



FPT UNIVERSITY

Capstone Project Document

Laptop Reviews

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Capstone Project code	LRA

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Definitions, Acronyms, and Abbreviations

No.	Abbreviation & Acronym	Definition
1	LRA	Laptop Reviews
2	OS	Operation System
3	Admin	Administrator
4	API	Application Programming Interface
5	HTTP	Hyper Text Transfer Protocol

A. Introduction

1. Project Information

- Project name: **Laptop Reviews**
- Project Code: **LRA**
- Product Type: **Website, Phone Application**
- Start Date: **May 12th, 2015**
- End Date: **August 21st, 2015**

2. Introduction

Today, when people want to buy a new laptop, they usually search its information through technology websites. The information like laptop's specifications, prices, outfit pictures are typically found, but lack of reviews from customer who bought that laptop. To solve that problem, we propose a solution which can help people to archive it. We will gather and classify the reviews from trusted websites so that customers can have the best advices and easily make decisions. How can we know whether the reviews are positive or negative? Our system will, therefore, help classify the reviews automatically, show them to our customers in an appropriate way.

3. Current Situation

Nowadays, there are many kinds of laptops that many people suffer difficulties in finding the best laptops for them. People often choose laptop based on what they see at the electronic supermarkets or reading reviews on some trusted pages, etc.

Below are some current habits:

- At electronic supermarkets: Here, people go to some well-known electronic supermarkets to collect information from the sellers or on manufacturers' brochures and make decisions based on that information.
- Online: they can search on Google or another search engines for some well-known and trustworthy technology forums or websites, then they collect information of the laptops they want by reading the reviews. After that, they can make their final choice.

4. Problem Definition

Below are the advantages and disadvantages of current habits:

- At electronic supermarkets:
 - ✓ Advantages: Here, customers can see the laptops physically, gather information from sellers, and the quality can be trusted that can help them make decisions.
 - ✓ Disadvantages: People tend to go to several electronic supermarkets to get as much information as they can. This will take time. Moreover, it's hard for them to remember the information each supermarket provide exactly.

- Online:
 - ✓ Advantages: Customers will have a wide range of reviews which are extremely helpful. Whether positive or negative, these reviews will guide customers in making a better purchasing decision.
 - ✓ Disadvantages: It will take lots of time to search for trusted websites and read all the reviews, and some reviews may be useless or not relevant that can make customers confused.

According to the description above, we can realize that reviews are one of the most important factors for choosing laptop. Are the reviews relevant or not? Useful or nonsense? From the trusted website or not? Our system will help you with those problems.

5. Proposed Solution

The system is intended for using by those with a smart phone or a laptop/computer with Internet connection. The system will have the following functions:

5.1 Feature functions

On our system, general users can search for laptops' specs and reviews. If the laptops that users want are not available on system, they can ask for notification through emails when the information is updated. To handle users' requirements, the LRA can parse laptops' specs and reviews daily or on requests. The system also allows staff to configure it, manually update dictionary which is used to classify the reviews, import new words from excel file and have the ability to automatically find the synonyms and antonyms of words/phrases in the dictionary or synchronize laptops' name. Last but not lease, this system should help admins to manage all the accounts.

5.2 Advantages and disadvantages

The advantages and disadvantages of the proposed solution:

- Advantages: Provide reviews with classification that help customers to make decision easier.
- Disadvantages:
 - If the source websites change their structures, the parse process may be failed.
 - There might be mistakes in classifying the reviews

6. Functional Requirement

Function requirement of the system are listed as below:

6.1 Parser Management

- Parse the reviews automatically and manually.

6.2 Train Machine

- Train machine: Merge and Split duplicated items.

6.3 Account Management

- Manage users.

6.4 Dictionary Management

- Add new word.
- Import excel.

- Import dictionary.
- Automatically find synonyms and antonyms after adding new word.

6.5 Guests' functions

- Search laptops.
- Report comments.
- Recommend laptops.

6.6 Analyze comment

- Analyze comment.

7. Role and Responsibility

No	Full Name	Role	Position	Contact
1	Kieu Trong Khanh	Project Manager	Instructor	khanhkt@fpt.edu.vn
2	Vo Thi Minh Chau	Developer	Leader	chauvtmse60931@fpt.edu.vn
3	Nguyen Van Hon	Developer	Member	honnv60390@fpt.edu.vn
4	Dinh Huu Toan	Developer	Member	toandhse60871@fpt.edu.vn
5	Nguyen Manh Khuong	Developer	Member	khuongnm60455@fpt.edu.vn

Table 1: Roles and Responsibility

B. Software Project Management Plan

1. Problem Definition

1.1 Name of this Capstone Project

Laptop Reviews (LRA).

1.2 Problem Abstract

Today, with the growth of the internet, when a customer want to buy a laptop, they can search for its specifications and other information through technology websites. But there are many information and reviews from experience users about a laptop, the customer must take a lot of times to read and appreciate or may be confused. Our system will help user to make a good decision when buy a laptop by gather reviews from trusted websites, classify and show them to users.

1.3 Project Overview

1.3.1 Current Situation

In Vietnam, people tend to choose laptops base on what they hear from sellers at electronic markets or what they read on some technical forums, websites. These activities have limitations. Sellers' advices may be not accurate, some reviews may be non-sense and are not classified. Moreover, it will take lots of time for people to come to electronic markets to have laptops' information or read reviews on many forums, websites. After searching on Google, we find this page: www.buydig.com. They offer classified reviews for laptops but not all laptops. Therefore, customers will be upset when they can't find what they need. Our solution will do a better job. We will gather and classify the reviews from trusted websites so that customers can make the best decision. Moreover, customers can claim for reviews for laptops which they can't see on our system and get notification when those laptops' information is updated.

1.3.2 The Proposed System

The system is intended for use by those with a smart phone or a laptop/computer with Internet connection. The system will have the following functions:

1.3.2.1 Web Application

- Admins can manage accounts.
- System can parse product, classify review and store to database daily or on requests.
- Staff can check feedback from user, manual update dictionary.
- Users can search laptop's information, leave feedback

1.3.2.2 Mobile Application

- Users can search laptops, write comments, report comment or add laptops to favourite list.

1.3.3 Boundaries of the System

- The system can be used by every people with a smart phone or a laptop/computer with Internet connection.
- The language of the system is English.

- The complete product includes:
 - + The website, for staff and user.
 - + All the process document involved

1.3.4 Development Environment

1.3.4.1 Hardware requirements For Server

Windows	Minimum Requirements	Recommended
Internet Connection	Cable, Wifi (4 Mbps)	Cable, Wifi (8 Mbps)
Operating System	XP, Vista, 7, 8	XP, Vista, 7, 8
Computer Processor	Intel® Core 2 Duo	Intel® Core(TM) i5 CPU , M 460 @ 2.53GHz
Computer Memory	1GB RAM	3GB or more

Table 2: Hardware Requirement for Developing

For Mobile Application

Android	Minimum Requirements	Recommended
Internet Connection	Wifi (4 Mbps)	Wifi (8 Mbps)
Operating System	4.1 Jelly Bean	4.3 Jelly Bean or later
Computer Processor	1.0 GHz	1.2 GHz or more
Computer Memory	512 MB RAM	1GB or more

Table 3: Hardware Requirement for Mobile Application

1.3.4.2 Software requirements

- Microsoft Windows 8.1: operating system and platform for development.
- SQL Server 2008 Express R2: used to create and manage the database for system.
- StarUML 5.0: used to create models and diagrams.
- Skype: used for communication and meeting.
- Visual Studio 2013: used to implement website and web service.
- Github.com & TortoiseSVN: used for source control.

2. Project organization

2.1 Software Process Model

To determine the right process model for the software process, we answer ten guidelines questions (Sommerville, 2011).

No.	Question	Answer	Plan-Driven	Agile
1	Is it important to have a very detailed specification and design before moving to implementation? If so, you probably need to use a plan-driven approach.	We need a correct specification and design to code but a very detailed one is not necessary.	0.5	0.5

No.	Question	Answer	Plan-Driven	Agile
2	Is an incremental delivery strategy, where you deliver the software to customers and get rapid feedback from them, realistic? If so, consider using agile methods.	Yes. Our product need rapid feedback from customers so that we can modify to satisfy them.	0	1
3	How large is the system that is being developed? Agile methods are most effective when the system can be developed with a small co-located team who can communicate informally. This may not be possible for large systems that require larger development teams so a plan-driven approach may have to be used.	This system can be developed with a small team and we are at the same age so we can communicate informally.	0	1
4	What type of system is being developed? Systems that require a lot of analysis before implementation (e.g., real-time system with complex timing requirements) usually need a fairly detailed design to carry out this analysis. A plan-driven approach may be best in those circumstances.	This is an ecommerce system. We need some careful analysis but not too many.	0.5	0.5
5	What is the expected system lifetime? Long-lifetime systems may require more design documentation to communicate the original intentions of the system developers to the support team. However, supporters of agile methods rightly argue that documentation is frequently not kept up to date and it is not of much use for long-term system maintenance.	This system is expected to operate in 2 years. However, during that time, we will do some modifications to meet customers' need.	0.5	0.5
6	What technologies are available to support system development? Agile methods often rely on good tools to keep track of an evolving design. If you are developing a system using an IDE that does not have good tools for program visualization and analysis, then more design documentation may be required.	We have a good tool to track changes. The IDE also support tracking phase.	0.5	0.5

No.	Question	Answer	Plan-Driven	Agile
7	How is the development team organized? If the development team is distributed or if part of the development is being outsourced, then you may need to develop design documents to communicate across the development teams. You may need to plan in advance what these are.	We all live in Ho Chi Minh City so that we can have meetings every day.	0	1
8	Are there cultural issues that may affect the system development? Traditional engineering organizations have a culture of plan-based development, as this is the norm in engineering. This usually requires extensive design documentation, rather than the informal knowledge used in agile processes.	We are all young people and we share common software development knowledge. Moreover, our own cultures are similar to each other.	0	1
9	How good are the designers and programmers in the development team? It is sometimes argued that agile methods require higher skill levels than plan-based approaches in which programmers simply translate a detailed design into code. If you have a team with relatively low skill levels, you may need to use the best people to develop the design, with others responsible for programming.	Although we are confident about software development skill, we are still student and we have no or little experience.	1	0
10	Is the system subject to external regulation? If a system has to be approved by an external regulator (e.g., the Federal Aviation Authority [FAA] approve software that is critical to the operation of an aircraft) then you will probably be required to produce detailed documentation as part of the system safety case.	No	0	0
Total			3	6

Table 4: Compare Plan-driven and Agile development

After carefully considering the two approaches, we can see that agile methods are more suitable for our project. We decide to choose the Scrum approach which is a general agile method.

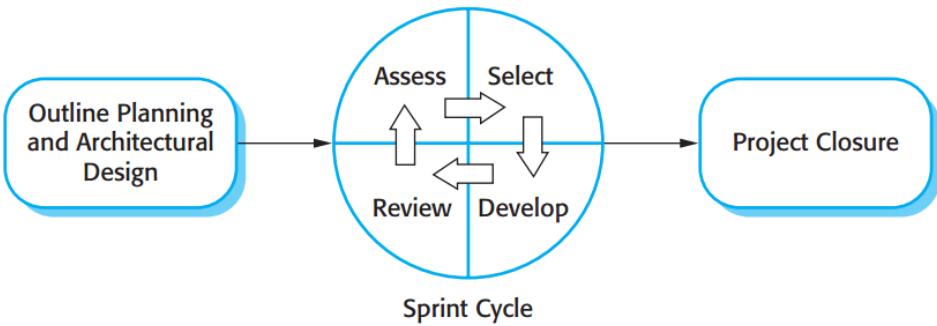


Figure 1: The Scrum Process

(Sommerville, Software Engineering, 9th Edition, 2011, Figure 3.8 page 73)

2.2 Roles and responsibilities

No	Full name	Role in Group	Responsibilities
1	Kieu Trong Khanh	Scrum Master	<ul style="list-style-type: none"> • Arrange daily meetings • Track the backlog of work to be done • Record decisions • Measure progress against the backlog • Communicates with customers and management outside of the team
2	Vo Thi Minh Chau	Scrum Team Member	<ul style="list-style-type: none"> • Design database • Clarify requirements • Prepare documents • GUI Design • Create test plan • Code • Test
3	Nguyen Van Hon	Scrum Team Member	<ul style="list-style-type: none"> • Design database • Clarify requirements • Prepare documents • GUI Design • Create test plan • Code • Test
4	Dinh Huu Toan	Scrum Team Member	<ul style="list-style-type: none"> • Design database • Clarify requirements • Prepare documents • GUI Design • Create test plan • Code • Test

5	Nguyen Manh Khuong	Scrum Team Member	<ul style="list-style-type: none"> • Design database • Clarify requirements • Prepare documents • GUI Design • Create test plan • Code • Test
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Table 5: Roles and Responsibility Details

2.3 Tools and Techniques

- Front-end technologies: HTML5, CSS3, JavaScript, jQuery 1.10, AJAX, SignalR 2.0.
- Back-end: Website: ASP.NET MVC5 + Entity Framework 5.
- Web Server: Microsoft IIS 7.
- Database Management System: MS SQL Server 2008 Express R2.
- Android Developer Tools: Eclipse

3. Project Management Plan

3.1 Software Development Life Cycle

Phase /Iteration	Description	Deliverables	Resource needed	Dependencies and Constrains	Risks
Outline Planning and Architectural Design	- Study similar existing systems. - Identify and clarify requirements for the system in general.	- Introduction of proposed system. - Project task plan. - Software requirement specification. - Prototypes.	20 man-days	N/A	- Missing requirement - Unclear scope of project - Lack of member share of understand
Sprint Cycle - Parser Analysis	- Analyze websites to parse data. - Choose a library for parsing HTML content.	- Websites which will be parsed date. - Library for parsing HTML content.	10 man-days	N/A	- Lack of experience.
Sprint Cycle - Training Machine Function	- Teach the system how to synchronize products' names.	N/A	20 man-days	Depends on "Data management".	- Not have a clear understanding about business process.
Sprint Cycle - Dictionary Management	- Input data manually. - Import data from excel files. - Find synonyms and antonyms form dictionary websites.	- Dictionary management service.	30 man-days	N/A	- Lack of experience. - The dictionary is not variety.
Sprint Cycle - Parser Management	- Manage parser.	- Parser management system.	20 man-days	Depend on "Sprint Cycle - Parser Analysis".	- Lack of experience. - Not have a clear understanding about business process.

Sprint Cycle - Main User's Functions	<ul style="list-style-type: none"> - Parse data. - Build algorithm to analyze comments then classify them into 3 groups: positive, negative and neutral. - Member (staff and admin) can manage profile. 	<ul style="list-style-type: none"> - Collected data. - Classified comment system. - Main user's functions on web. 	60 man-days	Depend on "Sprint Cycle - Parser Analysis" and "Sprint Cycle - Dictionary management".	<ul style="list-style-type: none"> - The implemented algorithm is not the best. - Lack of test data. - Lack of experience on analyzing sentence's meaning.
Sprint Cycle - User Account Management	<ul style="list-style-type: none"> - Manage user accounts in the system. 	<ul style="list-style-type: none"> - Account management system. 	5 man-days	N/A	<ul style="list-style-type: none"> - Lack of experience. - Not have a clear understanding about business process.
Project Closure	<ul style="list-style-type: none"> - Documentation. 	<ul style="list-style-type: none"> - Installation guide. - User manual. 	3 man-days	Depend on "Sprint Cycle"	<ul style="list-style-type: none"> - Lack of experience.

Table 6: Software Development Life Cycle Detail

3.2 Phase Detail

3.2.1 Phase 1: Outline Planning and Architectural Design

Task	Description	Author
1. Identifying and studying existing systems	- Find which systems currently provide similar service, their strengths and weakness.	ChauVTM, HonNV, ToanDH, KhuongNM
2. Identifying and clarifying main functions.	- Define which main functions system should provide.	ChauVTM
3. Introduction.	- Complete Introduction Report.	ToanDH, KhuongNM
4. Project Management Plan.	- Prepare Project - Management Plan.	ChauVTM
5. Website Prototype.	- Build a prototype of proposed system (Website).	ToanDH, HonNV
6. Design Entity Relationship diagram	- Design Entity Relationship diagram.	ChauVTM, HonNV, ToanDH, KhuongNM

Table 7: Phase 1: Outline Planning and Architectural Design

3.2.2 Phase 2: Sprint Cycle

3.2.2.1 Parser Analysis

Task	Description	Author
1. Assess	- Determine the list of work to be done.	ChauVTM
2. Select	- Which feature this function should have and how to implement.	ChauVTM
3. Develop	- Analyze websites to parse data. - Choose a library for parsing HTML content.	ChauVTM, HonNV, ToanDH, KhuongNM
4. Review	- Review and present to stakeholders.	ChauVTM, HonNV, ToanDH, KhuongNM

Table 8: Phase 2: Sprint Cycle – Parser Analysis

3.2.2.2 Training Machine Function

Task	Description	Author
1. Assess	- Prepare product backlog - Determine the list of work to be done.	ChauVTM
2. Select	- Which feature this function should have and how to implement.	ToanDH
3. Develop	- Add SRS, SDD.	ChauVTM, HonNV, ToanDH, KhuongNM

	<ul style="list-style-type: none"> - Compare many string comparison algorithms and choose the best one. - Implement algorithm. - Implement merging and splitting products' names function. - Create the interface for user. - Test system behavior and performance. - Test user behavior and performance. 	
4. Review	<ul style="list-style-type: none"> - Review and present to stakeholders. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 9: Phase 2: Sprint Cycle – Training Machine Function

3.2.2.3 Dictionary Management

Task	Description	Author
1. Assess	<ul style="list-style-type: none"> - Prepare product backlog - Determine the list of work to be done. 	ChauVTM
2. Select	<ul style="list-style-type: none"> - Which feature this function should have and how to implement. 	ChauVTM
3. Develop	<ul style="list-style-type: none"> - Add SRS, SDD. - Build a function which let user input data by manually inputting and importing excel file. - Build a function which let system find synonyms and antonyms of existed words in dictionary from dictionary websites automatically. - Create the interface for user. - Test system behavior and performance. - Test user behavior and performance. 	ChauVTM, HonNV, ToanDH, KhuongNM
4. Review	<ul style="list-style-type: none"> - Review and present to stakeholders. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 10: Phase 2: Sprint Cycle – Dictionary Management

3.2.2.4 Parser Management

Task	Description	Author
1. Assess	<ul style="list-style-type: none"> - Prepare product backlog - Determine the list of work to be done. 	ChauVTM

2. Select	- Which feature this function should have and how to implement.	ChauVTM
3. Develop	<ul style="list-style-type: none"> - Add SRS, SDD. - Staff can add, edit or activate/deactivate websites to parse data. - Test system behavior and performance. - Test user behavior and Performance. 	ChauVTM, HonNV, ToanDH, KhuongNM
4. Review	<ul style="list-style-type: none"> - Review and present to stakeholders. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 11: Phase 2: Sprint Cycle – Parser Management

3.2.2.5 Main User's Functions

Task	Description	Author
1. Assess	<ul style="list-style-type: none"> - Prepare product backlog - Determine the list of work to be done. 	ChauVTM
2. Select	<ul style="list-style-type: none"> - Which feature this function should have and how to implement. 	ChauVTM
3. Develop	<ul style="list-style-type: none"> - Add SRS, SDD. - Parse data. - Build algorithm to analyze comments then classify them into 3 groups: positive, negative and neutral. - Allow user search and view details of the product. - Allow member manage their profile. - Test system behavior and Performance. - Test user behavior and Performance. 	ChauVTM, HonNV, ToanDH, KhuongNM
4. Review	<ul style="list-style-type: none"> - Review and present to stakeholders. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 12: Phase 2: Sprint Cycle – Main User's Functions

3.2.2.6 User Account Management

Task	Description	Author
1. Assess	<ul style="list-style-type: none"> - Prepare product backlog - Determine the list of work to be done. 	ChauVTM

2. Select	- Which feature this function should have and how to implement.	KhuongNM
3. Develop	<ul style="list-style-type: none"> - Add SRS, SDD. - Staff can manage accounts in the system. - Test system behavior and Performance. - Test user behavior and Performance. 	ChauVTM, HonNV, ToanDH, KhuongNM
4. Review	<ul style="list-style-type: none"> - Review and present to stakeholders. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 13: Phase 2: Sprint Cycle – User Account Management

3.2.3 Phase 3: Project Closure

Task	Description	Author
1. Documentation	<ul style="list-style-type: none"> - Complete Installation Guide, Manual Guide. 	ChauVTM, HonNV, ToanDH, KhuongNM
2. Assess	<ul style="list-style-type: none"> - Assess the lessons learned from the project. 	ChauVTM, HonNV, ToanDH, KhuongNM

Table 14: Phase 3: Project Closure

3.3 All Meeting Minutes

Refer to Meeting Minutes folder.

4. Coding Convention

C#: Using to develop website.

Summary:

- Naming Convention:
 - o For variable's name, use camel case. Eg: minValue, maxValue...
 - o For function name, class name, use pascal case. Eg: SearchProduct, ImportFile...
- Layout Convention:
 - o Write only one statement/declaration per line.
 - o Indent continuation one tab stop (four spaces).
 - o Add at least one blank line between method definitions and property definitions.
 - o Use parentheses to make clauses in an expression apparent.
- Language Guidelines:

Using C# Code Convention From:

<http://msdn.microsoft.com/en-us/library/vstudio/ff926074.aspx>

C. Software Requirement Specification

1. User Requirement Specification

1.1 Guest Requirement

Guests is a person who doesn't have access to the system. Guest can use some functions in the system. These are some functions guest can use:

Guests are normal users who don't have access to the system. Guests can use almost functions but the systems functions. Here are things guests can do with our website:

- Search products.
- View products details with all information.
- Report unsuitable comment.
- Recommend not available products and ask for notification when they are available.

1.2 Member Requirement

Member is an authoreized user of the system who has some functions relating their account, such as:

- Edit profile.
- Change password
- Retrieve password.

1.3 Staff Requirement

Staff is a person whose work is maintaining the system. Staff will be able to do all Member's functions and following additional these:

- Update dictionary manually or through importing Excel file and dictionary file.
- Modify parser.
- Train the system so that it can handle some tasks such as managing duplicated products.
- Configure the system
- Force parsing data.
- Manage products.
- Parse recommend product.
- Handle reported comment.

1.4 Admin Requirement

Admin is the one who manage all accounts in the system. Beside the Member's function, Admin can be able to:

- Create account.
- Edit account.
- Activate/Deactivate account.

1.5 System Requirement

System is also an actor help run the website. System will handle these works:

- Auto parse the data

- Auto find synonyms and antonyms
- Parse recommended product if the result can be found automatically.
- Auto reanalyse comments
- Auto cancel recommended products

2. System Requirement Specification

2.1 External Interface Requirement

2.1.1 User Interface

- The interface of the website should be clear, easy to understand that does not require much time to learn to use.
- The error, warning messages must be clear and should not contain technical words that may annoy users.

2.1.2 Hardware Interface

- The system will use the standard hardware and data communication resources that can be easily found on any normal computers.

2.1.3 Software Interface

- Web browsers such as Firefox, Chromes with Resolution (1024*768) or bigger that support JavaScript and HTML5.

2.1.4 Communication Protocol

- Website using HTTP protocol for communication between the web browser and the web server.
- Mobile app using HTTP protocol for communicating between app and web service.

2.2 System Overview Use Case

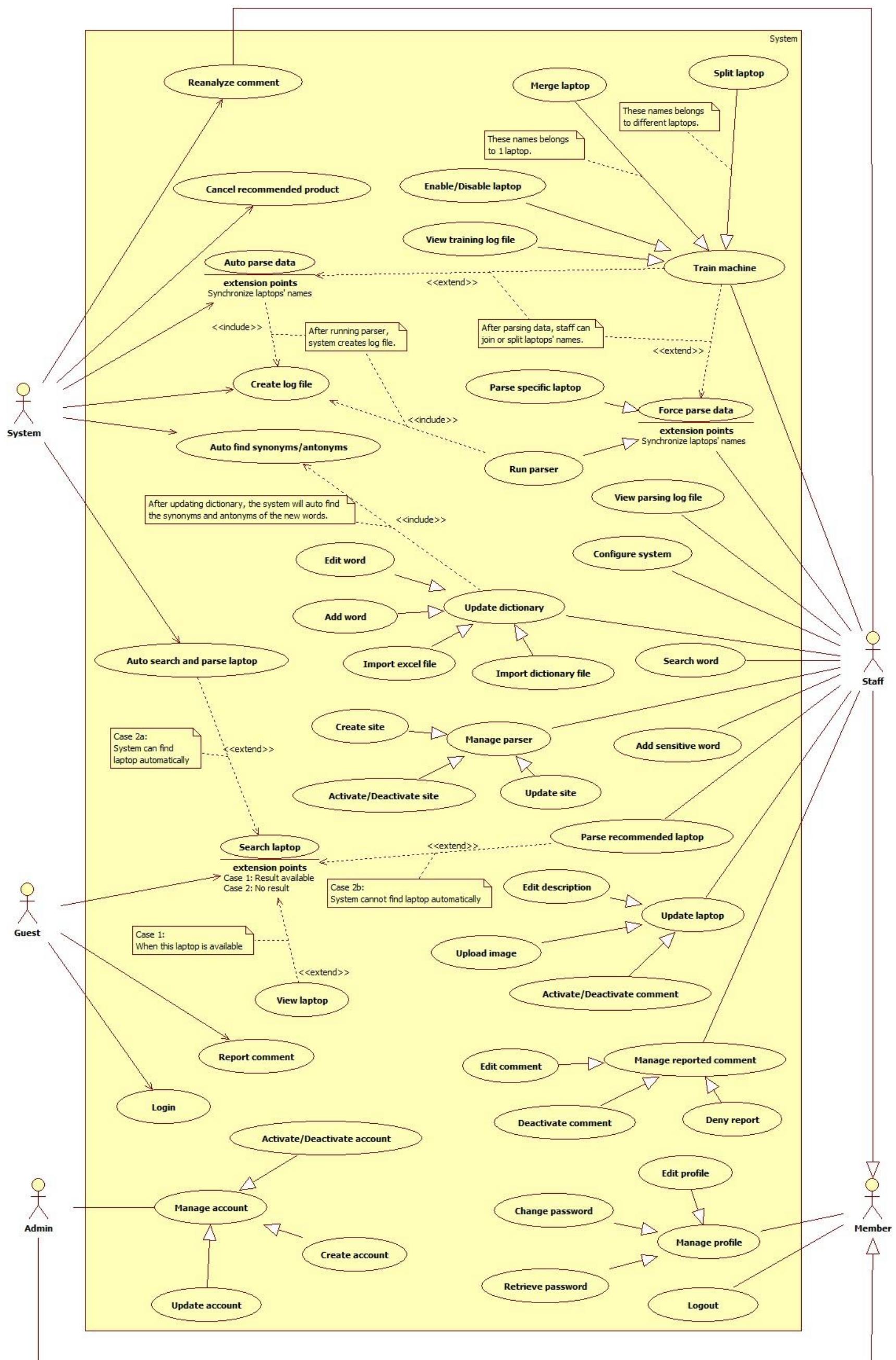


Figure 2: System Overview Use Case

2.3 List of Use Case

2.3.1 <Admin> Overview Use Case

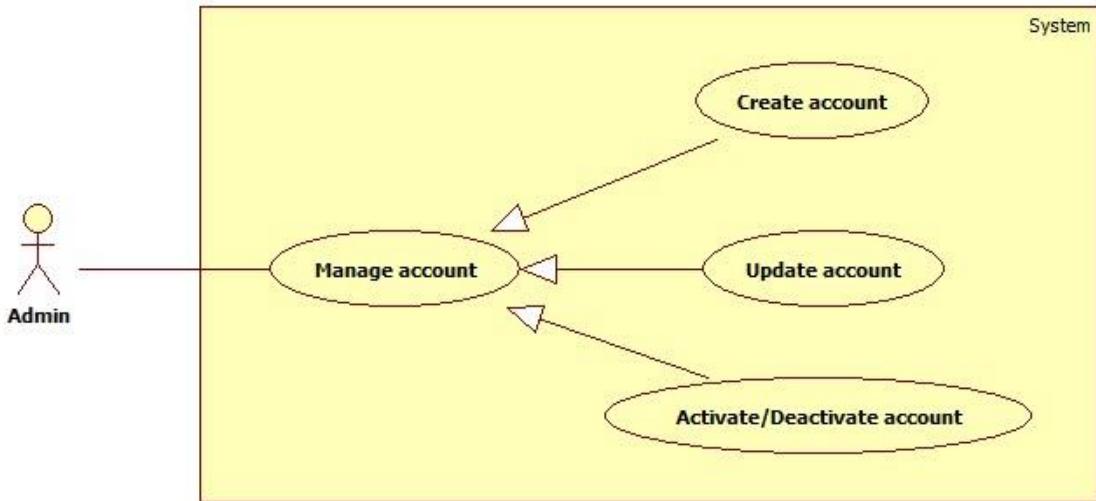


Figure 3: <Admin> Overview Use Case

2.3.1.1 <Admin> Create Account Use Case Diagram

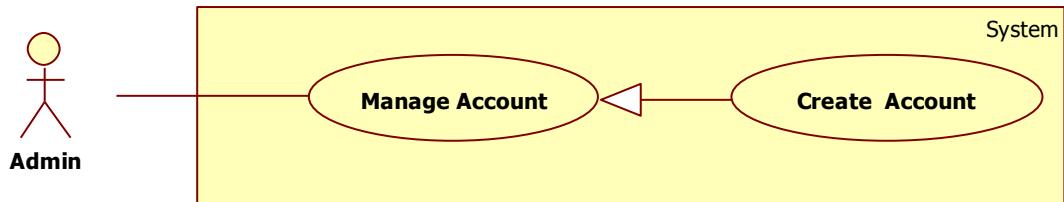


Figure 4: <Admin> Create Account

Use Case Specification

USE CASE - LRA001			
Use Case No.	LRA001	Use Case Version	1.0
Use Case Name	Create Account		
Author	Nguyen Manh Khuong		
Date	28/05/2015	Priority	Normal
Actor:	<ul style="list-style-type: none">- Admin		
Summary:	<ul style="list-style-type: none">- This use case allows admin to create new account in the system.		
Goal:	<ul style="list-style-type: none">- New account will be added to the system.		
Triggers:	<ul style="list-style-type: none">- Admin goes to “Manager Account” page.- Admin choose “Create Account” command.		

Preconditions:

- User must login the system with admin role.

Post Conditions:

- **Success:** New account will be added to the database.
- **Fail:** Show error message on the current page.

Main Success Scenario:

Step	Actor Action	System Response
1	Admin goes to "Manager Account" page.	<p>Navigate to "Manager Account" page, which contains:</p> <ul style="list-style-type: none"> - "Create Account" command. - A table with 4 columns: <ul style="list-style-type: none"> + No. + Username. + Role. + Action. - "No": label. - "Username": label. - "Role": label. - "Edit": command. - Activate/Deactivate: command
2	Admin choose "Create Account" command.	<p>Navigate to "Create Account" page, which contains:</p> <ul style="list-style-type: none"> - Username: free text input, min length: 2, max length: 35, required. - Name: free text input, min length: 2, max length: 35, required. - Email Address: regular expression: /\S+@@@\S+\.\S+/, max length: 50, required. - Phone Number: free digits input, max length: 15. - Role: 2 values for admin to choose: "admin", "staff". Default value is "admin". - Password: free text input, min length: 2, max length: 35, required. - Confirm Password: free text input, min length: 2, max length: 35, required. - "Create": command.
3	Admin fills data to the form. Admin choose "Create" command.	

	[Alternative 1,2,3,4,5,6]	Insert new account to the database and close the interface [Exception 1]
--	---------------------------	---

Alternative Scenario:

No	Actor Action	System Response
1	“Username” is not in range [2-35].	“Username” border colour is red. Show error message: “Please specify username”.
2	“Username” has already existed.	Show error message: “This account had been existed. Please try again! ”.
3	“Name” is not in range [2-35].	“Name” border colour is red. Show error message: “Please specify account’s name”.
4	Invalid email format.	“Email” border colour is red. Show error message: “Your email address must be in format of name@domain.com”.
5	“Password” is not in range [2-35].	“Password” border colour is red. Show error message: “Please enter at least 6 characters”.
6	“Confirm Password” is not in range	“Confirm password” border colour is red. Show error message: “Please enter at least 6 characters”.
7	“Confirm Password” is not similar “Password”	“Confirm password” border colour is red. Show error message: “Please enter the same value again”.

Exceptions:

No	Actor Action	System Response
1	Cannot create the account due to database connection.	Show error message: “Cannot create account. Try again later.”

Relationships: N/A

Business Rules:

- Each created account must be in active state when insert to database.
- New account name cannot be the same as existed account in database.
- Password and Confirm Password must be similar.
- Email format must be “name@domain.com”.

Table 15: <Admin> Create Account

2.3.1.2 <Admin> Update Account Use Case Diagram

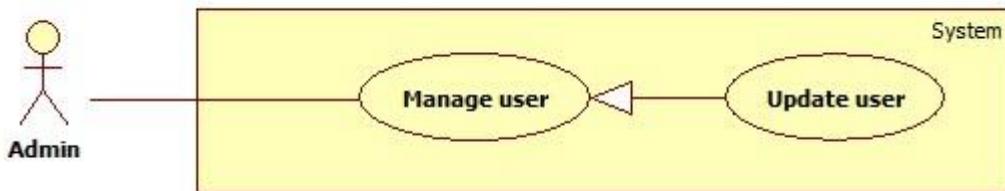


Figure 5: <Admin> Update Account

Use Case Specification

USE CASE – LRA002									
Use Case No.	LRA002	Use Case Version	1.0						
Use Case Name	Update Account								
Author	Nguyen Manh Khuong								
Date	28/05/2015	Priority	Normal						
Actor:	<ul style="list-style-type: none"> - Admin 								
Summary:	<ul style="list-style-type: none"> - This use case allows admin to update information for user accounts. 								
Goal:	<ul style="list-style-type: none"> - New account information will be updated to the database. 								
Triggers:	<ul style="list-style-type: none"> - Admin goes to “Manager Account” page. - Admin choose “Edit” command. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in system with admin role. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: New information will be updated to the database. - Fail: Show error message. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Admin goes to “Manager Account” page and choose “Edit” command.</td><td> <p>Navigate to “Edit account” interface, which contains:</p> <ul style="list-style-type: none"> - Username: text, disabled. - Name: free text input, min length: 2, max length: 35, required. - Email Address: regular expression: <code>/\S+@@\S+\.\S+/</code>, max length: 50, required. - Phone Number: free text input, max length: 15. - “Save”: command. - “Cancel”: command. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Admin goes to “Manager Account” page and choose “Edit” command.	<p>Navigate to “Edit account” interface, which contains:</p> <ul style="list-style-type: none"> - Username: text, disabled. - Name: free text input, min length: 2, max length: 35, required. - Email Address: regular expression: <code>/\S+@@\S+\.\S+/</code>, max length: 50, required. - Phone Number: free text input, max length: 15. - “Save”: command. - “Cancel”: command.
Step	Actor Action	System Response							
1	Admin goes to “Manager Account” page and choose “Edit” command.	<p>Navigate to “Edit account” interface, which contains:</p> <ul style="list-style-type: none"> - Username: text, disabled. - Name: free text input, min length: 2, max length: 35, required. - Email Address: regular expression: <code>/\S+@@\S+\.\S+/</code>, max length: 50, required. - Phone Number: free text input, max length: 15. - “Save”: command. - “Cancel”: command. 							

3	<p>Admin updates “Name”, “Email”, “Phone Number”. Click “Save” command. [Alternative 1,2,3]</p>	<p>New information will be updated to the database and close the interface. [Exception 1]</p>
---	---	---

Alternative Scenario:

No	Actor Action	System Response
1	“Name” is not in range [2-35].	“Name” border colour is red. Show error message: “Please specify account’s name”.
2	Invalid email format.	“Email” border colour is red. Show error message: “Your email address must be in format of name@domain.com”.
3	Admin click “Cancel” command	Close “Edit Account” interface. Back to “Account Management” page.

Exceptions:

No	Actor Action	System Response
1	Cannot update account due to database connection.	Show error message: “Cannot update account. Try again later.”

Relationships: N/A

Business Rules:

- Cannot edit “Account Name”.
- Email format must be “name@domain.com”.

Table 16: <Admin> Update Account

2.3.1.3 a<Admin> Activate/Deactivate Account

Use Case Diagram

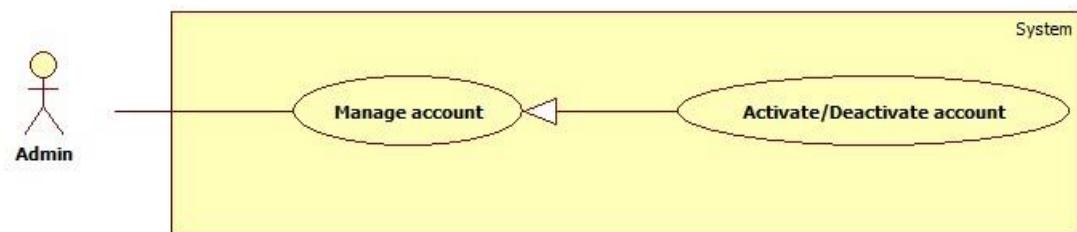


Figure 6: <Admin> Activate/Deactivate Account

Use Case Specification

USE CASE - LRA003			
Use Case No.	LRA003	Use Case Version	1.0
Use Case Name	Activate/Deactivate Account		
Author	Nguyen Manh Khuong		
Date	28/05/2015	Priority	Normal

Actor:

- Admin

Summary:

- This user case allows admin to activate/deactivate a user account.

Goal:

- Deactivated accounts will be activated or activated accounts will be deactivated.

Triggers:

- Admin goes to "Manager Account" page.
- Admin choose "Activate/Deactivate" command.

Preconditions:

- User must log in the system with admin role.

Post Conditions:

- **Success:** The selected account will be activated/deactivated.
- **Fail:** Database connection is not available. Show error message

Main Success Scenario:

Step	Actor Action	System Response
1	Admin goes to "Manager Account" page and choose "Activate/Deactivate" command.	The account will be activating/deactivating and button name change to "Activate" or "Deactivate" [Exception 1,2]

Alternative Scenario: N/A

Exceptions:

No	Actor Action	System Response
1	Cannot activate the account Due to database connection.	Show error message: "Cannot active the account. Try again later."
2	Cannot deactivate the account Due to database connection.	Show error message: "Cannot deactivate the account. Try again later."

Relationships: N/A

Business Rules:

- Admins can't activate/deactivate account of themselves or other admins.

Table 17: <Admin> Activate/Deactivate Account

2.3.2 <Staff> Overview Use Case

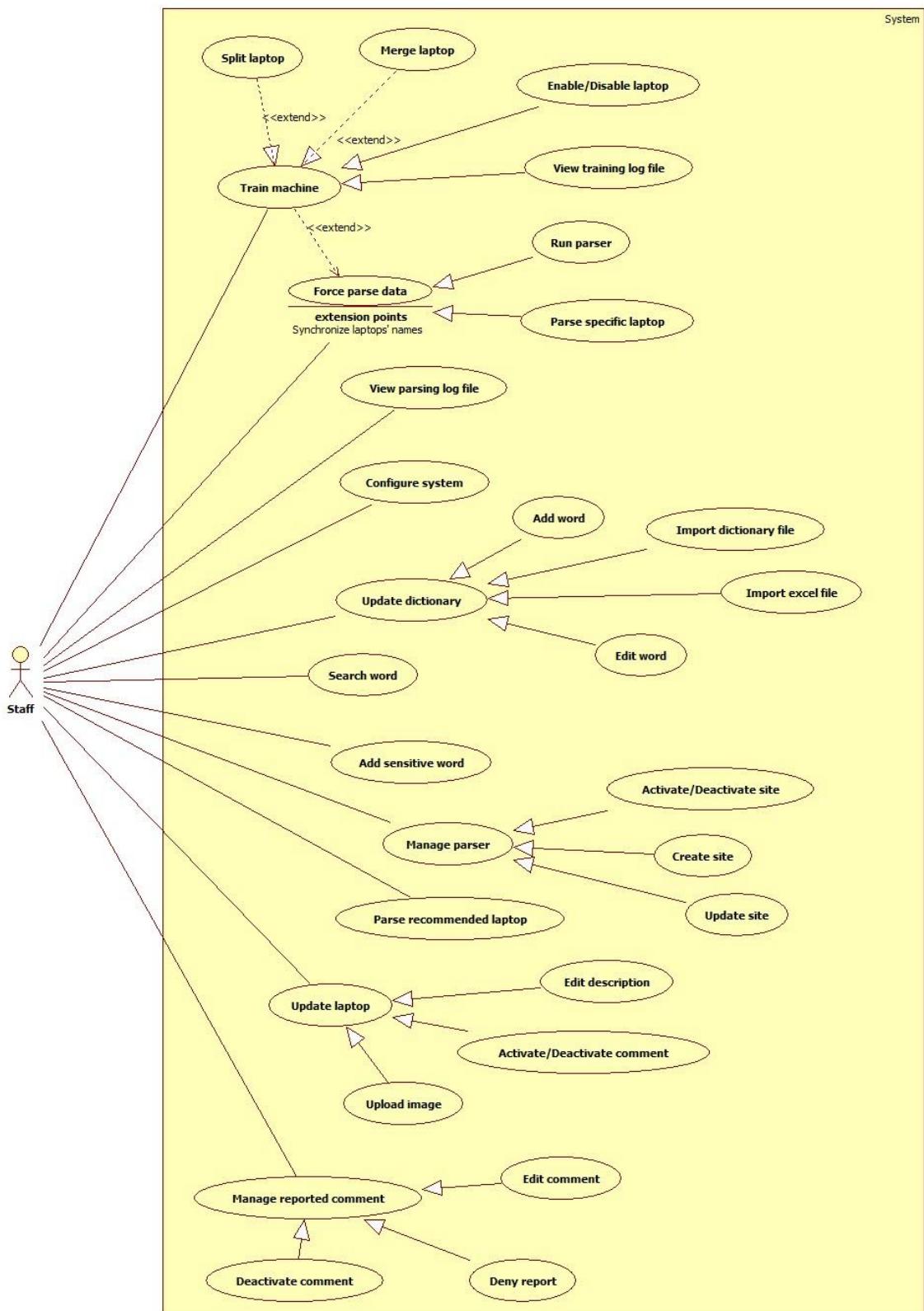


Figure 7: <Staff> Overview Use Case

2.3.2.1 <Staff> Merge Laptop Use Case Diagram

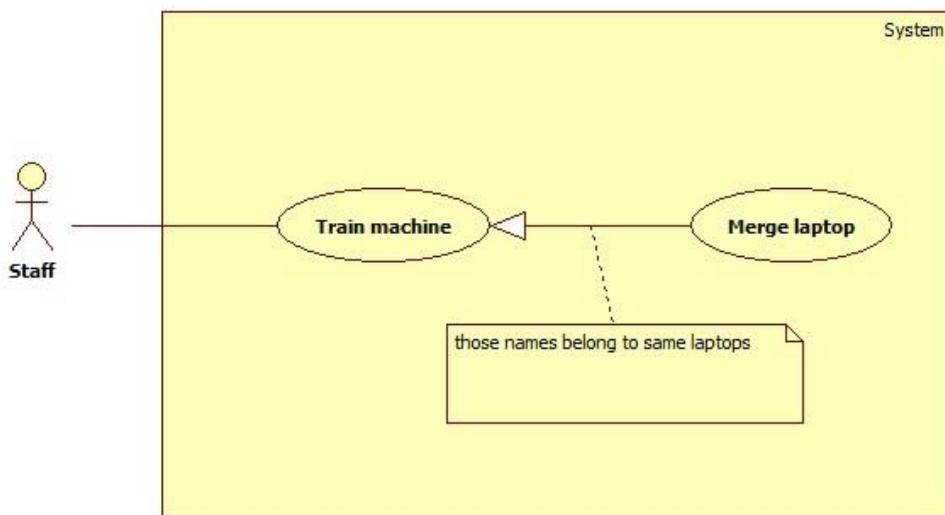


Figure 8: <Staff> Merge Laptop

Use Case Specification

USE CASE - LRA004			
Use Case No.	LRA004	Use Case Version	1.0
Use Case Name	Merge Laptop		
Author	Dinh Huu Toan		
Date	05/06/2015	Priority	High
Actor:			
- Staff.			
Summary:			
- This use case allows staff to merge duplicated laptops			
Goal:			
- Duplicated laptops are merged together with main laptop chosen by staff.			
Triggers:			
- Staffs send command to merge duplicated laptops			
Preconditions:			
- User has logged in with staff role.			
- System has detected duplicated laptops after parsing.			
Post Conditions:			
- Success: Selected duplicated laptops are merged and added.			
- Fail: Show messages to indicate sufficient problems.			
Main Success Scenario:			
Step	Actor Action	System Response	
1	Staff goes to Training Machine page [Alternative 1]	Show "Training Machine" page which includes: - Total duplicated products: text	

		<ul style="list-style-type: none"> - Disabled duplicated products: link to Disabled duplicated products page - Search: free text input, length 1 - 200 - "Show log file": submenu, link to Show log file page - Table contains duplicated products which are grouped base on matching percent of their names. Table includes: <ul style="list-style-type: none"> + Selected duplicated products: check 2 or more duplicated products, required + Product Name: text + Website: text + Main: select one from many options, required + Action: commands for staff to handle duplicated products, includes: <ul style="list-style-type: none"> ✓ Merge: command to merge selected products ✓ Split: command to split selected products ✓ Disable: command to disable selected products
2	Staff selects some products in duplicated products group, choose Main product then send command to Merge products [Alternative 2,3]	<ul style="list-style-type: none"> - System shows message to require staff's confirmation for Merge process includes: <ul style="list-style-type: none"> + Confirmation messages: text + Process: command to process the request + Cancel: command to cancel the request
3	Staff sends Process command [Alternative 4]	<ul style="list-style-type: none"> - System reload current page. Selected products are merged. Selected products information is saved.[Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	There is no duplicated product that need to handle	<ul style="list-style-type: none"> - Show message to indicate that there is no duplicated products
2	Staff does not choose main product or selected main product does not belong to selected products or staff choose product that is already selected as main product	<ul style="list-style-type: none"> - Show message to notify invalid main product
3	Staff selects only one product and set it as main product then send Merge command	<ul style="list-style-type: none"> - Show message to notify that Merge cannot be handle with only one product and ask for Split command instead [Alternative 5,6]
4	Staff send command to cancel merge process	<ul style="list-style-type: none"> - Nothing happens
5	Staff send command to process Split	<ul style="list-style-type: none"> - System saves selected product
6	Staff send command to cancel Split process	<ul style="list-style-type: none"> - Nothing happens

Exceptions:

No	Exception	System Response
1		<ul style="list-style-type: none"> - Merged products information cannot be added. - Show message to notify the error

Relationships:

- Split Laptop

Business Rules:

- After merging, comments and images of duplicated products will be added to main product. If description of duplicated product is better than main product, then description of main product will be replaced by description of duplicated product.
- After merging, 28processed products will be removed from list duplicated products.
- Merge can only be done with 2 or more duplicated products.
- If staff select only one product and send Merge command, system will ask for Split command instead of Merge.
- Staff must choose main product before processing Merge.
- System will automatically goes to "Show Disabled Duplicated Products" page after 5 seconds if there is no duplicated product

Table 18: <Staff> Merge Laptop

2.3.2.2 <Staff> Split Laptop Use case Diagram

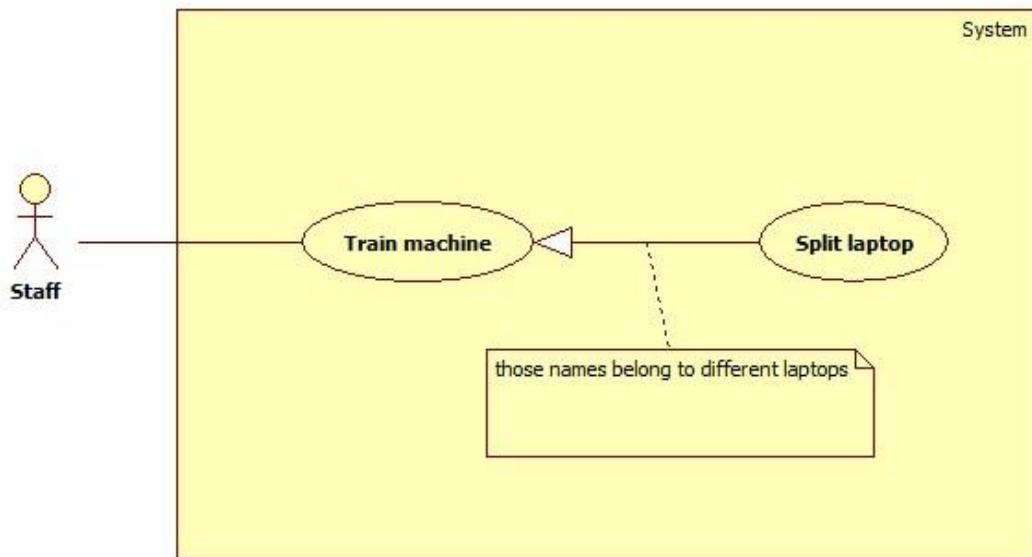


Figure 9: <Staff> Update Parser

USE CASE - LRA005									
Use Case No.	LRA005	Use Case Version	1.0						
Use Case Name	Split Laptop								
Author	Dinh Huu Toan								
Date	05/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - Staff. 								
Summary:	<ul style="list-style-type: none"> - This use case allows staff to split duplicated laptops from duplicated group 								
Goal:	<ul style="list-style-type: none"> - Duplicated laptops are split and save as new laptop. 								
Triggers:	<ul style="list-style-type: none"> - Staffs send command to split duplicated laptops 								
Preconditions:	<ul style="list-style-type: none"> - User has logged in with staff role. - System has detected duplicated laptops after parsing 								
Post Conditions:	<ul style="list-style-type: none"> - Success: Selected duplicated laptops are split and added as new laptops. - Fail: Show messages to indicate sufficient problems. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Staff goes to Training machine page [Alternative 1]</td><td>Show "Training Machine" page which includes: <ul style="list-style-type: none"> - Total duplicated products: text </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Staff goes to Training machine page [Alternative 1]	Show "Training Machine" page which includes: <ul style="list-style-type: none"> - Total duplicated products: text
Step	Actor Action	System Response							
1	Staff goes to Training machine page [Alternative 1]	Show "Training Machine" page which includes: <ul style="list-style-type: none"> - Total duplicated products: text 							

		<ul style="list-style-type: none"> - Disabled duplicated products: link to Disabled duplicated products page - Search: free text input, length 1 – 200 - “Show log file”: submenu, link to Show log file page - Table contains duplicated products which are grouped base on matching percent of their names. Table includes: <ul style="list-style-type: none"> + Selected duplicated products: check 2 or more duplicated products, required + Product Name: text + Website: text + Main: select one from many options, required + Action: commands for staff to handle duplicated products, includes: <ul style="list-style-type: none"> ✓ Merge: command to merge selected products ✓ Split: command to split selected products ✓ Disable: command to disable selected products
2	Staff selects some products and send Split command [Alternative 2]	<ul style="list-style-type: none"> - System shows message to require staff's confirmation for Split process includes: <ul style="list-style-type: none"> + Confirmation messages: text + Process: command to process the request + Cancel: command to cancel the request
3	Staff sends command to process request [Alternative 3]	<ul style="list-style-type: none"> - System reload current page. Selected products are split and added with its comments, description and images[Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	There is no duplicated product that need to handle	<ul style="list-style-type: none"> - Show message to indicate that there is no duplicated products

2	Staff does not choose products to split or they choose product that is already main product	<ul style="list-style-type: none"> – Show message to require staff selection
3	Staff sends command to cancel request	<ul style="list-style-type: none"> – Nothing happens

Exceptions:

No	Exception	System Response
1		<ul style="list-style-type: none"> – Split products information cannot be added. – Show message to notify the error

Relationships: N/A

Business Rules:

- After splitting, processed products will be removed from list duplicated products
- System will automatically goes to “Show Disabled Duplicated Products” page after 5 seconds if there is no duplicated product
- Staff must choose at least one product before processing Split

Table 19: <Staff> Split Laptop

**2.3.2.3 <Staff> Enable/Disable Laptop
Use Case Diagram**

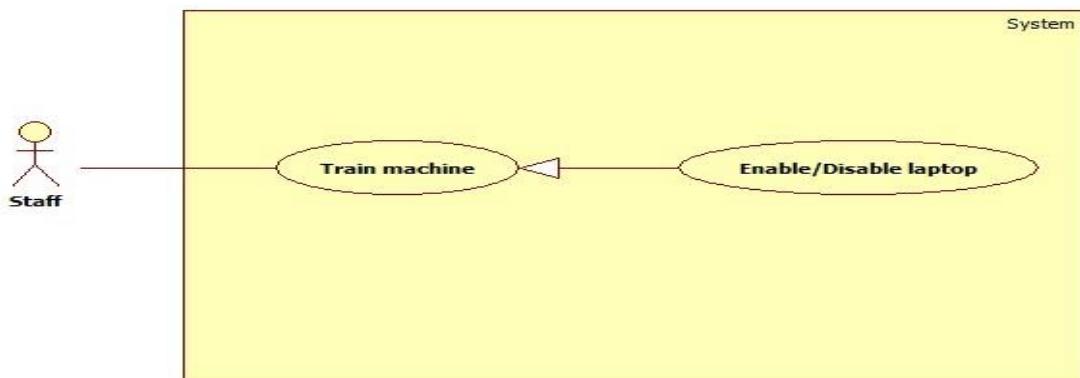


Figure 10: <Staff> Enable/Disable laptop

Use case Specification

USE CASE - LRA006			
Use Case No.	LRA006	Use Case Version	1.0
Use Case Name	Enable/Disable laptop		
Author	Dinh Huu Toan		
Date	05/06/2015	Priority	High
Actor:			
- Staff.			
Summary:			
- This use case allows staff to enable/disable laptops			

Goal:

- Laptops are enabled/disabled

Triggers:

- Staff sends command to Disable/Enable laptop

Preconditions:

- User has logged in with staff role.
- System has detected duplicated laptops after parsing

Post Conditions:

- **Success:** Laptop is disabled/enabled successfully
- **Fail:** Show messages to indicate sufficient problems.

