IHEEW

Project Proposal

by

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Document History						
Document Name	**Version**	**Status**	**Date**	**Viewable**	**Reviewer**	**Responsible**
IHEEW- Project Proposal.v1.1.doc	[IHEEW]_propos al _1.1 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Draft	28-01-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphong Advisor	Wittawat Supaphong
IHEEW- Project Proposal.v1.2.doc	[IHEEW]_propos al _1.2 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Draft	11-02-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphon g Advisor	Wittawat Supaphong
IHEEW- Project Proposal.v1.3.doc	[IHEEW]_propos al _1.3 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Draft	20-02-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphon g Advisor	Wittawat Supaphong
IHEEW- Project Proposal.v1.4.doc	[IHEEW]_propos al _1.4 -Introduction and background -Literature Review	Draft	25-02-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphon g Advisor	Wittawat Supaphong

	-System architecture -Technology Review -Project plan -Schedule					
IHEEW-Project Proposal.v1.5.doc	[IHEEW]_proposal _1.5 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Release	05-03-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphong Advisor	Wittawat Supaphong
IHEEW-Project Proposal.v1.6.doc	[IHEEW]_proposal _1.6 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Release	06-03-2013	PM, SA, DEV, QA, Tester, Advisor	Wittawat Supaphong Advisor	Wittawat Supaphong
IHEEW-Project Proposal.v1.7.doc	[IHEEW]_proposal _1.7 -Introduction and background -Literature Review -System architecture -Technology Review -Project plan -Schedule	Release	05-04-2013	PM, SA, DEV, QA, Tester, Advisor	Wiitawat Supaphong Advisor	Wiitawat Supaphong

Document develop by
IHEEW
4 November 2013

Document Approved by

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Mr Pree Thengburanatum
4 November 2013

Abstract

From the survey, it is found that a number of restaurants in Thailand have been increasing in number every year, and there are various kinds of restaurant and foods that meet consumers' different demands. Therefore, the consumer can access to information about restaurants very easily. Besides, people nowadays tend to spend more times outside according to their duties, occupations, and stats of society. Therefore, people cook less but go to have meals at a restaurant more. Moreover, the consumers can easily find information about where to eat from media and advertisements, but the available information is not sufficient for the consumers' demands. However, there is another effective choice to help the consumers in finding the information easier and faster, it is an application on smart phones. As a smart phone is very popular at present time, it has many different functions, and it seems to be an important element of creating self-identity in online world.

Our project aimed to create this application in order to help you find an answer for the most boring question "where to eat?" This application will help you to make a decision upon the best place to go have a meal by using information about restaurants nearby users' locations. This application includes three modes. The first mode is a fast mode, which randomly chooses a restaurant from the nearest location of users. The second mode is a particular mode that users can specify some details about the needed restaurant in order to enhance the choice, such as type of food, approximate price. These two modes can press new random if users do not satisfied. The third mode can search for the most appropriate restaurants that meet certain occasions. For example, dating with a girlfriend, or having a meal with a family. Furthermore, the application provides details of each restaurant for the users. Moreover, the users can give points to certain restaurants by checking in first and rate later.

This application uses location-based service to find locations of restaurants, and the users can get directions from Google map API via the application. This is very helpful for users who are not familiar with the locations. Moreover, this application uses protocol HTTP as an intermediary in the transmission of XML files to communicate between the users and the system. Besides, this application developed the objective-c technology development for the smart phone category iOS operating system, which is currently the most widely used.

Our project also adopts Agile Development Process Model because it is a new concept for software development. Agile Development Process Model helps save time and money, and it is faster and more flexible than the Waterfall Process Model.

1. Chapter One | Introduction and Background

Nowadays, a smartphone takes an important part in everyday life because a smartphone is a portable facility that helps people in communicating. This is why a smartphone becomes popular very rapidly.

From the past, people have been using several tools to search for information about restaurants. The first one is the Internet, it has been a popular one because it is easy to use and access the information with less limitation of times and places. However, the Internet has its disadvantage that it contains too much information and sometimes causes confusion to the users due to irrelevant data. The second one is a printed media. People can also find the information from journals, papers, or magazines, but this kind of source contains limited data, and there is a problem about various publishing periods.

As we realize that the information about restaurant is insufficient, we develop a project about a smartphone application for restaurants finding to solve the problem about the boring question 'where to eat?' We believe that the application can be an effective solution that helps the users with finding places to go to eat. Moreover, we do concern about traveling to any restaurant located in unfamiliar locations; therefore, we use Technology Location Base Service in directing the ways to the restaurants. Therefore, this project will ease the problem about searching for a place to eat.

