SDLC Assignment

1. Shopping Cart Problem (Agile Development)

Requirement One - Phase 1

Shopping cart is a collection of product items. Build a basic shopping cart that has the following features:

1. add products,
   Cart must provide functionality to add a product or products purchased by customer.

2. remove products
   One must be able to remove product or products from a cart.

3. compute total
   At any point in time, a cart should reflect the sum total of product prices.

4. apply tax on total
   Apply tax on the total amount of a cart.

Requirement Two - Phase 2

Support following features:

1. Increase or decrease quantity for any product already included in cart.
   Cart should allow customer to increase or decrease multiple quantity of a product. For example: Customer should be able to add 10 chocolates (product) and remove 5 of them before billing.

2. Allow CGST/SGST based on product category. The application should allow for flexible product category inclusion/exclusion along with corresponding CGST/SGST.
   The tax applied would not be on the sum total as before, but based on product category to which a product belongs. For example: Organic products - CGST 5 %, SGST 5%; Others CGST 10%, SGST 10%, Luxury products - CGST 15%, SGST 15%

3. Allow product return based on return criteria. The application should accommodate flexible inclusion/exclusion of return criteria. These criteria would be global. Each product would subscribe to the global criteria.
   Example: Return criteria for earphones - non-returnable; Return criteria for apparels - 30 days, with tag intact; Return criteria for food products - 1 day.

2. Shopping Filter Problem (Agile Development)

Requirement One - Phase 1

A shopping site provides search facility with results in hundreds of thousands. Filters provide means to narrow down the search results:

1. Category. The top level filters and forms the basis for all other sub filters. For example: The top level filters in general shopping site would include Electronics, Apparels, Grocery, Furniture etc.
2. Each product belongs to one or more category. A product without category doesn't get displayed.
3. Each category also has a sub category. And as above, a product belongs to one or more subcategory. For example: Apparels has sub category of jeans, tshirts, shirts etc.
4. The site displays aggregate product count for each category - top filter.

Requirement One - Phase 2

1. Each subcategory has subfilters. For example: Customer can further filter T shirts based on size, color, brand etc.
2. The filter mechanism should offer to add any number of sub filters dynamically. In other words, to add a new subfilter shouldn't require system or server to be restarted. A site administrator should be able to provision or deprovision a filter based on company strategies during runtime.
3. Site admin should be able to expand product count view for a category and obtain similar product count for each of the subcategories.