Main Success Scenario:

Step	Actor Action	System Response
1	Staff clicks "Training Machine" sub menu. [Alternative 1]	Show "Training Machine" page which includes: <ul style="list-style-type: none"> - Total duplicated products: text - Disabled duplicated products: link to Disabled duplicated products page - Search: free text input, length 1 – 200 - "Show log file": submenu, link to Show log file page - Table contains duplicated products which are grouped base on matching percent of their names. Table includes: <ul style="list-style-type: none"> + Selected duplicated products: check 2 or more duplicated products, required + Product Name: text + Website: text + Main: select one from many options, required + Action: commands for staff to handle duplicated products, includes: <ul style="list-style-type: none"> ✓ Merge: command to merge selected products ✓ Split: command to split selected products ✓ Disable: command to disable selected products
2	Staff sends command to disable selected product [Alternative 2]	

		<ul style="list-style-type: none"> - System shows message to require staff's confirmation for disable process includes: <ul style="list-style-type: none"> + Confirmation messages: text + Process: command to process the request + Cancel: command to cancel the request
3	Staff sends command to process request	<ul style="list-style-type: none"> - Selected product is disabled.[Exception 1]

Alternative Scenario:

Alternative 1:

Step	Actor Action	System Response
1	There is no duplicated product that need to handle	<ul style="list-style-type: none"> - Show message to indicate that there is no duplicated products

Alternative 2:

Step	Actor Action	System Response
1	Staff goes to disabled duplicated products page	<ul style="list-style-type: none"> - Go to disabled duplicated products page. This pages include: <ul style="list-style-type: none"> - Number of total disabled duplicated products: text - Train machine: link to train machine page - Search: free text input, length 1 - 200 - Table contains disabled duplicated products which are grouped base on matching percent of their names. Table includes: <ul style="list-style-type: none"> + Name: text + Website: text + Action: commands for staff to handle duplicated products, includes: <ul style="list-style-type: none"> ✓ Enable: command to enable a product
2	Staff click "Enable" button of one product	<ul style="list-style-type: none"> - System shows message to require staff's confirmation for enable process includes: <ul style="list-style-type: none"> + Confirmation messages: text + Process: command to process the request + Cancel: command to cancel the request
3	Staff send command to process request [Alternative 3]	<ul style="list-style-type: none"> - Product is enabled [Exception 2]

Alternative 3:

Step	Actor Action	System Response
1	Staff sends command to cancel request	- Nothing happens

Exceptions:

No	Exception	System Response
1		- Selected product cannot be Disabled - Show message to notify the error
2		- Selected product cannot be Enabled - Show message to notify the error

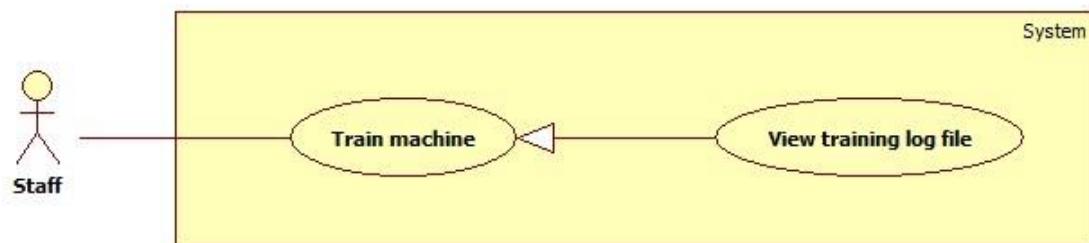
Relationships: N/A**Business Rules:**

- If disabled product is main product which is the product that has been saved in the system, the system will check for number of members in that duplicated product list for appropriate action:
 - + If there are only 2 members in that group and the first one is main product, the other one will be split
 - + If there are more than 2 members in that group, the second product will be chosen as main product. All of its information will be saved.

Table 20: <Staff> Enable/Disable laptop

2.3.2.4 <Staff> View Training Log File

Use Case Diagram

**Figure 11: <Staff> View Training Log File****Use Case Specification**

USE CASE - LRA007			
Use Case No.	LRA007	Use Case Version	1.0
Use Case Name	View Training Log File		
Author	Dinh Huu Toan		
Date	06/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff. 		
Summary:	<ul style="list-style-type: none"> - This use case allows staff to view training log file 		
Goal:	<ul style="list-style-type: none"> - Training log file appear with appropriate information 		

Triggers:

- Staff sends command to show log file

Preconditions:

- User has logged in with staff role.

Post Conditions:

- **Success:** Training log file appear with appropriate information

- **Fail:** N/A

Main Success Scenario:

Step	Actor Action	System Response
1	Staff clicks "Training Machine" sub menu. [Alternative 1]	<p>Show "Training Machine" page which includes:</p> <ul style="list-style-type: none"> - Total duplicated products: text - Disabled duplicated products: link to Disabled duplicated products page - Search: free text input, length 1 – 200 - "Show log file": submenu, link to Show log file page - Table contains duplicated products which are grouped base on matching percent of their names. Table includes: <ul style="list-style-type: none"> + Selected duplicated products: check 2 or more duplicated products, required + Product Name: text + Website: text + Main: select one from many options, required + Action: commands for staff to handle duplicated products, includes: <ul style="list-style-type: none"> ✓ Merge: command to merge selected products ✓ Split: command to split selected products ✓ Disable: command to disable selected products
3	Staff send command to show products log file	<ul style="list-style-type: none"> - Navigate to "Show Products Log File" with table includes: <ul style="list-style-type: none"> + Product index: text + Product Image: image + Product Name: text + Action Type: text + Updated Date: text [Alternative 1]

Alternative Scenario:

No	Actor Action	System Response
1	Staff send command to show log products file but there is no handled product	- Show message to notify that there is no product in log file

Exceptions: N/A

Relationships:

- Merge Laptop
- Split Laptop

Business Rules:

- Main products' names are appeared in bold
- If there is no product in log file, system will automatically go to Train Machine page after 5 seconds

Table 21: <Staff> View Training Log File

2.3.2.5 <Staff> Parse Specific Laptop Use Case Diagram

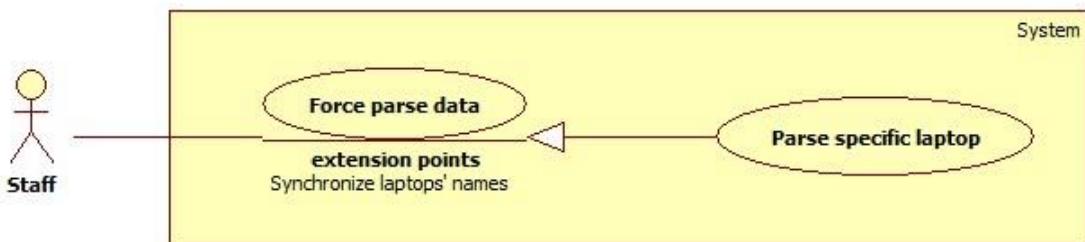


Figure 12: <Staff> Parse Specific Laptop

Use Case Specification

USE CASE - LRA008			
Use Case No.	LRA008	Use Case Version	1.0
Use Case Name	Parse Specific Laptop		
Author	Vo Thi Minh Chau		
Date	30/05/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff. 		
Summary:	<ul style="list-style-type: none"> - This use case allows staff to parse a specific laptop. 		
Goal:	<ul style="list-style-type: none"> - This laptop will be inserted or updated successfully. 		
Triggers:	<ul style="list-style-type: none"> - Staff sends command to parse a specific laptop. 		
Preconditions:	<ul style="list-style-type: none"> - User has logged in with staff role. 		

Post Conditions:

- **Success:** This laptop will be inserted or updated successfully. Show success message.
- **Fail:** Show error message.

Main Success Scenario:

Step	Actor Action	System Response
1	- Staff goes to "Run Parser" page.	<ul style="list-style-type: none"> - Show "Run Parser" page which includes 2 tabs: "Parse a specific product" tab (chosen default) and "Parse all product" tab. - The "Parse a specific product" tab contains: <ul style="list-style-type: none"> + "Url of the product": free text input, required. + "Parse Product": command.
2	- Staff inputs url of laptop which will be parsed to "Url of the product", then sends "Parse Product" command.	<ul style="list-style-type: none"> - If this product was not existed, the system will parse and insert new product. Otherwise, it will be updated. [Alternative 1] - Show success message.

Alternative Scenario:

Step	Actor Action	System Response
1	<ul style="list-style-type: none"> - Staff sends "Yes" command. 	<ul style="list-style-type: none"> - If this url does not belong to existed sites in the system, show message to ask whether the staff wants to create new site. - The system redirect to "Create New Site" Page (refer use case LRA).

Exceptions:

Step	Actor Action	System Response
1	- Error while parsing product.	<ul style="list-style-type: none"> - Show error message.

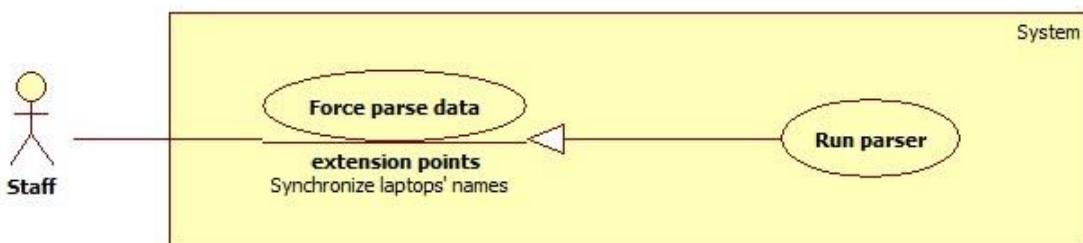
Relationships: N/A

Business Rules:

- With each existed product, only the new valid comments will be parsed.
 - + New comments are comments which be written after the last comment's date of this product.
 - + Valid comments are comments which are satisfied these following rules:
 - Have at least 5 words.
 - Do not include sensitive words.
 - Have >70% correct spelling words.
- If this product's is similar to another existed product, it will be saved to xml file.

Table 22: <Staff> Parse Specific Laptop

2.3.2.6 <Staff> Run Parser Use Case Diagram

**Figure 13: <Staff> Activate Parser****Use Case Specification**

USE CASE – LRA009			
Use Case No.	LRA009	Use Case Version	1.0
Use Case Name	Run Parser		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High
Actor:			
- Staff.			
Summary:			
- This use case allows staff to run parser.			
Goal:			
- The parser will be run.			
Triggers:			
- Staff sends command to run parser.			
Preconditions:			
- User has logged in with staff role.			
Post Conditions:			
- Success: Parser will be run. Show list of parsed products and success message.			
- Fail: Show error message.			

Main Success Scenario:

Step	Actor Action	System Response
1	- Staff goes to "Run Parser" page.	<ul style="list-style-type: none"> - Show "Run Parser" page which includes 2 tabs: "Parse a specific product" tab (chosen default) and "Parse all product" tab. - The "Parse a specific product" tab contains: <ul style="list-style-type: none"> + "Url of the product": free text input + "Parse Product": command
2	- Staff clicks "Parse all product". [Alternative 1]	<ul style="list-style-type: none"> - Show "Parse all product" tab with a "Run Parser" command.
3	- Staff sends "Run Parser" command. [Alternative 2, 3]	<ul style="list-style-type: none"> - Show a page that contains: <ul style="list-style-type: none"> + "Stop Parser": command + "Skip": command + Status of progress: progress bar with a text + A table with 3 columns: No, Product which is being parsed and Status - Get list of url which will be parsed from the existed sites. - Parse data [Exception 1]. - Analyze comments. - Insert data to system. - Generate log file.

Alternative Scenario:

[Alternative 1]

Step	Actor Action	System Response
1	- Staff inputs url of laptop which will be parsed to "Url of the product", then send "Parse Product" command.	<ul style="list-style-type: none"> - Refer use case LRA008.

[Alternative 2]

Step	Actor Action	System Response
1	- Staff sends "Skip" command.	<ul style="list-style-type: none"> - Skip all rest urls of this parsing site, then continue to parse data from next site.

[Alternative 3]

Step	Actor Action	System Response
1	- Staff sends "Stop Parser" command.	- Stop the parser and show message.

Exceptions:

Step	Actor Action	System Response
1	- Error while parsing data.	- Show error message.

Relationships: N/A

Business Rules:

- The system will parse all existed active sites.
- The system will parse the n-first products and all existed product of this site. (n is configured by staff before)
- With each existed product, only the new valid comments will be parsed (define of new valid comments: refer use case LRA008).
- If this product's is similar to another existed product, it will be saved to xml file.
- While parsing progress, the table will be updated with the being parsed url. If this url is parsed successfully, its status will be the "tick" icon. Otherwise, the "x" icon will be shown.
- The progress bar is specified for each site. When finishing parsing each site, the progress bar is reset.
- When staff sends "Skip" command, the progress bar will be reset.
- If the last site is skipped of the staff sends "Stop Parser" command, the progress bar is set to 100%.
- When the progress finishes, a notification with the number of duplicated product will be shown.

Table 23: <Staff> Run Parser

2.3.2.7 <Staff> View Parsing Log File Use Case Diagram

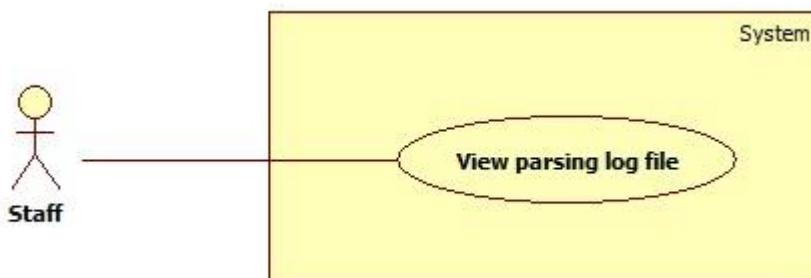


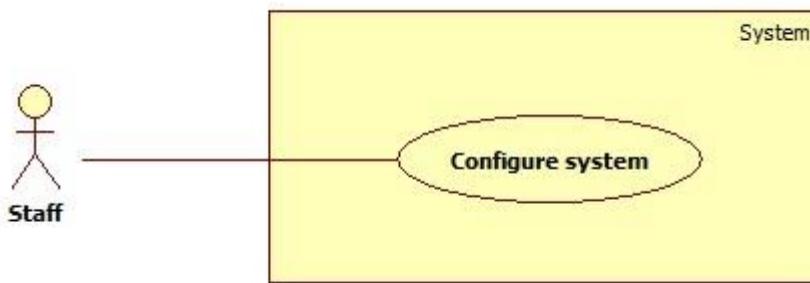
Figure 14: <Staff> View Parsing Log File

USE CASE - LRA010			
Use Case No.	LRA0010	Use Case Version	1.0
Use Case Name	View Parsing Log File		

Author	Vo Thi Minh Chau				
Date	02/06/2015	Priority	High		
Actor:					
- Staff.					
Summary:					
- This use case allows staff to view parsing log files.					
Goal:					
- Staff can view log files.					
Triggers:					
- Staff sends command to view log file.					
Preconditions:					
- User must log in the system with staff role.					
Post Conditions:					
- Success: Log file will be shown. - Fail: Log file cannot be shown.					
Main Success Scenario:					
Step	Actor Action	System Response			
1	- Staff goes to "Log File" page.	Show "Log File" page which contains: - A table with 4 columns: + No + Created Time + Action			
2	Staff sends "View" command.	This log file will be shown. [Exception 1]			
Alternative Scenario: N/A					
Exceptions:					
No	Actor Action	System Response			
1	Connection to database error.	Show error message.			
Relationships: N/A					
Business Rules:					
- List of all log file is sorted by created date descending.					

Table 24: <Staff> View Parsing Log File

2.3.2.8 <Staff> Configure System Use Case Diagram



**Figure 15: <Staff> Configure System
Use Case Specification**

USE CASE - LRA011									
Use Case No.	LRA0011	Use Case Version	1.0						
Use Case Name	Configure system								
Author	Vo Thi Minh Chau								
Date	02/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - Staff. 								
Summary:	<ul style="list-style-type: none"> - This use case allows staff to configure the system. 								
Goal:	<ul style="list-style-type: none"> - System parameters will be updated. 								
Triggers:	<ul style="list-style-type: none"> - Staff sends command to save the configuration. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: New parameter will be saved to configuration file. - Fail: Nothing is saved to configuration file. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td> <ul style="list-style-type: none"> - Staff goes to "System Configuration" page. </td><td> <ul style="list-style-type: none"> Show "System Configuration" page which contains: <ul style="list-style-type: none"> - "Daily reanalyzing time": time input, required. - "Daily parsing time": time input, required. - "Number of product": free text input, required, max length: 2 - "Limited day": free text input, required, max length: 2 - "Save": command </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	<ul style="list-style-type: none"> - Staff goes to "System Configuration" page. 	<ul style="list-style-type: none"> Show "System Configuration" page which contains: <ul style="list-style-type: none"> - "Daily reanalyzing time": time input, required. - "Daily parsing time": time input, required. - "Number of product": free text input, required, max length: 2 - "Limited day": free text input, required, max length: 2 - "Save": command
Step	Actor Action	System Response							
1	<ul style="list-style-type: none"> - Staff goes to "System Configuration" page. 	<ul style="list-style-type: none"> Show "System Configuration" page which contains: <ul style="list-style-type: none"> - "Daily reanalyzing time": time input, required. - "Daily parsing time": time input, required. - "Number of product": free text input, required, max length: 2 - "Limited day": free text input, required, max length: 2 - "Save": command 							

2	<ul style="list-style-type: none"> - Staff changes system parameters. - Staff sends "Save" command. 	<ul style="list-style-type: none"> - Save data to configuration file [Exception 1]. - Show success message.
---	---	---

Alternative Scenario: N/A

Exceptions:

No	Actor Action	System Response
1		<ul style="list-style-type: none"> - Cannot open configuration file. - Show error message.

Relationships: N/A

Business Rules:

- "Daily reanalyzing time" means the time the system reanalyses all comments automatically.
- "Daily parsing time" means the time the system runs parser automatically.
- "Number of product" means the number of product of each site which will be parsed automatically.
- "Number of product" and "Limited day" must be under 100.

Table 25: <Staff> Configure System

2.3.2.9 <Staff> Search Word Use Case Diagram

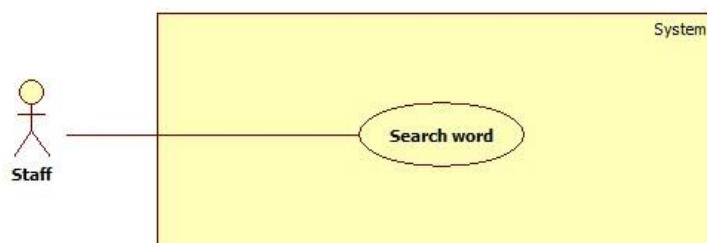


Figure 16: <Staff> Search Word

Use Case Specification

USE CASE - LRA012			
Use Case No.	LRA0012	Use Case Version	2.0
Use Case Name	Search Word		
Author	Dinh Huu Toan		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case helps staff to search for available word in dictionary 		
Goal:	<ul style="list-style-type: none"> - Show appropriate word to staff. 		
Triggers:	<ul style="list-style-type: none"> - Staff send command to search 		

Preconditions:

- User should login to the system under Staff role.

Post Conditions:

- **Success:** Show list of appropriate words
- **Fail:** N/A.

Main Success Scenario:

Step	Actor Action	System Response
1	Staff goes to dictionary management page	Show "Dictionary Management" page with following information: <ul style="list-style-type: none"> - Search, free text input, length 1 - 20 - Add new: command to add new word - Word: link to definition of word - Definition of first word of list of words: text - Edit word: command to show edit word form
2	Input search string into search free text input.	Show result with following information: <ul style="list-style-type: none"> - Edit command - List of appropriate results - Definition of selected word includes: <ul style="list-style-type: none"> + Word: text + Word type: text + Word class: text + Synonyms: text + Antonyms: text [Alternative 1]

Alternative Scenario:

No	Actor Action	System Response
1	System cannot find word match search string.	Show a message to notify no suitable word

Exceptions: N/A**Relationships:** N/A**Business Rules:**

- The list is sorted by alphabetical order.
- System will automatically show definition of first word in the list of word after searching
- System will automatically search for synonyms and antonyms of words in the first time those words are selected

Table 26: <Staff> Search Word

2.3.2.10 <Staff> Add Word Use Case Diagram

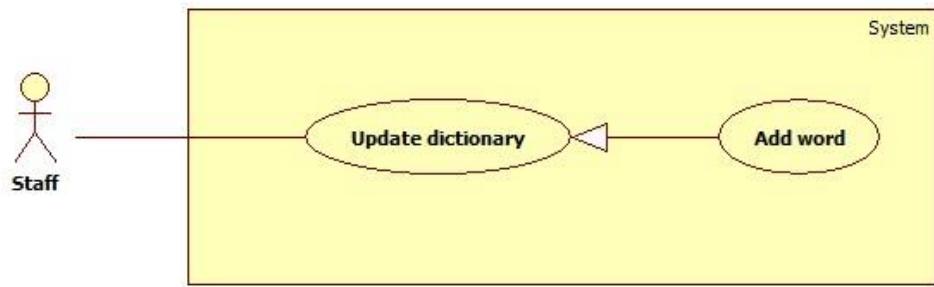


Figure 17: <Staff> Add word

Use Case Specification

USE CASE - LRA013			
Use Case No.	LRA0013	Use Case Version	2.0
Use Case Name	Add word		
Author	Dinh Huu Toan		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case help staff to add new word to dictionary 		
Goal:	<ul style="list-style-type: none"> - New word is added to dictionary 		
Triggers:	<ul style="list-style-type: none"> - Staff sends command to add new word 		
Preconditions:	<ul style="list-style-type: none"> - User should login to the system under Staff role. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: New word is added to dictionary. - Fail: Show an error message. 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	Staff goes to dictionary management page	Show "Dictionary Management" page with following information: <ul style="list-style-type: none"> - Search, free text input, length 1 - 20 - Add new: command to add new word - Word: link to definition of word - Definition of first word of list of words: text - Edit word: command to show edit word form 	
2	Staff send command to add new word	System show add new word information:	

		<ul style="list-style-type: none"> - Word: free text input, length 1 -20, required [Alternative 1,2] - Type: select one in 5 options: Pros/Cons/Neutral/Negative/Totally Pros - Class: select one in 5 option: Noun/Verb/Adverb/Adjective/Others - Synonyms: free text input - Antonyms: free text input - “Add New Word” command - “Reset” command
3	Staff fills in all fields and sends “Add New Word” command[Alternative 2]	New word is added to the dictionary. Show success message [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	Inputted word is already in dictionary	System will automatically change Add form to Edit form [Reference to Use case LRA014]
2	Staff does not input word	Show message to require staffs to input word
2	Staff send “Reset” command	All inputted fields are reset

Exceptions:

No	Actor Action	System Response
1		<ul style="list-style-type: none"> - New word cannot be added - Show message to notify error

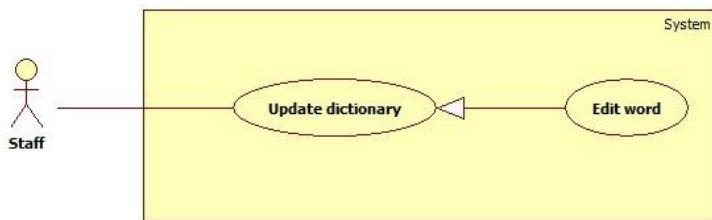
Relationships: Edit Word

Business Rules:

- After successfully add new word, system will show that word definition field for staff to check again.
- If staffs input word which is already in database, system will automatically go to edit form of that word
- When inputting antonyms or synonyms of word, system will show suggestion words. Each synonym/antonym is separated by “,”
- If staff does not input new word, system will disable add command
- Default option of Type is “Pros”, default option of Class is “Adjective”

Table 27: < Staff> Add Word

2.3.2.11 <Staff> Edit Word Use Case Diagram



**Figure 18: <Staff> Edit Word
Use Case Specification**

USE CASE - LRA014			
Use Case No.	LRA0014	Use Case Version	2.0
Use Case Name	Edit word		
Author	Dinh Huu Toan		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case help staff to edit word in dictionary. 		
Goal:	<ul style="list-style-type: none"> - Selected word is edited. 		
Triggers:	<ul style="list-style-type: none"> - Staff sends command to edit word 		
Preconditions:	<ul style="list-style-type: none"> - User should login to the system under Staff role. - That word should be available in the dictionary. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: Edited information will be saved. - Fail: Show an error message. 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	Staff goes to dictionary management page	<p>Show “Dictionary Management” page with following information:</p> <ul style="list-style-type: none"> - Search, free text input, length 1 -20 - Add new: command to add new word - Word: link to definition of word - Definition of first word of list of words: text - Edit word: command to show edit word form 	
2	Input search string into search free text input.	<p>Show result with following information:</p> <ul style="list-style-type: none"> - Edit command - List of appropriate results 	

		<ul style="list-style-type: none"> - Definition of selected word includes: <ul style="list-style-type: none"> + Word: text + Word type: text + Word class: text + Synonyms: text + Antonyms: text <p>[Alternative 1]</p>
3	Staff send command to edit word	<p>System show edit word information:</p> <ul style="list-style-type: none"> - Word: text - Type: select one in 5 options: Pros/Cons/Neutral/Negative/Totally Pros - Class: select on in 5 option: Noun/Verb/Adverb/Adjective/Others - Synonyms: free text input - Antonyms: free text input - "Save" command - "Reset" command
4	Staff sends command to save new information [Alternative 1]	<ul style="list-style-type: none"> - New information of word is saved

Alternative Scenario:

No	Actor Action	System Response
1	Staff send command to reset input fields	All inputted fields are cleared.

Exceptions:

No	Actor Action	System Response
1		<ul style="list-style-type: none"> - New information of word cannot be added - Show message to notify error

Relationships: Search Word

Business Rules:

- After successfully edit word, system will show that word definition field for staff to check again.
- System will show available synonyms and antonyms of selected words. Staff can add new or delete synonyms/antonyms

Table 28: <Staff> Edit Word

2.3.2.12 <Staff> Import Excel File

Use Case Diagram

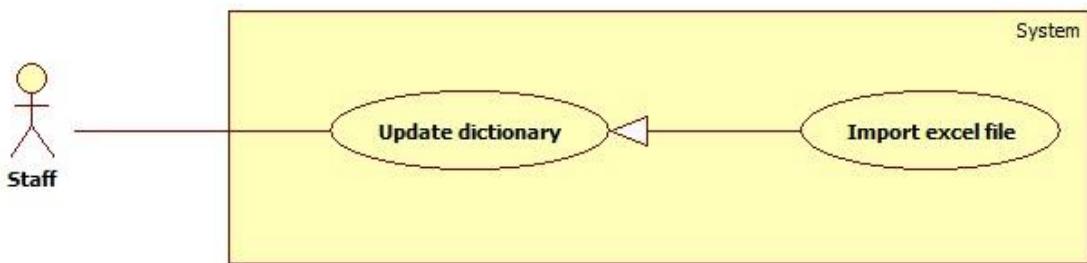


Figure 19: <Staff> Import Excel File

Use Case Specification

USE CASE - LRA0015												
Use Case No.	LRA0015	Use Case Version	1.0									
Use Case Name	Import Excel File											
Author	Nguyen Manh Khuong											
Date	30/05/2015	Priority	Normal									
Actor:	<ul style="list-style-type: none"> - Staff. 											
Summary:	<ul style="list-style-type: none"> - This use case allows staff to import new words into the system by using an excel file. 											
Goal:	<ul style="list-style-type: none"> - Add new words into the system data. 											
Triggers:	<ul style="list-style-type: none"> - Staff goes to “Manage Dictionary” page. - Staff click “Import Excel File” command. 											
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with Staff role. 											
Post Conditions:	<ul style="list-style-type: none"> - Success: New words will be inserted into the system data. - Fail: Show an error message. 											
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Staff goes to “Manage Dictionary” page and choose “Import Excel File” command.</td><td> Show “Import Excel File” page which contains: <ul style="list-style-type: none"> - “Select file”: command. - “Import”: command. </td></tr> <tr> <td>2</td><td>Choose “Choose file” command.</td><td>Show “Open” dialog box.</td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Staff goes to “Manage Dictionary” page and choose “Import Excel File” command.	Show “Import Excel File” page which contains: <ul style="list-style-type: none"> - “Select file”: command. - “Import”: command. 	2	Choose “Choose file” command.	Show “Open” dialog box.
Step	Actor Action	System Response										
1	Staff goes to “Manage Dictionary” page and choose “Import Excel File” command.	Show “Import Excel File” page which contains: <ul style="list-style-type: none"> - “Select file”: command. - “Import”: command. 										
2	Choose “Choose file” command.	Show “Open” dialog box.										

3	Select a file and choose “Open” command.	Show “Import Excel File” page which contains that filename next to “Choose file” command.
4	Send “Submit” command. [Alternative 1], [Alternative 2], [Alternative 3]	<p>Read excel file, filter and add words are contained in file to a list.</p> <p>Show list of new words in table with 3 columns:</p> <ul style="list-style-type: none"> - “Select”: allow to choose or not. - “Word”: free text input. - “Type”: a list of values for staff to choose, include: Pros, Cons, Neutral or Negative. - “Save to Database”: command.
5	Staff selects which word will be save to the system and sends “Save” command.	<p>Save selected word(s) to the system. Find synonyms and antonyms of each word.</p> <p>Show synonyms and antonyms in tables. Each table has 2 tabs, each tabs has 2 columns:</p> <ul style="list-style-type: none"> - “Select”: allow to choose or not. - “Word”: free text input. <p>[Exception 1]</p>
6	Staff selects which synonyms and antonyms will be save to the system and sends “Save” command.	<p>Save selected word(s) to the system. Find synonyms and antonyms of each word.</p> <p>[Exception 1]</p>

Alternative Scenario:

No	Actor Action	System Response
1	No file is chosen	Show message: “Please upload a file!”
2	Extension of the chosen file is not supported.	Show message: “Please upload an Excel file! (.xlsx or xls)”
3	Excel file is incorrect structure.	Show message: “Excel file is not valid format!”

Exceptions:

No	Actor Action	System Response
1	Connection to database error.	Show error message: “Cannot save to database! Please try again later.”

Relationships: Dictionary Management

Business Rules:

- Words already existed in database will be removed from list.
- Misspelled words will be indicated by red color in text input field.
- Correct spelling words will be unchangeable and checked “Selected” as default.
- File extension is Microsoft Office Excel (.xlsx or .xls)
- File must have at least 1 row data.
- File structure must be formatted as below:
- Valid file format example:

A	B	C	D
1	Import File Template		
2	No	Word	Type
3	1	amazing	Pros
4	2	appreciable	Pros
5	3	astoundingly	Pros
6	4	attractive	Pros
7	5	awful	Cons
8	6	bad	Cons
9	7	blurry	Cons

Figure 20: Valid Excel File

- Invalid file format example:

A	B	C	D
1	Import File Template		
2	No	Word	Type
3	1	amazing	Pros
4	2	appreciable	
5	3		Pros
6	4	attractive	Pros
7	5		
8	6	bad	Cons
9	7	blurry	Cons
10	8	broked	Cons
11	9	huge	Neutral

Figure 21: Invalid Excel File

Table 29: <Staff> Import Excel File

2.3.2.13 <Staff> Import Dictionary File

Use Case Diagram

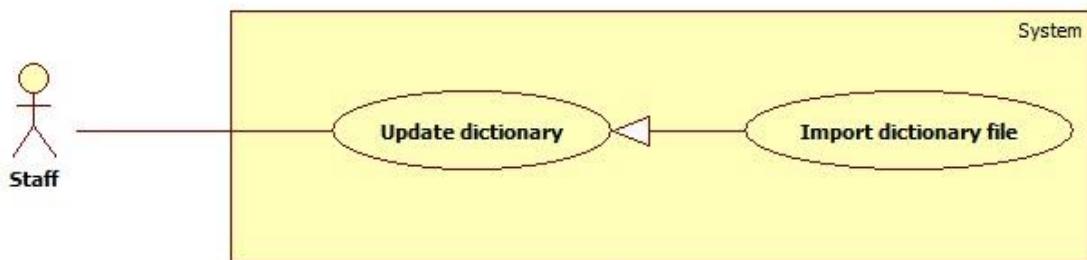


Figure 22: <Staff> Import Dictionary File

Use Case Specification

USE CASE - LRA0016									
Use Case No.	LRA0016	Use Case Version	1.0						
Use Case Name	Import Excel File								
Author	Nguyen Manh Khuong								
Date	30/05/2015	Priority	Normal						
Actor:	<ul style="list-style-type: none"> - Staff. 								
Summary:	<ul style="list-style-type: none"> - This use case allows staff to import new dictionary word(s) into the system by using a text file (*.txt). 								
Goal:	<ul style="list-style-type: none"> - Add new dictionary word(s) into the system data. 								
Triggers:	<ul style="list-style-type: none"> - Staff goes to "Manage Dictionary" page. - Staff click "Import Dictionary File" command. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with Staff role. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: New words will be inserted into the system data. - Fail: Show an error message. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Staff goes to "Manage Dictionary" page and choose "Import Dictionary File" command.</td><td> <p>Show "Import Dictionary File" page which contains:</p> <ul style="list-style-type: none"> - "Select file": command. - "Dictionary type" have 2 option : <ul style="list-style-type: none"> + "Lingoes Dictionary". + "Synonym and Antonym Dictionary". - "Import": command. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Staff goes to "Manage Dictionary" page and choose "Import Dictionary File" command.	<p>Show "Import Dictionary File" page which contains:</p> <ul style="list-style-type: none"> - "Select file": command. - "Dictionary type" have 2 option : <ul style="list-style-type: none"> + "Lingoes Dictionary". + "Synonym and Antonym Dictionary". - "Import": command.
Step	Actor Action	System Response							
1	Staff goes to "Manage Dictionary" page and choose "Import Dictionary File" command.	<p>Show "Import Dictionary File" page which contains:</p> <ul style="list-style-type: none"> - "Select file": command. - "Dictionary type" have 2 option : <ul style="list-style-type: none"> + "Lingoes Dictionary". + "Synonym and Antonym Dictionary". - "Import": command. 							

2	Choose "Choose file" command.	Show "Open" dialog box.
3	Staff select a file, select type of dictionary and choose "Import" command. [Alternative 1], [Alternative 2], [Alternative 3]	Show message number of word(s) is added to the system. [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	No file is chosen	Show message: "Please upload a file!"
2	Extension of the chosen file is not supported.	Show message: "Please upload a text file! (.txt)"
3	Text file is incorrect structure.	Show message: "Text file is not valid format!"

Exceptions:

No	Actor Action	System Response
1	Connection to database error.	Show error message: "Cannot save to database! Please try again later."

Relationships: Dictionary Management

Business Rules:

- Words already existed in database will be ignored.
- Misspelled words will be indicated by red color in text input field.
- Correct spelling words will be unchangeable and checked "Selected" value.
- File extension is text file(.txt)
- Valid Synonym and Antonym Dictionary file example:

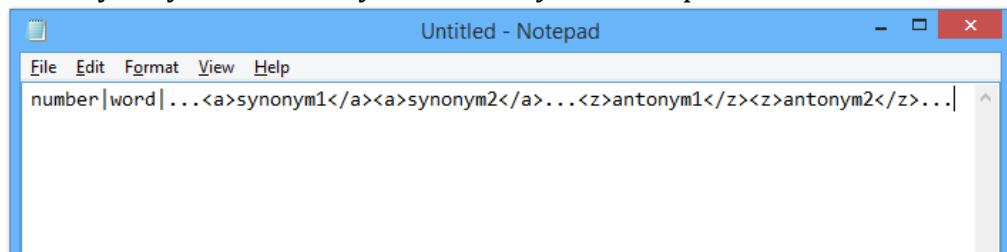


Figure 23: Valid Synonym and Antonym Dictionary file

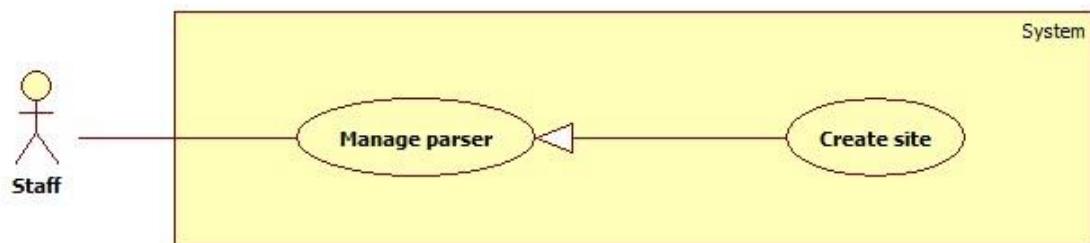
- Valid Lingoes Dictionary file example:

```
Untitled - Notepad
File Edit Format View Help
number|word|...<Q>word definition 1 ; word definition 2 ; ... </Q>
```

Figure 24: Valid Lingoes Dictionary file

Table 30: <Staff> Import Dictionary File

2.3.2.14 <Staff> Create Site Use Case Diagram



**Figure 25: <Staff> Create Site
Use Case Specification**

USE CASE - LRA017			
Use Case No.	LRA017	Use Case Version	1.0
Use Case Name	Create Site		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High
Actor:			
- Staff.			
Summary:			
- This use case allows staff to create new site for parser.			
Goal:			
- New site will be created.			
Triggers:			
- Staff sends command to create new site.			
Preconditions:			
- User has logged in with Staff role.			
Post Conditions:			
- Success: New site is added to the system. Show success message.			
- Fail: Show error message.			

Main Success Scenario:

Step	Actor Action	S stem Response
2	Staff goes to “Create New Site” page.	Show “Create New Site” page which includes: - “Url of site”: free text input. - “View”: command.
3	Staff inputs url and sends “View” command. [Alternative 1]	Show wizard to create a new site which includes: - Status bar with 6 steps – 1 st step is chosen. - “Xpath of Product’s Name”: free text input. - “Next”: command. - Staff’s selected page: “Preview” area
4	At steps 1: “Product’s name”, staff clicks the mouse at the area which include product’s name in “Preview” area. [Alternative 2]	“Xpath of Product’s name” will be filled with the xpath string, required.
5	Staff sends “Next” command.	Show wizard to create a new site which includes: - Status bar with 6 steps – 2 nd step is chosen. - “Xpath of Brand”: free text input. - “NA”: command. - “Next”: command. - “Previous”: command. - Staff’s selected page: “Preview” area
6	At steps 2: “Product’s brand”, staff clicks the mouse at the area which include product’s brand in “Preview” area. [Alternative 3, 4, 5]	“Xpath of Brand” will be filled with the xpath string.
7	Staff sends “Next” command.	Show wizard to create a new site which includes:

		<ul style="list-style-type: none"> - Status bar with 6 steps – 3rd step is chosen. - Xpath of Description: free text input. - “NA”: command - Next: command. - “Previous”: command. - Staff’s selected page: “Preview” area
8	At step 3: “Description”, staff clicks the mouse at the area which include image information in “Preview” area. [Alternative 6, 7, 8]	“Xpath of Description” will be filled with the xpath string, required.
9	Staff sends “Next” command.	Show wizard to create a new site which includes: <ul style="list-style-type: none"> - Status bar with 6 steps – 4th step is chosen. - “Xpath of Image”: free text input. - “NA”: command. - “Next”: command. - “Previous”: command - Staff’s selected page: “Preview” area
10	At step 4: “Image”, staff click the mouse at the area which includes product’s description in “Preview” area. [Alternative 9, 10, 11]	“Xpath of Image” will be filled with the xpath string.
11	Staff sends “Next” command.	Show wizard to create a new site which includes: <ul style="list-style-type: none"> - Status bar with 6 steps – 5th step is chosen. - Xpath of Commented Date: free text input. - Xpath of Date’s Format: free text input. - “Next”: command. - “Previous”: command. - Staff’s selected page: “Preview” area
12	At step 5: “Commented date”, staff click the mouse at the area which include	

	commented date in “Preview” area. [Alternative 12, 13]	“Xpath of Commented Date” will be filled with the xpath string, required.
13	Staff sends “Next” command.	<p>Show wizard to create a new site which includes:</p> <ul style="list-style-type: none"> - Status bar with 6 steps – last step is chosen. - “Xpath of Comment’s Content”: free text input. - “Next”: command. - “Previous”: command. - Staff’s selected page: “Preview” area [Alternative 4]
14	At step 6: “Comment’s content”, staff click the mouse at the area which include comment’s content in “Preview” area. [Alternative 14, 15]	“Xpath of Comment’s Content” will be filled with the xpath string, required.
15	Staff sends “Finish” command.	<p>Get data from the inputted url based on the chosen XPaths.</p> <p>System shows:</p> <ul style="list-style-type: none"> - Title “Preview Product’s Information”. - The name, brand, description, image, the commented date and content of the first comment of this products. - “Create New Site”: command. - “Close”: command.
16	Staff sends “Create New Site” command. [Alternative 16]	Save this site and show message. [Exception 1].

Alternative Scenario:

No	Actor Action	System Response
1	“Url of product” is blank and staff sends “View” command.	Show message error: “Please input url of product which will be parsed”.

2	"Xpath of product's name" is blank and staff sends "Next" command.	Show message error: "Please select name of product which will be parsed".
3	"Xpath of brand" is blank and staff sends "Next" command.	Show message error: "Please select brand of product which will be parsed".
4	Staff sends "NA" command.	Fill "NA" to "Xpath of description" free text input.
5	Staff sends "Previous" command	Show the 1 st step with the content of "Xpath of product's name" filled.
6	"Xpath of description" is blank and staff sends "Next" command.	Show message error: "Please select description of product which will be parsed".
7	Staff sends "NA" command.	Fill "NA" to "Xpath of description" free text input.
8	Staff sends "Previous" command.	Show the 2 nd step with the content of "Xpath of brand" filled.
9	"Xpath of image" is blank and staff sends "Next" command.	Show message error: "Please select image of product which will be parsed".
10	Staff sends "NA" command.	Fill "NA" to "Xpath of image" free text input.
11	Staff sends "Previous" command.	Show the 3 rd step with the content of "Xpath of description" filled.
12	"Xpath of commented date" is blank and staff sends "Next" command.	Show message error: "Please select commented date which will be parsed".
13	Staff sends "Previous" command.	Show the 4 th step with the content of "Xpath of image" filled.

14	"Xpath of comment's content" is blank and staff sends "Finish" command.	Show message error: "Please select comment's content which will be parsed".
15	Staff sends "Previous" command.	Show the 5 th step with the content of "Xpath of commented date" filled.
16	Staff sends "Close" command.	Show the last step with the content of "Xpath of image" filled.

