VICTORIA UNIVERSITY

MELBOURNE AUSTRALIA

School of Engineering and Science

Victoria University

ECB3154 Computing Project Analysis and Design

City of Wyndham Tourism iPhone Application

Software Requirement Specification

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Client: City of Wyndham Council

Supervisor: Jakub Szajman

Unit Coordinator: AProf. Hao Shi

Revision History

Name	Date	Reason For Changes	Version

English Lecturer Sign-Off

Name: …… Signature: ……..

Date: ……

Supervisor Sign-Off

Name: …… Signature: ……

Date: ……

Unit Coordinator Sign-Off

Name: …… Signature: ……

Date: ……

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1. Introduction

1.1 Background

The Committee for Wyndham is a separate entity from the Wyndham Council. They are a non-profit organization whose main focus is to promote and aid their community by getting involved and through projects, events and initiatives.

The committee has put forward an idea for where an iPhone Application is created to promote the tourism for Wyndham City. They have chosen Victoria University to coordinate this endeavour and have left the design and implementation in the hands of the students.

The *Experience Wyndham* iPhone Application is a product that will allow the City of Wyndham Council to communicate information and news to the ever increasing mobile market easily. This includes current events, attractions and entertainment hotspots within the council which in addition provides local businesses with untapped marketing opportunities, while also allowing future businesses to be added into the database as the city grows. The system is comprised of two parts; the application, and the web-site backend.

1.2 The Existing System

At this point in time there are no applications on any platform which promote the points of interest within the City of Wyndham. There is however a website created by the council http://www.experiencewyndham.com.au/. By no means is this an effective way to promote their city in a society clutched to mobile technology so strongly. With many people preferring to search for attractions and entertainment using their mobile phones it is vital that the Wyndham Council take initiative and capture the audience before the window of opportunity closes and the market for similar applications becomes saturated.

1.3 The Proposed System

Through the iPhone Application users will be able to obtain information about points of interest within the City of Wyndham. Information such as ;

- Accessibility
- Opening Hours
- Description
- Rough Cost
- Family Friendly

The System will not only promote the City of Wyndham through the use of the application, but also allow future businesses to be added into the database as the city grows. The system is comprised of two parts. The application and the web-site backend.

The application is categorized under tourism, where we have implemented a simplistic approach to navigation and design. In addition to basic information we have added Google Maps Integration, a search and shuffle function, and a featured page where the City of Wyndham can allocate an attraction of the month.

The information the application propagates from will be from the web-site backend which we will setup utilizing HTML, PHP and JQuery. After the initial setup of the website, it will be administered by a chosen body where they are able to login, edit entries, as well as enter new entries of businesses.

We believe that the application will greatly promote the city while in addition enhancing the mobile user experience.

2. Stakeholders

A stakeholder is a person, group, organization or a member who can affect, or can be affected by our project. The following are our projects stakeholders;

2.1 Developer: Team Albatross

Andrew Hinton, Herickson Andal, Adrian Ambroso and Nathan Struzycki form Team Albatross. We are required to design and implement a system where an iPhone Application displays information on businesses within the City of Wyndham to promote their city.

2.2 Client: Committee for Wyndham

Our client has asked us to create an application to promote tourism within their City. The groups aim to enhance Wyndham's position as a thriving community and key destination for business. We are required to sign off any documentation so that plans for the project can be reviewed and changed before any further action is taken.

2.3 Wyndham City Council

Wyndham City Council is the local government authority in Werribee and surrounding area. Businesses within the Wyndham City Council will have a positive effect from the Application. The businesses will be able to be listed and thus freely advertised through the iOS platform.

2.4 Supervisor: Jakub Szajman

Jakub Szajman is our direct supervisor and his main role is to make sure that Team Albatross is performing tasks in a timely manner. He is also available if we need assistance on approach, or some insight about the project itself to maximize its potential. A weekly meeting is scheduled to monitor the progress of the team and project which gives an opportunity to ask questions and form ideas.

2.5 Supervisor: Hao Shi

Our subject supervisor Hao Shi outlines all the deadlines for the project and the unit outline so that we understand what is expected of us. A weekly class is scheduled and mandatory to ask any questions and work through workshops to aid the team.

2.6 User: Businesses Listed

Local businesses will be listed promoting awareness and in turn increasing business.

2.7 User: General Public

The general public will be able to download the Application from the Apple Store, and then utilize its functions and capabilities to locate points of interest and find out more information about them.

2.8 User: Database Administrator

The database administrator will be able to manage the backend website which allows the addition, deletion and modification of business information that the application will source.

3. Use Case Scenarios

3.0.1 Project Scope

This scope of this project includes:

1. Accessing the Experience Wyndham iPhone Application.
2. Displaying attractions associated with the various categories (Accommodation, Attractions, Events, Nature, Shopping, Wine & Dine).
3. Navigation to attractions through application.
4. Application database manipulation through website backend.
5. What each user type can access

The users of the application and backend can be split into two categories; Application Users and Administrators. Below is a use case for each of the users.

