**INFO 6210 SEC 01 - DATA MANAGEMENT AND DATABASE DESIGN**

**SUMMER 2020**

**P2. DATABASE DESIGN AND INITIAL ENTITY RELATIONSHIP DIAGRAM**

**DUE: 06/11/2020, 11:59PM**

**PROJECT TEAM 10**

**TEAM MEMBERS**

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**Database Topic:**

Retail Store Management

**Mission Statement:**

The purpose of our database is to maintain and store data which is used to facilitate data analysis in order to attain efficiency in inventory control, sales, timely deliveries and customer satisfaction

**Business Problems Addressed:**

* Storage and management of data related to orders, sales and delivery
* Timely delivery needs to be ensured
* Customer satisfaction should be attained which is outcome of timely delivery and discounts provided to the customer

**Business Rules:**

* One branch may have one or many employees
* One branch may have many customers
* One branch may have one or many products
* One customer may be part of 0 or many branches
* One customer may place one or many orders
* One or many customers may place an order for delivery
* One supplier may supply 0 or many products
* One product can be a part of 0 or many orders
* One product may be a part of 0 or many branches
* One delivery\_personnel may do 0 or many deliveries
* One delivery\_order may be a part of only one delivery
* One delivery\_order may be a part of one or many customers
* One delivery\_order may have 0 or many products
* One or many delivery\_order may have one delivery\_location
* One order may have one or many products
* One or many orders may be placed by one customer
* One delivery\_location may be part of one or many delivery\_order
* Delivery fee is charged till a certain amount
* Delivery of order is allowed till a particular distance

**Design Requirements:**

* Establish relationships between each entity.
* Use crow’s foot notation in order to specify multiplicity
* Identify and specify the primary key fields in each entity to uniquely identify each record in a particular entity.
* Drawing lines between tables to establish a relationship between them.
* The lines may specify either identifying relationships (solid lines) or non-identifying relationships(dotted lines)
* Specify which table is on the one side of the relationship by placing one next to the field where the line starts.
* Specify which table is on the many sides of the relationship by placing a crow’s foot symbol next to the field where the line ends.

**Design Decisions:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Entity NO.** | **Entity Name** | **Why entity included** | **How entity is related to other entities** |
| **1** | **employee** | Keeps track of all employees involved in the retail management system. The attributes included are the employee\_id and the branch\_id along with the employee's name. | Each employee belongs to at least 1 branch, where branch is an entity which has branch\_id and branch\_name as its attributes.  Multiple employees are related to one branch |
| **2** | **branch** | Keeps a track of all the branches in the retail management systems. The attributes included are the branch\_id and the branch\_name. | Each branch in the system can have multiple entities.  Branch has many customers  Branch has many products  Branch has many employees |
| **3** | **branch\_product** | This is an associative entity. It keeps track of which product is related to which branch. The attributes included are branch\_id, product\_id and branch\_product\_id. | Branch\_product keeps track of branches and products  Branch is related to many products  Product is related to many branches |
| **4** | **branch\_customer** | This is an associative entity. It keeps track of branches and customers.. The attributes included are branch\_id, customer\_id and branch\_customer\_id. | Branch\_customer is related to branch and customer entity  Branch has many customers  A customer is related to many branches |
| **5** | **product** | Keeps a track of all the products of the retail management system. The attributes included are product\_id, supplier\_id, product\_discount, cost\_price and product name. | A product is related to many branches.  A supplier may supply 0 or many products  A product can be part of many orders |
| **6** | **customer** | One of the most important entities in the retail management system. Keep track of all customers who make purchases. The attributes are customer\_id, customer\_discount, customer\_name, customer\_type. | A customer is related to many branches  A customer may place 1 or many orders  Many customers may place an order for delivery |
| **7** | **supplier** | Keeps track of all the suppliers in the retail management system. A supplier is an entity that supplies goods and services to another organization. This entity is part of the supply chain of a business, which may provide the bulk of the value contained within its products.  The attributes are supplier\_id and supplier\_name | A supplier may supply either 0 or many products |
| **8** | **order** | Keeps track of all the orders made by customers in the system. The attributes are order\_id, customer\_id, order\_type, total\_price and customer\_discounted\_total\_price | A particular belongs to only 1 customer  An order can be associated with multiple products. |
| **9** | **order\_product** | This is an associative entity which keeps track of the products that are added to a particular order. The attributes are order\_product\_id, product\_id, order\_id, quantity, discounted\_cost\_price | Associated with only 1 order.  Associated with only 1 product.  Associated with only 1 delivery order |
| **10** | **delivery\_order** | For keeping track of all the deliveries for a particular order. The attributes are delivery\_order\_id, customer\_id, delivery\_location\_id, estimated\_time, total\_price, delivery\_fee, customer\_discounter\_total\_price | Delivery can be made to many customers  A particular order can be delivered to only one location  A delivery order is associated with one and only one delivery  A delivery order can be associated with 0 or many order products |
| **11** | **delivery\_personnel** | This entity keeps track of all delivery persons involved in the system. The attributes are delivery\_personnel\_id, his availability and his name. | A delivery person is related to the delivery entity.  A delivery person can have either 0 or many deliveries. |
| **12** | **delivery\_location** | This entity would help us keep track of all the delivery locations of the customers who have made an order with delivery option | A delivery location can have either 1 or many orders out for delivery |
| **13** | **customer\_feedback** |  |  |
| **14** | **customer\_satisfaction** |  |  |