** MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

**Laptop Reviews**

|  |  |
| --- | --- |
| **Group 1** | |
| **Group member** | Vo Thi Minh Chau – Team Leader – SE60931  Nguyen Van Hon – Team Member - 60390  Dinh Huu Toan – Team Member - SE60871  Nguyen Manh Khuong – Team Member - 60455 |
| **Supervisor** | Mr. Kieu Trong Khanh |
| **Ext. Supervisor** | N/A |
| **Capstone Project code** | LRA |

-Ho Chi Minh City, ***05/2015***-

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# Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| LRA | Laptop Review |

# Report No.3 Software Requirement Specification

## User Requirement Specification

### 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 and their reviews.
* View products details with all useful information.
* Ask for not available products.
* Ask for notification when asked products are available.

### Staff Requirement

Staff is a person whose work is maintaining the system. Staff will be able to do following things:

* Update dictionary manually or through importing Excel file.
* Modify parser function.
* Train the system so that it can handle some tasks such as managing duplicated products.
* Configure the system
* Force parsing data

### Admin Requirement

Admin is the one who manage the overall system. Admin can do all Staff’s function plus:

* Manage users.

### 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
* Save not available laptops that request by guests

### Member Requirement

Member will be able to do following things:

* Edit profile
* Change password

## System Requirement Specification

### External Interface Requirement

#### 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.

#### Hardware Interface

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

#### Software Interface

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

#### Communication Protocol

* Website using HTTP protocol for communication between the web browser and the web server.

