** MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

Smart Buy

|  |  |
| --- | --- |
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| **Ext. Supervisor** | N/A |
| **Capstone Project code** | SmartB |

-Ho Chi Minh City, 01/2014-

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# Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| SmartB | Smart Buy |

# Report No.2 Software Project Management Plan

## Problem Definition

### Name of this Capstone Project

Smart Buy (SmartB)

### Problem Abstract

People go shopping every day. They buy clothes, books, stationeries, etc… and most importantly - food. They often buy them at their familiar markets, or the nearest one. Today, together with the growing use of smart phones, we should find a smarter way to do our daily jobs, such as shopping. To achieve this, we have to resolve the most important problem of shopping: price. How can we know that the price of a product is not too high? Or somewhere else has better price? Our system will, therefore, help users to find the price of a product in the market, keep track of the price fluctuation, suggest the best way to buy a list of products, etc…

### Project Overview

#### Current Buying Habits

Below are some buying habits:

* At familiar markets: Here, people only go to some fixed markets every day. They are familiar with them, so they do not want to try somewhere else.
  + Advantages: Familiar with many things there, price maybe cheaper, the quality can be trusted.
  + Disadvantage: Can’t explore new things at new markets.
* At the nearest markets: People of this type like buying things at their nearest place. Travel distance is a matter to them, not the price.
  + Advantages: Save time and effort.
  + Disadvantages: Price can be high, quality can’t be trusted.
* At random markets: The last one category - people with this habit often go to any markets to buy things they need. Neither travel distance nor price is the matter to them.
  + Advantages: Have the latest info of many markets.
  + Disadvantages: Price can be high, quality can’t be trusted.

According to the description above, we can realize that price is the most important thing in shopping. Is the price too high? Does somewhere else have better price? How much can I bargain? Our system will help you with those problems.

#### The Proposed System

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

##### Web

* Admins can manage the system, manage accounts, and configure system.
* System can parse, suggest, and recommend product price daily or on requests.
* Staff can create and update new users, manually input product price, and compile statistics.
* Users can request to view the price, ask for the best buying way, and update product price.

##### Mobile

* Users can request to view the price, ask for the best buying way, and update product price.

#### Boundaries of the System

* The system can be used by every people with a smart phone or a laptop/computer with Internet connection.
* The system is **not intended** for managing these aspects:

+ Managing product quality.

+ Managing your expense.

+ Managing nutritional ingredients of your meals.

* The language of the system is Vietnamese.
* The complete product includes:

+ The website, for staff and user.

+ Mobile Application for user.

+ All the process document involved.

#### Development Environment

##### Hardware requirements

**For server**

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

Table 1: Hardware Requirement for Server

**For Mobile Application**

|  |  |  |
| --- | --- | --- |
| Mobile | Minimum Requirements | Recommended |
| Internet Connection | Wifi (2Mbps) | Wifi (4Mbps) |
| Operating System | Android 4.0 or later version | Android 4.4 |
| Hardware | Touchscreen, Camera 2.0 MP or above | Touchscreen, Camera 4.0 MP or above |
| Memory | 512 MB or more | 1 GB or more |

Table 2: Hardware Requirement for Mobile App

##### Software requirements

* Microsoft Windows 7 Ultimate: operating system and platform for development.
* SQL Server 2008 Enterprise R2: used to create and manage the database for system.
* StarUML: used to create models and diagrams.
* Skype: used for communication and meeting.
* Visual Studio 2012: used to implement website and web service.
* Eclipse Juno 4.4, Android SDK 22.0.5, ADT 22.0.5 & JDK 7u25: used to implement mobile application.
* Google Code & TortoiseSVN: used for source control.

## Project organization

### Software Process Model

Project is developed under agile model.



