

Database

UNIT-4

INTRODUCTION

I am working as a Database Developer for a Software Myanmar Co,Ltd. Our company was submitted by the YMT Online Shop Ltd. With the appropriate requirements to create software to solve the requirements to create software to solve their requirements.

DESIGN OF RELATIONAL DATABASE SYSTEM

WHAT IS RELATIONAL DATABASE DESIGN (RDD)

Relational Database Design which is also known as RDD make the models information and data into a set tables with both columns and rows. Each of the rows and columns represents an attribute of data. The SQL (Structure Query Language) is usually used to manipulate relational databases. The design of a relational database can be divided into four stages for example, where the information and the data are modeled into a set of related tables. The stages are as below

- Define relations/attributes
- Define primary keys
- Define relationships
- Normalization

There are also four stages of an RDD (relational database design)

1. Relations and attributes
2. Primary keys
3. Relationships for example (one to one, one to many, many to many)

An entity relationship diagram can be also used to make depict of the entities, their relationship between the entities in a diagram.

Moreover, the normalization is one of the process in RDD processing. The normalization is simplified into the database designs in order to avoid the redundancy and confusion. The normalization is drawn by the normal forms,

- The first normal form
- The second normal form
- The third normal form
- The Boyce-Codd normal form
- The fifth normal form

SYSTEM REQUIREMENTS

Entity	Description of the Entity	Attribute	Description of attribute
Product	Product information of the online shop	P-name	Name of the product
		P-stock	Product that are in stock
		P-order	Products that are on order
		P-price	Price of the product
		P-catg	Name of the category of the products
Supplier	Supplier's information of the online shop	S-name	Supplier's name
		S-address	Supplier's address
		S-email	Supplier's E-mail address
		S-phone	Supplier's phone number
		S-country	Supplier's country address
Order	Order information of the customers	o-no	Order number
		o-date	The date the order is made
		R-date	Required date information
		S-date	The date that the order is shipped
		S-address	Shipping address information

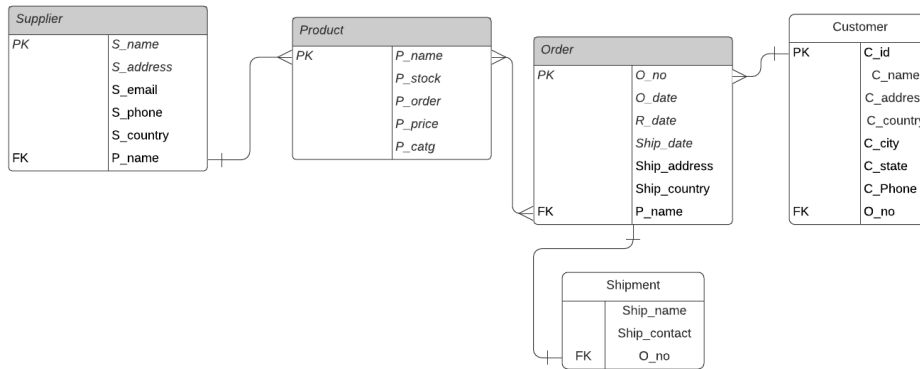
		S-country	Country address of the order
Customer	Customer's information	C-name	Name of the customer
		C-address	Address of the customer
		C-country	Country where the customer lives in
		C-city	City of the customer
		C-state	State where the customer lives
		C-phone	Phone number of the customer
Shipment	Shipper's information	Ship-name	Name of the shipper
		Ship-contact	Contact number of the shipper
Employee	Employee's details	E-name	Employee's name
		E-id	Job id of the employee
		E-mail	E-mail address of the employee

ER DISGRAM (ENTITY RELATIONSHIP DIAGRAM)

ERD is the kind of Entity Relationship Diagram which database is an integral part of system in software. In ER Diagram, it makes high quality database design to create in the database and Maintenance & Management. It is also a kind of communication which shows with diagram. It can also know as ER model. Mostly used in database design to show the relationship of it. It contains many complex symbols and connections. These are called Entity Relationship Diagram. Because it has the major entities within the scope of the system and the inter relationships with the entities. In ERD, there are many roles and different kind of objects. These are contained in the symbols of rectangle, oval shaped and connectors are also included.

