“Heaven’s light is our guide”

**Rajshahi University of Engineering & Technology**

**Department of Computer Science & Engineering**

**Course No: CSE 3102**

**Course Title: Database System Sessional**

**Lab Report (Lab 2)**

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***Date of Experiment: 17thJanuary, 2021***

***Date of Submission: 24th January, 2021***

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Introduction to the problem

The problem is about a **customer-sale** scenario where we need to store and manipulate data within database.

A **database** is a collection of information that is organized so that it can be easily accessed, managed and updated. Computer **databases** typically contain aggregations of data records or files, containing information about sales transactions or interactions with specific customers.

A **database management system** (**DBMS**) is a software package designed to define, manipulate, retrieve and **manage** data in a **database**. A **DBMS** generally manipulates the data itself, the data format, field names, record structure and file structure. It also defines rules to validate and manipulate this data.

Problem statement

**Database Schema:**

Customer (Cust id : integer, cust\_name: string)

Item (item\_id: integer, item\_name: string, price: integer)

Sale (bill\_no: integer, bill\_date: date, qty\_sold: integer)

Relation\_c\_i (cust\_id, item\_id)

Relation\_c\_s (cust\_id, bill\_no)

The problem is to perform the following:

* Creating table and inserting records
* Designing relationship set tables
* Listing the bill details with quantity sold, total price of the items
* Listing the total bill details with customer name, quantity sold and total billable amount

objectives

* Learning about Database
* Learning about Database Management System (DBMS)
* Creating and manipulating Database
* Performing Queries to the Database

Designed database

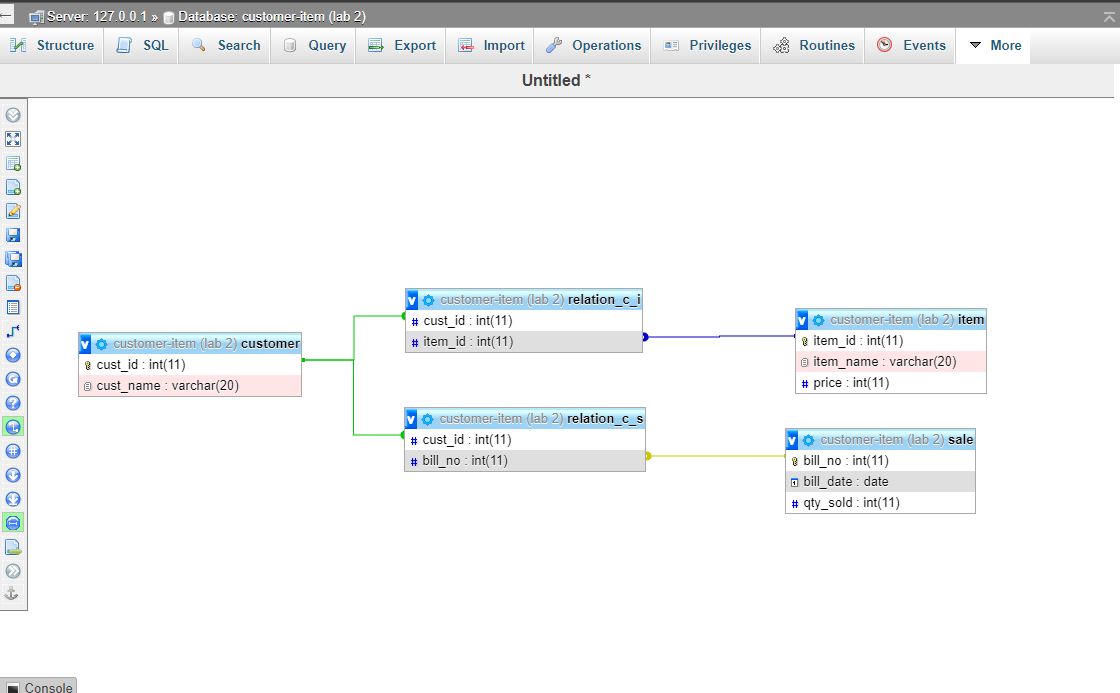


Fig 2.1: Database design for billing details with quantity sold, total price of the items

