

Assignment 1

Unit Number and Title	4: Database Design and Development
Academic Year	2018
Unit Tutor	
Assignment Title	Assignment 1
Issue Date	
Submission Date	24/2
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Introduction

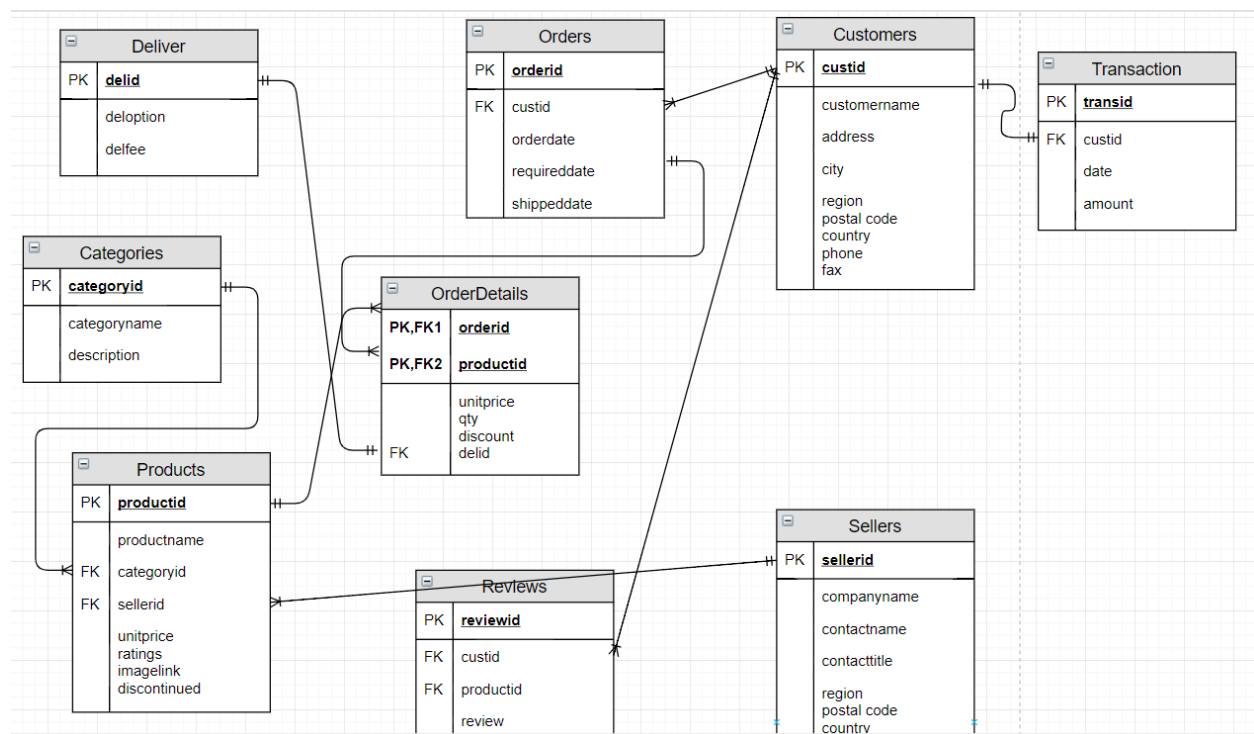
To ensure that business develops in the age of technology, a database is necessary to manage products, customers, employees and other aspects of business. The database is very useful especially when companies and organizations want to build and develop a selling site served as an online platform that can connect product sellers and buyers.

In this assignment, I will design a database that will focus on all products in different categories, help search, buy sell products. The database will also contain useful information and resources to help users take wise and informed decision to buy the product

P1: Design a relational database system using appropriate design tools and techniques, containing at least four interrelated tables, with clear statements of user and system requirements

1. Design database on the given scenario

a) ERD(entity-relationship model)



b) Physical design

#Categories:

Column	Data type	Constraint	Note
categoryid	int	PK	
categoryname	nvarchar(15)		

description	nvarchar(100)	
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- Example:

categoryid	categoryname	description
1	Beverages	Soft drinks, coff...
2	Condiments	Sweet and savo...
3	Confections	Desserts, candi...
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, cracker...
6	Meat/Poultry	Prepared meats
7	Produce	Dried fruit and ...
8	Seafood	Seaweed and fish

- The table reaches the 3rd normalization form because:
 - + The primary key is categoryid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values depends on whole and only categoryid
- This table help visitors browse categories, admin manage the categories of the product and sellers search for products by category

Sellers

Column	Data type	Constraint	Note
sellerid	int	PK	
companyname	nvarchar(40)		
contactname	nvarchar(30)		
contacttitle	nvarchar(30)		
address	nvarchar(60)		
city	nvarchar(10)		
region	nvarchar(15)		
postalcode	nvarchar(15)		
country	nvarchar(10)		
phone	nvarchar(10)		
fax	nvarchar(12)		

