Software Requirements Specification for Food Finder

Version 1.0 approved

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Contents

Revision history

Name	Date	Reasons For Changes	Version

1 Introduction

1.1 Purpose

The purpose of this document is to build an mobile application, that provides information about restaurants in specific regions and helps clients to make their decisions.

1.2 Document Conventions

This document uses the following conventions.

DB	Database
Web Portal	Web application which provides useful information and functions for specific users
Administrator	Specific user who is responsible for development and management of this software

1.3 Intended Audience and Reading Suggestions

The document is intended for the developers of the application. Section 2 and 3 explain overall design of application, and section 4 is for details in features. Reading through the document, developers would get full comprehension of the application. For implementation, refer to the section 5 which is designated for requirements. The product would be useful for clients having difficulty to choose or find restaurants of their taste.

1.4 Product Scope

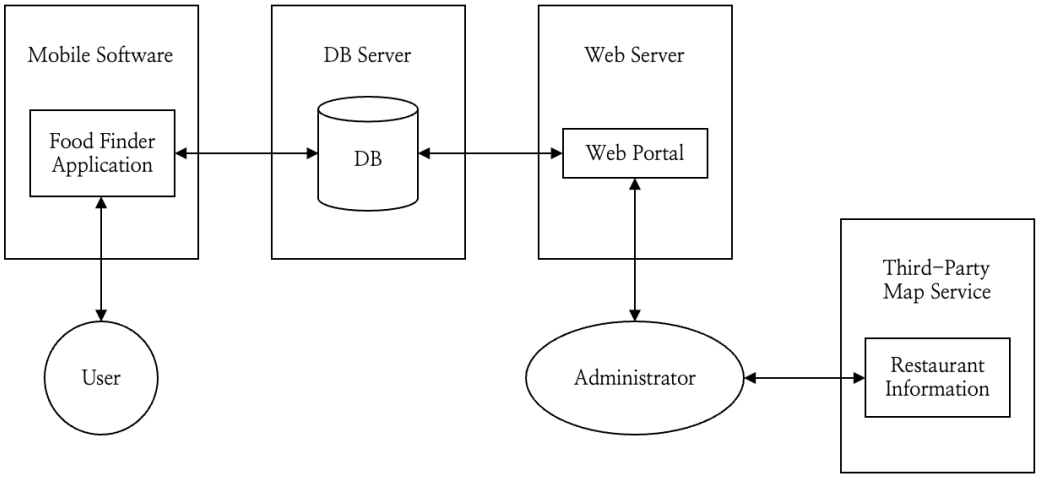
Previous applications that provide restaurant information require multiple steps of search. This program would visualize categories and numbers of restaurants through interactive GUI. Information can be filtered with simple clicks. The application would also contain other various features for user convenience. The product is based on DB with its search functions. Database server supports information about restaurants and their own labels. Users can choose their menu in quick and easy way.

1.5 References

1. IEEE SRS Template
2. https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database

2 Overall Description

2.1 Product Perspective



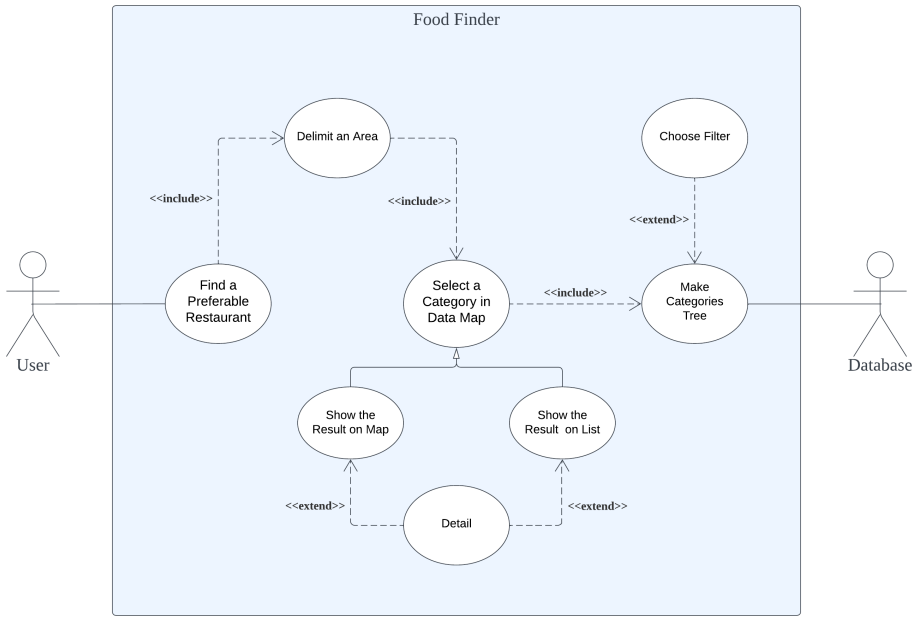
The system consists of three parts: mobile application, database and web portal. The mobile application interacts with the user to provide functions to search for restaurants. The database is used for storage of restaurant information. The web portal is used for specific users to register/delete restaurants, or to manage the database.

