# Development Strategy

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There are two departments to this system:

* Billing – Manages billing and transactions
* Customers – The actual customer
* Orders – Manages orders
* Products – Manages products
* Shipping – Manages shipping and handling

//\*\*NOTE\*\* THE FOLLOWING NEEDS TO BE UPDATED

There are several subparts to this system:

* Customers
  + Account management
    - Name
    - Mailing Address
    - Billing Address
    - Username
    - Password
    - Email
  + Product browse history
    - List of products viewed by last view date
  + Save product for view later
    - List of saved products
  + Mailing address management?
  + Orders
    - Overview Info:
      * List of products
        + Name
        + Size and other relevant info
        + Amount paid
        + Rate product
        + Review product
      * Order date
      * Order number
      * Shipment date
      * Shipped to
      * Shipping amount
      * Total amount paid
      * Tax
      * Print
    - Open
      * Status
      * Ability to track shipment
    - Complete
* Products
  + Name
  + Photo
  + Regular price
  + Sale price
    - Date and time start
    - Date and time end
  + Description
  + Details
    - Specific relevant information
    - Added as products are created
    - For product type
    - For specific product
  + Brand
    - Ability to add brands as products are created
    - Manage on its own page
  + Size
    - Manage on its own page
  + Type
    - Manage on its own page
  + Comfort/ feel
    - Manage on its own page
  + Ability to share on social media
* Sales?
  + Quickly manage sale prices for all products
    - Date and time range
    - Dollar off
    - Percentage

## Product Concepts

### Departments

Product departments are scalable. The parent/ root is 'Products'. It has 'Beds' and 'Linens', for example. 'Beds' has 'Mattresses' and 'Box springs', for example. So this can be built to suit any ecommerce needs.

Each product can only be listed in one department. That department inherits the properties of the parent department on up the chain. The organization of the system is created by the user.

Each department can declare specifications and details that will appear on the **product modification form**.

Departments will be managed similar to the navigation list.

### Specifications

Each product department has the ability to add product specifications. These specification options are passed down to the child departments. Specifications are meant to be specific details about a products that are generally universal such as brand, size (not dimensions), condition, color, and other general properties. I.e. the specification options can be quantified in a list.

Specification have the option of being required. Each product, for example, should have a brand.

Each specification can be toggled to be included in the browse/ search filter.

Each specification can be prepopulated or dynamically populated. If prepopulated, only an admin can specify the specification options on the **specification modification form**. If dynamic, the specification can be specified on the **specification modification form** or the **product modification form**.

Each specification can limit the number of selectable/ input items.

### Details

Each product has the option of specifying details. Details would be properties specific to the product that are not really universal. For example, weight, item and model number, dimensions, etc. I.e. the detail can potentially be anything.

Details can be individual to a product or inherited. For example, model number could be included on the **product modification form** for all products. Internal color, for example, could by dynamically added to the product modification form for one product.

Details can be set as required when modifying a product.

Each detail can be toggled to be included in the browse/ search **filter**.

### Variations

Each product can have variations such as size, color, etc. Each variation is set up as its own product. The product name **MUST** include the variations. Variations are tied together as a 'correlation'. The 'correlation' is essentially a product with child products. The correlation's children inherit the parent correlation data.

Variations will use **Specification** information to manage the variation among correlated products. This **Specification** information will appear as a changeable option to the user. It will still also appear in the detail section of the products display.

When products are correlated, their matching information is consolidated into the correlation product while their difference are kept with the product. In theory, correlated products should all have the same name.

Variation will be stored in a variation table. It will link to the correlation product (parent) and the **Specification**. There will be a meta data table that links the **Specification's** options to the products inside the correlation (children). Only link that exists will appear as options on the front end. So, for example, if there is one variation (**Specification**) and that **Specification** has five options, there will need to be at most six products recorded: 1. The parent 2 – 6. The children. If fewer exist, then those variation options won't appear on the front end. If there are two variations (**Specifications**) and one has four options and the other has seven, there will need to be at most twenty-nine products recorded: 1. The parent 2 – 28. The children for the four specification options for each of the seven specification options. The equation is the number of **Specifications** times the number of options for each **Specification** plus one for the correlated product (parent).

