CRYPTO CREDIT EXCHANGE & LOAN SYSTEM

Submitted by
AHASANUL BANNA
ID: 151-35-995
Department of Software Engineering
Daffodil International University

Supervised by
IFTEKHARUL ALAM EFAT
Senior Lecturer
Department of Software Engineering
Daffodil International University

This Project report has been submitted in fulfillment of the requirements for the Degree of
Bachelor of Science in Software Engineering.

© All right Reserved by Daffodil International University

APPROVAL

This **Project** titled "**Crypto Credit Exchange & Loan System**", submitted by **Ahasanul Banna**, **ID:151-35-995** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc in Software Engineering and approved as to its style and contents.

BOARD OF EXAMINERS

26/12/18

Dr. Touhid Bhuiyan
Professor and Head
Department of Software Engineering
Faculty of Science and Information Technology
Daffodil International University

Chairman

Mohammad Khaled Sohel
Assistant Professor
Department of Software Engineering
Faculty of Science and Information Technology
Daffodil International University

Internal Examiner 1

Md. Shohel Arman
Lecturer
Department of Software Engineering
Faculty of Science and Information Technology
Daffodil International University

Internal Examiner 2

shafiul Hasan

Mr. Shafiul Hasan
Managing Director
Vivacom Solution, Dhaka

External Examiner

©Daffodil International University

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Iftekharul Alam Efat, Senior Lecturer, Department of Software Engineering, Daffodil International University**. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Ahasanul Banna

Ahasanul Banna
ID: 151-35-995
Department of Software Engineering
Daffodil International University

Certified by:

24.12.18

Iftekharul Alam Efat
Senior Lecturer
Department of Software Engineering
Faculty of Science & Information Technology
Daffodil International University

©Daffodil International University

ACKNOWLEDGEMENT

In the beginning, I remember Allah the merciful, the beneficent since, but for His grace, it would not be possible on our part to complete this project. Next, I would like to thank our parents for their unconditional support and care during our whole educational period.

I really grateful and wish our profound our indebtedness to **Iftekharul Alam Efat, Senior Lecturer, Department of Software Engineering, Daffodil International University**. Deep Knowledge & keen interest of our supervisor in the field of "CRYPTO CREDIT EXCHANGE & LOAN SYSTEM" to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this project.

I would like to express our heartiest gratitude to **Pro. Dr. Touhid Bhuiyan, Professor, and Head, Department of SWE**, for his kind help to finish our project and also to other faculty member and the staff of SWE department of Daffodil International University. We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work. Finally, we must acknowledge with due respect the constant support and patients of our parents.

 ©Daffodil International University

Executive Summery

Crypto Credit (CCD) is a decentralized crypto currency token issued by Crypto Credit Foundation. Crypto credit is a decentralized Block chain based funding source for the crypto currency users, offering immediate Loan facilities to its coin holders. In our Block chain Technology we are using an Intel patent application that has set out a system for automatically creating and validating blocks on a distributed ledger.

I have used Bootstrap, HTML, CSS, Java Script and AngularJS for front-end design and validations and C# programming language with Entity Framework 6 and .Net Framework 4.7.2 for back-end design. We also used Microsoft SQL Server as our main database. This app is very user friendly. After finishing all the task and test process this application proved to be working effectively.

 ©Daffodil International University

TABLE OF CONTENTS

Declaration---------- ii
Acknowledgement---------- iii
Abstract---------- iv
CHAPTER 1 INTRODUCTION 1
1.1 Project Overview---------- 1
1.2 Project Purpose---------- 1
1.2.1 Background---------- 1
1.2.2 Benefits---------- 1
1.2.3 Goals---------- 1
1.3 Stakeholders---------- 1
1.4 Proposed System Model (block diagram) ---------- 2
1.5 Project Schedule---------- 3
1.5.1 Grant Chart---------- 3
1.5.2 Plan---------- 3
CHAPTER 2 SOFTWARE REQUIREMENT SPECIFICATION 4
2.1 Functional Requirements---------- 4
2.2 Data Requirements---------- 5
2.3 Performance Requirements---------- 6
2.3.1 Speed and Latency Requirements---------- 6
2.3.2 Precision or Accuracy Requirements---------- 6
2.3.3 Capacity Requirements---------- 6
2.4 Dependability Requirements---------- 7
2.4.1 Reliability Requirements---------- 7
2.4.2 Availability Requirements---------- 7
2.4.3 Robustness or Fault-Tolerance Requirements---------- 7
2.4.4 Safety-Critical Requirements---------- 8
2.5 Maintainability and Supportability Requirements---------- 8
2.5.1 Maintenance Requirements---------- 8
2.5.2 Supportability Requirements---------- 8
2.5.3 Adaptability Requirements---------- 8
2.5.4 Scalability or Extensibility Requirements---------- 8
2.6 Security Requirements---------- 8
2.6.1 Access Requirements---------- 9
2.6.2 Integrity Requirements---------- 9
2.6.3 Privacy Requirements---------- 9
2.7 Usability and human-interaction requirements---------- 9
2.7.1 Ease of Use Requirements---------- 9
2.7.2 Personalization and Internationalization Requirements---------- 9

 ©Daffodil International University

2.7.3 Understandability and politeness Requirements---------- 9
2.7.4 Accessibility Requirements---------- 9
CHAPTER 3 SYSTEM ANALYSIS 10
3.1 Use Case Diagram---------- 10
3.2 Use Case Description (For each Case) ---------- 11
3.3 Activity Diagram---------- 14
CHAPTER 4 SYSTEM DESIGN SPECIFICATION 27
4.1 Class Responsibilities Collaboration (CRC) Cards---------- 27
4.2 Sequence Diagram---------- 28
4.3 Class Diagram---------- 34
4.4 Database Design Diagram---------- 35
4.5 Development Tools & Technology---------- 36
4.6 User Interface Technology---------- 36
4.7 Implementation Tools & Platforms---------- 36
CHAPTER 5 SYSTEM TESTING 37
5.1 Testing Features---------- 37
5.2 Testing Strategies---------- 37
5.2.1 Test Approach---------- 37
5.2.2 Pass/Fail Criteria---------- 38
5.3 Testing Environment (hardware/software requirements) ---------- 38
5.4 Test Case (For each Cases) ---------- 38
CHAPTER 6 USER MANUAL 44
6.1 Home Page ---------- 44
6.2 Admin Dashboard ---------- 44
6.2.1 Set Time Table ---------- 44
6.2.2 Set Coin Scheme ---------- 45
6.2.3 Set Free Coin Claim Tasks ---------- 45
6.3 Customer Dashboard ---------- 44
6.3.1 Buy/ Exchange ---------- 44
6.3.2 Claim Free Coin ---------- 50
6.3.3 You Tube Bounty Claim ---------- 51
6.3.4 KYC ---------- 52
6.3.5 Apply Loan ---------- 52
CHAPTER 7 PROJECT SUMMARY 54
7.1 Critical Evolution---------- 54
7.2 Limitations---------- 54
7.3 Obstacles & Achievements---------- 54
7.4 Discussion and Conclusion---------- 54

