** MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Document

Student Finance Management

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

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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 technolgy
* Tất cả các thông tin cần thiết cho project đều được nhà trường cung cấp đầy đủ.

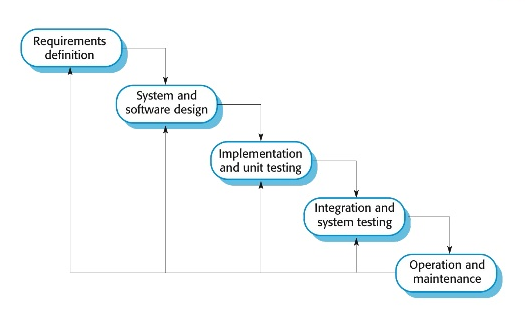


Figure 1: Waterfall model

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

### Task

#### Requirement Analysis

* Description:
  + Collect requirement from accounting department
  + Identify and clarify requirement for system in general
* Deliverable: Project introduction
* Resources Needed: 5 people for 7 days.
* Dependencies and Constraints: N/A
* Risks: Missing requirement, unclear scope of project or lack of member share of understanding

#### Create Software Project Management Plan

* Description: Create Software Project Plan, create task list and assign task to members.
* Deliverables : Finish Software Project Management Plan
* Resources Needed : 5 people for 7 days
* Dependencies and Constraints : finish Project introduction
* Risks : Plan is impractical

#### Create Software Requirements Specifications

* Description: Create Software Requirement Specification based on collected requirements.
* Deliverables : Finish Software Requirements Specifications
* Resources Needed : 5 people for 7 days
* Dependencies and Constraints : Finish Project Management Plan and understand requirements clearly
* Risks: Misunderstanding requirements, lack of requirements or changing requirements in future, underestimate requirements.
* Solutions: discuss in group and review carefully, group and accounting department in pairs.

#### Design

* Description: Standardize and extend the current Database, create Software Design Description and create test cases.
* Deliverable: Finish Software Design Description
* Resources Needed: 4 people for 14 days.
* Dependencies and Constraints: Software Requirement Specifications is completed.
* Risks: Data redundancy, duplication of data.
* Solutions: Do research to understand more about the selected architecture.

#### Coding

* Description: Implement the system follow Software Design Description.
* Deliverable: Finish Source Code
* Resources Needed: 4 people for 21 days.
* Dependencies and Constraints: Complete Software Design Description.
* Risks: Team members may not understand new technologies through. Layout design may take a lot of time.
* Solutions: Members should be trained themselves and support each other.

#### Testing

* Description: Perform testing the system.
* Deliverable: Test report and source code
* Resources Needed: 4 people for 4 days
* Dependencies and Constraints: finish coding
* Risks: Testing runs behind schedule.
* Solutions: Must have reasonable testing plan. Test cases should be clear and follow work flow.

#### Deployment

* Description: Deploy the system into LAN connection, create user manual and installation.
* Deliverables : Running website, user manual and installation guide
* Resources Needed : 4 people for 4 days
* Dependencies and Constraints : Finish testing and fatal errors fixed
* Risks : the software is not compatible with the system it was deployed in
* Solutions : The software should be tested on some systems have similar technical details

#### Training

* Description: Help user familiar with SFM systems
* Risks: Template data file is not appropriate to standard template in system
* Solutions: close communicate with user, good support in initial time

### Task sheet: Assignments and Timetable

#### Phase 1: Requirement Analysis

|  |  |  |
| --- | --- | --- |
| Task | Description | Author |
| 1. Collect requirements | * Find the current method to manage   student‘s finance status in FPT University, their strengths and weakness.   * Collect requirements from accounting department | All team members |
| 1. Identify and clarify main function | * Define which main functions system should provide. | All team members |

#### Phase 2: Create Software Project Management Plan

|  |  |  |
| --- | --- | --- |
| Task | Description | Author |
| 1. Create Software Project Management Plan | * Create Software Project Management Plan | VyTK |
| 1. Create task list | * Create task list and assign to team members | VyTK |
| 1. Verify task list | * Verify task list | All team members |

### All Meeting Minutes

Refer to Meeting Minutes folder.

## 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>