Name – Shrutika Singodia

Date – 9 octomber 2019

How do you start designing your database and working on the project? Structural business rules are a great place to start. They are a useful tool to frame and guide your design; they indicate the entities, relationships, optionality, and pluralities of your Term Project design. For example, “A person may own many cars; a car is owned by one person” is an example of a structural business rule. This iteration will be primarily about creating your first draft of your structural business rules.

Provide a complete list of business rules for all entities and relationships in your design.

To create the rules, you first need to consider the data your database will need to store, and how that data will be used. The Term Project document breaks this down into five aspects; please read through those carefully to understand them.

This Term Project iteration is *not* a final submission of what you develop. You have the opportunity to make modifications before the final Term Project submission at the end of the course.

Amazon can have only 5 sellers/Retailers per already existing product.

Seller can sell maximum of 2 product on Amazon

Aspect 1 should use at least four parameters for the following elements – product name, product description, product price, and product category.

New Product Use Case – When new product data needs to be added in the amazon database (not there in the current database).

**STRUCTURAL DATABASE RULES:**

Structural database rules are the ones which are written attentively to make sure that they define almost all the components and constraints of a particular database. These rules states the entities, relationship between those entities, participation on both sides of the relationship, plurality constraints on both sides of the relationship as well.

The nature of the database is relational and will have different table to maintain information of its respective entities. In a relational database, a table, which is also called relation represents an entity. Every row represents the instance and the columns represents the attributes.

The tables incorporated with the Amazon database is:

**Entities:**

* Products
* Transaction
* Customer
* Listing
* Shipments
* Account
* Seller
* Vendors

Now, here we have structural database business rules with relational entities and their relation between them.

1. Products information entity relationship:

The products table has the following fields.

* Product\_Id ,is the Primary key
* Name
* Product\_Description
* Product\_category
* Price
* Quantity
* Condition

2. Customer information entity relationship:

The customer table has the following fields.

* Customer\_Id is the primary key
* Firstname
* Lastname
* Address
* Phone\_number
* Email

3. Transaction information entity relationship:

The Transaction table has the following fields.

* Transaction\_Id is Primary key
* Product\_Id is foreign key
* Customer\_Id is foreign key
* Transaction\_Date
* Transaction\_Quantity
* Transaction\_Amount
* Shipping\_Speed

4. Account information entity relationship:

The Account table has the following field.

* Account\_Id is primary key
* Account\_Open\_Date
* Customer\_Id is Foreign Key

5. Shipment information entity relationship:

The Shipment table has the following field.

* Shipment\_Id primary key
* Transaction\_Id foreign key
* Shipment\_Date

6. Listing information entity relationship:

The listing Table has following field.

* Product\_Id primary key, foreign key
* Seller\_Id primary key, foreign key
* Listing\_Date

7. Seller information entity relationship:

The Seller Table has following field.

* Seller\_Id primary key
* Rating

8. Vendors information entity relationship:

The Vendors Table has following field.

* Vendor\_Id
* Vendor\_Address
* Company\_name
* Vendor\_Location

**Structural database rules:**

|  |  |  |
| --- | --- | --- |
| Business rule | Relational entities | Relation |
| A seller can add only 1 new product in the database | seller to new product | 1:1 |
| A new product can have many sellers (as added) | New product to seller | 1:M |
| A seller can sell maximum of 3 different products | seller to product | 1:M |
| Different products can have different sellers | product to seller | 1:M |
| Product category can have up to 10 products | product category to products | 1:M |
| Each product can only be placed in one product category | product to products category | 1:1 |
| Product can have only 1 product description | Product to product description | 1:1 |
| Same description can be used for different products | product description to Product | 1:M |
| A product can be sold in different type (old, new, refurbished) | product to product type | 1:M |
| There can be more than one product in one product type | product type to product | 1:M |
| Each product can have many customers | product to customers | 1:M |
| Each customer buy many products | customer buy many products | 1:M |
| There can be only one warehouse per city | warehouse to city | 1:1 |
| One city can only have one warehouse | city to warehouse | 1:1 |
| Each customer can have only 1 mailing address | customer to address | 1:1 |
| One mailing address can have many customers | address to customers | 1:M |
| One customer can have only one primary phone | customer to phone | 1:1 |
| One phone number can only link to one customer | phone to customer | 1:1 |
| One customer can have only one email id | customer to email | 1:1 |
| One email id can only link to one customer | email to customer | 1:1 |

**Conceptual Entity relationship diagram** **(ERD):**

Below, is the ERD diagram to the respective entities and its attributes. Which shows relationship among them.



Use the **Ask the Facilitators Discussion Forum** if you have any questions regarding the how to approach this Term Project iteration.

Save your document as ***lastnameFirstname\_iteration2.doc*** and submit it in the *Assignments* section of the course.

For help uploading files please refer to the *Technical Support* page in the syllabus.