 ©Daffodil International University

LIST OF FIGURES

Figure 1.1	Block Diagram	2
Figure 1.2	Gantt	3
Figure 3.1	Use Case Diagram	10
Figure 3.2	Activity Diagram for Setting Time Table	14
Figure 3.3	Activity Diagram for Setting Coin Scheme	15
Figure 3.4	Activity Diagram for Setting Coin Rate	16
Figure 3.5	Activity Diagram for Setting Loan Scheme	17
Figure 3.6	Activity Diagram for Setting Free Coin Claim Tasks	18
Figure 3.7	Activity Diagram for Setting You Tube Bounty Claim Tasks	19
Figure 3.8	Activity Diagram for Claim Free Coin	20
Figure 3.9	Activity Diagram for Completing KYC	21
Figure 3.10	Activity Diagram for Transaction / Buy & Exchange	22
Figure 3.11	Activity Diagram for Applying Loan	23
Figure 3.12	Activity Diagram for Response Claiming	24
Figure 3.13	Activity Diagram for Response Transaction	25
Figure 3.14	Activity Diagram for Approve Loan	26
Figure 4.1	Sequence Diagram for Set Time Table	28
Figure 4.2	Sequence Diagram for Set Coin Scheme	28
Figure 4.3	Sequence Diagram for Set Coin Rate	29
Figure 4.4	Sequence Diagram for Set Loan Scheme	29
Figure 4.5	Sequence Diagram for Set Free Coin Claim Tasks	30
Figure 4.6	Sequence Diagram for Claim Free Coin	30
Figure 4.7	Sequence Diagram for Transaction/ Buy & Exchange	31
Figure 4.8	Sequence Diagram for Transaction Response	31
Figure 4.9	Sequence Diagram for KYC	32
Figure 4.10	Sequence Diagram for Apply Loan	32
Figure 4.11	Sequence Diagram for Approve Loan	33
Figure 4.12	Class Diagram	34
Figure 4.13	Database design Diagram	35
Figure 6.1	Home Page	44
Figure 6.2	Admin Dashboard	44
Figure 6.3	Set Time Table	45
Figure 6.4	Set Coin Scheme	46
Figure 6.5	Set Free Coin Claim Task	47
Figure 6.6	Customer Dashboard	48
Figure 6.7	Buy/Exchange	49
Figure 6.8	Claim Free Coin	50
Figure 6.9	You Tube bounty Claim	51
Figure 6.10	KYC	52
Figure 6.11	Apply Loan	52

©Daffodil International University

LIST OF TABLES

Table 1.1	Plan----------	3
Table 2.1	Customer Registration Requirements----------	4
Table 2.2	Customer Login Requirements----------	4
Table 2.3	Claim Requirements----------	4
Table 2.4	Buy/ Exchange Requirements----------	5
Table 2.5	KYC Requirements----------	5
Table 2.6	Apply Loan Requirements----------	5
Table 2.7	Speed & Latency Requirements----------	6
Table 2.8	Accuracy Requirements----------	6
Table 2.9	Capacity Requirements----------	7
Table 2.10	Reliability Requirements ----------	7
Table 2.11	Availability Requirements----------	7
Table 2.12	Robustness Requirements----------	7
Table 2.12	Safety-critical Requirements----------	8
Table 3.1	Use Case Description for Coin Scheme, Coin Rate & Time Table----------	11
Table 3.2	Use Case Description for Setting Loan Scheme----------	11
Table 3.3	Use Case Description for Claim Free Coin & You Tube Bounty----------	12
Table 3.4	Use Case Description for Buy/ Exchange----------	12
Table 3.5	Use Case Description for KYC----------	13
Table 3.6	Use Case Description for Apply & Approve Loan ----------	13
Table 4.1	Admin CRC----------	27
Table 4.1	Customer CRC----------	27
Table 5.1	Test Case for Customer Registration----------	38
Table 5.2	Test Case for Customer Login----------	39
Table 5.3	Test Case for Admin Login----------	40
Table 5.4	Test Case for Time Table----------	40
Table 5.5	Test Case for Coin Rate----------	41
Table 5.6	Test Case for Loan Scheme----------	42
Table 5.7	Test Case for Loan Apply----------	43

©Daffodil International University

CHAPTER 1
INTRODUCTION

1.1 Project Overview:

Crypto Credit (CCD) is a decentralized crypto currency token issued by Crypto Credit Foundation. Crypto credit is a decentralized Block chain based funding source for the crypto currency users, offering immediate Loan facilities to its coin holders.

In our Block chain Technology we are using an Intel patent application that has set out a system for automatically creating and validating blocks on a distributed ledger.

1.2 Project Purpose:

The main purpose of my project is to create successfully small and medium entrepreneurs by providing them loan facilities on low interest rate against easy condition and ennobling them in social business.

1.2.1 Background:

A Web app can provide the solution by offering the ability to share issues and information between customer and owner which lead to rapid issue resolution and less misinterpretation. The goal of the web app is to create a better relationship between customer and owner. People always wants new thing or topics. My intention was based on this things and I tried to develop this system where willing people can buy new electric currency named as Crypto Credit (CCD) coin and can get a definite loan based on his/ her deposit wallet.

There are some web application almost similar with my web application but these have many difference with my web application. Some web applications are: MONEY TOCKEN, BIT BOSE, ETHEREUM CASH PRO etc. These systems are willing to come to lead the electric currency market. But they do not have block chain engine yet where they are working on block chain engine to launch their electric currency in the electric currency market. Like them I want to go ahead with my system.

1.2.2 Benefits:

The main benefits of my project are following:

- User can buy or exchange CCD coins.
- After completing a milestone customers can get loan for definite social areas.

1.2.3 Goals:

Every work has some goals or future plan. Like that my project's goals are:

- To eliminate unemployment by creating new jobs with microcredit programs using Block chain Technology.
- To work on human resources development.
- To work on protection of the rights of children & women.
- To facilitate expansion of medical treatment.
- To facilitate expansion of social business by operating Microcredit program using Block chain Technology.
- To build up a large, international, social online community group to help each other.

Stakeholders:

1. Who are doing business or want to start up new business in the following sectors:

    - IT sector
    - Education sector
    - Health sector
    - Trading
    - Small and medium industrial sector
    - Service providing sector or any other sectors which will create employment