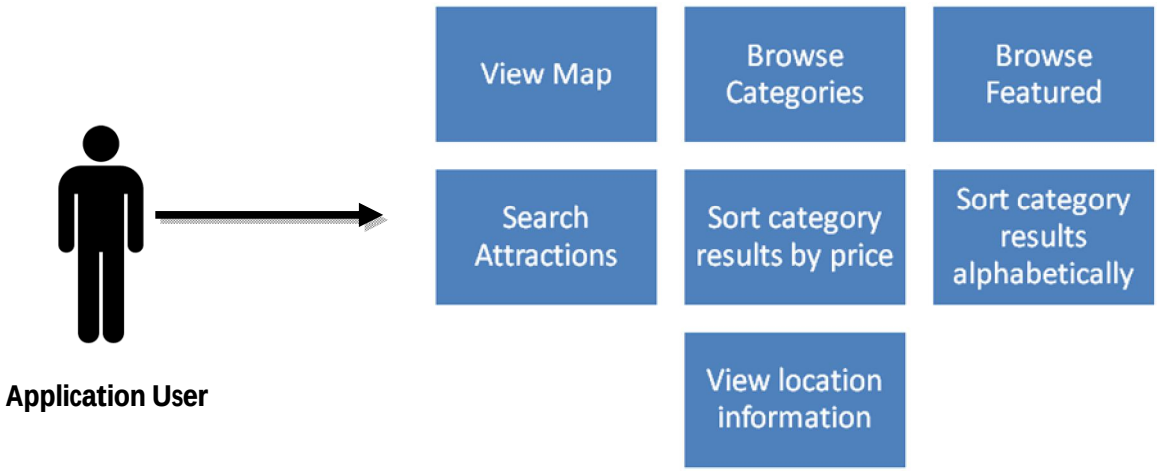


Figure 3a: Application User Use Case Diagram

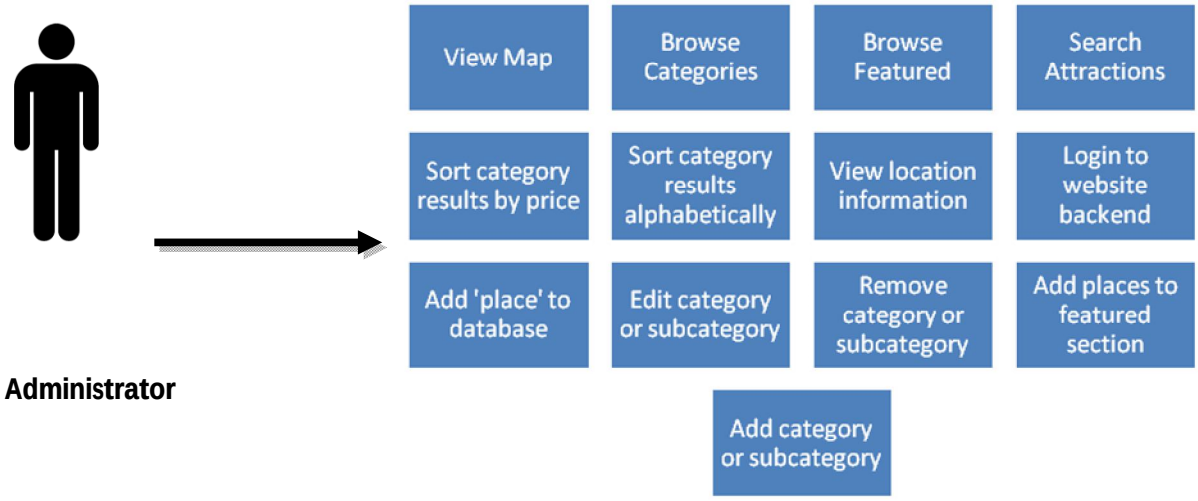


Figure 3b: Administrator Use Case Diagram

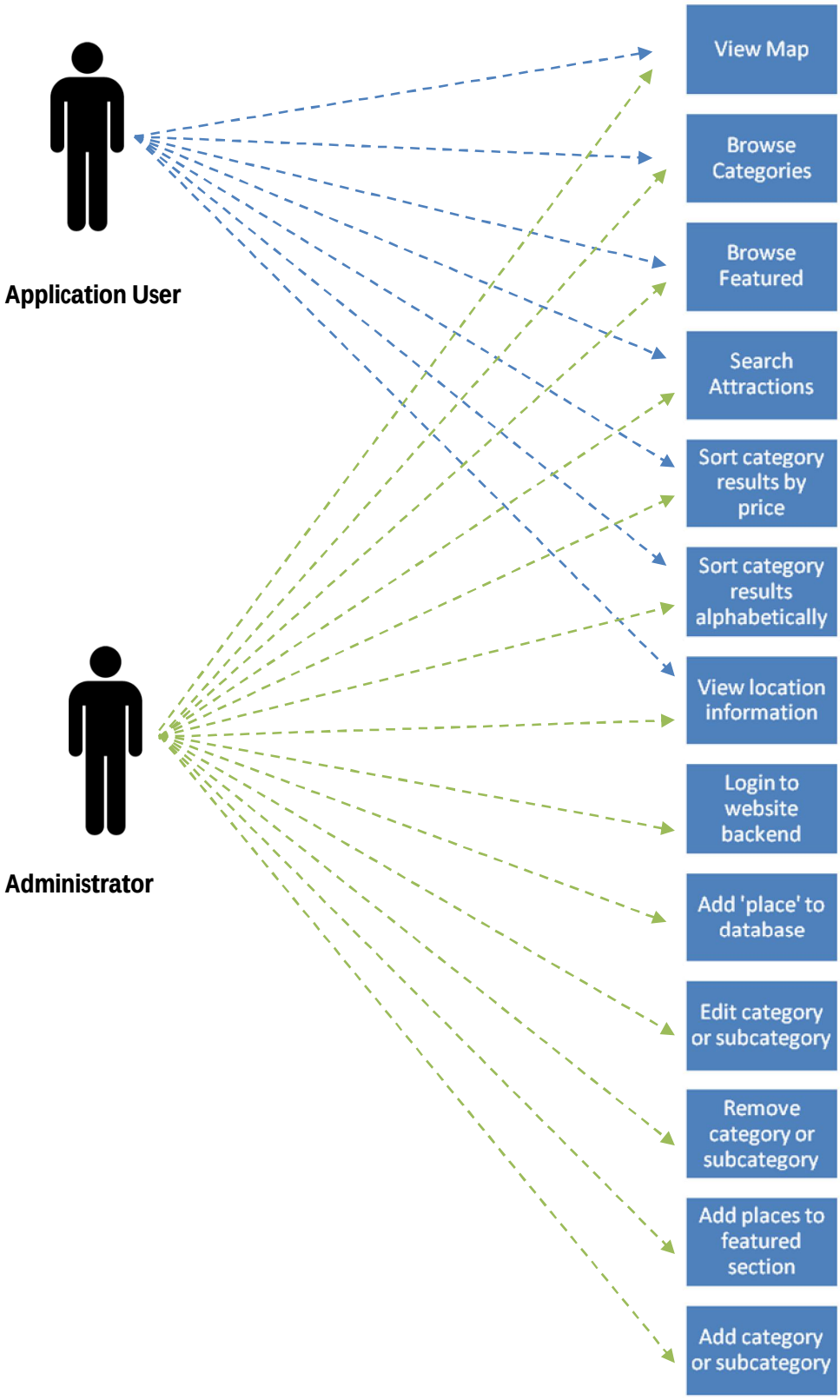


Figure 3c: Use Case Diagram

3.1 Use Cases and Scenarios

3.1.1 User Views Map

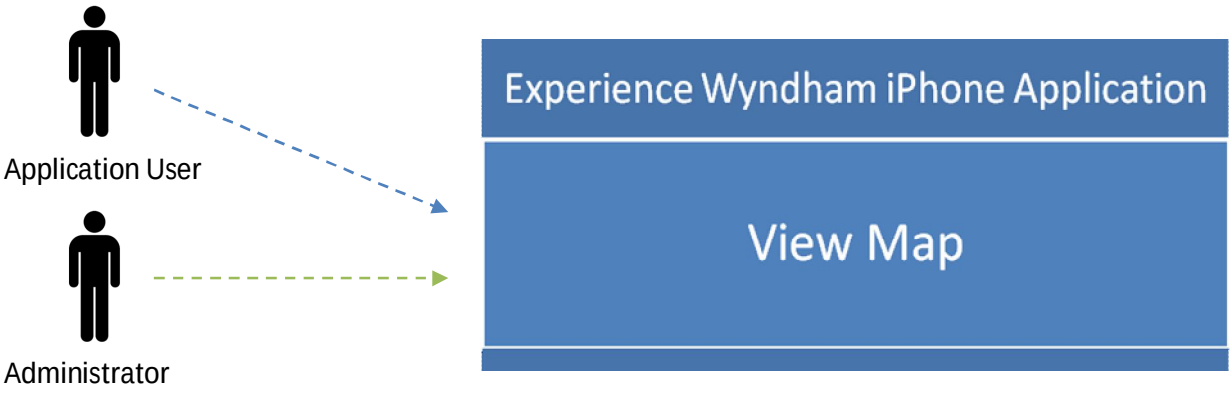


Figure 3.1.1

Brief Description

This use case demonstrates a user using the application to bring up a map of their surroundings which is configured to display the location of nearby attractions.

Step By Step Description

1. User opens application
2. User taps 'Map' icon at bottom of screen

Normal Scenario

1. User opens application
2. User taps 'Map' icon at bottom of screen
3. Map is displayed with users location and pins which denote nearby attractions

Abnormal Scenario

1. User Opens application
2. User taps 'Map' icon at bottom of screen
3. Map is displayed, but no pins are shown do to error in connecting with application database.
4. User is advised of this by popup note.

3.1.2 User Browses Categories

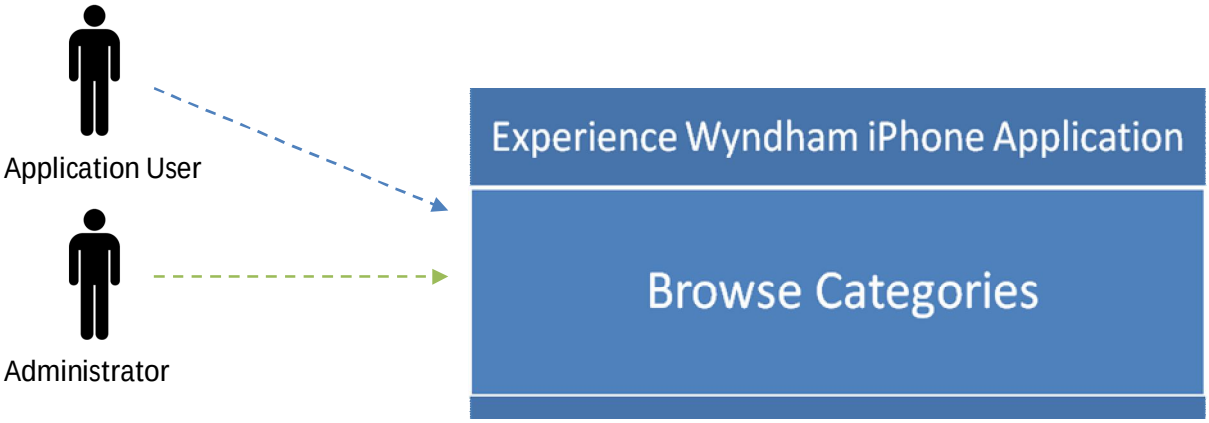


Figure 3.1.2

Brief Description

This use case demonstrates a user browsing the application categories with the ultimate goal of finding an attraction.