Exceptions:

No	Actor Action	System Response
1	- Fail to update to database.	- Display error message "Cannot connect to the database. Please try again!"

Relationships: N/A

Business Rules:

- The data display structure of that page should be for a specified product.
- When staff sends "Finish" command after finishing all steps, the system will parse data from the selected url and get name, brand, description, image, the commented date and content of the first comment to show.
- At the 5th step, if the inputted format is wrong or the format is blank, the system will find the correct date's format automatically.

Table 31: <Staff> Process error product

2.3.2.15 <Staff> Update Site Use Case Diagram

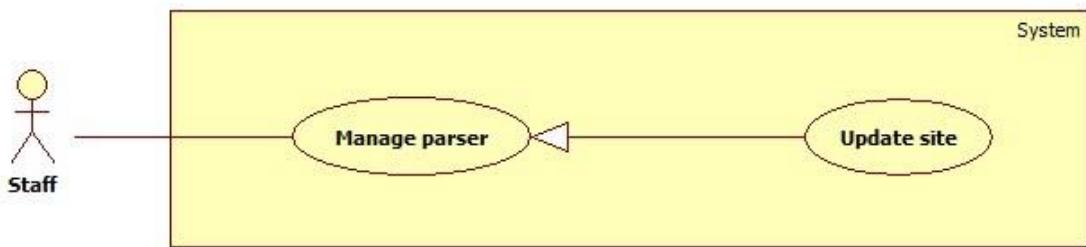


Figure 26: <Staff> Update Site

Use Case Specification

USE CASE - LRA0018												
Use Case No.	LRA0018	Use Case Version	1.0									
Use Case Name	Update Site											
Author	Vo Thi Minh Chau											
Date	02/06/2015	Priority	High									
Actor:	<ul style="list-style-type: none"> - Staff 											
Summary:	<ul style="list-style-type: none"> - This use case allows staff to update site in parser. 											
Goal:	<ul style="list-style-type: none"> - Site will be updated. 											
Triggers:	<ul style="list-style-type: none"> - Staff sends command to update this site. 											
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 											
Post Conditions:	<p>Success: Site will be updated.</p> <ul style="list-style-type: none"> - Fail: Site cannot be updated. 											
Main Success Scenario:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Step</th> <th style="background-color: #cccccc;">Actor Action</th> <th style="background-color: #cccccc;">System Response</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">1</td><td> <ul style="list-style-type: none"> - Staff goes to "Site Management" page. </td><td> <ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit") </td></tr> <tr> <td style="vertical-align: top;">2</td><td> <ul style="list-style-type: none"> - Staff sends "Edit" command [Alternative 1] </td><td> <ul style="list-style-type: none"> - Show detail of this site which contains: <ul style="list-style-type: none"> + "Domain": text + "Name's Xpath": free text input, required + "Brand's Xpath": free text input + "Description's Xpath": free text input + "Image's Xpath": free text input + "Date's Xpath": free text input, required + "Date's Format": free text input + "Content's Xpath": free text input, required </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	<ul style="list-style-type: none"> - Staff goes to "Site Management" page. 	<ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit") 	2	<ul style="list-style-type: none"> - Staff sends "Edit" command [Alternative 1] 	<ul style="list-style-type: none"> - Show detail of this site which contains: <ul style="list-style-type: none"> + "Domain": text + "Name's Xpath": free text input, required + "Brand's Xpath": free text input + "Description's Xpath": free text input + "Image's Xpath": free text input + "Date's Xpath": free text input, required + "Date's Format": free text input + "Content's Xpath": free text input, required
Step	Actor Action	System Response										
1	<ul style="list-style-type: none"> - Staff goes to "Site Management" page. 	<ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit") 										
2	<ul style="list-style-type: none"> - Staff sends "Edit" command [Alternative 1] 	<ul style="list-style-type: none"> - Show detail of this site which contains: <ul style="list-style-type: none"> + "Domain": text + "Name's Xpath": free text input, required + "Brand's Xpath": free text input + "Description's Xpath": free text input + "Image's Xpath": free text input + "Date's Xpath": free text input, required + "Date's Format": free text input + "Content's Xpath": free text input, required 										

		+ “Go to the parser wizard to edit this site”: hyperlink + “Save”: command + “Cancel”: command
3	- Staff inputs site's detail. - Staff sends “Save” command [Alternative 1] [Alternative 2].	- Update site's detail [Exception 1].

Alternative Scenario:

[Alternative1]

Step	Actor Action	System Response
1	- Staff clicks hyperlink.	- Redirect to “Create New Site” page (refer user case LRA017).

[Alternative 2]

Step	Actor Action	System Response
1	- Staff sends “Cancel” command.	- Return the “Site Management” page.

Exceptions:

Step	Actor Action	System Response
1	- Fail to update to database.	- Display error message “Cannot connect to the database. Please try again!”

Relationships: N/A

Business Rules:

- When the site's detail is shown, all detail will be loaded in suitable free text input.
- When redirecting to “Create New Site” page, the first product's url which belongs to this site will be loaded to “Url of this site” free text input.

Table 32: <Staff> Update Site

2.3.2.16 <Staff> Activate/Deactivate Site Use Case Diagram

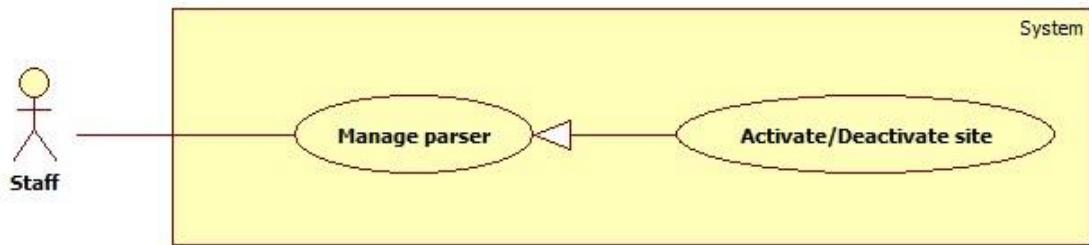


Figure 27: <Staff> Activate/Deactivate Site

Use Case Specification

USE CASE - LRA0019									
Use Case No.	LRA0019	Use Case Version	1.0						
Use Case Name	Activate/Deactivate Site								
Author	Vo Thi Minh Chau								
Date	02/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - Staff 								
Summary:	<ul style="list-style-type: none"> - This use case allows staff to activate/deactivate site in parser. 								
Goal:	<ul style="list-style-type: none"> - Site will be activated/deactivated. 								
Triggers:	<ul style="list-style-type: none"> - Staff sends command to activate/deactivate site. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 								
Post Conditions:	<p>Success: Site will be activated/deactivated.</p> <ul style="list-style-type: none"> - Fail: Status of site cannot be updated. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td> <ul style="list-style-type: none"> - Staff goes to "Site Management" page. </td><td> <ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit") </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	<ul style="list-style-type: none"> - Staff goes to "Site Management" page. 	<ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit")
Step	Actor Action	System Response							
1	<ul style="list-style-type: none"> - Staff goes to "Site Management" page. 	<ul style="list-style-type: none"> - Show "Site Management" page which contains: <ul style="list-style-type: none"> + A table with 3 columns: <ul style="list-style-type: none"> o No o Domain o Action (with 2 commands: "Activate/Deactivate" and "Edit") 							

2	<p>- Staff sends “Activate/Deactivate” command [Alternative 1]</p>	<p>- Activate/Deactivate this site [Exception 1].</p>
---	--	---

Alternative Scenario:

[Alternative1]

Step	Actor Action	System Response
1	<p>- Staff sends “Edit” command.</p>	<p>- Show detail of this site (refer user case LRA018).</p>

Exceptions:

Step	Actor Action	System Response
1	<p>- Fail to update to database.</p>	<p>- Display error message “Cannot connect to the database. Please try again!”</p>

Relationships: N/A

Business Rules:

- When deactivating a site, this site will not be parsed data in the next parser running times.

Table 33: <Staff> Activate/Deactivate Site

**2.3.2.17 <Staff> Parse Recommended Laptop
Use Case Diagram**

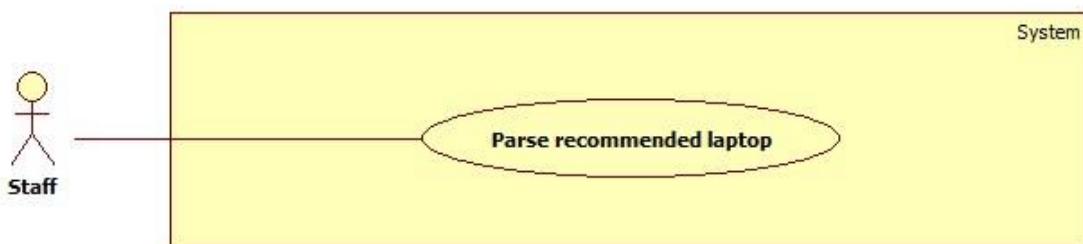


Figure 28: <Staff> Parse Recommended Laptop

Use Case Specification

USE CASE - LRA020			
Use Case No.	LRA020	Use Case Version	1.0
Use Case Name	Parse recommended laptop		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High

Actor:

- Staff

Summary:

- This use case allows staff to parse recommended laptop.

Goal:

- Recommended laptop will be parsed.

Triggers:

- Staff sends command to parse product.

Preconditions:

- User must log in the system with staff role.

Post Conditions:

- **Success:** Recommended laptop will be parsed.
- **Fail:** Recommended laptop cannot be parsed.

Main Success Scenario:

Step	Actor Action	System Response
1	- Staff goes to "Recommended Product" page.	<ul style="list-style-type: none"> - Show "Recommended Product" page which contains: <ul style="list-style-type: none"> + A table with 4 columns: <ul style="list-style-type: none"> o No o Product's Name o Sent Date o Status
2	- Staff clicks a product's name.	<ul style="list-style-type: none"> - Show detail of this comment which includes: <ul style="list-style-type: none"> + "Product's Name": text + "Guest's Email": text + "Sent Time": text + "Status": text + "Url which will be parse": free text input + "Parse Product": command + "OK": command <p>[Alternative 1]</p>
3	- Staff inputs url of this product then sends "Parse product" command.	<ul style="list-style-type: none"> - Parse this product and send notification mail to guest [Alternative 2] [Exception 1, 2].

Alternative Scenario:

[Alternative 1]

Step	Actor Action	System Response
1		<p>If status of this product is "Sent":</p> <ul style="list-style-type: none"> - Show detail of this comment which includes:

		+ “Product’s Name”: text + “Guest’s Email”: text + “Sent Time”: text + “Status”: text + “OK”: command
2	- Staff sends “OK” command.	- Return the “Recommended Product” page.

[Alternative 2]

Step	Actor Action	System Response
1		- If this url does not belong to any existed site, redirect to “Create New Site” page (refer use case LRA017). - After creating new site, parse this product and sent notification mail to guest [Exception 1, 2]

Exceptions:

No	Actor Action	System Response
1	- Fail to update to database.	- Display error message “Cannot connect to the database. Please try again!”
2	- Notification mail cannot be sent.	- Set the status “Added”.

Relationships: N/A

Business Rules:

- List of all recommended product is sorted by sent date descending and only the products which are in limited time are shown.
- The row of product which has not been seen is bold. After viewing detail of this, the row becomes normal style.
- Each recommended product has 4 types of status:
 - o Pending: if this cannot be found automatically and is waiting for handling.
 - o Added: if this was be added to system but cannot be sent email to guests.
 - o Sent: if this was be added to system and be sent email to guests successfully.
 - o Cancel: if this is out of date for handling.

Table 34: <Staff> Parse Recommended Product

2.3.2.18 <Staff> Edit Description

Use case diagram

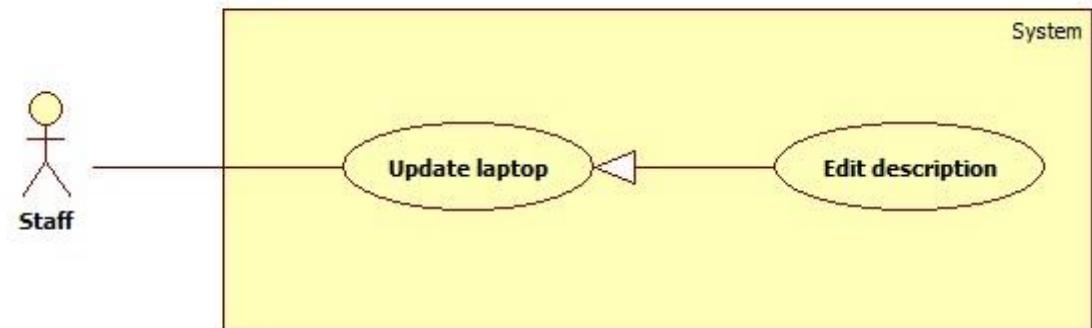


Figure 29: <Staff> Edit Description

Use case Specification

USE CASE - LRA021									
Use Case No.	LRA021	Use Case Version	1.0						
Use Case Name	Edit Description								
Author	Dinh Huu Toan								
Date	05/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - Staff 								
Summary:	<ul style="list-style-type: none"> - This use case allows staffs to edit description of a laptop 								
Goal:	<ul style="list-style-type: none"> - New description of selected laptop is updated 								
Triggers:	<ul style="list-style-type: none"> - Staffs go to Product Detail page and send "Edit" command in that page. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. - Edited product must be available 								
Post Conditions:	<ul style="list-style-type: none"> - Success: : New description of laptop is saved and load on Product Detail page - Fail: Cannot save description to database. Show error message 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>From staff page, staffs send "Product Management" command and then send "All products" command</td><td> <p>Show a table contains all products with following information:</p> <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: a link to product detail page - Updated Time: text </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	From staff page, staffs send "Product Management" command and then send "All products" command	<p>Show a table contains all products with following information:</p> <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: a link to product detail page - Updated Time: text
Step	Actor Action	System Response							
1	From staff page, staffs send "Product Management" command and then send "All products" command	<p>Show a table contains all products with following information:</p> <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: a link to product detail page - Updated Time: text 							

2	Staffs send “Product Detail” command of a product	Show a Product Detail page with following information: <ul style="list-style-type: none"> - Images of product: Image [Alternative 2] - Description of product: text - Comments of product: text - Deactivate/Activate Product command - Edit Description command - Deactivate/Activate comments command
3	Staffs send “Edit Description” command	A form appears with following information: <ul style="list-style-type: none"> - Type: free text input - Screen size: free text input - Screen resolution: free text input - Bundled OS: dropdown list, 4 options: Windows, Mac, Linux, Other - Processor Speed: free text input - System Ram: number format input - Maximum battery life: free text input - Weight: number format input only - Released: Date time input - Save command - Cancel command
4	Staffs input all information and send “Save” command [Alternative 1]	New description is saved. Load new description to page [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	Staff send “Cancel” command	Nothing happens
2		If that product does not have any image, show: <ul style="list-style-type: none"> - Upload Images command - Select images command

Exceptions:

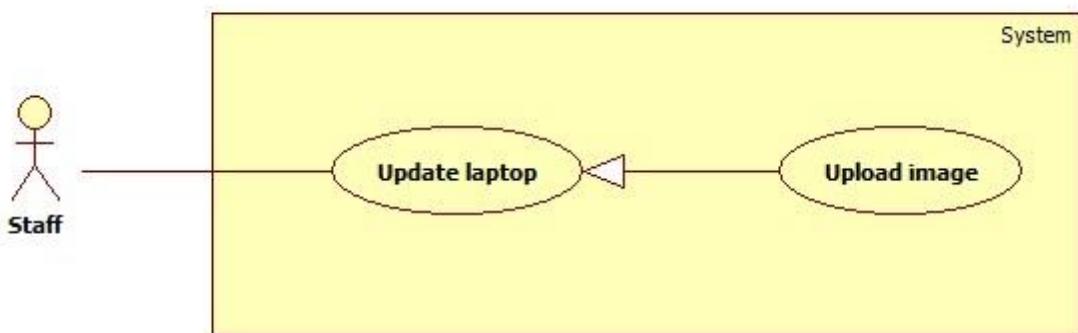
NO	Exception	System Response
1		<ul style="list-style-type: none"> - Cannot save new description - Show message to notify error

Relationships: N/A**Business Rules:**

- Staff can only input number to RAM and Weight.

Table 35: <Staff> Edit Description

2.3.2.19 <Staff> Upload Image Use case Diagram

**Figure 30: <Staff> Upload Image
Use case Specification****USE CASE – LRA022**

Use Case No.	LRA022	Use Case Version	1.0
Use Case Name	Upload image		
Author	Dinh Huu Toan		
Date	05/06/2015	Priority	High

Actor:

- Staff

Summary:

- This use case allows staff to upload images.

Goal:

- Uploaded images are saved and loaded to Product Detail page.

Triggers:

- Staffs access “Product Detail” page, choose images and send “Submit” command.

Preconditions:

- User must log in the system with staff role.
- Staff can only upload images to products that don’t have images.

Post Conditions:

- **Success:** Images are uploaded and showed on Product Detail page.
- **Fail:** Cannot save images. Show error messages

Main Success Scenario:

Step	Actor Action	System Response
1	From staff page, staffs send “Product Management” command and then send “No Image” command	Show a table contains all no-image-products with following information: <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: link to product detail page - Updated Time: text
2	Staffs send “Product Detail” command of a product	Show a Product Detail page with following information: <ul style="list-style-type: none"> - Select images command - Upload image command - Description of product: text - Comments of product: text - Deactivate/Activate Product command - Deactivate/Activate comment command - Edit Description command
3	Staffs send “Select images” command	Show a form for staff to select images from their computer
4	Staffs choose some images	Selected images are loaded on page for reviewing Show “Submit” command
5	Staff send “Submit” command	Images are saved and loaded to page

Alternative Scenario: N/A

Exceptions:

No	Exceptions	System Response
1		<ul style="list-style-type: none"> - Images cannot be saved - Show message to notify error

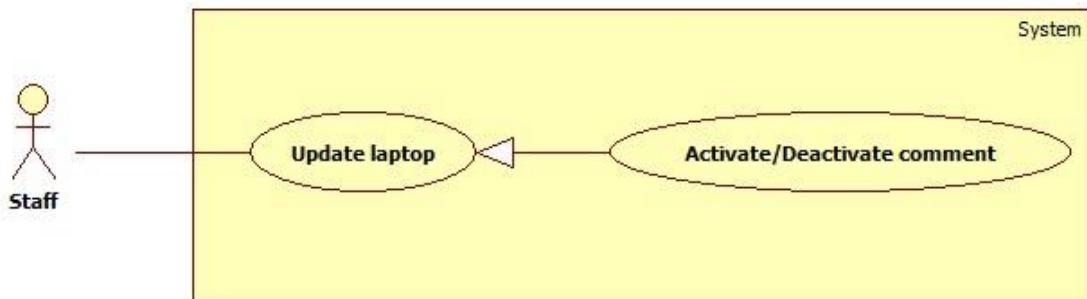
Relationships: N/A

Business Rules:

- Only no-image products can be uploaded images to reduce the chance that staff will upload non-relevant images to products that already have images
- Staff can upload image format file only

Table 36: <Staff> Upload Image

2.3.2.20 <Staff> Activate/Deactivate Comment Use case Diagram



**Figure 31: <Staff> Activate/Deactivate comment
Use case Specification**

USE CASE - LRA023			
Use Case No.	LRA023	Use Case Version	1.0
Use Case Name	Activate/Deactivate comment		
Author	Dinh Huu Toan		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case allows staff to Activate/Deactivate comment 		
Goal:	<ul style="list-style-type: none"> - Selected comment is activated/deactivate 		
Triggers:	<ul style="list-style-type: none"> - Staff sends activate/deactivate comment command in Product Detail page 		
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: selected comment is activated/deactivated - Fail: selected comment cannot be activated/deactivated. Show error message 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	From staff page, staffs send "Product Management" command and then send "All Products" command	Show a table contains all products with following information: <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: link to product detail page - Updated Time: text 	
2	Staffs send "Product Detail" command of a product		

		Show a Product Detail page with following information: <ul style="list-style-type: none"> - Images of product: Image [Alternative 1] - Description of product: text - Comments of product: text - Deactivate/Activate Product command - Edit Description command - Deactivate/Activate comments command
3	Staffs sends “Deactivate comment” command [Alternative 2]	Comment is deactivated [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1		If that product does not have any image, show: <ul style="list-style-type: none"> - Upload Images command - Select images command
2	Staff sends “Activate comment” command	Comment is activated [Exception 1]

Exceptions:

No	Exception	System Response
1		<ul style="list-style-type: none"> - Comment cannot be activated/deactivated - Show message to notify error

Relationships: N/A

Business Rules:

- After being deactivated, the command next to deactivated comment will be “Activated”.
- After being activated, the command next to activated comment will be “Deactivated”.

Table 37: <Staff> Activate/Deactivate Comment

**2.3.2.21 <Staff> Edit Comment
Use Case Diagram**

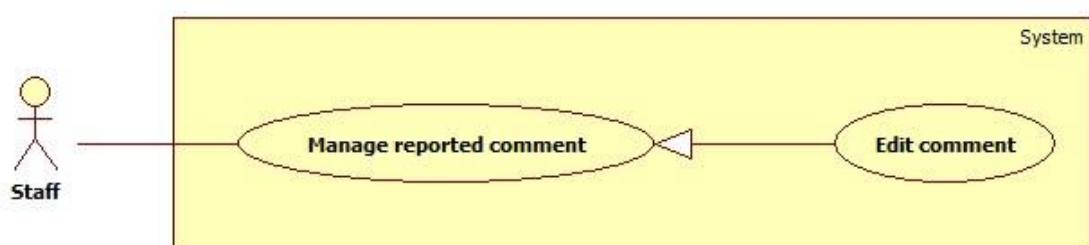


Figure 32: <Staff> Edit Comment

Use Case Specification

USE CASE - LRA0024			
Use Case No.	LRA0024	Use Case Version	1.0
Use Case Name	Edit comment		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case allows staff to edit reported comment. 		
Goal:	<ul style="list-style-type: none"> - Comment will be updated. 		
Triggers:	<ul style="list-style-type: none"> - Staff sends command to edit comment. 		
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: Comment will be updated successfully. - Fail: Comment cannot be update. 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	<ul style="list-style-type: none"> - Staff goes to "Product Management" page. 	<ul style="list-style-type: none"> - Show the "Product Management" page which includes 4 tabs: <ul style="list-style-type: none"> + All products + No image + No description + Reported comments (chosen default) - The "Parse a specific product" tab contains: <ul style="list-style-type: none"> + A table with 4 columns: <ul style="list-style-type: none"> o No o Comment o Date o Action (with 3 commands: "Edit", "Deny" and "Deactivate") 	
2	<ul style="list-style-type: none"> - Staff sends "Edit" command. 	<ul style="list-style-type: none"> - Show detail of this comment which includes: <ul style="list-style-type: none"> + "Content": free text input + "Type": a list of value, includes: Positive, Neutral, Negative and Undefined. 	

		<ul style="list-style-type: none"> + A hyperlink to this product's detail page. + "Save": command + "Cancel": command
3	<ul style="list-style-type: none"> - Staff edits this comment. - Staff sends "Save" command. <p>[Alternative 1]</p>	<ul style="list-style-type: none"> - Save new detail of this comment [Exception 1].

Alternative Scenario:

[Alternative 1]

Step	Actor Action	System Response
1	<ul style="list-style-type: none"> - Staff sends "Cancel" command. 	<ul style="list-style-type: none"> - Return the "Product Management" page.

Exceptions:

Step	Actor Action	System Response
1	<ul style="list-style-type: none"> - Fail to update to database. 	<ul style="list-style-type: none"> - Display error message "Cannot connect to the database. Please try again!"

Relationships: N/A

Business Rules:

- When the comment's detail is shown, the current type of this comment will be loaded at "Type".
- After editing comment, this comment will be removed from list of reported comment and the table will be reloaded.

Table 38: <Staff> Edit Comment

2.3.2.22 <Staff> Deactivate Comment Use Case Diagram

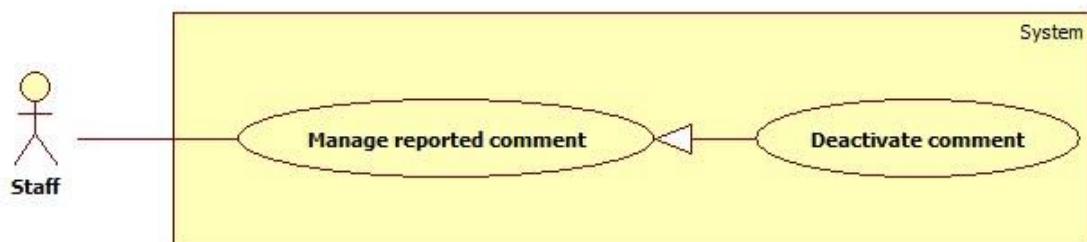


Figure 33: <Staff> Deactivate Comment

Use Case Specification

USE CASE - LRA0025			
Use Case No.	LRA0025	Use Case Version	1.0
Use Case Name	Deactivate comment		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High

Actor:

- Staff

Summary:

- This use case allows staff to deactivate comment.

Goal:

- Comment will be deactivated.

Triggers:

- Staff sends command to deactivate this comment.

Preconditions:

- User must log in the system with staff role.

Post Conditions:

- **Success:** Comment will be updated successfully.
- **Fail:** Comment cannot be updated.

Main Success Scenario:

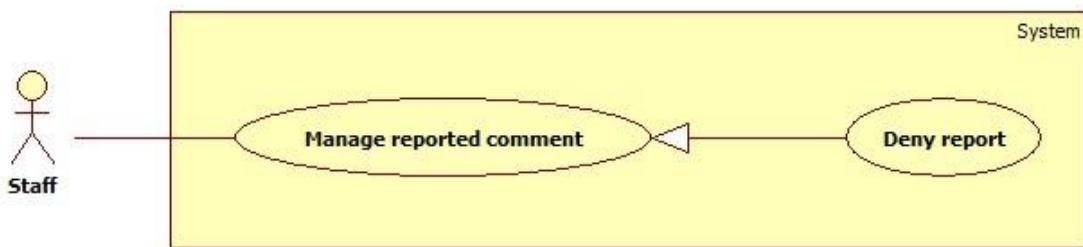
Step	Actor Action	System Response
1	- Staff goes to "Product Management" page.	<ul style="list-style-type: none"> - Show the "Product Management" page which includes 4 tabs: <ul style="list-style-type: none"> + All products + No image + No description + Reported comments (chosen default) - The "Parse a specific product" tab contains: <ul style="list-style-type: none"> + A table with 4 columns: <ul style="list-style-type: none"> o No o Comment o Date o Action (with 3 commands: "Edit", "Deny" and "Deactivate")
2	- Staff sends "Deactivate" command.	<ul style="list-style-type: none"> - Deactivate this comment [Exception 1].

Alternative Scenario: N/A

Exceptions:		
Step	Actor Action	System Response
1	- Fail to update to database.	- Display error message "Cannot connect to the database. Please try again!"
Relationships: N/A		
Business Rules:		
<ul style="list-style-type: none"> - After deactivating comment, this comment will be removed from list of reported comment and the table will be reloaded. - When the comment is deactivated, it will not be shown in product's detail page. 		

Table 39: <Staff> Deactivate Comment

2.3.2.23 <Staff> Deny Report Use Case Diagram



**Figure 34: <Staff> Deny Report
Use Case Specification**

USE CASE - LRA0026			
Use Case No.	LRA0026	Use Case Version	1.0
Use Case Name	Deny report		
Author	Vo Thi Minh Chau		
Date	02/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case allows staff to deny report. 		
Goal:	<ul style="list-style-type: none"> - This report will be denied. 		
Triggers:	<ul style="list-style-type: none"> - Staff sends command to deny this comment. 		
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: This report will be updated successfully. - Fail: Comment cannot be updated. 		

Main Success Scenario:

Step	Actor Action	System Response
1	- Staff goes to "Product Management" page.	<ul style="list-style-type: none"> - Show the "Product Management" page which includes 4 tabs: <ul style="list-style-type: none"> + All products + No image + No description + Reported comments (chosen default) - The "Parse a specific product" tab contains: <ul style="list-style-type: none"> + A table with 4 columns: <ul style="list-style-type: none"> o No o Comment o Date o Action (with 3 commands: "Edit", "Deny" and "Deactivate")
2	- Staff sends "Deny" command.	<ul style="list-style-type: none"> - Deactivate this comment [Exception 1].

Alternative Scenario: N/A

Exceptions:

Step	Actor Action	System Response
1	- Fail to update to database.	<ul style="list-style-type: none"> - Display error message "Cannot connect to the database. Please try again!"

Relationships: N/A

Business Rules:

- After denying comment, this comment will be removed from list of reported comment and the table will be reloaded.

Table 40: <Staff> Deny Report

2.3.2.24 <Staff> Reanalyse Comment

Use case diagram

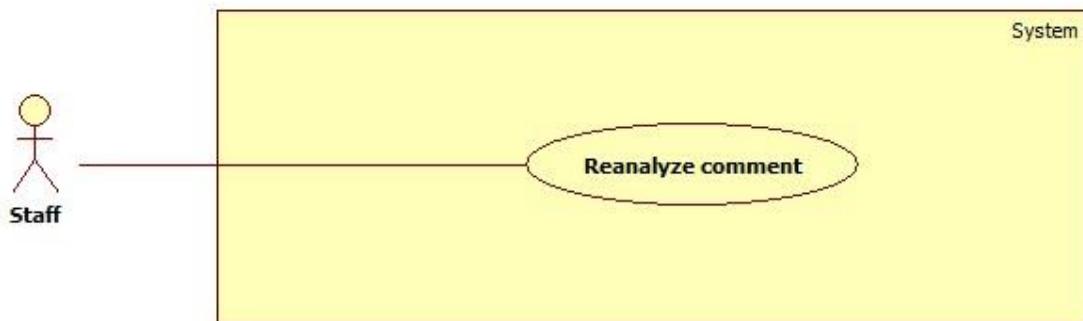


Figure 35: <Staff> Reanalyse Comment

Use case Specification

USE CASE - LRA027			
Use Case No.	LRA0027	Use Case Version	1.0
Use Case Name	Reanalyse Comment		
Author	Dinh Huu Toan		
Date	23/05/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case allows staffs to reanalyse comment 		
Goal:	<ul style="list-style-type: none"> - Comments are reanalysed. 		
Triggers:	<ul style="list-style-type: none"> - Staffs send “Reanalyse” command 		
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with staff role. 		
Post Conditions:	<ul style="list-style-type: none"> - Success: Comments are reanalysed successfully. - Fail: Show error message and require staff try one more time. 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	Staffs send “Dictionary” command	<ul style="list-style-type: none"> Show “Dictionary Management” command Show “Import Excel File” command Show “Import Dictionary File” command Show “Reanalyse” command 	
2	Staffs send “Reanalyse” command	<ul style="list-style-type: none"> - Show a sign indicates that system is reanalysing comments. 	

		<ul style="list-style-type: none"> - After successfully re-analysing comments, show message to indicate the success [Exception 1]
--	--	--

Alternative Scenario:N/A

Exceptions:

No	Exception	System Response
1		<ul style="list-style-type: none"> - Comments cannot be reanalysed - Show message to notify error

Relationships: N/A.

Business Rules:

- Analysing comments takes much time, system will show an animation to indicate that the command is processing.

Table 41: <Staff> Reanalyse Comment

2.3.2.25 <Staff> Add sensitive Word Use Case Diagram

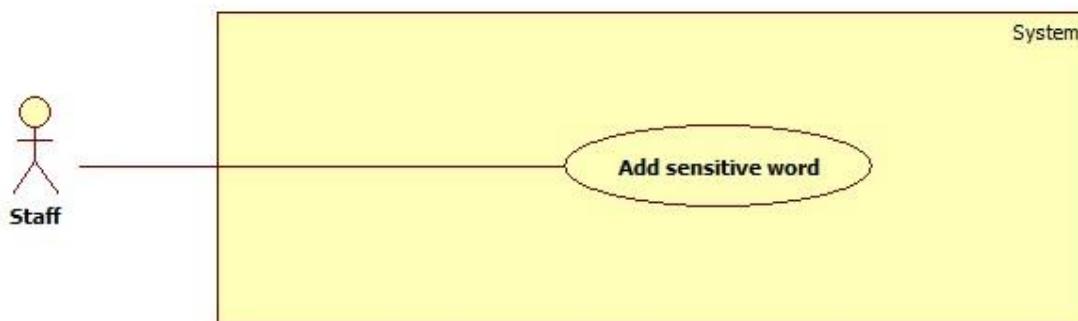


Figure 36: <Staff> Add sensitive Word

Use Case Specification

USE CASE - LRA028			
Use Case No.	LRA0028	Use Case Version	1.0
Use Case Name	Add sensitive word		
Author	Dinh Huu Toan		
Date	23/05/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Staff 		
Summary:	<ul style="list-style-type: none"> - This use case allows staffs to add sensitive word 		
Goal:	<ul style="list-style-type: none"> - Sensitive word is added. 		
Triggers:	<ul style="list-style-type: none"> - Staffs select sensitive word and send "Add sensitive word" command 		

Preconditions:

- User must log in the system with staff role.

Post Conditions:

- **Success:** Sensitive word is successfully added.
- **Fail:** Show error message and require staff try one more time.

Main Success Scenario:

Step	Actor Action	System Response
1	From staff page, staffs send “Product Management” command and then send “All products” command [Alternative 1]	Show a table contains all products with following information: <ul style="list-style-type: none"> - No: text - Product Id: text - Product Name: link to product detail page - Updated Time: text
2	Staffs send “Product Detail” command of a product	Show a Product Detail page with following information: <ul style="list-style-type: none"> - Images of product - Description of product - Table contains comments of product - Deactivate/Activate Product command - Edit Description command
3	Staffs select sensitive word and send “Add sensitive word” command	Sensitive word is added. Show message to notify that sensitive word is added. [Exception 1]

Alternative Scenario:**Alternative 1:**

Step	Actor Action	System Response
1	From staff page, staffs send “Product Management” command and then send “Reported comment” command	Show “Reported Comment” part with these information: <ul style="list-style-type: none"> - No: text - Comment: text - Date: text

		<ul style="list-style-type: none"> - Action: actions help handle reported comment. Include: Edit command, Deny command , Deactivate command
3	Staffs select sensitive word and send “Add sensitive word” command	Sensitive word is added. Show message to notify that sensitive word is added. [Exception 1]

Exceptions:

No	Exception	System Response
1		<ul style="list-style-type: none"> - Comments cannot be reanalysed - Show message: “Sorry, we cannot add sensitive word right now! Please try again later! Thank you!”

Relationships: N/A.

Business Rules:

- When staff process add sensitive word command in [Alternative 1], after adding sensitive word, the comment contains that word is disappeared.
- After adding sensitive word in [Main Success Scenario], the comment contains that word is deactivated.

Table 42: <Staff> Add sensitive Word

2.3.3 <Member> Overview Use Case

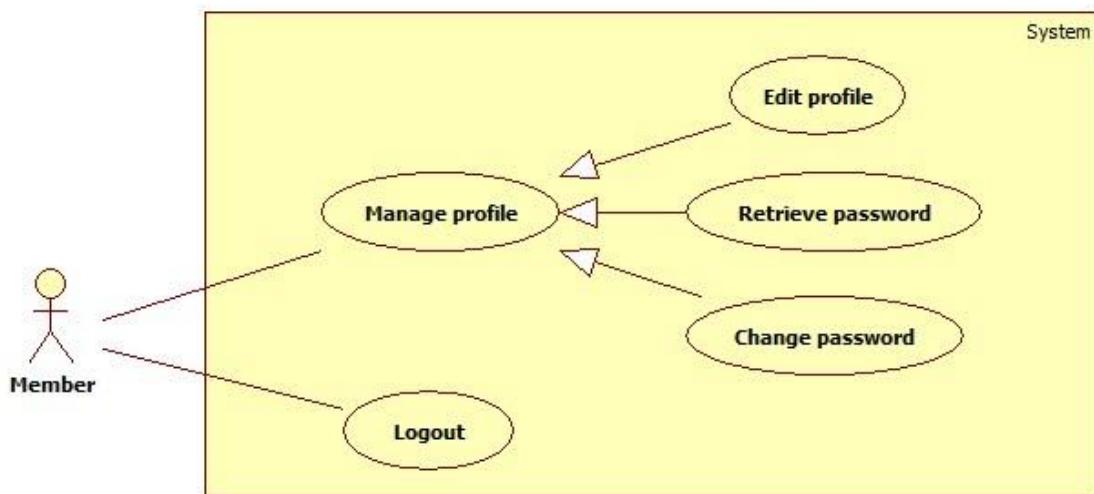


Figure 37: <Member> Overview Use Case

2.3.3.1 <Member> Edit Profile

Use Case Diagram

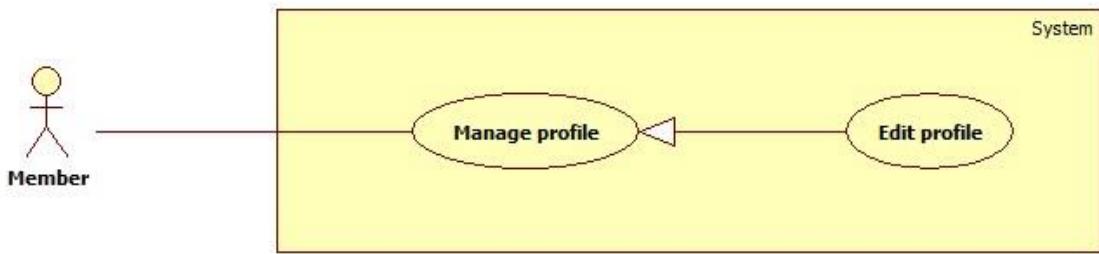


Figure 38: <Member> Edit Profile

Use Case Specification

USE CASE - LRA0029									
Use Case No.	LRA0029	Use Case Version	1.0						
Use Case Name	Edit Profile								
Author	Nguyen Manh Khuong								
Date	28/05/2015	Priority	Normal						
Actor:	<ul style="list-style-type: none"> - Member. 								
Summary:	<ul style="list-style-type: none"> - This use case allows member to edit profile. 								
Goal:	<ul style="list-style-type: none"> - Profile of user will be changed. 								
Triggers:	<ul style="list-style-type: none"> - Member choose "Edit Profile" command. 								
Preconditions:	<ul style="list-style-type: none"> - User has logged in system as member role. - Product is not found when member search. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: Recommended product's detail was sent successfully. Show successful message. - Fail: Database connection is not available. Show error message. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Member selected "Manager Profile" command.</td><td> Navigate to "Manager Profile" interface, which contains: <ul style="list-style-type: none"> - "Name": label. - "Email": label. - "Mobile phone": label. - "Password": label. - "Change password": command. - "Edit Profile": command. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Member selected "Manager Profile" command.	Navigate to "Manager Profile" interface, which contains: <ul style="list-style-type: none"> - "Name": label. - "Email": label. - "Mobile phone": label. - "Password": label. - "Change password": command. - "Edit Profile": command.
Step	Actor Action	System Response							
1	Member selected "Manager Profile" command.	Navigate to "Manager Profile" interface, which contains: <ul style="list-style-type: none"> - "Name": label. - "Email": label. - "Mobile phone": label. - "Password": label. - "Change password": command. - "Edit Profile": command. 							

2	Member selected “Edit Profile” command.	<p>Navigate to “Edit Profile” interface, which contains:</p> <ul style="list-style-type: none"> - Name: textbox. - Email: regular expression: <code>/^[_a-z0-9-]+(\.[_a-z0-9-]+)*@[a-z0-9-]+(\.[a-z0-9-]+)*(\.[a-z]{2,4})\$/</code> required. - “Mobile Phone”: textbox. - Password: textbox, min length: 5, max length: 100. - “Save”: command.
	Member change data to the form and choose “Save” command. [Alternative 1,2,3,4]	Show success message: “Edit profile successfully”, close the interface. Return “Manage profile” interface. [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	“Password” is not in range [5,100].	“Password” textbox border color is red.
2	“Password” is a blank	Show error message: “Please enter password!”
3	“Password” is wrong.	Show error message: “Wrong password.”
4	Invalid email format.	Show error message: “Email is must valid format!”

Exceptions:

No	Actor Action	System Response
1	Cannot edit profile due to database connection.	Show error message: “Cannot edit profile. Try again later.”

Relationships: N/A

Business Rules:

- Password must match current password.
- User must be logged in the system.

Table 43: <Member> Edit Profile

2.3.3.2 <Member> Change Password Use Case Diagram

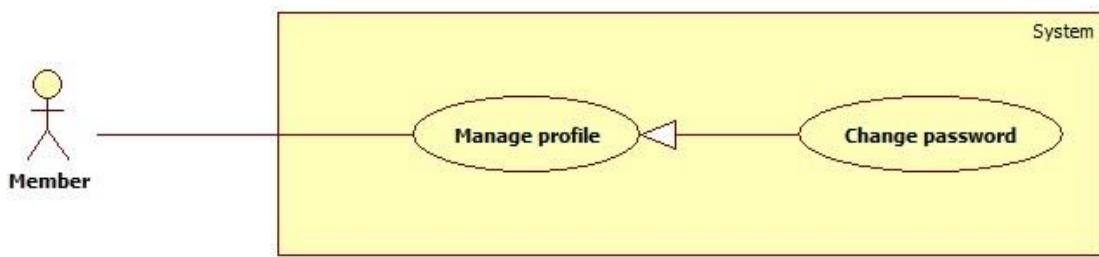


Figure 39: <Member> Change Password

Use Case Specification

USE CASE - LRA0030									
Use Case No.	LRA0030	Use Case Version	1.0						
Use Case Name	Change Password								
Author	Nguyen Manh Khuong								
Date	28/05/2015	Priority	Normal						
Actor:	<ul style="list-style-type: none"> - Member. 								
Summary:	<ul style="list-style-type: none"> - This use case allows member to change password. 								
Goal:	<ul style="list-style-type: none"> - Member change password successfully. 								
Triggers:	<ul style="list-style-type: none"> - Member login to the system. - Member click on "Change password" command. 								
Preconditions:	<ul style="list-style-type: none"> - User must log in the system with member role. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: New password will be updated in database. - Fail: Show error message. 								
Main Success Scenario:	<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Member clicks "Change password" command.</td><td> <p>Show "Change password" page with includes:</p> <ul style="list-style-type: none"> - Old password: textbox, password box, min length: 6, max length: 20, required. - New password: textbox, password box, min length: 6, max length: 20, required. - Re-enter new password: textbox, password box, min length: 6, max length: 20, required. - Save change: button. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Member clicks "Change password" command.	<p>Show "Change password" page with includes:</p> <ul style="list-style-type: none"> - Old password: textbox, password box, min length: 6, max length: 20, required. - New password: textbox, password box, min length: 6, max length: 20, required. - Re-enter new password: textbox, password box, min length: 6, max length: 20, required. - Save change: button.
Step	Actor Action	System Response							
1	Member clicks "Change password" command.	<p>Show "Change password" page with includes:</p> <ul style="list-style-type: none"> - Old password: textbox, password box, min length: 6, max length: 20, required. - New password: textbox, password box, min length: 6, max length: 20, required. - Re-enter new password: textbox, password box, min length: 6, max length: 20, required. - Save change: button. 							

		<ul style="list-style-type: none"> - Clear: button.
	Member clicks "Save change" button [Alternative 1,2,3,4,5,6,7]	Show successful message and return to home page. [Exception 1]

Alternative Scenario:

No	Actor Action	System Response
1	Member clicks "Clear" button.	Clear all input fields.
2	Length of password is not in range.	Show error message: "Password length must be 6-20 characters!"
3	"Old password" is wrong.	Show error message: "Wrong password."
4	"Old password" is a blank.	Show error message: "Please enter old password"
5	"New password" is a blank.	Show error message: "Please enter new password"
6	"Re-enter new password" is a blank.	Show error message: "Please re-enter new password"
7	"New password" and "Re-enter new password" is not similar.	Show error message: "New password and Re-enter new password is must be similar".

Exceptions:

No	Actor Action	System Response
1	Cannot change password due to database connection.	Show error message: "Cannot change password. Try again later."

Relationships: N/A

Business Rules:

- User must be logged in the system.

Table 44: <Member> Change Password

**2.3.3.3 <Member> Retrieve Password
Use Case Diagram**

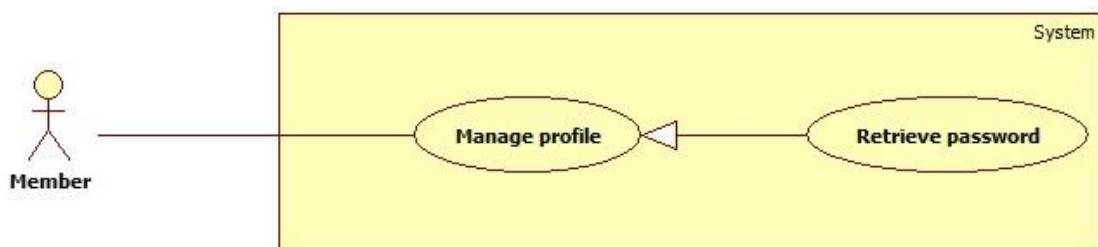


Figure 40: <Member> Retrieve Password

Use Case Specification

USE CASE - LRA0031															
Use Case No.	LRA0031	Use Case Version	1.0												
Use Case Name	Retrieve Password														
Author	Nguyen Manh Khuong														
Date	28/05/2015	Priority	High												
Actor:	<ul style="list-style-type: none"> - Member. 														
Summary:	<ul style="list-style-type: none"> - This use case allows Member to retrieve password. 														
Goal:	<ul style="list-style-type: none"> - Password will be sent to member's email. 														
Triggers:	<ul style="list-style-type: none"> - Member cannot log in to the system. - Member clicks on "Retrieve Password" command. 														
Preconditions:	<ul style="list-style-type: none"> - N/A 														
Post Conditions:	<ul style="list-style-type: none"> - Success: The password will be sent to member's email. - Fail: Show error message. 														
Main Success Scenario:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Step</th><th style="background-color: #cccccc;">Actor Action</th><th style="background-color: #cccccc;">System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Member clicks on "Retrieve Password" command</td><td> Navigate to "Retrieve Password" interface, which contains: <ul style="list-style-type: none"> - "Email": textbox. - "Send": command. </td></tr> <tr> <td>2</td><td>Member change data to the form and choose "Send" command. [Alternative 1,2,3]</td><td>Show success message and close the interface. [Exception 1]</td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Member clicks on "Retrieve Password" command	Navigate to "Retrieve Password" interface, which contains: <ul style="list-style-type: none"> - "Email": textbox. - "Send": command. 	2	Member change data to the form and choose "Send" command. [Alternative 1,2,3]	Show success message and close the interface. [Exception 1]			
Step	Actor Action	System Response													
1	Member clicks on "Retrieve Password" command	Navigate to "Retrieve Password" interface, which contains: <ul style="list-style-type: none"> - "Email": textbox. - "Send": command. 													
2	Member change data to the form and choose "Send" command. [Alternative 1,2,3]	Show success message and close the interface. [Exception 1]													
Alternative Scenario:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">No</th><th style="background-color: #cccccc;">Actor Action</th><th style="background-color: #cccccc;">System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>"Email" is a blank</td><td>Show error message: "Please enter email!"</td></tr> <tr> <td>2</td><td>"Email" is wrong.</td><td>Show error message: "The email address is not existed in the system."</td></tr> <tr> <td>3</td><td>Invalid email format.</td><td>Show error message: "Email is must valid format!"</td></tr> </tbody> </table>			No	Actor Action	System Response	1	"Email" is a blank	Show error message: "Please enter email!"	2	"Email" is wrong.	Show error message: "The email address is not existed in the system."	3	Invalid email format.	Show error message: "Email is must valid format!"
No	Actor Action	System Response													
1	"Email" is a blank	Show error message: "Please enter email!"													
2	"Email" is wrong.	Show error message: "The email address is not existed in the system."													
3	Invalid email format.	Show error message: "Email is must valid format!"													
Exceptions:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">No</th><th style="background-color: #cccccc;">Actor Action</th><th style="background-color: #cccccc;">System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Cannot retrieve password due to database connection.</td><td>Show error message: "Cannot retrieve password. Try again later."</td></tr> </tbody> </table>			No	Actor Action	System Response	1	Cannot retrieve password due to database connection.	Show error message: "Cannot retrieve password. Try again later."						
No	Actor Action	System Response													
1	Cannot retrieve password due to database connection.	Show error message: "Cannot retrieve password. Try again later."													
Relationships: N/A															
Business Rules:	<ul style="list-style-type: none"> - Email must match member's email. 														

