real life situations. We believe we can use our database designing skills also in other school projects.

1. **Reference and Github Link**

<https://viettelidc.com.vn/>

<https://www.pavietnam.vn/>

<https://www.w3schools.com/>

<https://www.mysql.com/>

**Github Link :** <https://github.com/vohuythanh/Database_report?fbclid=IwAR2E9s5ffuZNytXsIV4Kv5TXBt1po9qtrFxNI7XcSet7D0sj6OJlb2scqjY>