

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 3

REVIEW 1

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 4

Contents

I. Problem Definition:	5
a. Introduction	5
b. Existing scenario.....	5
□ Why recommender system?	5
II. Customer Requirements Specifications:	6
III. Functional Requirement Specification:	7
1. Guests (unregistered customers):	7
a. Description:	7
b. Functional Requirement:.....	7
2. Members (registered customers):	9
a. Description:	9
b. Functional Requirement:.....	9
3. Admins:	10
a. Description:	10
b. Functional Requirement:.....	10
4. Recommender System:	11
a. Description:	11
b. Functional Requirement:.....	11
IV. System Requirements:	12
1. Hardware Requirements:.....	12
2. Software Requirements:.....	12
V. Technologies:	12
VI. Scope of project:	13
VII. Task sheet:	14

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 5

I. Problem Definition:

a. Introduction

Online shopping is a form of electronic commerce (e-commerce) which allows consumers to directly buy goods or services from a seller over the Internet using a web browser. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers.

b. Existing scenario

The marketing around the digital environment, customer's buying behavior may not be influenced and controlled by the brand and firm, when they make a buying decision that might concern the interactions with search engine, recommendations, online reviews and other information. With the quickly separate of the digital devices environment, people are more likely to use their mobile phones, computers, tablets and other digital devices to gather information. In other words, the digital environment has a growing effect on consumer's mind and buying behavior. In an online shopping environment, interactive decision may have an influence on aid customer decision making. Each customer is becoming more interactive, and though online reviews customers can influence other potential buyers' behaviors.

Why recommender system?

When you read some news, watch a movie on Netflix, or simply by something on Amazon you will get some messages like:

- You will also probably like this
- Frequently bought together
- Products related to this item

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 6

- Customers who bought this item also bought
- Because you have seen X you might also like Y
- Recommended for you

They are just recommending you an item to be consumed. And that's because this intricate systems have a profile of the users, and they know what kind of items they tend to consume. Thus, they just try to come up with items you will more probably like, instead of the most popular, or just a random set of items that might not be of your taste.

E-commerces, such as Amazon or Ebay in US and MercadoLibre in Latin America, are putting a lot of money to build great teams just to focus on improving the accuracy of their recommenders, because by doing so, users are much more tempted to buy more things.

II. Customer Requirements Specifications:

- Website will be a 24/7 sales channel to provide customers information about the product, order online at the website at any time. Specially, customers can:

- + View detailed information about the product.
- + Search products by name or filter products by categories, types, brands and price.
- + Compare products.
- + Track recently viewed products.
- + Members have registered to manage their personal information, orders, wishlist and rate products.
- + Intelligent systems can suggest products based on rating history of customers.

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 7

- + Order online and manage cart.
- + When shopping can login (member) or not (guest).
- + View business information (address, google map).
- Website providing business management tools (shop owner):
- + Store management: add, delete, edit components of the site
- + Report to manage business activities of the store.

III. Functional Requirement Specification:

1. Guests (unregistered customers):

a. Description:

Guests can use basic functions of the website such as viewing product details, shop's information (stores, contacts, etc...), searching products, comparing products, making orders and manage carts, could view suggested products for guest in the home page, tracking recently viewed products, or signing up to become members.

b. Functional Requirement:

- When customers access the home page, there should be:
 - + Lists of featured products (hot, sale, new, etc...),
 - + Lists of suggested products which be processed base on the rating history of all customers,
 - + Links to navigate to list of shop's stores filtered by cities and have a google map with markers of stores in the map,
 - + A text field to search products (auto complete when typing and display with lazy loading),
 - + Links to filter products by categories, brands, types.
 - + Links to other things such as about shop, terms & conditions, privacy policy, social pages (if have).

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 8

- Text field to search products by name:
 - + When customers typing, they should see the auto complete function which is a panel containing a list of products have their names contains the string in search field.
 - + Lazy loading function: auto complete should only load the number of products in current view of the panel and continue loading when customer scroll the mouse down to view more products.
- Filter products:
 - + Customers should be able to filter products by categories, brands or price.
 - + Web page should have a section to show all categories with types in every category, all brands, a seek bar to choose price between a range.
 - + List of filtered products will appear after customer click on the link of above section. List should show products in grid view or list view.
 - + List should have pagination function, which let customer to choose the number of items in each displayed page (page size).
- When customers click on products, they should be navigated to pages with the details information. In there, they can
 - + Add products to comparing list (maximum of 5 products),
 - + Add products to their cart.
 - + See list of products they may also like (using machine learning algorithms to generate the list and have maximum of 4 products).
 - + See list of recently viewed products (maximum of 6 products).
- Compare products:
 - + Customers see all information of chosen products in column format.
 - + They should also use mouse to drag to order the products.