Our project focuses on developing an application on the iOS device in iPhones because the device is the most widely used among people at present time. The iOS' System is stable and flexible. Today, iPhones have total six generations, the iPhone5 is the newest one which has been released on 2013.

IHeew is an application that we are going to develop on iPhones. It will solve the problem upon decision-making about a place to eat. It provides necessary information about restaurants including a location, feature, food, and popularity of the restaurant. The application can help the users make a decision which restaurant is the most appropriate one to go, and it also help saving time that may be wasted during the process of searching for the place. Moreover, we have a web application is the management information and the web service are data transmission because web service can transmission from the internet and an effective communication

Web application use MVC or Model-View-Controller pattern in development website. The reason we choose MVC or Model-View-Controller pattern to develop because MVC pattern can improve or modify easily. When we design website by MVC pattern, it can improve or modify each component without effect to the other system because MVC pattern is independent and can maintain system easier.

Our project also adopts Agile Development Process Model because it is a new concept for software development. Agile Development Process Model helps save time and money, and it is faster and more flexible than the Waterfall Process Model.

2. Chapter Two | System architecture
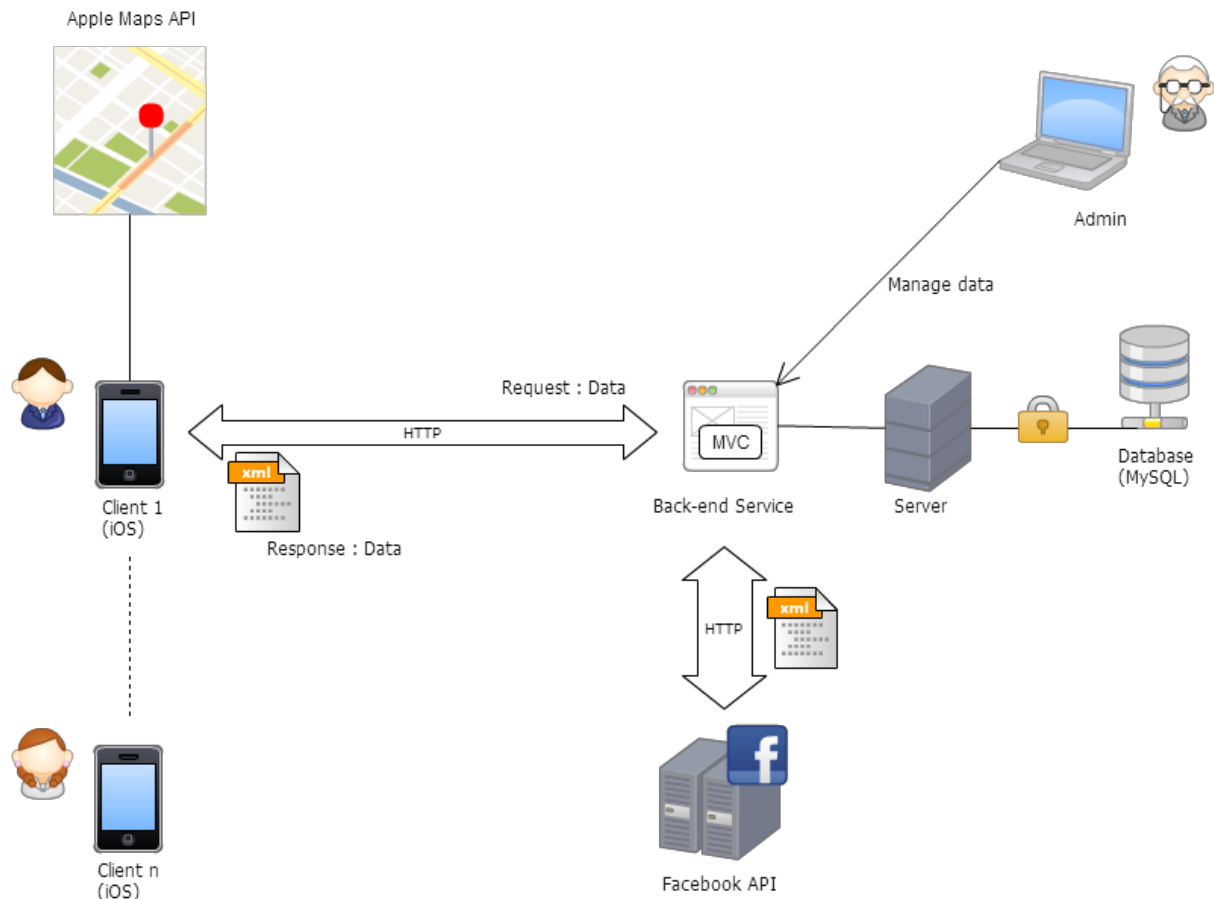
Figure 2: client-server architecture.

Firstly, when the user run this application. The application will get current location from GPS, and the client will send request the data about the restaurant that are around the user to the server by HTTP protocol. After that, the server will query the data from the database and generate to file type XML. Next, the server will respond to the client by send XML file back to the client. Then, the application will generate file XML to GUI for the user can understand easier. When the users choose the restaurant already and need to go there. The user can get the location of the restaurant and the path to go to the restaurant by the client will send request the path to the web-service, then the web-service will connect to Google map API for getting the path. If the users want to share on Facebook, the web-service will connect to Facebook API. Finally, the admin can manage the data in the database by using the web-service. The data consist of the user's information and the restaurant's information.