Figure 1: Agile Development Model

For more information: <http://www.indicthreads.com/1439/quick-introduction-to-agile-software-development/>

(Owner: IndicThreads.com. Online Software Developer Magazine and Conferences)

### Roles and responsibilities

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Full name** | **Role in Group** | **Responsibilities** |
| **1** | Kieu Trong Khanh | Project manager | * Specify user requirement * Control the development process * Give out technique and business analysis support |
| **2** | Doan Ho Anh Triet | Team Leader, BA, DEV, Tester | * Managing process * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **3** | Huynh Thanh Viet | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **4** | Dang Huu Hoang | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **5** | Tran Trung Dung | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |

Table 3: Roles and Responsibilities Details

### Tools and Techniques

- Front-end technologies: HTML5, CSS3, JavaScript, jQuery, AJAX.

- Back-end: Website: ASP.NET MVC4 + Entity Framework 5.

Web Service: WCF. Mobile App: Android - Java.

- Web Server: Microsoft IIS.

- Database Management System: MS SQL Server 2008 Enterprise R2.

## Project Management Plan

### Iteration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Phase**  **/Iteration** | **Description** | **Deliverables** | **Resource needed** | **Dependencies and Constrains** | **Risks** |
| **Preliminary Investigation or Analysis** | - Study similar existing systems.  -Identify and clarify requirements for the system in general. | -Introduction of proposed system.  -Main functions.  -Project Iteration Plan. | 30 man-days | N/A | Project may  not be feasible  for developing  because lack of technologies  and/or data |
| **Data management** | - Parse data from websites.  - Input data manually.  - Import data from excel files. | - Data management service. | 30 man-days | N/A | Lack of experience.  The implemented parsers are not the best.  Lack of test data |
| **Main user’s functions** | - Let user update price for current day.  - User can search a product price. | - Main user’s functions on web and mobile. | 30 man-days | Depend on “Data management”. | Lack of experience.  Not have a clear understanding about business process. |
| **Suggestion algorithm** | - Build algorithm to calculate the best way to buy a list of products. | - Suggestion service.  - User now can ask for the best way to buy a list of products. | 20 man-days | Depends on “Data management”. | The implemented algorithm is not the best.  Lack of test data. Lack of experience on making and deploying web service. |
| **Market and User Account management** | - Manage markets in the system.  - Manage user accounts in the system | - Market management system.  - User account management system. | 15 man-days | N/A | Lack of experience.  Not have a clear understanding about business process. |

Table 4: Iteration

### Iteration Detail

#### Phase 1: Preliminary Investigation or Analysis

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Author** |
| **1. Identifying and studying existing systems** | Find which systems currently provide similar service, their strengths and weakness. | TrietDHA, VietHT, HoangDH, DungTT |
| **2. Identifying and clarifying main functions.** | Define which main functions system should provide. | TrietDHA |
| **3. Introduction.** | Complete Introduction Report. | TrietDHA |
| **4. Project Management**  **Plan.** | Prepare Project  Management Plan. | TrietDHA |
| **5. Website Prototype.** | Build a prototype of proposed system (Website). | TrietDHA, DungTT |
| **6. Mobile Prototype.** | Build a prototype of proposed system (Mobile App). | VietHT, HoangDH |
| **7. Design ER diagram.** | Design ER diagram. | TrietDHA, VietHT, HoangDH, DungTT |

Table 5: Phase 1: Preliminary Investigation or Analysis

#### Phase 2: Data Management

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Author** |
| **1. Identifying Requirement and Planning** | Which feature this function should have and how to implement. | TrietDHA |
| **2. Create parsers** | Create appropriate parsers to parse data from many websites. | TrietDHA |
| **3. Input data** | Build a function which lets user input data by importing excel files or manually input. | DungTT |
| **4. Implement GUI** | Create the interface for user. | TrietDHA, DungTT |
| **5. Testing** | Test system behavior and  performance  Test user behavior and  performance | TrietDHA, VietHT, HoangDH, DungTT |
| **6. Document** | Adding SRS, SDD,  Installation Guide, Manual  Guide | TrietDHA, VietHT, HoangDH, DungTT |