Step By Step Description

1. User opens application
2. User taps 'Categories' icon at bottom of screen

Normal Scenario

1. User opens application
2. User taps 'Categories' icon at bottom of screen
3. A list of categories is brought up.
4. User selects a category, a list of subcategories is brought up
5. User selects a subcategory and a list of places under that subcategory are shown
6. User selects an attraction, attraction page is shown.

Abnormal Scenario

1. User opens application
2. User taps 'Categories Icon' icon at bottom of screen
3. No categories are shown as there is a problem connecting to database.
4. Error is displayed

3.1.3 User Browses Featured

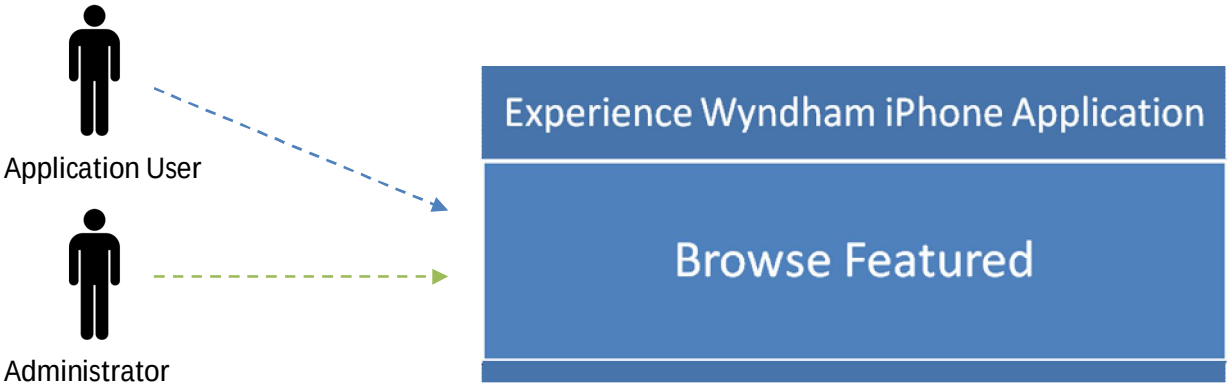


Figure 3.1.3

Brief Description

This use case demonstrates a user browsing the application featured locations list.

Step By Step Description

1. User opens application
2. User taps 'Featured' icon at bottom of screen

Normal Scenario

1. User opens application
2. User taps 'Featured' icon at bottom of screen
3. A list of categories is brought up.
4. User selects a category, a list of subcategories is brought up
5. User selects a subcategory and a list of featured places under that subcategory are shown
6. User selects an attraction, attraction page is shown.

Abnormal Scenario

1. User opens application
2. User taps 'Featured' icon at bottom of screen
3. No categories are shown as there is a problem connecting to database.
4. Error is displayed

3.1.4 User Searches for an attraction

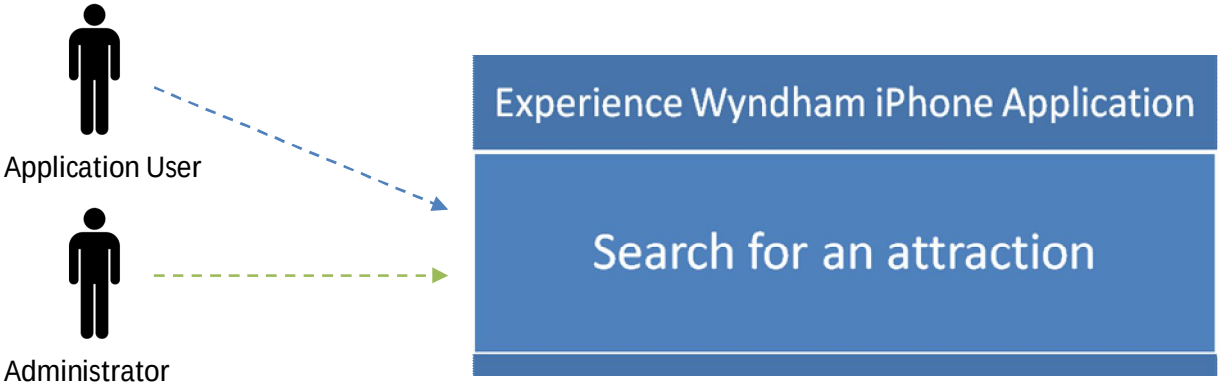


Figure 3.1.4

Brief Description

This use case demonstrates the use of the search function within the application

Step By Step Description

1. User opens application
2. User taps 'Search' icon at bottom of screen
3. User enters search criteria

Normal Scenario

1. User opens application
2. User taps 'search' icon at bottom of screen
3. User is brought to a page with a text input field
4. User inputs search criteria and clicks the magnifying glass icon
5. List of attractions that fit search criteria are brought up
6. User selects attraction and is brought to attraction page

Abnormal Scenario #1

1. User opens application
2. User taps 'Search' icon at bottom of screen
3. User enters search criteria
4. There is an error completing the search as database is unable to be reached
5. Error is displayed

Abnormal Scenario #2

1. User opens application
2. User taps 'Search' icon at bottom of screen
3. User enters search criteria
4. No results are found
5. User is prompted to search again

3.1.5 User Sorts Category Results by Price

Figure 3.1.5

Brief Description

This use case demonstrates a user sorting results returned by browsing through categories by price

Step By Step Description

1. User opens application
2. User taps 'Categories' icon at bottom of screen
3. User selects category and subcategory
4. User taps 'sort by price' icon

Normal Scenario

1. User opens application
2. User taps 'Categories' icon at bottom of screen
3. A list of categories is brought up.
4. User selects a category, a list of subcategories is brought up
5. User selects a subcategory and a list of places under that subcategory are shown
6. User selects 'sort by price', all attractions are now sorted by price
7. User selects an attraction, attraction page is shown.

Abnormal Scenario #1

1. User opens application
2. User taps 'Categories Icon' icon at bottom of screen
3. No categories are shown as there is a problem connecting to database.
4. Error is displayed

Abnormal Scenario #2

1. User opens application
2. User taps 'Categories Icon' icon at bottom of screen, selects a category and subcategory
3. 'Sort by price' is greyed out, the results are already sorted by price

3.1.6 User Sorts Category Results Alphabetically

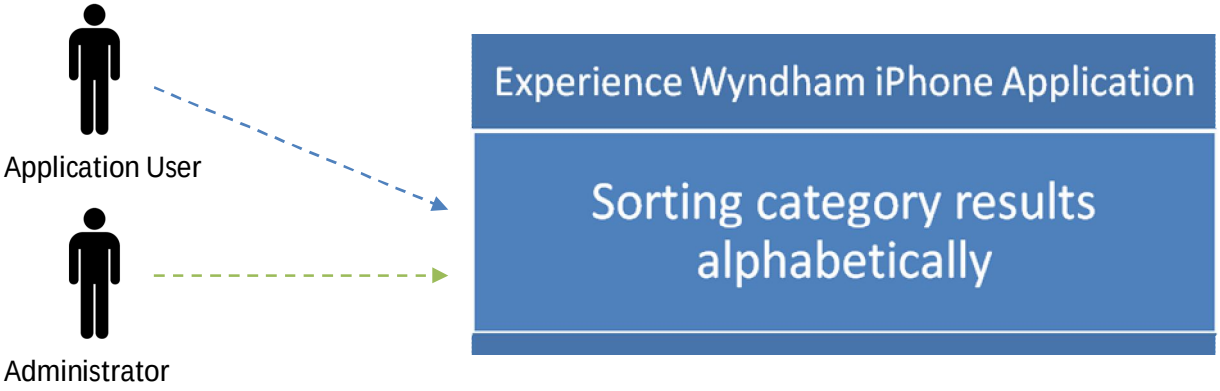


Figure 3.1.6

Brief Description

This use case demonstrates a user sorting results returned by browsing through categories alphabetically

Step By Step Description

1. User opens application
2. User taps 'Categories' icon at bottom of screen
3. User selects category and subcategory
4. User taps 'sort alphabetically' icon

Normal Scenario

1. User opens application
2. User taps 'Categories' icon at bottom of screen
3. A list of categories is brought up.
4. User selects a category, a list of subcategories is brought up
5. User selects a subcategory and a list of places under that subcategory are shown
6. User selects 'sort alphabetically', all attractions are now sorted alphabetically
7. User selects an attraction, attraction page is shown.