Database is needed for this program to store information of restaurants. The database will communicate with the mobile application and web portal to provide/modify data. All of the database communication will be done via internet.

The web portal is for specific users called administrator. It will communicate with the database to modify information inside the database.

There is an additional component which is a third-party map service. Restaurant information will be obtained from this third-party map service and will be adjusted and be added to the database, by administrator.

2.2 Product Functions



With the mobile application, the users will be able to search for restaurants. Based on the selected region and the filters, a data map will be shown to the users. It will show some categories related to restaurants, in a hierarchy structure. The data map will be able to zoom in/out to see the detailed view of the categories. Users will be able to select the categories, then the final result will be given to the users.

The result will be shown either in a map view or a list view, and users could switch between both views. The map view will contain a map of the selected region, and show the results as pins at the location of each restaurant. Users will be able to get detailed information about each restaurant by clicking the pins. The list view will show the results in a vertical list, which users can scroll down. Each restaurant will be shown as a simple item in the list, containing only the name, picture, rating and number of reviews. Users will also be able to get detailed information about each restaurant by clicking the item.

The detailed information will consist of the following components: location, pictures, business hours, contact number, web page, introduction, menus, rating and reviews.

The database will contain information about: the map, information about restaurants (location, pictures, business hours, contact number, web page, introduction, menus, rating, reviews).

By using the web portal, specific users will also be able to register or delete a new restaurant information/catrgory to the database. However, to use this function, network connection request must be made from a specific IP address. Also they must register and log in.

2.3 User Classes and Characteristics

Two user classes exists: mobile application users and web portal users.

Mobile application users will be able to search for restaurants by selecting location and filters. Users could get detailed information about the results. Access to the database is only allowed for adding data related to rating or reviews. Deleting or modifying existing data is prohibited.

Web portal users (Administrator) will be able to access the database. Administrator will have full access to the database, modifying existing restaurant information/category is allowed.

2.4 Operating Environment

For the mobile application, Android will be used as the operating system, with minSdkVersion=23. For the web portal, any operating system would be compatible.

2.5 Design and Implementation Constraints

In order to use mobile application or web portal, network connection will be necessary, in order to communicate with the database. Therefore, mobile phone without network system will not be supported.

Mobile application will also require Android version equal or higher than 23(Marshmallow) embedded inside the mobile phone. Therefore, mobile phone that does not satisfy these constraints will not be supported.

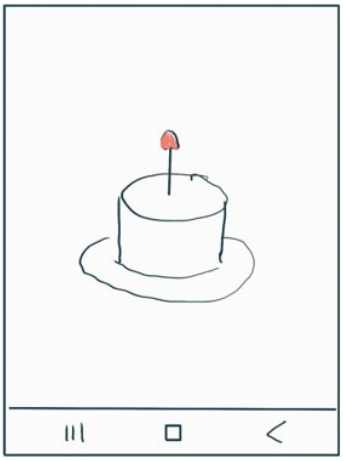
Database must have enough capacity to store user and restaurant information. The response time to the mobile application or web portal could be constrained by the number of clients connected with the database server.

