American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

Spring 21 22

Software Quality Assurance and Testing

AIUB Banking System

Section: A

A Report submitted
By

SN	Student Name	Student ID
1	Manjilatul Jannat	19-39763-1
2	Babu, Abdur Rahman	19-39902-1
3	Jesey, Dilruba Khanam	19-39979-1
4	Khadiza Begum Himu	18-38904-3

Under the supervision of

Abhijit Bhowmik
Associate Professor
Department of Computer Science

Faculty of Science & Technology
American International University-Bangladesh

Software Test Plan

for

AIUB Banking System

Version 1.0 approved

Prepared by

Manjilatul Jannat

Babu, Abdur Rahman

Jesey, Dilruba Khanam

Khadiza Begum Himu

American International University-Bangladesh

21 April,2022

Table of Contents

1. Revision History 4
1. TEST PLAN IDENTIFIER: RS-MTP01.3 4
2. REFERENCES 4
3. INTRODUCTION 5
1. 3.1 Background to the Problem 5
2. 3.2 Solution to the Problem 5
4. REQUEIREMNT SPECIFICATION 6
1. System Features 6
2. System Quality Attributes 7
3. System Interface 8
4. Project Requirements 10
5. FEATURES NOT TO BE TESTED 11
6. TESTING APPROACH 11
1. Testing Levels 11
2. Test Tools 12
3. Meetings 14
7. TEST CASES/TEST ITEMS 14
1. Registration 14
2. Login 14
3. Withdraw Money 15
4. Reset Password 16
5. Add Money 16
6. Logout 17
8. ITEM PASS/FAIL CRITERIA 17
9. TEST DELIVERABLES 18
10. STAFFING AND TRAINING NEEDS 18
11. RESPONSIBILITIES 19
12. TESTING SCHEDULE 21
13. PLANNING RISKS AND CONTINGENCIES 22
14. APROVALS 23

1. Revision History

Revision	Date	Updated by	Update Comments
0.1	2022.04.11	Manjilatul Jannat	First Draft
0.2	2022.04.12	Jesey, Dilruba Khanam	Second Draft
0.3	2022.04.13	Babu, Abdur Rahman	Third Draft
0.4	2022.04.14	Khadiza Begum Himu	Fourth Draft
0.5	2022.04.15	Manjilatul Jannat	Fifth Draft
0.6	2022.04.16	Babu, Abdur Rahman	Sixth Draft
0.7	2022.04.17	Jesey, Dilruba Khanam	Seventh Draft
0.8	2022.04.18	Khadiza Begum Himu	Eighth Draft
0.9	2022.04.19	Manjilatul Jannat	Ninth Draft

1. TEST PLAN IDENTIFIER: RS-MTP01.3

2. REFERENCES

- Software Quality And Testing Course PowerPoint Slides
- https://documentation.its.umich.edu/node/1771

3. INTRODUCTION

1. 3.1 Background to the Problem

In the present context of AIUB there is no bank account system for student. A student bank account management system refers to the system that allows students to make money transfer, withdraw and to deposit their money. If this system is added in AIUB then student do not need to go outside of the University to deposit or withdraw their money. They can easily make their payment of the university by using this system.

2. 3.2 Solution to the Problem

Our main focus on AIUB mobile banking system policy that will be practiced by student of AIUB. It is one type of banking system towards university going students to deposit or withdraw money without any charge. A banking system has Saving, current, fixed deposit, joint, and minor deposit accounts. Any student who wishes to become a new bank customer must pick from one of these options. A new student to the bank can create an individual account, a joint account, or a minor account, depending on his or her preferences. There are no limits on the quantity or amount of deposits for cash transactions over 49,999 TK. When a student with a savings bank account makes a cash deposit or cash withdrawal, the bank authority responsible for this section will update the bank database and the customer's account database by entering all transaction details (customer name, account number, phone number, deposited/withdrawal amount, and PAN number if the transaction exceeds 49,999 TK). It also offers fund transfer services, which allow money to be transferred from one customer's account to another. Money can be transferred inside the same bank; however, transferring money to the account holder of another bank incurs no fee.
Students can get their money through ATM card, an internet website or mobile device. By using the ATM card, a customer can withdraw cash from either checking or savings account, query the balance of an account, or transfer funds from one account to another. A transaction is initiated when a customer inserts an ATM card into the card reader. Encoded on the magnetic strip on the back of the ATM card is the card number, the start date, and the expiration date. Manually managing all of these bank data and documents is impossible. As a result, there is a need for software that can manage all of the details on both the university students' and bank officials' sides. The software's primary goal is to automate all aspects of bank operations, both for students and for bank officials. As a result, the banking management system is established to address this problem. The system allows students to create accounts, deposit/withdraw money from their accounts. This system will help to do student’s banking activities such as deposits and withdrawals without having to locate an open location and without any charge.