2. Who wants to buy or exchange CCD coin.

©Daffodil International University

1.4 Proposed System Model (Block Diagram):

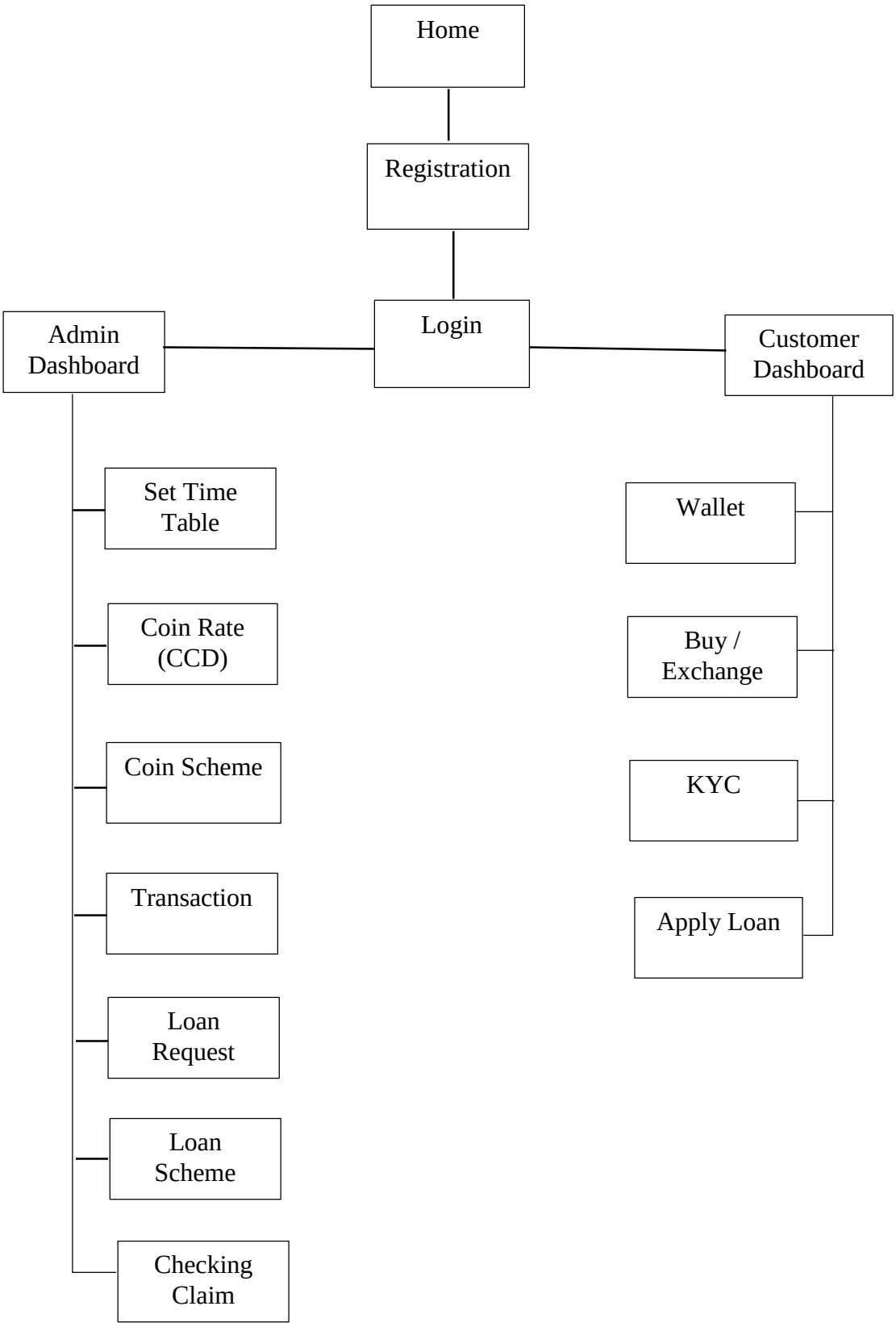

Figure 1.1: Block

 ©Daffodil International University

1.5 Project Schedule:

Every project has definite planning or schedule for completing it. I have also followed a schedule given below.

1.5.1 Gantt Chart:

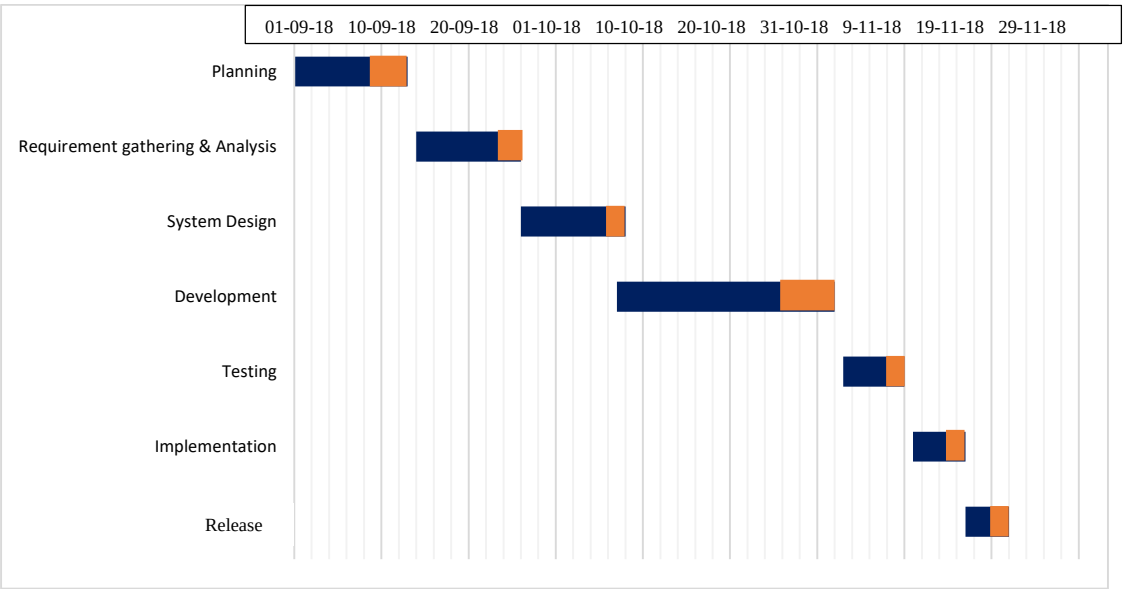

Figure 1.2: Gantt chart

1.5.2 Plan:

Milestone, it is a time frame of project. That will define the project task. Project milestones are as follows:

Table 1.1: Plan

Task no.	Task Name	Start Date	End Date	Duration
01	Planning	01-09-18	12-09-18	12 days
02	Requirements Gathering & Analysis	13-09-18	24-09-18	12 days
03	System Design	25-09-18	06-10-18	12 days
04	Development	07-10-18	01-11-18	26 days
05	Testing	02-11-18	09-11-18	08 days
06	Implementation	10-11-18	15-11-18	06 days
07	Release	16-11-18	21-11-18	06 days
	Total			**82 days**

©Daffodil International University

CHAPTER 2
SOFTWARE REQUIREMENT SPECIFICATION

2.1 Functional Requirements:

The functional requirement of the system is given blew:

Customer registration:

Table 2.1: Customer Registration Requirements

Fr-01	Customer registration
Description	Customer registration page is only for those user who want to buy CCD coin form my system.
Stakeholder	Customer

Customer login:

Table 2.2: Customer Login Requirements

Fr-02	Customer login
Description	This page is only for the registered customer.
Stakeholder	Customer

Claim:

Table 2.3: Claim Requirements

Fr -03	Free coin claim and YouTube bounty claim.
Description	Registered customer should claim free coin and bounty coin by completing some tasks.
Stakeholder	Customer

 ©Daffodil International University

Buy / Exchange:

Table 2.4: Buy/ Exchange Requirements

Fr -04	Buy / Exchange CCD
Description	Registered customer can buy or exchange CCD coin with current electric currency (BTC, ETC).
Stakeholder	Customer

KYC:

Table 2.5: KYC Requirements

Fr -05	KYC (Know Your Customer)
Description	Interested customers for loan have to complete KYC form.
Stakeholder	Customer

Apply loan:

Table 2.6: Apply Loan Requirements

Fr-07	Apply loan
description	After completing KYC form customer can apply for loan.
stakeholder	Customer

2.2 Data requirements:

For running any system there are needed different types of data. Like that my system needs the following data.

- Time table
- Coin scheme
- CCD Coin rate
- Present valid electric currency rates
- Loan scheme
- Free coin claim tasks list
- YouTube bounty claim task list

2.3 Performance Requirements:

Performance requirement is a kind of requirement that regulate an implement properly.

2.3.1 Speed and Latency Requirements:

Table 2.7: Speed & Latency Requirements

SLR-01	System speed will be faster.
Description	When user will run our system speed will be depended on their internet speed & the server bandwidth speed.
Stakeholders	Customer, Admin.

2.3.2 Precious or Accuracy Requirements:

Table 2.8: Accuracy Requirements

AR-01	Data accuracy
Description	The input data should be correct and right pattern data, otherwise the input field show error message, like personal information, email address, password etc. the input information is not valid, the data never save. Or the input data pattern is not match, then users will not be able to go forward step with the system.
Stakeholders	Customer, Admin.

2.3.3 Capacity Requirements:

Data is very important of any system. The system should maintain all inserting data. In my system the admin and Customer data is dependent with each other.

Table 2.9: Capacity Requirements

CR-01	Manage all the data in database
Description	User data as admin data, customer data etc. will be kept and maintained properly because my system can fulfill all the requirements according to this sector.
Stakeholders	Customer, Admin.

2.4 Dependability Requirements:

If I can fulfill the dependability requirements then my system will run properly.

2.4.1 Reliability Requirements:

Table 2.10: Reliability Requirements

RR-01	The system is reliable.
Description	Customer information, Admin information will be kept with safety.
Stakeholder	Customer, Admin.

2.4.2 Availability Requirements:

Table 2.11: Availability Requirements

AR-01	The system will be available 24x7.
Description	It is available 24 hours in a day and 7 days in a week.
Stakeholder	Customer, Admin.