We can see Entity Relationship Diagram (ERD) in some Database design which is termed of the visualization with the concept of the physical database design. And, there are kinds of many situations which ER diagrams are included. There are some Database Visualization Design with ERD. They are –

1. Database Design
2. Database Debugging
3. Database creation and patching and,
4. Aid in Requirements gathering



NORMALIZATION

Normalization is the technique of the organizing and managing the data in the database. It is kind of systematic to eliminate the data redundancy of decomposing. It is the multiple steps of the process which inputs the data and removes the data that duplicated from the table. In the normalization, there are two types of purposes. They are –

1. Eliminating the useless data
2. Ensuring data that depends the sense of logical stores.

There are some problems without Normalization. This will not use your extra memory space but also make a difficult to handle the database without having data loss problems. There are like Insert, Delete and Update are contained.

ONF

Order Table	P_name	P_stock	P_order	P_price	P_catg	S_name	S_address	S_email	S_phone	S_country	O_no	O_date	R_date	S_date	S_address	S_country	C_name	C_address	C_country	C_state	C_phone	Ship_name	Ship_contact	E_name	E_id	E_email
TV	yes	yes	\$300	electric	Sony	Kabir aye	h	alex@gmail.com	01 546 002	Myanmar	O-001	20/05/2020	23/05/2020	21/05/2020	Tamaw, No-4	Myanmar	John	Tamaw, No-3	Myanmar	Tamaw	09-5021943	Im, express	09-444434314	Alex	E-001	alex2020@gmail.com
Book	yes	yes	\$2.50	stationery	Uni	Newsday	st	alex@gmail.com	01 6784532	Myanmar	O-002	18/04/2020	21/04/2020	19/04/2020	Bahan, No-15	Myanmar	Myint	Bahan, No-15	Myanmar	Bahan	09-421767755	Royal	09-8010510	Justin	E-002	justin2020@gmail.com
Pen	yes	yes	\$1.00	Stationery	Uni	Newsday	st	alex@gmail.com	01 6784532	Myanmar	O-003	19/04/2020	22/04/2020	19/04/2020	Hedan, No-18	Myanmar	Phyo	Hedan, No-18	Myanmar	Hedan	09-2006209	Im, express	09-444434314	Rhine	E-003	rhine2020@gmail.com

1NF

order_table																										
P_name	P_stock	P_order	P_price	P_catg	S_name	S_address	S_email	S_phone	S_country	O_no	O_date	R_date	S_date	S_address	S_country	C_name	C_address	C_country	C_state	C_phone	Ship_name	Ship_contact	E_name	E_id	E_email	
TV	yes	yes	\$300	electric	Sony	Kabir aye	alex@gmail.com	01 546 002	Myanmar	O-001	20/05/2020	23/05/2020	21/05/2020	Tamaw, No-4	Myanmar	John	Tamaw, No-3	Myanmar	Tamaw	09-5021943	Im, express	09-444434314	Alex	E-001	alex2020@gmail.com	
Book	yes	yes	\$2.50	stationery	Uni	Newsday	alex@gmail.com	01 6784532	Myanmar	O-002	18/04/2020	21/04/2020	19/04/2020	Bahan, No-15	Myanmar	Myint	Bahan, No-15	Myanmar	Bahan	09-421767755	Royal	09-8010510	Justin	E-002	justin2020@gmail.com	
Pen	yes	yes	\$1.00	Stationery	Uni	Newsday	alex@gmail.com	01 6784532	Myanmar	O-003	19/04/2020	22/04/2020	19/04/2020	Hedan, No-18	Myanmar	Phyo	Hedan, No-18	Myanmar	Hedan	09-2006209	Im, express	09-444434314	Rhine	E-003	rhine2020@gmail.com	