Table 45: <Member> Retrieve Password

2.3.3.4 <Member> Log out Use Case Diagram

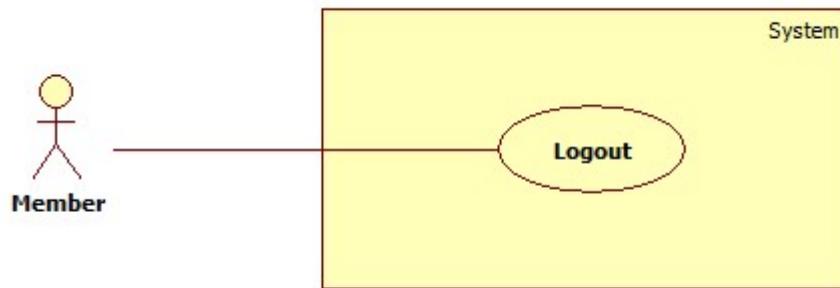


Figure 41: <Member> Log Out

Use Case Specification

USE CASE – LRA0032

Use Case No.	LRA0032	Use Case Version	1.0
Use Case Name	Log Out		
Author	Nguyen Manh Khuong		
Date	30/05/2015	Priority	Normal

Actor:

- Member.

Summary:

- This use case allows Member to log out of the system.

Goal:

- Member logs out of the system. Member's current session is destroyed.

Triggers:

- Member clicks "Log out" command.

Preconditions:

- Member has logged in to the system.

Post Conditions:

- **Success:** Member's current session is destroyed. Redirect to homepage.
- **Fail:** Show error message.

Main Success Scenario:

Step	Actor Action	System Response
1	Member clicks "Log out" command.	Show message "Do you want to log out?" - Yes: command - No: command
2	Member clicks "Yes" command. [Alternative 1]	Destroy Member's session. Redirect to homepage. [Exception 1]

Alternative Scenario:

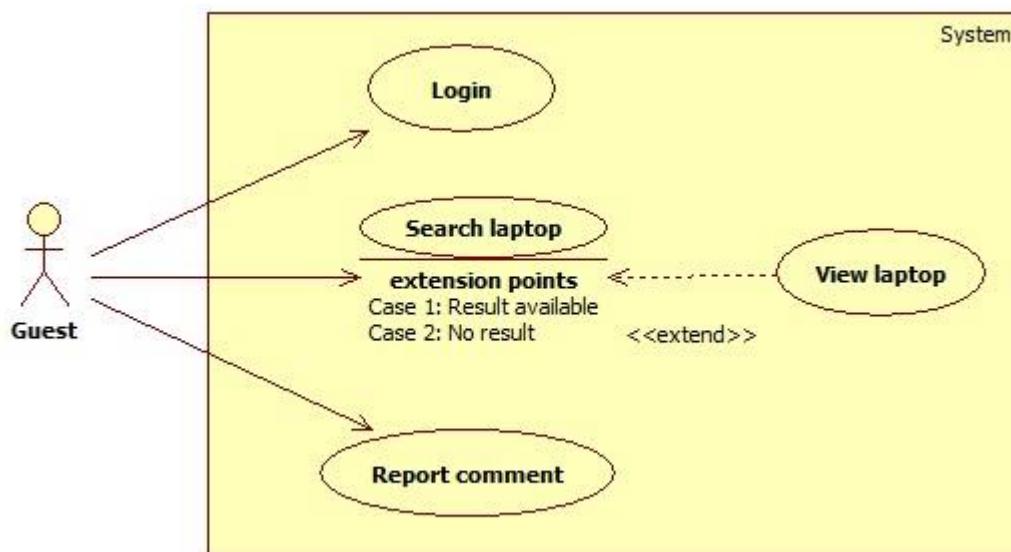
No	Actor Action	System Response
1	Member clicks "No" command.	Do nothing.

Exceptions:

No	Actor Action	System Response
1	Fail to destroy Member's session	Redirect to error page.

Relationships: N/a**Business Rules:**

- User must be logged in the system.
- User role will be changed to guest.

Table 46: < Member > Log out**2.3.4 <Guest> Overview Use Case****Figure 42: <Guest> Overview Use Case**

2.3.4.1 <Guest> Login Use Case Diagram

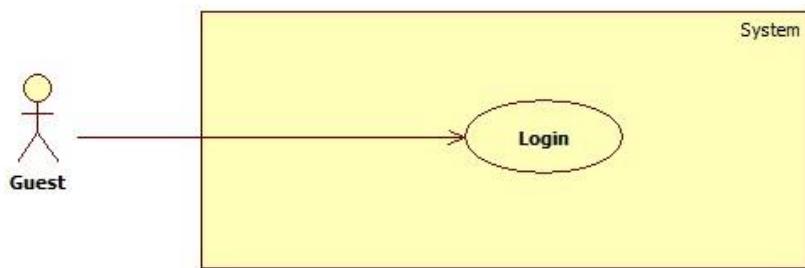


Figure 43: <Guest> Login

Use Case Specification

USE CASE - LRA034			
Use Case No.	LRA034	Use Case Version	1.0
Use Case Name	Login		
Author	Dinh Huu Toan		
Date	06/06/2015	Priority	Normal

Actor:

- Guest.

Summary:

- This use case allows guest to login.

Goal:

- Allow authentication and authorization of the system.

Triggers:

- Guest input username and password, then send "Login" command

Preconditions:

- Database has a registered account.

Post Conditions:

- **Success:** Guest is authorized, redirect to corresponding page.
- **Fail:** System will show error on current page.

Main Success Scenario:

Step	Actor Action	System Response
1	Guest send command to go to login page	<p>Login form includes:</p> <ul style="list-style-type: none"> - Username, free text input, 6 – 35 characters [Required] - Password, password input, 6 – 35 characters [Required] - "Keep me signed in" checkbox - Login command
2	Guest enters required information, then send "Login" command	

		Guest is logged in [Exception 1,2, 3]
--	--	--

Alternative Scenario: N/A

Exceptions:

No	Actor Action	System Response
1	Guest input wrong username or password	Show error message "Invalid username or password. Please try again!"
2	Guest input wrong username/password format	Show error message "Please enter at least 6 characters."
3	Guest does not fill in username/password field	Show error message "This field is required"

Relationships: N/A

Business Rules:

- Guest cannot sign up. All account is provided by admin
- Only active account can log in.

Table 47: <Guest> Login

2.3.4.2 <Guest> Search Laptop Use Case Diagram

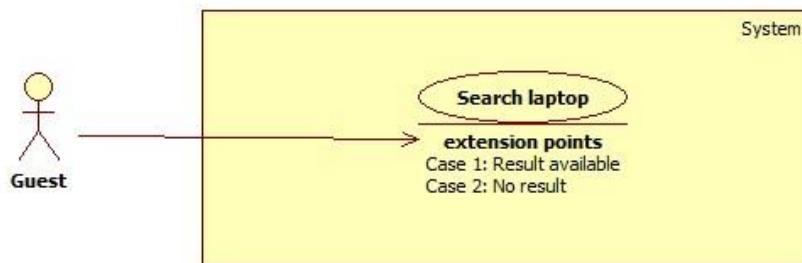


Figure 44: <Guest> Search laptop

USE CASE - LRA035			
Use Case No.	LRA035	Use Case Version	1.0
Use Case Name	Search laptop		
Author	Dinh Huu Toan		
Date	30/05/2015	Priority	High
Actor:			
- Guest.			
Summary:			
- This use case allows guest to search for specific laptops by their names			
Goal:			
- Appropriate laptops are shown			
Triggers:			
- Guest input name of laptop and then send "Search" command			
Preconditions:	N/A		

Post Conditions:

- **Success:** appropriate laptops are shown
- **Fail:** System will show error on current page.

Main Success Scenario:

Step	Actor Action	System Response
1	From home page, guest input laptop name into search free text input and send “Search” command	<p>Appropriate laptops are shown with information include:</p> <ul style="list-style-type: none"> - Laptops’ names: text - Laptops’ avatars: text - Laptops’ positive comment percent: text - Sort command [Alternative 1]

Alternative Scenario:

Alternative 1:

Step	Actor Action	System Response
1	Guest cannot find their wanted laptop	<p>Navigate to No result page with following information:</p> <ul style="list-style-type: none"> - Message: text - Email: text, email format, required - Send command - Cancel command
2	Guest input their email and send “Send” command [Alternative 2]	Show message to indicate that the processing is done successfully

Alternative 2:

Step	Actor Action	System Response
1	Guest send “Cancel” command	<p>Navigate to home page</p>

Exceptions:

No	Actor Action	System Response
1	Cannot find laptop due to system error	Show error message

Relationships: N/A.

Business Rules:

- After inputting email and send “Send” command or send “Cancel” command, guest will be navigated to home page

Table 48: <Guest> Search Laptop

2.3.4.3 <Guest> View Laptop Use case Diagram

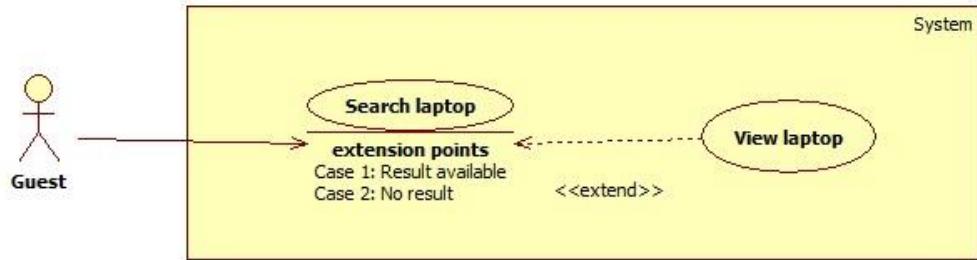


Figure 45: <Guest> View Laptop

Use case Specification

USE CASE - LRA036			
Use Case No.	LRA036	Use Case Version	1.0
Use Case Name	View laptop		
Author	Dinh Huu Toan		
Date	06/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - Guest. 		
Summary:	<ul style="list-style-type: none"> - This use case allows guest to search and view laptop information. 		
Goal:	<ul style="list-style-type: none"> - A page detail of products will be shown to guest. 		
Triggers:	<ul style="list-style-type: none"> - Guests send View detail command 		
Preconditions:	<ul style="list-style-type: none"> - Laptop that guests want to view must be available in system 		
Post Conditions:	<ul style="list-style-type: none"> - Success: Appropriate information is shown - Fail: Show an error message. 		
Main Success Scenario:			
Step	Actor Action	System Response	
1	Guests send View detail command	<p>Navigate to Detail page with following information:</p> <ul style="list-style-type: none"> - Laptop name: text - Laptop images: image - Laptop description: text - Comment: text - Command to report insufficient comments <p>[Exception 1]</p>	
Alternative Scenario: N/A			

Exceptions:

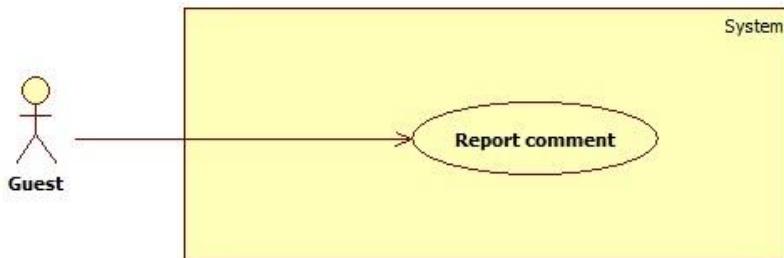
Step	Actor Action	System Response
1	System cannot handle guests request due to system problem	Show error message

Relationships: Search**Business Rules:**

- Comments are classified and shown to guests in 3 groups: Positive, Negative and Neutral

Table 49: <Guest> View laptop

2.3.4.4 <Guest> Report Comment Use case Diagram

**Figure 46: <Guest> Report comment****Use case Specification****USE CASE - LRA036**

Use Case No.	LRA037	Use Case Version	1.0
Use Case Name	Report comment		
Author	Dinh Huu Toan		
Date	06/06/2015	Priority	High

Actor:

- Guest.

Summary:

- This use case allows guest to report unsuitable comments

Goal:

- System archives reported comments

Triggers:

- Guests send "Reported comment" command

Preconditions: N/A**Post Conditions:**

- **Success:** reported comments are saved to system
- **Fail:** Show an error message.

Main Success Scenario:

Step	Actor Action	System Response
1	In view laptop detail page, staff sends command to report comment	Reported comments are highlighted and saved to system [Exception 1]

Alternative Scenario: N/A**Exceptions:**

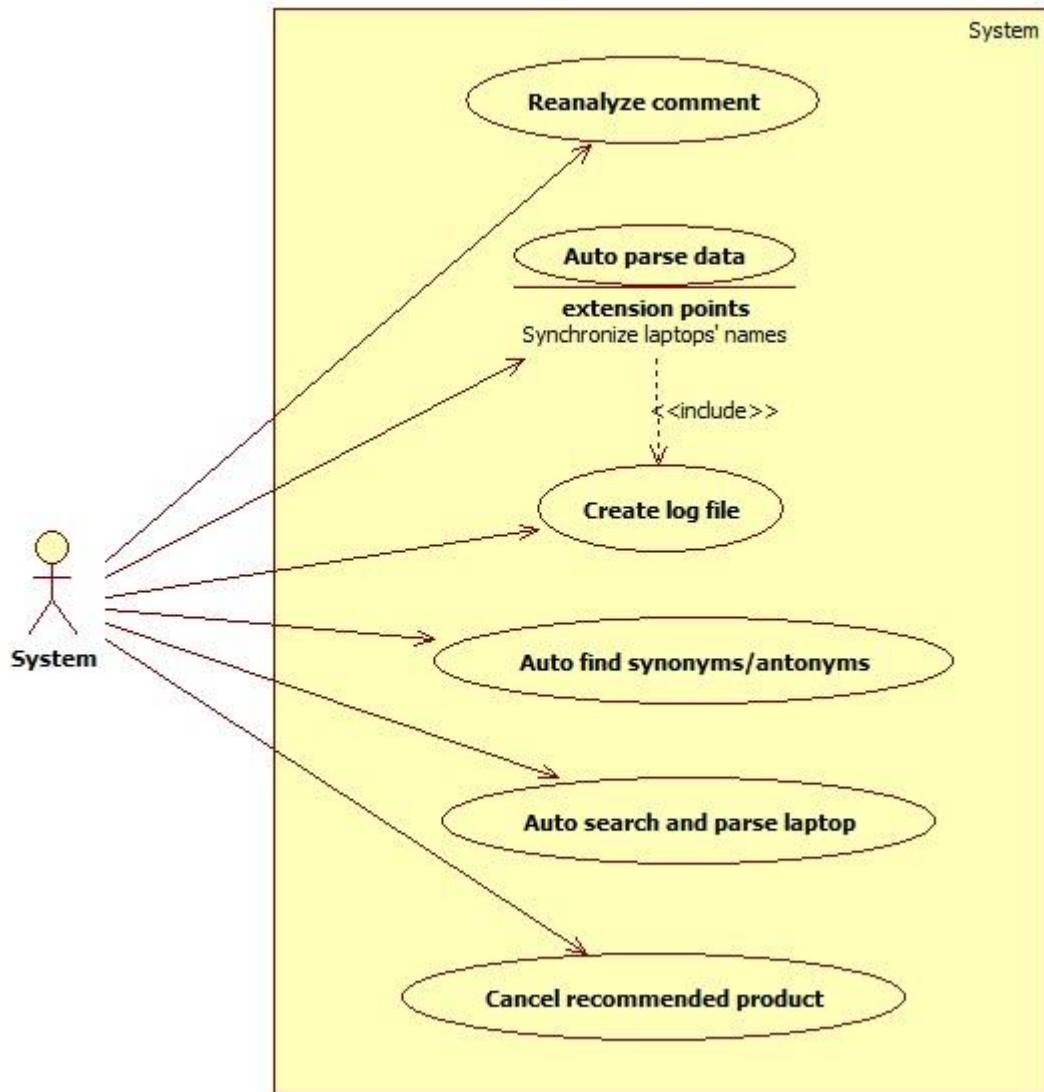
Step	Actor Action	System Response
1	System cannot handle guests request due to system problem	Show error message

Relationships: View Detail**Business Rules:**

- If this comment was denied by staff before, it cannot be continued reported.
- If this comment was reported before, increase its the report times and report's date is still the first date when it was reported.

Table 50: <Guest> Report Comment

2.3.5 <System> Overview Use Case



2.3.5.1 <System> Auto Parse Data Use Case Diagram

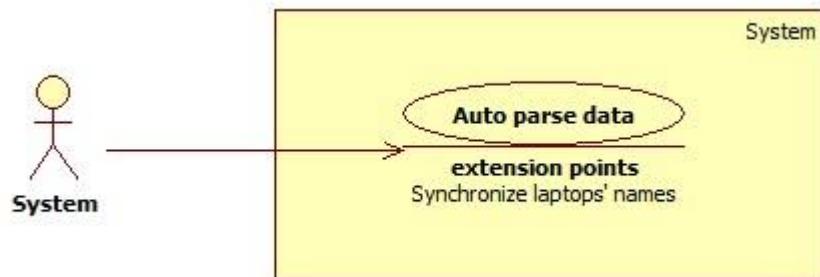


Figure 47: <System> Auto Parse Data

Use Case Specification

USE CASE - LRA037									
Use Case No.	LRA037	Use Case Version	1.0						
Use Case Name	Auto parse data								
Author	Vo Thi Minh Chau								
Date	03/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - System. 								
Summary:	<ul style="list-style-type: none"> - System can parse data automatically from many websites at specified time. 								
Goal:	<ul style="list-style-type: none"> - Log file is generated. 								
Triggers:	<ul style="list-style-type: none"> - The time hits configured time. 								
Preconditions:	<ul style="list-style-type: none"> - Daily parsing time has been configured. 								
Post Conditions:	<ul style="list-style-type: none"> - Success: Log file is generated. - Fail: Log file cannot be generated. 								
Main Success Scenario:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Step</th><th style="background-color: #cccccc;">Actor Action</th><th style="background-color: #cccccc;">System Response</th></tr> </thead> <tbody> <tr> <td style="vertical-align: top;">1</td><td>Server checks the current time. If it hits configured time, parse process starts.</td><td> <ul style="list-style-type: none"> - Get list of url which will be parsed from the existed sites. - Parse data [Exception 1]. - Analyze comments. - Insert data to system. - Generate log file. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Server checks the current time. If it hits configured time, parse process starts.	<ul style="list-style-type: none"> - Get list of url which will be parsed from the existed sites. - Parse data [Exception 1]. - Analyze comments. - Insert data to system. - Generate log file.
Step	Actor Action	System Response							
1	Server checks the current time. If it hits configured time, parse process starts.	<ul style="list-style-type: none"> - Get list of url which will be parsed from the existed sites. - Parse data [Exception 1]. - Analyze comments. - Insert data to system. - Generate log file. 							
Alternative Scenario:	N/A								
Exceptions:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">No</th><th style="background-color: #cccccc;">Actor Action</th><th style="background-color: #cccccc;">System Response</th></tr> </thead> <tbody> <tr> <td style="vertical-align: top;">1</td><td>- Error while parsing data.</td><td> <ul style="list-style-type: none"> - Generate log file. </td></tr> </tbody> </table>			No	Actor Action	System Response	1	- Error while parsing data.	<ul style="list-style-type: none"> - Generate log file.
No	Actor Action	System Response							
1	- Error while parsing data.	<ul style="list-style-type: none"> - Generate log file. 							
Relationships:	N/A								
Business Rules:	<ul style="list-style-type: none"> - The system will parse all existed active sites. - The system will parse the n-first products and all existed product of this site. (n is configured by staff before) - With each existed product, only the new valid comments will be parsed (define of new valid comments: refer use case LRA008). - If this product's is similar to another existed product, it will be save to xml file. 								

Table 51: <System> Auto Parse Data

2.3.5.2 <System> Create Log File

Use Case Diagram

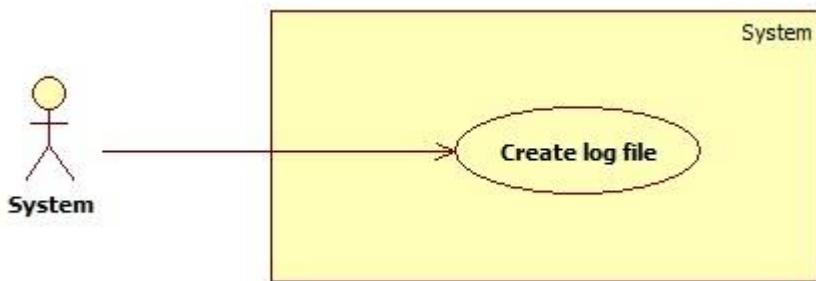


Figure 48: <System> Create Log File

Use Case Specification

USE CASE – LRA038									
Use Case No.	LRA038	Use Case Version	1.0						
Use Case Name	Create Log File								
Author	Vo Thi Minh Chau								
Date	03/06/2015	Priority	High						
Actor:	<ul style="list-style-type: none"> - System. 								
Summary:	<ul style="list-style-type: none"> - System can parse data automatically from many websites at specified time. 								
Goal:	<ul style="list-style-type: none"> - Get data from many websites. 								
Triggers:	<ul style="list-style-type: none"> - The time hits configured time. 								
Preconditions:	<ul style="list-style-type: none"> - N/A 								
Post Conditions:	<ul style="list-style-type: none"> - Success: New data is inserted to database. Log file is generated. - Fail: Nothing is changed in the database. Log file is generated. 								
Main Success Scenario:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Step</th><th style="text-align: left;">Actor Action</th><th style="text-align: left;">System Response</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td><td>Server checks the current time. If it hits configured time, parse process starts.</td><td> <ul style="list-style-type: none"> - Generate log file. </td></tr> </tbody> </table>			Step	Actor Action	System Response	1	Server checks the current time. If it hits configured time, parse process starts.	<ul style="list-style-type: none"> - Generate log file.
Step	Actor Action	System Response							
1	Server checks the current time. If it hits configured time, parse process starts.	<ul style="list-style-type: none"> - Generate log file. 							
Alternative Scenario:	N/A								
Exceptions:	N/A								
Relationships:	N/A								

Business Rules:

- Format of log file
LRA Solution - LOG FILE
Created time: Jul 8, 2015 11:47:33 PM

No	Site	Total Product	Successfull	Fail	Duration
1	http://www.engadget.com/	7	6	1	3277
2	http://reviews.bestbuy.com/	15	15	0	8101
3	http://reviews.walmart.com/	15	15	0	7947

Total product: 37 Total parsing duration: 19325 miliseconds

Table 52: <System> Create Log File

2.3.5.3 <System> Auto Find Synonyms/Antonyms Use Case Diagram

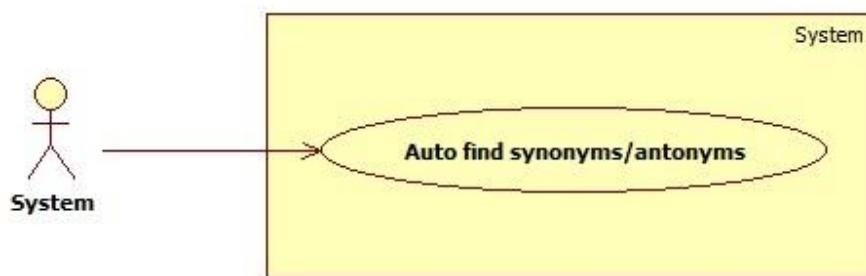


Figure 49: <System> Auto Find Synonyms/Antonyms

Use Case Specification

USE CASE – LRA039			
Use Case No.	LRA039	Use Case Version	1.0
Use Case Name	Auto find synonyms/Antonyms		
Author	Vo Thi Minh Chau		
Date	03/06/2015	Priority	High
Actor:			
- System.			
Summary			
- System searches synonyms and antonyms of new word and inserts to database.			
Goal:			
- Synonyms and antonyms are inserted.			
Triggers:			
- New word is inserted.			
Preconditions:			
- N/A			

Post Conditions:

- **Success:** Synonyms and antonyms are inserted.
- **Fail:** Synonyms and antonyms cannot be inserted.

Main Success Scenario:

Step	Actor Action	System Response
1	Server checks when new word is inserted.	<ul style="list-style-type: none"> - Search synonyms and antonyms of this word and insert to database [Alternative 1] [Exception 1].

Alternative Scenario:

[Alternative 1]

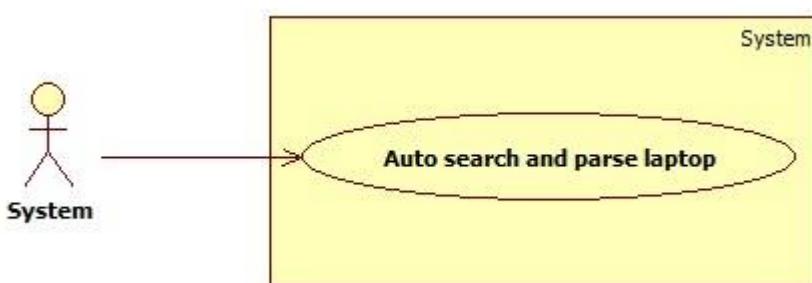
No	Actor Action	System Response
1		<ul style="list-style-type: none"> - If the system cannot find any synonym or antonym, do nothing.

Exceptions:

No	Actor Action	System Response
1	- Fail to update to database.	<ul style="list-style-type: none"> - Display error message "Cannot connect to the database. Please try again!"

Relationships: N/A**Business Rules:**

- Synonyms and antonyms are found in Lingoes dictionary and parsed from <http://www.thesaurus.com/>

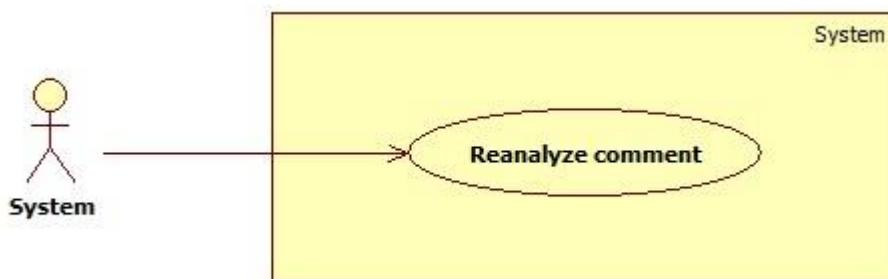
Table 53: <System> Auto Find Synonyms/Antonyms**2.3.5.4 <System> Auto Search And Parse Laptop Use Case Diagram****Figure 50: <System> Auto Search And Parse Laptop****Use Case Specification**

USE CASE – LRA040			
Use Case No.	LRA040	Use Case Version	1.0
Use Case Name	Auto Search And Parse Laptop		

Author	Vo Thi Minh Chau								
Date	03/06/2015	Priority	High						
Actor:									
<ul style="list-style-type: none"> - System. 									
Summary:									
<ul style="list-style-type: none"> - System searches recommended product and parses it. 									
Goal:									
<ul style="list-style-type: none"> - Recommended product will be parsed. 									
Triggers:									
<ul style="list-style-type: none"> - Guest recommends new product. 									
Preconditions:									
<ul style="list-style-type: none"> - N/A 									
Post Conditions:									
<ul style="list-style-type: none"> - Success: Recommended product will be parsed and system sends notification mail to guest. - Fail: Recommended product cannot be found. 									
Main Success Scenario:									
<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>Server checks when guest recommends new product.</td><td> <ul style="list-style-type: none"> - Search recommended product. - Get url of this product and parse it [Alternative 1]. - Send notification mail to guest [Exception 1]. </td></tr> </tbody> </table>				Step	Actor Action	System Response	1	Server checks when guest recommends new product.	<ul style="list-style-type: none"> - Search recommended product. - Get url of this product and parse it [Alternative 1]. - Send notification mail to guest [Exception 1].
Step	Actor Action	System Response							
1	Server checks when guest recommends new product.	<ul style="list-style-type: none"> - Search recommended product. - Get url of this product and parse it [Alternative 1]. - Send notification mail to guest [Exception 1]. 							
Alternative Scenario:									
[Alternative 1]									
<table border="1"> <thead> <tr> <th>Step</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td></td><td> <ul style="list-style-type: none"> - If the system cannot find the recommended product, set its status "Pending". </td></tr> </tbody> </table>				Step	Actor Action	System Response	1		<ul style="list-style-type: none"> - If the system cannot find the recommended product, set its status "Pending".
Step	Actor Action	System Response							
1		<ul style="list-style-type: none"> - If the system cannot find the recommended product, set its status "Pending". 							
Exceptions:									
<table border="1"> <thead> <tr> <th>No</th><th>Actor Action</th><th>System Response</th></tr> </thead> <tbody> <tr> <td>1</td><td>- Notification mail cannot be sent.</td><td>- Set the status "Added".</td></tr> </tbody> </table>				No	Actor Action	System Response	1	- Notification mail cannot be sent.	- Set the status "Added".
No	Actor Action	System Response							
1	- Notification mail cannot be sent.	- Set the status "Added".							
Relationships: N/A									

Business Rules:

- The solution for searching and parsing product automatically:
 - o Get list of all site in system ordered by number of reports ascending.
 - o For each site, use Google to search whether this product is existed in this site. Get 10-first results from Google.
 - o Try to parse from these above url. When finding and parsing 1 product successfully, add this product to system and send notification mail to guests.
- Setting status for this recommended product:
 - o Pending: if this cannot be found automatically and is waiting for handling.
 - o Added: if this was be added to system but cannot be sent email to guests.
 - o Sent: if this was be added to system and be sent email to guests successfully

Table 54: <System> Auto Search And Parse Laptop**2.3.5.5 <System> Reanalyze Comment
Use Case Diagram****Figure 51: <System> Reanalyze Comment****Use Case Specification**

USE CASE - LRA041			
Use Case No.	LRA041	Use Case Version	1.0
Use Case Name	Reanalyze comment		
Author	Vo Thi Minh Chau		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none">- System.		
Summary:	<ul style="list-style-type: none">- System can reanalyze comments automatically from many websites at specified time.		
Goal:	<ul style="list-style-type: none">- Reanalyze all comments.		
Triggers:	<ul style="list-style-type: none">- The time hits configured time.		

Preconditions:

- Daily analyzing time has been configured.

Post Conditions:

- **Success:** All comments are reanalyzed.
- **Fail:** All comments cannot be reanalyzed.

Main Success Scenario:

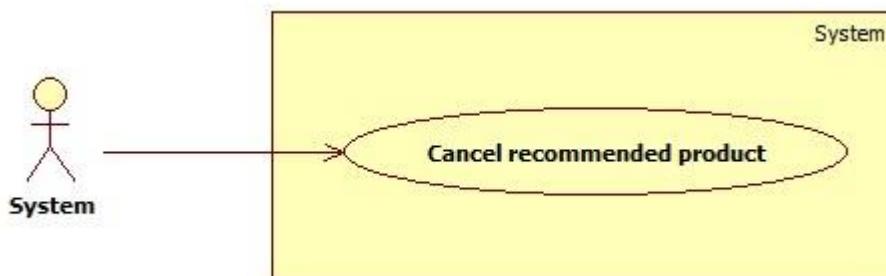
Step	Actor Action	System Response
1	Server checks the current time. If it hits configured time, reanalyzing process starts.	- Analyze comments.

Alternative Scenario: N/A**Exceptions:** N/A**Relationships:** N/A**Business Rules:**

- Analysing comments takes much time, system will show an animation to indicate that the command is processing.

Table 55: <System> Reanalyze Comment

2.3.5.6 <System> Cancel recommended product Use Case Diagram

**Figure 52: <System> Cancel recommended product****Use Case Specification**

USE CASE - LRA042			
Use Case No.	LRA042	Use Case Version	1.0
Use Case Name	Cancel recommended product		
Author	Vo Thi Minh Chau		
Date	03/06/2015	Priority	High
Actor:	<ul style="list-style-type: none"> - System. 		
Summary:	<ul style="list-style-type: none"> - System can cancel out of date recommended products at specified time. 		
Goal:	<ul style="list-style-type: none"> - Cancel out of date recommended products. 		
Triggers:	<ul style="list-style-type: none"> - The time hits configured time. 		

Preconditions:

- Limited day has been configured.

Post Conditions:

- **Success:** Out of date recommended products are cancelled.
- **Fail:** Out of date recommended products cannot be cancelled.

Main Success Scenario:

Step	Actor Action	System Response
1	Server checks the current time. If it hits 12:00 AM, cancelling process starts.	- Cancel all out of date recommended products.

Alternative Scenario: N/A**Exceptions:** N/A**Relationships:** N/A**Business Rules:**

- Out of date recommended products are products which have the time from it recommended to now longer than limited day.
- When this product is cancelled, it will not be shown in "Recommended product" page.

3. Software System Attribute

3.1 Usability

3.1.1 Graphic User Interface

- All the texts, labels and should be written in English.

3.1.2 Usability

- Admin, staff should need less than one week of training to be productive with the system.
- Guest and member can use the system easily without training.

3.1.3 Installation

- The system must be easy to deploy. Customer can deploy successfully and learn to configure, maintain the system within one day of training.
- The attached manual guide must be clear. User can read and do themselves without developer's help.

3.2 Reliability

- The product should be updated every day.
- The parser should be updated every day.
- If the product is already existed, system will notify for user.
- The system can analyze almost comments, classify them base on dictionary with above 80% accuracy.

3.3 Availability

- N/A.

3.4 Security

- Privacy: Each role of user has a specific permission to interact with system.
- System always checks authorization and authentication before doing anything.
- Only admin can grant permission to staff.

3.5 Maintainability

- Dictionary data is easy to change and update.

3.6 Portability

- The web application can be used anywhere, where has Internet Connection, by Smart phones or PC.

3.7 Performance

- Server responds in 3 seconds for normal progresses, in 10 seconds for complex progresses.
- The page resources are lightly to reduce loading time.

4. Conceptual Diagram

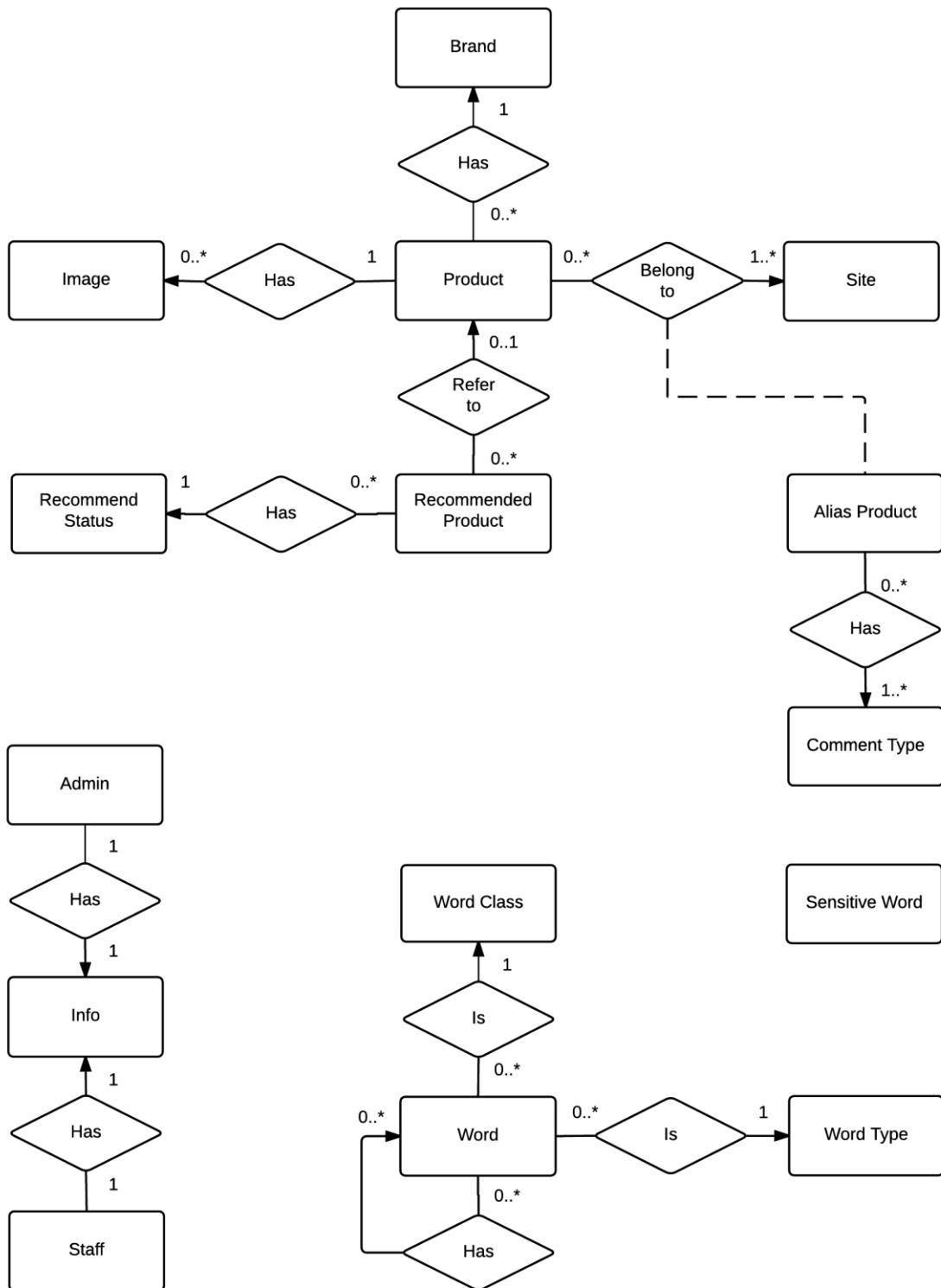


Figure 53: Conceptual Diagram

Data Dictionary

Entity Data dictionary: describe content of all entities	
Entity Name	Description
Image	Describe all image link that product is included.
Product	Describe all products in the system.
Recommend Product	Describe the product that user recommend for system.
Recommend Status	Describe the status of user recommend.
Brand	Describe all brands the products are belonged.
Alias Product	Describe all alias products in the system.
Comment Type	Describe all types of comments.
Site	Describe all site parse data.
Word	Describe all words
Word Type	Describe all types of words in Dictionary.
Word Class	Describe all classes of words in Dictionary
Staff	Describe all information of staff.
Admin	Describe all information of admin.
Info	Describe all information of user.

Table 56: Entity Data dictionary - Describe content of all entities

D. Software Design Description

1. Design Overview

- This document describes the technical and user interface design LRA System using web. It includes the architectural design, the detailed design of common functions and business functions and the design of database model.
- The architectural design describes the overall architecture of the system and the architecture of each main component and subsystem.
- The detailed design describes static and dynamic structure for each component and functions. It includes class diagrams, class explanations and sequence diagrams for each use cases.
- The database design describes the relationships between entities and details of each entities.
- Document overview:
 - Section 2: gives an overall description of the system architecture design.
 - Section 3: gives component diagrams that describe the connection and integration of the system.
 - Section 4: gives the detail design description which includes class diagram, class explanation, and sequence diagram to details the application functions.
 - Section 5: describe an ERD with logical diagram.

2. System Architectural Design

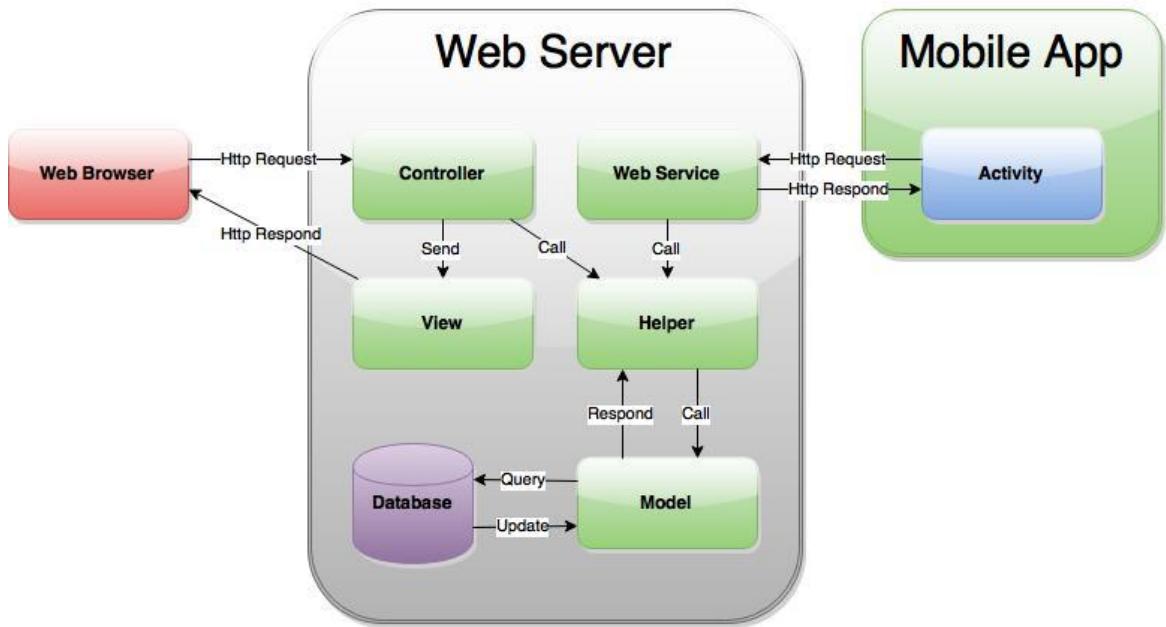


Figure 54: MVC Architecture

2.1 Web Architecture

- **Model** is the part of the application that handles the logic for the application data. Often model objects retrieve data (and store data) from a database.
- **View** is the parts of the application that handles the display of the data. Most often the views are created from the model data.
- **Controller** is the part of the application that handles user interaction. Typically controllers read data from a view, control user input, and send input data to the model.
- **Helper** is the part of the application that do handle business process to solve the system's problem.
- **Web Service** is the part of the application that handle the communication between Web Server and Mobile Application.

2.2 Mobile Architecture

- **Activity** is a Java code that supports a screen or UI. In other words, building block of the user interface is the activity. Activity class is a pre-defined class in Android and every application which has UI must inherit it to create window.

3. Component Diagram

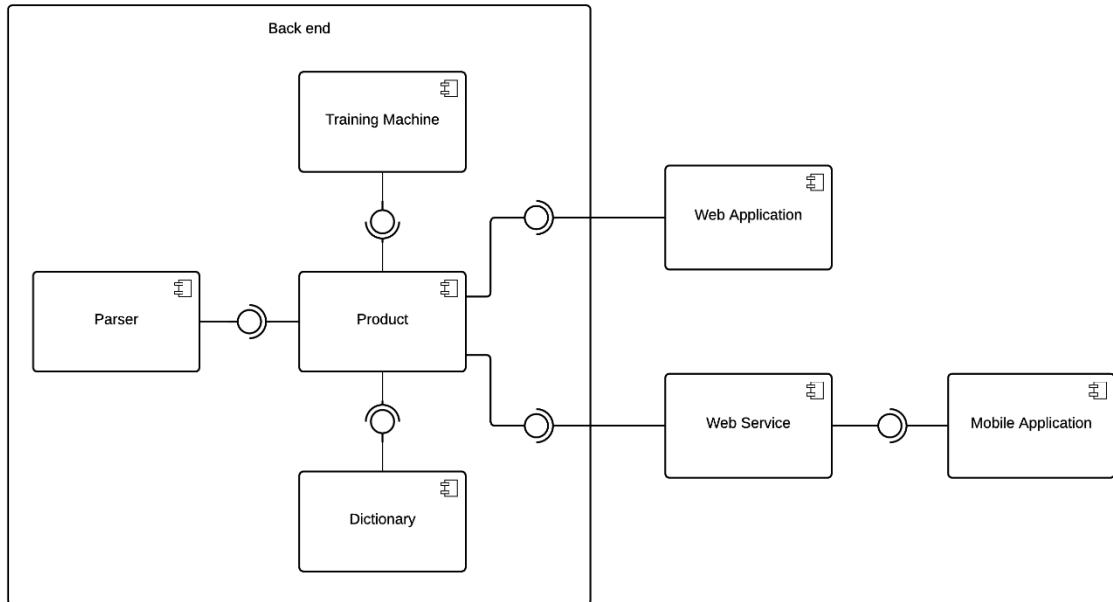


Figure 55: Component Diagram

Data Dictionary

Component dictionary: describe component	
Component Name	Description
Product	Business logic processing for searching product function
Dictionary	Business logic processing for analysing comment function.
Parser	Business logic processing for parsing function.
Training Machine	Business logic processing for training machine function.
Web Application	Provide all functions on web for user.
Web Service	Provide business logic for mobile application.
Mobile Application	Provide all functions on mobile for user.

Table 57: Component dictionary: describe component

4. Detailed Description of Components

4.1 Class Diagram

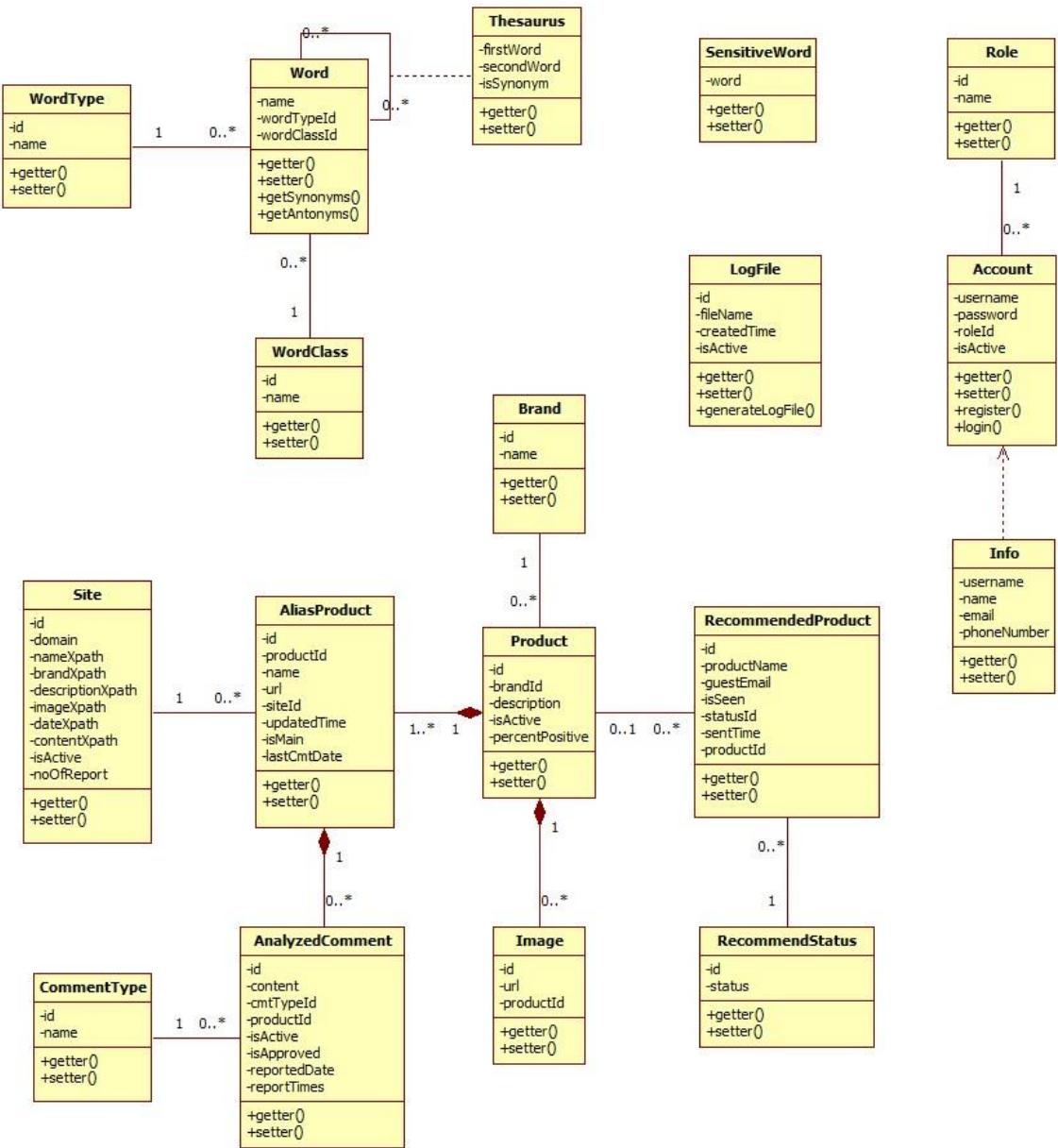


Figure 56: Class Diagram

Data Dictionary

Class dictionary: describe class	
Class Name	Description
Site	Contain website information which will be parse to the system
AliasProduct	Contain alias of the same product in the system.
Product	Contain products information in the system
Image	Contain image link that product is included.
AnalyzedComment	Contain comments of product in the system.