2.4.3 Robustness or Fault Tolerance requirements:

Table 2.12: Robustness Requirements

FTR-01	Well robustness of the system
Description	If any problem occurs the system will show error message and the fault tolerance is handled properly.
Stakeholder	Customer, Admin.

2.4.4 Safety-critical Requirements:

Table 2.12: Safety-critical Requirements

SR-01	Safe transection
Description	All users' data will be kept with safety and securely and they won't have thought about that.
Stakeholder	Customer, Admin.

2.5 Maintainability and supportability requirements:

Maintainability and supportability is very essential for the owners to provide better service to the customers.

2.5.1 Maintenance Requirements:

- Admin will handle the maintenance this system.

2.5.2 Supportability Requirements:

- Admin will handle this sector also.

2.6 Security requirements:

- Login as Admin
- Login as Customer

No one will be able to use the internal system without registration.

2.6.1 Access Requirements:

- Admin can get accessed in Admin module
- Customer can get accessed in Customer module.

2.6.2 Integrity Requirements:

To prevent credentials information of user from being stolen, all passwords are stored in encrypted form. The Requirements significantly reduces the value of stolen user credentials, it's not easy to decrypt the password.

2.6.3 Privacy Requirements:

All the user password is stored in encrypted and the customer information is safely stored. One customer cannot view the other customer personal information like phone number, location etc.

2.7 Usability and human-interaction requirements:

Usability requirement is maintained by providing proper guidelines and human-interaction requirement is maintained easily.

2.7.1 Ease of Use Requirements:

All features are very easy to understand with proper guidelines.

2.7.2 Personalization and Internationalization Requirements:

My system is accessible from any corner of the world. And I have developed my system with all required requirements.

2.7.3 Understandability and politeness Requirements:

User can easily understand his/her activity with my system because there is given proper guidelines.

2.7.4 Accessibility Requirements:

Customer can access in customer dashboard and admin can access in admin dashboard for specific activity

CHAPTER 3
SYSTEM ANALYSIS

3.1 Use Case Diagram:

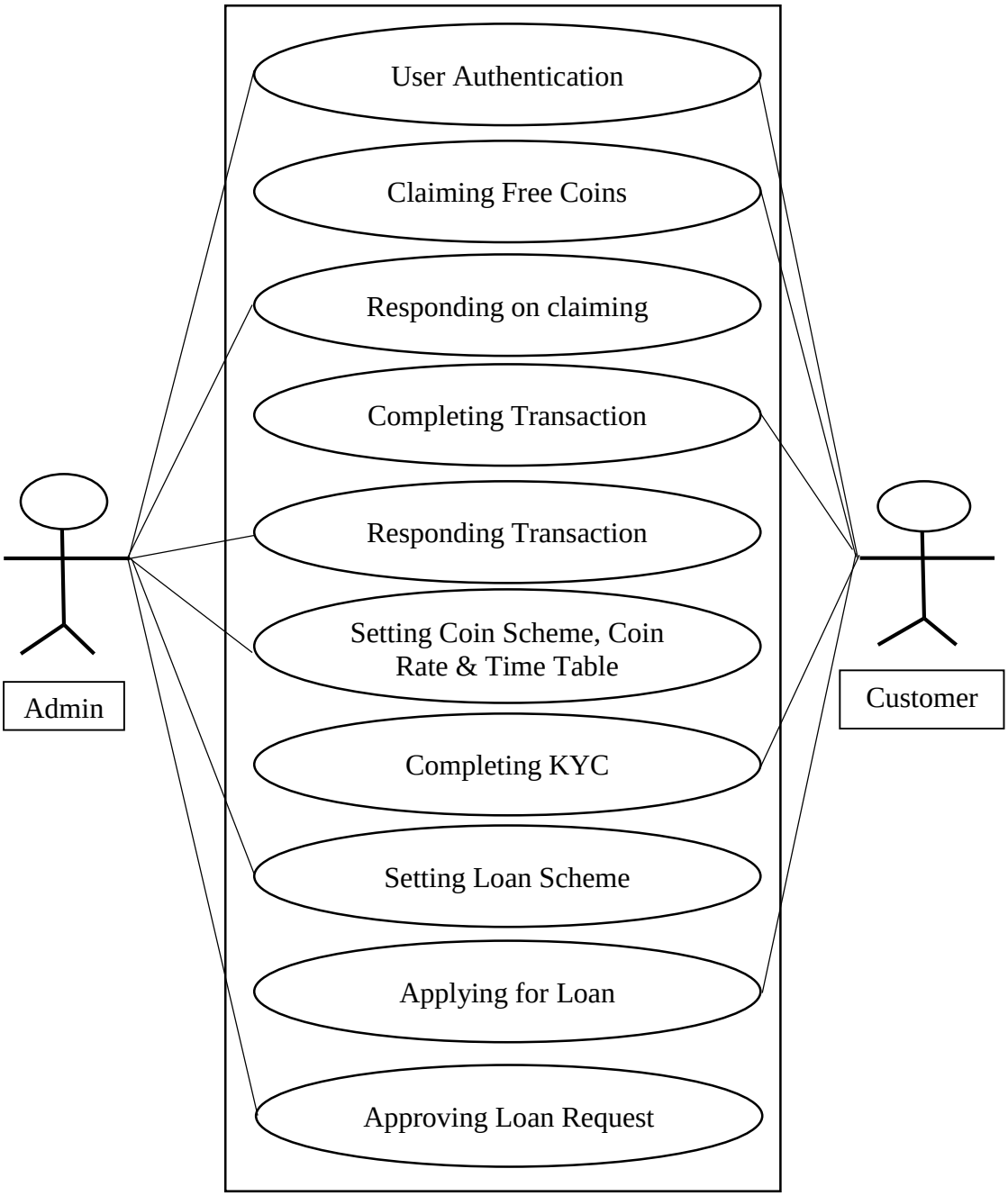

Figure 3.1: Use Case Diagram

©Daffodil International University

3.2 Use Case Description for Coin Scheme, Coin Rate & Time Table:

Table 3.1: Use Case Description for Coin Scheme, Coin Rate & Time Table

Use case name	Setting Coin Scheme, Coin Rate & Time Table
Goal	Register customer can Buy/Exchange CCD coin in my system.
Preconditions	Admin must login.
Post conditions	Time table start date depend on current time table end date.
Actor	Admin
Description	Admin set time table, coin rate and coin scheme for registrar customer to buy/exchange CCD coin.
Success Result	If data store in database show success message for add time table, coin scheme, coin rate.
Failure results	If data not store in database show error message for add time table, coin scheme, coin rate.

3.3 Use Case Description for Setting Loan Scheme:

Table 3.2: Use Case Description for Setting Loan

Use case name	Setting Loan Scheme
Goal	Admin will set loan scheme and customer will apply for loan depend on loan scheme.
Preconditions	Admin must login.
Post conditions	Customer will be able to see Loan Scheme.
Actor	Admin
Description	Admin set loan scheme for registrar customer to apply loan for following required margin.
Success Result	If data store in database show success message for add loan scheme.
Failure results	If data not store in database show error message for add loan scheme.

 ©Daffodil International University

3.4 Use Case Description for Claim Free Coin & You Tube Bounty:

Table 3.3: Use Case Description for Claim Free Coin & You Tube Bounty

Use case name	Claiming Free Coin
Goal	Customer will get free coin with claiming.
Preconditions	Customer must registered.
Post conditions	If Claiming is ok then Admin will approve.
Actor	Admin, Customer
Description	Registered customer can claim free coin with completing some given tasks. Admin will check Completed tasks by registered customer and then response to customer for claiming free coin and You Tube bounty.
Success Result	Claiming successful.
Failure results	If claiming is not correctly then it will be failed.

