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| **FPT UNIVERSITY** |
| Capstone Project Document  Report 2  Project Management Plan |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | **Group 18** | | | **Group Members** | Đào Bảo Long – Team Leader – SE60690  Lê Phúc Lữ – Team Member – 60563  Nguyễn Thanh Tùng – Team Member – SE60609  Nguyễn Minh Đức – Team Member – SE60660 | | **Supervisor** | Nguyễn Trọng Tài | | **Ext Supervisor** | N/A | | **Capstone Project Code** | i-Deliver |   Build a Web Application  for manages all activities of  delivery service system by coach. | |
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| Hồ Chí Minh City, January 2014 |

# Software Project Management Plan (SPMP)



## Problem Definition



### Name of this Capstone Project

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| --- | --- |
| **Official name** | Building a web-based application that manages the activities of delivery service system by coach |
| **Vietnamese name** | Xây dựng ứng dụng web quản lý các hoạt động cho dịch vụ vận chuyển hàng hóa thông qua hệ thống xe khách đường dài |
| **Abbreviation** | i-Deliver |

### Problem Abstract

The idea of the project is to develop a web-based application that assists delivery service staffs/administrators in manages goods delivery requests, package arrangement, and planning and scheduling, fee management. It also helps customers to make goods delivery request, searching and tracking their package, make a payment online.

### Project Overview



#### The Current System

The idea of this project is developing a delivery service system for passenger transportation service providers which using coach. Before working on this project, we conducted a survey about traditional goods delivery process.

**Traditional goods delivery process:**

Customers will pick their package to delivery service station and provide the name of receiver, destination, and type of goods, weight and size. Then staffs of delivery service will calculate transport fee and give the customer a package invoice which contain provided information and destination station address.

#### The Proposed System

By working on this project, we will develop a service system that assists delivery services providers in Ho Chi Minh City to be closer to their customers. The system has some significant features:

**Create user-oriented interfaces for administrators to simplify management:**

The i-Deliver system support administrators to manage delivery fee like define or edit fee factor. It also helps them to manage related activities of a journey, included trips, stages, stations and routes. Of course the system will provide mechanisms to manage users/staffs.

**Support staffs in delivery requests management, package arrangement, planning and scheduling:**

This system provide easy-to-use interface for requests management like make a new request, edit request information, fee calculating, invoice making, packages arrangement and planning and scheduling, assign packages for specific coach/route.

**Easy-to-use tool for customer to make goods delivery requests, searching and review/edit requests, tracking their package:**

The i-Deliver system is integrated with some technique to help making goods delivery requests online, searching then review or edit requests information, tracking customer’s packages by using request code.

**Optimize arrangement, planning and scheduling for package delivery process**

In traditional way, delivery service staffs have to planning, scheduling and arrange packages for each coaches manually. They just simply fill-up empty cargo compartments as much as possible. This system helps them do their works easily, efficiently by using tools, which optimized by arrangement, planning and scheduling algorithms.

#### Boundaries of the System

There is no previous version of this system. The product will be developed from scratch, independent of any current system.

As said previously, the system under development is not a delivery service management system. It does not provide mechanisms to manage all activities related to goods delivery. This system is developed for transportation service providers which using coaches. It focuses mainly on providing easy-to-use interfaces and tools, which support both customers and delivery service staffs.

The final product of this Capstone Project includes

* A service portal which helps customers make goods delivery requests;
* A management module for staffs/administrators of delivery service;
* All the documents involved in the development process.

#### Development Environment

Below is the list of hardware and software requirements needed for the development environment of the project.

**Hardware requirements**

* Personal computers for developing with the minimum configuration: 2 Gb of RAM, 100GB of hard disk, Core 2 Duo 2.0 Ghz;
* A server computer for testing with the minimum configuration: 4 Gb of RAM, 100GB of hard disk, Core 2 Duo 2.0 Ghz;
* All computers must be connected to the Internet.

**Software requirements**

* Operating system: Windows 7 or above;
* Web Server: IIS Express 8;
* Framework: .NET Framework 4.5;
* IDE: Visual Studio 2012;
* DBMS: SQL Server 2008 R2;
* Source Control: Tortoise SVN 1.8.4.