CommentType	Contain type of comment in the system.
Brand	Contain brain of products in the system.
Recommended Product	Contain recommend from users about products which has not existed in the system.
Recommended Status	Contain status of recommend from users.
Account	Contain information of user's account.
Role	Contain role of user's account
Info	Contain extra information of user's account
Word	Contain word which will be used as dictionary word to analyse comment.
WordType	Contain type of word
Thesaurus	Contain thesaurus which word belong to.
WordClass	Contain class of word
Sensitive Word	Contain sensitive word which is impolite or forbidden.
Log File	Contain information of log file

Table 58: Class dictionary: describe class

4.2 Class Diagram Explanation

4.2.1 Site

This class contains information of website, where product information will be parsed to the system.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each site
url	string	Private	Link to the site
nameXpath	string	Private	Xpath that defines product's name location in the website
brandXpath	string	Private	Xpath that defines product's brand location in the website
descriptionXpath	string	Private	Xpath that defines product's description location in the website
imageXpath	string	Private	Xpath that defines product's image location in the website
dateXpath	string	Private	Xpath that defines product's submitted date location in the website
contentXpath	string	Private	Xpath that defines product's content location in the website
siteId	integer	Private	Id of site
isActive	boolean	Private	Status of site
noOfReport	integer	Private	Number of report

4.2.1 Alias Product

This class contains information of alias product. Same products will have a product marked as main, which contain the most information/reliable.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each alias product
productId	integer	Private	Id of product
name	string	Private	Name of alias product
url	string	Private	Link to website contains alias product
sitId	int	Private	Id of site
updatedTime	datetime	Private	Day that alias product is updated
isMain	boolean	Private	Use to check for main product
lastCmtDate	datetime	Private	Last date of comments

4.2.2 Product

This class contains information of products in the system.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each product
brandId	integer	Private	Id of brand
description	string	Private	Description of product
isActive	boolean	Private	Status of product
isReported	int	Private	State how many times the product is reported

4.2.3 Image

This class contains information of product's image.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each image
url	string	Private	Link to website contains image
productId	integer	Private	Id of product

4.2.4 Analyzed Comment

This class contains information of comment, collect from websites or mobile user. These comment will be analyse to classify type.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each comment
content	string	Private	Content of comment
cmtTypeId	integer	Private	Id of comment type

isActive	boolean	Private	Status of comment
isApproved	boolean	Private	
reportedDate	datetime	Private	The day the comment was reported
reportTimes	int	Private	State how many times the comment is reported

4.2.5 Comment Type

This class contains information about type of comment.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each comment type
name	string	Private	Name of comment type

4.2.6 Brand

This class contains information of product's brand in the system.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each brand
name	string	Private	Name of Brand

4.2.7 Recommended Product

This class contains information product which user recommend. These product is not existed in the system.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each recommended product
productName	string	Private	Name of recommended product
guestEmail	string	Private	Email of guest
isSeen	Boolean	Private	Indicate whether staff have seen the request or not
statusId	integer	Private	Id of status
isAdded	Boolean	Private	Indicate whether staff have executed request or not
sentTime	datetime	Private	Day the recommended product is submitted
productId	integer	Private	Id of Product

4.2.8 Recommended Status

This class contains status of user recommends.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each user recommend
status	Boolean	Private	Status of Recommend

4.2.9 Role

This class contains information of account's role.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each role
name	string	Private	Name of comment role

4.2.10 Account

This class contains basic information of account.

Attribute

Attribute	Type	Visibility	Description
username	string	Private	Unique username of each account
password	string	Private	Password used to access each account
roleId	integer	Private	Id of role
isActive	Boolean	Private	Status of account

Method

Method	Return type	Visibility	Description
register	Boolean	Public	Register new account
login	Boolean	Public	Login to the system

4.2.11 Info

This class contains extra information of accounts.

Attribute

Attribute	Type	Visibility	Description
username	string	Private	Unique username of each account
name	string	Private	Name of account owner
email	string	Private	Email of account owner
phoneNumber	string	Private	Phone number of account owner

4.2.12 Word

This class contains word which will be used as dictionary word.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each word
name	string	Private	Name of word
wordTypeId	integer	Private	Id of word type
wordClassId	integer	Private	Id of word class

Method

Method	Return type	Visibility	Description
getSynonyms	Dictionary	Public	Get word's synonyms
getAntonyms	Dictionary	Public	Get word's antonyms

4.2.13 WordType

This class contains information of word's type.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each word type
name	string	Private	Name of word type

4.2.14 Thesaurus

This class contains information of word's thesaurus.

Attribute

Attribute	Type	Visibility	Description
firstWord	integer	Private	Id of word which role is main word
secondWord	integer	Private	Id of word which role is synonym or antonym of main word
isSynonym	Boolean	Private	Indicate whether the relationship of 2 words is synonym or not

4.2.15 WordClass

This class contains information of word's class.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each word class
name	string	Private	Name of word class

4.2.16 Sensitive Word

This class contains information of sensitive word. Comment contain these words will be forbidden.

Attribute

Attribute	Type	Visibility	Description
word	string	Private	name of sensitive word

4.2.17 Log File

This class contains information of log file.

Attribute

Attribute	Type	Visibility	Description
id	integer	Private	Unique identifier of each log file
filename	string	Private	Name of log file
createdTime	datetime	Private	Date the log file is created
isActive	Boolean	Private	Status of log file

Method

Method	Return type	Visibility	Description
generateLogFile	Boolean	Public	Generate log file for each time system runs parser

4.3 Sequence Diagram

4.3.1 Parse Specific Product

Summary: This diagram shows how to parse a specific product from a URL.

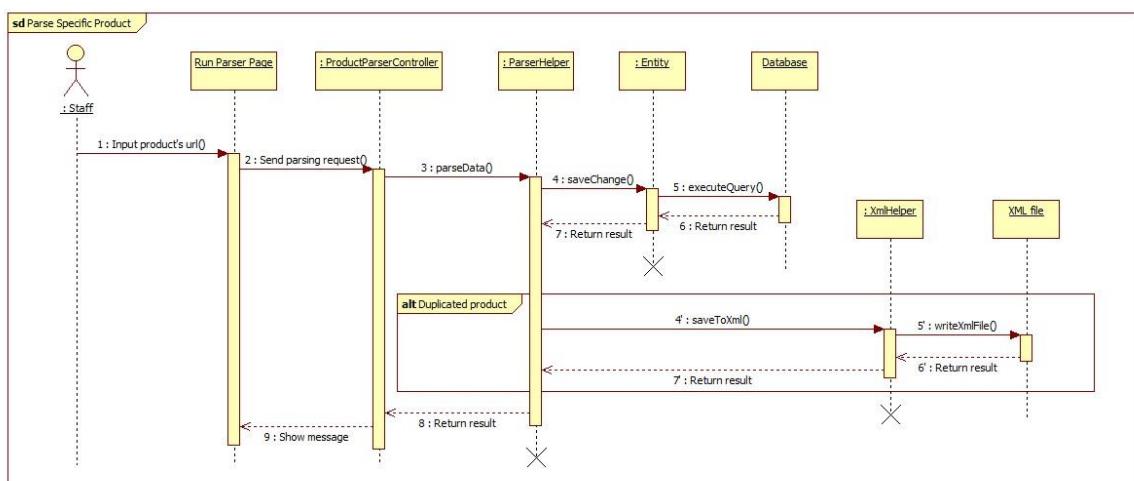


Figure 57: Parse Specific Product Sequence Diagram

4.3.2 Import Excel File

Summary: This diagram shows how to add new word(s) into the system by excel file.

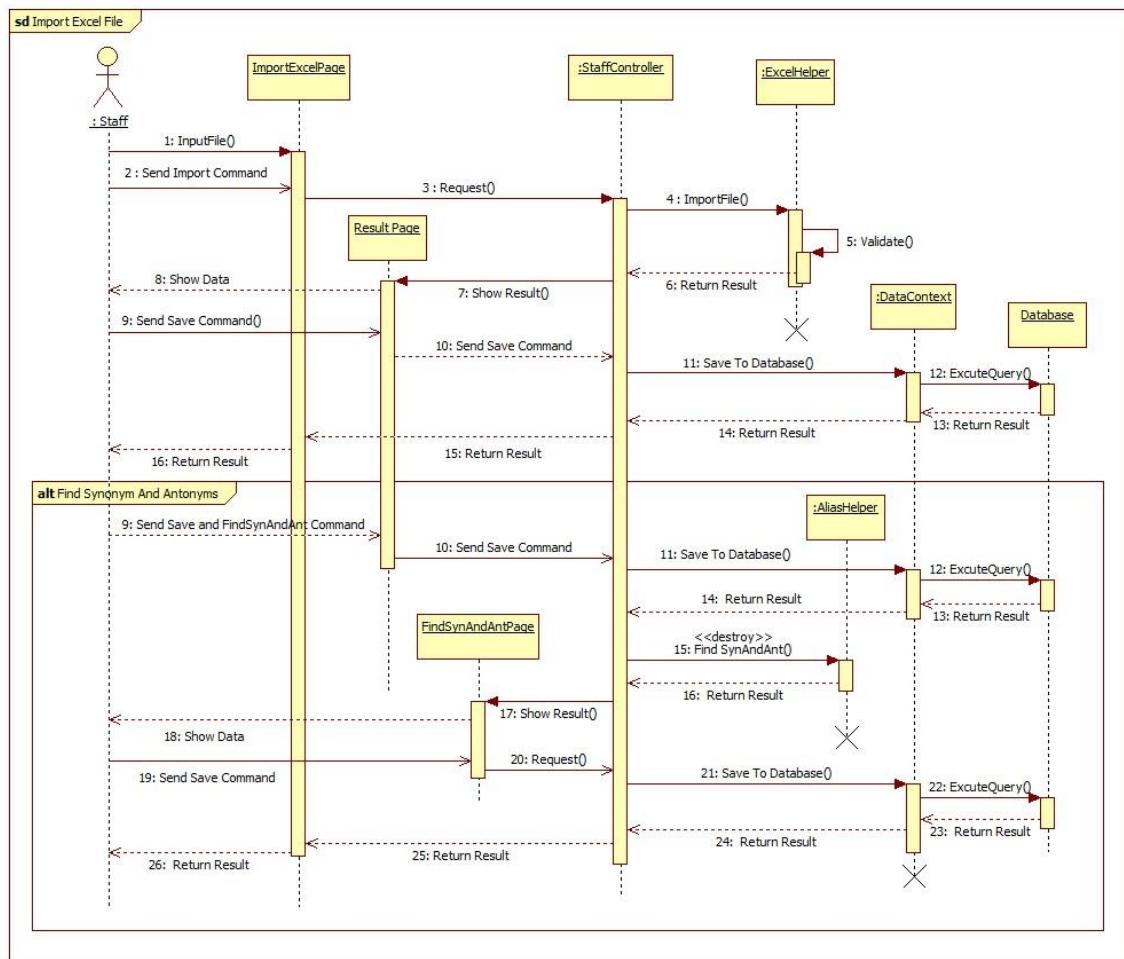


Figure 58: Import Excel File Sequence Diagram

4.3.3 Import Dictionary File

Summary: This diagram shows how to import Dictionary into the system by text file.

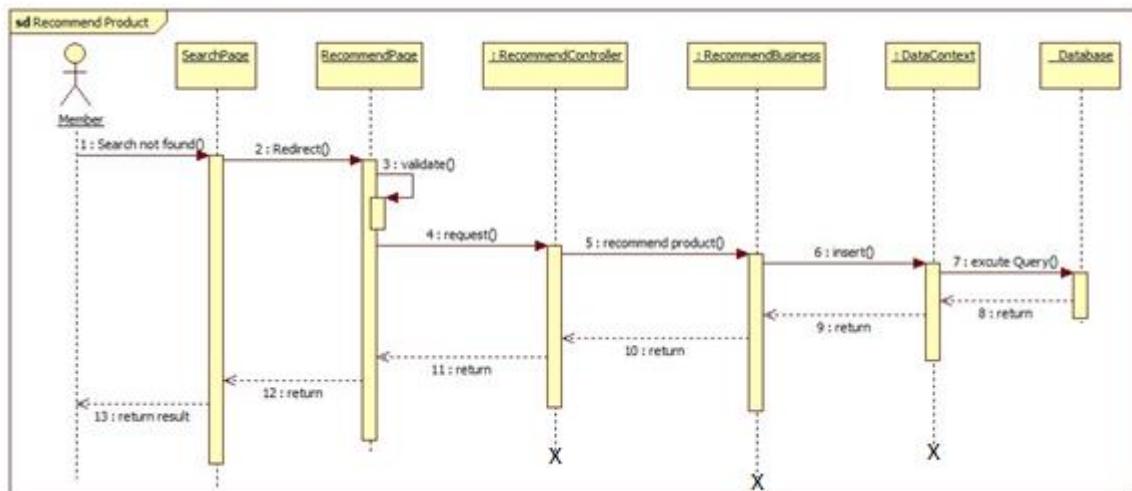


Figure 59: Recommend Sequence Diagram

4.3.4 Add Word

Summary: This diagram shows how to add new word.

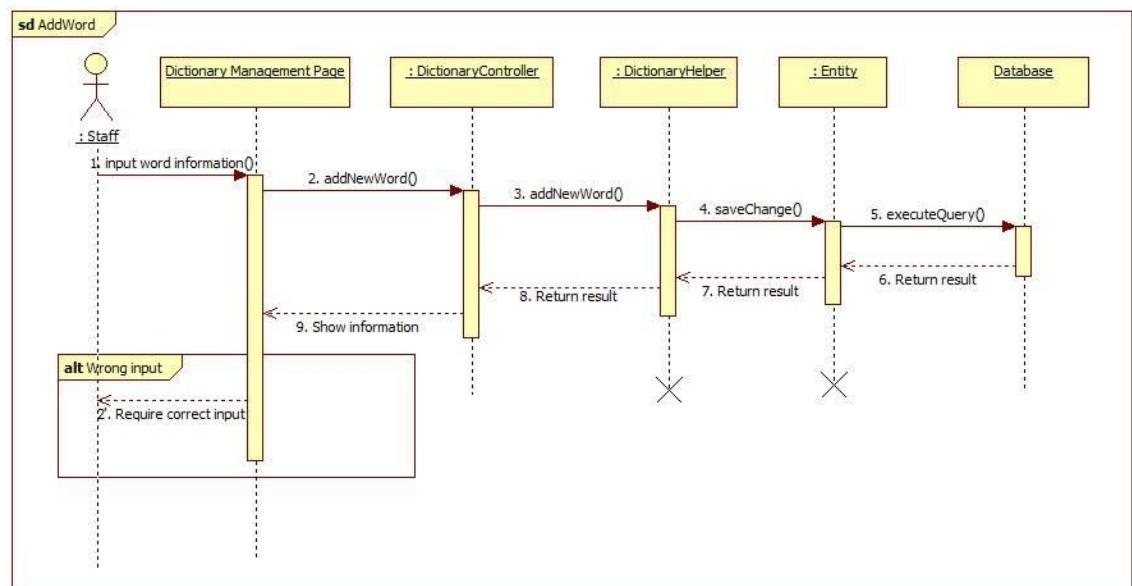


Figure 60: Add Word

4.3.5 Edit Word

Summary: This diagram shows how to edit available word

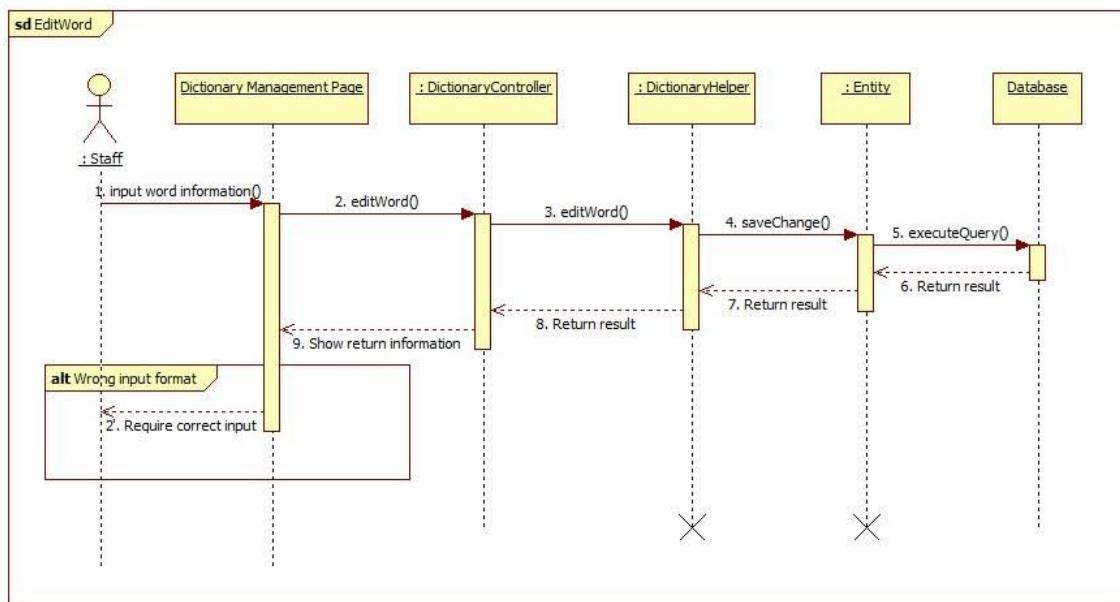


Figure 61: Edit Word

4.3.6 Search Laptop

Summary: This diagram shows how to search specific laptop

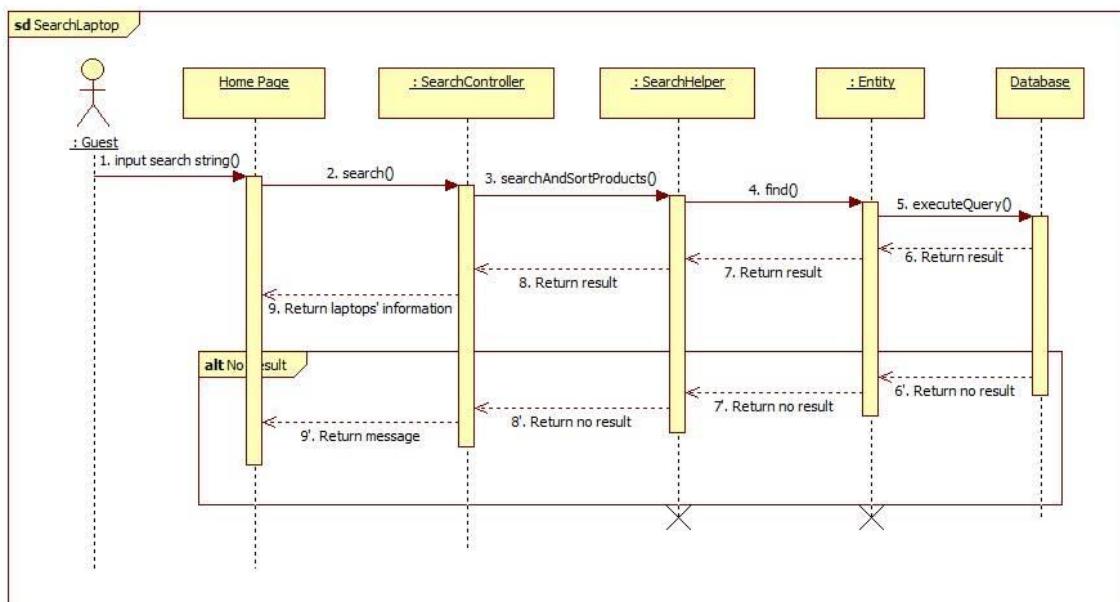


Figure 62: Search Laptop

4.3.7 Create New Site

Summary: This diagram shows how to create new site for parser.

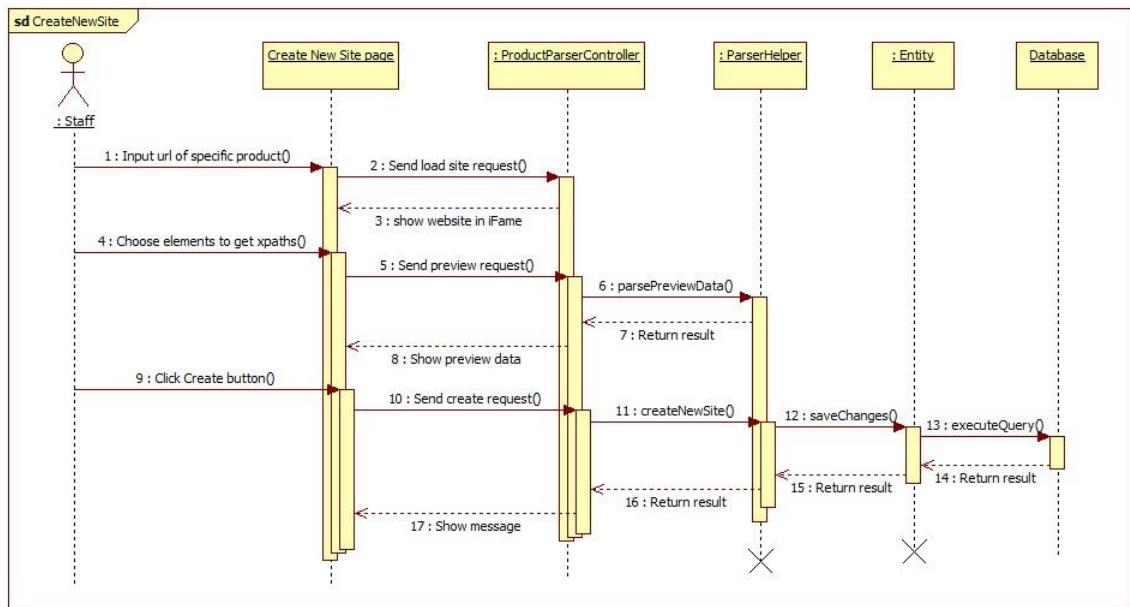


Figure 63: Create New Site Sequence Diagram

4.3.8 Configure System

Summary: This diagram shows how to update system configuration's parameters.

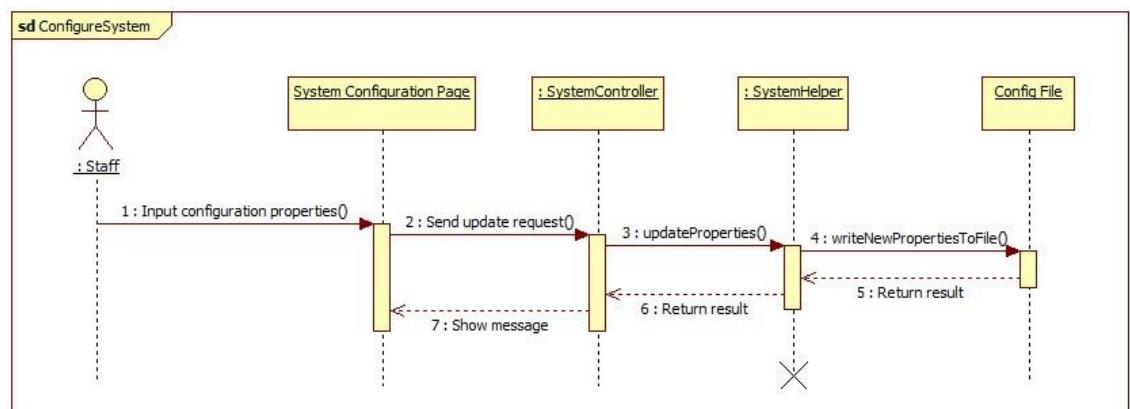


Figure 64: Configure System Sequence Diagram

4.3.9 Train Machine

Summary: This diagram shows how to handle duplicated laptops

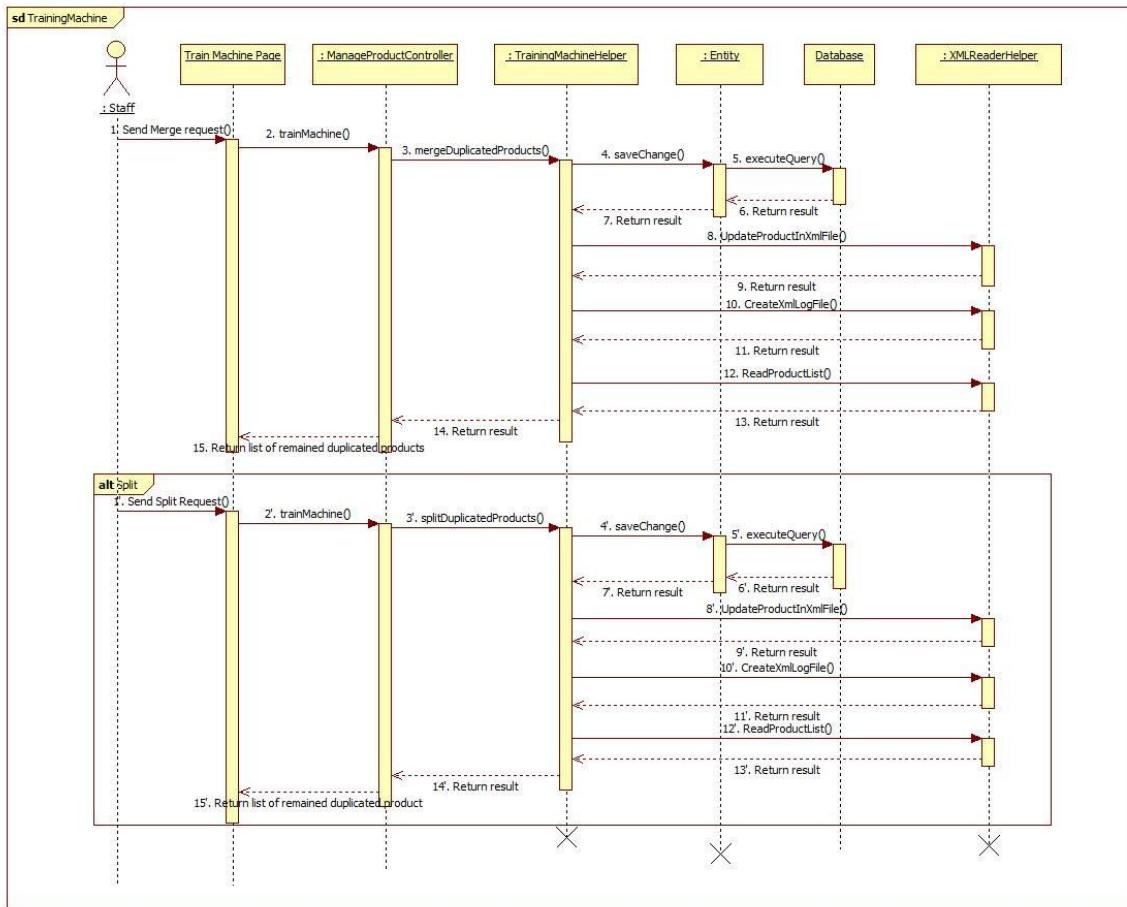


Figure 65: Train Machine

5. User Interface Design

5.1 Component Interface

5.1.1 Web Service Interface

Signature	Description	Input	Output	Output format	Exception
public ResponseObject AddProductComment (R r)	Add new comment to product	Request object r contains: Product Id: integer Comment: string	Json Boolean result of adding new comment	Boolean	JsonProcessing Exception
public ResponseObject SearchProduct(R r)	Search product by product name	Request object r contains: productName: string	Json string List of Product	ProductInfoModel	JsonProcessing Exception

			SearchResult		
public ResponseObject SaveEmailForRecommendProduct(R r)	Save customer email for recommended product	Request object r contains: email: string productName: string	Json string noticed message	String	JsonProcessingException
public ResponseObject SearchComment(R r)	Search comment by product id	Request object r contains: productId: integer	Json string List of suitable comment	CommentEntity	JsonProcessingException

Table 59: Web Service Interface

Entity/Model	Description
ProductInfoModel	id name brand description images comments pros
CommentEntity	id content cmtTypeId productId isActive isReported reportedDate cmtDate

Table 60: Entity/Model description

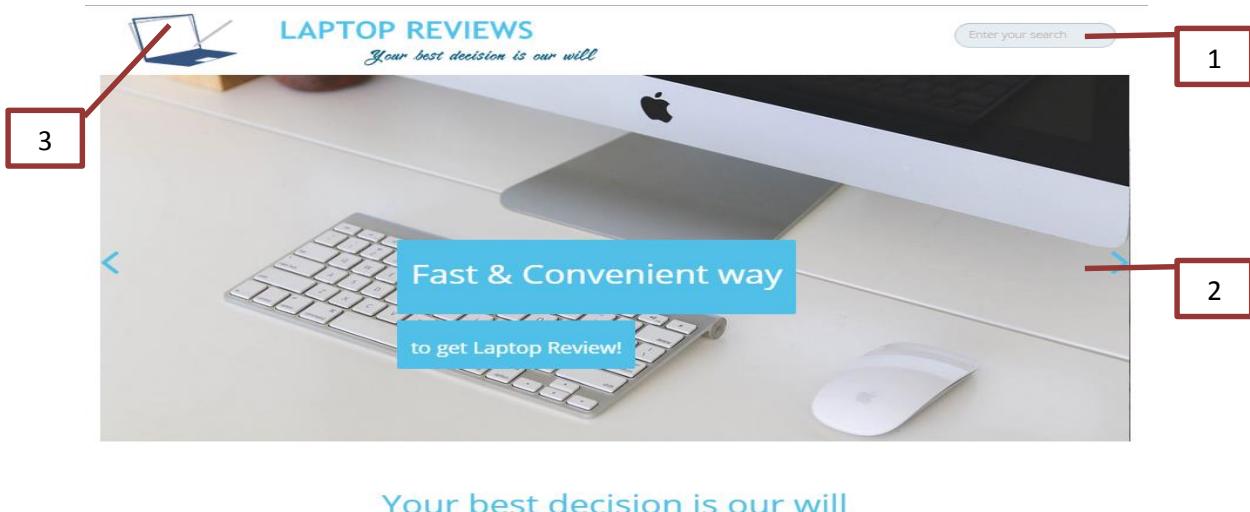
Exception	Description
JsonProcessingException	appear when processing (parsing, generating) JSON content

Table 61: Exception Description

5.2 Web Application Design

5.2.1 Guest Interface Design

5.2.1.1 Guest Home Page



Your best decision is our will

Figure 66: Guest Home Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
2	Slide	Slide about website	No	No	Slide	N/A	N/A
1	Search Product	Search product by name	No	No	Textbox	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
3	Home page	Click to transfer to home page	No	Transfer to Home page

5.2.1.2 Result Page

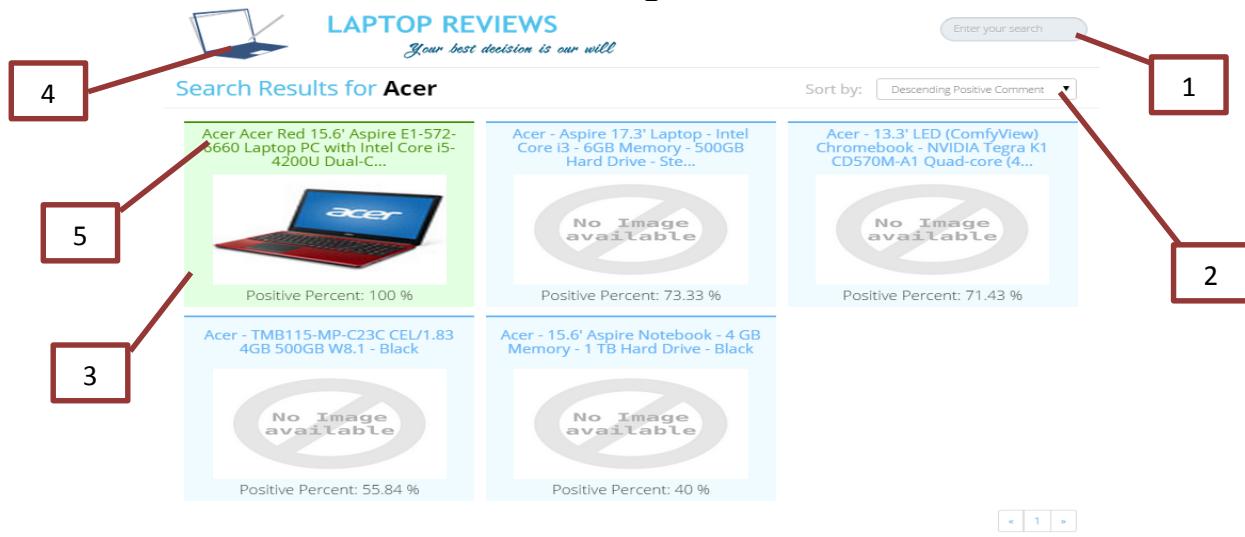


Figure 67: Result Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Search	Search laptops by Name	No	No	Textbox	String	N/A
2	Sort By	Sort laptop by Positive comment or by Name	No	No	Dropdown List	N/A	N/A
3	Product brief Information	Product short information with name, avatar and positive percent	Yes	No	N/A	N/A	N/A

Buttons/Hyperlinks

No	Function	Description	Validation	Outcome
4	Home	Click to go to home page	N/A	Navigate to home page
5	Product Detail	Click to go to guest product detail page	N/A	Transfer to guest product detail page

5.2.1.3 No Result Page

The screenshot shows a web page titled "LAPTOP REVIEWS" with the tagline "Your best decision is our will". A search bar at the top right contains the placeholder "Enter your search". On the left, there is a graphic of a laptop with the number "2" in a red box. Below the title, a message says "Product TX150 is not available in our system! Please give us your email. We will respond to you if it's available." To the right of this message is a red box containing the number "1". A text input field below the message has the placeholder "Please enter your email" and is labeled with the number "3" in a red box. To the right of the input field are two buttons: "Send" and "No, Thanks!". The "Send" button is labeled with the number "4" in a red box, and the "No, Thanks!" button is labeled with the number "5" in a red box. A red box containing the number "6" is positioned above the "Send" button.

Figure 68: Register Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Search	Search for laptop by name	No	No	Textbox	String	N/A
3	Email	Fill guest email	No	Yes	Textbox	String	N/A
6	Information message	Message to require guest to input their email for their wanted product	Yes	N/A	Text	String	N/A

Buttons/Hyperlinks

No	Function	Description	Validation	Outcome
2	Home	Click to go to home page	N/A	Transfer to home page
4	Send	Click to send email	Yes	Transfer to home page
5	No, Thanks!	Click to cancel request	No	Transfer to home page

5.2.1.4 Laptop Detail Page

The screenshot shows a laptop detail page with various annotations:

- 1**: A red box points to the logo "LAPTOP REVIEWS" which includes a small icon of a laptop.
- 2**: A red box points to a search bar labeled "Enter your search".
- 3**: A red box points to the product title "MacBook Pro 13-inch with Retina Display (late 2013)".
- 4**: A red box points to the main product image showing the MacBook Pro with a scenic background.
- 5**: A red box points to a smaller thumbnail image of the same laptop.
- 6**: A red box points to a table titled "Description" containing technical specifications.
- 7**: A red box points to a green comment section with a positive comment.
- 8**: A red box points to the "Comments" heading and the count of positive comments (43).
- 9**: A red box points to a specific comment: "For me, as a student (@ IIT Kanpur), 256 GB SSD + 8 GB RAM is more than enough."
- 10**: A red box points to a blue up arrow icon.

	Type	Midsized
Screen size	13 inches	
Screen resolution	2560 x 1600	
Bundled OS	Mac OS (Mavericks [10.9])	
Processor speed	2.4 GHz	
System RAM	4 GB	
Maximum battery life	Up to 9 hours	
Dimensions	0.71 x 12.35 x 8.62 in	
Weight	3.46 lb	
Announced	October 22, 2013	

Figure 69: Member Home Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
2	Search	Search for laptop by name	No	No	Textbox	String	N/A
3	Laptop's Name	Name of Laptop	Yes	N/A	Label	String	N/A
4	Product Image	Show big image of product	Yes	N/A	Image	Image	N/A
6	Product Description	Show product description	Yes	N/A	Table/Text	String	N/A
7	Product Comments	Show comments of product	Yes	N/A	Text	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
1	Home page	Click to transfer to home page	No	Transfer to Home page
5	View Product Image	Click to view product image in full size	No	Show full-size product image
8	Switch between Positive/Negative/Neutral comments	Click to view Positive/Negative or Neutral comments	No	Show appropriate comments
9	Report comment	Click to report insufficient comment	No	Reported comment is highlighted
10	Go to top	Click to go to top of current page	No	Go to top of current page

5.2.2 Member Interface Design

5.2.2.1 Login Page

LAPTOP REVIEWS

Sign in to your account

Please enter your name and password to log in.

Username

Password

I forgot my password

Keep me signed in

Login

Figure 70: Admin/Staff Login Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Username	Fill username	No	Yes	Textbox	String	[6-20]
2	Password	Fill password	No	Yes	Password	String	[6-20]]
3	Keep me signed in	Keep account signed in	NO	N/A	checkbox	Bool	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
4	Retrieve password	Click to retrieve password by email	Yes	Transfer to Forgot password page
5	Login	Click to login into the system	Yes	Transfer to Admin/Staff Home page

5.2.2.2 Account Management Page

The screenshot shows the 'Account Management' page of the 'Laptop Reviews' application. At the top, there's a logo of a laptop and the text 'LAPTOP REVIEWS' with a tagline 'Your best decision is our will'. On the right, there's a user profile for 'admin' with options to 'My Profile', 'Change Password', and 'Log Out'. The main content area has a title 'Account Management'. A sidebar on the left has a 'Account Management' tab selected, showing a blue arrow. The main content area displays a table titled 'List of All Account' with one entry: '1 staff'. The table includes columns for 'No.', 'Username', 'Role', and 'Action'. The 'Action' column contains two buttons: a blue checkmark and a red circle with a slash. At the bottom, it says 'Showing 1 to 1 of 1 entries' and has navigation buttons for 'Previous', 'Next', and a page number '1'.

Figure 71: User List Page - 1

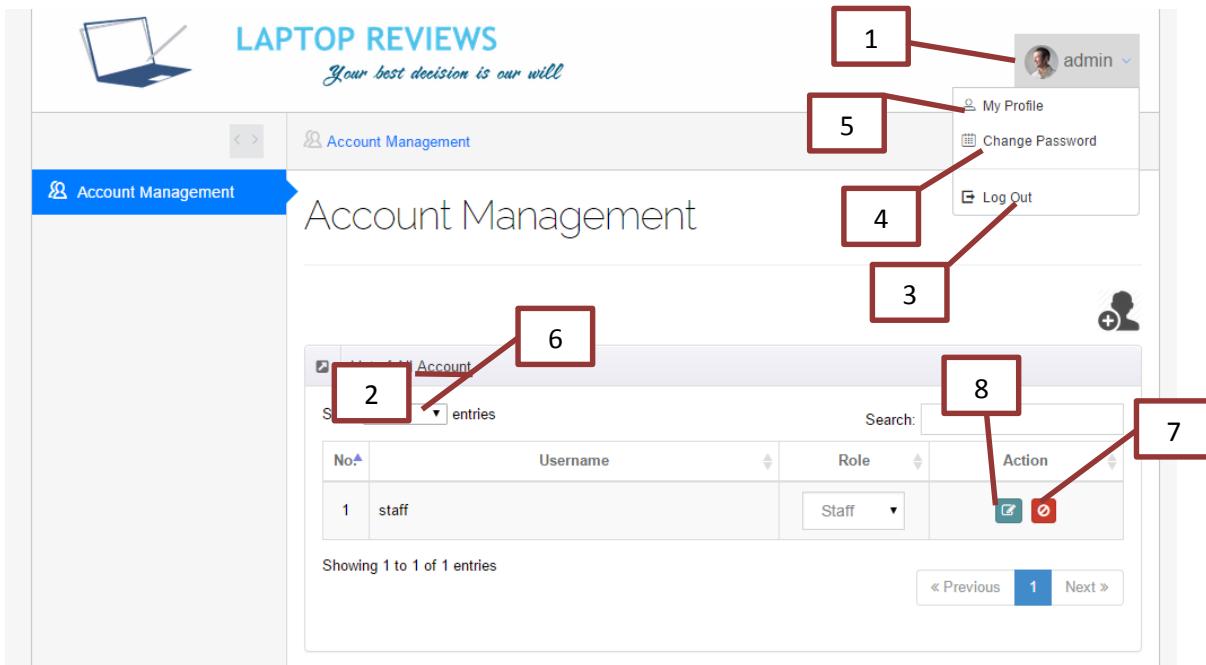


Figure 72: User List Page - 2

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Account info	Username of admin	N/A	N/A	Label	N/A	N/A
2	List of all account	Table showing	Yes	Yes	Table	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
3	Logout	Click to logout account	No	Transfer to Admin/Staff Login page
4	Change password	Click to go to manage user page	No	Transfer to Admin/Staff Change password page
5	User profile	Click to go to manage user page	No	Transfer to Manage user page
6	Number entries	Click to select number entries will be showed	No	Show a dropdown list
7	Active/Deactive account	Click to Enable/Disable the user	No	Message completed
8	Edit Account	Click to edit account	No	Transfer to edit user page

Table User List includes

Field name	Description	Read only	Control type	Data type	Length
Email	Email	N/A	Label	String	N/A
Username	Username	N/A	Label	String	N/A
Role	Select role of user	N/A	Drop down list	N/A	N/A
Action	Enable/Disable account	No	Button	N/A	N/A

5.2.2.3 Change Password Page

The screenshot shows a 'Change Password' dialog box. It contains three input fields: 'Old Password *', 'New Password *', and 'Confirm New Password *'. Below the fields is a button bar with 'Save Changes' and 'Cancel' buttons. Red numbers 1 through 5 are placed outside the dialog to indicate specific elements:

- 1 points to the 'Old Password *' input field.
- 2 points to the 'New Password *' input field.
- 3 points to the 'Confirm New Password *' input field.
- 4 points to the 'Save Changes' button.
- 5 points to the 'Cancel' button.

Figure 73: Create New User Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Old Password	Fill old password of user	No	Yes	Textbox	String	[6-20]
2	New Password	Fill password	No	Yes	Password	String	[6-20]
3	Confrm New Password	Fill password	No	Yes	Password	String	[6-20]

Button/ Hyperlink

No	Function	Description	Validation	Outcome
7	Save changes	Save changes	Yes	Transfer to Account Management page
6	Cancel	Cancel	No	Transfer to Account Management page

5.2.3 Staff Interface Design

5.2.3.1 System Configuration Page

System Configuration

The screenshot shows a configuration page with the following fields:

- Daily parsing time:** Set to 09:32 AM. (Field 3)
- Number of product:** Set to 10. (Field 4)
- Number of product description:** A tooltip below the field states: "Number of product of each site which will be parsed automatically".
- Daily reanalyzing time:** Set to 03:30 AM. (Field 5)
- Limited day:** Set to 15. (Field 6)
- Limited day description:** A tooltip below the field states: "Number of limited day for handling recommended products".
- Save button:** A blue button labeled "Save". (Field 7)

Figure 74: System Configuration Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	System Configuration	Page's name	Yes	N/A	Label	N/A	N/A
2	System Configuration	Area's name	Yes	N/A	Label	N/A	N/A
3	Daily parsing time	Fill time parse product automatically	No	Yes	Time picker	Date Time	N/A
4	Number of product	Number of product of each site which will be	No	Yes	Textbox	Integer	2

		parsed automatically					
5	Daily reanalyzing time	Fill time reanalyze comment automatically	No	Yes	Time picker	Date Time	N/A
6	Limited day	Number of limited day for handling recommended products	No	Yes	Textbox	Integer	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
7	Update configuration	Click to update configuration system	Yes	Message completed

5.2.3.2 Dictionary Management Page

Dictionary Management

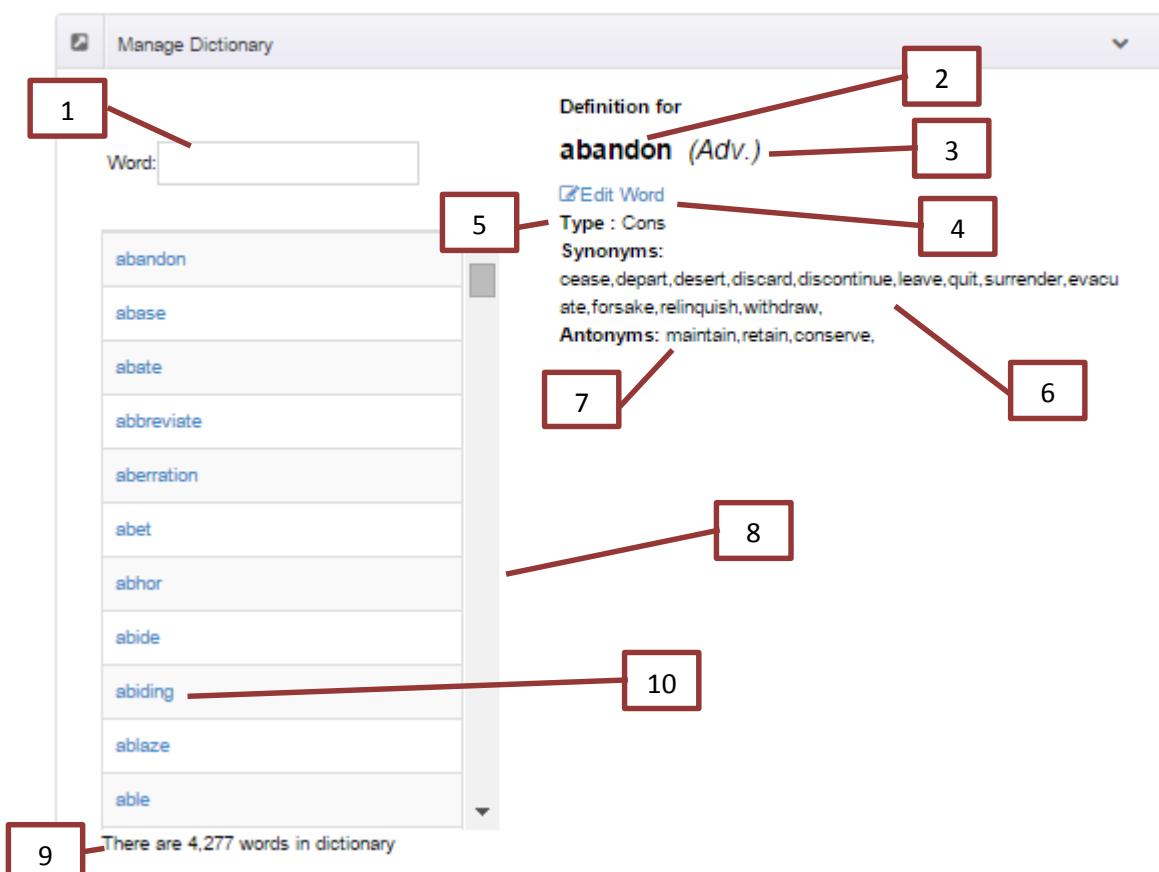


Figure 75: <Staff> Dictionary Management

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
2	Word	Show word character	Yes	Yes	Label	String	N/A
3	Word class	Show word class	Yes	Yes	Label	String	N/A
5	Word type	Show word type	Yes	Yes	Label	String	N/A
6	Word's synonyms	Show word's synonyms	Yes	Yes	Label	String	N/A
7	Word's antonyms	Show word's antonyms	Yes	Yes	Label	String	N/A
8	List of words	Show list of words	No	Yes	Scrollable List	String	N/A
9	Total words	Show total words information	Yes	Yes	Label	String	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
1	Search word	Input search string to find specific word	N/A	Specific word is shown
4	Edit word	Click to show edit word field	Yes	Edit word field is shown
10	Show word definition	Click to show word definition	Yes	Word definition is shown

Add new word

Add new word:

Word:	<input type="text" value="Enter Word"/>	1
	Did You Mean: <input type="text"/>	2
Class:	<input type="text" value="Adj."/>	3
Type:	<input type="text" value="Pros"/>	4
Synonyms:	<input type="text" value="Enter synonyms"/>	5
Antonyms:	<input type="text" value="Enter antonyms"/>	6
	<input type="button" value="Add New Word"/> <input type="button" value="Reset"/>	7
	8	

Figure 76: <Staff> Add new word

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Word	Input word character	No	Yes	Textbox	String	N/A
2	Validation for word input	Show validate information for word input	No	No	Label	String	N/A
3	Word class	Choose word class	No	Yes	Drop down list	String	N/A
4	Word type	Choose word type	No	Yes	Drop down list	String	N/A
5	Word's synonyms	Input word synonyms	No	No	Textbox	String	N/A
6	Word's antonyms	Input word antonyms	No	No	Textbox	String	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
7	Reset	Click to clear all input fields	N/A	All fields are cleared
8	Add new word	Click to submit add new word field	Yes	New word is added. Show new word definition

Edit Word

Edit word: abandon

Word:	abandon	1
Class:	Adv.	2
Type:	Cons	3
Synonyms:	<input type="button" value="x cease"/> <input type="button" value="x depart"/> <input type="button" value="x desert"/> <input type="button" value="x discard"/> <input type="button" value="x discontinue"/> <input type="button" value="x leave"/> <input type="button" value="x quit"/> <input type="button" value="x surrender"/> <input type="button" value="x evacuate"/> <input type="button" value="x forsake"/> <input type="button" value="x relinquish"/> <input type="button" value="x withdraw"/> <input type="button" value="x maintain"/> <input type="button" value="x retain"/> <input type="button" value="x conserve"/>	4
Antonyms:		5
	<input type="button" value="Save"/> <input type="button" value="Reset"/>	6
	7	

Figure 77: <Staff> Add new word

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Word	Show word characters	Yes	Yes	Label	String	N/A
2	Word class	Edit word class	No	Yes	Drop down list	String	N/A
3	Word type	Edit word type	No	Yes	Drop down list	String	N/A
4	Word's synonyms	Edit word synonyms	No	No	Textbox	String	N/A
5	Word's antonyms	Edit word antonyms	No	No	Textbox	String	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
6	Reset	Click to clear all input fields	N/A	All fields are cleared
7	Edit word	Click to submit edit word field	Yes	New information of word is saved and shown to current page.