### System Overview Use Case

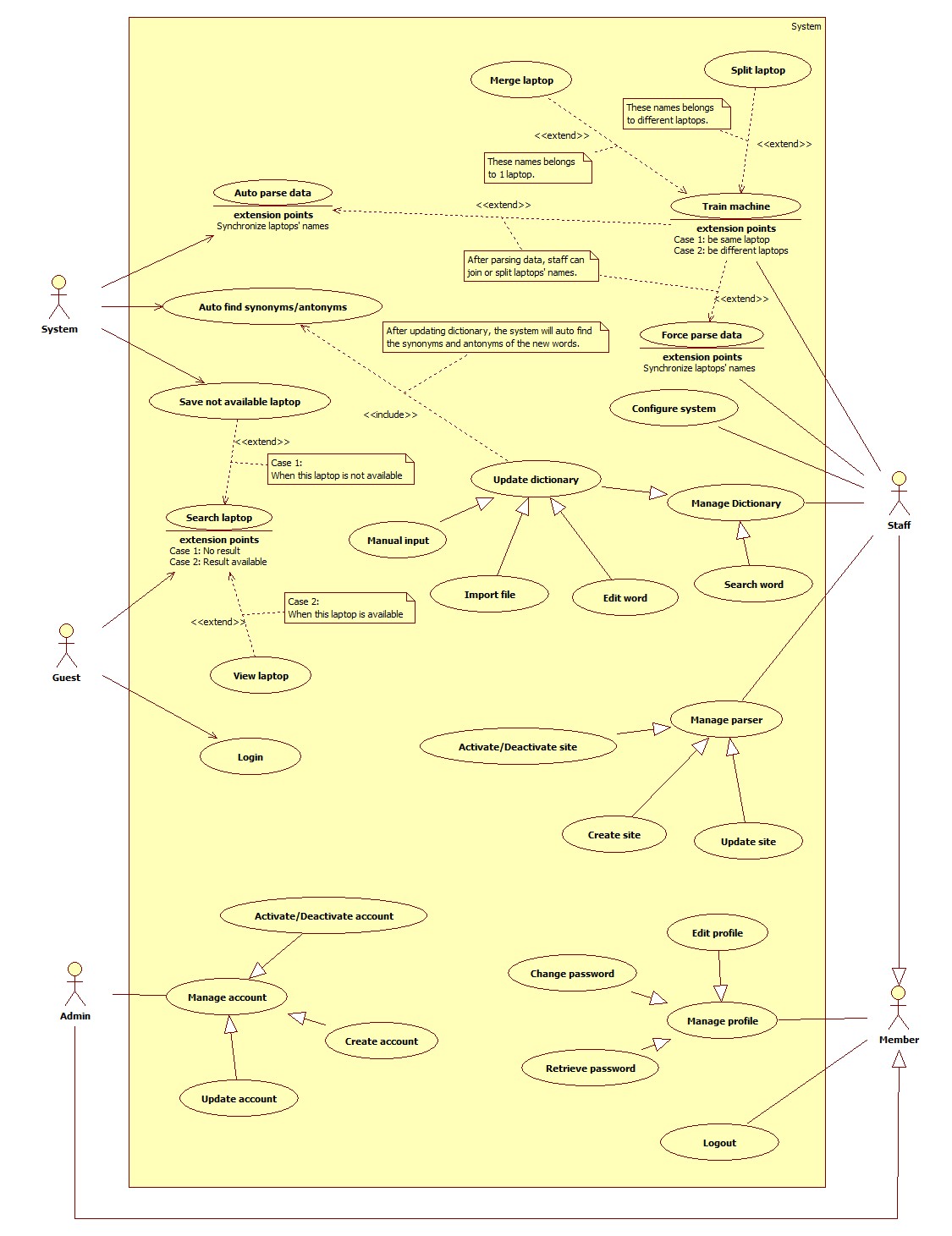


Figure 1: System Overview Use Case

### List of Use Case

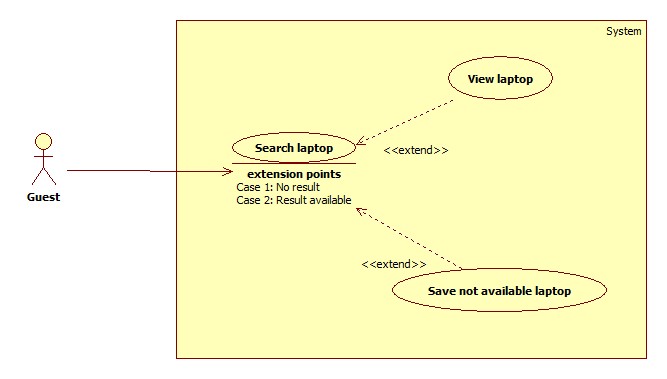
#### <System> Overview Use Case

##### <System> Auto Parse Data

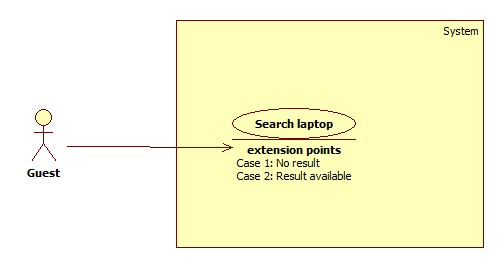
##### <System> Auto Find Synonyms/Antonyms

