** MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

Student Finance Management

|  |  |
| --- | --- |
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| **Capstone Project code** | SFM |

Ho Chi Minh City, 07/09/2015

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***ACKNOWLEDGEMENTS***

We wish to thank various people for their contribution to this project: Our teachers for their advice and participation in the final review, our friends for their valuable technical support.

Special thanks should be given to Mr.Kiều Trọng Khánh, our research supervisor for his professional guidance and the useful, constructive recommendations throughout the course of this project.

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# Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| 1. Learning outcome | Student study result |

# Report No.2 Software Project Management Plan

## Problem Definition

### Name of this Capstone Project

* Official name : Student Finance Management
* Vietnamese name : Quản Lý Tài Chính Của Sinh Viên
* Abbreviation : SFM

### Problem Abstract

Currently at FPT University, the record and the financial information of each student are stored separately in different Excel spreadsheets. Therefore, the process of information retrieval of each student record or listing registered students in each trimester is extremely complicated. Besides, the school’s staff faces difficulties in managing student records and notifying required tuition fees to each specific student.

In order to reduce the cost of those processes, SFM system was created to simplify the process of organizing records. The system will support the information retrieval of student records, automatically sends notification mail to students, and optimizes the monitoring and the financial management procedure.

### Project Overview

#### Current Situation

FPT University currently manages student records manually through Excel spreadsheets. However:

* Spreadsheets only support analyzing and storing data.
* Since it is difficult to retrieve and email to each specific student their record and tuition fees information for the next trimester, the school only sends students notification of deadline for registering to study in the next trimester.

The system will solve those problems by supporting the school’s staff to:

* Import all data from Excel spreadsheets to the system’s database
* Retrieve the information of a specific student easily
* Calculate plan for each student.
* Automatically email each student notification for their specific situation (study record, required tuition fees)

The system also let students keep track on their records

#### The Proposed System

While handling the requirements of the system we found out some difficulties as follows:

* Import many excel files without closely associated. Validate data processing facing many difficulties.
* Processing and storage data related to the school's financial facing many difficulties due to lack of understanding of the financial regulations of the university.
* How to solve the prerequisite courses or subjects that the school canceled

In order to solve these problems, our group has agreed to make the corresponding solutions:

* Using the open source Apache POI to process input data
* Thanks to the support from the University's finance department
* Thanks to the Education department of the university to provide information of courses and specific relationship of each subject

##### System

The Student Finance Management system is intended to help managing student financial records and data. It requires web browser and Internet connection to operate. System can match existing records with newly imported data, calculate financial plan for students, notify and send email to students according to the plan. The system will have following functions:

* **For admin:**
* Admins can manage accounts, manage and configure the system.
* **For students:**
* Students can request to view their own records and financial status.
* **For staff:**
* Staff can import excel file or manually enter new student record data.
* **For manager:**
* Managers can use the system to search information based on student id, name and payment status.

#### Boundaries of the System

* The system can be used by every people with a laptop/computer.
* The system is **not intended** for managing these aspects:
* Managing learning outcome (1) detail.
* Managing exam’s information.
* Managing student’s schedule.
* The language of the system is English.
* The complete product includes:
* The website, for staff and user.
* The entire process document involved.

#### Future plans

The current system can only be applied to FPT University. We design the system can be expanded and applied to many universities across our country.

#### Development Environment

##### Hardware requirements

**For server**

|  |  |  |
| --- | --- | --- |
| Windows | Minimum Requirements | Recommended |
| Internet Connection | Cable, Wifi (4 Mbps) | Cable, Wifi (6 Mbps) |
| Operating System | Window Server 2008 | Window Server 2008 |
| Computer Processor | Intel® Xeon ® 1.4GHz | Intel(R) Core(TM) i5-2430M CPU @ 2.40GHz |
| Computer Memory | 1GB RAM | 4GB or more |

Table 1: Hardware Requirement for Server

##### Software requirements

|  |  |  |
| --- | --- | --- |
| Software | Name/ Version | Description |
| Environment | Java EE 7 | Specification for developing web application |
| IDE | Intellij IDEA 14.1 | Programming tools |
| DBMS | MySQL 5.6 | Used to create & manage the database for system |
| Source control | TortoiseSVN 1.8.11 | Used for source control |
| Web browser | Chrome 42 or above | Testing browser |

## Project organization

### Software Process Model

This project is developed under waterfall model. We applied customized waterfall model to capable with current situation in our team. We choose this model because following reasons:

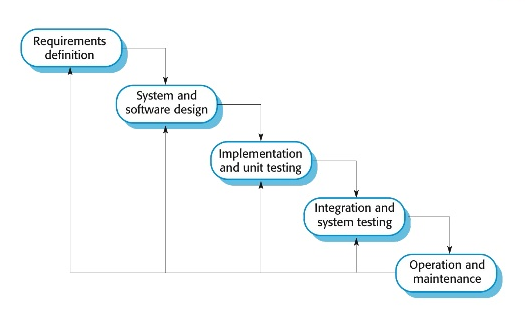
* Based researches and clarify FPT Student Finance Management, the requirements of this project are stable, clear, fixed and well understood by all team members.
* This project use Java technology
* FPT University has provided all necessary information for capstone project to students

Figure 1: Waterfall model

Reference: Page 30, chapter 2, Software process model, SOFTWARE ENGINEERING 9th Edition, by Ian Sommerville.