Product	P_name	P_stock	P_order	P_price	P_catg	
TV	yes	yes	yes	\$300	electric	Sony
Book	yes	yes	yes	\$2.50	stationery	Uni
Pen	yes	yes	yes	\$1.00	Stationery	Uni

2NF

order_table																									
P_name	P_stock	P_order	P_price	P_catg	S_name	S_address	S_email	S_phone	S_country	O_no	O_date	R_date	S_date	S_address	S_country	C_name	C_address	C_country	C_state	C_phone	Ship_name	Ship_contact	E_name	E_id	E_email
TV	yes	yes	\$300	electric	Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001	20/05/2020	23/05/2020	21/05/2020	Tamwe, No-8	Myanmar	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943	Im.express	09-444434314	Alex	E-001	alex2020@gmail.com
Book	yes	yes	\$2.50	stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002	18/04/2020	21/04/2020	19/04/2020	Bahan, No-15	Myanmar	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755	Royal	09-9010530	Justin	E-002	justin2020@gmail.com
Pen	yes	yes	\$1.00	Stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003	19/04/2020	22/04/2020	19/04/2020	Hedan, No-18	Myanmar	Phyoe	Hedan, No-18	Myanmar	Hedan	09-2006209	Im.express	09-444434314	Khine	E-003	khine2020@gmail.com

Product					
P_id	P_name	P_stock	P_order	P_price	P_catg
P-001	TV	yes	yes	\$300	electric
P-002	Book	yes	yes	\$2.50	stationery
P-003	Pen	yes	yes	\$1.00	Stationery
PK					

Supplier					
S_name	S_address	S_email	S_phone	S_country	O_no
Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003
PK					

3NF

order_table																									
P_name	P_stock	P_order	P_price	P_catg	S_name	S_address	S_email	S_phone	S_country	O_no	O_date	R_date	S_date	S_address	S_country	C_name	C_address	C_country	C_state	C_phone	Ship_name	Ship_contact	E_name	E_id	E_email
TV	yes	yes	\$300	electric	Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001	20/05/2020	23/05/2020	21/05/2020	Tamwe, No-8	Myanmar	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943	Im.express	09-444434314	Alex	E-001	alex2020@gmail.com
Book	yes	yes	\$2.50	stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002	18/04/2020	21/04/2020	19/04/2020	Bahan, No-15	Myanmar	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755	Royal	09-9010530	Justin	E-002	justin2020@gmail.com
Pen	yes	yes	\$1.00	Stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003	19/04/2020	22/04/2020	19/04/2020	Hedan, No-18	Myanmar	Phyice	Hedan, No-18	Myanmar	Hedan	09-2006209	Im.express	09-444434314	Khine	E-003	khine2020@gmail.com

Product					
P_id	P_name	P_stock	P_order	P_price	P_catg
P-001	TV	yes	yes	\$300	electric
P-002	Book	yes	yes	\$2.50	stationery
P-003	Pen	yes	yes	\$1.00	Stationery
PK					

Supplier					
S_name	S_address	S_email	S_phone	S_country	O_no
Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003
PK					

Customer					
C_id	C_name	C_address	C_country	C_state	C_phone
C-001	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943
C-002	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755
C-003	Phyice	Hedan, No-18	Myanmar	Hedan	09-2006209
PK					

4NF

order_table																									
P_name	P_stock	P_order	P_price	P_catg	S_name	S_address	S_email	S_phone	S_country	O_no	O_date	R_date	S_date	S_address	S_country	C_name	C_address	C_country	C_state	C_phone	Ship_name	Ship_contact	E_name	E_id	E_email
TV	yes	yes	\$300	electric	Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001	20/05/2020	23/05/2020	21/05/2020	Tamwe, No-8	Myanmar	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943	Im.express	09-444434314	Alex	E-001	alex2020@gmail.com
Book	yes	yes	\$2.50	stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002	18/04/2020	21/04/2020	19/04/2020	Bahan, No-15	Myanmar	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755	Royal	09-9010530	Justin	E-002	justin2020@gmail.com
Pen	yes	yes	\$1.00	Stationery	Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003	19/04/2020	22/04/2020	19/04/2020	Hedan, No-18	Myanmar	Phyice	Hedan, No-18	Myanmar	Hedan	09-2006209	Im.express	09-444434314	Khine	E-003	khine2020@gmail.com

