

The Faculty of Engineering

The University of Technology Jamaica

Enterprise Computing II

Software Specification Document

Group Members



Philmore Foster

Jevaughn Frith

Ajani Pinnock

Maliek Walker

Joel Williams

Work Breakdown Structure	3
Activity List (WBS)	4
Special Instructions to run projects	8
Project Management	9
Techniques Employed	9
Quality Assurance	12
Test Strategy	12
Test Plan	13
Test Estimation	14
Reports	15
Meeting Minutes	15
Meeting Minutes	16
Meeting Minutes	17
Reports	18
Meeting Minutes	18
Issues / Bugs & Fixes	19

Work Breakdown Structure

Group Members	Work Done
Jevaughn Frith	Jamaica Public Service (JPS) Web Application Development
Maliek Walker	Front End and CSS for the entire project, Meeting Minutes and Documentation
Philmore Foster	Bank of Nova Scotia (BNS) Web Application and National Commercial Bank (NCB) Web Application
Ajani Pinnock	API Research and Implementation
Joel Williams	Documentation & assisting in other areas of the project where necessary

Activity List (WBS)

No.	Sub Tasks	Responsible Person(s)
1	Jamaica Public Service (JPS) Web Application	Jevaughn Frith
1.1	<i>Administrator</i>	
1.1.1	CRUD Bill for Customer	
1.1.2	View all pending bills	
1.1.3	View all paid bills	
1.2	<i>Customer</i>	
1.2.1	Register user	
1.2.2	View pending bills	
1.2.3	View payment history	
1.2.4	Bill Payment (Credit/Debit)	

2	Bank of Nova Scotia (BNS) Web Application	Philmore Foster
2.1	<i>Teller</i>	
2.1.1	Make a deposit to Customer Account	
2.1.2	Make a withdrawal from Customer Account	
2.1.3	View all Customers	
2.1.4	View all Customer transactions	
2.2	<i>Administrator</i>	
2.2.1	CRUD a Customer	
2.2.2	CRUD a Teller	

2.2.3	Assign user to role	
2.3	<i>Customer</i>	
2.3.1	View all Account Details	
2.3.2	View all transactions on Account	
3	National Commercial Bank (NCB) Web Application	Philmore Foster
3.1	<i>Teller</i>	
3.1.1	Make a deposit to Customer Account	
3.1.2	Make a withdrawal from Customer Acc.	

3.1.3	View all Customers	
3.1.4	View all Customer transactions	
3.2	<i>Administrator</i>	
3.2.1	CRUD a Customer	
3.2.2	CRUD a Teller	
3.2.3	Assign user to Role	
3.3	<i>Customer</i>	
3.3.1	View all Account details	
3.3.2	View all transactions on Account	

Special Instructions to run projects

The program makes use of services to manage the web application for paying electric bills online. The system enables payment of Jamaica Public Service(JPS) bills through the use of online banking platforms, namely the Bank of Nova Scotia(BNS) and the National Commercial Bank(NCB). In order for the application to be deployed successfully, the independent web applications must be initiated as a start-up project which will enable them to run concurrently. By doing this, it was made sure that the program would utilize all the services necessary for it to run properly and fulfill all functional and non-functional needs.

Project Management

Techniques Employed

The system developed will allow customers to pay their electric bill online, using either a credit or debit card from one of two Banking entities, namely National Commercial bank (NCB) or Bank of Nova Scotia(BNS). We will use the SCRUM project management method to deploy the features of this web platform. Our team will be able to build a framework with a broad picture of our project using the Scrum methodology. The team used Trello as it is very useful for scrum development as it empowered our team to manage the aspects of the project namely the workflow and task tracking. In order to achieve the greatest results, a timeline was produced, updated, or adjusted using this technique. Evaluations were conducted on a regular basis through official meetings and discussions. In order to incorporate the SCRUM technique the team is divided into key roles to managing the progress of the project. GitHub was used to host the projects and monitor changes to the code base. GitHub is a code hosting platform for version control and collaboration. It allowed the developers of the project to collaborate from anywhere which was beneficial as none of the developers were situated within the same location.