### 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** | Tran Khac Vy | Team Leader, BA, DEV, Tester | * Managing process * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **3** | Ho Doan Trung | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **4** | Le Tuan Anh | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **5** | Nguyen Khoa Anh Tuan | Team Member, BA, DEV, Tester | * Designing database * Clarifying requirements * Prepare documents * GUI Design * Create test plan * Coding * Testing |
| **5** | Tran Quan Phuc | 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

|  |  |
| --- | --- |
| Tool/ Technique | Name/ Version |
| Frontend | HTML, CSS, JavaScript, jQuery, Bootstrap |
| Backend | Spring framework, Servlet, Thymeleaf, Hibernate framework |

## Project Management Plan

### Software Development Life Cycle

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Phase** | **Description** | **Deliverables** | **Resource needed** | **Dependencies and Constrains** | **Risk** |
| Requirements Definition | * Identify and clarify system requirements. | * Report No.1 Introduction. | 20 man-days | * N/A | * Missing requirement. * Project’s scope can be unclear. Lack of member share and understand. |
| System and Software Design | * Identify hardware and software requirements. * Decide software architect and clarify software detail design. * Design database. | * Report No.2 Software Project Management Plan * Report No. 3 Software Requirement Specification * Report No. 4 Software Design Description. | 60 man-days | * Depend on Requirements Definition. | * Misunderstood or unclear system’s requirement. * Lack of practical experience leading to unreasonable design. |
| Implementation and Unit Testing | * Implements all functions of system. * Create test plan. * Perform Unit testing. | * Software package. | 120 man-days | * Base on Software Requirement Specification and Software Design Description. * Coding try to follow coding convention. | * Member does not performs unit test. * Lack of practical experience. |
| Integration and System Testing | * Perform integration test and system test. | * Report No. 5 System Implementation & Test | 35 man-days | * Implementation and Unit Testing are finished. | * Lack of testing experience leading to lack of test cases. * Not enough time for performing test. |
| Operation and Maintenance | * Deploy the system * Create the user’s manuals. * Do routine maintenance activities. | * Report No.6 Software User’s Manual | 15 man-days | * Integration and System Testing are finished. | * User’s manual may be difficult for user to understand and confuse. |

### Phase Detail

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Task** | **Description** | **Author** |
| Requirements Definition | * Identify and clarify system requirements. | * Research current systems to collect requirements. * Define main and needed functions the system must include. | Tran Khac Vy  Ho Doan Trung  Le Tuan Anh  Vu Nhat Anh Khoa  Tran Quang Phuc |
| System and Software Design | * Decide software architect and clarify software detail design. * Decide software architect and clarify software detail design. * Design database. | * Find out the suitable hardware and software for the system, as well as its minimum and recommended requirements. * Define the major software components and interfaces. * Draw core flow diagram, use case diagram, prototype … * Group meeting to review and modify. * Design database for the system. | Tran Khac Vy  Ho Doan Trung  Le Tuan Anh  Vu Nhat Anh Khoa  Tran Quang Phuc |
| Implementation and Unit Testing | * Implements all functions of system. * Create test plan. * Perform Unit testing. | * Coding all the components. * Planning for testing. * Write Unit test cases. * Implement Unit tests. | Tran Khac Vy  Ho Doan Trung  Le Tuan Anh  Vu Nhat Anh Khoa  Tran Quang Phuc |
| Integration and System Testing | * Perform integration test and system test. | * Test groups of modules and test whole the system. | Tran Khac Vy  Ho Doan Trung  Le Tuan Anh  Vu Nhat Anh Khoa  Tran Quang Phuc |
| Operation and Maintenance | * Deploy the system * Create the user’s manuals. * Do routine maintenance activities. | * Deploy the system in client environment. * Create a guideline to instruct users using system. * Do routine maintenance activities for client system. | Tran Khac Vy  Ho Doan Trung  Le Tuan Anh  Vu Nhat Anh Khoa  Tran Quang Phuc |

### All Meeting Minutes

Refer to Meeting Minutes folder.

[Meeting Minutes Folder](https://github.com/khacvy/SFM_Project/tree/master/document/Meeting)

## Coding Convention

Java: Using to develop Website.

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>