Client - The clients can get the current location by GPS build-in by protocol National Marine Electronics Association (NMEA 0183). If the device does not have GPS build-in such as iPod touch 4th generation, the system will get the location by nearby Wi-Fi from Apple Maps API. When the clients will display the data to user, the clients should send request the data to the server by protocol HTTP.

Server – The server is the center of the system. The server is connecting with Google Map API and Facebook API. The server has the database for storing the data in the system. Admin can manage the database on the server by service. The server will respond by send XML files to the client, when the server received a request from the clients. The XML files are going to generate by the service.

3. Chapter Three | Literature Review

3.1 Alternative Solution Review

3.1.1 Business Review

       Searching for restaurants nowadays can be done in several forms, such as Internet search or search by journal publishers. Internet searching is very popular today. It can search and find information quickly by the search engine is a program that helps you to find information on the Internet that it covers text message, images, animations, music, software, maps, or group, and so on. The search engine is various depending on the program or user each service.

      Search Engine popular nowadays:

- Google
- Yahoo
- Baidu
- Bing
- Yandax
- Ask
- AOL

Search engine ⇕	Market share in May 2011 ⇕		Market share in December 2010[12] ⇕	
Google	82.80%		84.65%	
Yahoo!	6.42%		6.69%	
Baidu	4.89%		3.39%	
Bing	3.91%		3.29%	
Yandex	1.7%		1.3%	
Ask	0.52%		0.56%	
AOL	0.3%		0.42%	

Figure 3
(This figure show statistic of search engine in market share)

      See Figure 2.3.1: Google's worldwide market share peaked at 86.3% in April 2010. Yahoo!, Bing and other search engines are more popular in the US than in Europe.

      According to Hitwise, market share in the U.S. for October 2011 was Google 65.38%, Bing-powered (Bing and Yahoo!) 28.62%, and the remaining search engines 6%. However, an Experian Hit wise report released in August 2011 gave the "success rate" of searches sampled in July. Over 80 percent of Yahoo! and Bing searches resulted in the users visiting a web site, while

Google's rate was just under 68 percent. In People's Republic of China, Baidu held a 61.6% market share for web search in July 2009.In Russian Federation, Yandex holds around 60% of the market share as of April 2012. *[1]*

Searching the Internet is that there are limitations. Information on the internet has an exhaustive coverage may be a problem because it does not meet the requirements that will have a lot of time. And information that is much more reliable. It enables users to cause confusion in the data. Searching for restaurants to meet the needs of the technology involved. The geo-location services using mobile devices. This technology referred to as location base service.

Location Base Service

A location-based service is a software application for an IP-capable mobile device that requires knowledge about where the mobile device is locating. Location-based services can be query-based and provide the end user with useful information such as "Where is the nearest restaurants?" or they can be push-based and deliver coupons or other marketing information to customers who are in a specific geographical area.

The service provider's software application, a mobile network to transmit data and requests for service, a content provider to supply the end user with Geo-specific information, a positioning component (GPS) and the end user's mobile device.

Location Base Service on mobile

As smartphones like the Apple iPhone, Google Android-based devices and Research in Movement BlackBerry have become increasingly popular, so has the use and popular of Location Base Service.

Demographic Profile for Check-In Service Users 3 Month Avg. Ending Mar. 2011 Total U.S. Mobile Subscribers Ages 13+ Source: comScore MobiLens	% of Total Mobile Users	% of Smartphone Users	% of Check-In Service Users
Total Audience: 13+ yrs old [Age]	100.0%	100.0%	100.0%
Male	48.0%	53.9%	49.2%
Female	52.0%	46.1%	50.8%
Age: 13-17	7.1%	6.0%	8.3%
Age: 18-24	12.5%	17.5%	26.0%
Age: 25-34	17.6%	27.3%	32.5%
Age: 35-44	16.8%	21.8%	18.7%

Figure 4

(Compared with most smartphone owners, those who use location-based sites also are more likely to access other types of mobile content, according to ComScore)

A total of 16.7 million mobile-phone subscribers used location-based services on their phones in March. That amounts to about 7.1 percent of the entire population of mobile users.