4. REQUEIREMNT SPECIFICATION

1. System Features

1. System Registration

1.1 Student open a Bank account by doing registration
1.2 Provide Name, Father's name, Mother's name, student NID number, Phone number, Email, user name, password etc.
1.3 select Account Type
1.4 verify Student NID number, Password, Phone number, Email
1.5 submit and create

Priority Level: High
Precondition: verify all information

1.1 System Login

1.2 The system will allow the student to enter the correct User Name and Password.

2.2 If Its failure to provide correct User Name and Password then it can reset the Password by sending verification code through the email or phone number.

Priority Level: High
Precondition: User have valid user name and password

2. Add Money
2.1 The system will allow the student to add or cash in money.
2.2 Student can add or Transfer money from another account to this account.

Priority Level: Medium
Precondition: Verify Login

3. Withdraw Money

3.1 The system will allow the student to withdraw money by ATM Card using ATM machine.

3.2 If the balance is less than 500, student not able to withdraw money

Priority Level: Medium
Precondition: Check Balance

4. Account Setting

4.1 student can change password, ATM Card's PIN

4.2 password and pin verification using Email and phone number

Priority Level: High
Precondition: Verify information

5. Transfer Money

5.1 Able to transfer money to Bkash, Nagad, Rocket.

2. System Quality Attributes

Performance: Performance requirements define how well or how rapidly this system must perform specific features. Speed, throughput, capacity, timing. It also addresses how the system's performance will degrade in an overloaded situation (when more student doing transection at a time).

Efficiency: This attribute defined how use this system efficiently**.** It deals with the hardware resources needed to perform the different functions of this system. It includes processing capabilities, its storage capacity and the data communication capability (Local server to Central Server).

Usability: This can be measured in terms of ease of use. The application should be user-friendly. Usability means how easily and first user(student) can use this system and get services. During money transection, this attribute is important.

Integrity: Integrity this factor deals with the system security that is, to prevent access to unauthorized persons. This attribute is most important to provide security.

Reliability: Reliability of a system is defined how reliable to use this system. This attribute defined how much secured during money transection.

Testability: If the System face any error or defect then it must have the testing ability of that error or defect.