##### <System> Save Not Available Laptop

#### <Guest> Overview Use Case

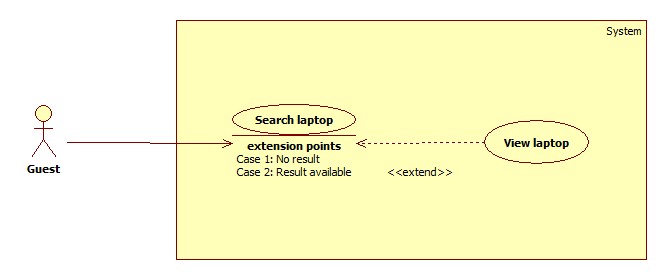


##### <Guest> Search Laptop



|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA004** | | | |
| **Use Case No.** | LRA004 | **Use Case Version** | 2.0 |
| **Use Case Name** | Search Laptop | | |
| **Author** | Dinh Huu Toan | | |
| **Date** | 18/05/2015 | **Priority** | High |
| **Actor:**   * Guests   **Summary:**   * This use case allows guest to search and view laptops brief information.   **Goal:**   * A list of appropriate laptops will be shown to user.   **Triggers:**   * Guest wants to search for laptops’ information. * Guest can choose brand of the laptops to maximize the search result. * Input laptop name into search textbox then click “Search”.   **Preconditions:**   * N/A.   **Post Conditions:**   * **Success:** A list of appropriate laptops is shown along with laptops’ information: name and percentage of positive comments. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest inputs the laptop’s name into textbox, choose the brand or they can leave it the default value.  (Guest provide laptop information such as name) |  | | 2 | Guest clicks “Search” button  (Guest sends Search command) | * System will show a list of appropriate laptops as a grid which contains 3 laptops in one row.[Alternative 1] * A laptop will show in a square frame with following information: * Laptop’s image * Name * Percentage of positive comments |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | System cannot find searched laptops | System will show a pop-up. In that pop-up include: a message: “This laptop is not available. Would you like to receive information about this laptop when it’s available?”, a textbox for inputting email, and “Submit”/”No, Thanks!” buttons (command) |   **Exceptions:** N/A  **Relationships:** N/A  **Business Rules:**   * Guest can leave the search textbox empty, then all laptops available in the database should be listed. * Guest can choose Brand when searching to maximize the result. * ( Tieu chi search, sau khi search k co thi he thong se lam gi …) | | | |

##### <Guest> View Laptop Detail through Search



|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA005** | | | |
| **Use Case No.** | LRA005 | **Use Case Version** | 2.0 |
| **Use Case Name** | View laptop detail | | |
| **Author** | Dinh Huu Toan | | |
| **Date** | 18/05/2015 | **Priority** | High |
| **Actor:**   * Guests   **Summary:**   * This use case allows guests to read laptop full details.   **Goal:**   * Show detail information of choosing laptop.   **Triggers:**   * Guest wants to read laptop details includes: name, reviews, specifications and images * Click “Details” link on each result found.   **Preconditions:**   * N/A.   **Post Conditions:**   * **Success:** Navigate to new page shows laptops’ information: name, reviews statistic, and images. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest clicks “Detail” link on one result | * Navigate to “Detail” page with following information:   + Name of laptop   + Image slide show   + Specifications   + Statistic: number of Positive/Negative/Neutral reviews   + Reviews which are ordered by Positive/Negative and Neutral   + Suggested laptops |   **Alternative Scenario:** N/A  **Exceptions:** N/A  **Relationships:** Search Laptop  **Business Rules:**   * Details of laptop should be well-organized so that guest can easily read them. | | | |

