# CS425 Project Description: Online Distribution Center

The online database and inventory management center maintains a list of products for various customers in various locations. A customer can be located anywhere in the world and shall have the ability to load her product online. For each customer the application must keep track of customer id, name, email address, etc. Each customer shall be given a secured access to the application to view and update their information. A customer can also upload product information including: product id, product name, description, Configurable attributes (color, weight, etc) and **Quantity**.a Product belongs to a category that the customer defines (for example the customer can create a Bags category, messenger bag category). A customer can have multiple addresses but must have at least one address. A customer can have multiple products or no products in the database (not yet). Customers are assigned to a region in the world: Center America, North America, South America, Africa/Middle East, Asia and Europe.

Each Region has a warehouse that the products will be placed in upon signing in with the application. The customer decides her region and the warehouse will be automatically assigned to that customer/region. Each Region has an id, name, description. Each warehouse has an id, name, desc, region, manager name, manager email address, manager phone number and exactly one address.

For each product/item in the warehouse we need to track to which customer it belongs, warehouse, price and quantity.

The company has several Employees or sales representatives in its database and it maintains typical employee information (name, phone, email, date of birth, etc) and region, warehouse, and product categories. An employee may be assigned to one or more regions.

For warehouses and products, the application stores in the database inventory level information that may include the amount in stock for each product, the refill point for each product/customer, status of each product (in stock, low, out-of-stock), the maximum number of products that can be stored in the warehouse at any time, the refill date.

The system shall maintain a set of images for each product as they get uploaded by the user. Images themselves do not get stored in the database rather a link to the image and its attributes is stored in the database.

The application shall allow role based login to the application. At minimum the following roles shall be supported:

1. Admin with full privileges
2. Warehouse manager – access to products, customers in his region only.
3. Customer login – view, edit and update her information only.

**Project Phase #1 deliverables: percentage of project grade to be determined, Due: Feb 28 2018.**

1. A list of requirements using a tabular format:

|  |  |  |
| --- | --- | --- |
| **#** | **Requirement Description** | **Testing Criteria** |
| R1 | The application shall allow customers to register with the application. The application shall present the user with a registration form with the following fields: Customer Name, Contact Name, Email, phone, region, address, major product line category (research a list that fits most customers). | User enters registration information and the data is stored in the database. |
| R2 | Once a customer registers with the application the application shall generate a unique customer id. | A unique customer is stored in the database. |
| R3 | The system shall allow the customer to enter a password for her account. The password shall be 8 characters long and shall have at least one distinctive character and one uppercase character and a mixed alphanumeric value. | Customers password shall be encrypted and stored in the database. |
| … | … | … |

1. An Entity Relationship Diagram
2. A complete database scheme (SQL).

**Project Phase #2 deliverables:**

An application utilizing the ER-model and SQL database that you submitted the project 2 deliverable.

* Can be a web, desktop, or command line UI.
* he application can be written in any programming language of your choice and utilize any relational database system. However, you make sure that you are using a programming language for which there exists a decent client interface to access your database system

The application should provide the following functionality (if you already started off in a different direction feel free to ignore these requirements, these are just guidelines for people that do not know how to get started)

* Customers can register with the online distribution center (providing a name and email). Customers can manager their addresses (create, delete, modify addresses). After registration a customer can log in using the credentials they provided during registration. For each customer you have to store and maintain an account balance
* Customers can upload product descriptions: a product name and other related product information) including a price (required) and an image (optional)
* Customers belong to regions and each region has a warehouse. Once a customer has selected their region during registration they are automatically assigned to the warehouse of this region (e.g., North America).
* Customers can send products to a warehouse (selecting one of the products they have registered and a quantity)
* Customers can search for products they want to buy at their region’s warehouse (you should at least support searching by product name and product category)
* Customers can select products to buy. If customer C1 selects to buy a quantity Q of product P which has a price PR, then you need to reduce the availability of this product in the warehouse (by Q), you need to reduce customer C1’s account balance by Q \* PR. Furthermore, you need to increase the account balance of the customer who did send the product to the warehouse by Q \* PR. For simplicity, you are allowed to assume that no two customers can upload the same product.