Abnormal Scenario #1

5. User opens application
6. User taps 'Categories Icon' icon at bottom of screen
7. No categories are shown as there is a problem connecting to database.
8. Error is displayed

Abnormal Scenario #2

4. User opens application
5. User taps 'Categories Icon' icon at bottom of screen, selects a category and subcategory
6. 'Sort alphabetically' is greyed out, the results are already sorted alphabetically

3.1.7 User Views Location Information

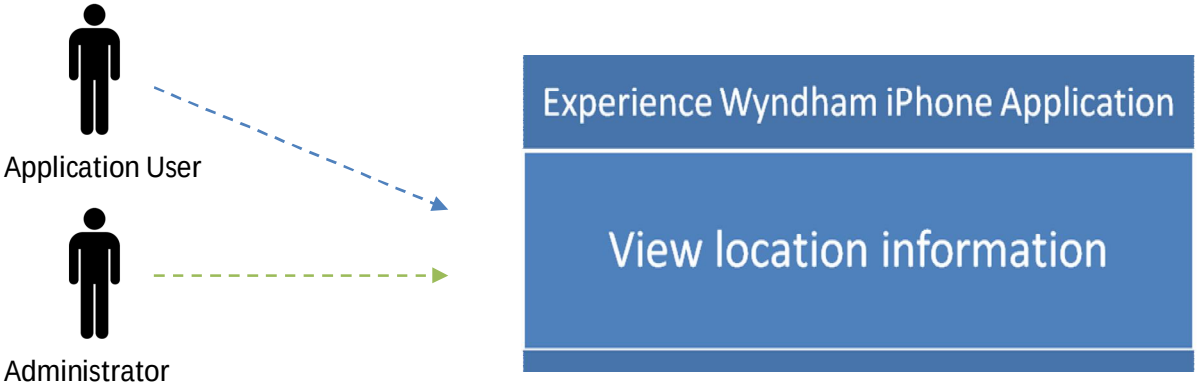


Figure 3.1.7

Brief Description

This use case demonstrates a user browsing selecting an attraction and viewing its page

Step By Step Description

1. User opens application
2. User taps 'Categories' or 'Featured' icon at bottom of screen and navigates to the attractions, or searches for a location

Normal Scenario

1. User opens application
2. User taps 'Categories' or 'Featured' icon at bottom of screen and navigates to the attractions, or searches for a location
3. User selects an attraction
4. Attraction page is brought up, displaying attraction name, address, opening hours, map location and description.

Abnormal Scenario #1

1. User opens application
2. User taps 'Categories Icon' icon at bottom of screen
3. No categories are shown as there is a problem connecting to database.
4. Error is displayed

Abnormal Scenario #2

1. User opens application
2. User taps 'Search' icon at bottom of screen
3. User enters search criteria
4. No results are found
5. User is prompted to search again

Abnormal Scenario #3

1. User opens application
2. User taps 'Featured' icon at bottom of screen
3. No categories are shown as there is a problem connecting to database.
4. Error is displayed

3.1.8 Administrator Login to Website Backend

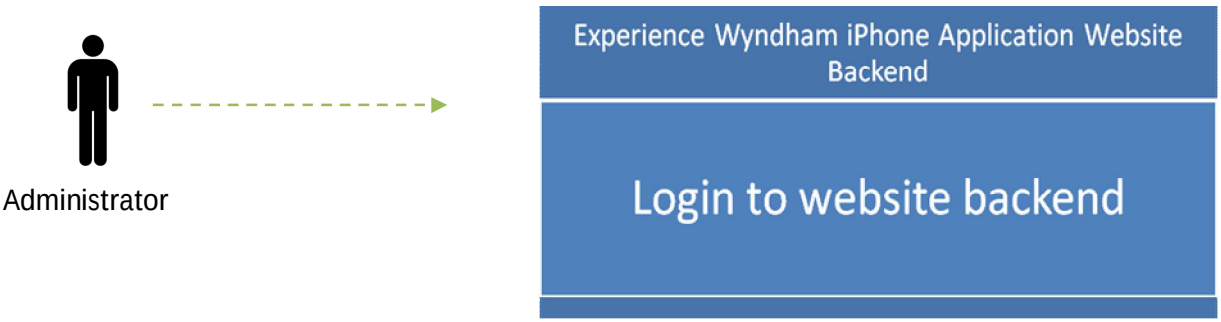


Figure 3.1.8

Brief Description

This use case demonstrates an administrator logging in to the website backend.

Step By Step Description

1. User opens the Application Website Backend
2. Administrator enters login credentials

Normal Scenario

1. Website will request a username and password
2. Administrator inputs username and password
3. Website checks login data against database
4. Administrator is granted access to the page

Abnormal Scenario

1. User opens the Application Website Backend
2. Administrator enters login details
3. Website denies entry as username and/or password are incorrect
4. User is asked to supply login information again

3.1.9 Administrator adds 'Place' to Database

Figure 3.1.9

Brief Description

This use case demonstrates an administrator adding a place to the iPhone application database via the website backend

Step By Step Description

3. User opens the Application Website Backend
4. Administrator enters login credentials
5. Administrator can add a place to the database

Normal Scenario

1. Website will request a username and password
2. Administrator inputs username and password
3. Website checks login data against database
4. Administrator is granted access to the page
5. User selects 'Places' from the menu bar
6. User fills out the 'add place' form
7. User clicks 'Add Place' button when form is complete

Abnormal Scenario #1

1. User opens the Application Website Backend
2. Administrator enters login details
3. Website denies entry as username and/or password are incorrect
4. User is asked to supply login information again

Abnormal Scenario #2

1. User fills out add place form and clicks 'Add Place'
2. Place cannot be added due to form being filled incorrectly.
3. Error message is displayed.

3.1.10 Administrator Edits Category or Subcategory

Figure 3.1.10

Brief Description

This use case demonstrates an administrator editing a category or subcategory. The changes made here are updated on the iPhone application as well.

Step By Step Description

1. User opens the Application Website Backend
2. Administrator enters login credentials
3. Administrator can edit categories and subcategories

Normal Scenario

1. Website will request a username and password
2. Administrator inputs username and password
3. Website checks login data against database
4. Administrator is granted access to the page
5. User selects 'Categories' or 'Subcategories' from the menu bar
6. User selects 'edit' tab
7. User selects the category or subcategory to edit
8. New name is inputted
9. User clicks 'update category'
10. Category is updated, this change is also reflected on the iPhone Application

Abnormal Scenario #1

1. User opens the Application Website Backend
2. Administrator enters login details
3. Website denies entry as username and/or password are incorrect
4. User is asked to supply login information again

3.1.11 Administrator Removes Category or Subcategory

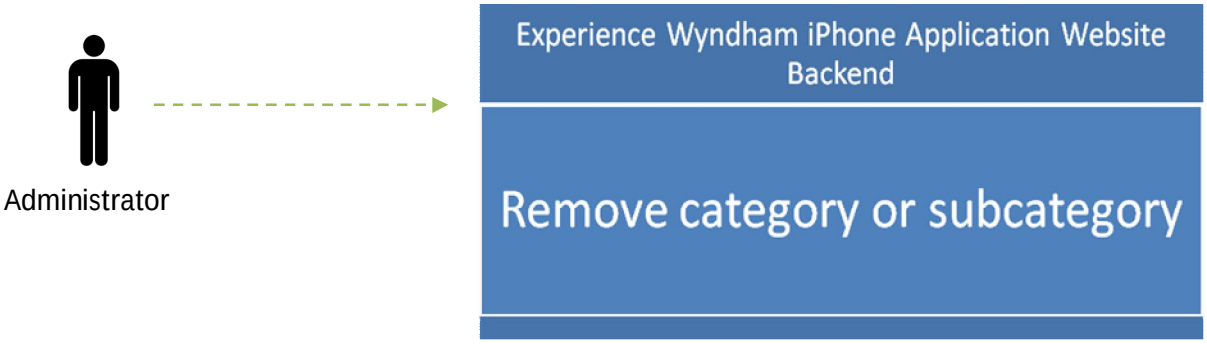


Figure 3.1.11

Brief Description

This use case demonstrates an administrator removing a category or subcategory. The changes made here are updated on the iPhone application as well.