3.5 Use Case Description for Buy/ Exchange:

Table 3.4: Use Case Description for Buy/ Exchange

Use case name	Buy/ Exchange
Goal	Customer will buy CCD coin
Preconditions	Customer must registered.
Post conditions	If Buy/ Exchange process is ok then Admin will approve.
Actor	Admin, Customer
Description	User will send request for buy and exchange CCD coin. Admin will response according to requests of customers.
Success Result	Buy/ Exchange successful.
Failure results	If processing is not correct then it will be failed.

3.6 Use Case Description for KYC:

Table 3.5: Use Case Description for KYC

Use case name	KYC
Goal	Customer will complete KYC for applying loan.
Preconditions	Customer must registered.
Post conditions	If KYC is completed then Customer will be able to apply for loan.
Actor	Customer
Description	Customer will apply for loan with loan scheme margin. Admin will approve loan according to customer request.
Success Result	Successful.
Failure results	If processing is not correct then system will not response and display error message.

3.7 Use Case Description for Apply & Approve Loan:

Table 3.6: Use Case Description for Apply & Approve Loan

Use case name	Apply & Approve Loan
Goal	Customer will apply for loan and Admin will approve.
Preconditions	Customer must registered. Admin must registered also.
Post conditions	If apply process is correct then Admin will approve.
Actor	Admin, Customer
Description	Customer will complete KYC for apply loan. Without completing KYC customer won't be able to apply for loan.
Success Result	Successful.
Failure results	If KYC is not correct then system will not allow to apply for loan.

3.3 Activity Diagram:

Activity diagram defines how a system works properly and if it does not work properly then it return to previous step.