## Project organization



### Software Process Model

The waterfall software lifecycle model will be used to guide the development of the system. The waterfall model includes five major phases as in the figure below, enforcing moving to the next phase only after completion of the previous phase.

Requirement Specifications

System and Software Designs

Implementation and Unit Testing

Integration and System Testing

Operation and Maintenance

The waterfall software lifecycle model

### Roles and Responsibilities

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| --- | --- | --- | --- |
| No | Full name | Role in group | Responsibilities |
| 1 | Nguyễn Trọng Tài | Supervisor | * Give advice on business and technical problems; * Review and approve of project documents and product deliverables; * Assess the performance of team members. |
| 2 | Đào Bảo Long | Team Leader,  Developer,  Tester | * Create project management plan and distribute tasks to the other members; * Monitor the development process and review the deliverables; * Work on system architecture and detailed designs; * Implement; * Prepare documents; * Perform unit testing; * Deploy the final product. |
| 3 | Lê Phúc Lữ | Developer, Tester | * Research on; * Design user interfaces; * Work on detailed designs; * Implement; * Prepare documents; * Perform unit testing, system testing, and integration test. |
| 4 | Nguyễn Thanh Tùng | Developer, Tester | * Research on; * Design user interfaces; * Work on detailed designs; * Implement; * Perform unit testing, system testing, and integration test. |
| 5 | Nguyễn Tấn Đức | Developer, Tester | * Research on; * Design user interfaces; * Work on detailed designs; * Implement; * Perform unit testing, system testing, and integration test. |

### Tools and Techniques

The tools that will be used to develop the system include:

* *Developing tools:* Microsoft Visual Studio 2012; Tortoise SVN 1.8.4; Microsoft SQL Server 2008 RC;
* *Modeling tools:* StarUML 5.0.2.1570;
* *Document tools:* Microsoft Office 2010.

## Project management plan



### Tasks

Below are all the major tasks that need to be performed sequentially during the development of the system.

#### Task 1: Initiating

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| ***Task name*** | Initiating |
| ***Descriptions*** | Perform research/survey on some delivery service providers and pricing model; decide upon the technology that will be used to develop the system. |
| ***Deliverables*** | Report 1 – Project Introduction |
| ***Resources needed*** | All team members; 6 days |
| ***Dependencies and constraints*** | N/A |
| ***Risks*** | Performing survey on the delivery service providers can be difficult because of their business; the chosen technology is new to some members. |

#### Task 2: Planning

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| --- | --- |
| ***Task name*** | Planning |
| ***Descriptions*** | Create the project management plan; break the system into modules and assign tasks to each member. |
| ***Deliverables*** | Report 2 – Software Project Management Plan |
| ***Resources needed*** | All team members; 6 days |
| ***Dependencies and constraints*** | Task 1 has finished |
| ***Risks*** | Team leader has no experience in managing software projects; all members are still not acquainted with the new technology. |

#### Task 3: Specifying requirements

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| ***Task name*** | Specifying requirements |
| ***Descriptions*** | Discuss and agree upon the software requirements, what is to be developed and what is not; generate detailed descriptions of all the functions to be developed. |
| ***Deliverables*** | Report 3 – Software Requirement Specification |
| ***Resources needed*** | All team members; 15 days |
| ***Dependencies and constraints*** | Task 2 has finished |
| ***Risks*** | Many aspects of the problem are still unclear to team members; has no experience of working in a delivery service management project. |

#### Task 4: Designing database

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| ***Task name*** | Designing database |
| ***Descriptions*** | Design the database based on the requirements collected, through three major steps: Conceptual, Logical, and Physical Design |
| ***Deliverables*** | ERD and the physical database with sample data |
| ***Resources needed*** | All team members; 3 days |
| ***Dependencies and constraints*** | Task 3 has finished |
| ***Risks*** | Some of the requirements specified are not clear and cannot be translated into corresponding entities; little experience in organizing data. |

#### Task 5: Creating Software Design Description

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| ***Task name*** | Creating Software Design Description |
| ***Descriptions*** | Agree upon the system architecture; work on the detailed design of each module; decide which techniques are appropriate to which modules; design the user interfaces for users to interact with. |
| ***Deliverables*** | Report 4 – Software Design Description |
| ***Resources needed*** | All team members; 12 days |
| ***Dependencies and constraints*** | Task 4 has finished |
| ***Risks*** | Some functions are difficult to find appropriate methods to implement; initial development environment setup is also difficult. |