Step By Step Description

4. User opens the Application Website Backend
5. Administrator enters login credentials
6. Administrator can delete categories and subcategories

Normal Scenario

11. Website will request a username and password
12. Administrator inputs username and password
13. Website checks login data against database
14. Administrator is granted access to the page
15. User selects 'Categories' or 'Subcategories' from the menu bar
16. User selects 'delete' tab
17. User selects the category or subcategory to delete
18. User clicks 'yes' when prompted if they are sure they want to delete the category or subcategory
19. Category is deleted, this change is also reflected on the iPhone Application

Abnormal Scenario #1

5. User opens the Application Website Backend
6. Administrator enters login details
7. Website denies entry as username and/or password are incorrect
8. User is asked to supply login information again

3.1.12 Administrator Adds a Place to Featured Section

Figure 3.1.12

Brief Description

This use case demonstrates an administrator adding an attraction to the 'featured' page. The changes made here are updated on the iPhone application as well.

Step By Step Description

7. User opens the Application Website Backend
8. Administrator enters login credentials
9. Administrator can add places to featured section

Normal Scenario

20. Website will request a username and password
21. Administrator inputs username and password
22. Website checks login data against database
23. Administrator is granted access to the page
24. User selects 'Featured' from the menu bar
25. User selects the category of the attraction which is to be featured
26. User selects the attraction which is to be featured
27. User clicks 'yes' when prompted if they are sure they want to make the attraction featured for that category
28. Category is now featured, this change is also reflected on the iPhone Application

Abnormal Scenario #1

9. User opens the Application Website Backend
10. Administrator enters login details
11. Website denies entry as username and/or password are incorrect
12. User is asked to supply login information again

3.1.13 Administrator Adds Category or Subcategory

Figure 3.1.13

Brief Description

This use case demonstrates an administrator adding a category or subcategory. The changes made here are updated on the iPhone application as well.

Step By Step Description

1. User opens the Application Website Backend
2. Administrator enters login credentials
3. Administrator can add categories and subcategories

Normal Scenario

1. Website will request a username and password
2. Administrator inputs username and password
3. Website checks login data against database
4. Administrator is granted access to the page
5. User selects 'Categories' or 'Subcategories' from the menu bar
6. User selects 'add' tab
7. User inputs the new category or subcategory name
8. User clicks 'add category'
9. Category is added, this change is also reflected on the iPhone Application

Abnormal Scenario #1

13. User opens the Application Website Backend
14. Administrator enters login details
15. Website denies entry as username and/or password are incorrect
16. User is asked to supply login information again

Abnormal Scenario #2

1. User inputs new category or subcategory name
2. Error is returned as there is already a category with the same name

4. Functional and Data Requirements

4.1 Functional Requirements

4.1.1 Categorized Navigation Menu

All navigation will be performed by the user by virtue of simple taps of easily identifiable and understandable categories based on common use cases.

4.1.2 Google Maps Integration

Google Maps will be utilized via geofencing. A Geofence is a virtual perimeter for a real-world geographic area. Users will be able to geofence an area around themselves specified by distance in kilometers, only viewing objects within this range.

4.1.3 Database Backend

Dynamic web interface backend coded using PHP and JQuery technologies will help ensure our database application is able to provide a robust and easily maintainable infrastructure for our clients giving them the ability to provide application information updates without entering into iOS coding.

4.1.4 Multi-Tiered Searching

Ability to search attractions with multi tiered searching allowing a user to perform universal search of all attractions and functions within the application as well as location based searching within a geofence area and category specific attraction search.

4.1.5 Attraction Information

Attraction location information should inclusive of attraction logo, open hours, description, features and a map of where a user can gain access to the attraction.

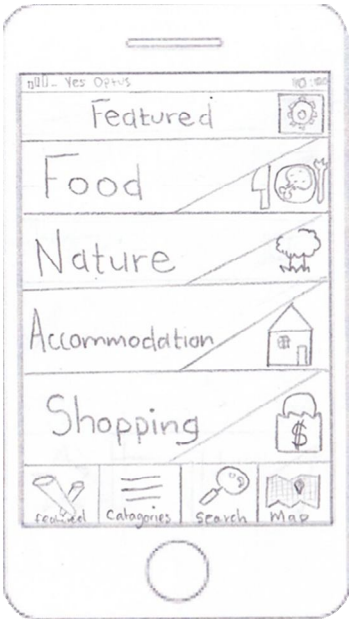
4.2 Data Requirements

4.2.1 Class Diagram

5. Non-Functional Requirements

5.1 User Interface & Usability Requirements

5.1.1 Preliminary Design Sketches

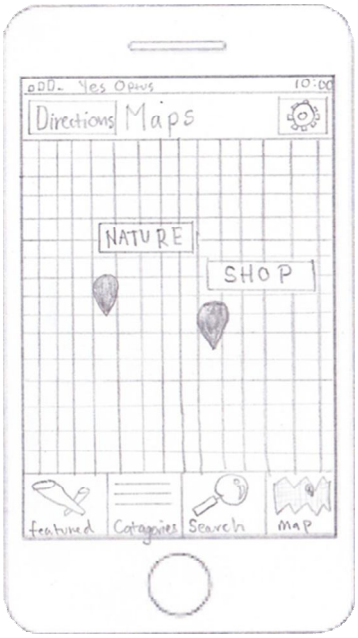


Featured

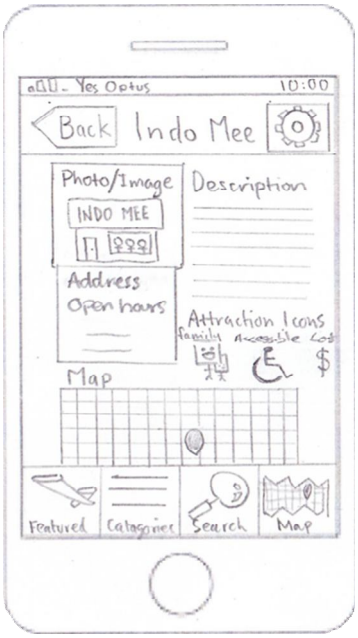
Categories

Food

Search



Maps



Attraction

5.2 User Interface & Usability Requirements

5.2.1 System Response

The Application needs to have a quick system response time and should be able to source the information in an acceptable amount of time for the user.

5.2.2 Safety Critical Requirements

Though not a major issue, rigorous bug testing will ensure that the application will cause no harm to the user, device or backend nor will it cause harm to each system.

5.2.3 Security

The data integrity needs be secure and accurate when sourcing from the website backend. Using PHP and JQuery technologies will help ensure this.

5.2.4 Reliability & Availability

Being able to accurately source the information and ensuring that it is readily available will be a key component when choosing where to host the website.

5.2.5 Best Practice

Best practices and technical attributes should be applied in creating the application. Some guidelines are as follows;

- Dirty programming
- Application Architecture Practices
- Coding Practices
- Complexity of algorithms
- Complexity of programming practices
- Multi-layer design Compliance
- Software manages data integrity
- Resource bounds management
- Component or pattern re-use ratio
- Error & Exception handling.

5.3 Operation Requirements

5.3.1 Emulators and PC's

Access to an OSX machine or a machine which can emulate OSX to code the Application as well as a machine with an operating system which will allow us to create the website backend.

5.3.2 Technological Environment

The following dot points outline what we technical specifications we need for the various interfaces we will be implementing in the system, as well as the licensing and software needed.

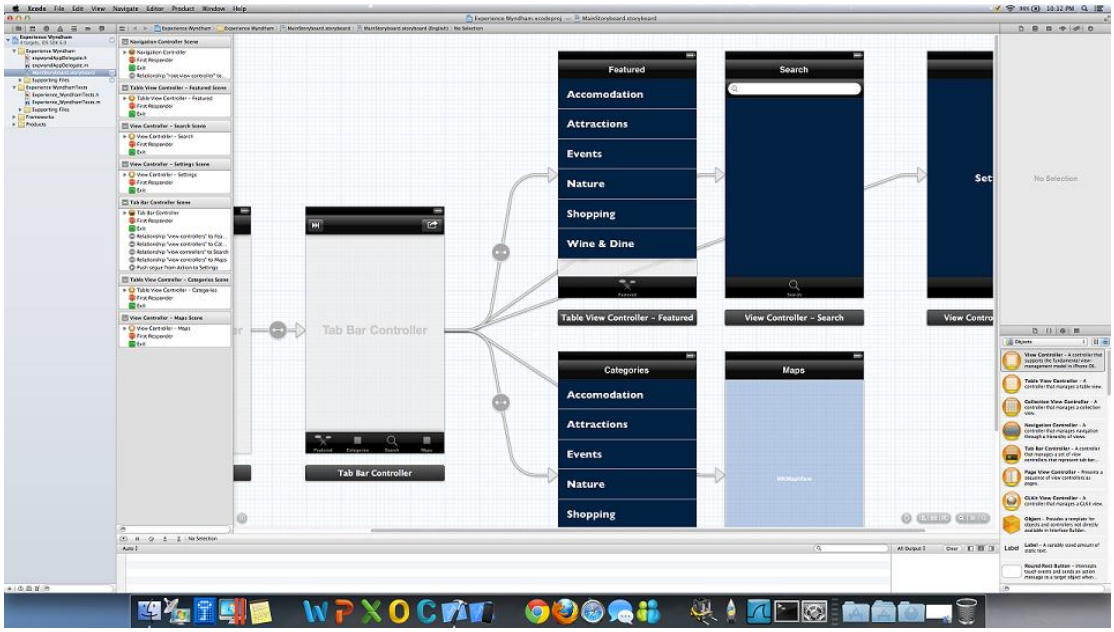
- An iPhone 3GS+ with iOS 5.0+ installed for coding and beta testing
- Display – 320 x 480 pixels
- Memory – 8GB Storage
- CPU - 600 MHz Cortex A8
- GPS – Required
- Apple Developers license
- Access to OSX or an OSX emulator
- Webserver with PHP and MySQL capabilities
- Dreamweaver or other web development software