5.2.3.3 Import Excel File

Import Excel Page

Import Excel File

The screenshot shows a 'Import File' dialog box. At the top, there is a placeholder text 'Please choose excel file to import'. Below it is a file input field with a red box labeled '1' and a 'Select file' button next to it. To the right of the input field is a blue 'Import' button with a red box labeled '2' over it. A red box labeled '3' points to a blue error message at the bottom left of the dialog: 'Please select an excel file to import'.

Figure 78: Import Excel Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
3	Message	Message	Yes	N/A	Label	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
1	Select excel file	Click to select excel file	N/A	N/A
2	Import excel file	Get data in excel file	N/A	N/A

Result

Result Page

File uploaded successfully! 207 word(s) has already existed in database. List of new 5 word(s):

The screenshot shows a user interface for managing word entries. At the top, there is a success message: "File uploaded successfully! 207 word(s) has already existed in database. List of new 5 word(s):". Below this, a table lists five words: loving, issue, nervous, neat, and amazing. Each row has a checkbox (checked for loving, issue, nervous, neat; uncheckable for amazing), a text input field containing the word, a dropdown menu for 'Type' (Pros, Cons, Neutral), and a dropdown menu for 'Class' (Adv., Adj.). A large blue 'Save' button is at the bottom left, and another blue 'Save' button is at the bottom right.

- 1: Points to the first 'Save' button at the bottom.
- 2: Points to the second 'Save' button at the bottom.
- 3: Points to the checkbox for 'loving'.
- 4: Points to the 'Word' column for 'loving'.
- 5: Points to the 'Type' dropdown for 'loving'.
- 6: Points to the 'Class' dropdown for 'loving'.

Figure 79: Result Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
2	Select	Select	No	N/A	Checkbox	Boolean	N/A
3	Word name	Word name	No	N/A	Textbox	String	N/A
4	Word Type	Type word	No	N/A	Textbox	String	N/A

5	Word Class	Word class	No	N/A	Textbox	String	N/A
6	Message	Message	No	N/A	Textbox	String	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
1	Save	Click to save select word(s)	N/A	N/A

Find Synonyms and Antonyms Page

Find Synonyms and Antonyms

Added 4 word(s) into database. 0 word(s) has already existed.
Found 25 synonym(s) and 16 antonym(s).

```

graph LR
    Save[Save] --> Box1[1]
    Box1 --> Box2[2]
    Box2 --> loving[loving]
    loving --> Box3[3]
    Box3 --> Box4[4]
    Box4 --> Box5[5]
    Box5 --> SynonymsTab[Synonyms]
    SynonymsTab --> Result[No synonym has been found!]
  
```

Diagram illustrating the user interface flow:

- A blue "Save" button is connected by a red arrow to a red-outlined box labeled "1".
- Box "1" is connected by a red arrow to a red-outlined box labeled "2".
- Box "2" is connected by a red arrow to the word "loving".
- The word "loving" is connected by a red arrow to a red-outlined box labeled "3".
- Box "3" is connected by a red arrow to a red-outlined box labeled "4".
- Box "4" is connected by a red arrow to a red-outlined box labeled "5".
- Box "5" is connected by a red arrow to the "Synonyms" tab.
- The "Synonyms" tab is connected by a red arrow to the message "No synonym has been found!".

neat

Synonyms	Antonyms
<input type="checkbox"/>	Word
<input checked="" type="checkbox"/>	precise
<input checked="" type="checkbox"/>	orderly
<input checked="" type="checkbox"/>	chic
<input checked="" type="checkbox"/>	dapper
<input type="checkbox"/>	Word
<input checked="" type="checkbox"/>	accurate
<input checked="" type="checkbox"/>	spotless
<input checked="" type="checkbox"/>	dainty
<input checked="" type="checkbox"/>	fastidious

Diagram illustrating the user interface flow for the word "neat":

- The "Synonyms" tab is highlighted in blue.
- A red arrow points from the "Synonyms" tab to a red-outlined box labeled "6".
- A red arrow points from box "6" to the word "precise".
- A red arrow points from the word "precise" to a red-outlined box labeled "7".
- A red arrow points from box "7" to the word "accurate".

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
2	Message	Message	No	N/A	Textbox	String	N/A
3	Word name	Word name	No	N/A	Label	String	N/A
4	Synonym	Synonym table	No	N/A	TabTable	N/A	N/A
5	Antonyms	Antonyms table	No	N/A	TabTable	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
1	Save	Click to save select word(s)	N/A	N/A

Table Recommend List includes

Field name	Description	Read only	Control type	Data type	Length
Select	Select	No	Checkbox	Boolean	N/A
Word name	Word name	No	Textbox	String	N/A

5.2.3.4 Import Dictionary File Page

Import Dictionary File

The screenshot shows a 'Import File' dialog box. At the top, it says 'Import File'. Below that, there is a message 'Please choose dictioinary file to import' with a 'Select file' button. A red box labeled '1' points to the 'Select file' button. Below the message, there is a dropdown menu labeled 'Choose type of dictionary' with 'Lingoes Dictionary' selected. A red box labeled '3' points to the dropdown menu. At the bottom of the dialog, there is a message 'Imported 15 words successful! 10 words were not imported because they were existed.' and a blue 'Import' button. A red box labeled '2' points to the 'Import' button. A red box labeled '4' points to the message at the bottom.

Figure 80: Import Dictionary File

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
10	User price list	Table showing	No	Yes	Table	N/A	N/A
4	Select product	Select recommend product to auto list	No	N/A	Check box	N/A	N/A
5	Select product	Select recommend product to Ignore list	No	N/A	Check box	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
1	Select excel file	Click to select excel file	N/A	N/A
2	Import excel file	Get data in excel file	N/A	N/A

Table Recommend List includes

Field name	Description	Read only	Control type	Data type	Length
Username	Username	N/A	Label	String	N/A
URL	URL of product	N/A	Label	String	N/A
RecommendTime	Recommend time	N/A	Label	Datetime	N/A
Action	Action of staff	No	Button, Checkbox	N/A	N/A

5.2.3.5 Product Management

Product Management Page

The screenshot shows the 'Product Management' page with the 'All products' tab selected. The top navigation bar includes links for 'All products (59)', 'No image (24)', 'No description (1)', and 'Reported comment (1)'. A search bar labeled 'Product:' is present. Below the navigation, a table lists 10 products with columns for No, Product ID, Product Name, and Updated time. Annotations are as follows:

- 1**: Points to the 'Product Management' title.
- 2**: Points to the 'All products (59)' link.
- 3**: Points to the 'Product:' search bar.
- 4**: Points to the 'Show 10 ▾ row' dropdown.
- 5**: Points to the table header.
- 6**: Points to the first product in the table.
- 7**: Points to the 'Product Name' column in the table.

No	Product ID	Product Name	Updated time
1	37	Acer - 13.3' LED (ComfyView) Chromebook - NVIDIA Tegra K1 CD570M-A1 Quad-core (4 Core) 2.10 GHz - White	7/31/2015
2	27	Acer - 15.6' Aspire Notebook - 4 GB Memory - 1 TB Hard Drive - Black	7/17/2015
3	41	Acer - Aspire 17.3' Laptop - Intel Core i3 - 6GB Memory - 500GB Hard Drive - Steel Gray	7/31/2015
4	55	Acer - TMB115-MP-C23C CEL/1.83 4GB 500GB W8.1 - Black	8/3/2015
5	43	Acer Acer Red 15.6' Aspire E1-572-8680 Laptop PC with Intel Core i5-4200U Dual-Core Processor, 8GB Memory, 1TB Hard Drive and Windows 7 Home Premium	7/31/2015
6	31	Alienware - 17.3' Laptop - Intel Core i7 - 16GB Memory - 1TB Hard Drive + 128GB Solid State Drive - Epic Silver	7/31/2015
7	40	Apple - Geek Squad Certified Refurbished Pro with Retina display - 15.4' Display - 16GB Memory - 256GB Flash Storage - Silver	7/31/2015

Figure 81: Product Management - All Product Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Page name	Name of current page	Yes	Yes	Label	String	N/A
3	Search Product	Search for product by name	No	No	Textbox	String	N/A
4	Filter product	Filter number of displayed product	No	Yes	Dropdown List	String	N/A
6	Table of Products	Show list of products	Yes	Yes	Table	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
2	Change Table	Click to switch displayed table between: All Product, No Description Product, No Image Product and Reported Comments	No	Reload table and its contains
7	Go to Edit Product Page	Click to go to Edit Product Page	No	Navigate to appropriate edit product page

Table of Product includes

Field name	Description	Read only	Control type	Data type	Length
No	No of product in table	Yes	Label	String	N/A
Product ID	ID of products	Yes	Label	String	N/A
Product Name	Name of Product	Yes	Hyperlink	String	N/A
Updated Time	The date the product was updated	Yes	Label	String	N/A

Edit Product Page

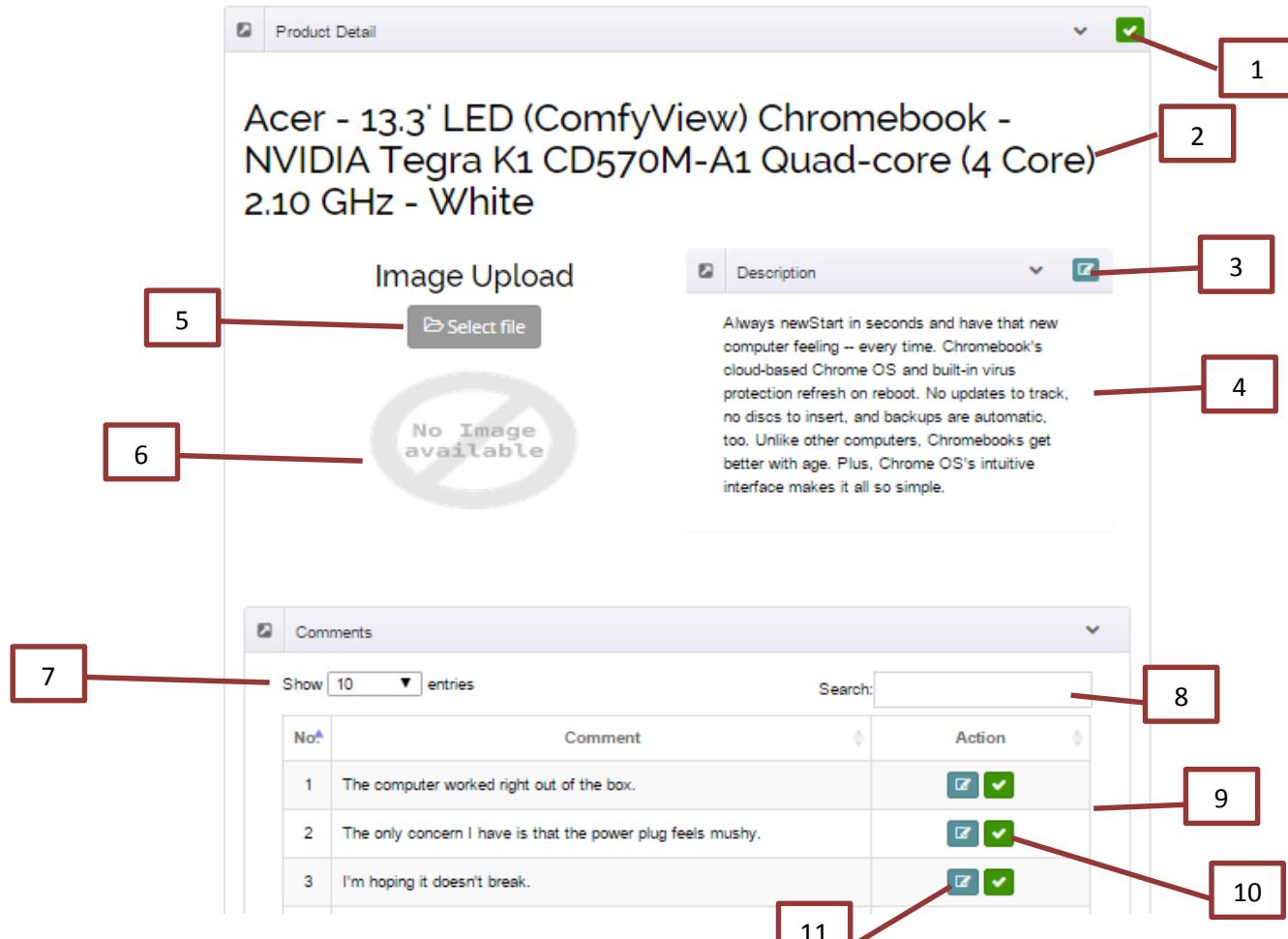


Figure 82: Product Edit Page

The screenshot shows a web-based application interface for managing products. On the left, a sidebar menu is open under the 'Products' tab, showing 'Products Management', 'Training Machine', 'Recommended Product', and 'Parser'. A red box labeled '12' with a pointer indicates the number of items in the 'Parser' section. The main content area is titled 'Product Detail' for an Acer Chromebook. It includes an 'Image Upload' section with a 'Select file' button and a preview area showing three small images. Below this is a 'Description' field containing a paragraph about Chrome OS. At the bottom of the main panel is a 'Comments' section with a table showing two comments from users. The table has columns for 'No.', 'Comment', and 'Action'. Each comment row contains two checkboxes in the 'Action' column.

No.	Comment	Action
1	The computer worked right out of the box.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
2	The only concern I have is that the power plug feels mushy.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Figure 83: Product Edit Page - Upload Image

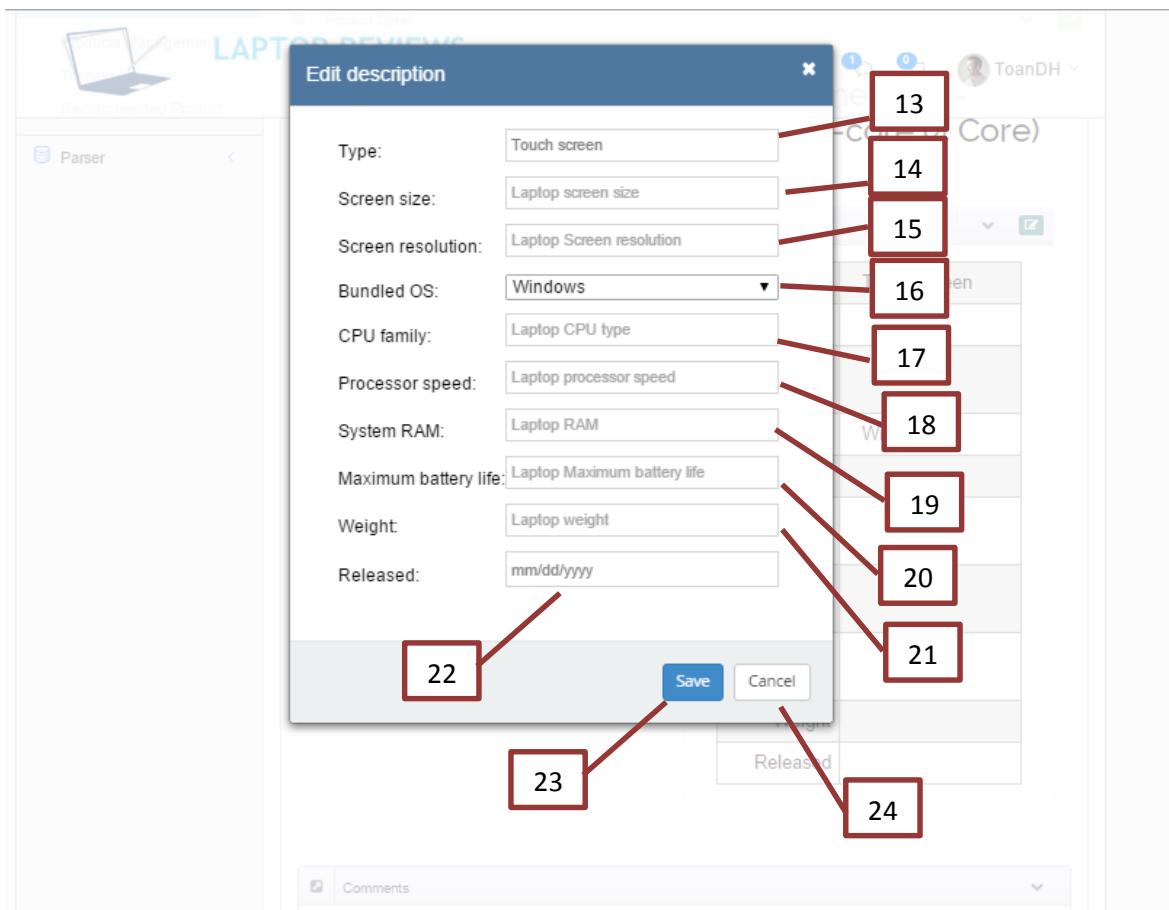


Figure 84: Edit Product Page - Edit Description

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
2	Product Name	Name of Product	Yes	Yes	Label	String	N/A
4	Product Description	Description of product	Yes	Yes	Text	String	N/A
6	Images area	Show product images	Yes	Yes	N/A	N/A	N/A
9	Comment Table	Table contains product comments	Yes	Yes	Table	N/A	N/A
12	Image preview	Show selected images for reviewing	Yes	No	N/A	N/A	N/A

13	Laptop Type	Input type of laptop	No	No	Textbox	String	N/A
14	Laptop Screen Size	Input screen size of laptop	No	No	Textbox	String	N/A
15	Laptop Screen Resolution	Input screen resolution of laptop	No	No	Textbox	String	N/A
16	Laptop Operation System	Input laptop operation system	No	No	Dropdown List	String	N/A
17	Laptop CPU type	Input laptop CPU type	No	No	Textbox	String	N/A
18	Laptop Processor Speed	Input laptop processor speed	No	No	Textbox	String	N/A
19	Laptop Ram	Input Laptop Ram	No	Yes	Textbox	Int	N/A
20	Laptop maximum battery life	Input laptop maximum battery life	No	No	Textbox	String	N/A
21	Laptop weight	Input laptop weight	No	Yes	Textbox	Double	N/A
22	Laptop released day	Input laptop released date	No	Yes	Datetime Input	Datetime	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
3	Edit description	Click to show edit description form	No	Edit description form appears
5	Choose Images	Click to show "Choose Image" form	No	Choose image form appears
7	Filter comment	Filter maximum of comments showing in each page in table	No	Maximum of comments in each page is correctly set
8	Search comment	Search for comment by its content	No	Appropriate comments are searched
10	Enable/Disable comment	Enable/Disable a comment	No	Selected comment is enabled/disabled

11	Edit comment	Show edit comment form	No	Edit comment form is shown
23	Save description	Click to save new description and load it to page	No	New description is saved and loaded to page
24	Cancel update description	Click to cancel all update	No	Close Edit Description form

Comment table includes:

Field Name	Description	Read only	Control Type	Data Type	Length
No	No of comment in table	Yes	Label	String	N/A
Comment	Comment content	Yes	Text	String	N/A
Action	Action to handle comment	No	Button	N/A	N/A

Reported Comment Page

Product Management

The screenshot shows a table of comments with the following numbered callouts:

- 1**: The tab labeled "Reported comment (10)".
- 2**: The link "All products (58)".
- 3**: The link "No image (20)".
- 4**: The link "No description (2)".
- 5**: The link "Reported comment (10)".
- 6**: The link "List of All Reported Comment".
- 7**: The column header "No.". (Note: This is highlighted with a red box in the image, but not explicitly numbered in the list.)
- 8**: The "Edit" icon in the first row's action column.
- 9**: The "Delete" icon in the first row's action column.
- 10**: The "Delete" icon in the second row's action column.

Table Data:

No.	Comment	Date	Action
1	This product is the best laptop.	08/03/2015	
2	Sony demonstrates cutting-edge design but unfortunately expensive laptop.	08/03/2015	
3	All what matters for me is the retina display, battery life, elegant look and portability.	08/02/2015	
4	I can still say all around, this is the Ultrabook to pick up out of the lot.	07/27/2015	
5	Solid and quick, like any \$1500 notebook in 2015 should be.	07/26/2015	
6	I bought this for the price, and because I already own Acer products.	07/23/2015	
7	However, the CPU is not as good as I expect for a machine in such price level.	07/19/2015	
8	BTW I got the 13' 256ssd/8gb with i5.	07/17/2015	
9	Severely lacking in functionality, and severely overpriced.	07/15/2015	
10	I'm using the high-end version 15' Macbook Pro.	07/15/2015	

Showing 1 to 10 of 10 entries

[« Previous](#) **1** [Next »](#)

Figure 85: Reported Comment Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Product management	Page's name	Yes	N/A	Label	N/A	N/A
5	Reported comment	Selected tab's name	Yes	N/A	Label	N/A	N/A

6	List of all reported comment	Area's name	Yes	N/A	Label	N/A	N/A
7	Reported comment table	Show reported comment	No	N/A	Table list view	N/A	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
2	Show content of "All products" tab	Click to change to "All products" tab	No	Show all product
3	Show content of "No image" tab	Click to change to "No image" tab	No	Show all products that have no image
4	Show content of "No description" tab	Click to change to "No description" tab	No	Show all products that have no description
8	Edit comment	Click to edit this comment	No	Show this comment's detail
9	Deny report	Click to deny this report	No	Remove this report from this list
10	Deactivate comment	Click to deactivate this comment	No	Remove this report from this list

List of Reported Comment includes

Field Name	Description	Read only	Control Type	Data Type	Length
Number row	Number of row	N/A	Label	String	N/A
Comment	Comment's content	N/A	Label	String	N/A
Date	Report's date	N/A	Label	String	N/A
Action	Action for this comment	No	Button	N/A	N/A

Edit Comment Page

The screenshot shows a modal window titled "Edit comment". The content area contains a text input field with the placeholder "I can still say all around, this is the Ultrabook to pick up out of the lot." A red box labeled "1" highlights the top right corner of this input field. Below it is a dropdown menu labeled "Type" with the option "Positive" selected, and a red box labeled "2" highlights the dropdown arrow. At the bottom left is a blue link "Go to this product" with a red box labeled "3" highlighting its bounding box. On the right side, there are two buttons: a blue "Save" button with a red box labeled "4" and a white "Cancel" button with a red box labeled "5".

Figure 86: Edit Comment Page

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Content	Fill content of comment	No	Yes	Textarea	String	N/A
2	Type	Fill type of comment	No	Yes	Dropdown list	String	N/A

Button/ Hyperlink

No	Function	Description	Validation	Outcome
3	Go to this product	Click to go to the product which has this comment	No	Transfer to product's detail page.
4	Save comment	Click to save changes	No	Back to report comment page and remove this comment from the list
5	Cancel	Click to back to report comment page	No	Back to report comment page

5.2.3.6 Train Machine

Train Machine Page

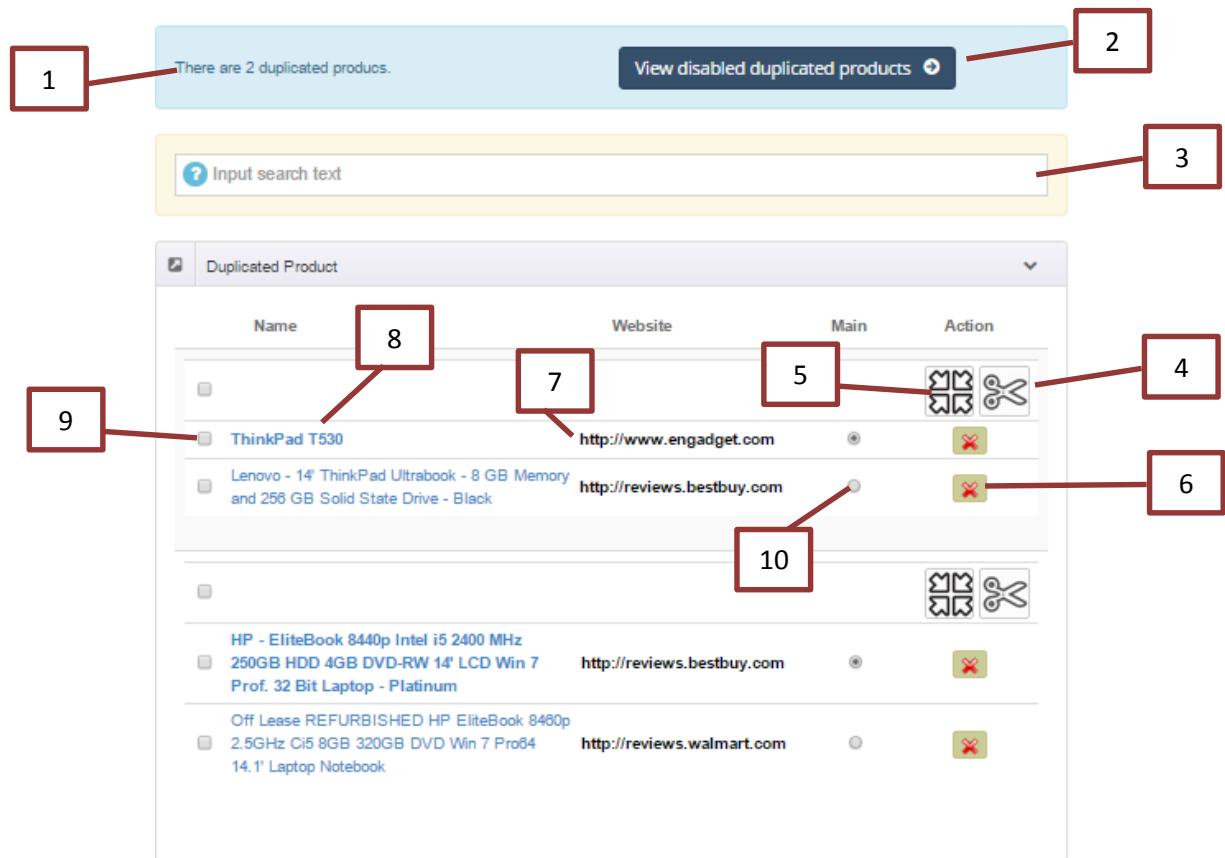


Figure 87: Train Machine

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Total duplicate products	Show total number of duplicate products	Yes	Yes	Label	String	N/A
3	Search duplicated product	Search duplicated products by name	No	No	Textbox	String	N/A
7	Product Website	Show website which product is parsed from	Yes	Yes	Label	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Show disabled duplicated product	Click to go to disabled duplicated products	No	Transfer to Disabled duplicated product page
4	Split	Click to split selected products	Yes	Selected products are split
5	Merge	Click to merge selected products	Yes	Selected products are merged
6	Disable	Click to disable selected product	Yes	Selected product is disabled
8	Product Description	Click to show product description	Yes	Selected product's description is shown
9	Check products	Check to select products that need to handle	Yes	After checking, product is selected and ready to process next step
10	Check main product	Check to select main product	Yes	After checking, selected product is selected as main product

Product Log File

Show log file

Handled products table					
No	Product Image	Product Name	Action Type	Updated Date	
1		<ul style="list-style-type: none"> Lenovo - 14' ThinkPad Ultrabook - 8 GB Memory and 256 GB Solid State Drive - Black 	Split	8/3/2015	1
2		<ul style="list-style-type: none"> HP - EliteBook 8440p Intel i5 2400 MHz 250GB HDD 4GB DVD-RW 14' LCD Win 7 Prof. 32 Bit Laptop - Platinum Off Lease REFURBISHED HP EliteBook 8460p 2.5GHz Ci5 8GB 320GB DVD Win 7 Pro64 14.1' Laptop Notebook 	Merge	8/3/2015	
3		<ul style="list-style-type: none"> Lenovo - 14' ThinkPad Ultrabook - 8 GB Memory and 256 GB Solid State Drive - Black 	Split	8/4/2015	
4		<ul style="list-style-type: none"> HP - EliteBook 8440p Intel i5 2400 MHz 250GB HDD 4GB DVD-RW 14' LCD Win 7 Prof. 32 Bit Laptop - Platinum Off Lease REFURBISHED HP EliteBook 8460p 2.5GHz Ci5 8GB 320GB DVD Win 7 Pro64 14.1' Laptop Notebook 	Merge	8/5/2015	
5		<ul style="list-style-type: none"> HP - EliteBook 8440p Intel i5 2400 MHz 250GB HDD 4GB DVD-RW 14' LCD Win 7 Prof. 32 Bit Laptop - Platinum Off Lease REFURBISHED HP EliteBook 8460p 2.5GHz Ci5 8GB 320GB DVD Win 7 Pro64 14.1' Laptop Notebook 	Merge	8/5/2015	

Figure 88: Edit Alias Product

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Processed product table	Show processed products information	Yes	Yes	Table	N/A	N/A

Processed table includes:

Field Name	Description	Read only	Control Type	Data Type	Length
No	No of product in table	Yes	Label	String	N/A
Product Image	Avatar of product (with split products) or group of products (with merged product)	Yes	Image	N/A	N/A
Product Name	Show processed product names	Yes	Text	String	N/A
Action type	Show how products were processed	Yes	Text	String	N/A

Updated date	Show the date the products were processed	Yes	Label	String	N/A
--------------	---	-----	-------	--------	-----

5.2.3.7 Recommended Product

Recommended Product Page

Recommended Product 1

The screenshot shows a page titled "Recommended Product". At the top right is a blue button labeled "Show All Recommended Product". Below it is a table with the following columns: No., Product's Name, Sent Date, and Status. The table contains four entries:

No.	Product's Name	Sent Date	Status
1	Aspire E1-522-5423	07/27/2015	Added
2	Yoga 13	08/06/2015	Pending
3	XE303C12-A01US	08/09/2015	Added
4	TX300	08/09/2015	Added

Below the table, there is a message "Showing 1 to 4 of 4 entries" and a navigation bar with buttons for "« Previous", "1", and "Next »". Red boxes numbered 1 through 5 highlight specific elements: 1 highlights the page title, 2 highlights the table header, 3 highlights the "Show All Recommended Product" button, 4 highlights the first product in the table, and 5 highlights the second product in the table.

Figure 89: Recommended Product Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Recommended product	Page's name	Yes	N/A	Label	N/A	N/A
2	List of nearest recommended products	Area's name	Yes	N/A	Label	N/A	N/A
4	Recommended product table	Show recommended product	No	N/A	Table list view	N/A	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
3	Show all recommended product	Show all recommended product in database	No	Reload table with all recommended products
5	Show product's detail	Show selected product's detail	No	Show selected product's detail in

List of Nearest Recommended Products includes

Field Name	Description	Read only	Control Type	Data Type	Length
Number row	Number of row	N/A	Label	String	N/A
Product's name	Recommended product's name	No	Hyperlink	String	N/A
Sent date	Recommend's sent date	N/A	Label	String	N/A
Status	Product's status	N/A	Label	boolean	N/A

Recommended Product Detail Page

Recommended Product ×

Product's Name:	TX300	1
Guest's Email:	minhchau273@gmail.com	2
Sent Time:	8/9/2015 5:44:52 PM	3
Status:	Pending	4
Url which will be parsed:		
<input type="text"/>		5
<input type="button" value="6"/>		<input type="button" value="Parse Product"/>

7 OK

Figure 90: Recommended Product Detail Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Product's name	Recommended product's name	Yes	N/A	Label	N/A	N/A
2	Guest's email	Emails of people who sent recommend	Yes	N/A	Label	N/A	N/A
3	Sent time	Recommend's sent date	Yes	N/A	Label	N/A	N/A
4	Status	Product's status	Yes	N/A	Label	N/A	N/A
5	Url which will be parse	Url of this recommended product which will be parse	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
6	Parse product	Parse this product and send email to guest	Yes	Message completed
7	Cancel	Turn off this popup	No	Back to Recommended Product page

5.2.3.8 Site Management Page

The screenshot shows a web-based Site Management interface. At the top, there's a header bar with the title "Site Management". Below it is a toolbar with a "List of All Site" button (1) and a search bar. The main area contains a table with the following data:

No.	Domain	Action
1	http://www.engadget.com	<input type="checkbox"/> <input checked="" type="checkbox"/>
2	http://bestbuy.com	<input type="checkbox"/> <input checked="" type="checkbox"/>
3	https://www.walmart.com	<input type="checkbox"/> <input checked="" type="checkbox"/>
4	http://localhost:4989	<input type="checkbox"/> <input checked="" type="checkbox"/>
5	http://www.ebay.com	<input type="checkbox"/> <input checked="" type="checkbox"/>

Below the table, there's a message "Showing 1 to 5 of 5 entries" and a navigation bar with page numbers.

Figure 91: Site Management Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Site management	Page's name	Yes	N/A	Label	N/A	N/A
2	List of all site	Area's name	Yes	N/A	Label	N/A	N/A
3	List of all site table	Show all sites	No	N/A	Table list view	N/A	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
1	Edit site	Click to edit site	No	Show site's detail
2	Enable/Disable site	Click to Enable/Disable site	N/A	Change icon of action

List of all site includes

Field name	Description	Read only	Control type	Data type	Length
No.	Number	N/A	Label	Integer	N/A

Domain	Website name	N/A	Label	String	N/A
Action	Action for this site	No	Button	N/A	N/A

5.2.3.9 Create New Site Page

View Site

Create New Site 1

The screenshot shows a user interface for viewing a website. At the top, there is a text input field labeled "The site which will be parsed" (1) with a placeholder icon. Below it is another text input field labeled "Url of this site" (2). To the right of these fields is a dropdown menu (3) with a small arrow indicating it can be expanded. A blue "View" button is located at the bottom right of the form.

Figure 92: View Site

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Create new site	Page's name	Yes	N/A	Label	N/A	N/A
2	Url of this site	Url of this site which will be created parser	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	View site	Click to view site	No	Display site's view

Step 1

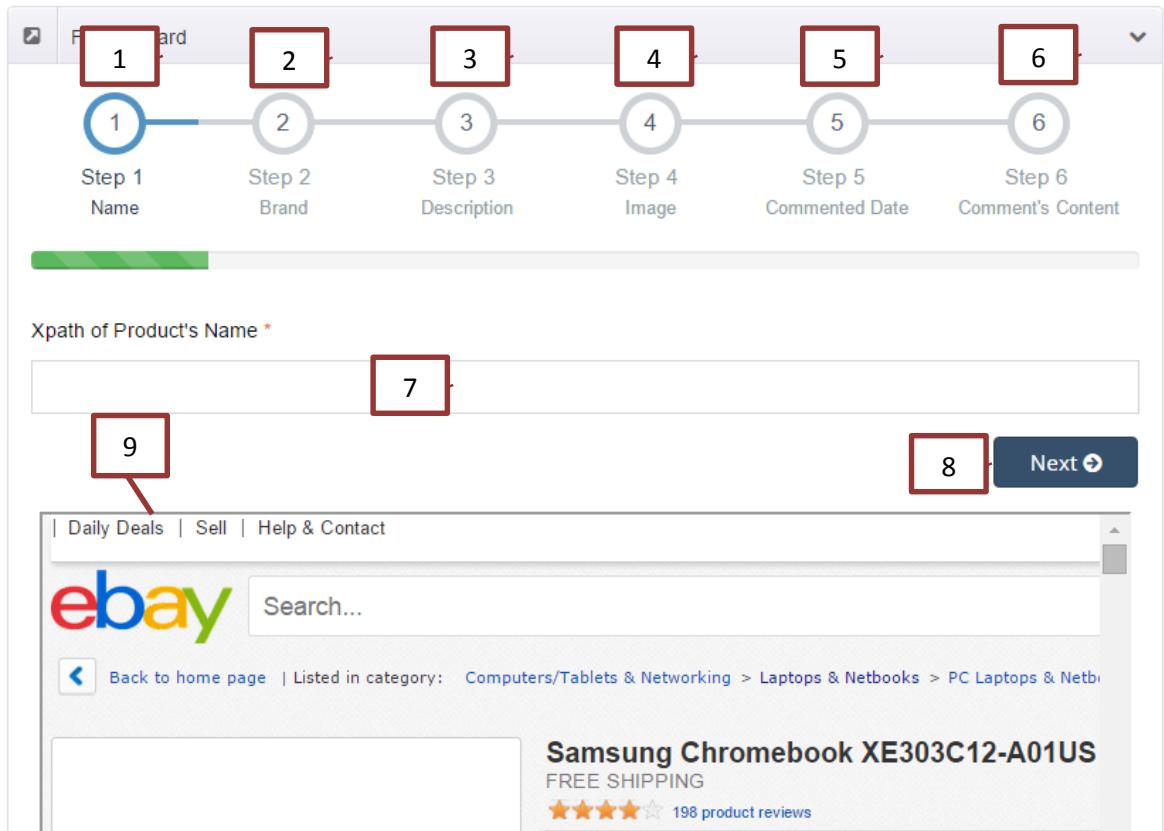


Figure 93: Create New Site - Step 1

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
7	Xpath of product's name	Xpath of product's name	No	Yes	Textbox	String	N/A
9	Web view	Web view	No	N/A	Web view	N/A	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
1	Name xpath	Click to go to step 1	No	Transfer to step 1
2	Brand xpath	Click to go to step 2	Yes	Transfer to step 2
3	Description xpath	Click to go to step 3	Yes	Transfer to step 3
4	Image xpath	Click to go to step 4	Yes	Transfer to step 4

5	Date xpath	Click to go to step 5	Yes	Transfer to step 5
6	Content xpath	Click to go to step 6	Yes	Transfer to step 6
8	Next step	Click to go to next step	Yes	Transfer to step 2

Step 2

Xpath of Brand *

Is this attribute not available? Yes

Back 2 3

4 Next ➡

Figure 94: Create New Site - Step 2

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Xpath of brand	Xpath of brand	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Set N/A	Set not available for this field	No	This field is "N/A"
3	Previous step	Click to go to previous step	Yes	Transfer to step 1
4	Next step	Click to go to next step	Yes	Transfer to step 3

Step 3

Xpath of Description *

Is this attribute not available? Yes

Back 3 4 Next

Figure 95: Create New Site - Step 3

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Xpath of description	Xpath of description	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Set N/A	Set not available for this field	No	This field is "N/A"
3	Previous step	Click to go to previous step	Yes	Transfer to step 2
4	Next step	Click to go to next step	Yes	Transfer to step 4

Step 4

Xpath of Image *

Is this attribute not available? Yes

2
 3
 4
 Next ➔

Figure 96: Create New Site - Step 4

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Xpath of image	Xpath of image	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Set N/A	Set not available for this field	No	This field is "N/A"
3	Previous step	Click to go to previous step	Yes	Transfer to step 3
4	Next step	Click to go to next step	Yes	Transfer to step 5

Step 5

Step 1 Name Step 2 Brand Step 3 Description Step 4 Image Step 5 Commented Date Step 6 Comment's Content

Xpath of Commented Date *

Format of Date

Back 3 4 Next ➔

Figure 97: Create New Site - Step 5

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Xpath of commented date	Xpath of commented date	No	Yes	Textbox	String	N/A
2	Format of date	Format of date	No	No	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
3	Previous step	Click to go to previous step	Yes	Transfer to step 4
4	Next step	Click to go to next step	Yes	Transfer to step 5

Step 6

Xpath of Comment's Content *

1

Back
2
3
Finish ➔

Figure 98: Create New Site - Step 6

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Xpath of comment's content	Xpath of comment's content	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Previous step	Click to go to previous step	Yes	Transfer to step 5
3	Finish process	Click to go to finish process	Yes	Transfer to preview product's infomation

Preview Product's Information

Preview Product's Infomation X

	Product's Name:	Details about Samsung Chromebook XE303C12-A01US Google Chrom 2GB 1.7Ghz 11.6";	
	Brand:	N/A	
	Description:	N/A	
	First Commented Date:	07/25/15	
	First Comment:	If you want a fast and easy computer, this is for you. I can check my email, research on the web and check on facebook friends in record time.	
		1	2
		3	4
		5	6
		7	Cancel
Create New Site			

Figure 99: Create New Site – Preview Product's Information

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Product's name	Product's name	Yes	N/A	Label	String	N/A
2	Brand	Product's brand	Yes	N/A	Label	String	N/A
3	Description	Product's description	Yes	N/A	Label	String	N/A
4	First commented date	Product's first commented date	Yes	N/A	Label	String	N/A
5	First comment	Product's first comment	Yes	N/A	Label	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
6	Create new site	Click to create new site	Yes	Transfer to step 5
7	Cancel	Click to cancel process	Yes	Back to create new site page

5.2.3.10 Log File Page

Log File

1

No.	Created Time	Action
1	Aug 7, 2015 3:05:25 PM	View
2	Aug 7, 2015 3:02:08 PM	View
3	Aug 7, 2015 2:56:26 PM	View
4	Aug 7, 2015 8:46:48 AM	View
5	Aug 6, 2015 3:36:03 PM	View
6	Aug 6, 2015 9:32:02 AM	View
7	Aug 3, 2015 8:11:13 AM	View
8	Aug 2, 2015 10:02:16 AM	View
9	Aug 1, 2015 8:36:11 PM	View
10	Aug 1, 2015 8:23:51 PM	View

Showing 1 to 10 of 79 entries

« 1 2 3 4 5 »

Figure 100: Manage Log File

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Log file	Page's name	Yes	N/A	Label	N/A	N/A
2	List of all log file	Area's name	Yes	N/A	Label	N/A	N/A
3	List of all log file table	Show all log files	No	N/A	Table list view	N/A	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	View log file	Click to view log file	No	Transfer to log file detail

List of all log file includes

Field name	Description	Read only	Control type	Data type	Length
No.	Number	N/A	Label	Integer	N/A
Created time	Created time of this file	N/A	Label	String	N/A
Action	Action of staff	No	Link	N/A	N/A

5.2.3.11 Run Parser Page

Parser Specific Page

Run Parser 1

Figure 101: Parser Specific Product Page

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Run parser	Page's name	Yes	N/A	Label	N/A	N/A
2	Parse a specific product	Selected tab's name	Yes	N/A	Label	N/A	N/A
4	Url of the product	Url of the product which will be parsed	No	Yes	Textbox	String	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
3	Show content of "Parse all products" tab	Click to change to "Parse all products" tab	No	Show "Parse all products" tab
5	Parse product	Click to parse this product	Yes	Message completed

Run Parser

Run Parser 1

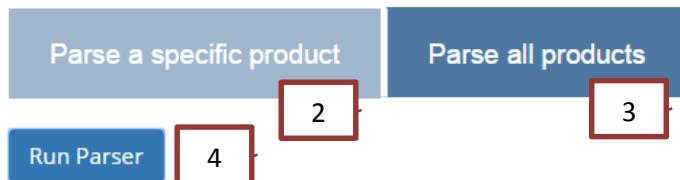


Figure 102: Run Parser

Fields

No	Field name	Description	Read only	Mandatory	Control type	Data type	Length
1	Run parser	Page's name	Yes	N/A	Label	N/A	N/A
3	Parse all products	Selected tab's name	Yes	N/A	Label	N/A	N/A

Button/Hyperlink

No	Function	Description	Validation	Outcome
2	Show content of "Parse a specific products" tab	Click to change to "Parse a specific product" tab	No	Show "Parse a specific product" tab
4	Run parser	Click to run parser	Yes	Show progress bar and progress table during this process

5.3 Mobile Application Design

5.3.1 Home



Figure 103: Home

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
1	Search	Click to start search product by name.	No	Open search bar
2	Menu	Click to view menu panel.	No	Open sliding menu

5.3.2 Search Product

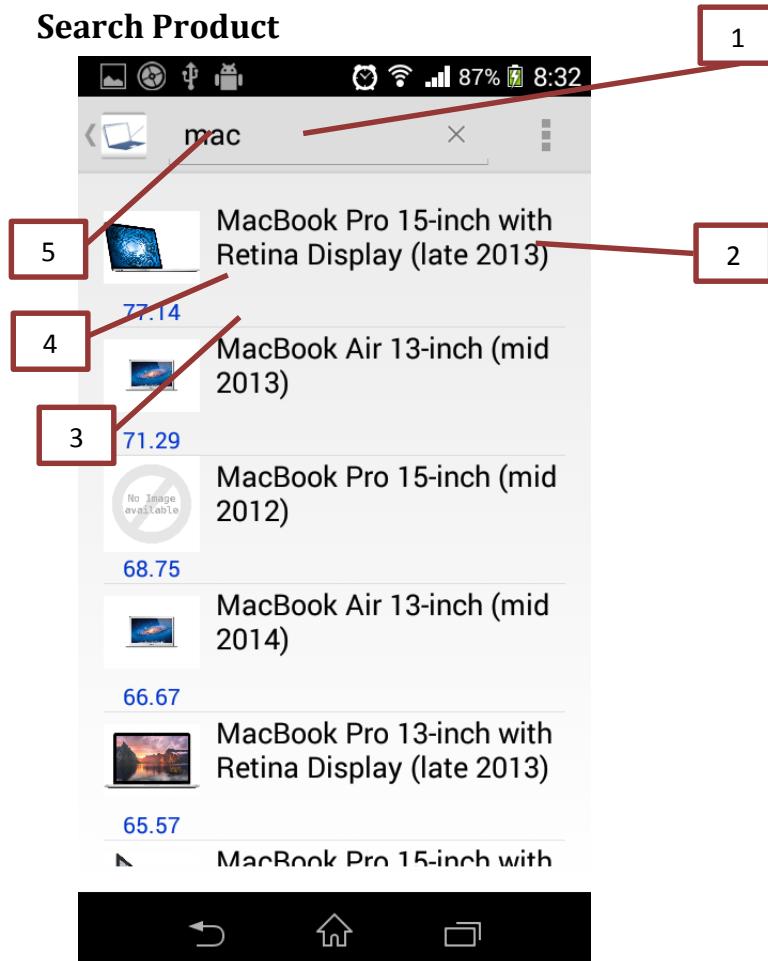


Figure 104: Search Product

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Search Field	Search product by name	No	No	Textbox	N/A	N/A
2	Product Name	Name of Product	No	No	Label	String	N/A
3	Positive Rate	Rate number of positive	No	No	Label	Double	N/A
4	Image	Image of product	No	No	Label	Image	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
5	Back	Back to previous page	No	Open Home