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 9

- After adding products to cart, they should be able to manage cart with follow functions:
 - + Update quantities of items (quantities must be greater than 0).
 - + Remove items (one by one or all at the same time) with confirmations.
 - + Link to check out.
- Check out:
 - + Give shipping information: name, phone, address, ship date, ship note (if have).
 - + Choose payment method: cash, bank transfer, credit card.
 - + A review of order's information at the final step and customers can print it.

2. Members (registered customers):

a. Description:

Guests can register on the website to become a member. After having their accounts, they can still do all function as guests but they will be able to access more features after login. After login, they can update their information including password change.

b. Functional Requirement:

- Members should provide Email, Password, Name, Phone, Gender and Avatar to create an account.
- Members must provide Email and Password to login into the website (login page should have the function for customers to remember their login information). User can modify their information after login.

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 10

After members login:

- Modify their information (except Email and should have function to preview new avatar before update).
- Manage their orders: view all orders, check and print every order details.
- Manage their wishlist: view all items, can remove items (one by one or all), and should have an confirmation for removing.
- Make ratings for products: rate for products (from 1 to 5 stars), if rated, they can view their ratings and can update ratings.
- Be suggested appropriate products: system processing their historical ratings to suggest products users may be interested in.

3. Admins:

a. Description:

Admins are shop's staffs. After login, they will manage information related to products and customers, follow customers' orders, diagnostic shop's business status via number of sales and charts, control the machine learning processing of the website.

b. Functional Requirement:

Via admins' pages, after log in using emails and passwords, admins can:

- Manage information related to products and customers, admins:
+ Add, update, delete: data in tables such as: products, categories, types, brands, stores, customers, admins.

Note: if tables in database have a status field (with true or false values), delete function means only changing values of this field to false.

- Follow customers' orders:

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 11

+ Have a page to change the orders' status with values (listed base on real order): processing (default - 1), shipping (2) and completed (3).

Note: when update status, new value should be validated to make sure previous order of current order not be chosen (example: if current status is 'shipping', then 'processing' should not be chosen).

- Can view reports with charts about sales status.
- Control the machine learning processing:
 - + Have a page to run the process and the chart of cost function.
 - + Have a page to view suggested products for customer base on the process.

4. Recommender System:

a. Description:

The recommender system will give a list of products that customers, both guests and members, would be interested in and buy them when they access the home page of the website. And when they click on a product, the system should give another list of products which is related to the chosen one and have high proportion of being bought by customers.

All the list must be generated by using historical ratings of all customer.

b. Functional Requirement:

The recommender system has three functions:

- + When guests access the home page they should see the list of products (same for all guests) that they would like to view or buy.

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 12

+ When members access the home page they should see the list of products (different base on their historical ratings) that they would like to view or buy.

+ When customers (both guests and members) click on a products to view it's details, they should see the list of products related to this products which the customers may also like.

IV. System Requirements:

1. Hardware Requirements:

- Pentium IV CPU 2.80 Ghz or higher.
- 2048 Mb of RAM or higher.

2. Software Requirements:

- Windows XP, Win 7, Win 8 or Win 10.
- SQL Server 2012 or higher.
- Netbean 7.4 or higher.
- JavaEE 7 SDK.
- Java Development Kit (JDK) 1.7
- Glassfish Server 4.0.
- Google Chrome 60.0 or higher.

V. Technologies:

- JavaEE 7
- JavaServer Faces 2.2
- Enterprise Java Bean (EJB) 3.0
- Bootstrap 3.7
- HTML 5 + CSS 3
- Javascript
- JQuery 1.11.1
- JQuery UI 1.11.1

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 13

- AJAX
- EJML library (for matrix operation – Machine Learning)
- Collaborative Filtering (Machine Learning algorithm)

VI. Scope of project:

There are some functions not to be included in this project as follows:

- Manage the warehouse: all products with different sizes and colors will be always available.
- Manage promotions: this project will be built base on a sample promotion that apply a discount of 10% for all products.
- Manage the shipping.
- Manage payment methods via credit card.

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	

Design Plan: tShop	Document Name: Review 1	SWD/Form No.1
Effective Date :	Version: 1.0	Page No : 14

VII. Task sheet:

Project Ref. No.		Project Name: tShop	Date of Preparation of Activity Plan		
No.	Task	Description	Start Date	Complete Date	Team member
01	Review 1	Problem Definition	05/04/2018	10/04/2018	All team member.
02		Customer Requirements Specifications			
03		Functional Requirement Specification			
04		System Requirements			
05		Technologies			
06		Scope of project			

Signature of Team Leader

Signature of Supervisor

Prepared by : All Members	Approved by : Ngô Phước Nguyên
Project Group No : 1	