##### <Guest> Login

#### <Member> Overview Use Case

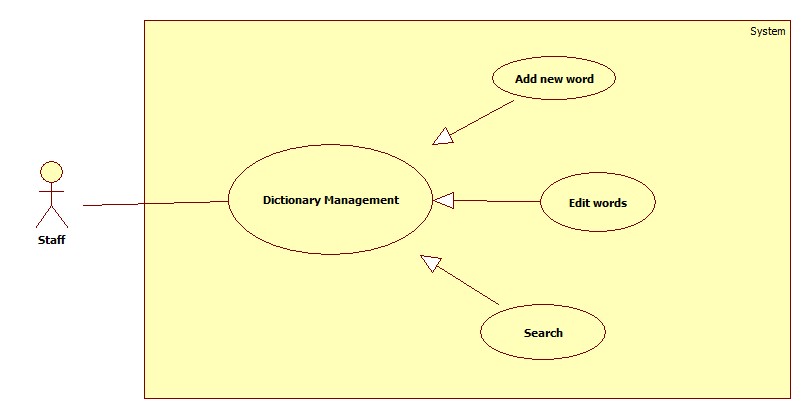
##### <Member> Edit Profile

##### <Member> Change Password

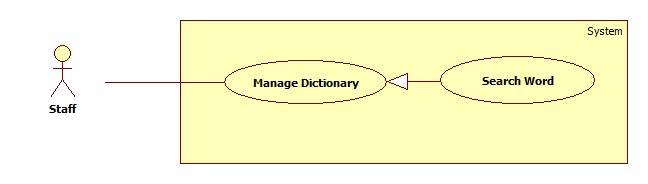
##### <Member> Retrieve Password

##### <Member> Log out

#### <Staff> Overview Use Case

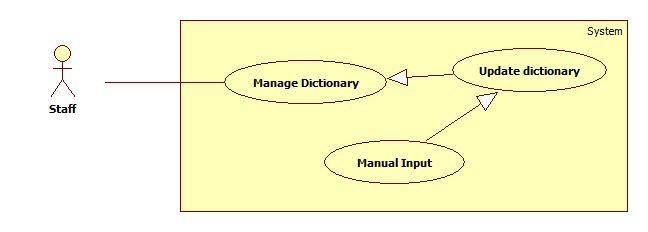


##### <Staff> Search Word



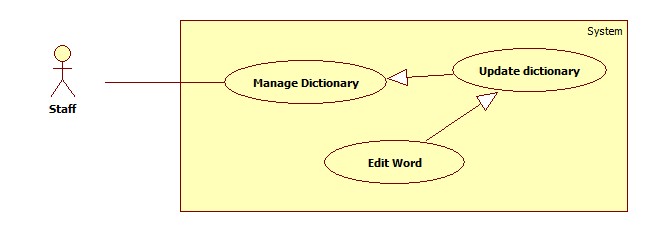
|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA003** | | | |
| **Use Case No.** | LRA003 | **Use Case Version** | 2.0 |
| **Use Case Name** | Search Dictionary | | |
| **Author** | Dinh Huu Toan | | |
| **Date** | 03/06/2015 | **Priority** | High |
| **Actor:**   * Staff   **Summary:**   * This use case helps staff to search for available word in dictionary   **Goal:**   * Show appropriate word to staff.   **Triggers:**   * Staff want to search words in dictionary for editing or viewing. * Click “Dictionary”, then “Dictionary Management” then input the word they want to search into search textbox   **Preconditions:**   * User should login to the system under Staff role.   **Post Conditions:**   * **Success:** Show list of appropriate words with definition field when pointing to each word. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff click “Dictionary”, then “Dictionary Management” | * Navigate to “Dictionary Management” page with following information:   + Search textbox (free text input)   + Add button   + Edit button (command)   + List of words   + Definition of selected word include: definition, synonyms, antonyms, type of word (Pros/Cons/Neural) | | 2 | Input search string into search textbox | * The list of words will be filtered and show only words that match search string. [Alternative 1] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | System cannot find word match search string | System will show a pop-up. In that pop-up include: a message: “This word is not available in the dictionary. Do you want to add it to dictionary?”, and “Add”/”No, Thanks!” buttons |   **Exceptions:** N/A  **Relationships:** Dictionary Management  **Business Rules:**   * The list should be filtered at the same time (Moi lan go mot ky tu thi search hay go 3 ky tu tro len moi search) the search string is inputted * The list is sorted by alphabet order. | | | |