- Example

sellerid	companyname	contactname	contacttitle	address	city	region	Postalcode	country	phone	fax
1	Vinamilk	Tran Thi B	Marketing manager	1, Main Street	Ha Noi	North	324434	Viet Nam	89800090	Null
2	Ben and Jerry	Jack Daniels	Sales Accountant	23 Nelson Bld	LA	California	434443	USA	84048955	Null
3	TH	Pham Thi H	Owner	24 Nguyen Hue	HCMC	South	141434	Viet Nam	54255545	4434545

- The table reach 3NF because
 - + The primary key is sellerid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only sellerid
- The table helps the admin manage sellers

Products

Column	Data type	Constraint	Note
productid	int	PK	
productname	nvarchar(40)		
categoryid	int	FK	Categories(categoryid)
sellerid	int	FK	
unitprice	money		
ratings	decimal		
imagelink	nvarchar(90)		
discontinued	bit		

- Example

productid	productname	categoryid	sellerid	unitprice	ratings	imagelink	discontinued
1	milk	1	1	12	5	vn.com	FALSE
2	Ice cream	4	2	13	6	bj.com	TRUE

- The table reach 3NF because
 - + The primary key is productid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only productid
- The table help visitors have Basic search on homepage and Advanced search with additional parameters, featured listings on homepage along with thumbnail images
- The table help admin manage the product details and the product stock
- The table help sellers search for products by keyword

Customer

Column	Data type	Constraint	Note
custid	int	PK	
customername	nvarchar(30)		
address	nvarchar(60)		
city	nvarchar(10)		
region	nvarchar(15)		
postalcode	nvarchar(15)		
country	nvarchar(10)		
phone	nvarchar(10)		
fax	nvarchar(12)		

- Example:

custid	customername	address	city	region	Postalcode	country	phone	fax
1	Apple Jack	1 Village St	Ponyville	Middle	434343	Equestria	49499410	4343455
2	Rainbow Dash	23 Sky St	Cloudsdale	North	435555	Equestria	94934870	53553535

- The table reaches 3NF:
 - + The primary key is custid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only custid
- The table helps visitors sign up, sellers approve the sign up and Add/edit/delete/activate/deactivate customer

Orders

Column	Data type	Constraint	Note
orderid	int	PK,FK	Orders(orderid)
productid	int	PK,FK	Products(productid)
unitprice	money		
qty	smallint		
discount	numeric(4,3)		

- Example:

orderid	custid	empid	orderdate	requireddate	shippeddate
10248	85	5	2006-07-04 00:0...	2006-08-01 00:0...	2006-07-16 00:0...
10249	79	6	2006-07-05 00:0...	2006-08-16 00:0...	2006-07-10 00:0...
10250	34	4	2006-07-08 00:0...	2006-08-05 00:0...	2006-07-12 00:0...
10251	84	3	2006-07-08 00:0...	2006-08-05 00:0...	2006-07-15 00:0...
10252	76	4	2006-07-09 00:0...	2006-08-06 00:0...	2006-07-11 00:0...

- The table reaches 3NF because:
 - + The primary key is orderid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only orderid
- The table help the customer purchase products by listing orders

Order Details

Column	Data type	Constraint	Note
orderid	int	PK,FK	Orders(orderid)
productid	int	PK,FK	Products(productid)
unitprice	money		
qty	smallint		
discount	numeric(4,3)		

- Example:

orderid	productid	unitprice	qty	discount
10248	11	14.0000	12	0.000
10248	42	9.8000	10	0.000
10248	72	34.8000	5	0.000

- The table reaches 3NF because:
 - + The primary key is ordered and productid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only ordered and productid
- The table helps sellers view the payment they received

Review

Column	Data type	Constraint	Note
reviewid	int	PK	
custid	int	FK	Customers(custid)
productid	int	FK	Products(productid)
review	nvarchar(100)		

- Example:

reviewid	custid	productid	review
1	2	2	The product is awesome
2	3	1	The merchandise is already damaged

- The table reaches 3NF because:
 - + The primary key is reviewid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only reviewid
- The table helps visitors add/view Feedback/comment/review on a product and sellers delete/activate/deactivate product reviews

Transaction

Column	Data type	Constraint	Note
transid	int	PK	
custid	int	FK	Customers(custid)
date	datetime		
amount	money		

- Example:

transid	custid	date	amount
1	2	11/9/2018	175
2	3	22/9/2018	200

- The table reaches 3NF because:
 - + The primary key is transid
 - + There is no repeating group
 - + Each cell only has a single value
 - + Values in other cells depends on whole and only transid
- The table help sellers view the transaction history and the amount of money received each day

Conclusion

Database is really important when it comes to managing your business. The first step in building database is to make an ERD and physical design of the database given on the scenario and normalize it so it can be used easily. In the next assignment, the instruction to build a complete database given the design will be shown