5.3.3 Compatibility

Website needs to be hosted and readily available in order for the application to work.

5.3.4 Internet Connection & GPS

The system requires an internet connection for the application and the website backend and GPS to enable some of the features of the application such as distance filtering.

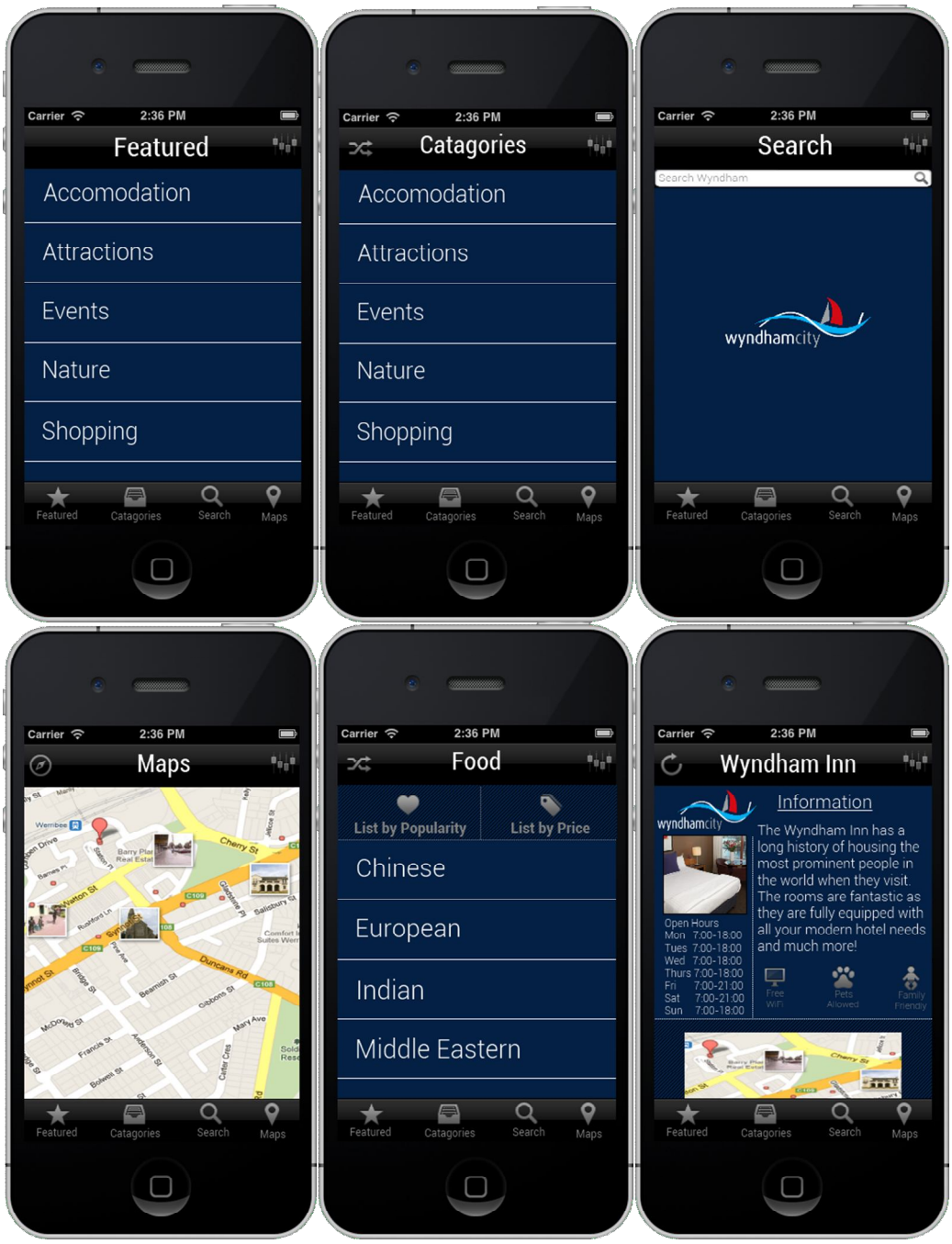


5.3.5 Interfaces to Other System (Application)

The application has two components;

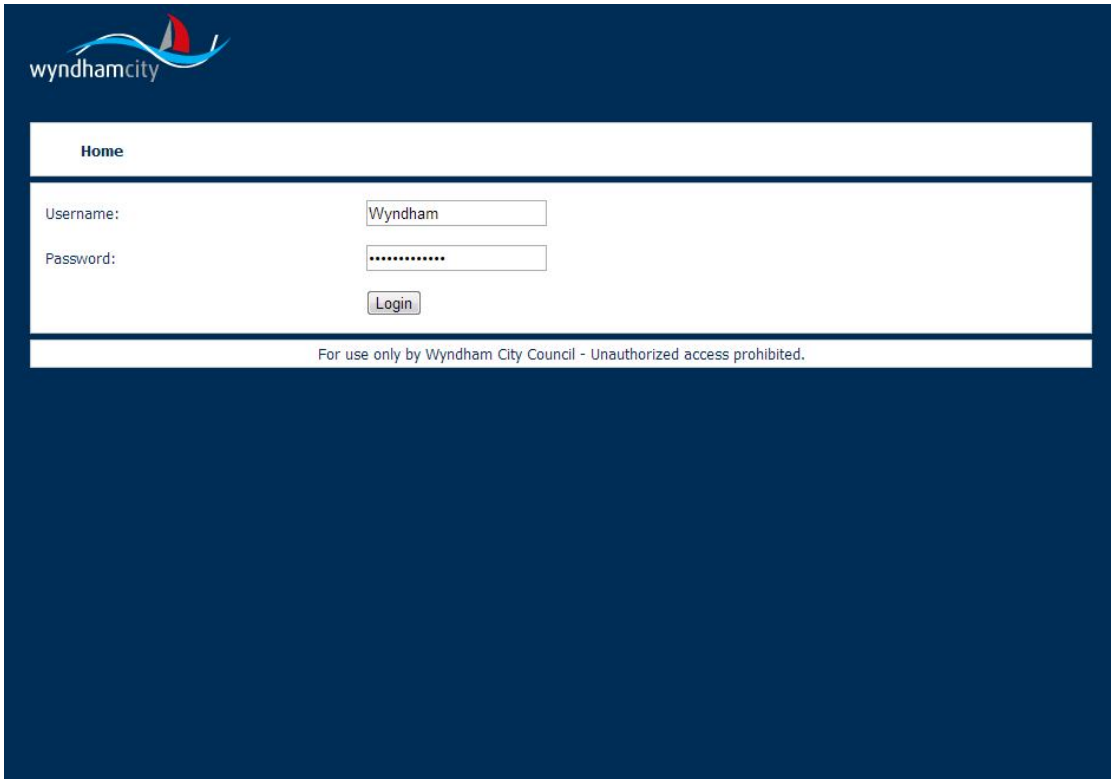
- The application
- The web-site backend

Below is a screenshot of the application which acts as an interface to the user. Essentially it is a shell which imports and formats information from the website back end.