3. System Interface

1. Registration Interface:

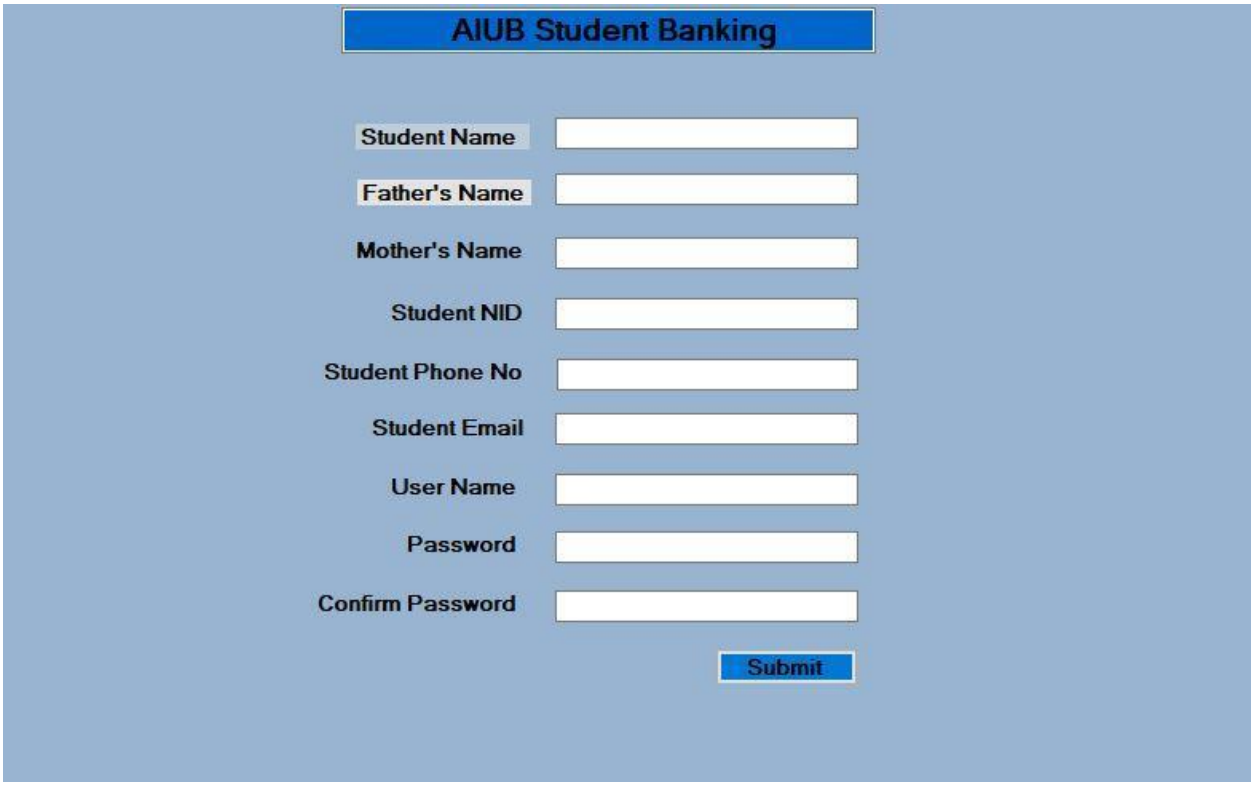


Figure:4.3.1

2. Login Interface:

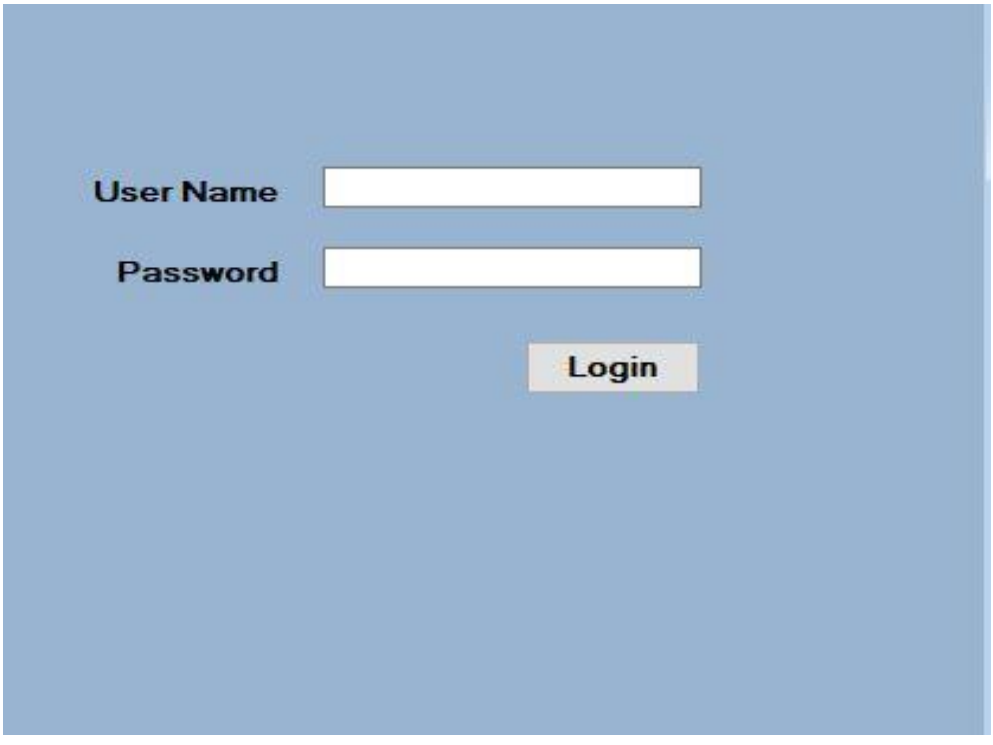


Figure:4.3.2

3. Settings Interface:

Figure:4.3.3

4. Project Requirements

The Constructive Cost Model (COCOMO) is an algorithmic software cost estimation model**.** The software project type that we will be using is organic**.** It is a software project that must be developed within a strongly coupled to hardware environment**.**

· **Effort = PM (person-months needed for project (labor working hours))**

=Coefficient<Effort Factor>*(SLOC/1000)^P

=2.4* (10000/1000)^1.05 [here SLOC = 10000, organic co- efficient

effort factor is 2.4 and P(project complexity which is 1.05)]

= 26.928 labor working hours

· Development Time, DM= 2.50*(PM)^T

· =2.50*(26.928)^0.38 [here T for organic is 0.38] =8.73 months

· Required Number of People, ST (average staffing necessary)

= PM/DM

=26.928/8.73

=3.08

5. FEATURES NOT TO BE TESTED

The following is the list of the features not to be tested:

- Registration or Logout of accounts
- Create, update, or delete student transection records
- Maintenance of the student records, account records, and debit card records
- Maintenance of the hardware devices of the ATM
- Network facilities

6. TESTING APPROACH

1. Testing Levels

- **Unit Testing:** First we will do the Unit Testing during our system development. In this testing we will tests individual software modules and see whether the individual system module has error or not. This testing methodology is done by the software developers and QA staff. This testing goal is to ensure that each unit of software code works as intended. In this step, we will follow "White Box Testing" technique.

- **Integration Testing:** After that in the second part we will do the Integration. In this testing we will make sure that all the software modules are integrated logically and tested as a group and working correctly. The goal of this level of testing is to find flaws in the way various software modules interact when they're integrated. In this step, we will follow the "Bottom-up Integration" technique.

- **System Testing:** Then we will do the system testing. Through the system testing we will test of full-featured, fully integrated system. Then we will verify if it meets all the requirement. Black-box testing falls under this condition. So, in this level, we will follow "Black Box Testing" technique.