5.3.3 Product Detail

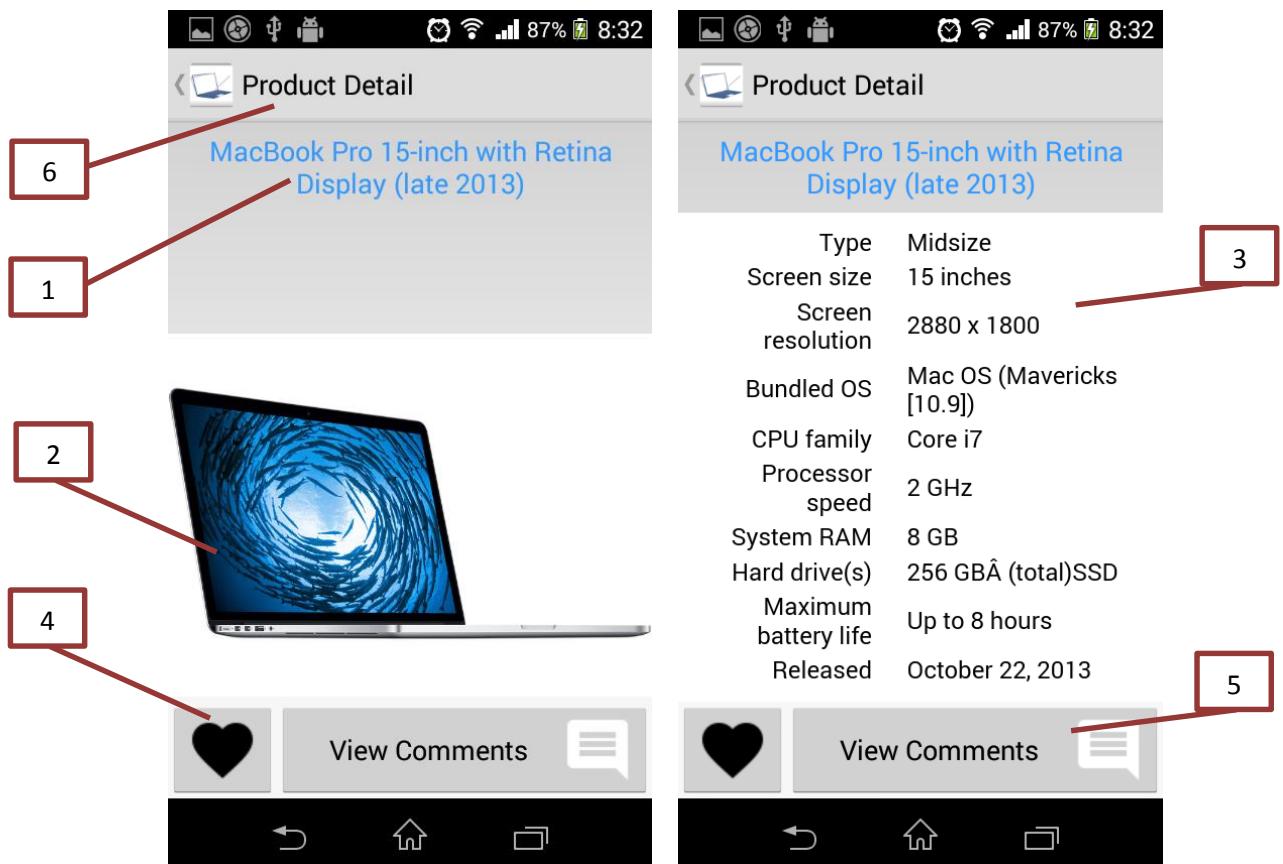


Figure 105: Product Detail

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Product Name	Name of product	No	No	Textbox	N/A	N/A
2	Image	Image	No	No	Label	String	N/A
3	Description	Description	No	No	Label	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
4	Add to Favourite	Add product to favourite list	No	Product will be add to favourite list
5	View Comment	View all comments of product	No	Open View Comment
6	Back	Back to previous page	No	Back to Search Product

5.3.4 View Comment

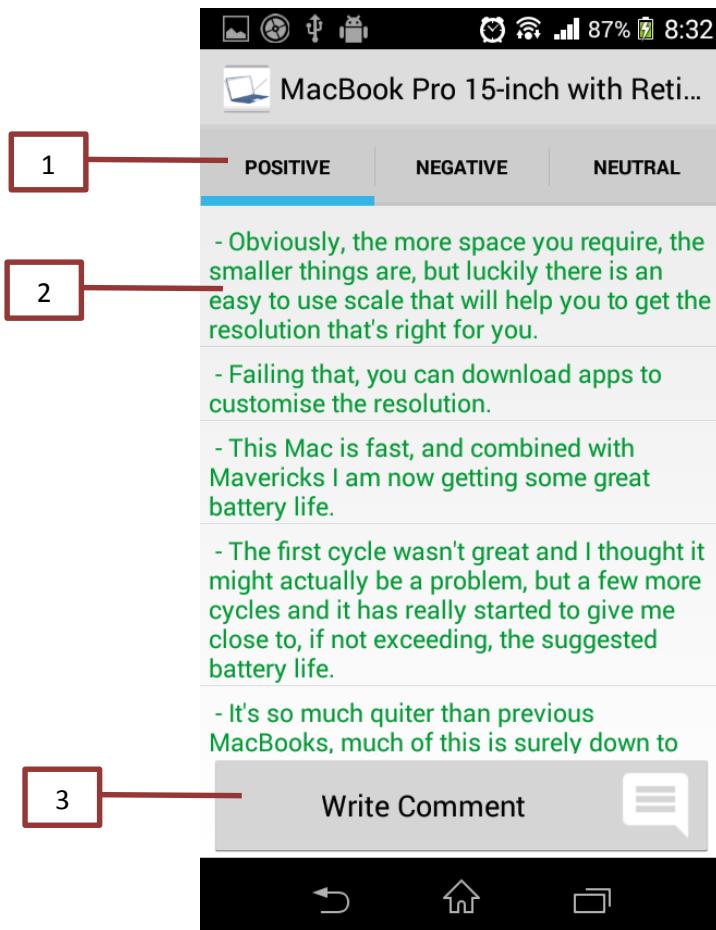


Figure 106: View Comment

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Comment Type	Tab Comments group by type	No	No	Label	Tab	N/A
2	Comment Content	Content of comment	No	No	Label	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
3	Write Comment	Write comment for this product	No	Open Write Comment

5.3.5 Write Comment

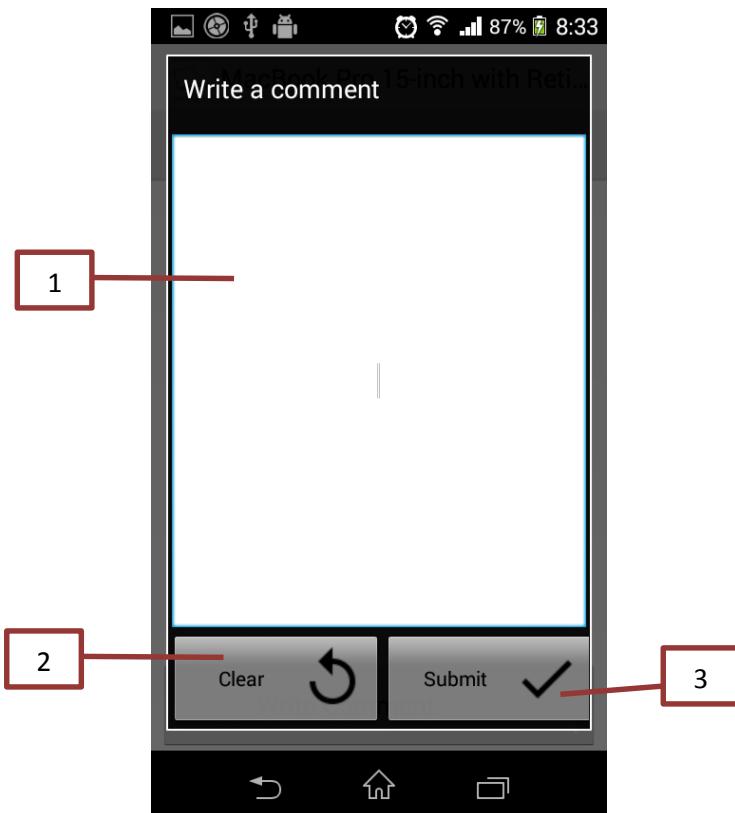


Figure 107: Write Comment

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Comment	Content of new comment	No	No	Textbox	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
2	Clear	Clear content of comment.	No	Clear comment field.
3	Submit	Submit comment	No	Send comment.

5.3.6 Subscribe



Figure 108: Subscribe

Fields

No	Field Name	Description	Read only	Mandatory	Control Type	Data Type	Length
1	Email	Email address	No	No	Textbox	String	N/A
2	Product Name	Product name which user recommend	No	No	Textbox	String	N/A

Buttons/ Hyperlinks

No	Function	Description	Validation	Outcome
3	Clear	Clear content of comment.	No	Clear comment field.
4	Submit	Submit comment	No	Send comment.

6. Database Design

6.1 Web Application

6.1.1 Logical Diagram

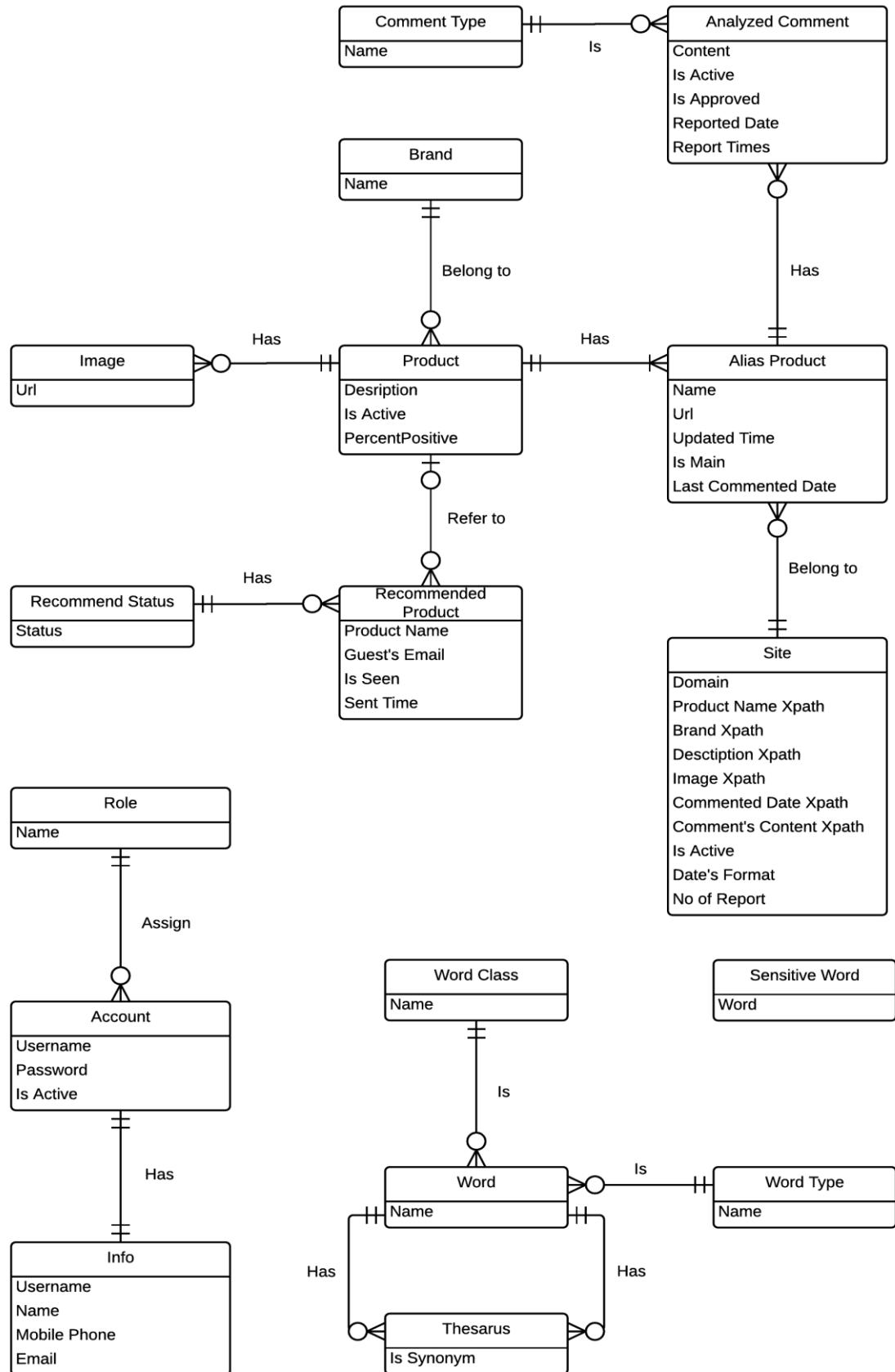


Figure 109: Entity Relationship Diagram

6.1.2 Data Dictionary

Entity Data dictionary: describe contents of all entities	
Entity Name	Description
Image	Describe all image links that product is included.
Product	Describe all products in the system.
Alias Product	Describe all alias names of product in the system.
Recommend Product	Describe all products that recommend by user.
Brand	Describe all brands that product is included.
Analyzed Comment	Describe all comments of products.
Comment Type	Describe all types of comments.
Site	Describe all site parse data.
Word	Describe all words in the system
Word Class	Describe all classes of words
Sensitive Word	Describe all sensitive words
Word Type	Describe all types of words
Thesaurus	Describe all words' synonyms/antonyms
Account	Describe all user accounts
Role	Describe all accounts' roles
Info	Describe all accounts' information

Table 62: Entity Data Dictionary

Entity name	Attributes	Description	Domain	Null
Image	Url	Describe all image link that product is included.	nvarchar(255)	No
Product	Description	Describe all descriptions of all products	nvarchar(max)	Yes
	Is Active	Describe whether products are active or not	bit	No
	Is Reported	Describe whether products are reported or not	int	Yes
Alias Product	Name	Describe names of alias products	nvarchar(200)	No
	Url	Describe links to websites contain alias products	nvarchar(max)	No
	Updated Time	Describe time alias products are updated	datetime	Yes
	Is Main	Describe whether alias products are main products or not	bit	No

	Last Commented Date	Describe the date the last comment was added to one alias product	datetime	No
Recommend Product	Product's Name	Describe names of recommended products	nvarchar(200)	No
	Guest's Email	Describe emails of guests who suggest the products	nvarchar(50)	No
	Is Seen	Describe whether staff have seen the guests' requests or not	bit	No
	Is Added	Describe whether staff have collected the recommend products information or not	bit	No
	Sent Time	Describe the time the guests' requests were sent	datetime	No
Brand	Name	Describe names of brands	nvarchar(50)	No
Analyzed Comment	Content	Describe contents of comments	nvarchar(max)	No
	isReported	Describe whether the comment is reported or not	bit	No
	isApproved	Describe whether the comment is approved or not	bit	No
	Reported Date	Describe the date the comment is reported	datetime	Yes
	Report Times	Describe number of times this comment be reported	int	No
Comment Type	Name	Describe name of types of comments.	nvarchar(15)	No
Site	Domain	Describe sites' domain information	nvarchar(200)	No
	Product Name Xpath	Describe Xpath that define products names in the websites	nvarchar(255)	No
	Brand Xpath	Describe Xpath that define products brands in the websites	nvarchar(255)	No

	Description Xpath	Describe Xpath that define products descriptions in the websites	nvarchar(255)	No
	Image Xpath	Describe Xpath that define products images in the websites	nvarchar(255)	No
	Commented Date Xpath	Describe Xpath that define products commented date in the website	nvarchar(255)	No
	Comment's Content Xpath	Describe Xpath that define products comments content in the website	nvarchar(255)	No
	Is Active	Describe whether sites are active or not	bit	No
	Date's Format	Describe date's format in sites.	nvarchar(30)	No
Word	Name	Describe names of words	nvarchar(20)	No
Word Type	Name	Describe names of word type.	nvarchar(20)	No
Word Class	Name	Describe names of word class.	nvarchar(20)	No
Sensitive Word	Word	Describe sensitive words.	nvarchar(20)	No
Thesaurus	Is Synonyms	Describe whether words in Dictionary are synonyms or not	bit	No
Account	Username	Describe username information	varchar(35)	No
	Password	Describe password information	varchar(35)	No
	Is Active	Describe whether account owner is active or not	bit	No
Role	Name	Describe name of roles of account	varchar(10)	No
Info	Username	Describe username information	varchar(35)	No
	Name	Describe name information of Info	varchar(35)	No
	Email	Describe email information	nvarchar(50)	No

Mobile Phone	Describe mobile phone information	varchar(15)	No
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Table 63: Attribute Data Dictionary

7. Algorithms

7.1 Parse Data

7.1.1 Define Problem

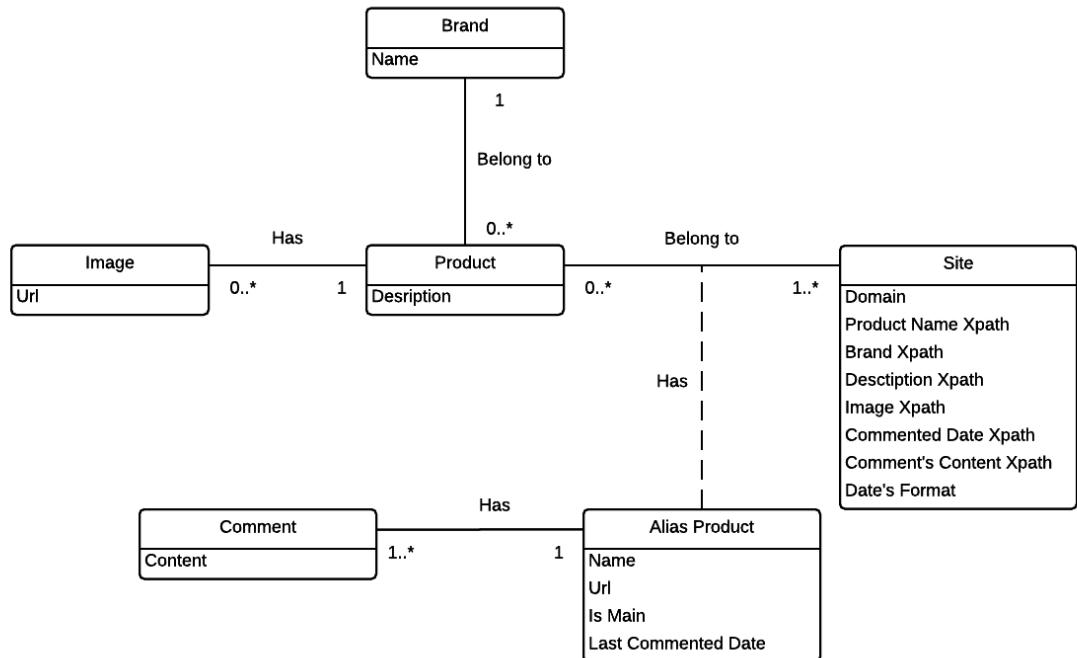
Given a laptop website then parse laptops' specification and comments.

7.1.2 Requirement

This website must have users' comments.

7.1.3 Solution

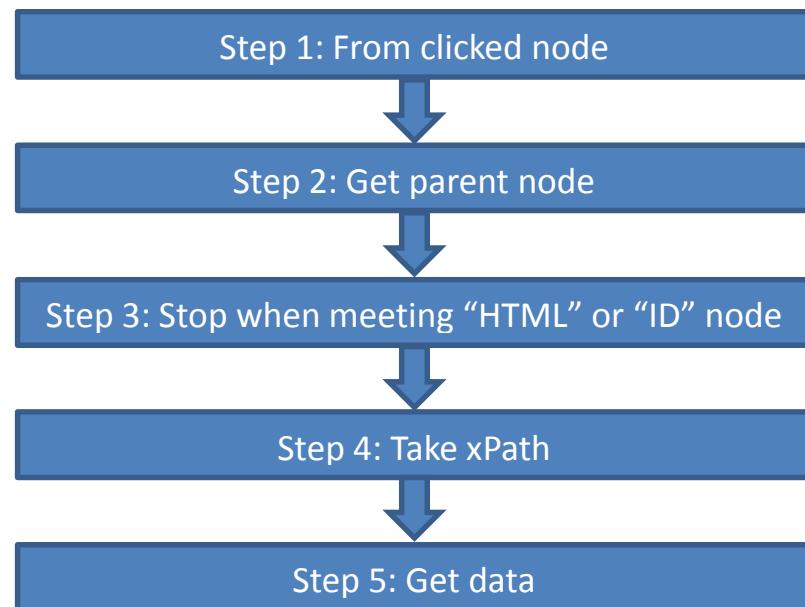
Our system will parse data from 3 websites: <http://www.engadget.com/>, <http://www.bestbuy.com/> and <http://www.walmart.com/>. With each product, we need to collect name and all its comments. However, to make the source more diversity, we collect these extra information, such as: brand, description and images. We also save the last comment's date of in order to get only new comment for the next parsing time of this product. After researching from many websites, we realise that a laptop can appear in many websites with different names. We have these entities:



There are many libraries supporting parsing data and the 2 most popular are HtmlAgilityPack and Selenium. After researching 2 libraries, we decide to choose HtmlAgilityPack because during parsing process, Selenium have to

create a simulator web browser to load the website's content but HtmlAgilityPack do not have. This make improve parsing speed too much.

We intend that our system will be served to people who do not need to know what xPath is, so we develop a wizard supporting user to get xPath of anything they want. The solution is:



After parsing 1 product, we analyse all comments and classify them into 3 types: positive, neutral and negative comments (refer algorithm 7.2). After getting all information of this product, we compare it with existed product in database to detect if this is a duplicated product (refer algorithm 7.4). With new product, it will be inserted to database. Otherwise, duplicated product will be added to xml file and staff will handle it.

7.2 Analyze Comment

7.2.1 Define Problem

Given a sentence then the system will check whether that sentence has positive or negative or neutral meaning

7.2.2 Requirement

All sentence must have correct grammar. They must also have sufficient length. Moreover, all sentences that contains impolite or meaningless words will not be counted.

7.2.3 Solution

- Manually prepare 10 lists of lower-cased words by reading first 100 comments:
 - ❖ A list contains all words which meanings are totally Pros

- ❖ A list contains all adjectives and adverbs which meanings are Pros (these words' positive meaning is not as strong as words in "Totally Pros" list)
- ❖ A list contains all adjectives and adverbs which meanings are Neutral
- ❖ A list contains all adjectives and adverbs which meanings are Cons
- ❖ A list contains all adjectives and adverbs which meanings are totally Cons (these words' negative meaning is not as strong as words in "Totally Cons" list)
- ❖ A list contains all nouns and verbs which meanings are Pros (these words' positive meaning is not as strong as words in "Totally Pros" list)
- ❖ A list contains all nouns and verbs which meanings are Neutral
- ❖ A list contains all nouns and verbs which meanings are Cons (these words' negative meaning is not as strong as words in "Totally Cons" list)
- ❖ A list contains all nouns and verbs which meanings are totally Cons
- ❖ A list of negative words such as not, no, do not, does not ...
- Lower case the whole sentence and break it into a list of words, then lower case all the words.
- With a list of words, we will check how many words of that list belong to the 10 lists above, then we divide into these cases:
 - ❖ Case 1: List of words contains word(s) which belong to "Totally Pros" word list: In this case, the sentence will be Positive sentence.
 - ❖ Case 2: List of words contains word(s) which belong to "Totally Pros" word list but it also contains word(s) which belong to "Negative" word list: In this case, the sentence will be Negative sentence.
 - ❖ Case 3: We will check the adjectives and adverbs first. So if list of words contains adjectives, adverbs and belongs to adjectives/adverbs' "Pros", "Cons" or "Neutral" lists, we will have these sub-cases:
 - If there are more "Pros" words than "Cons" words → The sentence is positive (1)
 - If there are more "Cons" words than "Pros" words → The sentence is negative (2)
 - With those 2 above sub-cases, if there are words belong to "Negative" list, then the sentence will be negative with sub-case (1) and positive with sub-case (2)
 - If the sentence contains no adjectives/adverbs that belongs to "Pros", "Cons" and has words belong to "Neutral", that sentence is neutral. If the sentence has same number of "Pros" and "Cons" adjectives/adverbs and has no "Neutral" adjectives/adverbs, we will check in Case 4.
 - If there is no "Pros", "Cons" and "Neutral" adjectives/adverbs in that sentence, we will check in Case 4.
 - ❖ Case 4: After checking for adjectives, adverbs, we will check verbs and nouns in that sentence. We have these sub-cases

- If there are more “Pros” words than “Cons” words → The sentence is positive (1)
- If there are more “Cons” words than “Pros” words → The sentence is negative (2)
- With those 2 above sub-cases, if there are words belong to “Negative” list, then the sentence will be negative with sub-case (1) and positive with sub-case (2)
- If the sentence contains no verbs/nouns that belongs to “Pros”, “Cons” and has words belong to “Neutral”, that sentence is neutral. Similarly, if the numbers of verbs/nouns belongs to “Pros” and “Cons” are the same, that sentence is Neutral
- If there is no “Pros”, “Cons” and “Neutral” verbs in that sentence, it will be unidentified and will be decided later by staff

7.2.4 Example

Giving the sentence: *“This Mac is fast, and combined with Mavericks I am now getting some great battery life.”*

- Assume that we already have “Totally Pros” words list which contains “great”.
- Lower case the whole sentence:
 - + This Mac is fast, and combined with Mavericks I am now getting some great battery life. → this mac is fast, and combined with mavericks i am now getting some great battery life.
- Split sentence into list words:
 - + this mac is fast, and combined with mavericks i am now getting some great battery life → {this, mac, is, fast, and, combined, with, mavericks, i, am, now, getting, some, great, battery, life}
- We will check for “Totally Pros” words first. In this case, we have word “great”. This word belongs to “Totally Pro” list, so this sentence is Positive.

7.3 String Comparison

7.3.1 Define Problem

Give two strings. Calculate their matching percent.

7.3.2 Requirement

- A robustness to changes of word order: two strings which contain the same words, but in a different order, should be recognized as being similar.
- Language independence: the algorithm should work not only in English, but in many different languages.

7.3.3 Solution

- If a string contains many words, break it into a list of words.

- For each word, we find out how many adjacent character pairs are contained in it.
- Create a function $pairs(s)$ which returns a list of adjacent character pairs of string s .
- Then, we use below formula to calculate matching percent.

$$similarity(s_1, s_2) = \frac{|pairs(s_1) \cap pairs(s_2)|}{|pairs(s_2)|}$$

$$similarity(s_2, s_1) = \frac{|pairs(s_1) \cap pairs(s_2)|}{|pairs(s_1)|}$$

7.3.4 Example

Calculate the matching percent of 2 strings: MacBook Air 2015 and MacBook Air 2015 Retina.

- Upper case 2 strings:
 - + MacBook Air 2015 → MACBOOK AIR 2015.
 - + MacBook Air 2015 Retina → MACBOOK AIR 2015 RETINA
- Break string into list of adjacent character pairs:
 - + MACBOOK AIR 2015 → $\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15\}$
 - + MACBOOK AIR 2015 RETINA → $\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15, RE, ET, TI, IN, NA\}$
- Calculate its matching percent.

$$similarity(MACBOOK AIR 2015, MACBOOK AIR 2015 RETINA)$$

$$= \frac{|\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15\}|}{|\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15, RE, ET, TI, IN, NA\}|}$$

$$= \frac{11}{16} = \frac{22}{27} \approx 0.69$$

$$similarity(MACBOOK AIR 2015, MACBOOK AIR 2015 RETINA)$$

$$= \frac{|\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15\}|}{|\{MA, AC, CB, BO, OO, OK, AI, IR, 20, 01, 15\}|} = 1$$

7.4 Detect Duplicated Product

7.4.1 Define Problem

Give new product. Detect if it is a duplicated product.

7.4.2 Requirement

The product has been defined brand.

7.4.3 Solution

During implementation process, we discussed and improved the algorithm more times in order to improve the exactness. Here is our solution.

❖ First solution:

- Step 1: Using the String comparison in 7.3 to compare the new product's name with each existed product's name in the database. But the current formula to calculate matching percent has a little difference to the one in 7.3. The formula is:

$$\text{similarity}(s1, s2) = \frac{2 \times |\text{pairs}(s1) \cap \text{pairs}(s2)|}{|\text{pairs}(s1)| + |\text{pairs}(s2)|}$$

If the result is above 40%, add these existed product to a list.

- Step 2: If the list is empty, this new product is not a duplicated product. Otherwise, choose the existed product which has the biggest comparison result in the list and the new product is duplicated product with it.

With this solution, we found 9 duplicated products when parsing 50 products.

❖ Second solution:

- Be improved from the 1st solution.
- At step 1, only compare the new product's name with each existed product's name in the database which has the same brand with new product.
- With this solution, we found 7 duplicated products when parsing 50 products – less 22% duplicated products than the 1st solution.

❖ Third solution:

- Be improved from the 2nd solution.
- Use the different formula to compare 2 products' names.

$$\text{similarity}(s1, s2) = \frac{|\text{pairs}(s1) \cap \text{pairs}(s2)|}{|\text{pairs}(s2)|}$$

$$\text{similarity}(s2, s1) = \frac{|\text{pairs}(s1) \cap \text{pairs}(s2)|}{|\text{pairs}(s1)|}$$

And the comparison result is the minimum of 2 results from above formulas.

- With this solution, we found 2 duplicated products when parsing 50 products – less 71% duplicated products than the 2nd solution.

Finally, we decided to choose the 3rd solution to detect duplicated product.

E. System Implementation & Test

1. Introduction

1.1 System Overview

This section provides in detail all necessary information about test plans, test cases, test result, test environments, pass/fail criteria and risks estimations as well as a checklist to cover all possible cases of LRA.

1.2 Test Approach

- Goal: To test the whole system based on the core workflow.
- Method: System Testing, Black-box Testing.

2. Database Relationship Diagram

2.1 Physical Diagram

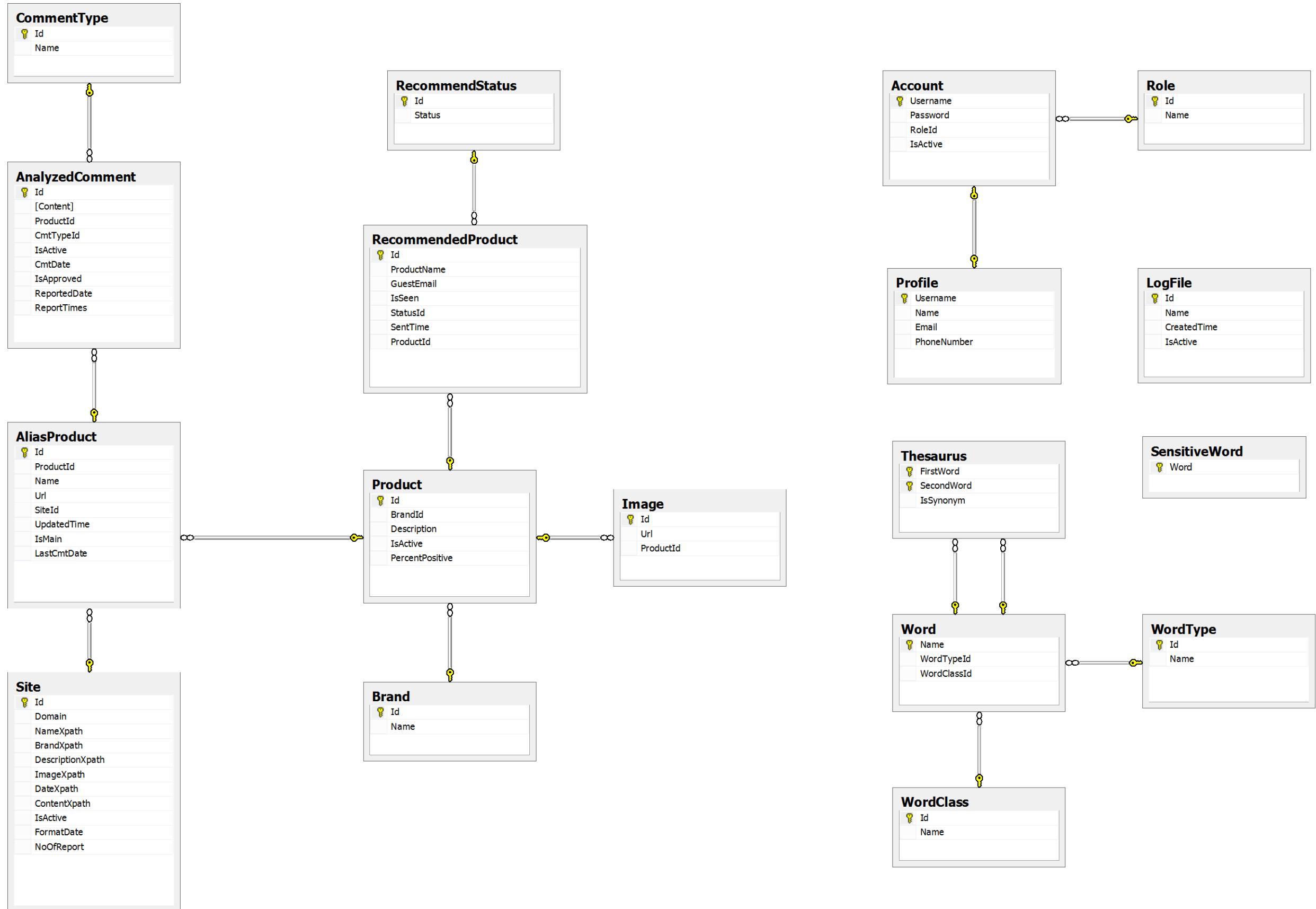


Figure 110: Physical Diagram

2.2 Data Dictionary

Entity Data dictionary: describe content of all entities	
Entity Name	Description
Image	Describe all image links that product is included.
Product	Describe all products in the system.
Alias Product	Describe all alias names of product in the system.
Recommend Product	Describe all products that recommend by user.
Recommend Status	Describe all recommends by user.
Brand	Describe all brands that product is included.
Analyzed Comment	Describe all analyzed comments of products.
Comment Type	Describe all types of comments.
Site	Describe all site parse data.
Word	Describe all words in the system
Word Class	Describe all classes of words
Sensitive Word	Describe all sensitive words
Word Type	Describe all types of words
Thesaurus	Describe all word's synonyms/antonyms
Account	Describe all user accounts
Role	Describe all accounts' roles
Info	Describe all accounts' information

Table 64: Data Dictionary

Entity name	Attributes	Description	Domain	Null
Image	Id {PK}	Unique identifier of a image, auto increment.	int	No
	Url	Describe all image link that product is included.	nvarchar(255)	No
	ProductId{FK}	Foreign key, product identifier.	int	No
Product	Id {PK}	Unique identifier of a product, auto increment.	int	No
	BrandId{FK}	Foreign key, brand identifier.	int	No
	Description	Describe all descriptions of all products	nvarchar(max)	Yes
	Is Active	Describe whether products are active or not	bit	No
	PercentPositive	Describe percent of positive comments	float	Yes

Alias Product	Id {PK}	Unique identifier of a alias product, auto increment.	int	No
	ProductId{FK}	Foreign key, product identifier.	int	No
	Name	Describe names of alias products	nvarchar(200)	No
	Url	Describe links to websites contain alias products	nvarchar(max)	No
	SiteId { FK }	Foreign key, site identifier.	int	No
	Updated Time	Describe time alias products are updated	datetime	Yes
	Is Main	Describe whether alias products are main products or not	bit	No
	Last Commented Date	Describe the date the last comment was added to one alias product	datetime	No
Recommend Product	Id {PK}	Unique identifier of a recommend product, auto increment.	int	No
	Product's Name	Describe names of recommended products	nvarchar(200)	No
	Guest's Email	Describe emails of guests who suggest the products	nvarchar(50)	No
	Is Seen	Describe whether staff have seen the guests' requests or not	bit	No
	Is Added	Describe whether staff have collected the recommend products information or not	bit	No
	Sent Time	Describe the time the guests'	datetime	No

		requests were sent		
	ProductId{FK}	Foreign key, product identifier.	int	No
	StatusId{FK}	Foreign key, recommend identifier.	int	No
Recommend Status	Id {PK}	Unique identifier of a brand, auto increment.	int	No
	Status	Describe status of Recommend	bit	No
Brand	Id {PK}	Unique identifier of a brand, auto increment.	int	No
	Name	Describe names of brands	nvarchar(50)	No
Analyzed Comment	Id {PK}	Unique identifier of a comment, auto increment.	int	No
	Content	Describe contents of comments	nvarchar(max)	No
	isApproved	Describe whether the comment is approved or not	bit	No
	isActive	Describe whether the comment is active or not	bit	No
	Reported Date	Describe the date the comment is reported	datetime	Yes
	ReportTimes	Describe no of times this comment be reported	int	No
	ProductId{FK}	Foreign key, product identifier.	int	No
Comment Type	Id {PK}	Unique identifier of a comment type, auto increment.	int	No
	Name	Describe name of types of comments.	nvarchar(15)	No
Site	Id {PK}	Unique identifier of a site, auto increment.	int	No

	Domain	Describe sites' domain information	nvarchar(200)	No
	Product Name Xpath	Describe Xpath that define products names in the websites	nvarchar(255)	No
	Brand Xpath	Describe Xpath that define products brands in the websites	nvarchar(255)	No
	Description Xpath	Describe Xpath that define products descriptions in the websites	nvarchar(255)	No
	Image Xpath	Describe Xpath that define products images in the websites	nvarchar(255)	No
	Commented Date Xpath	Describe Xpath that define products commented date in the website	nvarchar(255)	No
	Comment's Content Xpath	Describe Xpath that define products comments content in the website	nvarchar(255)	No
	Is Active	Describe whether sites are active or not	bit	No
	Date's Format	Describe date's format in sites.	nvarchar(30)	No
Word	Name	Describe names of words	nvarchar(20)	No
	WordTypeId{FK}	Foreign key, word type identifier.	int	No
	WordClassId{FK}	Foreign key, word class identifier.	int	No
Word Type	Id {PK}	Unique identifier of a word type, auto increment.	int	No
	Name	Describe names of word type.	nvarchar(20)	No

Word Class	Id {PK}	Unique identifier of a word class, auto increment.	int	No
	Name	Describe names of word class.	nvarchar(20)	No
Sensitive Word	Word	Describe sensitive words.	nvarchar(20)	No
Thesaurus	FirstWord {PK}	Unique identifier of a thesaurus, auto increment.	int	No
	SecondWord{FK}	Foreign key, thesaurus identifier.	int	No
	Is Synonyms	Describe whether words in Dictionary are synonyms or not	bit	No
Account	Username {FK}	Describe username information	varchar(35)	No
	Password	Describe password information	varchar(35)	No
	RoleId{FK}	Foreign key, word class identifier.	int	No
	Is Active	Describe whether account owner is active or not	bit	No
Role	Id {PK}	Unique identifier of a role, auto increment.	int	No
	Name	Describe name of roles of account	varchar(10)	No
Profile	Username {FK}	Describe username information	varchar(35)	No
	Name	Describe name information of Info	varchar(35)	No
	Email	Describe email information	nvarchar(50)	No
	Mobile Phone	Describe mobile phone information	varchar(15)	No
LogFile	Id {PK}	Unique identifier of a log, auto increment.	int	No

	Name	Describe names of log	nvarchar(200)	No
	CreatedDate	Describe create date of log	nvarchar(50)	No
	Is Seen	Describe whether log have seen or not	bit	No

Table 65: Attribute Data Dictionary

3. Performance Measures

3.1 Parser Performance

- We ran the parser 10 times, then we collect the executed time of parser in each time the parser is running. The average time for parsing is 5ms per product. Here is the chart reflects our results:

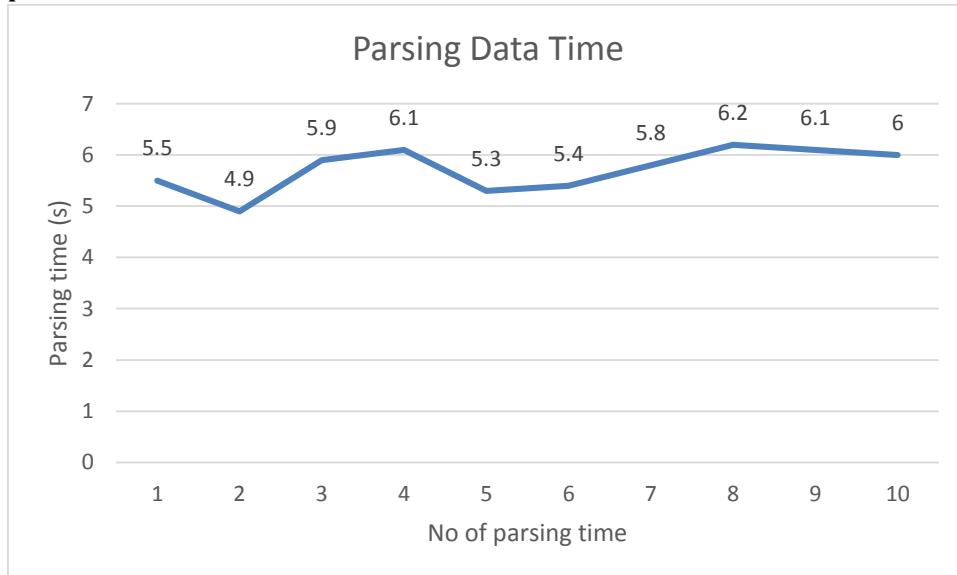


Figure 111: Parsing Data Result

3.2 Analyzing Comment Algorithm Performance

- The test is ran 10 times. In each time, we calculate the executed time of one comment. The average time for one comment to be analysed is about 0.5ms. Here is the chart reflects our results:

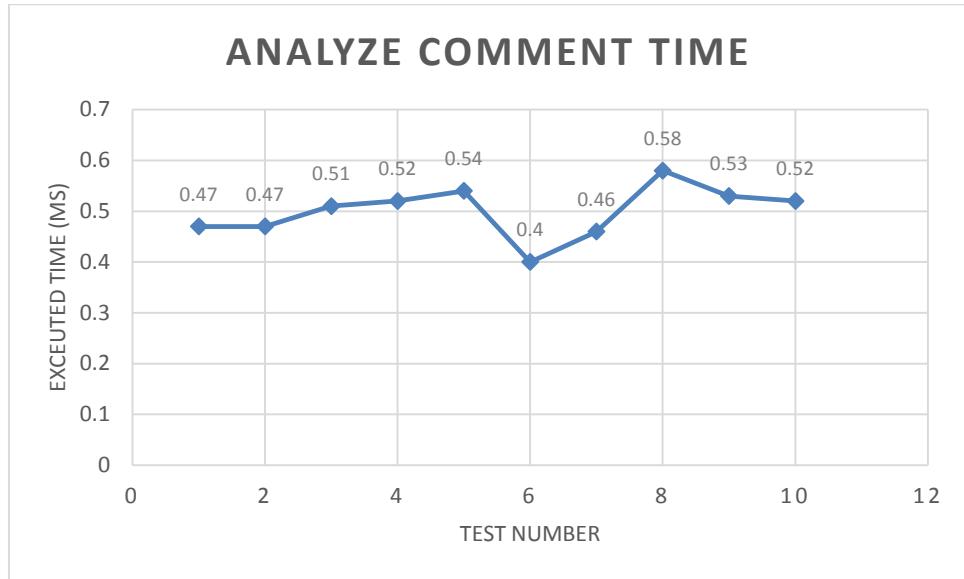


Figure 112: Analyze comment test result

- The average correct result giving by the algorithm is about 78 comments over 100 comments.

4. Test Plan

The purpose of this section is to verify and ensure that LRA meets its design specification and other requirements from user. The following part will describe which features to be tested and which will not.

4.1 Features to be tested

We will test the entire system based on the following core workflow (Reference: **Figure 99, 100, 101: Core Workflow**).

Based on the workflow, all following features will be tested, which can include one or more functions. These features will be focused and tested thoroughly during the test phase.

- Guest: search product, add to cart, and view compare.
- Member: recommend, view compare details, ask for suggestion, and save product history.
- System: run parsers.
- Staff: create parser, run parser, train system, and import excel.

4.2 Features not to be tested

- Login, Logout.
- Change Password.
- Manage hardware.
- Manage product.
- Manage user.
- Configure System.