3.3.1 Activity Diagram for Setting Time Table:

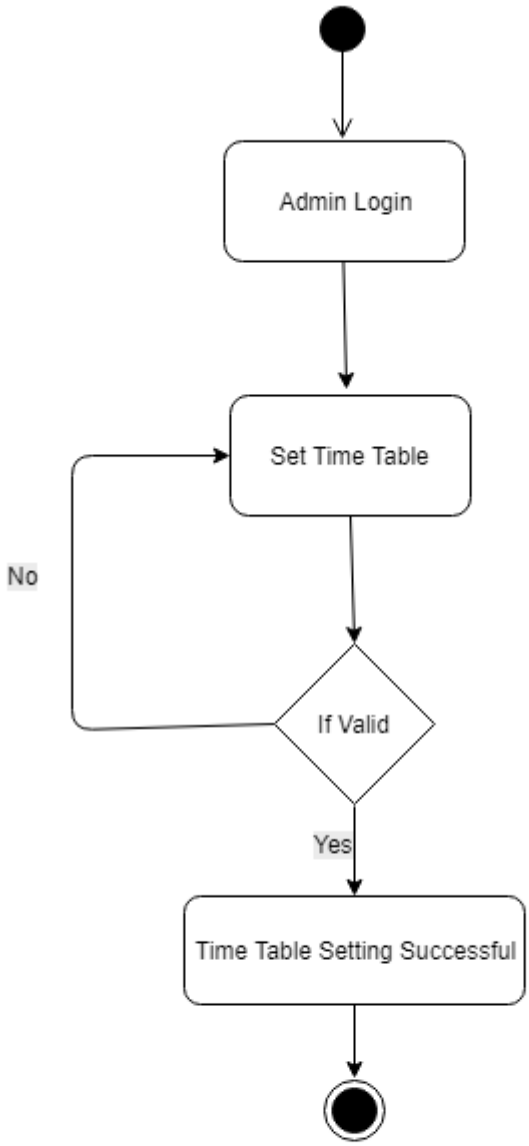

Figure 3.2: Activity Diagram for Setting Time Table

 ©Daffodil International University

3.3.2 Activity Diagram for Setting Coin Scheme:

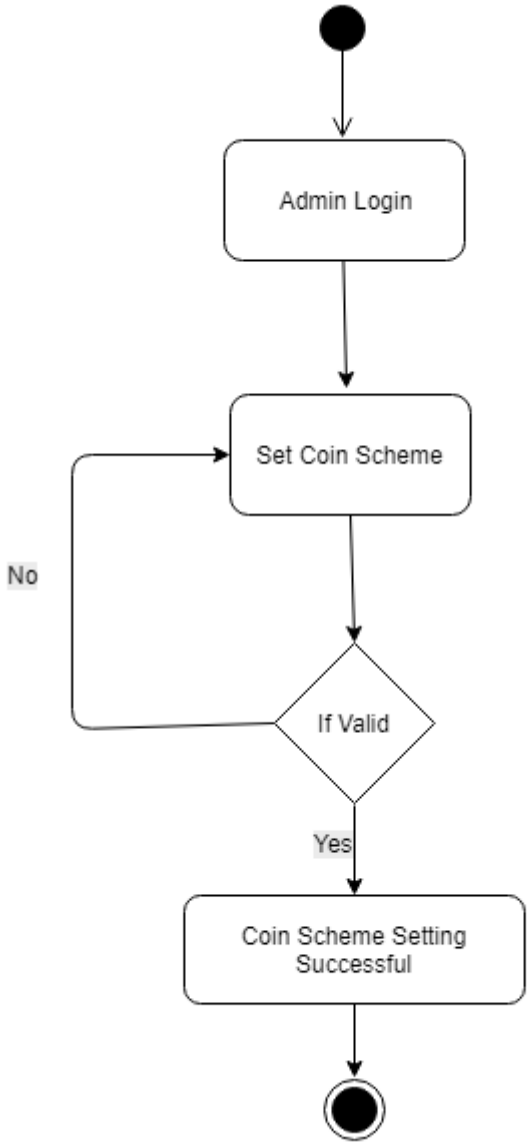

Figure 3.3: Activity Diagram for Setting Coin Scheme

 ©Daffodil International University

3.3.3 Activity Diagram for Setting Coin Rate:

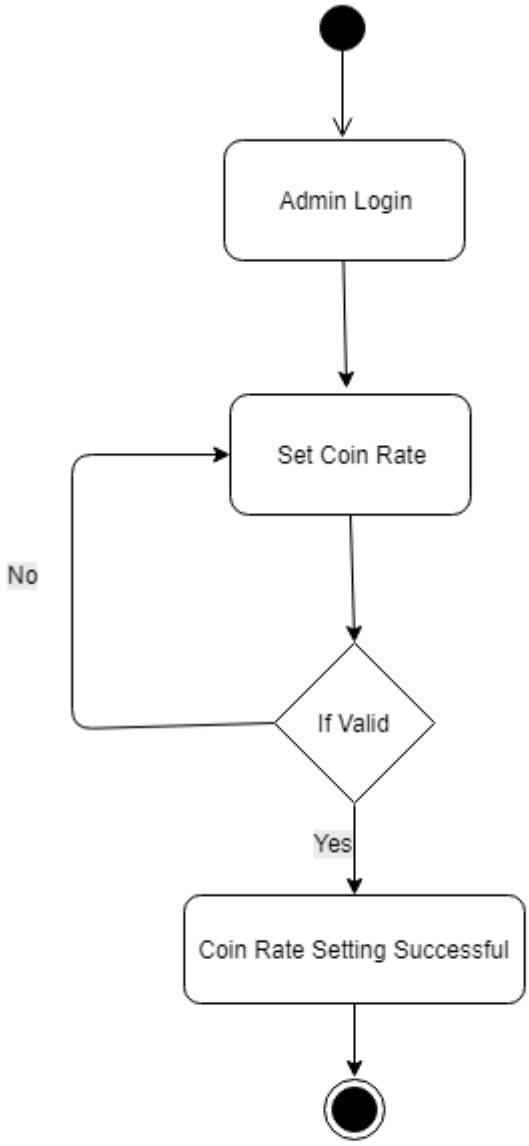

Figure 3.4: Activity Diagram for Setting Coin Rate

 ©Daffodil International University

3.3.4 Activity Diagram for Setting Loan Scheme:

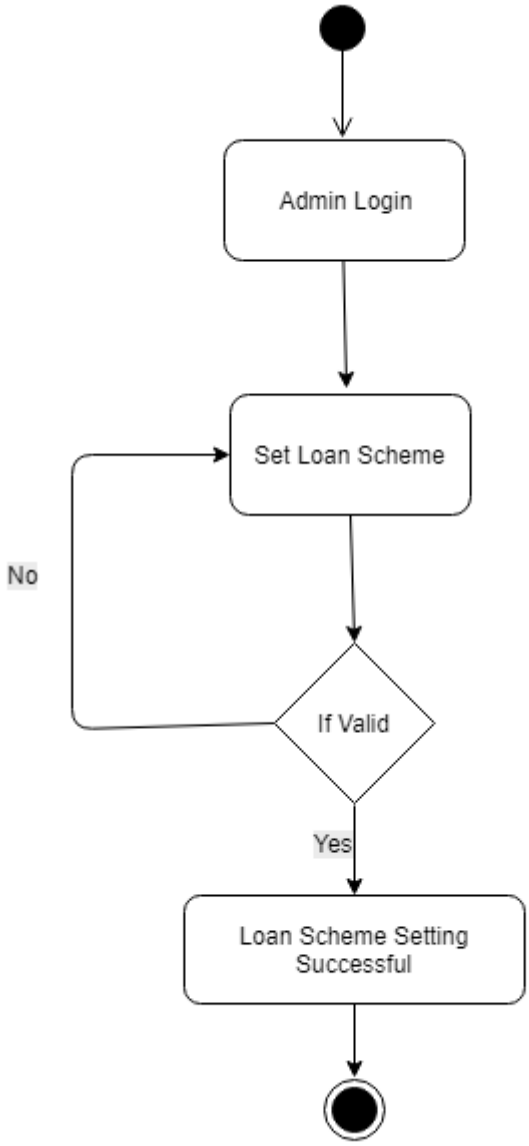

Figure 3.5: Activity Diagram for Setting Loan Scheme

©Daffodil International University

3.3.5 Activity Diagram for Setting Free Coin Claim Tasks:

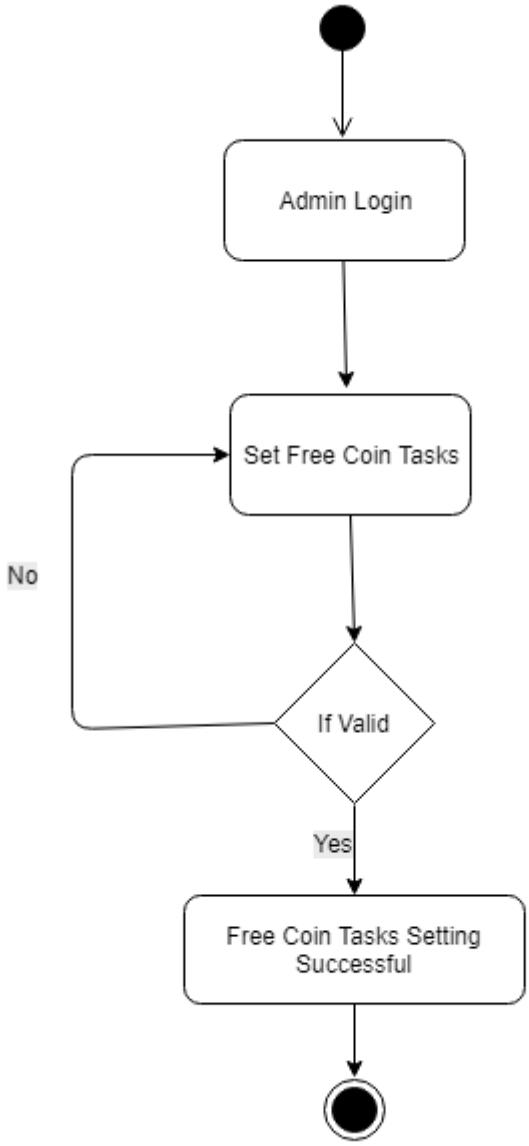

Figure 3.6: Activity Diagram for Setting Free Coin Claim Tasks

©Daffodil International University

3.3.6 Activity Diagram for Setting You Tube Bounty Claim Tasks:

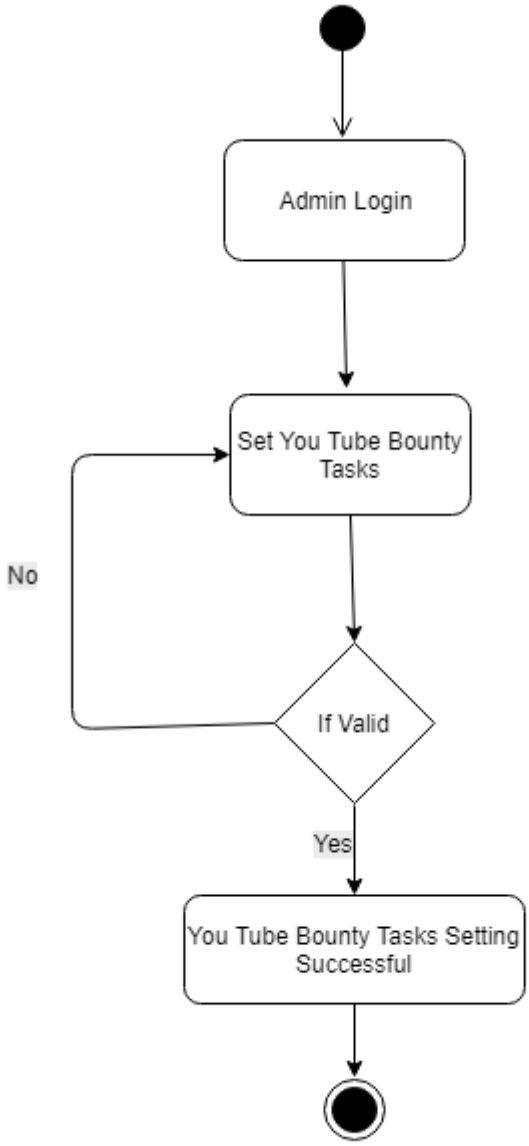