- **Acceptance Testing:** The last phase of our testing is Acceptance Testing. We will do this Testing for checking the acceptability of our product. This test will be done to check whether any defect missed during the functional testing phase. In this level, we will follow the "Black Box Testing" technique. After that, we may run unit tests again.

2. Test Tools

We are going to use Selenium Web driver Tool for automated testing. We use this tool to detect error or defect and ensure the systems high-quality, responsive, progressive or regular.

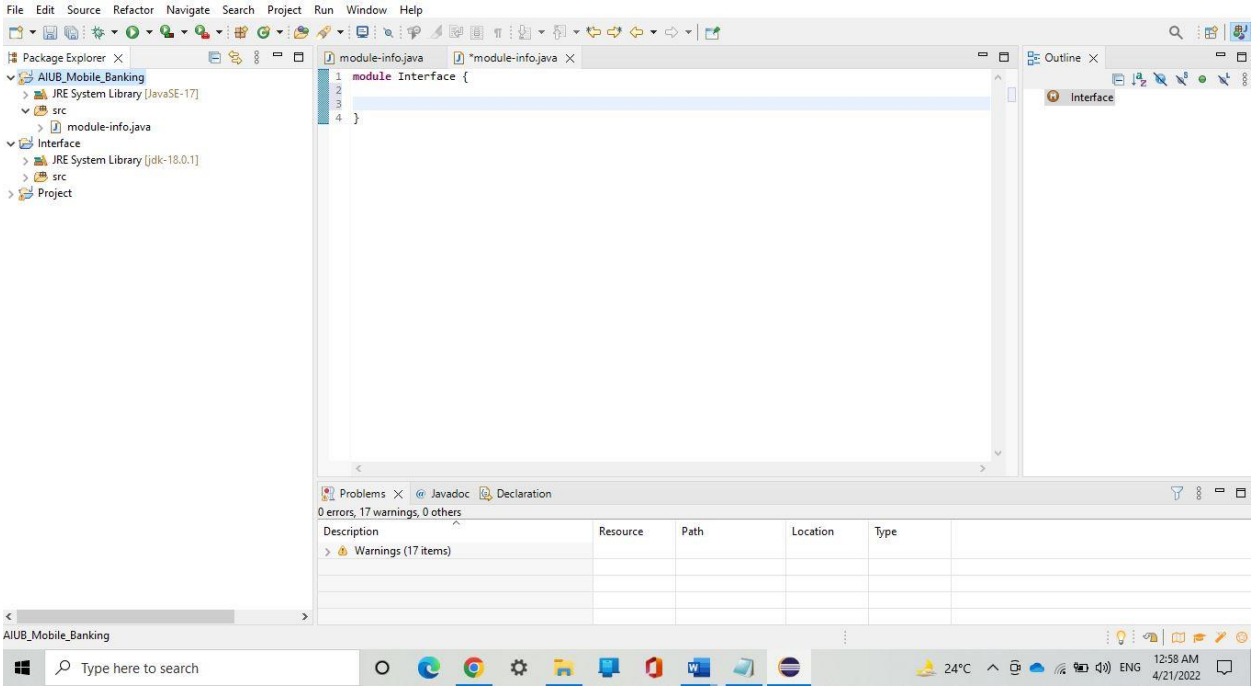


Figure: 6.2.1

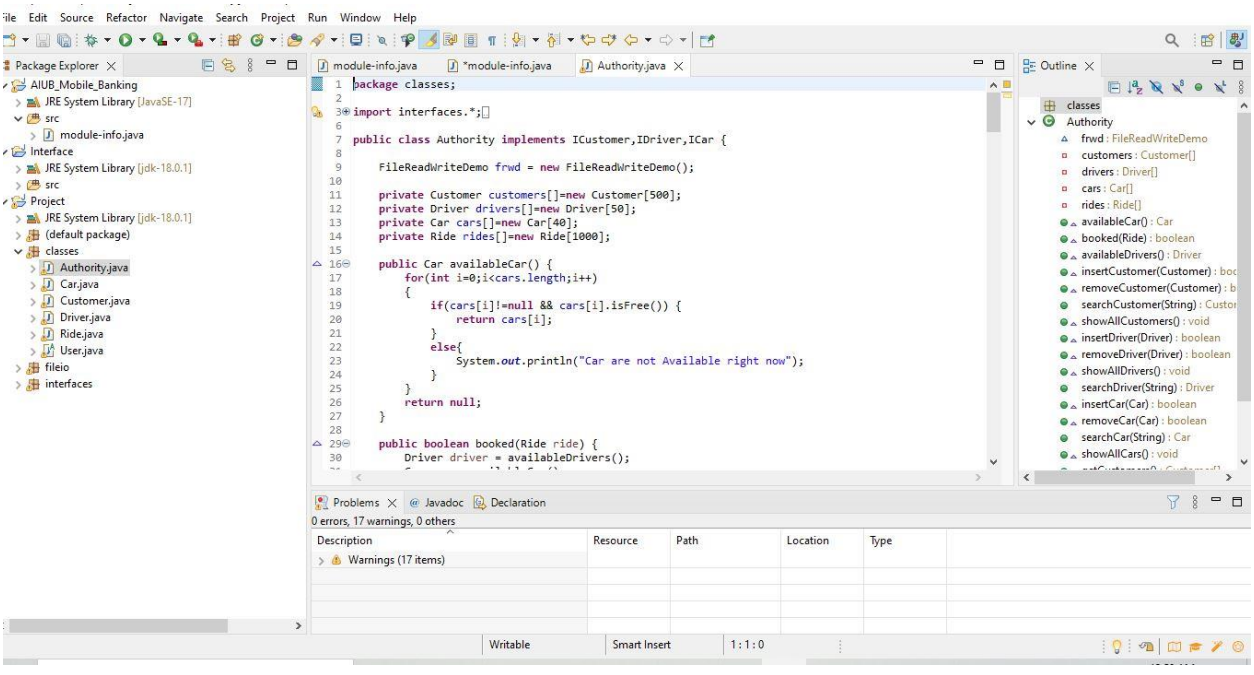


Figure: 6.2.2

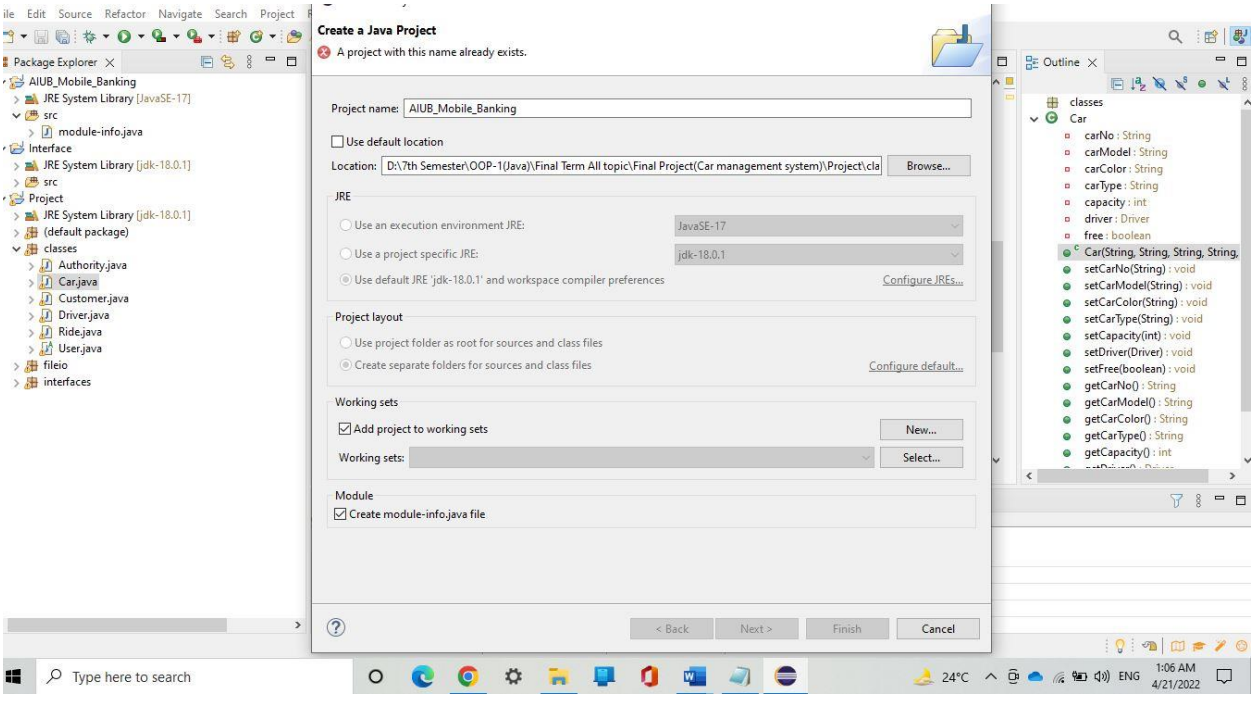


Figure: 6.2.3

3. Meetings

Distributing the proper task to the right individual is one of the most important parts of becoming a successful testing team. So, in order to be a successful team, it is critical to hold regular team meetings. As a result, the test team will meet once a week to review each member's progress and determine whether or not they have completed their allocated tasks. And see if they're experiencing any issues with testing; if they are, the entire team will help him and attempt to resolve the issue as soon as possible. Once every two weeks, the testing team lead will meet with the development and project manager. If there is an emergency, an urgent meeting will be scheduled.