### Specification Modification Form

This form will modify:

* Name
* Include on filter
* Population:
  + Prepopulated
    - Options are determined on this form only
  + Dynamically populated
    - Options are determined on this form or the **product modification form**.
* Option selection min
  + Every product in this department is required to select at least this number of specification option
  + The minimum number of options allowed to be selected
* Option selection max
  + The maximum number of options allowed to be selected
* Options
  + The options for this specification
  + Can be linked to somewhere

### Detail Modification Form

This form will modify:

* Name
* Include on filter
* Type of input
  + Text
  + Dimensions
    - Length
    - Width
    - Height
  + Number
  + Options
    - Can be linked to somewhere
* Units
  + Measurement units
    - Inches
    - Pounds
    - Etc.
* Required
  + Makes the detail required

### Product Modification Form

This form will modify:

* Name
* Description
* Regular price
* Images
* Specifications
* Details

### Search

All products will be searchable. Should be its own table though I don't know why. All information about the product will be searchable.

### Sales

A page for managing the sale price of items. The sale can be applied to departments, specifications, or individual products. It can be a percent off or dollar amount. The date and time range of the sale can be set. If sales events overlap, the lowest sales price is used.

#### Sales Event Modification Form

This will be a two-step process.

The first step creates the date and time range of the event and specifies departments, specifications, or individual products to be included in the event. If individual products are added, allow filtering and searching to help expedite the process.

The second step sets the sale price. Each department is listed with its departments. At the top inside the department the specifications are listed and then the products. Sale prices set at the department level can be overwritten at the specification level which can be overwritten at the product level. The sale price can be a dollar amount off or percentage off.

### Clearance

Works the same as sales except there is no end date and time.

## Front End Browsing

The URL is where the magic happens. URLs are in search friendly format. Query strings may follow the file name.

### Schema

To activate the ecommerce module, the URL after domain must start with 'shop' or 'customer'. This will need to be set up in the CMS at this point as an invisible navigation item with a section of content set to include 'modules/ecommerce/products2.php' or 'modules/ecommerce/index.php'.

After 'shop' is the **Department** for the **Product** or **Specialization**. It is structured like a directory string. For example: 'products/tools/knives/'. If 'specialization/' follows, then the file name will denote the **Specialization Option** that is being browsed. Otherwise the file name will denote the **Product** that is being browsed.

To search the **Products**, follow 'shop/' with 'search.html' followed by a search query string.

Examples

* shop/products/camping/tents/
  + Displays a list of **Products** in the 'tents' **Department**
* shop/products/camping/tents/12-person-rugged-dome-itasca.html
  + Displays the '12 Person Rugged Dome Itasca' **Product**
* shop/products/specialization/brand/colman.html
  + Displays a list of 'Colman' **Products** in the 'Products' **Department**
* shop/search.html?query=Colman%20tents&action=search
  + Displays the search results for 'Colman tents'

After 'customer' is the **Customer's** alias if logged in or 'guest'. After the **Customer's** alias is the area that is being requested. The possible urls are:

* customer/[alias].html
  + Shows the customer's profile
* customer/[alias]/account.html
  + Shows the customer's account
* customer/[alias]/invoices.html
  + Show's all of the customer's invoices
* customer/[alias]/invoice/[invoice number].html
  + Shows a specific invoice
* customer/[alias]/orders.html
  + Show's all of the customer's orders
* customer/[alias]/order/[order number].html
  + Shows a specific order

### Evaluation

The URL is parsed in the following order:

* checkout.html
* cart.html
* search.html
* **Department**
* **Specialization**
* **Detail**
* **Product**

### Filter

**Products** can be browsed using the above **Schema** and **Evaluation** techniques easily. However, when it comes to filtering **Products**, a more direct approach is needed. Thus, a **Product** **Filter Meta Data** table will be used house all possible **Product** filtering options. Currently, the two filtering options are specifying one or more **Specifications** or **Details**. These options use the **Schema**, described above, after 'shop/' as a unique identifier for that **Product**'s **Specifications** and **Details**. Only **Specifications** and **Details** which are flagged 'include\_in\_filter' will populate this table.