##### <Staff> Manual Input



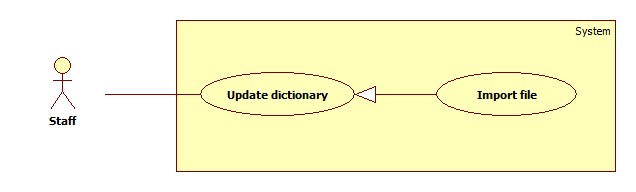
|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA004** | | | |
| **Use Case No.** | LRA004 | **Use Case Version** | 2.0 |
| **Use Case Name** | Add new word | | |
| **Author** | Dinh Huu Toan | | |
| **Date** | 03/06/2015 | **Priority** | High |
| **Actor:**   * Staff   **Summary:**   * This use case help staff to add new word to dictionary   **Goal:**   * New word is added to dictionary   **Triggers:**   * Staff want to add word to dictionary. * Click “Dictionary”, then “Dictionary Management” then click “Add” button   **Preconditions:**   * User should login to the system under Staff role.   **Post Conditions:**   * **Success:** New word is added to dictionary. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff click “Dictionary”, then “Dictionary Management” | * Navigate to “Dictionary Management” page with following information:   + Search textbox   + Add button   + Edit button   + List of words   + Definition of selected word include: definition, synonyms, antonyms, type of word (Pros/Cons/Neural) | | 2 | Click “Add” button | * A pop-up appear with the following fields: * Word: input the characters of that word * Type: Choose whether this word is Pros/Cons or Neutral * Synonyms: Input word’s synonyms. Each synonym is separated by “,” * Antonyms: Input word’s antonyms. Each antonyms is separated by “,” * Add button | | 3 | Staff fill in all fields and click “Add” | * New word is added to the dictionary. Show success message [Alternative 1] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Added word is already in dictifonary | System will show a pop-up. In that pop-up include: a message: “This word is already in the dictionary. Do you want to edit it?”, and “Edit”/”No, Thanks!” buttons | | 2 |  |  |   **Exceptions:** N/A  **Relationships:** Dictionary Management  **Business Rules:**   * After successfully add new word, system will show that word definition field for staff to check again. | | | |

##### <Staff> Edit Word



|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA005** | | | |
| **Use Case No.** | LRA005 | **Use Case Version** | 2.0 |
| **Use Case Name** | Edit word | | |
| **Author** | Dinh Huu Toan | | |
| **Date** | 03/06/2015 | **Priority** | High |
| **Actor:**   * Staff   **Summary:**   * This use case help staff to edit word in dictionary.   **Goal:**   * Selected word is edited.   **Triggers:**   * Staff want to edit word in dictionary. * Click “Dictionary”, then “Dictionary Management”. Staff will search for the word they want to edit and then click “Edit”   **Preconditions:**   * User should login to the system under Staff role. * That word should be available in the dictionary.   **Post Conditions:**   * **Success:** Edited information will be saved. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff click “Dictionary”, then “Dictionary Management” | * Navigate to “Dictionary Management” page with following information:   + Search textbox   + Add button   + Edit button   + List of words   + Definition of selected word include: definition, synonyms, antonyms, type of word (Pros/Cons/Neural) | | 2 | Search for the word they want to edit | * The list of words will be filtered and show only words that match search string. [Alternative 1] | | 3 | Staff click “Edit” | * A pop-up appear with the following fields: * Word: characters of that word. Staff can edit this word * Type: Staff can choose new type of the word * Synonyms: show all the synonyms of the words. Staff can add, edit or delete these synonyms. * Antonyms: show all the antonyms of the words. Staff can add, edit or delete these antonyms. * Edit button |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | System cannot find word match search string | System will show a pop-up. In that pop-up include: a message: “This word is not available in the dictionary. Do you want to add it to dictionary?”, and “Add”/”No, Thanks!” buttons |   **Exceptions:** N/A  **Relationships:** Search Dictionary  **Business Rules:**   * After successfully edit word, system will show that word definition field for staff to check again. | | | |