7. TEST CASES/TEST ITEMS

1. Registration

Project Name: AIUB Student Banking System			Test Designed by: Manjilatul Jannat	
Test Case ID: Registration_1			Test Designed date:14/4/22	
Test Priority (Low, Medium, High): high			Test Executed by: Manjilatul Jannat	
Module Name: Registration			Test Execution date:4/14/22	
Test Title: Validate registration of an account with phone number, student NID number, email and password				
Description: Test the registration system				
Precondition (If any): User must fill-up all the input field.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Click on register 3. Enter student NID 4. Enter Phone no 5. Enter password 6. Sign up	Student NID:76 Phone no:01963511350 Password: 321	Account created successfully and go to the home page	As expected	Pass
Post Condition: User information added in the database section				

Figure 7.1

2. Login

Project Name: AIUB Student Banking System	Test Designed by: Manjilatul Jannat

Test Case ID: Login_2			Test Designed date:14/4/22	
Test Priority (Low, Medium, High): high			Test Executed by: Manjilatul Jannat	
Module Name: login session			Test Execution date:4/14/22	
Test Title: verify login with valid username and password				
Description: Test login page				
Precondition (If any): User must have valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the homepage 2. Enter username 3. Enter password 4. Click submit	Username: manjila Password: 321	User should login into the application	As expected	Pass
Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database.				

Figure 7.2

3. Withdraw Money

Project Name: AIUB Student Banking System			Test Designed by: Manjilatul Jannat	
Test Case ID: Withdraw_Money_3			Test Designed date:14/4/22	
Test Priority (Low, Medium, High): high			Test Executed by: Manjilatul jannat	
Module Name: Withdraw money			Test Execution date:4/14/22	
Test Title: verify withdraw money with pin number, username and password				
Description: Test the website withdraw money method				
Precondition (If any): User's pin number, username and password should be valid.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the homepage 2. Enter username 3. Enter password 4. Click submit	Username: manjila Password: 321	User should login into the application	As expected	Pass

Post Condition: User has successfully withdrawn money from account

Figure 7.3

4. Reset Password

Project Name: AIUB Student Banking System			Test Designed by: Manjilatul Jannat	
Test Case ID: Reset password_4			Test Designed date:14/4/22	
Test Priority (Low, Medium, High): Medium			Test Executed by: Manjilatul Jannat	
Module Name: Reset password			Test Execution date:4/14/22	
Test Title: put old username and password to set up new password				
Description: Test the website reset password page				
Precondition (If any): User has valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the homepage 2. Enter student NID 3. Enter username 4. Enter password 5. Click submit	Username: manjila Old Password: 321 New password:467	User should change his password	As expected	Pass
Post Condition: User is validated with database and successfully changed to password.				

Figure 7.4

5. Add Money

Project Name: AIUB Student Banking System	Test Designed by: Manjilatul Jannat
Test Case ID: Add_Money_5	Test Designed date:14/4/22
Test Priority (Low, Medium, High): Medium	Test Executed by: Manjilatul Jannat
Module Name: Add money	Test Execution date:4/14/22
Test Title: verify add money with pin number, username and password	
Description: Test the website add money method	

Precondition (If any): User's NID, username and password should be valid				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the homepage 2. Enter student NID 3. Enter username 4. Enter password 5. Click submit	Student nid:1234 Username: setu Password: 467	User can add cash his/her account	As expected	Pass
Post Condition: User has successfully added cash on account				

Figure 7.5

6. Logout

Project Name: AIUB Student Banking System			Test Designed by: Manjilatul Jannat	
Test Case ID: Logout_6			Test Designed date:14/4/22	
Test Priority (Low, Medium, High): Medium			Test Executed by: Manjilatul Jannat	
Module Name: log out			Test Execution date:4/14/22	
Test Title: verify user logout option				
Description: Test the website logout option				
Precondition (If any): Need to be logged in				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the homepage 2. Login in to the site 3. Click logout button		Successfully log out	As expected	Pass
Post Condition: User has successfully added cash on account				

Figure 7.6

8. ITEM PASS/FAIL CRITERIA

Testing team will be a group of -

- Unit Test Manager

- Test Analyst
- Project Sponsor
- Developer

The team will be doing the following tasks-

- There will be error free codes and in time compilation
- The test will pass only if there is 100% passing rate.
- If any error found or passing rate remains below 100% it will be resolved in time.
- All the possible tests will be documented

Here we have implemented 6 test cases. 80% of the test cases were passed successfully when we applied the test case and 20% were fail. Because of some query related issues on the database, the test cases were failed. When the test case was applied after solving query related problem, all the test cases are successfully passed.

9. TEST DELIVERABLES

- Test specification document: The summary of the scenarios that are going to be tested
- Test strategy: The high-level document defines the testing approach
- Test scenario: We have to make sure that every process flow is tested in detail
- Test data: the data or input provide to the application with intent of fetching results
- Defect reports: Bug report of a feature
- Test design: ensure formal way to design of test
- Test status report: Way the development of application
- Summary of all reports: Summary of testing, overall opinions and test pass/fail

10. STAFFING AND TRAINING NEEDS

- Use certification to document expertise and encourage learning new skills.
- Encourage training in software and computing as a continuing physics activity.
- Use workbooks and wikis as evolving, interactive software documentation.
- Use online media to share training.
- marketable for non-academic jobs.