2.6 Assumptions and Dependencies

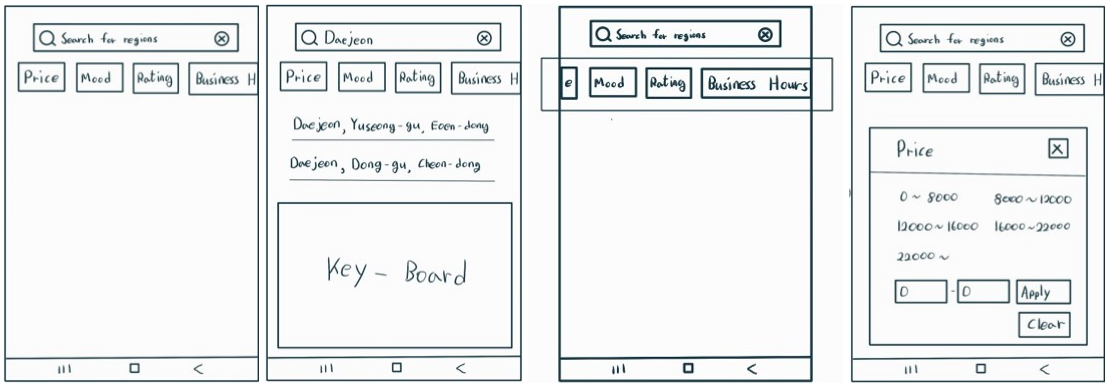
The application will be run at the mobile phone that has embedded and fully working network system.

3 External Interface Requirements

3.1 User Interfaces

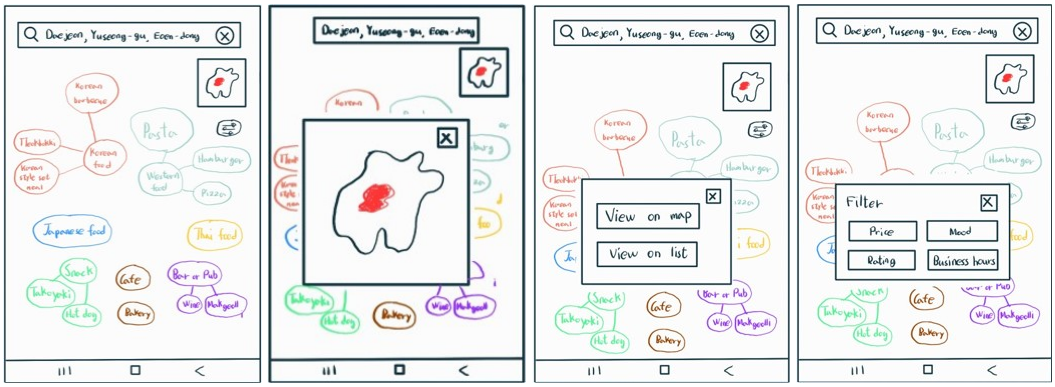


Page 1 - Loading page. When the application is opened, the first screen will be popped up while loading the resources. When loading is complete, screen changes to page 2.

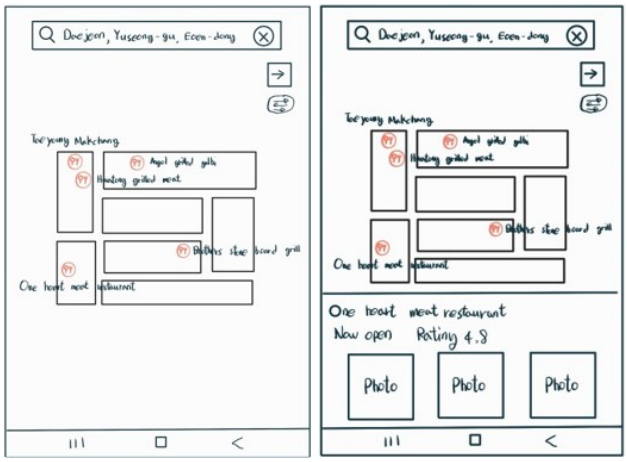


Page 2 - Search page. After loading is complete, the search page will be popped up. There exists a search bar at the top of the screen. When user touches the search bar, keyboard will be popped up from below. Related filters and related search results will also be shown under the search bar. Filters will contain options of price, mood, rating, business hours. It could be dragged. When user touches one of the filters, detailed filter options will be popped up. Users could select the parameters of these options.

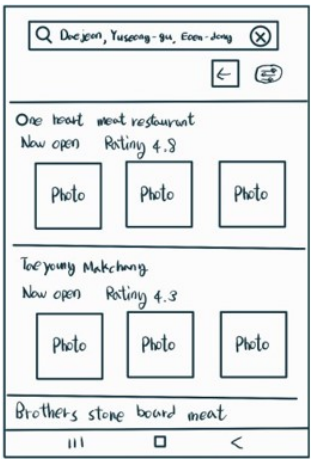
Page 3 - Selection page. After search is done, the screen shows the exact result or related results. When user touches one of these results, screen changes to page 4. Search bar and filter could be used like page 2.



