



Net Mail

SRS Document

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Disclaimer

This Software Requirements Specification document is a guideline. The document details all the high level requirements. The document should be used as a guideline by the students to design the Solution Architecture for the project. The document also describes the broad scope of the project and high level logical object Style. But while developing the solution if the developer has a valid point to add more details being within the scope specified then it can be accommodated after consultation.

Net Mall - an Online Shopping Experience

Introduction

The purpose of this document is to define scope and requirements of Buying Women's Apparel online. This will enable various brands to sell their products via a single portal. The proposed system will provide online shopping to customers, shortlist Product for Wish list. The brand hosting companies can view on what has been shortlisted from their offerings. Use this data for bringing the popular range for online shopping.

This document should be used by the development team to architect the solution the project.

Management Summary

FIONA group is venturing into Apparel Aggregation business. They conceptualized an online solution for customers to provide smooth shopping experience while exploring Cotton Ready made garments in various sizes at economical prices. In a nutshell, their business Style of partnering with brands company, creating offerings around their products with images and product description is simplified in the proposed automation. The system will allow search filters to narrow down the range of products for quick purchase decisions. The proposed system - Net Mall will allow:

1. A single place to shop for Women's ready made apparels.
2. Product offerings with Style Image adorning the garment, its fabric, cut description, price are created.
3. Online shortlisting of the products.
4. Stock status is checked for promising the delivery timeline.
5. The decision on request is concluded online with Cash on Delivery option

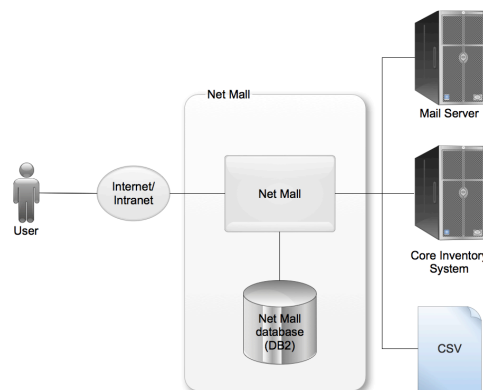
Net Mall will be a web-based system and will be designed & developed to run on IBM WebSphere Application Server and IBM DB2 Universal Database in a 2-tier architecture.

Assumptions

1. The stock status is not maintained in the application, System uploads the Stock update every morning form the backend core system and maintains a temp stock for online shopping.
2. Online payments are kept out of scope of this project.
3. Role based access to be provided, Internal users shall login using their user ids and passwords.

High Level Architecture

Net Mall's high level logical architecture is illustrated through the diagram shown in figure below.



Net Mall	Net Mall will be accessed by the customers, brand companies and company staff over the Internet. The prospective customers visit the site and buy products online from the products and pricing listed. They Brand an online request using shortlisted Product offerings from various brand companies.
CSV File(s)	Location master, Registered Customers, Brand Company, Users, Colors, Fit, Sizes, Price Range
Net Mall Database	This will hold all the Net Mall data including the uploaded data, registered customers, brand company offerings, shortlisted products, orders booked and temporary inventory
Inventory Core System	Interact with Core system for reading stock status and posting at the day end.
Mail Server	The mail server used for notification to the prospective customer and brand company on various events in the system.

Functional Requirements

The high level functional requirement for the Net Mall system is represented in the Use Case diagram shown below. The remaining sections in the document describe the major use cases.

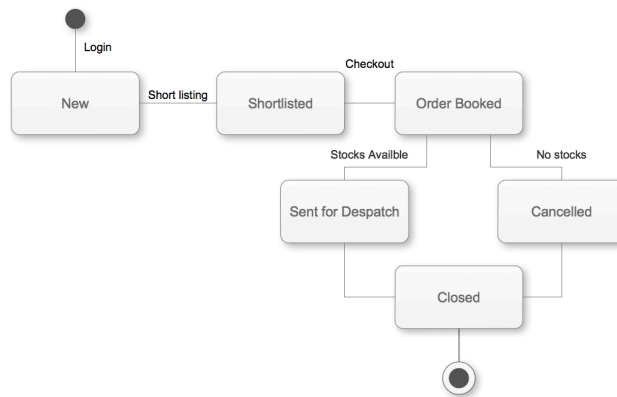
Net Mall will provide a secure user-id/password based secured login mechanism for internal users and Brand Companies to access its features. The prospective customers shall access the application details by registering with their email-id and password. The details of this are not outlined here. The development team is expected to create these keeping in mind the general practices followed by the web applications.