#### Task 6: Implementing

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| ***Task name*** | Implementing |
| ***Descriptions*** | Each team member implement all the functions that he or she was assigned and regularly check in the code to the Tortoise SVN; regularly validate that the implementation is consistent with the system and detailed designs. |
| ***Deliverables*** | The implemented website |
| ***Resources needed*** | All team members; 24 days |
| ***Dependencies and constraints*** | Task 5 has finished |
| ***Risks*** | Some design documents contain errors; implementation is not always consistent with the system and detailed designs. |

#### Task 7: Performing Testing

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| ***Task name*** | Performing Unit Testing |
| ***Descriptions*** | Create and perform appropriate test cases for all main functions; record the test results for later reference; fix all the bugs found during the testing sessions. |
| ***Deliverables*** | Report 5 – Software Test Documentation |
| ***Resources needed*** | All team members; 12 days |
| ***Dependencies and constraints*** | Task 6 has finished |
| ***Risks*** | Lack of test cases for some non-critical functions; not enough time to intensively test all the functions. |

#### Task 8: Writing User’s Manual

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| ***Task name*** | Writing User’s Manual |
| ***Descriptions*** | Writing a user’s manual to instruct the users, including guest, users, staffs, and system administrators, how to use the system. |
| ***Deliverables*** | Report 6 – User’s Manual |
| ***Resources needed*** | All team members; 5 days |
| ***Dependencies and constraints*** | Task 7 has finished |
| ***Risks*** | Some of the functions are not consistent with the user requirements, causing the user’s manual to be inconsistent with the user requirements. |

#### Task 9: Deploying the Website

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| ***Task name*** | Deploying the Website |
| ***Descriptions*** | Perform acceptance testing and deploy the website to a host on the Internet |
| ***Deliverables*** | The complete website |
| ***Resources needed*** | All team members; all days left |
| ***Dependencies and constraints*** | Task 8 has finished |
| ***Risks*** | Little experience of deploying a website to a real host |

#### Task 10: Finalizing and Closing

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| ***Task name*** | Finalizing and Closing |
| ***Descriptions*** | Finalize all related documents and prepare for presentation |
| ***Deliverables*** | The complete website and related documents, presentation |
| ***Resources needed*** | All team members; 4 days |
| ***Dependencies and constraints*** | Task 9 has finished |

### Task sheet

Refer to the next page for the detailed task sheet of the project plan.