But among smartphone users specifically, 12.7 million checked in with such sites during the month, representing 17.6 percent of all smartphone owners.

Compared with most smartphone owners, those who used location-based sites on their phones also proved more likely to access other types of mobile content. More than 95 percent of them used their mobile browsers or mobile apps. Almost 62 percent grabbed the news on their mobile devices. *[2]*

3.2 Software Review

3.2.1 Food Spotting

Food spotting is a visual guide to good food and where to find it. Instead of reviewing restaurants, you can recommend great dishes and see what others recommend wherever you go. *[9]*

This app is going to appeal to the foodies. When users launch Food Spotting, you quickly get a gallery of dishes not taken by the restaurant owner, but actual people eating it.
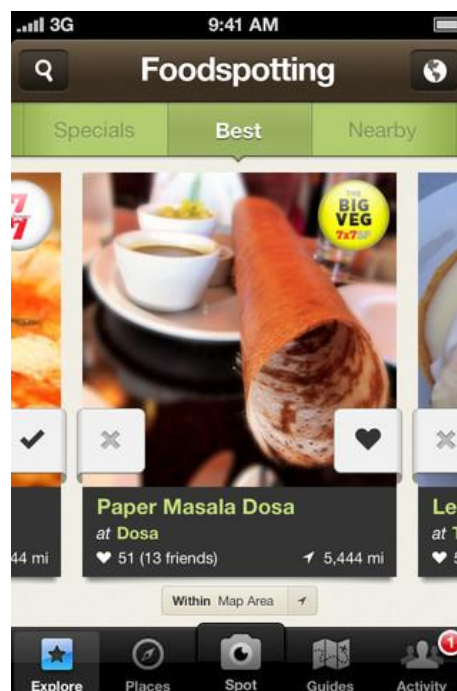
Figure 5A

Figure 5A: show scrollable list which categorizes the dishes you see. User can choose from restaurants nearby to what people are following. There is even a category for 'Specials' which is not yet implemented (at least in my area) but I can see some great things with this. Perhaps the daily specials will show up here at your popular eateries.

Food spotting map user can choose a restaurant from the list or user can touch the pin on the map. Either way, user gets the restaurant details and all the popular food spotting dishes for that restaurant. *(See figure 5B)*

Figure 5B

Figure 5C

Figure 5C: This interface user can "loved it", "want it", "tried it" about Dish.

Pros
- User can share information on:
    - Twitter
    - Facebook
    - Foursquare
    - Flickr
    - Tumblr

- Users can show mood or interest in food(See figure 5C)
    - Want
    - Tried
    - Loved

- Member can take a photo and share on application, Facebook or both in a restaurant after that other member can commend or rate food that posted.
- Can manage finite resources well : Memory, battery life, data usage and users' patience

Cons
- User update Facebook profile in the website, but old data in the application has still pending.
- Long time to change picture
- Picture and name are not match in Facebook account

3.2.2 Wongnai

Wongnai is social network equipped with the key feature of publishing review that is designed specifically for the food and restaurant business

Figure 6A

Figure 6A [10]: Show interface starter application and Show interface Log-in. See Interface Log-in application user can Log-in two way is general Log-in and Facebook account Log-in.

User can search the province has restaurant. If a user opens GPS Location Service, App Wongnai will specify our address immediately, and menu button on the top left user can go to the menu bar on the left side Slide out. There are many different menus. (See figure 6B)

Figure 6B [10]

See figure 6B User click button place. It is the search for food around our area. Users can click the button menu search advanced information. Application can be determined by popularity, number of visitors. (See figure 6 C)
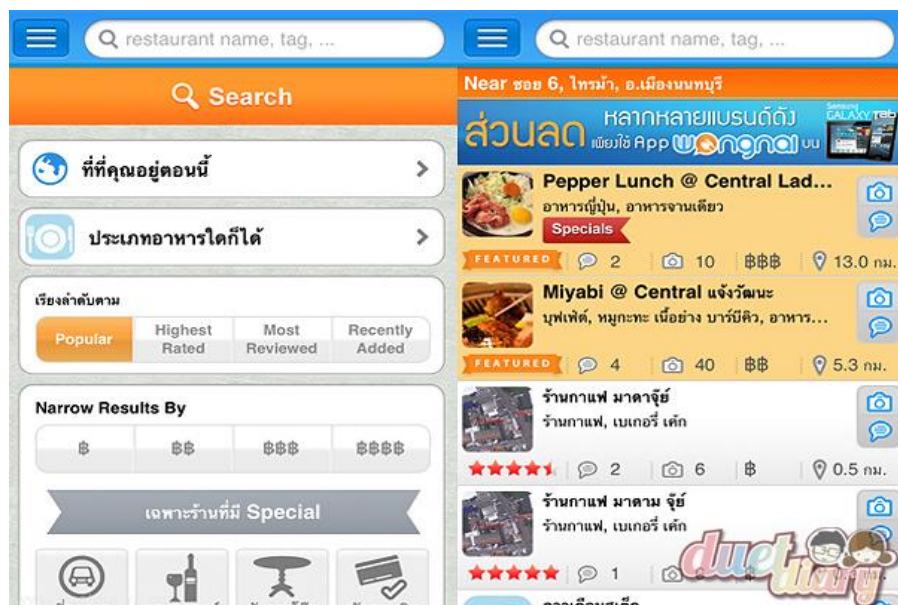
Figure 6C [10]