There would be separate landing pages for the 4 types of users. Customer, Brand Company, Administrator, Company Users.

The Customer is a registered user of this application, the landing page will display two options 1)View Available Brands, 2) Browse Products.

State Diagrams

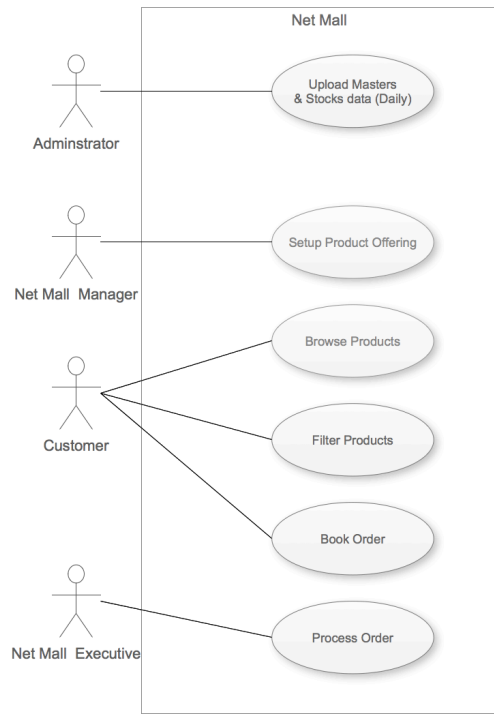
The figure below depicts the state transition of shopping process.



1. Customer logs into the website using registered id.
2. The customer shopping cart moves into New State.
3. Customer browses through the brands offerings.
4. Selects products from one or more brands. The shopping cart of selected items moves into shortlisted state.
5. In the **shortlisted** state, the customer can modify the filter criteria to view more options.
6. The customer can proceed to checkout, by finally accepting the list of items marked as short listed. Unchecking from the shortlisted items will remove from the item from getting included in the order.
7. The checkout confirmation moves the cart into Order Booked state. Order Processing by by Net Mall team will make the status from Order Booked to Sent for Despatch or Cancelled based on stock check, both of which are closed states

Use Case Diagrams

The following figure illustrates the Use Case diagram for the system.



Use Case Diagram

Use Cases

Upload Masters

Use Case Element	Description
Number	UC.01

Use Case Element	Description
Application	<p>Masters and the Stock update from core inventory system is uploaded via CSV.</p> <p>Organizations that sell Brand products and are interesting in hosting and serving customers via the aggregator website. In real operations, the Brand company will have a formal approval process before their data is entered into the system. For the purpose of this project, bare minimum data is captured via CSV upload. Master of Brand Company will have Brand Company id, Brand Company Name, Contact Number.</p> <p>Location master will have location id, location (to be used as city master) for order delivery.</p> <p>Customer master will have customer id, customer name, phone number, billing address 1, address 2, location, Shipment address 1&2, Shipment location.</p> <p>Color master will have list of colors stored as color code, color</p> <p>Product category master will have category id, category name</p> <p>Category will have attributes such as 'Size, fit, Color. Some product categories will not have Size or Fit options. An Attributes master will have attribute type, category id.</p> <p>Size master will have complete size chart with columns such as size id, size, dimensions (Length & Breadth in cm)</p> <p>Fit master will have Fit id, Fit type</p> <p>Price master will have price range id, start price, end price</p> <p>Stock master will have Product id, Size, Color, Fit, Price, Qty Available [Daily upload Use case]</p>
Use Case Name	Upload Master
Primary Actor	Administrator
Secondary Actor	None
Pre-condition	A valid CSV file with records
Trigger	Administrator clicks on the Upload Masters menu item on the admin interface page
Basic Flow	<ul style="list-style-type: none"> Administrator selects the master to be uploaded. System prompts for the file name to be uploaded. Standard file upload dialog is presented to select a file from the local system. The selected file data is uploaded in the master; if an existing record is encountered, the data is replaced on the record.
Alternate Flow	<ul style="list-style-type: none"> In event of incorrect CSV format, system gives an error and NO data is uploaded. Operation is cancelled
Output	System displays the number of records uploaded. It also highlights the number of records updated.