We require a large number of skilled personnel to complete our project, "AIUB Student Banking System." Skilled Workers can complete a project more efficiently and within budget. Skilled workers will complete a high-quality assignment on schedule. Five full-time testers with extensive

understanding of various levels of testing and testing technologies will be required. The tester must be familiar with ATM machines and should receive training on the system.

11. RESPONSIBILITIES

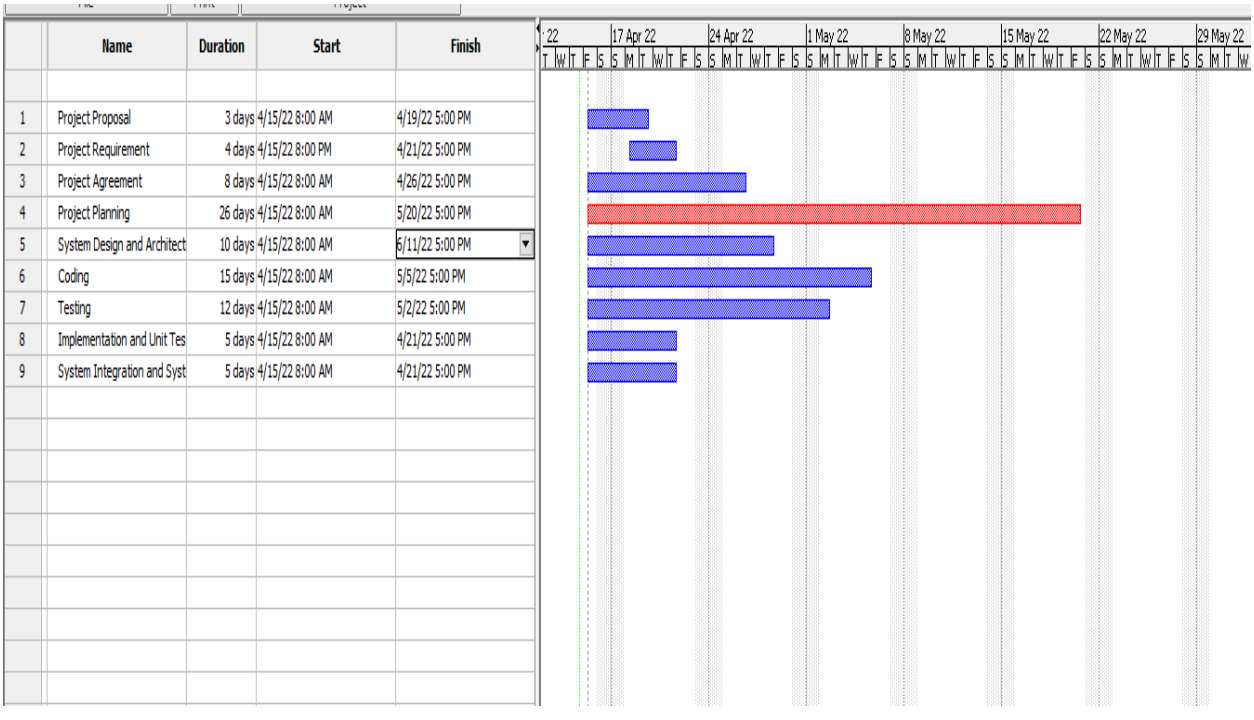
- The project team leader is responsible for verifying all test plans.
- The test lead is responsible for writing the test plan.
- The test managers are responsible for writing test cases.
- The entire project team will participate in the system review.
- The developer is responsible for fixing bugs; the tester is responsible for detecting bugs rather than fixing bugs.
- The administration is responsible for verifying the test results.

Serial	Name	Role	Responsibilities
1.	Jesey, Dilruba Khanam	Test Lead	1.Test plan, guidance, monitoring control. 2. Determining the scope of testing for each release and each level or cycle of software testing. 3. Regularly updating the project manager on the status of testing efforts. 4. The efficient use of resources and the management of resources for software testing.
2.	Babu, Abdur Rahman	Senior tester	1. Creating test cases and test plans for the product. 2. To define product testing criteria, meet with the product design team. 3.Test data collection, generating test scenario. 4. For the resources, there is a direct contact lead.
3.	Jannat, Manjilatul	Associate Test Engineer	1.Test data collection, generating test scenario. 2. For the team leader, create test data and status reports. 3. Should make a modification to the code to resolve a bug, run regression testing. 4. Carry out the testing.
4.	Himu, Khadiza Begum	Tester	1.Test case documentation, test case execution, defects reporting tracking.