Pros

- User interface
    - Usability
    - Clearly layout
- Good feature
    - User lives far from restaurant. Users can't post or tag in that restaurant.
- More search mode:
    - Friends
    - Lover
    - Business
    - Cheap
    - Family and kids
    - Party
    - Super Hungry
    - Fast food

Cons

- Share to Facebook offend time.
- Log out delay Some time do nothing
- Log in with Facebook use a lot of time
- When user change city to find a restaurant. List of restaurants still same city that chose, only change map

3.3 Technology Review

3.3.1 iOS technology

iOS technology

iOS is Apple's mobile operating system used to run the popular iPhone, iPad and iPod Touch devices. Formerly known as the iPhone OS, there are over 300,000 iOS applications available for download in the Apple app store, the most popular app store of any mobile device. iOS utilizes a multi-touch interface where simple gestures are used to operate the device, like swiping your finger across the screen to move to the next page or pinching your fingers to zoom out.*[8]*

Alternative Technology
- Android OS
- Window Mobile
- Symbian OS
- Linux OS
- Blackberry OS
- Prada OS

The selection of this technology

The IPhones are new mobile device for the developer. It is interesting to develop. iOS user interface is design in multi-touch feature is useful and friendly interface more than other touch screen mobile phone. Additional, nowadays there are many increasing of Smart Phone especially IPhones. Finally, there are many tutorials for iOS to learn from Internet

3.3.2 Objective-C

Objective-C

Objective-C is the primary programming language you use when writing software for OS X and iOS. It's a superset of the C programming language and provides object-oriented capabilities and a dynamic runtime. Objective-C inherits the syntax, primitive types, and flow control statements of C and adds syntax for defining classes and methods. It also adds language-level support for object graph management and object literals while providing dynamic typing and binding, deferring many responsibilities until runtime. *[7]*

Alternative Technology

- No alternative technology for Objective-C to make it works with iOS platform.

The selection of this technology

The iOS platform inventory supports objective-C. It had used since the first version of iOS platform, which by that time called IPhones OS. All iOS developer around the world learned to develop iOS application in Objective-C, and they are support each other. Another weighty reason is Apple's IDE called Xcode: Xcode is powerful Objective-C IDE for the iOS and OS X platform.

3.3.3 Maps Map

Maps Map

Designed by Apple from the ground up, Maps gives you turn-by-turn spoken directions, interactive 3D views, and the stunning Flyover feature. All in a beautiful vector-based interface that scales and zooms with ease. *[6]*

Alternative Technology
- Bing Map
- Google Map
- Nostra Map

The selection of this technology

When you're driving or walking, Maps helps you find your way to your destination with turn-by-turn spoken directions. As you approach a turn, Maps speaks directions, so you can keep your eyes on the road. And the screen turns into a 3D perspective of the road ahead. When you enter into a turn, the viewing angle changes dynamically to show you where to go. If you miss a turn, don't worry. Maps automatically reroutes you and updates your ETA. And all along the way, large signs and arrows guide you in the right direction and let you know how long it's going to take to get there — even if your screen is locked. *[6]*

3.3.4 Facebook API

Facebook API

Platform for building applications that are available to the members of the social network of Facebook. The API allows applications to use the social connections and profile information to make applications more involving, and to publish activities to the news feed and profile pages of Facebook, subject to individual users privacy settings. With the API, users can add social context to their applications by utilizing profile, friend, Page, group, photo, and event data.

Alternative Technology

- Foursquare API

The selection of this technology

Facebook SDK for iOS makes it easier and faster to integrate your iOS app with Facebook. From enabling Login with Facebook to ready-to-use native UI views, the SDK offers several powerful development tools. [14]
.