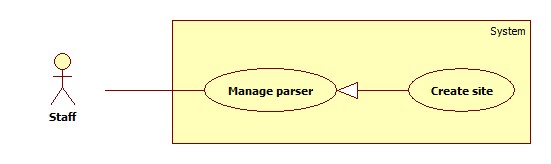
##### <Staff> Import File



|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA014** | | | |
| **Use Case No.** | **LRA014** | **Use Case Version** | 1.0 |
| **Use Case Name** | Import File | | |
| **Author** | Nguyen Manh Khuong | | |
| **Date** | 3/06/2015 | **Priority** | High |
| **Actor:**   * Staff.   **Summary:**   * This use case allows staff to import new words into the system by using an excel file.   **Goal:**   * New words will be inserted into the system data.   **Triggers:**   * Click “Manage Dictionary” then “Import Excel File”.   **Preconditions:**   * User must log in the system with Staff role.   **Post Conditions:**   * **Success:** New words will be saved to system. * **Fail:** Show an error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff clicks at “Import Excel File”. | Show “Import Excel File” page which contains:   * “Choose file”: command. * “Submit”: command. | | 2 | Clicks on “Choose file” command. | Show “Open” dialog box. | | 3 | Select a file and click “Open” command. | Show “Import Excel File” page which contains that filename next to “Choose file” command. | | 4 | Click on “Submit” command.  [Alternative 1],  [Alternative 2],  [Alternative 3] | Read excel file, filter and add words are contained in file to a list.  Show list of new words in table with 3 columns:   * + “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 clicks “Save to Database” command. | Save selected word to database. Find synonyms and antonyms of each word.  [Exception 2] |   **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 2007 (or later) file! (.xlsx)” | | 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” value. * File extension is Microsoft Office Excel 2007 (or later). (.xlsx) * File must have at least 1 row data. * File structure must be formatted as below: * Valid file format example: * Invalid file format example: | | | |

Table3: < Staff > Import File

##### <Staff> Create Site



|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – LRA015** | | | |
| **Use Case No.** | LRA015 | **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:**   * Staffs want to create a new site to get data from a website. * Staff clicks “Parser” tag then clicks “Create new site” sub menu.   **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 | Sstem Response | | 1 | Staff clicks “Parser” tag in menu bar. | Show sub menu which includes:   * Create New Site: submenu. * Parser Management: submenu. | | 2 | Staff clicks “Create New Site” sub menu. | Show “Create New Site” page which includes:   * Url of site: text box, min length: 1, max length: 300, required. * View: button | | 3 | Staff enters a link and click “View” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 1st step is selected. * “Xpath of product’s name” textbox: will show the xpath of selected element. * “Next” button: goes to next step.   [Alternative 1] | | 4 | At steps 1: “Product’s name”, staff clicks the mouse at the area which include product’s name in “Preview” panel | “Xpath of product’s name” textbox will be filled with the xpath string, required. | | 5 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 2nd step is selected. * “Xpath of brand” textbox: will show the xpath of selected element. * “Next” button: goes to next step. * “Back” button: goes to previous step.   [Alternative 2] | | 6 | At steps 2: “Product’s brand”, staff clicks the mouse at the area which include product’s brand in “Preview” panel. | “Xpath of brand” textbox will be filled with the xpath string, required. | | 7 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 3rd step is selected. * “Xpath of image” textbox: will show the xpath of selected element. * “Next” button: goes to next step. * “Back” button: goes to previous step.   [Alternative 3] | | 8 | At step 3: “Image”, staff clicks the mouse at the area which include image information in “Preview” panel. | “Xpath of image” textbox will be filled with the xpath string. | | 9 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 4th step is selected. * “Xpath of description” textbox: will show the xpath of selected element. * “Next” button: goes to next step. * “Back” button: goes to previous step. | | 10 | At step 4:”Description”, staff click the mouse at the area which includes product’s description in “Preview” panel. | “Xpath of description” textbox will be filled with the xpath string, required. | | 11 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 5th step is selected. * “Xpath of commented date” textbox: will show the xpath of selected element. * “Next” button: goes to next step. * “Back” button: goes to previous step.   [Alternative 4] | | 12 | At step 5:”Commented date”, staff click the mouse at the area which include commented date in “Preview” panel. | “Xpath of commented date” textbox will be filled with the xpath string, required. | | 13 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the 6th step is selected. * “Xpath of comment’s content” textbox: will show the xpath of selected element. * “Next” button: goes to next step. * “Back” button: goes to previous step.   [Alternative 5] | | 14 | At step 6: “Comment’s content”, staff click the mouse at the area which include comment’s content in “Preview” panel. | “Xpath of comment’s content” textbox will be filled with the xpath string, required. | | 15 | Staff clicks “Next” button. | Show “Create New Site” page which includes:   * Url of product: displays entered value. * View: button. * Wizard to create site. * “Preview” panel: shows staff’s selected page. * “Step of creating site” panel includes a wizard to create a parser with 6 steps and the last step is selected. * The message: “Are you sure with your selected items? You can click “Preview” button to see the information of product which will be parsed.” * “Finish” button: finishes the process of creating new site. * “Back” button: goes to previous step.   [Alternative 6] | | 16 | Staff clicks “Finish” button. | Send request to the parsed link.  Fetch data from the response based on the inputted XPaths.  Validate data.  If data is valid, insert to database.  [Exception 1]  [Alternative 7] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | “Url of product” is blank. | Show message error: “Please input url of product which will be parsed”. | | 2 | “Xpath of product’s name” is blank. | Show message error: “Please select name of product which will be parsed”. | | 3 | “Xpath of brand” is blank. | Show message error: “Please select brand of product which will be parsed”. | | 4 | “Xpath of description” is blank. | Show message error: “Please select description of product which will be parsed”. | | 5 | “Xpath of commented date” is blank. | Show message error: “Please select name of product which will be parsed”. | | 6 | “Xpath of comment’s content” is blank. | Show message error: “Please select name of product which will be parsed”. | | 7 | At the last step, staff clicks “Preview” | A popup with these elements will be shown:  - Title “Preview Product’s Information”.  - The name, brand and description of this products.  - A panel with all images of this product.  - All comments with commented date of this product.  - “Close” button. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Data is not valid. | Do not insert to database. |   **Relationships:** N/A  **Business Rules:**   * The data display structure of that page should be for a specified product. | | | |