Figure 3.7: Activity Diagram for Setting You Tube Bounty Claim Tasks

 ©Daffodil International University

3.3.7 Activity Diagram for Claim Free Coin:

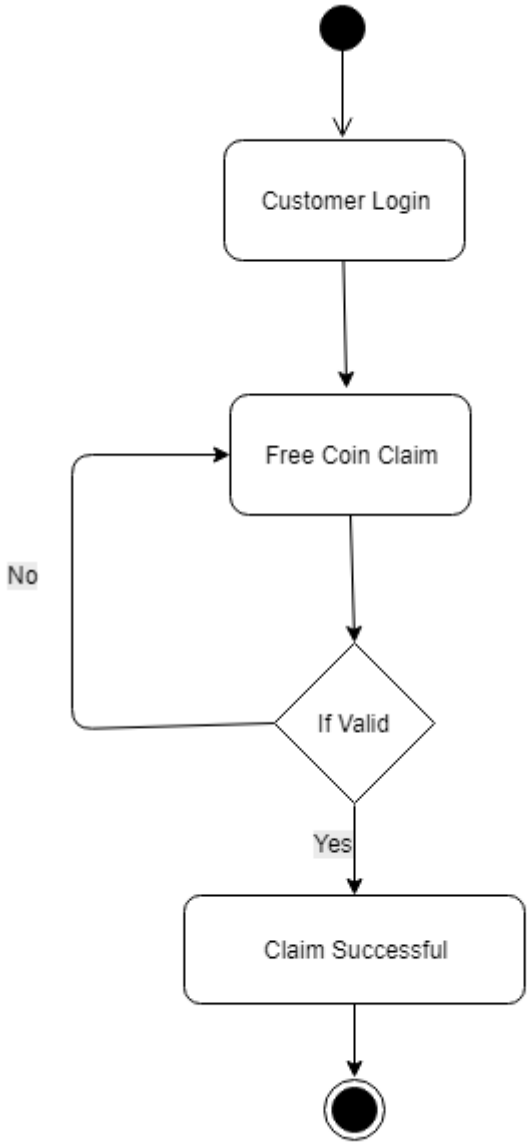

Figure 3.8: Activity Diagram for Claim Free Coin

 ©Daffodil International University

3.3.8 Activity Diagram for Completing KYC:

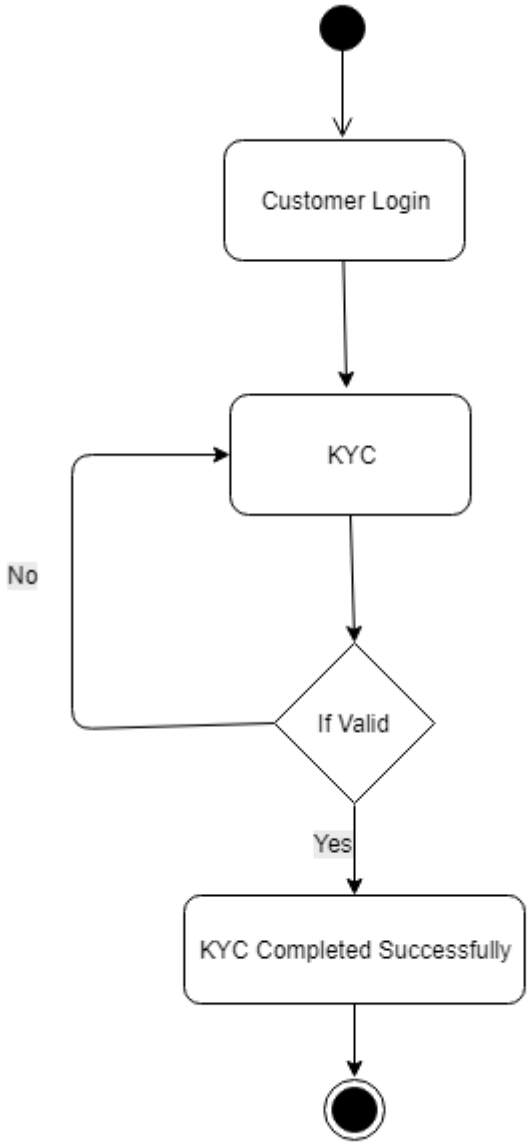

Figure 3.9: Activity Diagram for Completing KYC

 ©Daffodil International University

3.3.9 Activity Diagram for Transaction / Buy & Exchange:

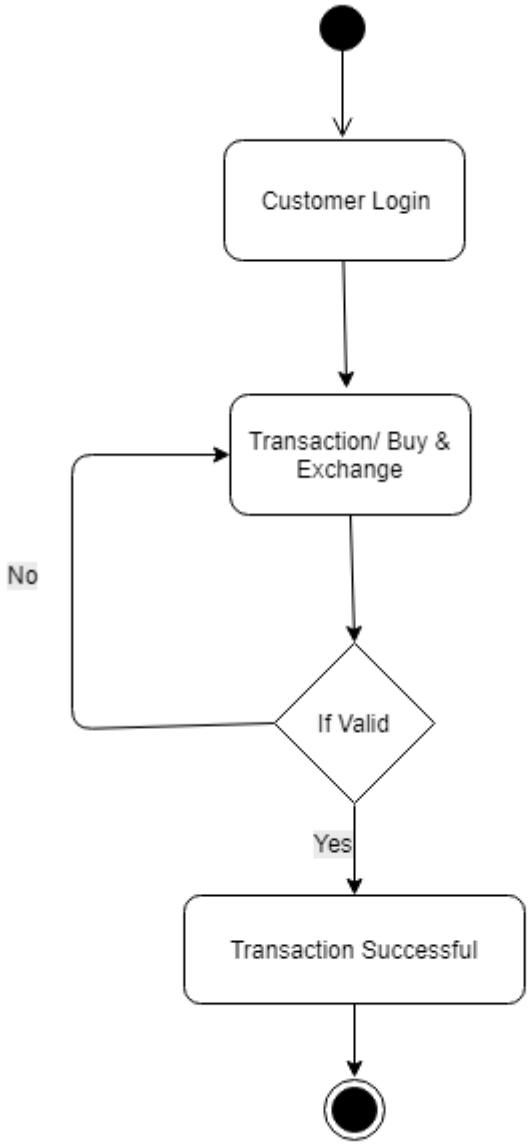

Figure 3.10: Activity Diagram for Transaction / Buy & Exchange

©Daffodil International University

3.3.10 Activity Diagram for Applying Loan:

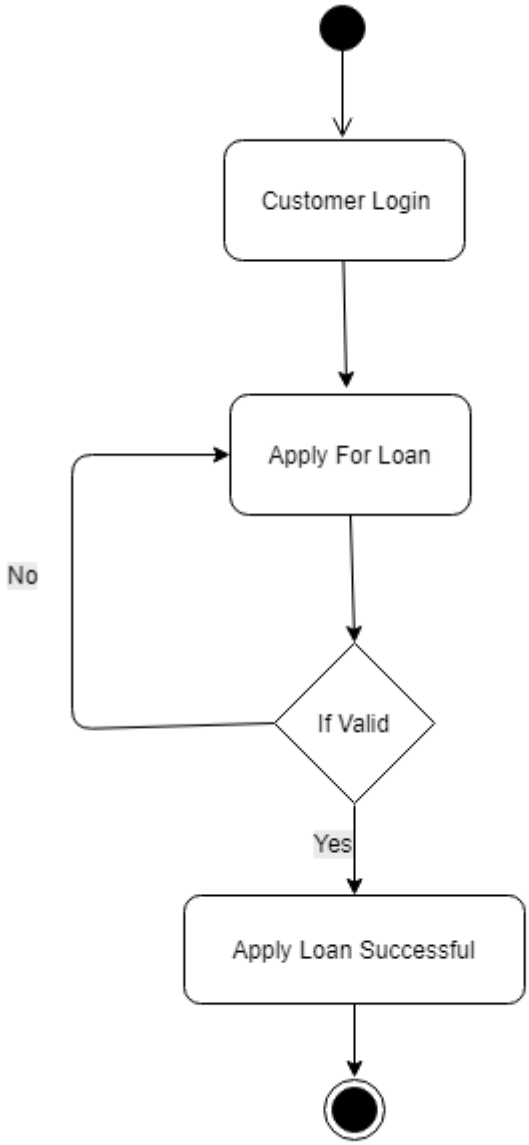

Figure 3.11: Activity Diagram for Applying Loan

 ©Daffodil International University

3.3.11 Activity Diagram for Response Claiming:

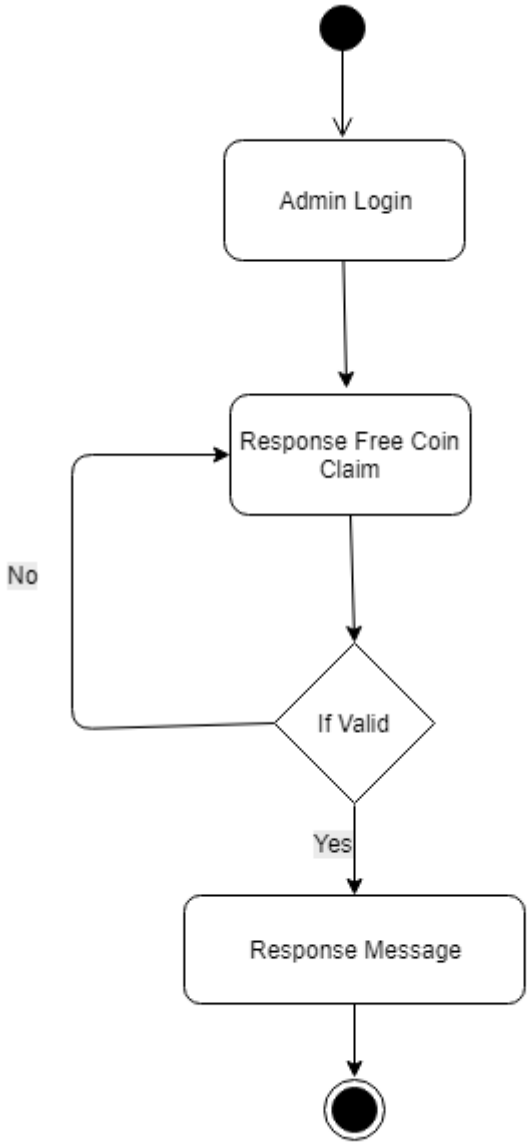

Figure 3.12: Activity Diagram for Response Claiming

 ©Daffodil International University

3.3.12 Activity Diagram for Response Transaction:

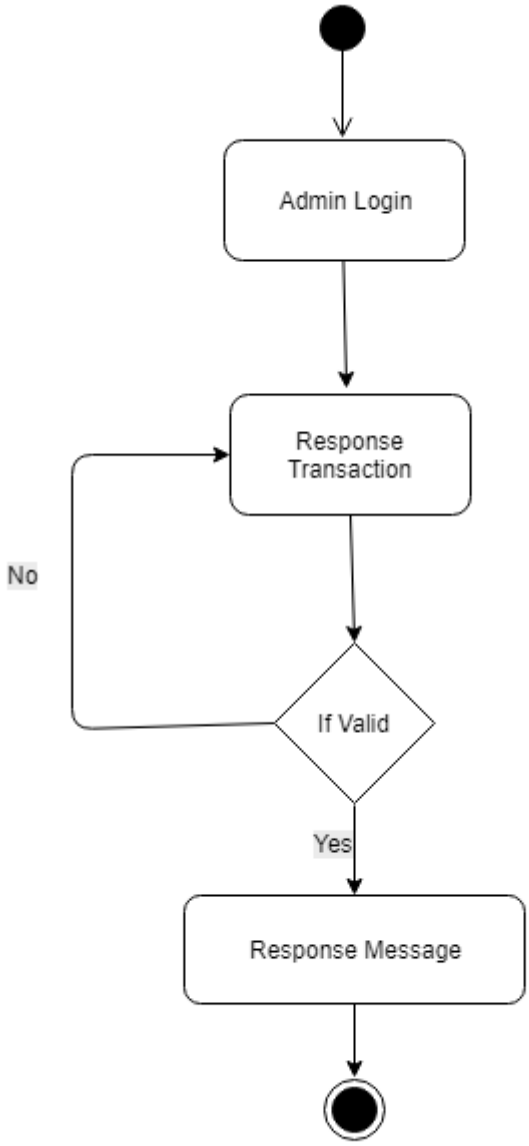