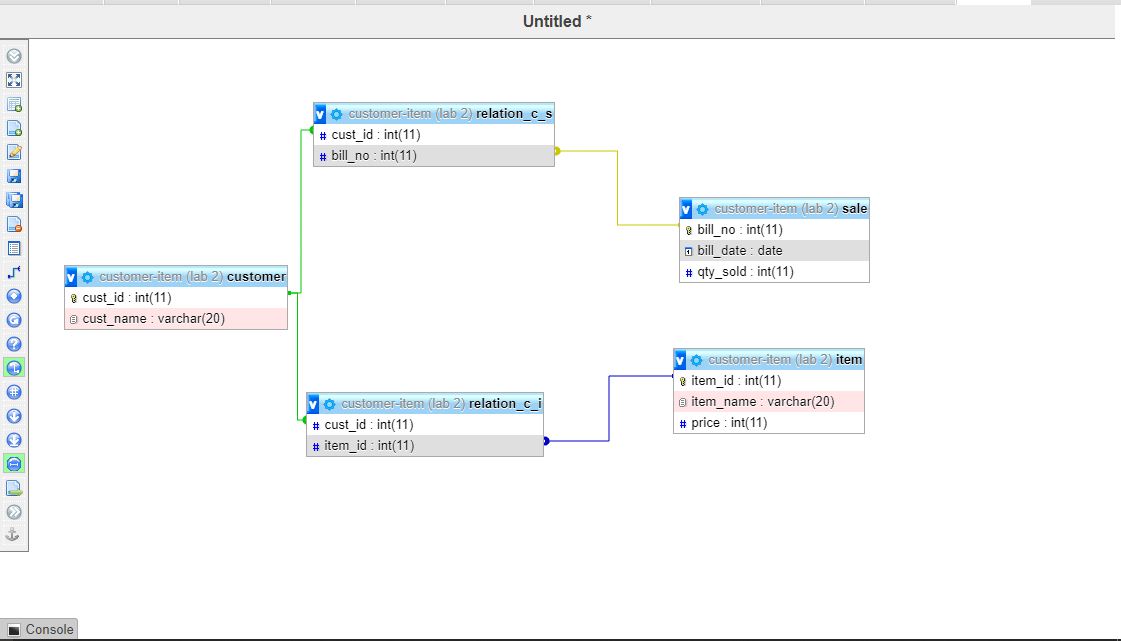


Fig 2.2: Database design for billing details with customer name, quantity sold and total billable amount

**Submitted queries**

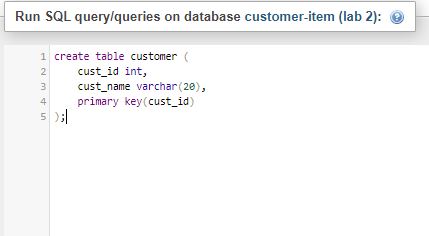
**Creation of Tables:**

Fig 2.3: Customer Table Creation

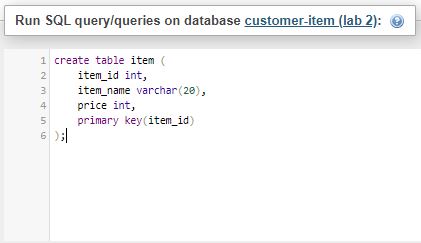


Fig 2.4: Item Table Creation

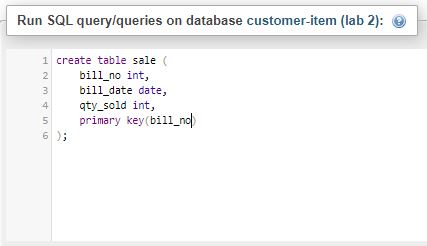
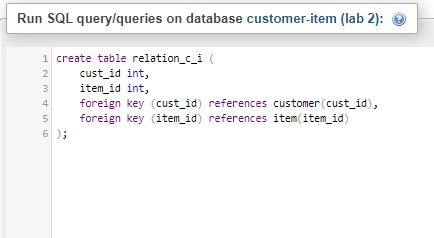