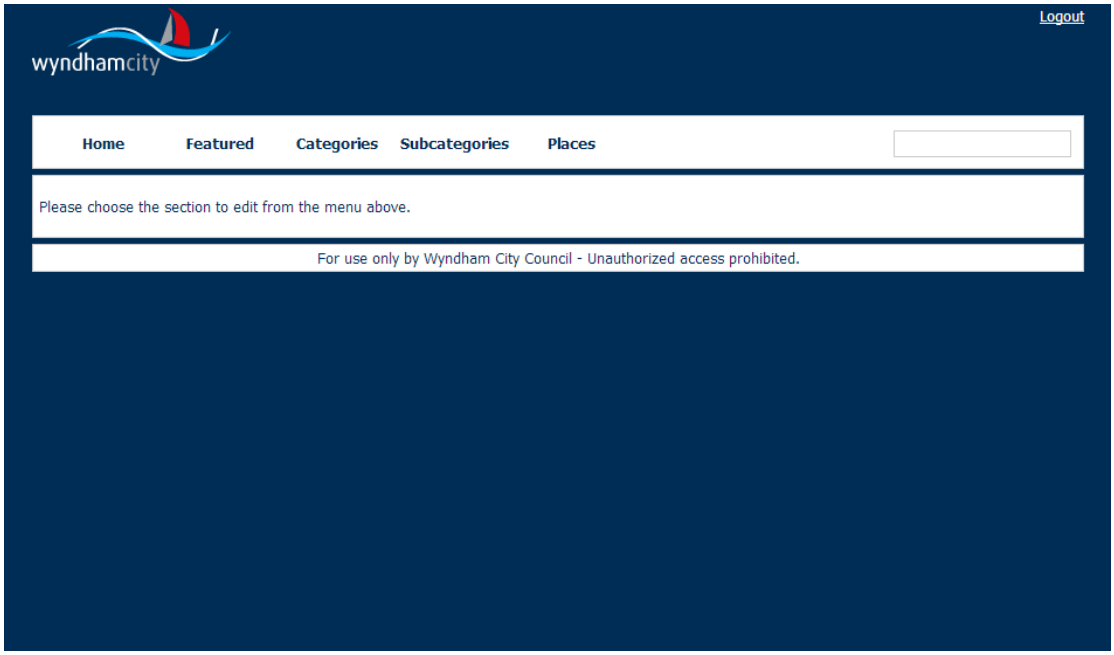
5.3.6.1 Website Backend – Login

Login Page – Where the administrator is able to login through here;



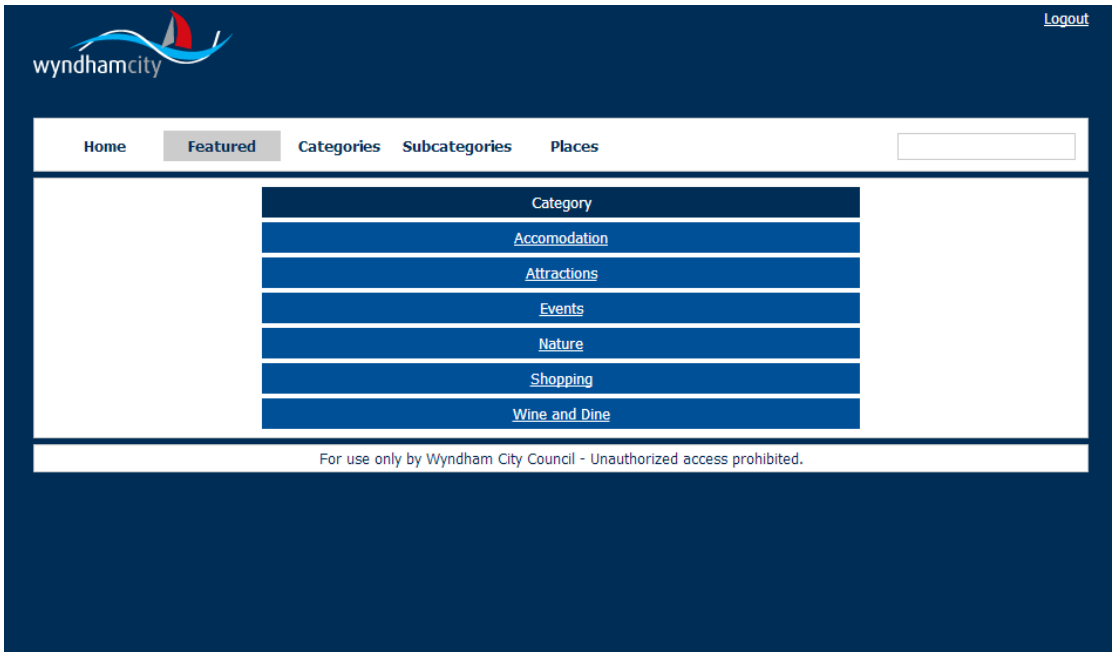
5.3.6.2 Website Backend – Home Page

Home Page – Website homepage where Administrator can navigate to various other pages.



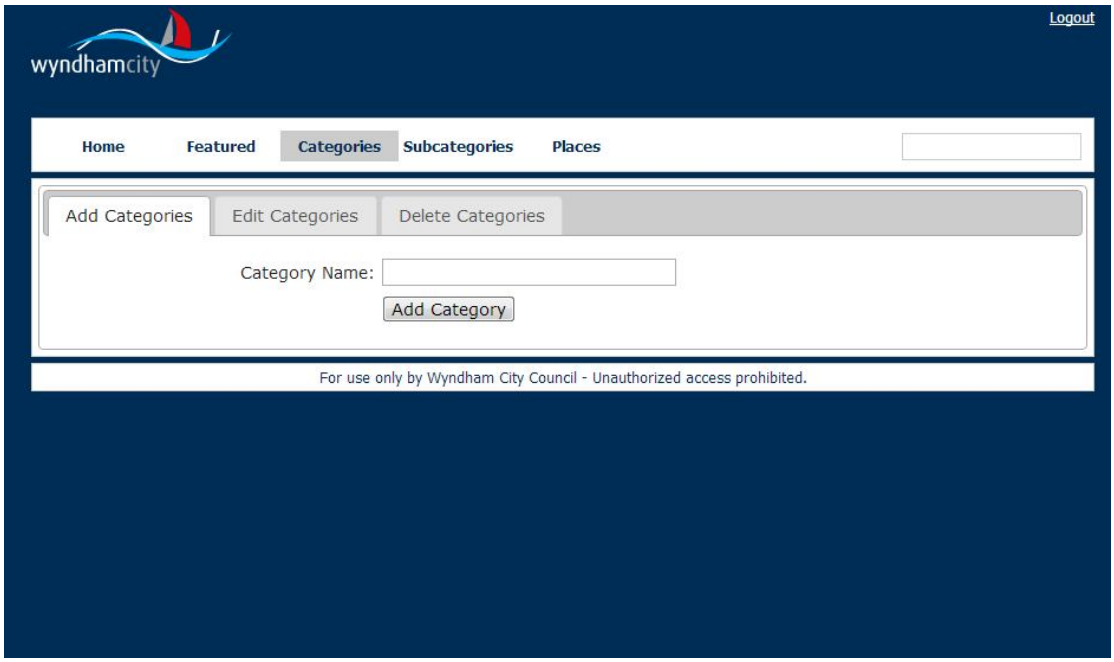
5.3.6.3 Website Backend – Featured

Featured – The Administrator is able to choose a “Place” which he can feature as the featured place for that category.