Product					
P-id	P_name	P_stock	P_order	P_price	P_catg
P-001	TV	yes	yes	\$300	electric
P-002	Book	yes	yes	\$2.50	stationery
P-003	Pen	yes	yes	\$1.00	Stationery
PK					

Supplier					
S_name	S_address	S_email	S_phone	S_country	O_no
Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	O-001
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-002
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	O-003
PK					

Customer					
C-id	C_name	C_address	C_country	C_state	C_phone
C-001	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943
C-002	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755
C-003	Phyice	Hedan, No-18	Myanmar	Hedan	09-2006209
PK					

Shipment					
Ship_id	Ship_name	Ship_contact	S_date	S_address	S_country
S-001	Im.express	09-444434314	21/05/2020	Tamwe, No-8	Myanmar
S-002	Royal	09-9010530	19/04/2020	Bahan, No-15	Myanmar
S-003	Im.express	09-444434314	19/04/2020	Hedan, No-18	Myanmar
PK					

FINALIZED TABLES

order					
O_no	O_date	R_date	C_id	Ship_id	
O-001	20/05/2020	23/05/2020	C-001	S-001	
O-002	18/04/2020	21/04/2020	C-002	S-002	
O-003	19/04/2020	22/04/2020	C-003	S-003	
PK			PK	PK	

Product						
S_name	P_id	P_name	P_stock	P_order	P_price	P_catg
Sony	P-001	TV	yes	yes	\$300	electric
Uni	P-002	Book	yes	yes	\$2.50	stationery
Uni	P-003	Pen	yes	yes	\$1.00	Stationery
PK	PK					

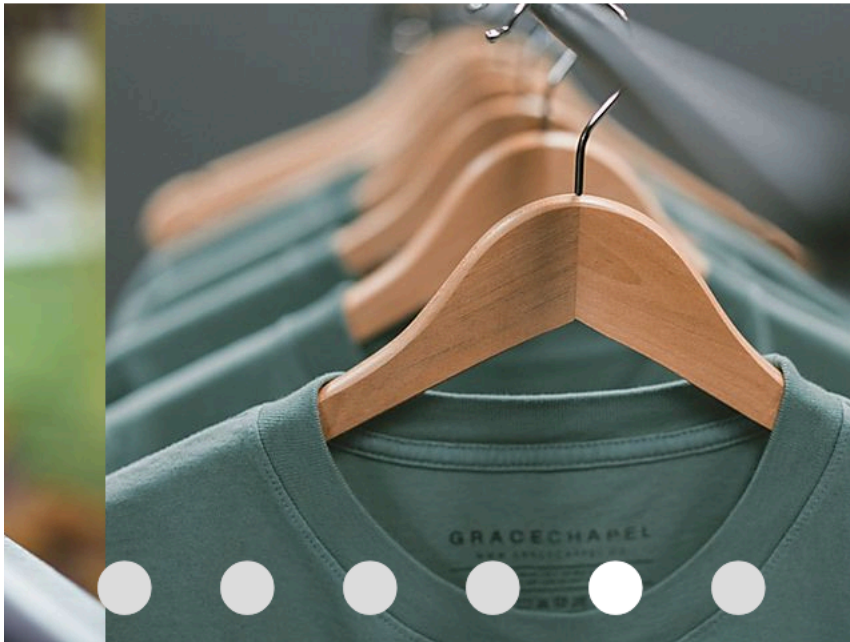
Supplier					
S_name	S_address	S_email	S_phone	S_country	
Sony	kabar aye road	sony@gmail.com	01 546 002	Myanmar	
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	
Uni	Newaday st	uni@gmail.com	01 6784532	Myanmar	
PK					

