CS3343 Software Engineering Practice

2022/23 Semester A

Group Project for Group 13

XBOX

Box Storage Management System

Project Plan

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1. Summary of the Project

1.1 Project Description

As a multicultural education city, Hong Kong colleges have many international students worldwide. And when a long vacation comes, the students may return to their hometown. However, their stuff which is heavy to carry, might be left in Hong Kong for convenience. And as the college does not provide storage services. They use the storage service provided by the student union, which is inconvenient and causes mass for the staff to manage. In this case, we come out with the X-BOX system, a Box storage management system, to help them improve efficiency and quality.

1.2 Stakeholders

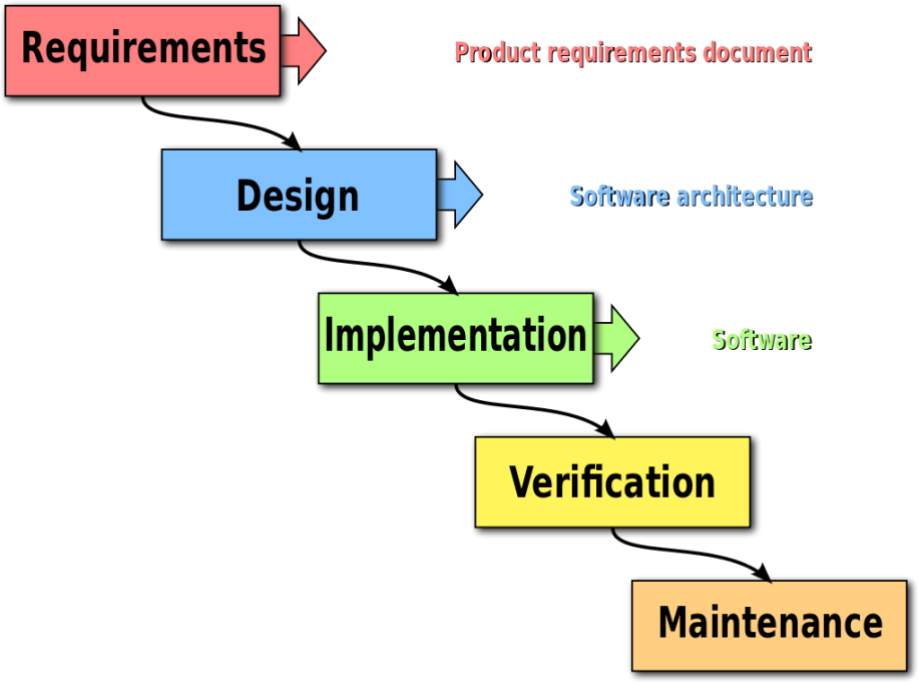
Stakeholders	**Description**
Project Team Members	• Develop the system • Improve the system
Storing company cooperation	• Provide major problem comes across in storing phase and provide more information during development phase.
Maintenance Personnel	• Maintain the system • Update the information (e.g. when there are new storing items)
Users	• Provide their user information • Use this kind of system

1.3 Objectives of the Project

Our project mainly aims to minimize the information gap between the end user and the storing company, which would automatically update and provide a convenient interface for the user to locate the stored information. It can better improve storing efficiency and integrate the economic.

2. Software Development Methodology

Waterfall development model is adopted in our project. It is a traditional and commonly used sequential development approach.



In our project, we will follow the development steps in the above picture. First, we collect the information to analyze the requirements. Then, design the outline of the system according to the information. After that, we will build the main body of the code to realize the required functions. We will execute testing on the program to ensure the code runs without bugs. Finally, maintenance is needed to keep the system working smoothly, in the meantime keeping the timeliness of information.

2.1 Project Team Organization

Name	Position	Work Description
SHA Xingchen	Program Developer, Program Tester	Algorithm Core & Testing
ZHOU Yu	Program Developer, Program Tester	Database& Testing
ZHENG Shangkun	Assistant Program Manager Program Developer	Algorithm Core& Database
ZHANG Tiantian	Program Designer, Program Developer	Algorithm Design Principle & Pattern
LI Xiaoyang	Program Manager Program Developer	Data Integration & I/O Module Algorithm Core & Testing
DONG Jiajie	Assistant Program Manager Interface Designer	UI Design & Programming

One thing that is worthy to note is that we arrange our group into two teams to do parallel development: the algorithm team (ZHENG Shangkun, Li Xiaoyang, Zhang Tiantian, Zhou Yu) is responsible for the structure and functions of the algorithm, and the UI team (Member: Dong Jiajie, SHA Xingchen) is in charge of UI-aspect work.