Page 4 - Data map page. Data map is shown. It contains categories of restaurants related to region selected at page 3. Users can search for other region using the search bar. Mini map also pops up at the upper right side of the screen, and the bigger view is available when user touches mini map. Under the mini map, there is a filter button. At the center of the screen, there is a data map which have tree structure. The size of the nodes are proportional to the number of related restaurants. After user selects the node, Then the final filtered results will be ready. A pop-up screen will be shown, giving two options to the user whether to view the results on map, or on list. Users will have to choose one or could go back by touching the X button. If the user touches ”view on map”, screen changes to page 5. If the user touches ”view on list”, screen changes to page 6. When users touches the filter button, the same filter at page 2 will be shown.



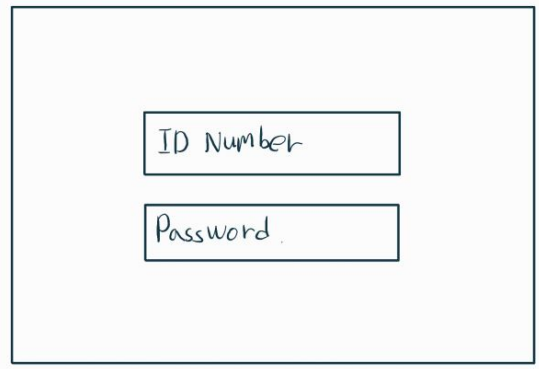
Page 5 - Map view page. Selected restaurants is shown in a map view, by pointing pins at their corresponding location. Users can search for other region using the search bar. There is an arrow button at the upper right side and when touched, it will switch to page 6. It could go back to page 4 by touching the X button. When pin is touched, the corresponding restaurant information will be shown at a small screen. When the restaurant name is touched, screen changes to page 7.



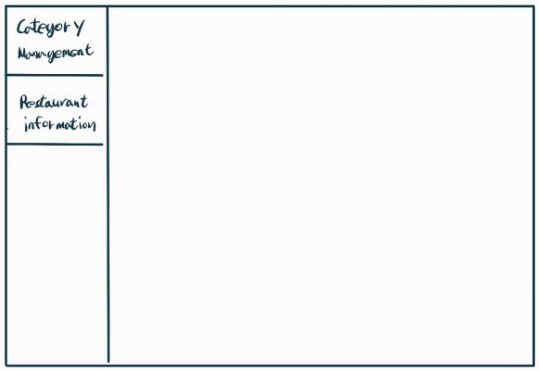
Page 6- List view page. Selected restaurants is shown in a list view and each elements are same with small screen at page 5. The list could be scrolled vertically. Users can search for other region using the search bar. There is an arrow button at the upper right side and when touched, it will switch to page 5. It could go back to page 4 by touching the X button. When pin is touched, the corresponding restaurant information will be shown at a small screen. When the restaurant name is touched, screen changes to page 7.

Page 7 - Detailed info page. When restaurant name is clicked in page 5 or 6, detailed restaurant information will be shown. At the top of the screen, restaurant photo will be shown. At the middle of the screen, restaurant name, rating, and menus will be located. There are three sections: Home, Menu, and Review. Users can touch one of these sections and related information will be shown. Home section is selected as default. When home section is touched, address, business hours, telephone number, simple description will be shown. When menu section is touched, menu list will be shown. When review section is touched, it will show reviews about the restaurant. All of these information will be received from the database.

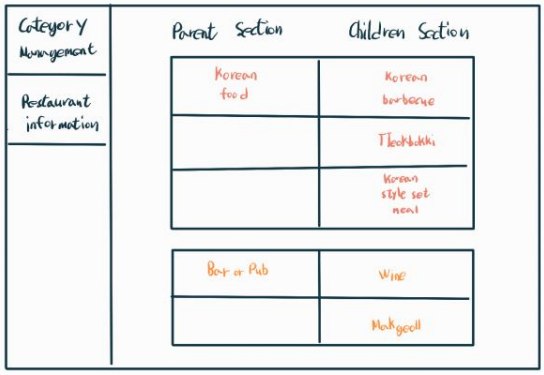
Below is the interface for the administrator portal.



