HANOI UNIVERSITY

Faculty of Information Technology

FIT329
SOFTWARE QUALITY ASSURANCE
ACTIVITIES REPORT

Faculty:	**Information Technology**
Module name:	**Software Quality Assurance**
Year:	**Spring 2020**
Topic:	**Banking Management System**
Group:	
Members:	**Trương Quốc Đạt - 1801040061**
	Trần Thị Ngọc Ánh - 1801040017
	Vũ Ngọc Hà Minh - 1801040149
	An Thị Phương - 1801040169

TABLE OF CONTENTS

ABSTRACT

Technological Revolution substantially changed our life. The need for utilities is increasing each year. Therefore, a System that helps Bank and customers in management will make it easier to bring those technology products to many people. Bank Management System is a solution for customers to transfer money, view their transaction logs, …. The goal of our project is to capture the business context of the system, collect and specify requirement for the system, analysis the requirements to provide an architectural design solution for the Bank Management System. The Bank Management System is designed to fulfil both functional and non-functional requirements. The results of our works consist of system documentations for these workflows: Requirements, Analysis & design, Implementation, Verification & validation, Project management, and a working website of the system.

GROUP 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

1. Requirements (An Thi Phuong, Tran Thi Ngoc Anh, Vu Ngoc Ha Minh)

Phuong, Anh, and Minh are responsible for making descriptions of functionalities and features of the Banking Management System. Phuong and Anh detailed the specification of a part of the system's functionality by describing the Requirements aspect of one or several use cases and other supporting software requirements, while Minh draw diagrams which define how the system works and each of the system’s capability.

Anh also created a prototype of the Banking Management System in Figma, fully functional and easy for other stakeholders to have assessment on the project’s design UI/UX, as well as all the features of the system are shown and interactable.

The table below describes detailed their activities as requirements specifier in the Requirements workflow:

Activity	**Description**	**Output**
Requirement description	- Describe the basic functionalities of the system. - Detailed scenario.	Software Description
Use case diagrams	- Graphic depiction of user interactions with that shows the relationship between the user and different use cases in which the user is involved.	Use case diagram
Written use cases	- Document containing detailed specifications for a use case. - Step-by-step description of what must occur in a successful use case	Use cases
Activity diagrams	- Show the conditional logic for the sequence of system activities needed to accomplish a business process.	Activity diagrams
ERDs	- Show all the relationships of all the entities in the system.	Usecase-ERD
Mockup & prototypes	- An incomplete version of the system	Figma

2. Analysis & Design (An Thi Phuong, Vu Ngoc Ha Minh)

As designer and analyst, Phuong and Minh is in charges of defines the responsibilities, operations, attributes, and relationships of several classes, and determines how they will be adjusted to the implementation environment of the Banking Management System. The table below describes detailed their activities as designers in the Analysis & Design workflow:

Activity	**Description**	**Output**
Software architecture	- Structure of the system - Focus on how the elements and components within a system interact with each other	Software architecture
UI design	- General description of interface design and demonstrate the process of interface design.	UI design
Database design	- A description of the persistent data storage	Database design
Class diagram	- Describe the structure of the system with their classes, attributes, operations, and their relationship among objects	Class diagram
Sequence diagram	- Shows object interactions arranged in time sequence. - It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.	Sequence diagram

3. Implementation (Truong Quoc Dat)

Dat have implemented a fully functional website to demonstrate the Banking Management System functionality using NodeJS, MongoDB, ExpressJS,… The prototype is provided a simple Graphical User Interface and have all the functions of the system specified in requirements definition such as sign-in, display computers, add computers, …

Account for testing prototype:

Username	**Password**	**Account Type**
quocdat	123456	Admin
phuonan	123654	User
ngocanh	321456	User
Minhvu	654321	User

4. Verification & validation (Vu Ngoc Ha Minh, An Thi Phuong, Truong Quoc Dat)

As a software testers, Minh and Phuong put all functionalities and features to the test. Their primary responsibility is to have the system works in a runnable and successful state. They have checked every conditions of the program, test all the test cases and do a code inspection to see if the application meets overall standard or not. Dat makes plan for the overall objectives of the SQA course, including defining terms and structure of the project, tools, role and responsibilities. The table below describes detailed their activities as a software tester in the Verification & validation workflow:

Activity	**Description**	**Output**
Code inspection	- Review for defects and room for improvement	Code inspection reports
Test	- Summary of all test activities and final test results - Evaluate the quality of the tested product and make a decision on the software release	Test reports
SQA plan	- Purpose of Banking Management System project	SQA plan

5. Deployment & project management (Truong Quoc Dat, Tran Thi Ngoc Anh)

Dat has put the Banking Management System online. Anh makes plan for the overall objectives of the project, including defining terms and structure of the project, tools, and responsibilities.

Activity	**Description**	**Output**
Deployment	- the process of making the application work on a target device	https://sqa-bank.herokuapp.com/
Project plan	- The plan of the Banking Management System project	Project plan
Activities report	- The works of the members of the project team	Activities report

6. Conclusion

Based on knowledge acquired from this course (SQA) and previous courses, we have designed a management system with requirement match real world business (Banking Management System). In our project, we have modeled business context for the system, capture and describe system requirement using both textual and UML notation. Moreover, we have designed the system using Model-View-Controller models as a foundation; therefore, improve robustness and reusability of system components. Also, a runnable prototype is built based on the requirement to demonstrate system functionality. Nevertheless, there is still room for improvement in project. Because our knowledge base limit and inexperience, erroneous in our work are inevitable. Therefore, we will continue improve our knowledge to deliver better product in the future.