Customer						
C_id	C_name	C_address	C_country	C_state	C_phone	P_id
C-001	John	Tamwe, No-8	Myanmar	Tamwe	09-5021943	P-001
C-002	Myint	Bahan, No-15	Myanmar	Bahan	09-423767755	P-002
C-003	Phyice	Hedan, No-18	Myanmar	Hedan	09-2006209	P-003
PK						PK

Shipment					
Ship_id	Ship_name	Ship_contact	S_date	S_address	S_country
S-001	Im.express	09-444434314	21/05/2020	Tamwe, No-8	Myanmar
S-002	Royal	09-9010530	19/04/2020	Bahan, No-15	Myanmar
S-003	Im.express	09-444434314	19/04/2020	Hedan, No-18	Myanmar
PK					

Employee			
E_name	E_id	E_email	
Alex	E-001	alex2020@gmail.com	
Justin	E-002	justin2020@gmail.com	
Khine	E-003	khine2020@gmail.com	
PK			

The clear version of this normalization is processed in the excel file extension.

INTERFACE AND DESIGN**MAIN PAGE OF THE ONLINE SHOP(CUSTOMER VIEW)** **YMT ONLINE SHOP** 

At the top left corner, is a shopping where all the customer's order information is stored. The button at the top left corner is a menu button which will lead to the following picture.



Home

Blog

Shop

By clicking the shop icon, will lead to this page

ONE-OF-A-KIND ITEMS

Easy, Fun Shopping



I'm a product

K85.00

By selecting the product that the customer wants to buy, it will be stored in the shopping cart. Finally, after shopping the customer has to pay by via online payment and the online shop company will send email when order will arrive.

USER INTERFACE (TECHNICAL VIEW)

YMT online shop - Order form	
order number	<input type="text"/>
order date	<input type="text"/>
customer ID	<input type="text"/>
shipment ID	<input type="text"/>
<div><div>Search</div><div>Add</div><div>Update</div><div>Delete</div><div>Exit</div></div>	

YMT online shop - Product Form	
Product Name	<input type="text"/>
In-stock(y/n)	<input type="text"/>
In order(y/n)	<input type="text"/>
Price	<input type="text"/>
Category	<input type="text"/>
<div><input type="button" value="Search"/> <input type="button" value="Add"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> <input type="button" value="Exit"/></div>	

YMT online shop - Supplier form	
Supplier name	<input type="text"/>
Address	<input type="text"/>
E-mail	<input type="text"/>
Phone	<input type="text"/>
Country	<input type="text"/>
<div><input type="button" value="Search"/> <input type="button" value="Add"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> <input type="button" value="Exit"/></div>	

YMT online shop - Customer Form	
Customer ID	<input style="width: 90%;" type="text"/>
Name	<input style="width: 90%;" type="text"/>
Address	<input style="width: 90%;" type="text"/>
Phone	<input style="width: 90%;" type="text"/>
Country	<input style="width: 90%;" type="text"/>
<div style="border: 1px solid black; padding: 5px; display: inline-block;"><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Search</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Add</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Update</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Delete</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Exit</div></div>	

YMT online shop - Shipment Form	
Shipper Name	<input style="width: 90%;" type="text"/>
Date	<input style="width: 90%;" type="text"/>
Contact	<input style="width: 90%;" type="text"/>
Required date	<input style="width: 90%;" type="text"/>
<div style="border: 1px solid black; padding: 5px; display: inline-block;"><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Search</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Add</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Update</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Delete</div><div style="border: 1px solid black; padding: 2px; margin-bottom: 2px; text-align: center;">Exit</div></div>	

YMT online shop - Employee Form	
Employee name	<input type="text"/>
ID	<input type="text"/>
E-mail	<input type="text"/>
<div><input type="button" value="Search"/> <input type="button" value="Add"/> <input type="button" value="Update"/> <input type="button" value="Delete"/> <input type="button" value="Exit"/></div>	

These are the user interface at the technical point of view. Press search button at the right to search data from the database. Press add item to insert data into the database. Press Update button to update the data from the database. Press Delete button to erase data from the database. Press Exit button to exit user interface.