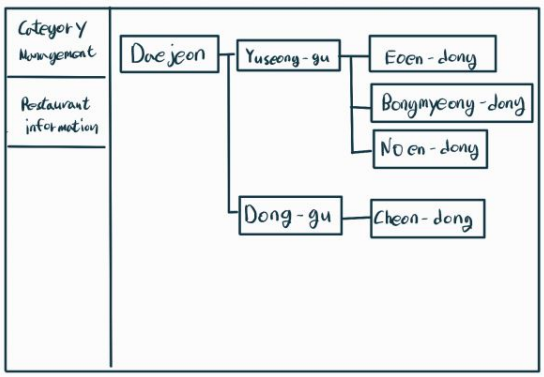
page 1 - The login page. The administrator can access the web portal by entering Id and password.



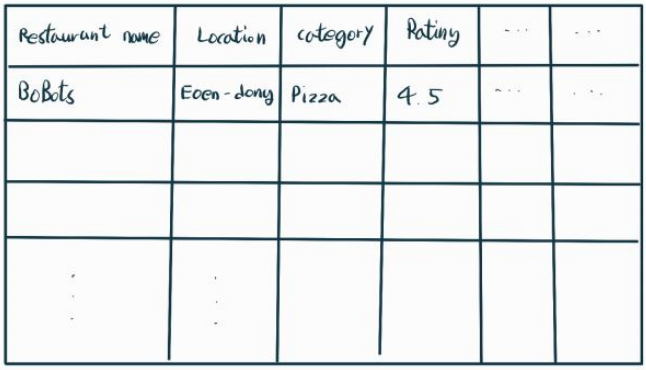
page 2 - Home page. The administrator can choose the page from the bar on the left.



page 3 - Category management page. The administrator can manage the food list by adding, modifying, and deleting tables. This food list is used to create a data map.



page 4 - Restaurant information page. A list of regions is provided. The administrator can click on the sub-region (ex. Eoen-dong or Cheon-dong) to go to the information window of restaurants in the area.



page 5 - Local restaurant information page. It is similar to an Excel file. It is possible to add, modify, and delete information about a restaurant on this page.

3.2 Hardware Interfaces

Android is used as the operating system for mobile application, therefore three buttons are used: menu, home and back. When menu/home button is touched, the app will temporally stop functioning until the app is reopened. When back button is touched, it will go back to previous screen and will do the same function with the X button inside the mobile application. For the web portal, there are no specific hardware interface.

3.3 Software Interfaces

The communication between mobile application and database server will be one-way. Mobile application will only be able to receive data from the database. The communication between web portal and database will be in both directions. The administrator will only be able to receive data from third-party map service. Mobile application will be run on Android OS with version equal or higher than 23. (Marshmallow)

3.4 Communications Interfaces

Communication between mobile application, web portal, database, and third-party map service all requires network connection. HTTP protocol will be used for communication standard because it is more efficient in sending files with small size.

4 System Features

4.1 Region Search Bar

4.1.1 Description and Priority

Search bar takes input string and find region related to input string, list results
Priority : High

4.1.2 Stimulus/Response Sequences

1. Touch search bar.

2. Show keyboard.

3. Enter keyword.

4. Press Search button.

5. List result.

4.1.3 Functional Requirements

REQ-1: Delimit an Area
The system should be able to delimit an area by input of users.

4.2 Restaurant Filter

4.2.1 Description and Priority

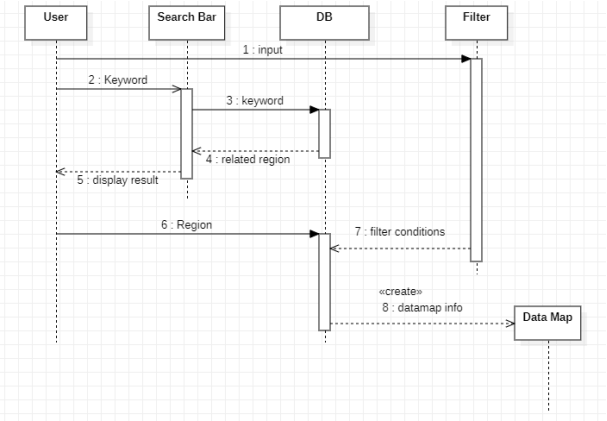
Filter searched information. User can apply or delete various types of filters with simple touches.
Priority : Medium