The **Filter** menu is composed based upon the **Department**, **Specification**, or **Detail** being browsed, NOT on the **Products** being viewed.

## Cart

The cart is a beautiful necessity for a successful ecommerce site. There are several ways to operate a cart. This system will use a persistent cart via database along with a session cart. The purpose of this approach is to minimize DB interaction while leveraging the ability for a customer to return to their shopping experience. It will also provide the client with the ability to view stats and prompt the customer to fishing the purchasing experience.

A customer will have to option to save their cart. This will be done by providing the customer with form which requests their email address. Whenever an email address is inputted into the system, it creates an account for that address. This address can later be used to provide an account for the customer through the **Password Reset** function.

If a customer chooses not to save their cart, it can still be recovered by using the same computer and browser through cookies. This will especially be useful should their browser crash.

The cart experience will be through Ajax. The fewer the page loads, the more likely the customer is to purchase a product.

## Orders

An order will have one of the follow statuses:

* Abandoned – Items have been left in the cart
* Open – Items have been purchased but have not been shipped
* Transit – Items have been shipped are in route
* Complete – Customer has received the items
* Cancelled – Items were paid for and the customer requested a cancellation of one or more items before shipment
* Returned – One or more items were returned and a refund was issued
* Exchanged – One or more items were

### Abandoned

Display date the cart was last updated and a truncated list of items in the cart. The truncated list can be expanded to show all items

### Open

Display the date the order was placed, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order show:

* Shipping address
* Shipping method
* Payment method
* Charge summary
* The list of items
* Other ***Open*** orders going to the same person at the same address

Individual items may:

* Be exchanged
  + Variation changed
  + If their **Shipping** status hasn't reached ***Transit***
* Have their quantity change
  + If their **Shipping** status hasn't reached ***Prepared***
  + Or if there are other items that whose **Shipping** status hasn't reached ***Prepared***
* Have their price change

Items may be selected. Selected items may be:

* Added to a shipment
  + If quantity is greater than 1, it may be split into two or more shipments
* Removed from a shipment
* Cancelled

Items in the same shipment will be grouped and show the shipment information.

Items should show:

* Checkbox
* The main product image
* The name of the item
* The variations
* The quantity ordered
* The sale price
* The regular price
* Any unique identifier information

### Transit

Display date shipped, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order, show all the information, and the ability to change the order status to ***Complete***.

### Complete

Display date order was completed, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order, show all the information, the ability to return items, and the ability to exchange items.

### Cancelled

Display the date cancelled, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order, show all the information but only cancelled items, and the ability to see all items in the order.

### Returned

Display the date return was requested and received, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order, show all the information but only the returned items, and the ability to view all items in the order.

### Exchanged

Display the date exchange was requested and received, the name and contact information of the person who placed the order, and the ability to view the order.

When viewing the order, show all the information but only the items that were exchanged and what they were exchanged for, and the ability to view all items in the order.

## Shipping

A shipment will have one of the following statuses:

* Gathering – Items are being removed from inventory and collected into a central place
* Preparing – Items have been gathered and are being packaged, boxed, wrapped, etc.
* Ready – Items have been prepared and pending shipment
* Transit – Items have left the facility but have not reached the customer yet
* Delivered – Items have reached the customer

Items from multiple orders may combined into one shipment going to the same person at the same address. Items may be added to a shipment before it has reached the status of ***Preparing***.

Once a shipment has been collected and is in route, change the status of the shipment and the of the items for that order to ***Transit***.

Once a shipment has reached the **Customer**, change the status of the shipment and the items for that order to ***Complete***.

### Gathering

When gathering items, show the following:

* Shipping address
* Tracking number
* Prepared checkbox (only clickable after all items have been gathered)
* Shipment status
* List of items

Items should show:

* Action checkbox
* Gathered checkbox
* Unique identifiers
* Main item image
* Item name
* Item variation
* Quantity

Selected items may be:

* Removed from a shipment

## Distributors

This is directly related to order fulfillment. Distributors is a repository of who can fulfill the product request on an order. How the distributor is notified, however, will vary depending on the distributor's order system.