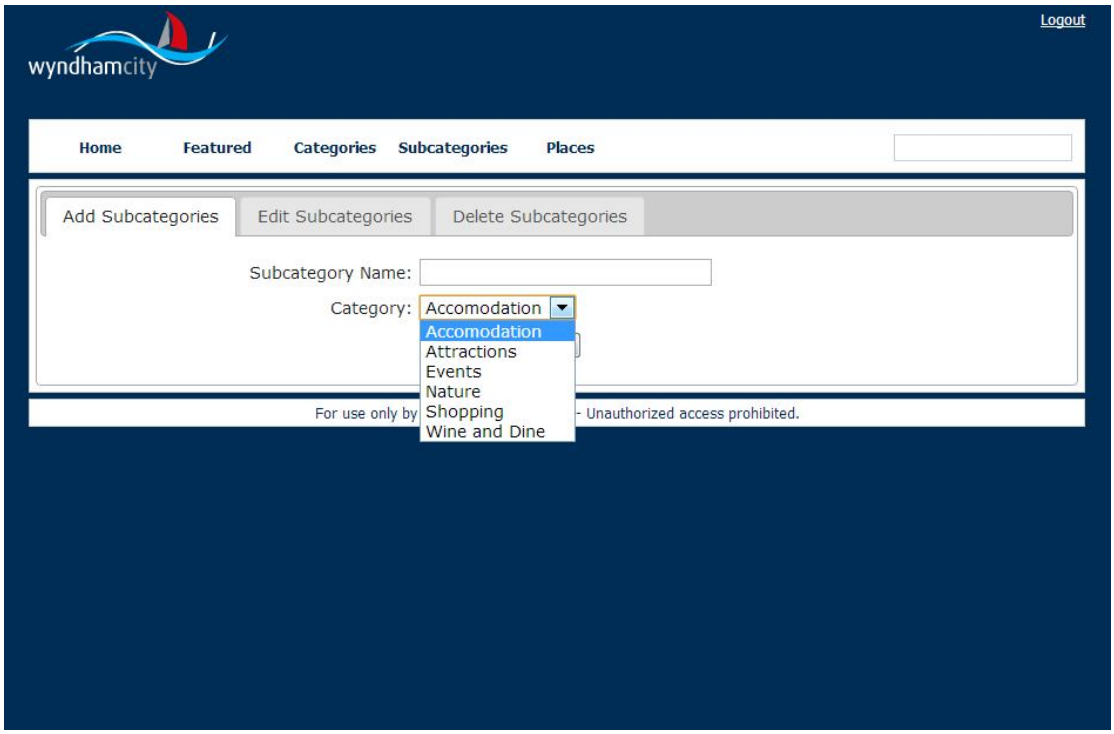
5.3.6.4 Website Backend – Categories

Categories – Administrator will be able to add/edit/delete categories in this section.



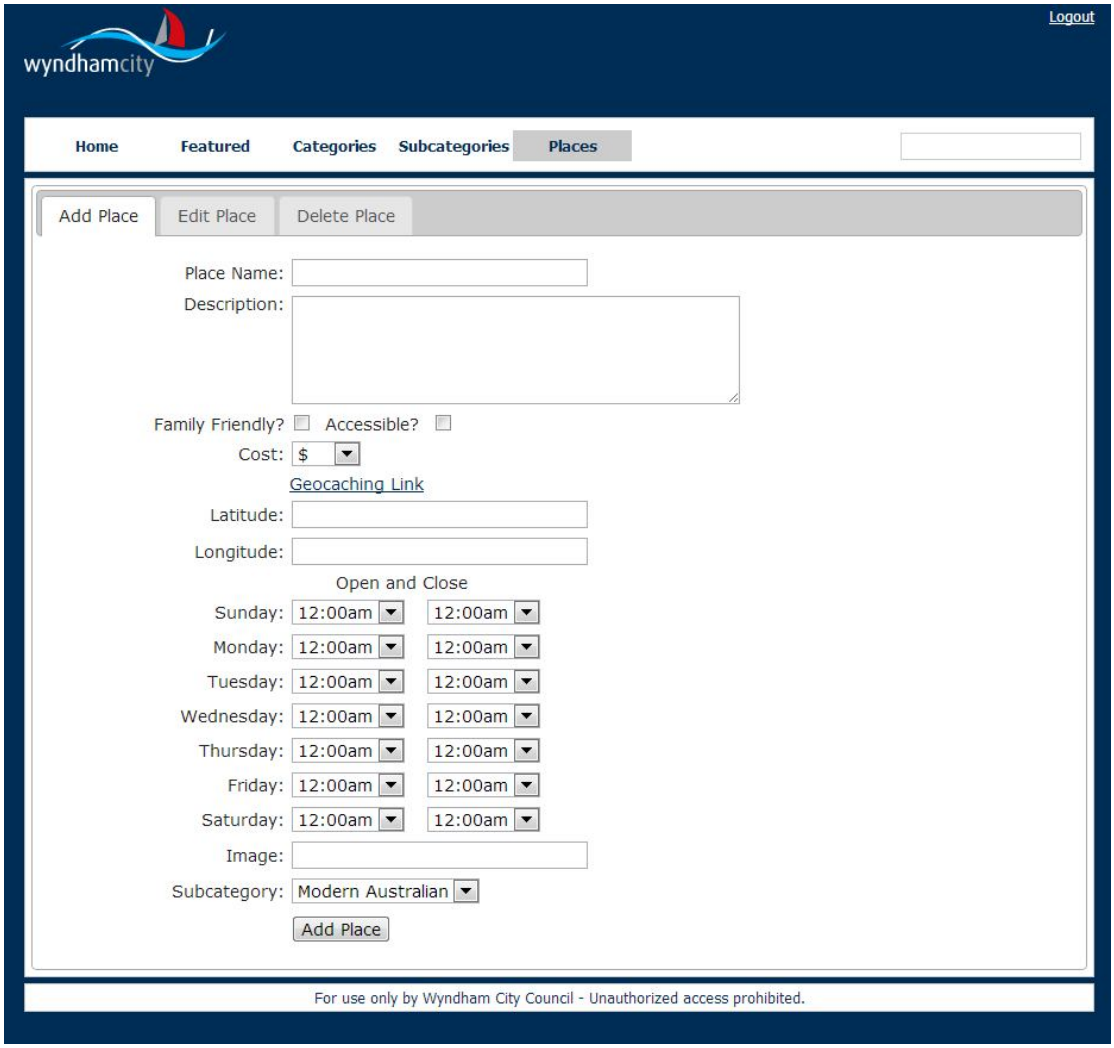
5.3.6.5 Website Backend – Subcategories

Subcategories – Administrator will be able to add/edit/delete subcategories in this section and associate them with a Category.



5.3.6.6 Website Backend – Places

Places – Administrator will be able to add/edit/delete places in this section and associate them with a Subcategory.



5.4 Maintainability and Portability Requirements

5.4.1 How easy must it be to maintain the product?

There is essentially no maintenance needed for the application itself. It acts as a shell which sources the information from the website backend and well before we release it we will be doing rigorous stress tests and debugging to ensure a smooth and easy user experience.
The website backend on the other hand will need an administrator to authenticate into the site to maintain the database where the information will be sourced from.

5.4.2 Special conditions applicable to maintenance?

Authentication into the site by a delegated administrator chosen by our sponsors and if a change to the interface was requested then some maintenance would be needed and downtime occurred.

5.4.3 Platforms or environments that system is to be ported?

The sole requirement for this project is to create an application for the iPhone. We have chosen to create the application for iOS with the base model of the iPhone 3GS which will be easily translated onto the iPhone 4 / iPhone 4s devices as well. We considered the possibility of using the Android operating system as well but we would encounter numerous bugs and cross platform issues which thanks to the iPhone App Developer tools available to us, would already be ironed out. The Android OS currently has 4 major versions over hundreds of devices and to develop an application to be compatible with all those versions and devices would simply be too time-consuming.

5.5 Security Requirements

5.5.1 Confidentiality & Data Integrity

When it comes to confidentiality our team's main focus is the website backend. The group or person which is delegated the task to maintain the business information in order to keep the application updated will need to have exclusive access to it. Security measures will be in place to ensure that data is safely accessed and credentials are needed to authenticate the user in order to log into the site.

6.0 Acceptance Criteria

By measuring our non-functional requirements against client expectations we are able to gauge if we have all requirements fulfilled. Individual descriptions and methods for testing our non-functional requirements can be found in section 5. Below is a table that shows the various non functional requirements we are implementing, cross referencing them with the expectation of our client and our project partners.

	Partner Expected Requirement	Client Expected Requirement	Achieved
Quick System Response	—	✓	✓
Backwards Compatibility	—	✓	✓
Easy Maintainability	✓	✓	✓
Confidentiality	—	✓	✓
Web-Security	✓	✓	✓
Safety Requirements	—	✓	✓
Reliability & Availability	✓	✓	✓
GPS & Navigation	—	—	✓
Best Practice Implementation & Design	—	—	✓

7.0 Glossary

Term	Definition
App	An abbreviation for the word application
OSX	The Operating system that runs on Apple computers
PHP	A script language used for web development
MySQL	A relational database management system
Dreamweaver	A web development application
iOS	The operating system that runs on Apple iPhone/iPod/iPad
iPhone 3GS	The lowest spec iPhone still currently supported
Apple Developer License	The License needed to develop and publish Apple apps

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9.0 Client Sign-Off

CLIENT NAME:_____

CLIENT SIGNATURE:_____