Roles

Maliek Walker - In charge of the meeting minutes and doing the UI design for the various apps

Jevaughn Frith - Creating the JPS website

Philmore Foster - Creating the Scotiabank and NCB website

Ajani Pinnock - In charge of research and development for the communication between APIs

Joel Williams - Documentation and assisting in other areas of the project where necessary

SCRUM/TRELLO BOARD

Figure 1:

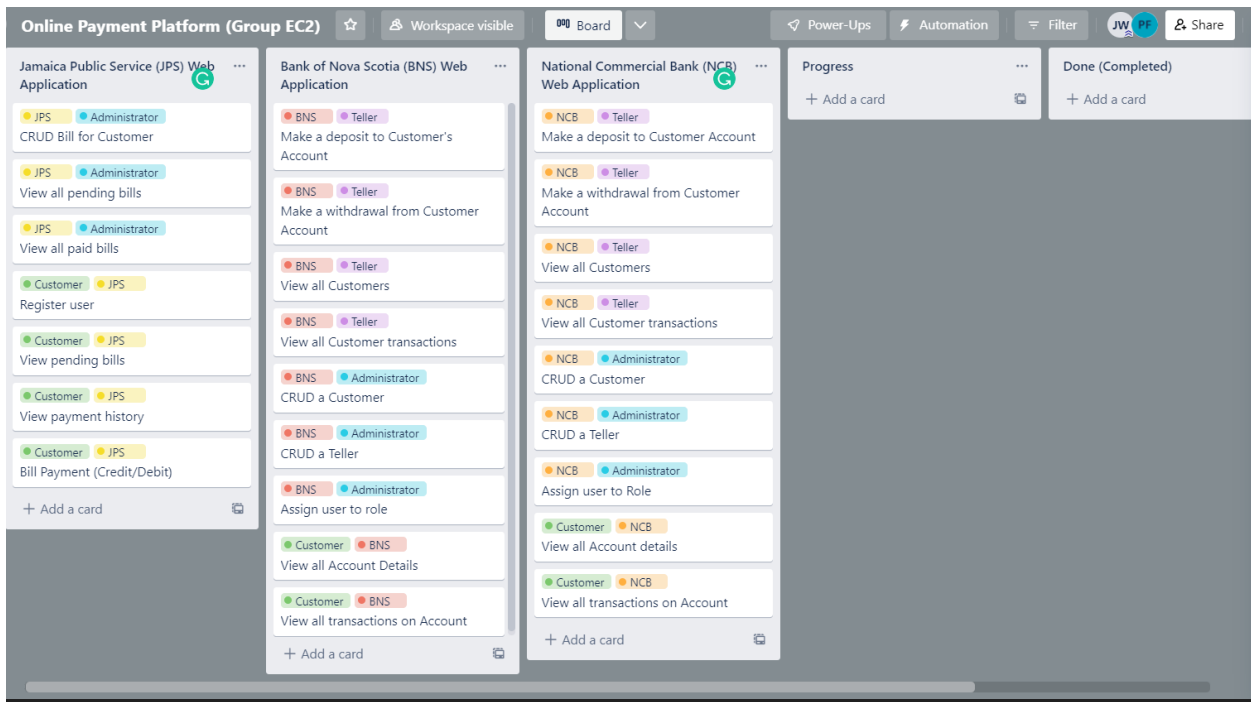


Figure 2:

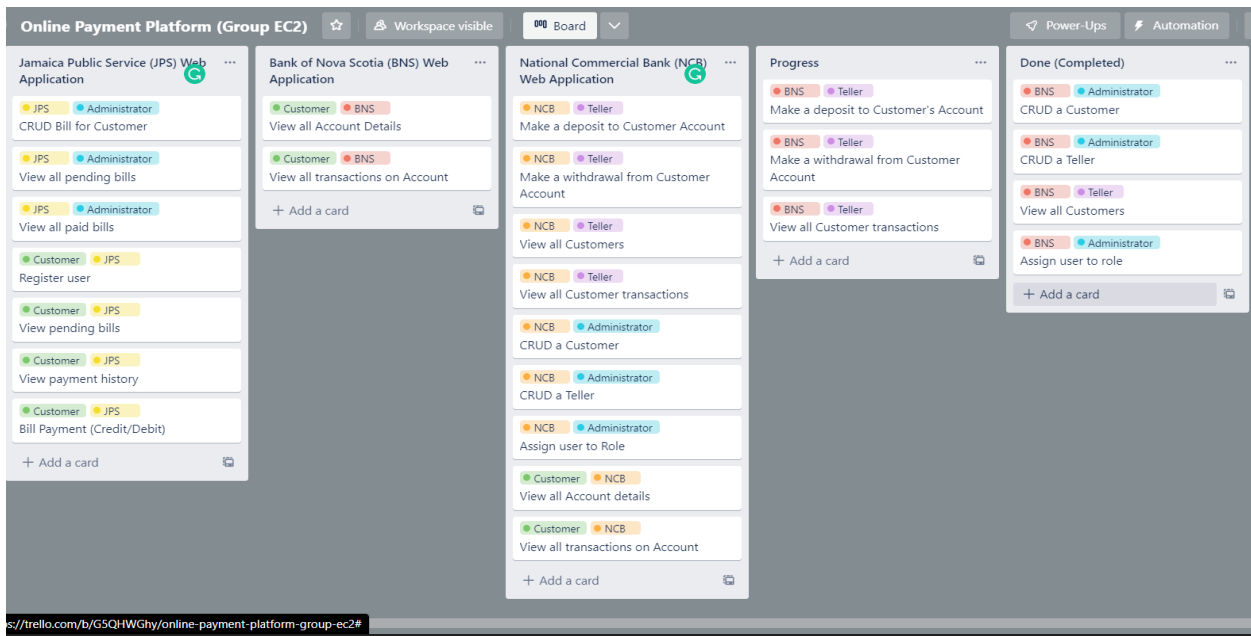
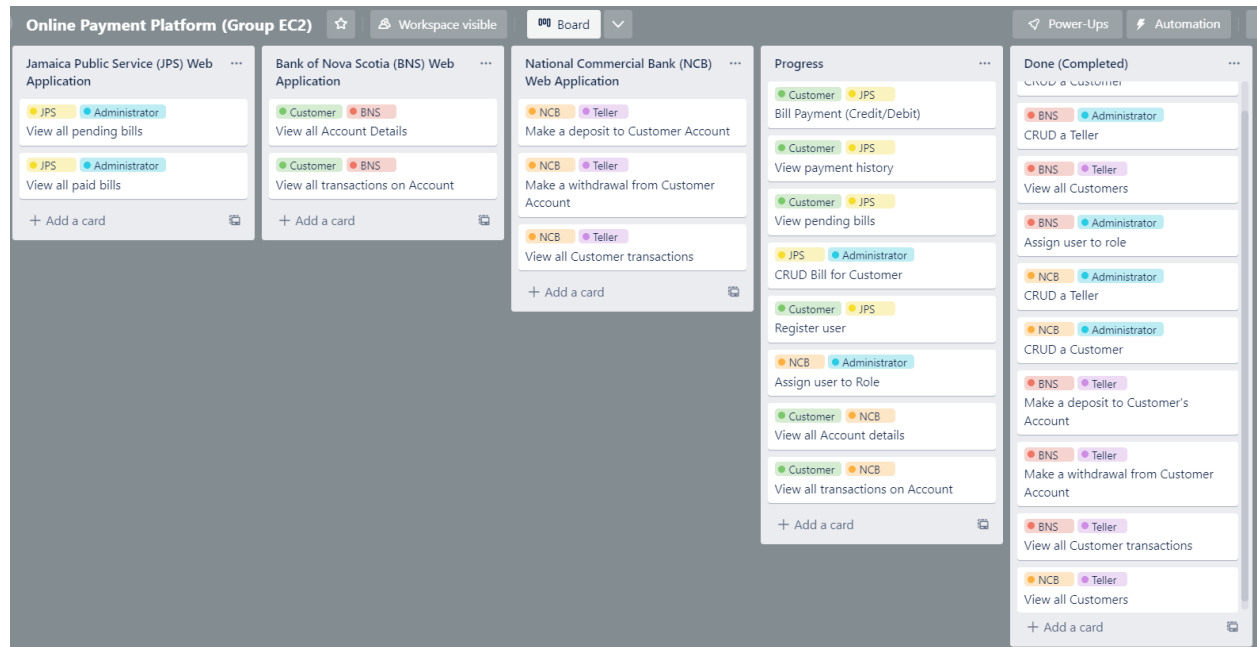


Figure 3:



Quality Assurance

Test Strategy

The functional and non-functional requirements of our online platform for the payment of electric bills will be tested as part of the testing's scope. The team used a variety of testing methods during the course of the project to create this platform, including unit testing, integration testing, regression testing, and acceptance testing. Both manual and automated testing methods will be used to run the unit test on the application. Each function created for the online platform, including the deposit, withdrawal, login, and any other relevant functions, will be put through a unit test to make sure every part is working properly. Integration testing is then carried out following the completion of unit testing for all functional requirements. The entire online application will need to be tested as a result of this. The team can determine if there are any issues with how these components interact using this technique. The functional and non-functional tests are then repeated throughout the application lifetime as part of regression testing to make sure that prior functions continue to work following code modifications. Acceptance testing is the last testing done on the application. This is done to make that the program satisfies all of the end-user criteria.