4.2.2 Stimulus/Response Sequences

1. Find filter
   1-1. At search page: Swipe filter region horizontally to change filters on screen
   1-2. Elsewhere: Touch filter icon on the top right corner
2. Touch the filter category
3. Pop up the corresponding filter window
4. Set filters
5. Apply filters on restaurant data

4.2.3 Functional Requirements

REQ-1: Database
DB contains information that can be used for filtering. Depending on filters that user applied, the application queries DB for corresponding filtered information.
REQ-2: Haptics
The application takes user actions, such as touch and slide, and reacts accordingly.



4.3 Data Map

4.3.1 Description and Priority

It visualizes and shows the characteristics of restaurants according to the applied filter. The characteristics are displayed in some tree structures. Each of nodes denotes a category of restaurants. The size of the nodes is proportional to the number of restaurants in each category.

Priority : High

4.3.2 Stimulus/Response Sequences

1. Select a Category
   1-1 Touch a category.
   1-2 Make pop up which display two options .

- View on map = System Feature 4 (Location of Restaurant)
- View on list = System Feature 5 (Restaurant List)

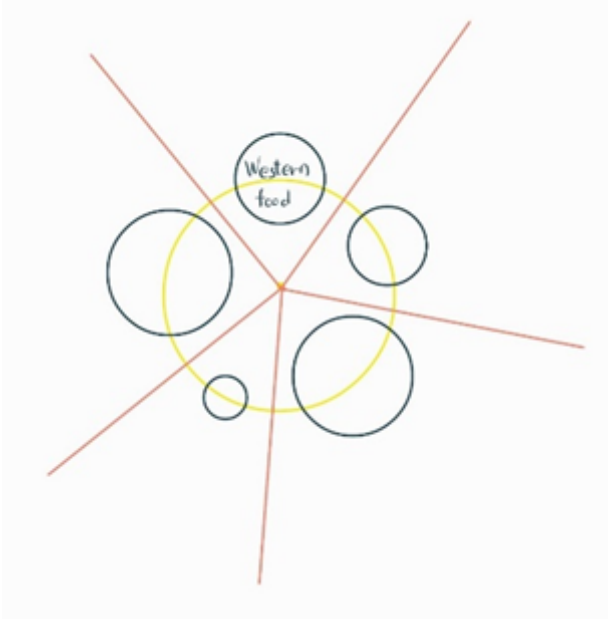
4.3.3 Functional Requirements

REQ-Main-1: Load data from DB

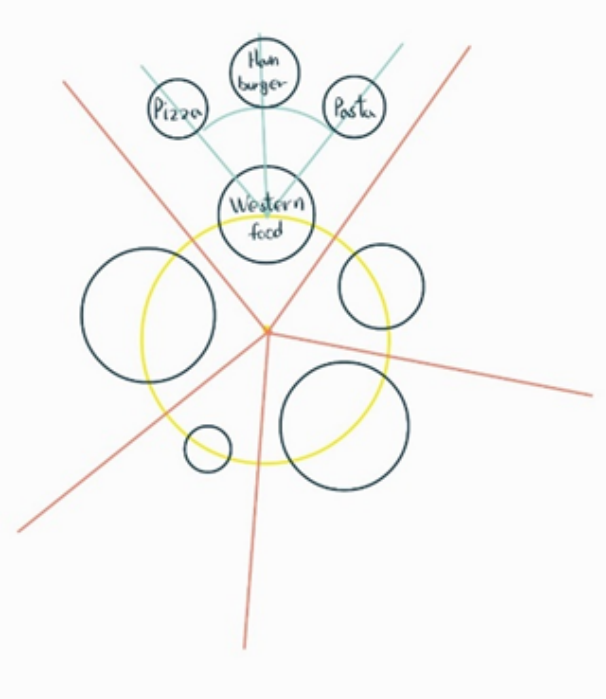
The system should be able to get the data associated with the characteristics of restaurants from DB.