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| --- | --- | --- | --- | --- | --- |
| Task Name | Length | Start | Finish | Predecessor | Resources |
| 1. Initiating | **6 days** | **Mon 06/01/14** | **Sat 11/01/14** |  |  |
| * 1. Identify key stakeholders | 1 day | Mon 06/01/14 | Mon 06/01/14 |  | DucNT,LongDB,LuLP,TungNT |
| * 1. Research & discuss about business and technology | 2 days | Tue 07/01/14 | Wed 08/01/14 | 1.1 | DucNT,LongDB,LuLP,TungNT |
| * 1. Research on similar existing system | 2 days | Thu 09/01/14 | Fri 10/01/14 |  | DucNT,LongDB,LuLP,TungNT |
| * 1. Hold project kick-off meeting | 0.5 days | Sat 11/01/14 | Sat 11/01/14 | 1.2, 1.3 | DucNT,LongDB,LuLP,TungNT |
| * 1. Report 1 – Project Introduction | 0.5 days | Sat 11/01/14 | Sat 11/01/14 | 1.4 | DucNT,LongDB,LuLP,TungNT |
| 1. Planning | **6 days** | **Mon 13/01/14** | **Mon 20/01/14** |  |  |
| * 1. Hold team planning meeting | 0.5 days | Mon 13/01/14 | Mon 13/01/14 | 1.5 | DucNT,LongDB,LuLP,TungNT |
| * 1. Prepare problem abstract, proposed solution, coding convention | 2 days | Mon 13/01/14 | Wed 15/01/14 | 2.1 | TungNT |
| * 1. Prepare major tasks for the whole team | 1.5 days | Wed 15/01/14 | Thu 16/01/14 | 2.1 | LuLP |
| * 1. Prepare management plan and determine task resources, durations, and dependencies | 2 days | Wed 15/01/14 | Thu 16/01/14 | 2.1 | LongDB |
| * 1. Configure Tortoise SVN | 0.5 days | Mon 20/01/14 | Mon 20/01/14 | 2.4 | LongDB |
| * 1. Report 2 – Project Management Plan | 1.5 days | Fri 17/01/14 | Mon 20/01/14 | 2.1-2.5 | DucNT,LongDB,LuLP,TungNT |
| 1. Specifying requirements | **15 days** | **Mon 20/01/14** | **Fri 07/02/14** |  |  |
| * 1. Identify users and users’ requirements | 3 days | Mon 20/01/14 | Thu 23/01/14 | 2.6 | LuLP,TungNT,DucNT |
| * 1. Define system requirements | 1 day | Thu 23/01/14 | Fri 24/01/14 | 3.1 | LongDB |
| * 1. Define non-functional requirements | 1 day | Thu 23/01/14 | Fri 24/01/14 | 3.1 | DucNT |
| * 1. Determine main flows | 3 days | Thu 23/01/14 | Tue 28/01/14 | 3.1 | LuLP,TungNT |
| * 1. Specify functional requirements for users/customers (requests making, searching and reviews posted requests) | 3 days | Tue 28/01/14 | Fri 31/01/14 |  | TungNT |
| * 1. Specify functional requirements for staffs (requests management, package arrangement and scheduling) | 3 days | Tue 28/01/14 | Fri 31/01/14 |  | LuLP |
| * 1. Specify functional requirements for administrators | 3 days | Tue 28/01/14 | Fri 31/01/14 |  | DucNT |
| * 1. Specify functional requirements for coaches, trips, stages, stations, routes management, pricing model, fee calculating | 3 days | Tue 28/01/14 | Fri 31/01/14 |  | LongDB |
| * 1. Specify functional requirements for statistics | 2 days | Fri 31/01/14 | Tue 04/02/14 |  | TungNT |
| * 1. Report 3 – Software Requirement Specification | 2 days | Wed 05/02/14 | Fri 07/02/14 | 3.1-3.9 | LongDB |
| 1. Designing database | **3 days** | **Fri 07/02/14** | **Tue 11/02/14** |  |  |
| * 1. Discuss on conceptual data model | 0.5 days | Fri 07/02/14 | Fri 07/02/14 | 3.11 | DucNT,LuLP |
| * 1. Creating ERD | 0.5 days | Fri 07/02/14 | Fri 07/02/14 | 4.1 | LongDB,TungNT |
| * 1. Validate ERD against software requirements | 1 day | Mon 10/02/14 | Mon 10/02/14 | 4.2 | DucNT,LongDB,LuLP,TungNT |
| * 1. Create logical model and physical database | 1 day | Tue 11/02/14 | Tue 11/02/14 | 4.3 | DucNT,LongDB,LuLP,TungNT |
| 1. Creating Software Design Description | **12 days** | **Wed 12/02/14** | **Thu 27/02/14** |  |  |