Setup Product Offering

Use Case Element	Description
Number	UC.02
Application	<p>The products of various Brand companies are displayed as options for the customer to select from. There are category of products which have individual display items having Apparel Code, Description, Style, Fit, Size, Color and Price.</p> <p>As a full fledged operations, the product offerings are setup by the partnering Brand company. For the purpose of project, the aggregator company Net Mall Manager is handling this activity</p>
Use Case Name	Setup Product Offering
Primary Actor	Net Mall Manager
Secondary Actor	None
Pre-condition	All Masters are updated in the database.
Trigger	Administrator clicks on the Setup Product Offering menu item on the admin interface page.
Basic Flow	<p>The following steps allows the user to setup a product offering.</p> <p>Step 1</p> <ul style="list-style-type: none"> Select the Brand company from a List . The details of Brand company from master are displayed <p>Step 2</p> <ul style="list-style-type: none"> Select the Product Category from a master list Enter Product Title [Text] - 50 characters Enter Description[Text] Select Category attributes : <ul style="list-style-type: none"> Applicable Sizes [S, M, L, XL, XXL] - Multi Select FIT [Straight, A Line, Regular] Color - list of colors from master list Enter MRP <p>Step 3</p> <ul style="list-style-type: none"> Upload Images 3 of Front, Left and Right View of the Product <p>Step 4</p> <ul style="list-style-type: none"> Save & Continue, Save & Exit and Cancel links are available for the product offering to be saved. Click on Save & Exit, System runs validations none of the fields should be blank. Click on Save & Continue, the system displays a new form for the same Brand Company with the same details as filled previously. The user can modify the required fields and continue to create product offerings for the Brand company.
Alternate Flow	Operation is cancelled, no data is captured in the database

Use Case Element	Description
Output	System displays the message, New Product line Created.

Note: if the time permits, product edit and delete use cases can be included in the application

Browse Products

Use Case Element	Description
Number	UC.03
Application	The registered customers comes to Net Mall website to shop for a Brand. To look for the product that meets complete or maximum of requirements, The system looks up the search criteria and displays the available for the Products.
Use Case Name	Browse Products
Primary Actor	Customer
Secondary Actor	None
Pre-condition	None
Trigger	User clicks on the Browse Products link on the website of Net Mall.
Basic Flow	<ul style="list-style-type: none"> System navigates to the Product Display page that has three sections such as 1) Header; displaying customer name & shopping cart count status, 2) Filter Criteria section which has further sub sections explained in Filter Criteria Use Case. 3) The product display section. The product display section is a two column layout, displaying 2 products in a row with details as <ul style="list-style-type: none"> Product Front Image Brand Name Product Title, Sizes Available, Price. A click on the product image opens a popup window displaying a larger image of the product and giving product description. A zoom feature is desirable for the user, in case not available, user gets to view the three images of the product in a cyclic manner i.e. Left view, Front View and Right view are displayed as a slideshow with a couple of seconds lapse in change of image. A checkbox appears on the left of product title, to shortlist user checks the box. The cart count goes up by 1, the selected product moves to shortlisted queue. User may uncheck to remove from shortlist queue. <p>Note: This is a buying process, the user may like to explore more options, the next use case is focussed on Filter feature of the website.</p>
Alternate Flow	<ul style="list-style-type: none"> Closing browser window abandons the action, no database impact
Output	None