REQ-Main-2: Make Tree Structures

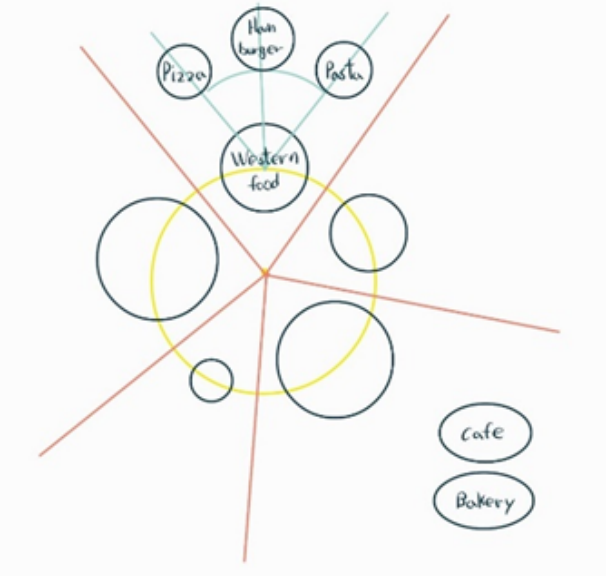
The system should be able to process the data to make tree structures which each of nodes denotes a category of restaurants. Data maps are created in the following way. The method can be changed later. 1. Divide the zones in proportion to the radius of the node of a category which have a sub-node. Place each node in each zone.



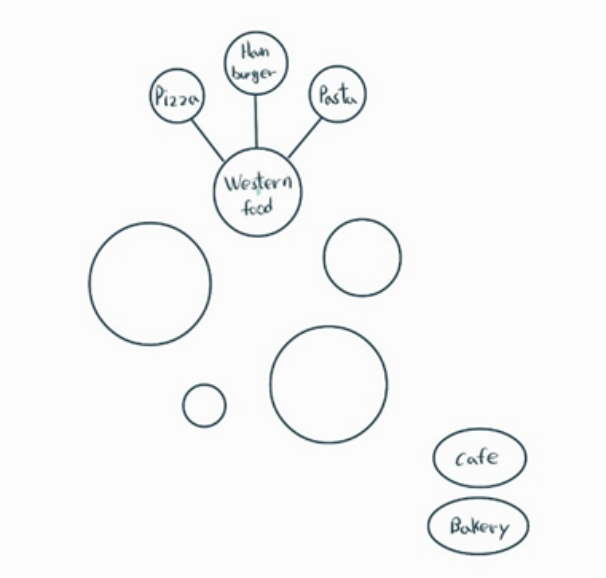
2. Similarly, for sub-nodes, the zones are divided in proportion to the radius. Also, each node is placed in each area. This is repeated until a node with no sub-node appears.



3. place the main Nodes that do not have sub-nodes in the lower right corner of the screen.



4. Finally, Connect each node appropriately.



The representation of the node can be later changed from a circle to another shape such as a round square.

REQ-1: Mini-map

Users should be able to use mini-map function to check the area they choose. The system provides a function that make pop up of an enlarged map.

REQ-2: Search Bar

Users should be able to use search bar function to modify their choice.

REQ-3: Filter

Users should be able to use filter function to modify their choice.

4.4 Location of Restaurant

4.4.1 Description and Priority

Display the location of filtered restaurants on map.

Priority : Medium

4.4.2 Stimulus/Response Sequences

1. Choose a Restaurant
   1-1 Touch a restaurant on map.
   1-2 Make pop up which show brief information about the restaurant.
   1-3 Touch a restaurant name in the brief information.
   1-4 Move to System Feature 6 (Restaurant Detail)

2. Switch Displaying Method
   2-1 Touch the switching button.
   2-2 Move to System Feature 5 (Restaurant List).

4.4.3 Functional Requirements

REQ-1: Display Location

The system should display the location of restaurants chosen by data map on the region map.

REQ-2: Search Bar

Users should be able to use search bar function to modify their choice.

REQ-3: Filter

Users should be able to use filter function to modify their choice.