| * 1. Discuss on system architecture | 0.5 days | Wed 12/02/14 | Wed 12/02/14 | 3.11 | DucNT,LuLP,TungNT |
| * 1. Configure development environment | 0.5 days | Wed 12/02/14 | Wed 12/02/14 |  | LongDB |
| * 1. Design the master page | 1.5 days | Wed 12/02/14 | Thu 13/02/14 | 3.11 | LongDB |
| * 1. Design the master customer layout | 2.5 days | Wed 12/02/14 | Fri 14/02/14 | 3.11 | TungNT |
| * 1. Design the master staff layout | 2.5 days | Wed 12/02/14 | Fri 14/02/14 |  | LuLP |
| * 1. Design the master admin layout | 1.5 days | Wed 12/02/14 | Thu 13/02/14 |  | DucNT |
| * 1. Design pages for log in, log out, register of customer | 1 day | Fri 14/02/14 | Fri 14/02/14 |  | DucNT |
| * 1. Design pages for posting new request, edit request, view request | 2 days | Mon 17/02/14 | Tue 18/02/14 |  | LuLP |
| * 1. Design pages for customer to view and edit profile | 1.5 days | Mon 17/02/14 | Tue 18/02/14 |  | DucNT |
| * 1. Design page for admin manage fee, stage, route, staff. | 2.5 days | Mon 17/02/14 | Wed 19/02/14 |  | TungNT,LongDB |
| * 1. Design page for staff manage trip, request and invoice. | 2.5 days | Wed 19/02/14 | Fri 21/02/14 |  | LongDB,TungNT |
| * 1. Design page for staff statistic request and trip information. | 1.5 days | Tue 18/02/14 | Wed 19/02/14 |  | DucNT |
| * 1. Design page for staff schedule the package delivery time. | 1 day | Wed 19/02/14 | Wed 19/02/14 |  | LuLP |
| * 1. Design layout for user rate and post comment of routes | 1 day | Mon 24/02/14 | Mon 24/02/14 |  | TungNT |
| * 1. Design page for tracking the package | 1 day | Mon 24/02/14 | Mon 24/02/14 |  | LongDB |
| * 1. Design page for admin manage comment, rating | 1 day | Thu 20/02/14 | Thu 20/02/14 |  | LuLP |
| * 1. Design page for user statistic their request information | 0.5 days | Thu 20/02/14 | Thu 20/02/14 |  | DucNT |
| * 1. Create main sequence diagrams of view, search, edit and delete request | 1.5 days | Thu 20/02/14 | Fri 21/02/14 |  | DucNT |
| * 1. Create main sequence diagrams of manage comment, rating, fee, stage, route, and staff | 1.5 days | Mon 24/02/14 | Tue 25/02/14 |  | DucNT,LuLP |
| * 1. Create main sequence diagrams of posting and rating a route | 0.5 days | Tue 25/02/14 | Tue 25/02/14 |  | DucNT |
| * 1. Create main sequence diagrams of assigning package, edit status of request and manage time (departure/arrival) of coach. | 1 day | Tue 25/02/14 | Tue 25/02/14 |  | TungNT |
| * 1. Draw entity class diagram | 0.5 days | Tue 25/02/14 | Tue 25/02/14 |  | LongDB |
| * 1. Draw model class diagram | 0.5 days | Tue 25/02/14 | Tue 25/02/14 |  | LongDB |
| * 1. Compose physical database description | 1 day | Wed 26/02/14 | Wed 26/02/14 |  | DucNT,LongDB,LuLP,TungNT |
| * 1. Report 4 – Software Design Description | 1 day | Thu 27/02/14 | Thu 27/02/14 |  | DucNT,LongDB,LuLP,TungNT |
| 1. Implementing | **24 days** | **Fri 28/02/14** | **Wed 02/04/14** |  |  |
| * 1. Log in, log out, register | 1 day | Fri 28/02/14 | Fri 28/02/14 | 5.5 | DucNT |
| * 1. Search and view routes | 1 day | Fri 28/02/14 | Fri 28/02/14 | 5.6 | LongDB |
| * 1. Post and view request | 1.5 days | Fri 28/02/14 | Mon 03/03/14 | 5.6 | TungNT |
| * 1. Search, edit, delete request | 1.5 days | Mon 03/03/14 | Tue 04/03/14 | 5.7 | TungNT |
| * 1. Rating for route | 1 day | Fri 28/02/14 | Fri 28/02/14 | 5.7 | LuLP |
| * 1. Comment for route | 1 day | Mon 03/03/14 | Mon 03/03/14 | 5.3 | LuLP |