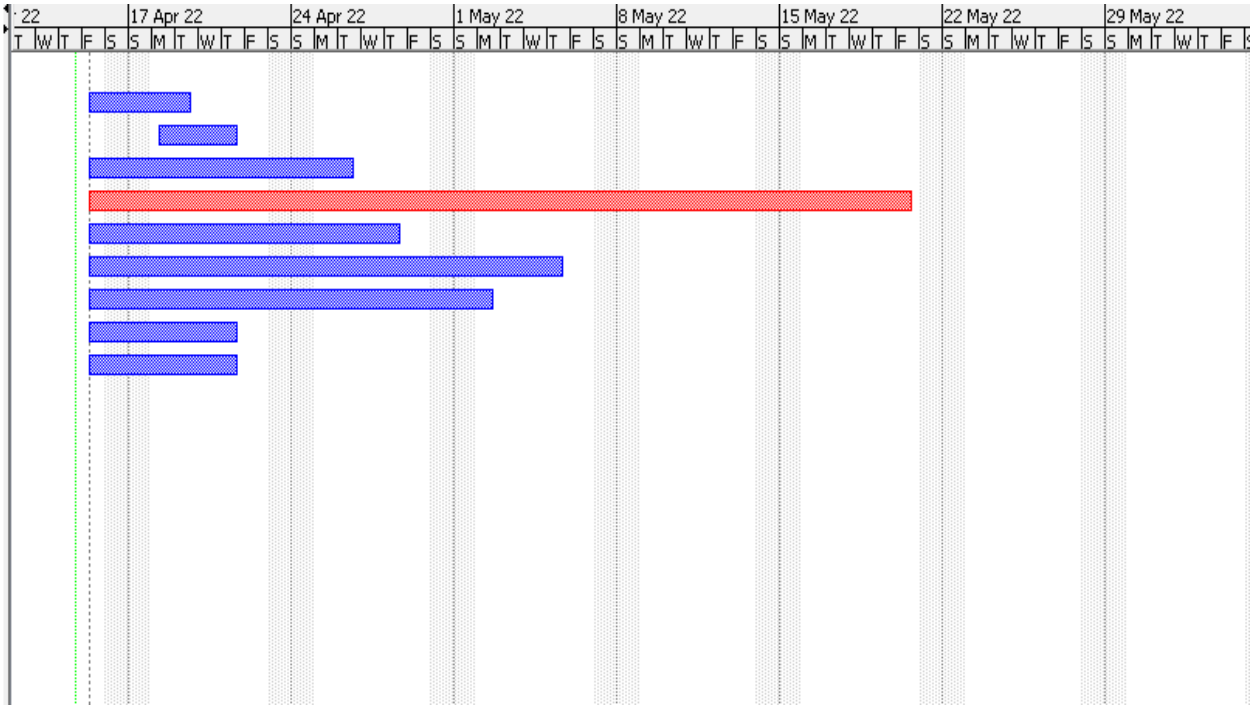
Tasks	Task Duration (Days)
Project Proposal	3
Project Requirement	4
Project Agreement	8
Project Planning	26
System Design and Architecture	10
Coding	15
Testing	12
Implementation and Unit Testing	5
System Integration and System Testing	5

12. TESTING SCHEDULE

Gantt Chart for Following Schedule:



	Name	Duration	Start	Finish
1	Project Proposal	3 days	4/15/22 8:00 AM	4/19/22 5:00 PM
2	Project Requirement	4 days	4/15/22 8:00 PM	4/21/22 5:00 PM
3	Project Agreement	8 days	4/15/22 8:00 AM	4/26/22 5:00 PM
4	Project Planning	26 days	4/15/22 8:00 AM	5/20/22 5:00 PM
5	System Design and Architect	10 days	4/15/22 8:00 AM	6/11/22 5:00 PM
6	Coding	15 days	4/15/22 8:00 AM	5/5/22 5:00 PM
7	Testing	12 days	4/15/22 8:00 AM	5/2/22 5:00 PM
8	Implementation and Unit Tes	5 days	4/15/22 8:00 AM	4/21/22 5:00 PM
9	System Integration and Syst	5 days	4/15/22 8:00 AM	4/21/22 5:00 PM



13. PLANNING RISKS AND CONTINGENCIES

- Illness or Injury: Regular medical checkups are arranged for the employees.
- Software Failure: Failure of Main or Back-up Hardware: We will maintain a main and Back-up hardware system, printers and workstations should be serviced and maintained regularly.
- Internal Issue: Chain of command will be conducted strictly.

14. APROVALS

Project Sponsor	Manjilatul Jannat
Development Management	Babu, Abdur Rahman
EDI Project Manager	Jesey, Dilruba Khanam
RS Test Manager	Manjilatul Jannat
RS Development Team Manager	Babu, Abdur Rahman
Reassigned Sales	Jesey, Dilruba Khanam
Order Entry EDI Team Manager	Khadiza Begum Himu