4.5 Restaurant List

4.5.1 Description and Priority

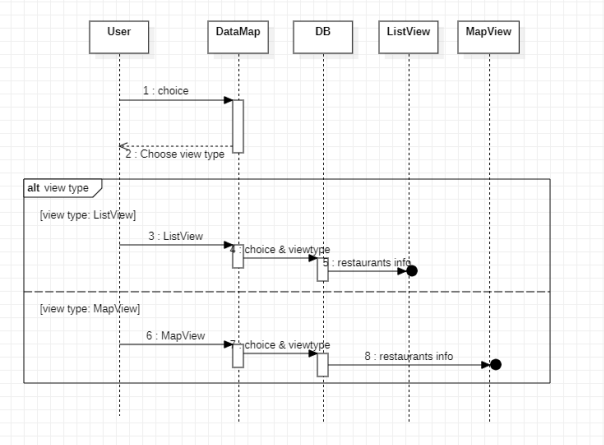
List filtered restaurants.
Priority : Medium

4.5.2 Stimulus/Response Sequences

Touch restaurant name, move to restaurant detail page.

4.5.3 Functional Requirements

REQ-1: Operating environment provide scroll functions. REQ-2: Load restaurant list from DB.



4.6 Restaurant Detail

4.6.1 Description and Priority

From restaurant list, show detail information of chosen restaurant. Restaurant name, rating, category, homepage, menu, review.
Priority : Low

4.6.2 Stimulus/Response Sequences

1. Touch Homepage button: Show following information
   - Location.
   - Business hour
   - Telephone number
   - simple introduction

   If touch Telephone number, copy number.
   2. Touch menu button: Show menu list.
   3. Touch review button: Show review list

4.6.3 Functional Requirements

REQ-1: Load restaurant information from DB. If data doesn't exist just leave it as blank.

4.7 Web Portal - Administrator

4.7.1 Description and Priority

An administrator should be able to manage data obtained by third-party map service and categorize the characteristics of restaurants to make DB. An administrator also can edit the data about restaurants.

Priority : High

4.7.2 Stimulus/Response Sequences

1. Login

Enter ID and password.

If correct logged in as administer

If wrong reject.

2. Choose restaurant tab.

2-1. Create new restaurant info.

2-2. Delete restaurant info.

2-3. Edit restaurant info.

3. Choose category tab.

3-1. Create new category.

3-2. Delete new category.

3-3. Modify category.

4.7.3 Functional Requirements

REQ-1: Administrator Log In

In order to administer the system, an administrator should be logged in to the web-portal. The system should make a account for administrator.

REQ-2: Manage Restaurant Information

In order to have a DB, an administrator should be able to manage the restaurant information. Some of information can be obtained by third-party map service.

-Restaurant Information

- Name: Restaurant name
- Address: Restaurant address
- Phone: Phone number of restaurant
- Price: Average price of dishes
- Rating: A number indicating the rating of a restaurant
- Business Hour: An expression of business hours
- Mood: A word that can describes mood of restaurant
- Characteristics: A list of characteristics of restaurant; Every elements of the list is one of categories.

REQ-3: Manage Restaurant Category

In order to have a list of restaurant categories, an administrator should be able to manage the restaurant types.

-Add Category

A new category related to characteristics of a restaurant can be added to the list by an administrator .

-Delete Category

A category related to characteristics of a restaurant can be deleted from the list by an administrator.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

- The response time of functions using network connection must be within 5 seconds.
- The image of restaurants being showed must have a JPG image file extension, which has small file size and is appropriate for mobile applications.
- Each image size must be between 100KB and 200KB.
- Database must have at least 10TB of storage space.
- Web portal must be open for specific IP addresses only (Administrator).
- Restaurant information inside the database must be updated periodically, with a period of 1 week.
- At every update of the database, administrator must check the following changes within a week: closed restaurants, new restaurants, restaurants that modified their information.
- Restaurant information to be put in the database uses location data from third-party map services, such as Google Map or Naver Map.
- Each restaurant information must not exceed 1MB.
- The number of possible concurrent connections with the database must be at least 50.
- The number of restaurants shown at map/list view must not exceed 50.

5.2 Safety Requirements

- Restaurants must be verified by checking their restaurant license before they are added to the database.
- The location information of restaurants must be checked whether it leads to the correct place.
- Redirection link to restaurants must be checked whether it leads to the correct website.
- Image file or description of restaurants must be checked whether it doesn't contain harmful or dangerous contents.

5.3 Security Requirements

- Web portal must be open for specific IP address only (Administrator). Connection request from other IP address must be rejected.
- Data transmission between mobile application and database must be proceeded in one direction: from database to mobile application. Data transmission in opposite direction must be prohibited.
- Data transmission between web portal and database is conducted in both directions.

6 Other Requirements

A Glossary

B Analysis Models

C To Be Determined List