5. System Testing Test Case

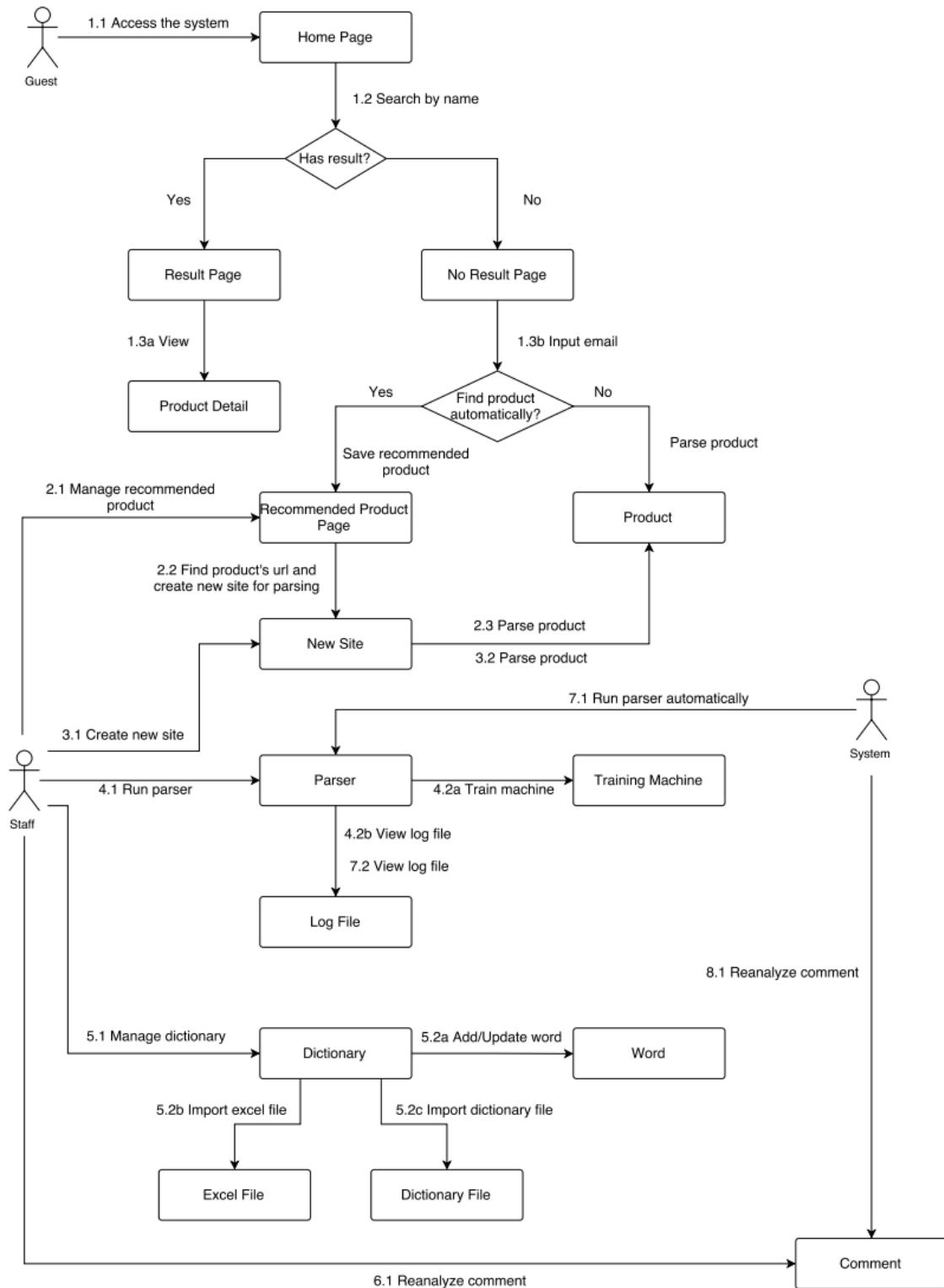


Figure 113: Core Flow

Test cases summary:

ID	Description	Test start date	Test passed date	Number of test times
SPN01	Guest searches laptop by name.	05/07/2015	06/07/2015	7
SPN02	Guest searches unavailable product by name	10/07/2015	17/07/2015	4
VD01	Guest view detail.	16/06/2015	06/07/2015	6
RP01	Guest input email to receive recommend product information	17/07/2015	12/08/2015	11
RP02	Guest input wrong email format	17/07/2015	17/07/2015	2
RP03	Guest don't want to receive recommend product information	17/07/2015	17/07/2015	1
RP01	Run parser automatically	16/06/2015	08/08/2015	23
RC01	Staff force Reanalyze comment	20/07/2015	10/08/2015	9
RC02	Automatically reanalyse comment	10/08/2015	10/08/2015	2
MRP01	Staff view list of recommended product	13/08/2015	13/08/2015	3
MRP02	Create new site and parse recommended product	02/08/2015	13/08/2015	8
CNS01	Staff creates new site	02/08/2015	13/08/2015	8
CNS02	Staff parse a specific product	01/08/2015	13/08/2015	8
TM01	Staff uses training machine function	18/07/2015	20/07/2015	4
TM02	Staffs merge products.	20/07/2015	07/08/2015	7
TM03	Staffs split products.	20/07/2015	07/08/2015	5
TM04	Staffs disable products	20/07/2015	06/08/2015	3
TM05	Staffs enable products	20/07/2015	06/08/2015	1
TM06	Staffs search duplicated products	20/07/2015	20/07/2015	2
TM07	Staffs view log file	18/07/2015	20/07/2015	2
UW01	Staffs use Dictionary Management function	16/06/2015	23/07/2015	10
UW02	Staffs view word's definition	16/06/2015	23/07/2015	8
UW03	Staffs update word	18/06/2015	23/07/2015	10
UW04	Staffs add word	18/06/2015	23/07/2015	7

UW05	Staffs search for specific word	16/06/2015	18/06/2015	3
UW06	Staffs re-analyse comment	10/08/2015	10/08/2015	1
IEF01	Staffs use Import Excel File function	23/07/2015	23/07/2015	2
IEF02	Staffs import file	17/07/2015	23/07/2015	5
IEF03	Staffs add word	16/07/2015	23/07/2015	7
IEF04	Staffs add synonyms and antonyms	16/07/2015	23/07/2015	6
IDF01	Staffs use Import Excel File function	13/08/2014	13/08/2014	2
IDF02	Staffs import file	13/08/2014	13/08/2014	3

Table 66: Test cases summary

5.1 Guest Test Case

5.1.1 Search Product by name

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
SPN01	Guest searches laptop by name.	1 – On the home page, input name of laptop on search textbox. 2 – Click “Search” button or press enter key.	- After step 2, show search result. Products are shown with products' name, avatars of products, products' positive comments percent and are surrounded with colors based on positive comments percent: + If product has positive comments percent > 80%, then the color is green + If product has positive comments percent places between 80% and 40% then the color is light blue + If product has positive comments percent < 40%, then the color is red	N/A	Passed	06/07/2015	
SPN02	Guest searches unavailable product by name	After step 2 in SPN01, no available result is found	- Show No Result page	SPN01	Passed	17/07/2015	

Table 67: Search Product by name Test Case

5.1.2 View Detail

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
VD01	Guest view detail.	1 – On Search Result page, click on name of product	- After step 1, go to detail page which contains: + Name of product + Images of product +Description of product + Classified comments of product	SPN01	Passed	17/06/2015	

Table 68: View Detail Test Case

5.1.3 Recommend Product

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
RP01	Guest input email to receive recommend product information	1 – On No Result page, input email address to textbox and click “Send”	- After step 1, guest email is saved and show message:” Your request has been sent! We will keep in touch with you!” and go back to home page	SPN02	Passed	12/08/2015	
RP03	Guest input wrong email format	1 – On No Result page, input wrong email address format to textbox and click “Send”	- After step 1, show message :”Your email address must be in the format of name@domain.com”	SPN02	Passed	06/07/2015	

RP03	Guest don't want to receive recommend product information	1 – On No Result page, click “No, Thanks!”	- After step 1, go back to home page	SPN02	Passed	07/07/2015	
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Table 69: Recommend Product Test Case

5.2 System Test Case

5.2.1 Run Parser

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
RP01	Run parser automatically	1 – Set 03:00 am for daily parsing time. 2 – Change the system time to 03:00 am	- After step 2, parser is running and the button “Run parser” in “Run parser” page changes to “Parser is running”.	N/A	Passed	08/08/2015	N/A

Table 70: Run Parser Test Case

5.2.1 Reanalyze Comment

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
RC01	Staff force Reanalyze comment	1 – On the menu bar, click on “Reanalyze comment”	- After step 1, show loading screen to indicate that comments are reanalysed	N/A	Passed	10/08/2015	

RC02	Automatically reanalyse comment	1 – On the menu bar, click on “System configuration” 2 – In “System Configuration” page, set Daily reanalyse time	- After step 2, system will automatically reanalyse comments at set time	N/A	Passed	10/08/2015	
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Table 71: History compares Test Case

5.3 Staff Test Case

5.3.1 Manage Recommended Product

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
MRP01	Staff view list of recommended product	1 – Login into the system using a staff account 2 – On the staff home page, click “Product Management”, and then click “Recommended Product”. 3 – Click name of any product. 4 – Input url of new product in the text box. 5 – Click “Parse product” button. 6 – Click “Yes” button.	- After step 2, a list of recommended product will be shown. - After step 3, a pop-up with this recommendation will be shown. - After step 5, if the site which this product belongs to was not existed, a pop-up with a yes/no question will be shown. - After step 6, the system will redirect to “Create New Site” page with this url will be filled in the “Url of site” text box.	N/A	Passed	13/08/2015	N/A

MRP02	Create new site and parse recommended product	<p>After step 6 in MRP01:</p> <p>1 – Click “View” button.</p> <p>2 – Fill in site’s detail</p> <ul style="list-style-type: none"> 1. “Name” step 2. “Brand” step 3. “Description” step 4. “Image” step 5. “Date” step 6. “Content” step <p>3 – Click “Finish” button</p> <p>4 – Click “Create New Site” button</p>	<ul style="list-style-type: none"> - After step 1, a wizard form for creating new site with 6 steps will be show. - After step 3, a pop-up with site’s detail will be shown. - After step 4, new site will be inserted into database. The system will auto parse this product and inserted it into database. After that, the system will redirect to “Recommended Product” page and the message with the status of parsing product will be shown. 	MRP01	Passed	13/08/2015	N/A
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Table 72: Manage Recommended Product Test Case

5.3.2 Create New Site

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
CNS01	Staff creates new site	<p>1 – Login into the system using a staff account</p> <p>2 – On the staff home page, click “Parser”, and then click “Create New Site”.</p> <p>3 – Click “View” button.</p> <p>4 – Fill in site’s detail</p> <ul style="list-style-type: none"> 1. “Name” step 	<ul style="list-style-type: none"> - After step 2, a textbox for inputting url of site will be shown. - After step 3, a wizard form for creating new site with 6 steps will be show. 	N/A	Passed	13/08/2015	N/A

		<p>2. "Brand" step 3. "Description" step 4. "Image" step 5. "Date" step 6. "Content" step 5 – Click "Finish" button 6 – Click "Create New Site" button</p>	<p>- After step 5, a pop-up with site's detail will be shown. - After step 6, new site will be inserted into database.</p>				
CNS02	Staff parse a specific product	<p>1 – Login into the system using a staff account 2 – On the staff home page, click "Parser", and then click "Run parser" 3 – Input url to "Product's url" textbox and click "Parse product".</p>	<p>- After step 2, the page with 2 tab will be shown and the "Parse specific product" will be selected. - After step 3, product will be inserted to database and the message with the status of parsing product will be shown.</p>	N/A	Passed	13/08/2015	N/A

Table 73: Create New Site Test Case

5.3.3 Train Machine

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
TM01	Staff uses training	1 – Login into the system using a staff account.	- After step 2, duplicated products list in log file will	N/A	Passed	20/07/2015	

	machine function	2 – On the staff home page, click “Products” on navigation bar, and then click “Training Machine”.	be shown with related commands				
TM02	Staffs merge products.	<p>After step 2 in test case TM01.</p> <p>1 – Click checkbox to selected duplicated products</p> <p>2 – Select “Main” product by clicking “Main” radio button.</p> <p>3 – Click “Merge” button</p>	<ul style="list-style-type: none"> - After step 3, system will check whether main product belongs to selected products in step 1: <ul style="list-style-type: none"> + If main product belongs, selected duplicated products are added into database. + Else, return a pop-up requires staffs to choose appropriate main product. 	TM01	Passed	07/08/2015	
TM03	Staffs split products.	<p>After step 2 in test case TM01.</p> <p>1 – Click checkbox to selected duplicated products.</p> <p>2 – Click “Split” button.</p>	<ul style="list-style-type: none"> - After step 2, system will check whether staffs have selected any products or not in step 1: <ul style="list-style-type: none"> If yes, duplicated products will be split and saved into database. Else, return a pop-up requires staffs to choose at least 1 product to process. 	TM01	Passed	07/08/2015	
TM04	Staffs disable products	After step 2 in test case TM01.	<ul style="list-style-type: none"> - After step 1, the product which disable button is 	TM01	Passed	06/08/2015	

		1 – Click “Disable” button of each duplicated product	clicked will be disabled and disappeared from the list.				
TM05	Staffs enable products	After step 1 in test case TM04. 1 – Click “View disabled duplicated products” 2 – Click “Enable” button of each disabled products	- After step 1, the list of disabled products is shown with related command. - After step 2, disabled product is enabled.	TM04	Passed	06/08/2015	
TM06	Staffs search duplicated products	After step 2 in test case TM01 1 – Input search string into “Input text search” textbox	- After step 1, appropriate products are shown	TM01	Passed	20/07/2015	
TM07	Staffs view log file	After step 2 in test case TM01. 1 – Staff choose “Show log file” in navigation bar	After step 1, a list of managed products are shown with following information: - Main Product Image - Product name - Action Type (Merge or Split) - Updated Date	TM01	Passed	20/07/2015	

Table 74: Train Machine Test Case

5.3.4 Update Word

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
UW01	Staffs use Dictionary Management function	1 – Login into the system using a staff account. 2 – On the staff home page, click “Dictionary” on navigation bar, and then click “Dictionary Management”.	- After step 2, dictionary words will be shown with first word in the list’s meaning	N/A	Passed	23/7/2015	
UW02	Staffs view word’s definition	After step 2 in UW01. 1 – Staffs click on word in the word list	- After step 1, word’s definition is shown	UW01	Passed	23/7/2015	
UW03	Staffs update word	After step 1 in UW03. 1 – Staff click “Update word” 2 – Edit form appears, staffs can update: - Class - Type - Synonyms - Antonyms 3 – Staff click “Save”	- After step 3, Updated information is saved to database	UW03	Passed	23/7/2015	
UW04	Staffs add word	After step 2 in UW01. 1 – Staff click “Add New” on navigation bar	- After step 2, system will check whether staffs have inputted Word field:	UW01	Passed	23/7/2015	

		<p>2 – Staffs input new word information includes:</p> <ul style="list-style-type: none"> - Word - Class - Type - Synonyms - Antonyms <p>3 – Staffs click “Add new word”</p>	<ul style="list-style-type: none"> + If yes, staff can process step 3 and new word is added to database + Else, “Save” button is disabled 				
UW05	Staffs search for specific word	After step 2 in UW01. 1 – Staffs input search string into Search text box	- After step 2, list word will automatically filters words base on staffs input	UW01	Passed	23/7/2015	
UW06	Staffs re-analyse comment	After step 2 in UW01. 1 – Staffs click “Re-analyze comments” button	<ul style="list-style-type: none"> - After step 1, comments will be re-analyzed. System will check whether comments are re-analyzed successfully or not: + If yes, a pop-up appears to indicate process is successfully done + Else, a pop-up appears to show error message 	UW01	Passed	23/7/2015	

Table 75: Update Word Test Case

5.3.1 Import Excel File

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
IEF01	Staffs use Import Excel File function	1 – Login into the system using a staff account. 2 – On the staff home page, click “Dictionary” on navigation bar, and then click “Import Excel File”	- After step 2, an import file box will be shown	N/A	Passed	23/7/2015	
IEF02	Staffs import file	After step 2 in IEF01. 1 – Staff choose an excel file. 2 – Staff click “Import” button.	- After step 2, words in excel file will be shown	IEF01	Passed	23/7/2015	
IEF03	Staffs add word	After step 2 in IEF02. 1 – Staff choose word(s) from list 2 – Staff click “Save” button	- After step 2, selected word(s) will be save to the system.	IEF02	Passed	23/7/2015	
IEF04	Staffs add synonyms and antonyms	After step 2 in IEF03. 1 – Staffs choose word(s) from Synonyms and Antonyms list and click “Save” button	- After step 2, selected word(s) will be save to the system.	IEF03	Passed	23/7/2015	

Table 76: Import Excel File Test Case

5.3.2 Import Dictionary File

ID	Test Case Description	Test Case Procedure	Expected output	Inter-test Case Dependence	Result	Test Date	Note
IDF01	Staffs use Import Excel File function	1 – Login into the system using a staff account. 2 – On the staff home page, click “Dictionary” on navigation bar, and then click “Import Dictionary File”	- After step 2, an import file box will be shown	N/A	Passed	13/08/2014	
IDF02	Staffs import file	After step 2 in IEF01. 1 – Staff choose a file. 2 – Staff click “Import” button.	- After step 2, words in file will be save to the system	IDF01	Passed	13/08/2014	

Table 77: Import Dictionary File Test Case

F. Software User's Manual

1. Installation Guide

1.1 Setting up environment at server side

The following software must be installed into the server machine:

1.1.1 Hardware requirements

Personal computers for developing with the minimum configuration:

- CPU Core 2 Duo 2.0GHz.
- 1GB of RAM.
- 30GB of hard disk.
- Wifi Internet (> 2Mbps).

1.1.2 Software requirements

- Web Server: Internet Information System – IIS 8.0.
- Microsoft Windows Server 2008: operating system.
- SQL Server 2008 R2: use to create and manage the database for web application.
- Other library:
 - Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)
<http://www.microsoft.com/en-us/download/details.aspx?id=8328>

1.2 Deployment at server side

1.2.1 Prepare deployment package

- Extract the deployment package to a folder on the server.
- For example: E:\LRA

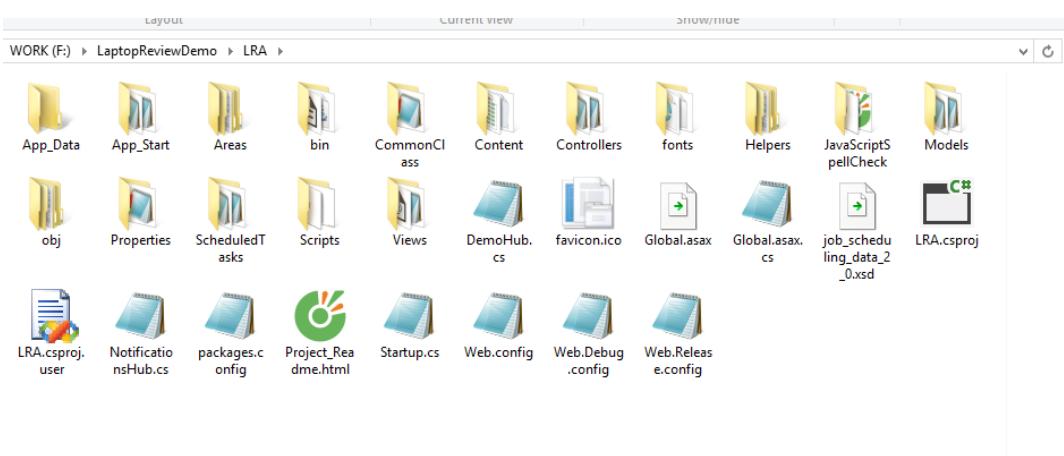


Figure 114: Prepare deployment package

1.2.2 Deploy database

- Open Microsoft SQL Server Management Studio.



Figure 115: Deploy database – Step 1

- Open and execute the script.sql file

```

USE [master]
GO
***** Object: Database [DemoLRA5]      Script Date: 08/07/2015 11:12:46 *****/
CREATE DATABASE [DemoLRA5] ON PRIMARY
( NAME = N'DemoLRA5', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL10_50.SQL2008\MSSQL\DATA\DemoLRA5.mdf' , SIZE =
LOG ON
( NAME = N'DemoLRA5_log', FILENAME = N'C:\Program Files\Microsoft SQL Server\MSSQL10_50.SQL2008\MSSQL\DATA\DemoLRA5_1.LDF' ,
GO
ALTER DATABASE [DemoLRA5] SET COMPATIBILITY_LEVEL = 100
GO
IF (1 = FULLTEXTSERVICEPROPERTY('IsFullTextInstalled'))
begin
EXEC [DemoLRA5].[dbo].[sp_fulltext_database] @action = 'enable'
end
GO
ALTER DATABASE [DemoLRA5] SET ANSI_NULL_DEFAULT OFF
GO
ALTER DATABASE [DemoLRA5] SET ANSI_NULLS OFF
GO
ALTER DATABASE [DemoLRA5] SET ANSI_PADDING OFF
GO
ALTER DATABASE [DemoLRA5] SET ANSI_WARNINGS OFF
GO
ALTER DATABASE [DemoLRA5] SET ARITHABORT OFF
GO
ALTER DATABASE [DemoLRA5] SET AUTO_CLOSE OFF
GO
ALTER DATABASE [DemoLRA5] SET AUTO_CREATE_STATISTICS ON
GO
ALTER DATABASE [DemoLRA5] SET AUTO_SHRINK OFF
GO
ALTER DATABASE [DemoLRA5] SET AUTO_UPDATE_STATISTICS ON
GO
ALTER DATABASE [DemoLRA5] SET CURSOR_CLOSE_ON_COMMIT OFF
GO

```

Figure 116: Deploy database – Step 2

1.2.3 Configure Server before deploy

- Open the Internet Information System Manager.
- Right click as Sites. Choose “Add Web Site”.

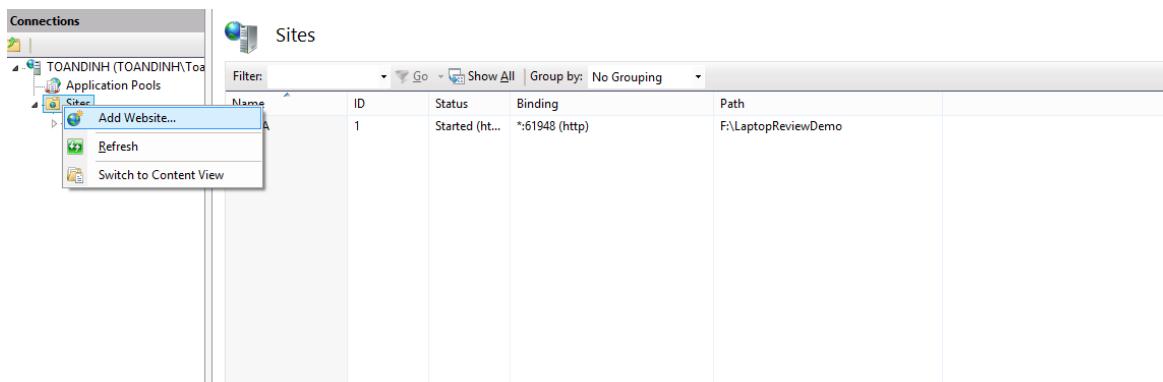


Figure 117: Deploy web application on server – Step 1

- Enter site name. Choose Application Pool as ASP.NET 4.0
- Select the path as the folder in step 1. Enter port other than 80.

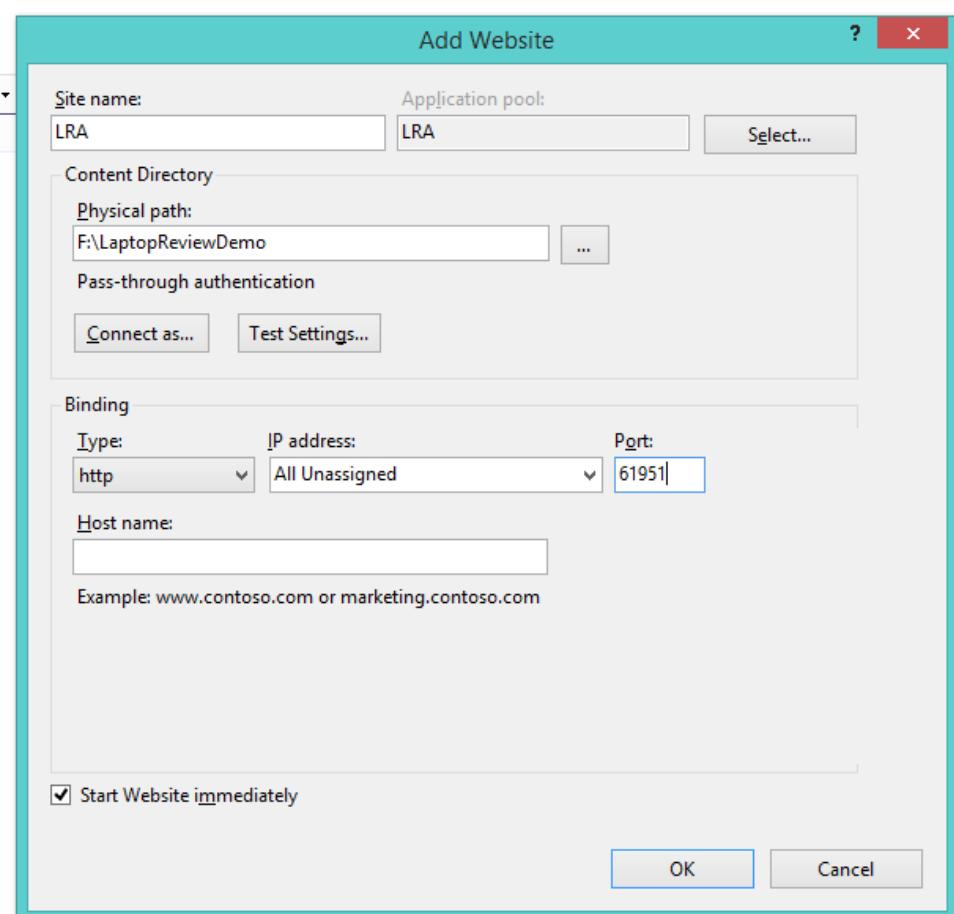


Figure 118: Deploy web application on server – Step 2

- Press OK to finish the process

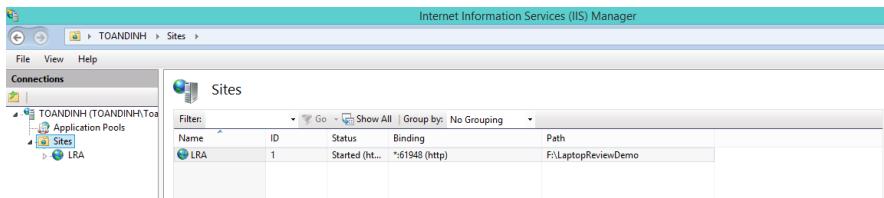


Figure 119: Deploy web application on server – Step 3

1.3 Setting up the environment at client side

1.3.1 Setting up for computer

- The client devices need to have one of the following browsers to access the website:
 - Google Chrome.
 - Firefox.
 - Coc coc

2. User Guide

The user guide is based on the normal workflow of the system

2.1 Guest/Member Guide

2.1.1 Search Product



Your best decision is our will

Figure 120: Search Product Page

Step	Description
1	Input search content and press “Enter”

Table 78: Search Product Steps

2.1.2 Report Comment

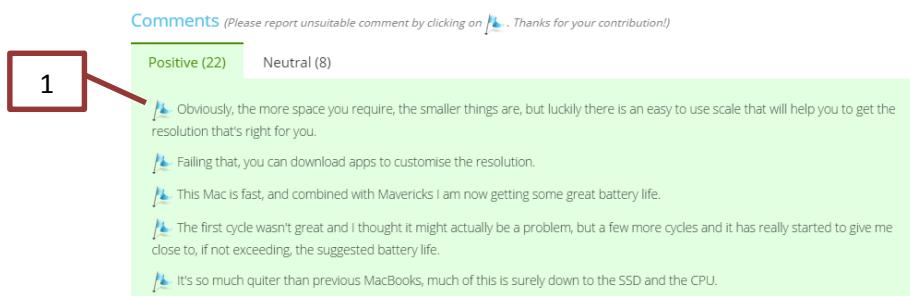


Figure 121: Report comment

Step	Description
1	Click report icon to report comment

Table 79: Report comment

2.1.3 Recommend Product

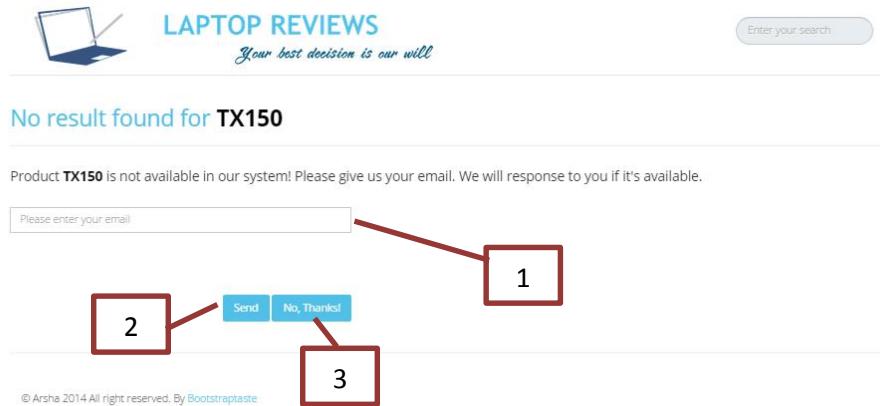


Figure 122: Recommend Product

Step	Description
1	Fill "Email"
2	Click "Send" to submit Email
3	Click "No, Thanks!" to cancel submission

Table 80: Recommend Product

2.2 Staff Guide

2.2.1 Login

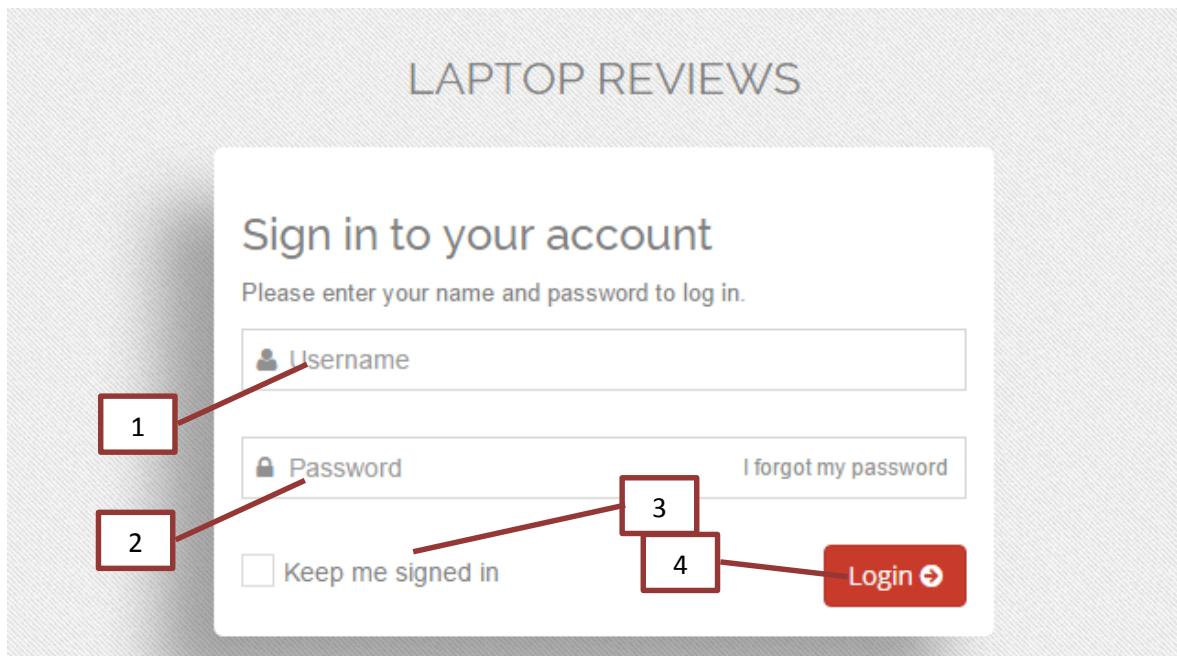


Figure 123: Staff Login

Step	Description
1	Fill in user's name
2	Fill in user's password
3	Click button "Keep me signed in" to save user name and password
4	Click button "Login" to log in the system

Table 81: Staff Login Steps

2.2.2 Import Excel File

Import Excel File

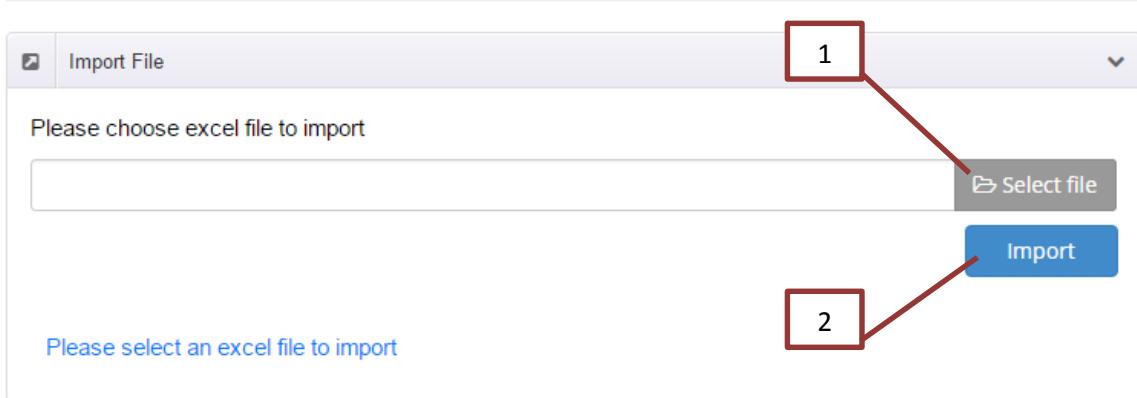


Figure 124: Imported Excel File

Step	Description
1	Click to select file excel.
2	Click button "Import" to upload file excel.

Table 82: Import Excel File Steps

2.2.3 Import Dictionary File

Import Dictionary File



Figure 125: Import Dictionary File

Step	Description
1	Click to select name.
2	Click for pick type of Dictionary
3	Click on "Import" to upload

Table 83: Import Dictionary File Steps

2.2.4 Create New Site

Create New Site

The screenshot shows a user interface for creating a new site. At the top, there is a dropdown menu labeled "The site which will be parsed" with the number "2" highlighted by a red box. Below it is a field labeled "Url of this site" with a red box around the number "1". To the right of this field is a blue "View" button.

Figure 126: Create New Site Page – 1

Step	Description
1	Fill url to parse.
2	Click “View” button to view website parse.

Table 84: Create New Site Steps – 1

The screenshot shows a "Form Wizard" interface with a progress bar and step descriptions. The steps are: Step 1 Name (highlighted with a red box), Step 2 Brand, Step 3 Description, Step 4 Image, Step 5 Commented Date, and Step 6 Comment's Content. A green progress bar is partially filled under Step 1. Below the wizard, there is a search bar with the number "1" highlighted by a red box. To the right of the search bar is a "Next" button with a red box around the number "2".

Below the wizard, there is a screenshot of an eBay search results page for a Samsung Chromebook XE303C12-A01US. The product title is displayed, along with "FREE SHIPPING" and a star rating of 4.5 stars from 198 reviews.

Figure 127: Create New Site Page – 2

Xpath of Brand *

Is this attribute not available? Yes

[Back](#) 4 [Next ➔](#)

Figure 128: Create New Site Page – 3

Xpath of Description *

Is this attribute not available? Yes

[Back](#) 6 [Next ➔](#)

Figure 129: Create New Site Page – 4

Xpath of Image *

Is this attribute not available? Yes

[Back](#) 8 [Next ➔](#)

Figure 130: Create New Site Page – 5

A screenshot of a six-step form for creating a new site page. The steps are: Step 1 Name (checkmark), Step 2 Brand (checkmark), Step 3 Description (checkmark), Step 4 Image (checkmark), Step 5 Commented Date (highlighted with a red border), and Step 6 Comment's Content (gray circle). Below the steps is a green progress bar. The 'Xpath of Commented Date *' field contains '9'. The 'Format of Date' field contains '10'. Navigation buttons 'Back' and 'Next' are at the bottom.

Xpath of Commented Date *

9

Format of Date

10

Back

11

Next ➔

Figure 131: Create New Site Page – 6

A screenshot of a six-step form for creating a new site page. The steps are: Step 1 Name (checkmark), Step 2 Brand (checkmark), Step 3 Description (checkmark), Step 4 Image (checkmark), Step 5 Commented Date (checkmark), and Step 6 Comment's Content (highlighted with a red border). Below the steps is a green progress bar. The 'Xpath of Comment's Content *' field contains '12'. Navigation buttons 'Back' and 'Finish ➔' are at the bottom.

Xpath of Comment's Content *

12

Back

13

Finish ➔

Figure 132: Create New Site Page – 7

Preview Product's Information

	Product's Name: Details about Samsung Chromebook XE303C12-A01US Google Chrome OS 2GB 1.7Ghz 11.6";
	Brand: N/A
	Description: N/A
	First Commented Date: 07/25/15
	First Comment: If you want a fast and easy computer, this is for you. I can check my emails, do research on the web and check on my facebook friends in record time.

14 Create New Site Cancel

Figure 133: Create New Site Page – 8

Step	Description
1	Select product's name
2	Click "Next"
3	Select brand
4	Click "Next"
5	Select description
6	Click "Next"
7	Select image
8	Click "Next"
9	Select commented date
10	Fill in date's format
11	Click "Next"
12	Select comment's content
13	Click "Finish"
14	Click "Create new site"

Table 85: Create New Site Steps – 2

2.2.5 Run Parser

Run Parser



Figure 134: Run Parser

Step	Description
1	Click “Run Parser” button force parse data

Table 86: Run Parser

2.2.6 Manage Recommend Product

Recommended Product

The screenshot shows a table titled 'List of Nearest Recommended Products'. The table has columns for 'No.', 'Product's Name', 'Sent Date', and 'Status'. There are four entries in the table:

No.	Product's Name	Sent Date	Status
1	Aspire E1-522-5423	07/27/2015	Added
2	Yoga 13	08/06/2015	Pending
3	XE303C12-A01US	08/09/2015	Added
4	TX300	08/09/2015	Added

At the bottom of the table, there is a red rectangular box containing the number '1', which appears to be a step indicator. The table also includes a 'Show All Recommended Product' button at the top right and navigation links ('« Previous', '1', 'Next »') at the bottom right.

Figure 135: Manage Recommended Product - 1

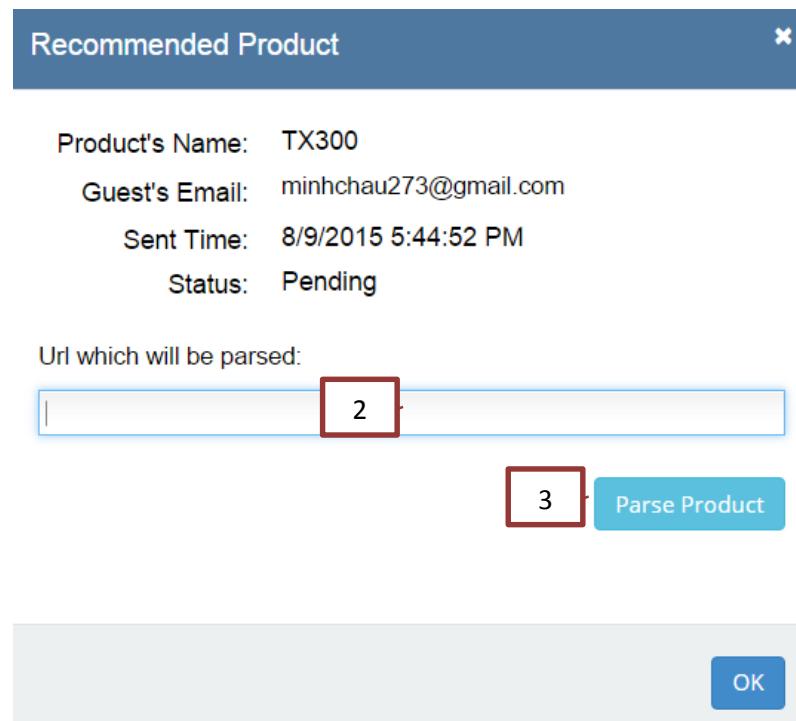


Figure 136: Manage Recommended Product – 2

Step	Description
1	Click name of any product which has “pending” status
2	Input “Url which will be parsed”
3	Click “Parse Product”

Table 87: Manage Recommended Product

2.2.7 Train Machine

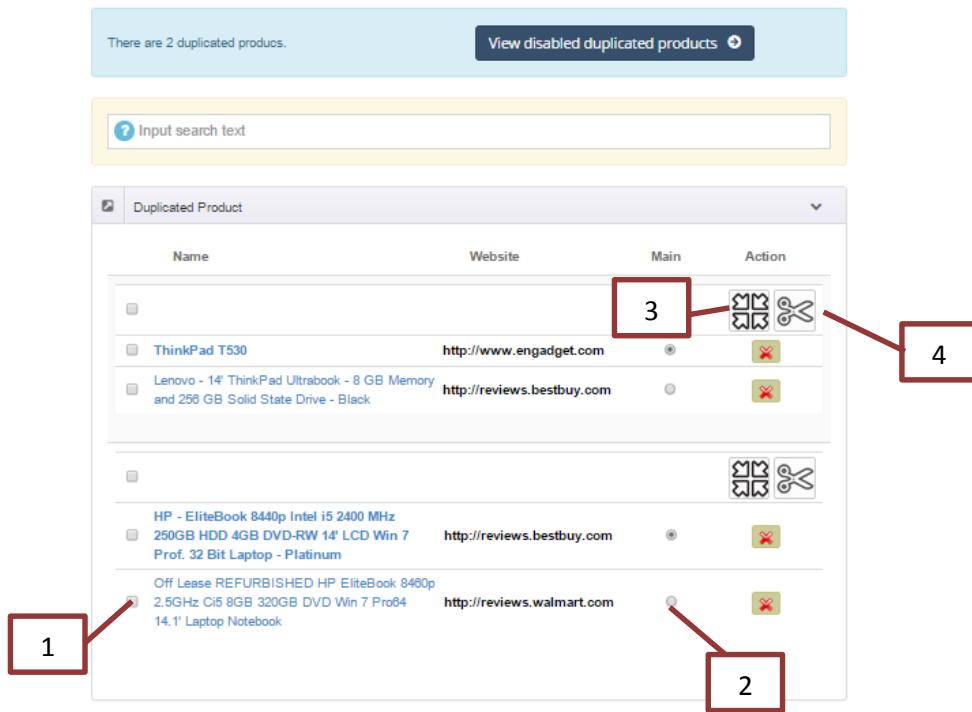


Figure 137: Confirm new laptop

Step	Description
1	Click to choose duplicated products
2	Click to choose main product (For Merge)
3	Click to process "Merge"
4	Click to process "Split"

Table 88: Train Machine

2.2.8 Manage Product

Product Management

All products (59)	No image (24)	No description (1)	Reported comment (1)
Content of All products tab			
3	Show 10 ▾ row	Product:	2
4	1	Acer - 13.3' LED (ComfyView) Chromebook - NVIDIA Tegra K1 CD570M-A1 Quad-core (4 Core) 2.10 GHz - White	7/31/2015
2	27	Acer - 15.6' Aspire Notebook - 4 GB Memory - 1 TB Hard Drive - Black	7/17/2015
3	41	Acer - Aspire 17.3' Laptop - Intel Core i3 - 6GB Memory - 500GB Hard Drive - Steel Gray	7/31/2015
4	55	Acer - TMB115-MP-C23C CEL/1.83 4GB 500GB W8.1 - Black	8/3/2015
5	43	Acer Acer Red 15.6' Aspire E1-572-6660 Laptop PC with Intel Core i5-4200U Dual-Core Processor, 6GB Memory, 1TB Hard Drive and Windows 7 Home Premium	7/31/2015
6	31	Alienware - 17.3' Laptop - Intel Core i7 - 16GB Memory - 1TB Hard Drive + 128GB Solid State Drive - Epic Silver	7/31/2015
7	40	Apple - Geek Squad Certified Refurbished Pro with Retina display - 15.4" Display - 16GB Memory - 256GB Flash Storage - Silver	7/31/2015

Figure 138: Manage Product – Step 1

Step	Description
1	Click to choose All product tab
2	Input search string to search product
3	Choose to show maximum row
4	Click to go to detail page

Table 89: Manage Product - Step 1

Product Detail

Acer - 13.3' LED (ComfyView) Chromebook -
NVIDIA Tegra K1 CD570M-A1 Quad-core (4 Core)
2.10 GHz - White

Description

Always newStart in seconds and have that new computer feeling – every time. Chromebook's cloud-based Chrome OS and built-in virus protection refresh on reboot. No updates to track, no discs to insert, and backups are automatic, too. Unlike other computers, Chromebooks get better with age. Plus, Chrome OS's intuitive interface makes it all so simple.

Image Upload

No Image available

Comments

No.	Comment	Action
1	The computer worked right out of the box.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
2	The only concern I have is that the power plug feels mushy.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	I'm hoping it doesn't break.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Figure 139: Manage Product – Step 2

No	Description
1	Click to edit description
2	Click to add images
3	Click to enable/disable comment
4	Click to edit comment

Table 90: Manage Product - Step 2

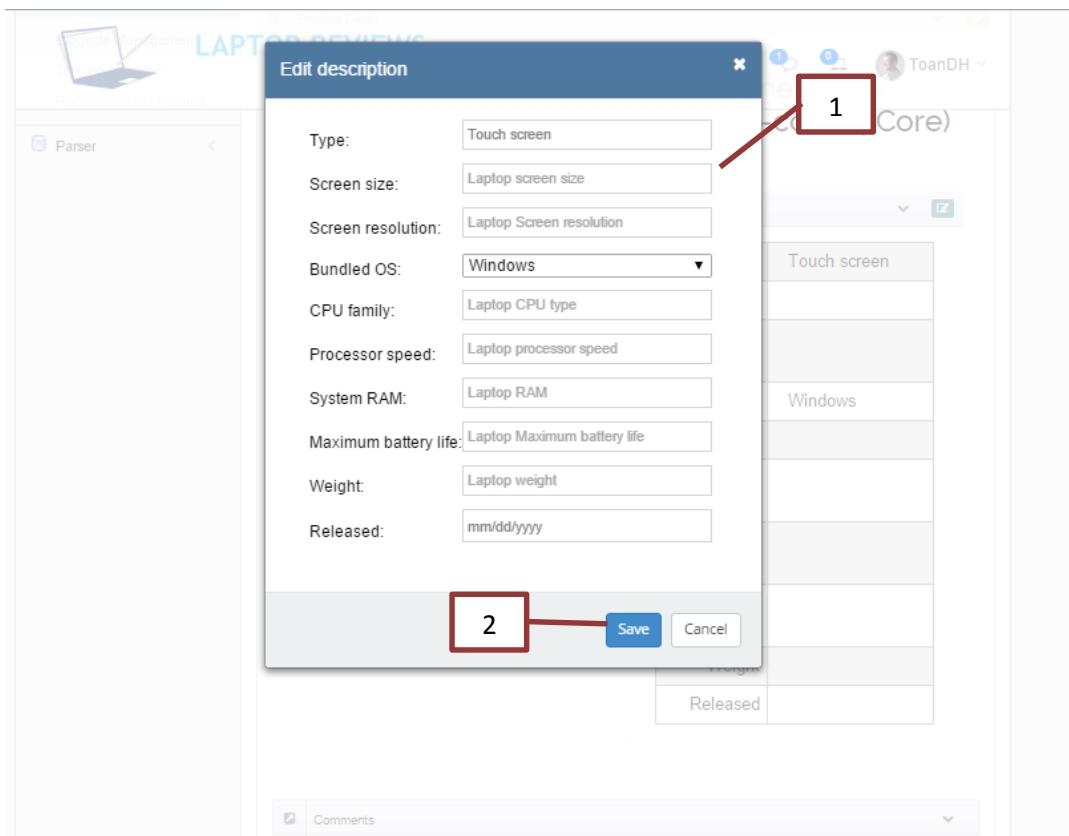


Figure 140: Manage Product – Edit Description

No	Description
1	Fill in information
2	Click Save to save description

Table 91: Manage Product – Edit Description

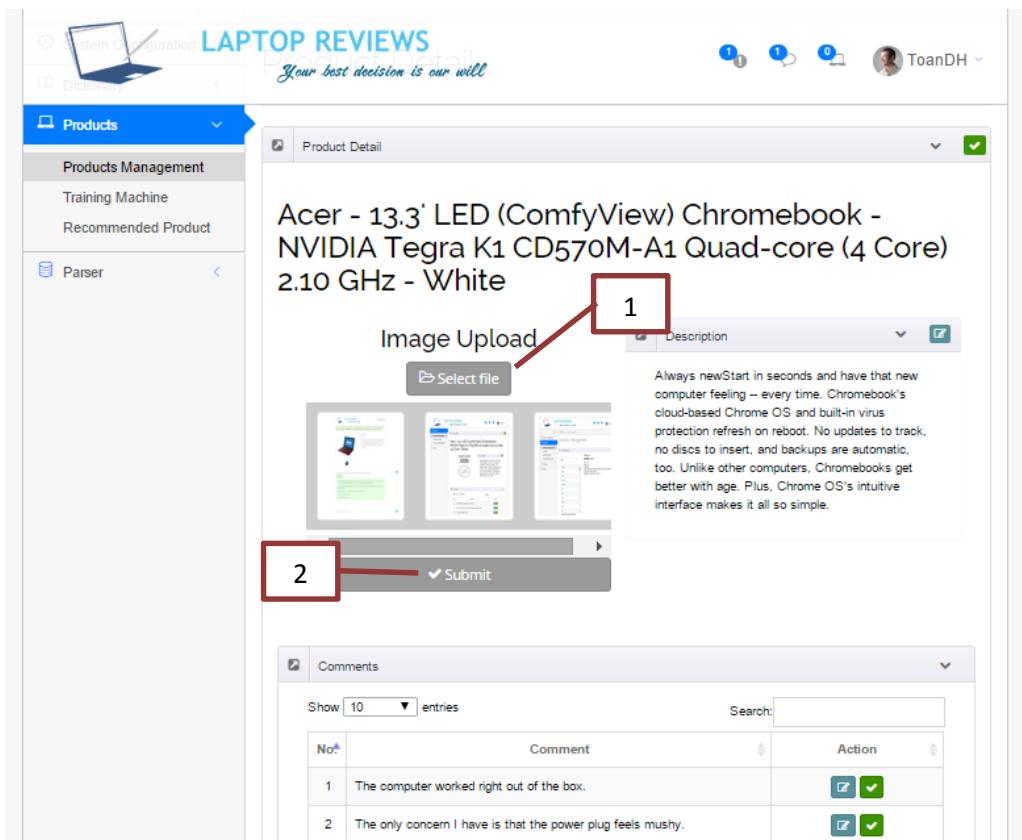


Figure 141: Manage Product – Upload Image

No	Description
1	Click to choose images
2	Click to save images to system

Table 92: Manage Product – Upload Image

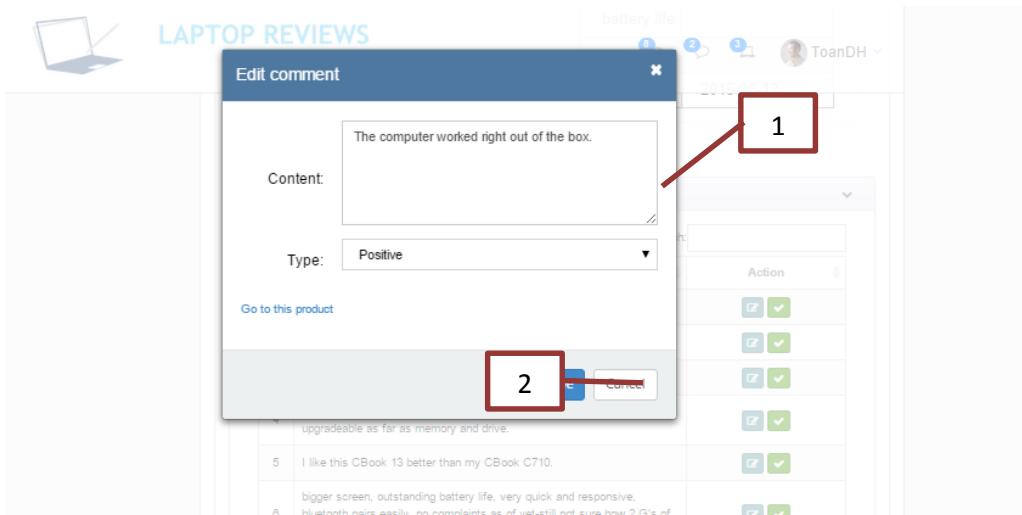


Figure 142: Manage Product – Edit Comment

No	Description
1	Fill in information
2	Click to save edited information

Table 93: Manage Product - Edit Comment

G. Appendix

1. String Comparison: <http://www.catalysoft.com/articles/StrikeAMatch.html>