Filter Products

Use Case Element	Description
Number	UC.04
Application	Products being displayed as options can be narrowed by search filters available in the left pane of the screen.
Use Case Name	Filter Products
Primary Actor	Customer
Secondary Actor	None
Pre-condition	None
Trigger	The user clicks on Filter Products link on the product display page of Net Mall
Basic Flow	<ul style="list-style-type: none"> The system displays the list of filter criteria with a horizontal arrow in front of the parameters like Brands, Product Category, Price, Size, Fit, Color Click on any of the options will expand the filter parameter and display sub options like Brand will have list of brands offering products on this site. System will display the products of the brands(s) selected by checking the box in front of the listed entries. Product Category will display 'Tops, Tunics, Skirts, Bottoms, Stoles' etc. System will display products for selected category. Price will display slabs such as 'Below 700, 700 to 1000, 1000 to 1500' and more such slabs based on the min and max price of the product range. Products falling in the price range selected will be displayed Size will display the various sizes available for the products being marketed on the site. This is category dependent, if no category is selected then all sizes are displayed else only the sizes valid for a product category are displayed. Eg. if the category selected is Tunic, it will have sizes such as S, M, L, XL, XXL. Whereas if the product category selected is 'Stoles', there are no sizes available to make a choice or if category is 'Bottoms', the available sizes are S, M, L only. Fit will display 'Straight, A-Line, Regular' in case of a Tunic and no Fit in case of Stoles <p>Display of filter criteria and then subsequent content filtering is based on relation of each entity related to the product.</p> <p>The filter choices are 'And' choices thus, the click on 'Go' will display products accordingly.</p> <p>The shortlisting process of products desired for purchase remains the same as mentioned in earlier use case.</p>
Alternate Flow	Click on Show all to release the filter, all products are displayed in an Alphabetical order of the Product Title.
Output	None

Book Order

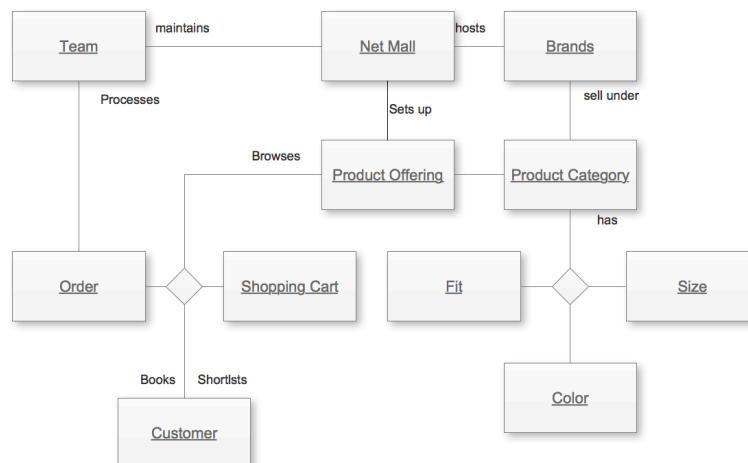
Use Case Element	Description
Number	UC.05
Application	The customer makes a decision to book the order for items shortlisted in the shopping cart
Use Case Name	Book Order
Primary Actor	Customer
Secondary Actor	None
Pre-condition	None
Trigger	Customer clicks on the Book Order link on the Shortlisted items page.
Basic Flow	<p>A view of shortlisted items is displayed with check boxes in front of items.</p> <p>User may choose to order all or unselect items from the list. A final bill amount is displayed at the bottom of the product list</p> <p>Option for Express delivery or Regular delivery is displayed for user to make a choice.</p> <p>Link to Proceed with Order will display billing address from the customer master.</p> <p>Shipment address will also be displayed. All this information can be changed for this specific order.</p> <p>A confirmation of booking is taken from the user with final message of Sending order for processing.</p> <p>The cart becomes empty, shortlisted items queue becomes empty.</p> <p>The order booking will await confirmation from the Net Mall team for acceptance.</p>
Alternate Flow	Cancel will abandon the operation
Output	Email to customer with the order booking number and item details

Process Order

Use Case Element	Description
Number	UC.06
Application	Net Mall team has to accept the order before it gets despatched.
Use Case Name	Confirm Order
Primary Actor	Net Mall' authorized users
Secondary Actor	None
Pre-condition	None
Trigger	User clicks on the Process Order menu item on the landing page.
Basic Flow	<p>The system displays orders that have been booked by the customer.</p> <p>A checkbox in front of the orders summary list is displayed for user to select the orders for processing.</p> <p>The stock status is validated for all the orders selected for each product listed in the orders. In case of no stock, order is cancelled for an item or all items as is the case. An email is sent to the customer stating the reason.</p> <p>Orders that are processed will move to Sent for despatch status in case the customer visits the site and checks the status of order.</p> <p>A CSV file for inventory used is created for the products sold. This file will be used by the Inventory system for stocks update.</p>
Alternate Flow	None
Output	<p>CSV file for inventory system.</p> <p>Email to customer with despatch status or order cancellation status</p>

Logical Object Style

A high level logical object Style of the system is shown below. During technical design it will be transformed into a physical Style covering all system entities. Such a diagram will include their relationship and its cardinality.