| * 1. Tracking package | 3 days | Mon 03/03/14 | Wed 05/03/14 | 5.3 | LongDB |
| * 1. Manage all coach and relative information | 4 days | Mon 03/03/14 | Thu 06/03/14 | 5.8 | DucNT |
| * 1. Manage all user and relative information | 4 days | Wed 05/03/14 | Mon 10/03/14 | 5.9 | TungNT |
| * 1. Manage all rating of user | 2 days | Tue 04/03/14 | Wed 05/03/14 | 5.11 | LuLP |
| * 1. Manage all comment user | 2 days | Thu 06/03/14 | Fri 07/03/14 | 5.10 | LuLP |
| * 1. Manage fee of service | 2 days | Mon 10/03/14 | Tue 11/03/14 | 5.10 | DucNT |
| * 1. Statistics of users | 2 days | Thu 06/03/14 | Fri 07/03/14 |  | LongDB |
| * 1. Statistics of staffs | 2 days | Mon 10/03/14 | Tue 11/03/14 |  | LuLP |
| * 1. Statistics of administrators | 2 days | Mon 10/03/14 | Tue 11/03/14 |  | LongDB |
| * 1. Manage all trips | 3 days | Tue 11/03/14 | Thu 13/03/14 |  | TungNT |
| * 1. Manage package | 2 days | Wed 12/03/14 | Thu 13/03/14 |  | DucNT |
| * 1. Scheduling for package | 3 days | Wed 12/03/14 | Fri 14/03/14 |  | LuLP |
| * 1. Integrate all implemented functions | 13 days | Mon 17/03/14 | Wed 02/04/14 |  | DucNT,LongDB,LuLP,TungNT |
| 1. Performing Testing | **12 days** | **Thu 03/04/14** | **Fri 18/04/14** |  |  |
| * 1. Write appropriate unit test cases for the functions each member implemented | 3 days | Thu 03/04/14 | Mon 07/04/14 | 6.14 | DucNT,LongDB,LuLP,TungNT |
| * 1. Perform unit testing and record the results | 2 days | Tue 08/04/14 | Wed 09/04/14 | 7.1 | DucNT,LongDB,LuLP,TungNT |
| * 1. Fix the bugs discovered during unit testing | 3 days | Thu 10/04/14 | Mon 14/04/14 | 7.2 | DucNT,LongDB,LuLP,TungNT |
| * 1. Complete code review checklists | 1 day | Tue 15/04/14 | Tue 15/04/14 | 7.3 | DucNT,LongDB,LuLP,TungNT |
| * 1. Report 5 – Software Test Documentation | 1 day | Wed 16/04/14 | Wed 16/04/14 | 7.4 | DucNT,LongDB,LuLP,TungNT |
| * 1. Perform integration test and fix the bugs discovered | 2 days | Thu 17/04/14 | Fri 18/04/14 | 7.5 | DucNT,LongDB,LuLP,TungNT |
| 1. Writing Users’ Manual | **5 days** | **Mon 21/04/14** | **Fri 25/04/14** |  |  |
| * 1. Write users’ manual for all the functions that each member implemented | 3.5 days | Mon 21/04/14 | Thu 24/04/14 | 7.5 | DucNT,LongDB,LuLP,TungNT |
| * 1. Check if the users’ manual and software requirements are consistent | 1.5 days | Thu 24/04/14 | Fri 25/04/14 | 8.1 | DucNT,LongDB,LuLP,TungNT |
| 1. Deploying the Website | **6 days** | **Sat 26/04/14** | **Fri 02/05/14** |  |  |
| * 1. Add more data to the database | 2 days | Sat 26/04/14 | Mon 28/04/14 |  | DucNT,LuLP,TungNT |
| * 1. Deploy the website the a real host | 0.5 days | Tue 29/04/14 | Tue 29/04/14 | 7.6 | LongDB |
| * 1. Test the website on the real host | 3.5 days | Tue 29/04/14 | Fri 02/05/14 |  | DucNT,LongDB,LuLP,TungNT |
| 1. Finalizing and closing | **4 days** | **Mon 05/05/14** | **Thu 08/05/14** |  |  |
| * 1. Prepare final project report | 3 days | Mon 05/05/14 | Wed 07/05/14 |  | TungNT,LongDB |
| * 1. Prepare final project presentation | 2 days | Mon 05/05/14 | Tue 06/05/14 |  | DucNT,LuLP |
| * 1. Final team meeting | 1 day | Thu 08/05/14 | Thu 08/05/14 |  | DucNT,LongDB,LuLP,TungNT |
| * 1. Close the project | 0 days | Thu 08/05/14 | Thu 08/05/14 |  | DucNT,LongDB,LuLP,TungNT |

## Coding Convention

The implantation of the system must strictly follow all the standard coding and naming convention specified by Microsoft, which can be found at <http://msdn.microsoft.com/en-us/library/ff926074.aspx>.