# 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.

**Version 1.0 Initial document draft.**

**Version 1.1 - Feb 2nd 20018:**

1. Added requirements for product images
2. Added access control requirements.

**Project Phase #1 deliverables: 50% of project grade, 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 showing all entities in the application. The diagram must be generated using an online tool. See <http://www.erdplus.com>
2. A complete database scheme (SQL).
3. Software Process Model. Here are a few commonly used Software Development Life Cycle Models:
   1. Waterfall model.
   2. Agile model. Scrum
   3. Spiral model.
   4. RUP.
4. A description of the intended development environment that outlines the following:
   1. Development environment: for example: JEE 8, Node.js, .NET framework, PhP, Python, Ruby on Rails.
   2. RDBMS, for example: MySQL, Oracle 12c, MS SQL Server, SQL Lite, etc.
   3. Framework for Object Relation Mapping: JDBC, Java Persistence API, Hibernate, TopLink, etc.
5. Testing methodology. How are you going to test your application:
   1. Test Driven Development
   2. See <https://www.guru99.com/testing-methodology.html>
6. A UML use case diagram that shows the users of the application and authorized use cases for each user. See <https://creately.com/blog/diagrams/use-case-diagram-tutorial/>
7. A UML class diagram that shows the structure/design of the application.   
   See <https://en.wikipedia.org/wiki/Class_diagram>