3.3.5 MySQL

MySQL

MySQL is the world's most popular open source database software, with over 100 million copies of it has software download or distributed throughout it is history. With its superior speed, reliability, and ease of use, MySQL has become the preferred choice for Web, Web 2.0, SaaS, ISV, Telecom companies and forward-thinking corporate IT Managers because it eliminates the major problems associated with downtime, maintenance and administration for modern, online applications. *[3]*

Alternative Technology

- SQL server
- SQLite

The selection of this technology

MySQL is a suite of four open-source software packages–proven, popular, and well-supported ones–that work together to run interactive, dynamic Internet sites.

3.3.6 **MVC**

MVC

      Model-View-Controller (MVC) is probably one of the most quoted patterns in the web programming world in recent years. Anyone currently working in anything related to web application development will have heard or read the acronym hundreds of times. Today, we'll clarify what MVC means, and why it has become so popular. *[11]*

Alternative Technology
- Adapter pattern
- Observer pattern

The selection of this technology

      The main objective of the MVC design pattern is separation of concerns. It provides an isolation of the application's presentation layer that displays the data in the user interface, from the way the data is actually processed. In other words, it isolates the application's data from how the data is actually processed by the application's business logic layer. The biggest advantage of the MVC design pattern is that you have a nice isolation of these components/layers and you can change any one of them without the rest being affected. *[12]*

3.3.7 **Codeigniter**

Codeigniter

      CodeIgniter is an Application Development Framework - a toolkit - for people who build web sites using PHP. Its goal is to enable you to develop projects much faster than you could if you were writing code from scratch, by providing a rich set of libraries for commonly needed tasks, as well as a simple interface and logical structure to access these libraries. CodeIgniter lets you creatively focus on your project by minimizing the amount of code needed for a given task. *[13]*

Alternative Technology
- Yii framework
- CakePHP
- Zend framework
- Kohana framework
- PHPdevShell framework

The selection of this technology

- Easy to learn, adopt and deploy
- Easy handling and customizing.
- A new functionality has been applied without affecting the customization at all.
- Offers flexibility and easy management With MVC based framework.
- Active Record Implementation is simply superb and easy to remember.
- Provides easier configuration and customization of configuration files.

3.4 Development Tools Review

3.4.1 Xcode

Xcode

Xcode is an Integrated Development Environment (IDE) containing a suite of software development tools developed by Apple for developing software for OS X and iOS. First released in 2003, the latest stable release is version 4.6 and is available via the Mac App Store free of charge for Mac OS X Lion and OS X Mountain Lion users. Registered developers can download preview releases and previous versions of the suite through the Apple Developer website.

Alternative Tool
- No alternative

The selection of this tool

Xcode is the Cocoa application implementation tool. It used from beginners to experienced developer. The easiest way to implementation iOS application is to use this tool.

3.4.2 Interface Builder

Interface Builder

Interface Builder is a visual design tool you use to create the user interfaces of your iOS and Mac OS X applications. Using the graphical environment of Interface Builder, you assemble windows, views, controls, menus, and other elements from a library of configurable objects. User arranges these items, set their attributes, establish connections between them, and then save them in a special type of resource file, called a nib file. (The term "nib" is historical and is an acronym for "NextSTEP Interface Builder. ") A nib file stores your objects, including their configuration and layout information, in a format that at runtime can be used to recreate the actual objects. *[4]*

Alternative Tool
- No alternative tool for Interface Building but developer can write the user interface in code

The selection of this tool

Interface Builder help decrease works developer have to do involved user interface. It provides graphical tools to create and preview the user interface and assist the developer in linking the user interface the codes.

3.4.3 **iOS Simulator**

iOS Simulator

IOS Simulator is a valuable tool, never make it the only way you test an app. Because iOS Simulator is an app running on a Mac, it has access to the computer's memory, which is much greater than the memory found on a device. As a result of the increased memory, iOS Simulator is not an accurate test of an app's memory usage. For this same reason, you should always test the performance of your app's user interface on a device. *[5]*

Alternative Tool

- No alternative software tool for simulating iOS devices.

The selection of this tool

The iOS simulator is simple and suitable for simulating application without using the actual device. It is fast and easy

4. Chapter Flour | Quality Standard

4.1 ISO29110 for Very Small Entity (VSE)

ISO29110 is a guide applies to a Very Small Entity (VSE), enterprise, organisation, department or project up to 25 people, dedicated to software development. The Guide provides Project Management and Software Implementation processes which integrate practices based on the selection of ISO/IEC 12207- *Systems and Software Engineering —Software Life Cycle Processes* and ISO/IEC 15289 *Software Engineering – Software Life Cycle Process – guidelines for the content of software life cycle process information products (documentation)* standards elements.