Fig 2.5: Sale Table Creation

Fig 2.6: Relation Customer Item Table Creation

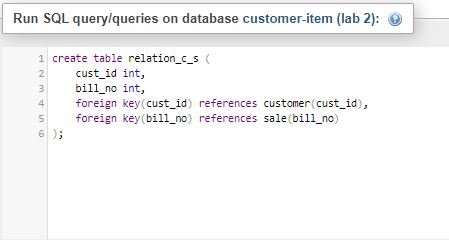


Fig 2.7: Relation Customer Sales Table Creation

**Insertion:**

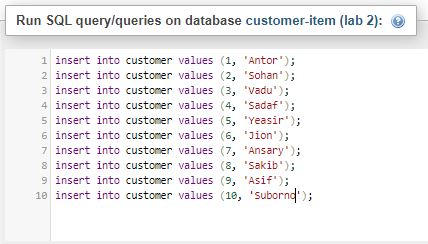


Fig 2.8: Customer Table Insertion

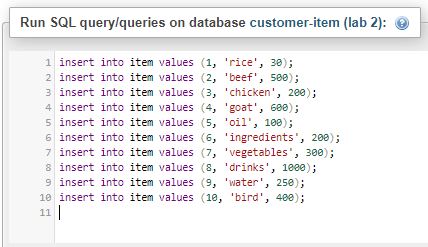
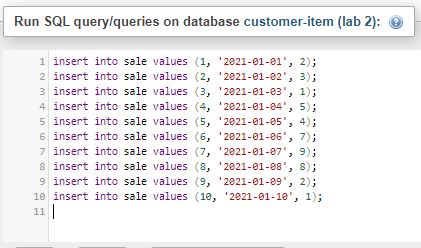


Fig 2.9: Item Table Insertion

Fig 2.10: Sales Table Insertion

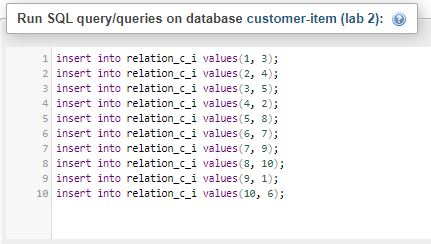


Fig 2.11: Relation Customer Item Table Insertion

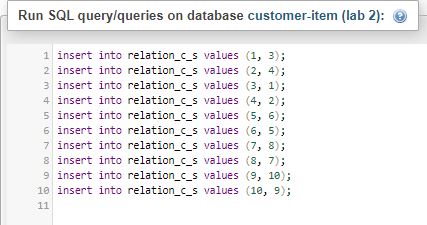
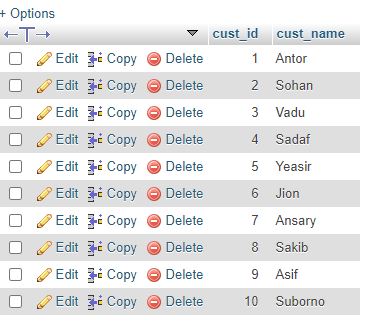


Fig 2.12: Relation Customer Sale Table Insertion

Outputs

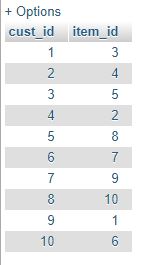
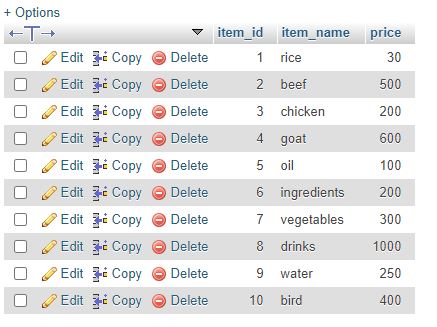