Table 6: Phase 2: Data Management

#### Phase 3: Main User’s Functions

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Author** |
| **1. Identifying Requirement and Planning** | Which feature this function should have and how to implement. | TrietDHA, VietHT, HoangDH, DungTT |
| **2. Manage User** | Allow staff to manage user accounts. | DungTT |
| **3. Update Product Price** | Allow user update product price from website or mobile. | HoangDH |
| **4. Search Product Price** | Allow user to search product price. | TrietDHA, HoangDH, VietHT |
| **5. Testing** | Test system behavior and  performance  Test user behavior and  performance | TrietDHA, VietHT, HoangDH, DungTT |
| **6. Document** | Adding SRS, SDD,  Installation Guide, Manual  Guide | TrietDHA, VietHT, HoangDH, DungTT |

Table 8: Phase 4: User Related Functions

#### Phase 4: Suggestion Algorithm

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Author** |
| **1. Identifying Requirement and Planning** | Which feature this function should have and how to implement. | TrietDHA |
| **2. Choose algorithm** | Compare many algorithms and choose the best one. | TrietDHA |
| **3. Implement algorithm** | Implement the chosen algorithm. | TrietDHA |
| **4. System suggestion function** | User now can ask for system suggestion. | TrietDHA, VietHT |
| **5. Testing** | Test system behavior and performance. | TrietDHA, VietHT, HoangDH, DungTT |
| **6. Document** | Adding SRS, SDD,  Installation Guide, Manual  Guide | TrietDHA |

Table 7: Phase 3: Suggestion Algorithm

#### Phase 5: Market Management

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Author** |
| **1. Identifying Requirement and Planning** | Which feature this function should have and how to implement. | TrietDHA, VietHT, HoangDH, DungTT |
| **2. Manage market** | Staff can manage markets in the system. | HoangDH |
| **3. Testing** | Test system behavior and  performance  Test user behavior and  performance | TrietDHA, VietHT, HoangDH, DungTT |
| **4. Document** | Adding SRS, SDD,  Installation Guide, Manual  Guide | TrietDHA, VietHT, HoangDH, DungTT |

Table 9: Phase 5: Market Management

### All Meeting Minutes

Refer to Meeting Minutes folder.

## Coding Convention

Java: Using to develop Android App.

Summary:

* Naming Convention.
  + Use camel case for both variable and function name.
  + Use pascal case for class name.
* Indentation.
  + Four spaces should be used as the unit of indentation. The exact construction of the indentation (spaces vs. tabs) is unspeciﬁed. Tabs must be set exactly every 8 spaces (not 4).
  + Avoid lines longer than 80 characters, since they’re not handled well by many terminals and tools.
* Declaration.
  + One declaration per line is recommended since it encourages commenting.
  + In absolutely no case should variables and functions be declared on the same line.
  + Do not put different types on the same line.
* Code Examples

Follow “Code Conventions for the Java TM Programming Language, by Sun Microsystems, rev April 20, 1999”.

<http://www.oracle.com/technetwork/java/codeconventions-150003.pdf>

C#: Using to develop website and web service.

Summary:

* Naming Convention:
  + For variable’s name, use camel case. Eg: minValue, maxValue,…
  + For function name, class name, use pascal case. Eg: SearchProduct, ImportFile,…
* Layout Convention:
  + Write only one statement/declaration per line.
  + Indent continuation one tab stop (four spaces).
  + Add at least one blank line between method definitions and property definitions.
  + Use parentheses to make clauses in an expression apparent.
* Commenting Convention:
  + Place the comment on a separate line, not at the end of a line of code.
  + Begin comment text with an uppercase letter.
  + End comment text with a period.
  + Insert one space between the comment delimiter (//) and the comment text.
  + Do not create formatted blocks of asterisks around comments.
* Language Guidelines:

Using C# Code Convention From:

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