4.1.1 Project Management process

The purpose of the Project Management process is to establish and carry out in a systematic way the tasks of the software implementation project, which allows complying with the project's objectives in the expected quality, time and cost.
Selected process

    4.1.1.1   Project Planning Process
    4.1.1.2   Project Plan Execution Process
    4.1.1.3   Project Assessment and Control Process
    4.1.1.4   Project Closer Process

4.1.2 Software Implementation process

The purpose of the Software Implementation process is the systematic performance of the analysis, design, construction, integration and tests activities for new or modified software products according to the specified requirements.
Selected process

    4.1.2.1   Software Implementation Initiation Process
    4.1.2.2   Software Requirements Analysis Process
    4.1.2.3   Software Architectural Design Process
    4.1.2.4   Software Construction Process
    4.1.2.5   Software Integration and Test Process
    4.1.2.6   Software Delivery Process

5. Chapter Five | Project Plan

5.1 Motivation

Nowadays, people using a smartphone have been increasing in number more and more. The reason for developing the application IHeww is we aim to help people in easing the way to search for restaurants to go. We would like to make it easy for the users to make decisions upon finding the most appropriate place to eat. Moreover, we offer quickness and convenience in information accessing to the users who use iPhones. Besides, another benefit we gained from doing this project is improvement on software development process skills.

5.2 Aims and Objectives

Aim
- Provide users decided quickly to find restaurants.
- Provide users know the route and the distance of the restaurant.
- Provide users to know details about the types of food in restaurants.

Objective
- Create a new application on iOS platform that easy and flexible to use.
- Apply the knowledge of the software engineering process to real work.
- Develop software documentation follow by ISO29110
- Learn more about software processing experience, study about business and learn how to work as team and project planning.
- Provide the new way to found the restaurant which using trends of Location Base service on mobile device.

5.3 Deliverables and Limits

5.3.1 Deliverables

Feature

Web Server
- Store database of location base and management information

Admin/Server
- Login
- Add restaurant
  - Add name
  - Add location
  - Add type of food
  - Add description
  - Add estimate price
  - Add picture of restaurant
  - Add picture of food
- Modify restaurant
- Remove restaurant
- Manage member
  - Edit member information
  - Remove member

Mobile/Client
- Login
  - Login with Facebook
  - Login with iHeew account
- Registration
- Search restaurant
- Quick Random
- Specific Random
  - Select type of food
  - Select estimate price of food per person
  - Select rate of hunger
- Rate Restaurant
- Upload picture/photo
  - Profile pictures
  - Restaurant pictures or Environment around restaurant
  - Food pictures
- Write comment or review restaurant
- Like/Love about food and review that other member post in restaurant
- Suggest restaurant to friends who are using this app
- Share restaurant to Facebook

5.3.2 **Limits**

- This application support only iOS device IPhone4 and iPhones 5, iPod touch.
- This application not available when losing Internet connection.
- There is cost of GPRS to connect via Mobile application.
- This application not available when losing GPR signal location.
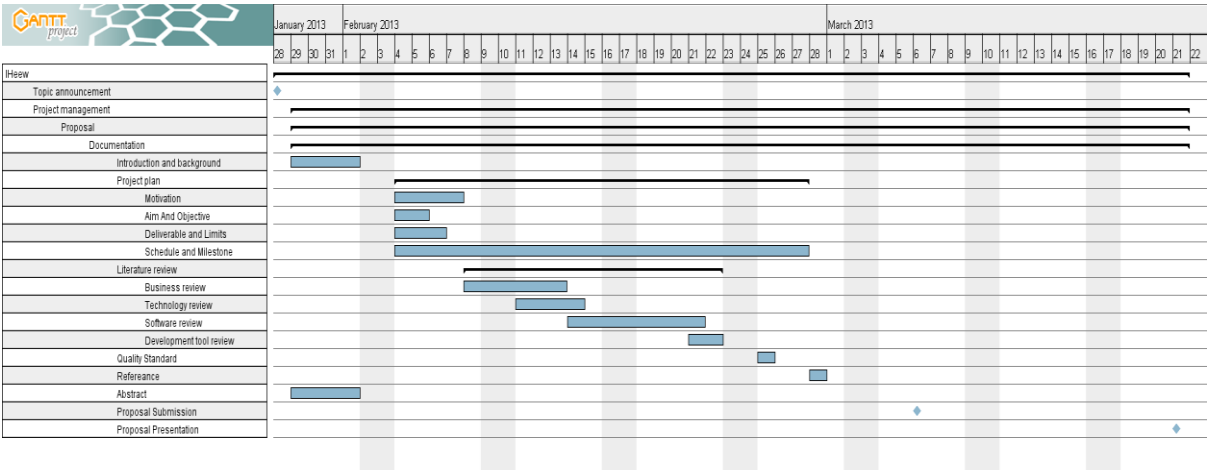
Figure 7: Proposal Period Milestone