Fig 2.13: Customer Table

Fig 2.14: Item Table

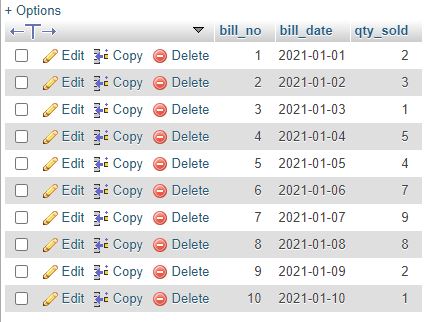
Fig 2.15: Sale Table

Fig 2.16: Relation Customer Item Table

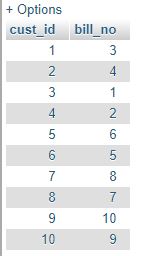


Fig 2.17: Relation Customer Sale Table

**Output of Performed Queries**

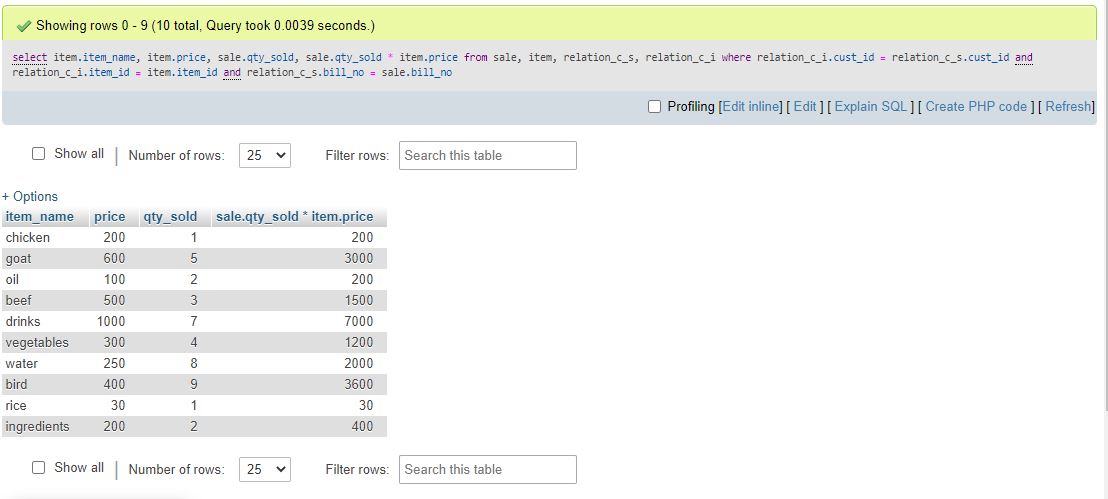


Fig 2.18: Billing Details with the Quantity Sold, Total Price of the Items

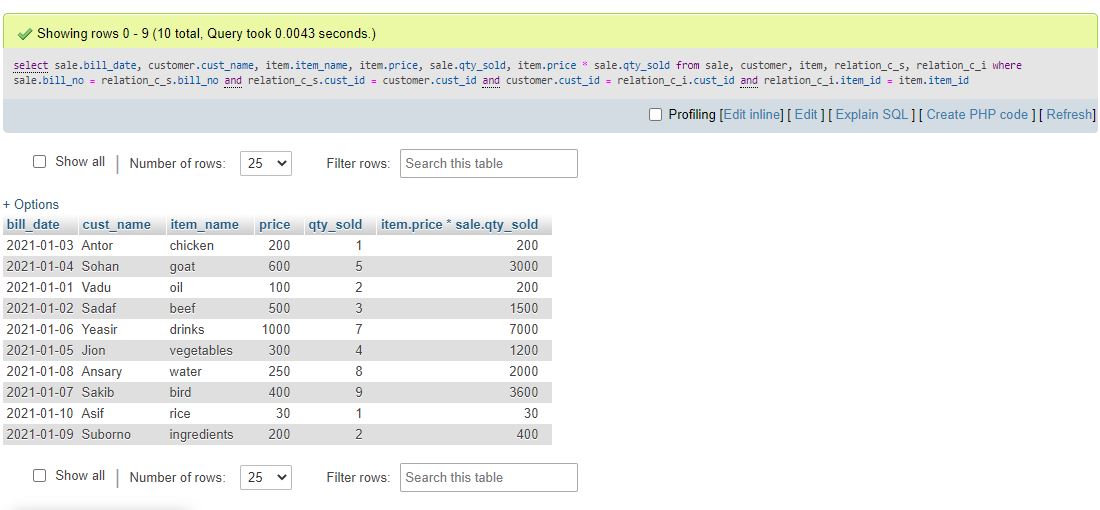


Fig 2.19: Billing Details with the Customer Name, Quantity Sold and Total Billable Amount

Conclusion

Databases are mainly based on various data tables which are connected with each other through another relationship set table. The queries performed on the database are mainly based on the relationship table. The relationship tables take primary keys of one table and connects to another primary key of another table. So, to find a specific query between two or more tables one just needs to identify the relation between them and perform the operation according to it. In this Database I’ve connected three data tables together with two relationship sets and connected their primary keys to find out the query I wanted.