Test Plan

The test plan agreed on by the development team will evaluate each component of the application to ensure that the functional requirements are met. A test is also conducted by the individual responsible for completing the task to ensure it is fully functional before it is pushed to the Git repository. A regression test will be conducted once the task/component is completed to ensure the application remains operational once the newly developed feature is merged with the master branch of the application without any unexpected errors. The integration test will be conducted to ensure the application still operates as expected once all independently tested components are added to the application.

Test Estimation

Individual functionality of the application will need to be tested frequently and is planned to be carried out at every meeting which will take occur at least 1 per week. GitHub is the collaborative tool used to merge newly developed components of the web application which can aid regression testing where it will minimize the likelihood of updated code interrupting the already functional components of the system. Regression testing is still performed after each successful merge/push to the main branch of the application. Integration testing is scheduled to be conducted once the initial development of the API required for communication between all applications is completed. This will enable the development team to identify potential errors when attempting to combine the web applications developed. Acceptance testing is used to ensure that all functional requirements are met, by running the application through pre-defined use case scenarios posed by the development & testing teams.

Reports

Meeting Minutes

Date: Oct 4, 2022,

Opening

The official meeting of Enterprise Computing II group project members was called to order at 7:30 PM via Zoom.

Attendance: All Member Present

Approval of Minutes:

Meeting Minutes Details: Members of the group agreed upon starting to focus on the group project after milestone 2 of our individual projects were completed. However, we did not specify the exact start date. Philmore spearheaded the run-through of the group project document and we made note of some key features that needed to be researched such as API integration.

Goals: To read through the project document and requirements to see what needed to be done.

Adjournment: 8:15 PM

Meeting Minutes

Date: Oct 6, 2022,

Opening

The official meeting of Enterprise Computing II group project members was called to order at 7:15 PM via Zoom.

Attendance: All Member Present

Approval of Minutes:

Meeting Minutes Details: Member roles were assigned as follows:

Maliek Walker - Front End, Minutes and documentation

Ajani Pinnock - API research

Philmore Foster - Banks

Jevaughn Frith - JPS

Members were expected to start identifying granular tasks to provide the next meeting that will be held on Monday, Oct 10, 2022.

Goals: To discuss and assign roles based on the strengths and weaknesses of members.

Adjournment: 8:00pm

Meeting Minutes

Date: Oct 10, 2022,

Opening

The official meeting of Enterprise Computing II group project members was called to order at 7:00 PM via Zoom.

Attendance: All Members Present

Approval of Minutes:

Meeting Minutes Details:

New Member added to the group (Joel Williams). Tasks were reshuffled as follows:

Maliek Walker - Front End Development, Meeting of Minutes and documentation

Ajani Pinnock - API research & Implementation

Philmore Foster - Development of BNS and NCB Web Application

Jevaughn Frith - Development of JPS Web Application

Joel Williams - Documentation

A recap of previous meetings were done to familiarize Joel with the project approach and task assignment.

A standard naming convention was discussed (suggested by Ajani) so that there would be easier cross-referencing between projects when the API is ready to be set up.

For View model classes they should be created using lowercase and then append the type at the end.

eg. for a view - home VM (homeViewModel)

Goals: Discuss granular tasks and housekeeping matters.

Adjournment: 8:00 PM

Reports

Meeting Minutes

Date:

Opening

The official meeting of Enterprise Computing II group project members was called to order at
1:30 PM via Zoom.

Attendance:

Approval of Minutes:

Meeting Minutes Details:

Goals:

Adjournment:

Issues / Bugs & Fixes

Category	Label	Value
Bug ID	ID number	#2.1
	Name	Teller unable to see customers
	Reporter	Ajani
	Date	11/22/2022
Bug overview	Summary	The teller was unable to view the customers created, this issue was caused by a Role issue. Authorization issue.
	Project Name	BNS
	Expected Result	The Teller should be able to view all the customers available when the action is called; on button press.
	Actual Result	The
Environment	Platform	Windows
	Operating System	Windows 11

	Browser	Microsoft Edge
Bug tracking	Severity	Major
	Status	Resolved
	Priority	High
	Steps to Reproduce	