2.2 Development Tools

2.2.1 Development IDE

Software:

- IntelliJ IDEA 2021.2.2 https://www.jetbrains.com/idea/
- Eclipse IDE for Java Developers - 2021-09 https://www.eclipse.org/downloads/

2.2.2 Development Platform

- Windows 10 with Java Development Kit (JDK) v16.0.2
- macOS Monterey 12.0.1 (x86_64)

2.2.3 Test Cases

- JUnit v5.7.0

2.2.4 Coverage Checking

- IntelliJ IDEA built-in coverage runner

2.2.5 Testing Platform

- Windows 10
- macOS Monterey 12.0.1 (x86_64)

2.2.6 Documentation

- Visual Paradigm 16.2 - Use Case Diagram, Class Diagram and Sequence Diagram
- Bugzilla - Bug Report
- Microsoft Word - Report
- Microsoft Powerpoint - Presentation

2.2.7 Project Management

- TeamGantt for Visual Paradigm- Project Scheduling
- GitHub - Project Collaboration
- Fork - Git Client for Project File Management
- Google Drive - Project Documentation

2.2.8 Version Control

Github is a good platform for project file sharing and progress synchronization. Project members canfetch the progress of the team in time and make modifications. When pushing the file back, all the modifications will be recorded. If there are conflicts, members can handle it by judging the difference between the conflicted files to ensure the correctness of the overall project. Our members will work under respective branches, and make pull requests to merge with the main branch so as to enable independent development without interrupting the main branch, thus improving the efficiency.

We also exploit Fork to better arrange the local files and Github files. With it we can intuitively see the difference between the newest version (files to be committed) and the older version. It also allows rollback of the version in case that some pull requests are handled by mistake.

2.2.9 Reporting

We created a shared folder on Google Drive to edit the documents in a parallel way. Members can also check the content in real-time. It will improve the speed and accuracy of writing.

3. Work Breakdown Structure

We adopt process-type WBS to generalize and define the overall scope of work of the project. Because the graphical tree (organizational chart) is not easy to expand in the document, we use the outline (indented format) to represent our WBS. We use the top-down technique to generate the WBS. That is, outline the overall phase first, then break the phases down into smaller details.

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  1.1 Position Assignment
  1.2 Work Assignment
2.0 Requirements Gathering
  2.1 Information Searching
  2.2 Information Integration
3.0 Analysis and Design
  3.1 Requirement Analysis
  3.2 Algorithm Selection
  3.3 Project Structure Outline
4.0 Software Development
  4.1 Overall Structure Development
    4.1.1 System Structure Development
    4.1.2 Interface Reservation
  4.2 File I/O Development
    4.2.1 Data Formatting
    4.2.2 I/O Module Development
    4.2.3 Interface to Overall Structure
  4.3 UI Development
    4.3.1 UI Development Method Searching
    4.3.2 UI Programming/Drawing
    4.3.3 Interface to Overall Structure
5.0 Testing
    5.1 Unit Testing
    5.2 Integration Testing
    5.3 System Testing

4. Project Schedule

Title	Start Time	End Time
Project Management	09/01/2022	09/08/2022
Position Assignment	09/01/2022	09/03/2022
Work Assignment	09/03/2022	09/08/2022
Requirements Gathering	09/01/2022	09/08/2022
Information Searching	09/01/2022	09/04/2022
Information Integration	09/04/2022	09/08/2022
Analysis and Design	09/10/2022	09/17/2022
Requirement Analysis	09/10/2022	09/14/2022
Algorithm Selection	09/14/2022	09/17/2022
Project Structure Outline	09/15/2022	09/17/2022
Software Development	09/17/2022	11/04/2022
Overall Structure Development	09/17/2022	10/25/2022
System Structure Developme	09/17/2022	10/24/2022
Interface Reservation	10/24/2022	10/25/2022
UI development	09/28/2022	11/03/2022
UI development Method Sea	09/28/2022	10/05/2022
UI Programming/Drawing	10/05/2022	10/29/2022
Interface to Overall Structure	10/29/2022	11/03/2022
Database Development	09/17/2022	11/04/2022
Database programming	09/17/2022	09/28/2022
Database Module Developm	09/28/2022	11/04/2022
Coverage and report	11/03/2022	11/04/2022
Testing	10/24/2022	11/04/2022
UnitTesting	10/24/2022	10/30/2022
Integration Testing	10/30/2022	11/02/2022
System Testing	11/03/2022	11/04/2022