HANOI UNIVERSITY

Faculty of Information Technology

SOFTWARE QUALITY ASSURANCE

SOFTWARE QUALITY ASSURANCE PLAN

Faculty:	**Information Technology**
Module name:	**Software Quality Assurance**
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Topic:	**Banking Management System**
Group:	
Members:	**Trương Quốc Đạt - 1801040061**
	Trần Thị Ngọc Ánh - 1801040017
	Vũ Ngọc Hà Minh - 1801040149
	An Thị Phương - 1801040169

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1. INTRODUCTION

1.1. Purpose & Scope

The purpose of this plan is to specify how Software Quality Assurance (SQA) will be performed throughout the Banking Management System project. This plan describes the SQA activities to be performed and designates a set of standardized techniques for performing those activities.
SQA will ensure that project tasks are performed in accordance with this plan and the Project plan.
The target users of this system are people who interested in transfer money online and the investor who interested in developing the application.

1.2. Overview

The Software Quality Assurance Plan is organized into the following sections:

- **Work products –** List and describes all software engineering work products.
- **Actions and task s -** Describes tasks, ensure that quality guidelines are being followed at any given of SDLC.
- **Tools and Methodologies –** Identifies the tools to be used for quality related activities, techniques for quality assurance, and methodologies or procedures to be adhered to when executing and evaluating project activities.
- **Configuration Management –** Define configuration items, describe the versioning scheme end used tools for version controls.
- **Records management -** Describe how documents are being and stored.
- **Roles and responsibilities –** Describe stakeholders, development team members and their roles, and assign specific tasks to each member.

2. WORK PRODUCTS

A work product is a general abstraction that represents something obtained from the software development process. This concept includes three types of work product: Artifacts and Deliverables.

- **Artifacts**: one of many kinds of tangible by-products produced during the development of software. This process includes requirements, analysis & design, and project management documents.
- **Deliverables**: tangible or intangible good or service produced as the result of a project that is intended to be delivered to a customer (either internal or external) upon completion of the project. This process includes requirements, analysis & design, implementation, verification & validation, deployment, presentation and project management documents.

2.1. Planning

The project plan of the web is built in a clear, easy-to-understand sequence, clearly showing each component and their association. In addition, it also helps the coder to develop the website quickly and logically.

2.2. Analysis

SQA plan requires elicitation, process modeling, functional modeling and data modeling.

2.3. Design

The design includes architecture, behavior modeling, UI design.

2.4. Implementation

The implementation includes source code, database, admin and user manuals.

2.5. Testing

The testing process includes test cases, test reports, product metrics.

2.6. Deployment

The system deployment method is online. When user enter the website, he/she will have to sign in (if he/she already had an account) or sign up (if he/she had none). After login, user can access to all the functions of the system like transfer money, view transaction logs, ….

2.7. Maintenance

The system is designed to automatically detect errors. These errors will be reported to the developer so that they can find a solution. The website will be up on the errors are fixed.

3. SQA ACTION AND TASKS

3.1. Audits

Audits are examinations of work products and related information to assess whether standard procedures are being followed.
Auditing is an extremely important job, related to many issues of the project. The person doing this task is required to be the SQA staff. Auditing must take place regularly and continuously to ensure success in any stage of SDLC. This is also aimed at ensuring the cost of the product does not exceed the limit.

3.2. Requirement review

The requirement documents are well-organized, fulfill the expected and unexpected from client's point of view.

3.3. Technical (Design) review

The designs are made using HTML, CSS, Bootstraps which gives the website a user-friendly interface and professional looks. Prototypes and mockups are built and edited in Figma. These steps assist the programmer in arranging components in a logical and efficient manner.

3.4. Code inspections

The code is clean and followed the global standard

3.5. Document inspections

Document is the description and report on the operation process and software testing. These documents must be truthful and accurate, in orders to quickly identify problems when errors occur in the system and have a quick way of handling them.

4. TOOLS AND METHODS FOR SQA

4.1. Tools

- Code is built and tested in Visual Studio Code.
- Diagram is built in Visual Diagram.
- Demo is developed in Visual Studio Code.
- Prototype and Mockup are built in Figma.
- The report is written in Document.
- Project Schedules will be maintained in Project Plan.
- Website deployed with Heroku.

4.2. Techniques

- Product metrics
- Quality attributes
- UI design principles

5. CONFIGURATION MANAGEMENT

5.1. Configuration items

The term **configuration item** (**CI**) refers to the fundamental structural unit of a configuration management system. Examples of CIs include individual requirements documents, software, models, and plans. The configuration-management system oversees the life of the CIs through a combination of processes and tools by implementing and enabling the fundamental elements of identification, change management, status accounting, and audits. This system aims to avoid the introduction of errors related to lack of testing as well as of incompatibilities with other CIs.

5.2. Versioning scheme

Modern computer software is often tracked using two different software versioning schemes - internal version number that may be incremented many times in a single day, such as a revision control number, and a *release version* that typically changes far less often, such as semantic versioning or a project code name.

5.3. Tools for version control

Version control (also known as **revision control**, **source control**, or **source code management**) is a class of systems responsible for managing changes to computer programs, documents, large web sites, or other collections of information. Version control is a component of software configuration management.
The tool used in the development of the project is Github, a code hosting platform for version control and collaboration.

6. ROLES AND RESPONSIBILITIES

6.1. Stakeholders

A person, group or company that is directly or indirectly involved in the project and who may affect or get affected by the outcome of the project.
There are two types of stakeholders: internal and external stakeholders.
Internal stakeholders:

- **Project Manager:**
  Responsible for managing the whole project. Project Manager is generally never involved in producing the end product but he/she controls, monitors and manages the activities involved in the production.
- **Project Team:**
  Performs the actual work of the project under the Project Manager including development, testing, etc.

External stakeholders:

- **Customer:**
  Specifies the requirements of the project and helps in the elicitation process of the requirement gathering phase. Customer is the one for whom the project is being developed.

6.2. Development team members and their roles

Members	**Parts in charge of**
Trương Quốc Đạt - 1801040061	Implementation, Deployment, Presentation
Trần Thị Ngọc Ánh - 1801040017	Requirements, Design, Manuals
Vũ Ngọc Hà Minh - 1801040149	Requirements, Analysis, Testing
An Thị Phương - 1801040169	Design, Requirements, Testing, Presentation

6.3. Tasks assignment for members

Trương Quốc Đạt: Source code, Database export, SQA plan, Activities report, Demo.
Trần Thị Ngọc Ánh: Use case diagrams, Written use case, Prototypes, Manuals, Project plan, UI design.
Vũ Ngọc Hà Minh: Activity diagram, Class diagram, Code inspection report, Test report, Slides.
An Thị Phương: Requirement description, Use case diagrams, Written use case, System architecture, UI design, Database design, Sequence diagram, Slides.