Category	Label	Value
Bug ID	ID number	#2.2
	Name	Cosmetic Issue
	Reporter	Ajani
	Date	11/22/2022
Bug overview	Summary	There were some cosmetic issues on some aspects of the application
	Project Name	BNS
	Expected Result	Details should have been displayed in a uniform manner.
	Actual Result	Some information was not displayed within the table format.
Environment	Operating System	Windows 11
	Browser	Microsoft Edge
	Severity	Cosmetic

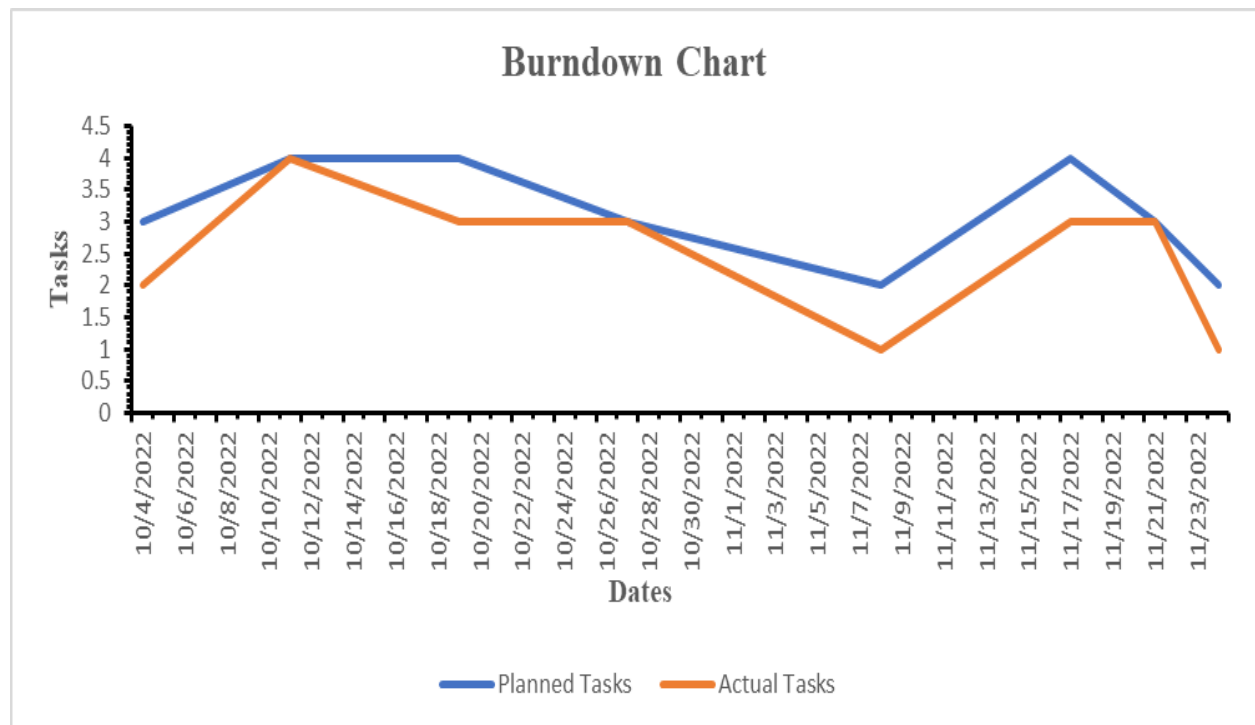
Bug tracking	Status	Resolved
	Priority	Medium

Category	Label	Value
Bug ID	ID number	#1.1
	Name	Role Assignment
	Reporter	Philmore
	Date	11/24/2022
Bug overview	Summary	The specified role was not assigned to the customer once created.
	Project Name	NCB
	Expected Result	The specified role should be assigned to the user once created.
	Actual Result	No role was assigned once the user was created, which lead to the customer not being displayed as the user was not assigned a customer role.
Environment	Operating System	Windows 11
	Browser	Microsoft Edge

Bug tracking	Severity	Critical
	Status	Resolved
	Priority	High

Burndown Chart

Burndown Chart		
Dates	Planned Tasks	Actual Tasks
10/4/2022	3	2
10/11/2022	4	4
10/19/2022	4	3
10/27/2022	3	3
11/8/2022	2	1
11/17/2022	4	3
11/21/2022	3	3
11/24/2022	2	1



Velocity Chart