##### <Staff> Update Site

##### <Staff> Activate/Deactivate Site

##### <Staff> Configure System

##### <Staff> Force Parse Data

##### <Staff> Merge Laptop

##### <Staff> Split Laptop

#### <Admin> Overview Use Case

##### <Admin> Create Account

##### <Admin> Update Account

##### <Admin> Activate/Deactivate Account

## Software System Attribute

### Usability

#### Graphic User Interface

* All the texts, labels and should be written in Vietnamese.

#### 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.

#### 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 mobile app must be easy to install. Compatible with almost Android Phone.
* The attached manual guide must be clear. User can read and do themselves without developer’s help.

### Reliability

* The system can analyze almost comments, classify them base on dictionary with above 80% accuracy.

### Availability

* N/A

### Security

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

### Maintainability

* Dictionary data is easy to change and update.

### Portability

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

### Performance

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

## Conceptual Diagram

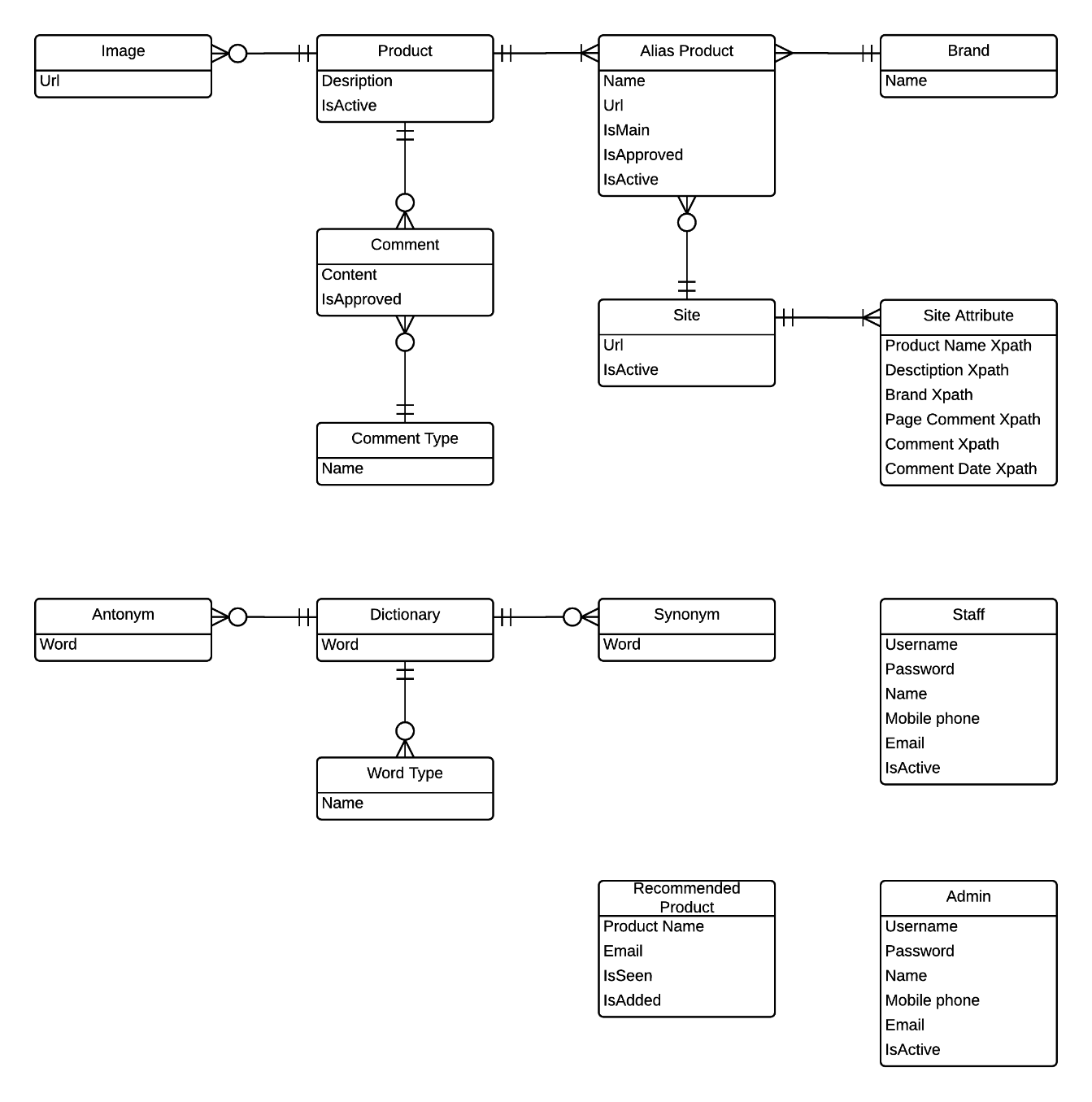


Figure 2: Conceptual Diagram

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. |
| Alias Product | Describe all alias name of product in the system. |
| Brand | Describe all brand that product is included. |
| Comment | Describe all comment of products. |
| Comment Type | Describe all type of comments. |
| Site | Describe all site parse data. |
| Site Attribute | Describe all Xpatch to parser attributes of site |
| Dictionary | Describe all words |
| Antonym | Describe all antonyms of each word in Dictionary. |
| Synonym | Describe all synonym of each word in Dictionary. |
| Word Type | Describe all type of words in Dictionary. |
| RecommendProduct | Describe the product that user recommend for system. |
| Staff | Describe all information of staff. |
| Admin | Describe all information of admin. |