Logical Object Style

1. An Brand Company offers Brand products on the Net Mall website.
2. The brands follow a product category under which they introduce product line.
3. The product offerings are created by Net Mall team for customers to select from.
4. The master for the Product offering is derived from three separate masters defined in the Product category
5. Customers Browse, Filter, Book Order on the Net Mall
6. Each customer visit has a status of the activities carried out during the shopping process.
7. Net Mall team processes order after the order has been booked,

Database Design Guidelines

This involves the transformation of the use cases, state diagrams, and logical object Style into detailed and optimized physical database table designs.

Typically persistent classes will map to table(s) with their attributes as columns of the table. In some cases a high level object may map in to a master-child table. Invoice is one such example where it maps in to "invoice_header" and "invoice_line_item" table.

Associations between two persistent objects are realized as foreign keys to the associated objects. A foreign key is a column in one table that contains the primary key value of the associated object.

Similarly, a standard technique in relational modeling is to use an intersection entity to represent many-to-many associations. Following is a broad checklist for physical database database design:

1. Database must be properly normalized except those instances where de-normalization help improves performance. This option must be used with special care.
2. All persistent classes that use the database for persistency must map to database structures.
3. Many-to-many relationships must have an intersecting table.
4. Primary keys should be defined for each table, unless there is a performance reason not to define a primary key.
5. Indexes should be defined to optimize access.
6. Data and referential integrity constraints should be defined.

Testing Approach

Quality of the software can be achieved with basic hygiene and consistency followed during design and development of User Interface(UI), Navigation, Validations as per the business process requirement.

To ensure the project delivers acceptable quality to the customer, its important to create a checklist of the conventions to be followed across. Common checks as below are for your reference during design and development:

Common Checks	Validation Type
Page Title is valid for the feature being provided on the page	UI
Order of the Data Entry Fields is logical as per the functionality being provided by the feature	UI
Order of the Display only Fields Brands viewing and understanding easy for the user	UI
Spellings and Correctness of Label for the Data Entry and Display fields	UI
The labels are not wrapping onto another row thereby adding a blank row on the page	UI
The fields with drop down are displayed in single row instead of drop down coming on the next row	UI
Data Entry field basic validations are working i.e Text field /Numbers / Dates allow data for their type only	Functional
The dates are following a standard format dd/mm/yy on all forms	UI
The color scheme of all forms i.e headers labels , alerts, entry fields are uniform throughout the application	UI
The action buttons for a New Data Entry Form are uniform for all forms that is allowing data entry	UI
The action buttons are performing the desired action e.g. "submit" is creating a new record if there are no errors and recording all the input fields, whereas 'cancel' is not creating a new record in the database	Functional
The links provided on the forms are opening correctly.	Functional
The data feed mechanism for Read and Write files is generating a log with count of entries.	Navigation

Suggested Technical Reading

The project is aimed at making the student understand concepts of Design and Development using IBM Rational tools, Web Sphere Application Server and DB2 Database. The following reading reference is easy to understand and should be read to get a clear understanding of capabilities of the tools and how you would leverage them to execute a project.

Technical Reference	URL to access
RAD - Tackling challenges of software development with Rational Application Developer for WebSphere Software	http://www.ibm.com/developerworks/rational/library/08/0926_ackerman-mahate/index.html
IBM Education Assistant - Rational Application Developer 7.5	http://publib.boulder.ibm.com/infocenter/ie duasst/rtnv1r0/index.jsp?topic=/com.ibm.ie a.rad_v7/rad/rad75.html
RSA-Overview of Rational Software Architect for WebSphere Software Version 7.5	http://www.ibm.com/developerworks/rational/library/08/0926_arnold/index.html
Using the new features of UML Modeler in IBM Rational Software Architect Version 7.5	http://www.ibm.com/developerworks/rational/library/08/0926_diu/index.html
Rational Technical Library	http://www.ibm.com/developerworks/rational/library/