Figure 8: Progress#1,#2

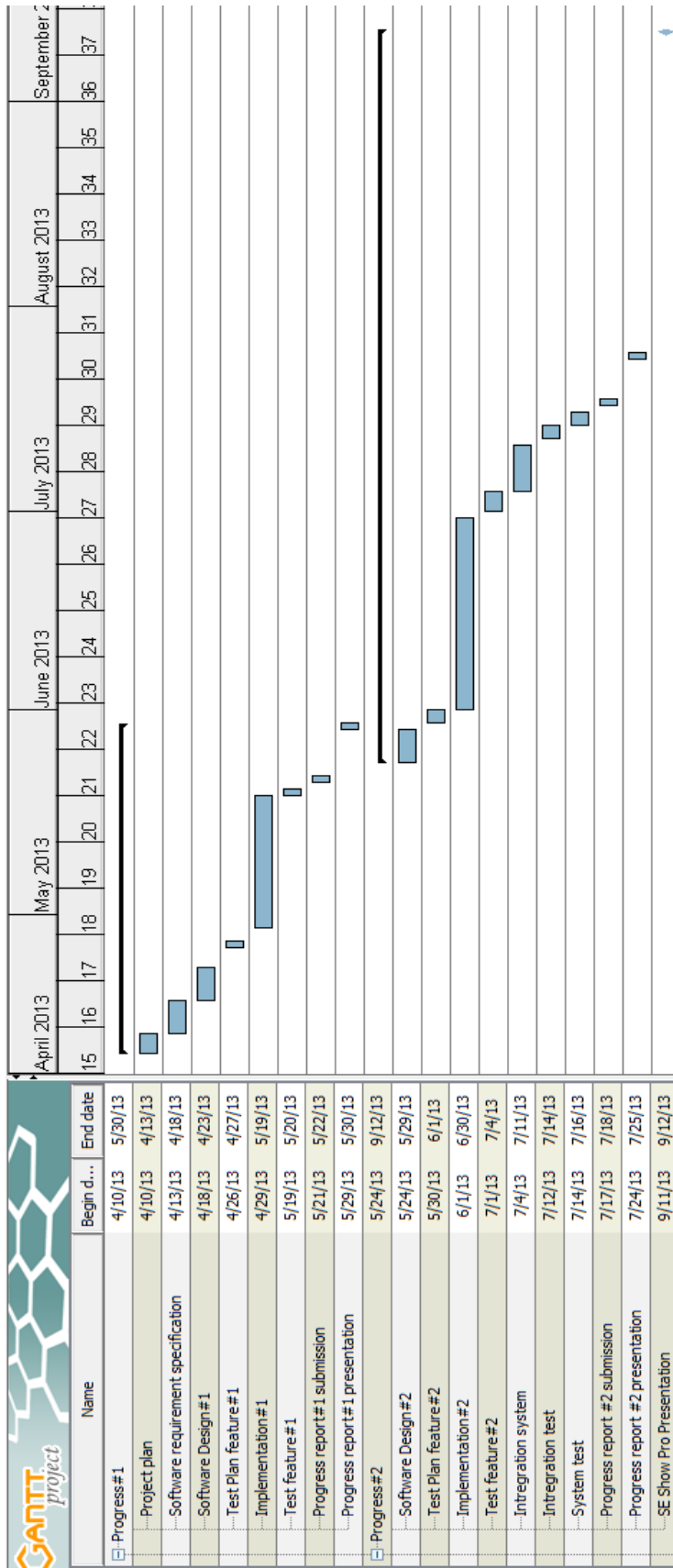| Name	Begin d...	End date
Progress#1	4/10/13	5/30/13
Project plan	4/10/13	4/13/13
Software requirement specification	4/13/13	4/18/13
Software Design#1	4/18/13	4/23/13
Test Plan feature#1	4/26/13	4/27/13
Implementation#1	4/29/13	5/19/13
Test feature#1	5/19/13	5/20/13
Progress report#1 submission	5/21/13	5/22/13
Progress report#1 presentation	5/29/13	5/30/13
Progress#2	5/24/13	9/12/13
Software Design#2	5/24/13	5/29/13
Test Plan feature#2	5/30/13	6/1/13
Implementation#2	6/1/13	6/30/13
Test feature#2	7/1/13	7/4/13
Intregration system	7/4/13	7/11/13
Intregration test	7/12/13	7/14/13
System test	7/14/13	7/16/13
Progress report #2 submission	7/17/13	7/18/13
Progress report #2 presentation	7/24/13	7/25/13
SE Show Pro Presentation	9/11/13	9/12/13

6. Chapter Fivel Reference

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