Figure 3.13: Activity Diagram for Response Transaction

©Daffodil International University

3.3.13 Activity Diagram for Approve Loan:

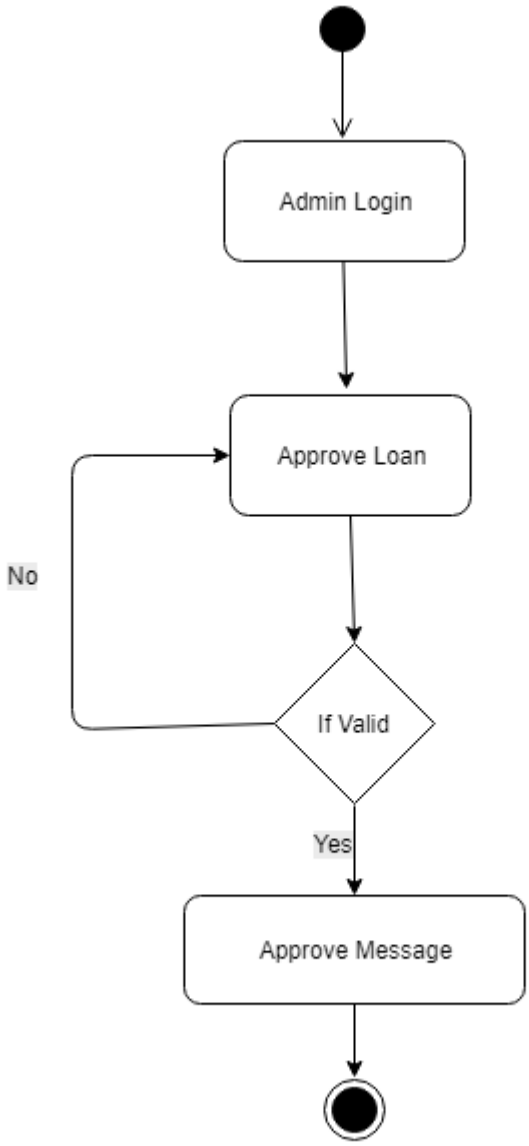

Figure 3.14: Activity Diagram for Approve Loan

 ©Daffodil International University

CHAPTER 4
SYSTEM DESIGN SPECIFICATION

4.1 Class Responsibilities Collaboration (CRC) Cards:

Admin:

Table 4.1: Admin CRC

Responsibilities	Collaboration
❖ Monitoring the system ❖ Enquiry about regular tasks	❖ Can check, response and approve all activities.

Customer:

Table 4.1: Customer CRC

Responsibilities	Collaboration
❖ Log in with proper information. ❖ Knowing proper information about CCD coin. ❖ Willing customer can apply for loan	❖ Can claim free coins

©Daffodil International University

4.2 Sequence Diagram:

Sequence diagram is a graphical presentation of workflow of a system. It defines how a work is completed step by step.

4.2.1 Sequence Diagram for Set Time Table:

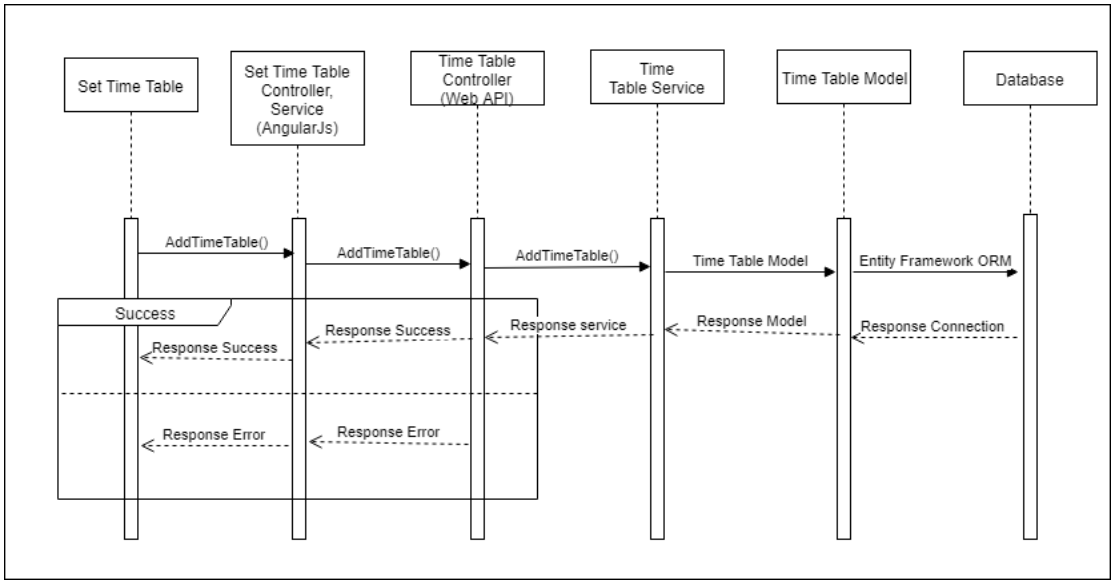

Figure 4.1: Sequence Diagram for Set Time Table

4.2.2 Sequence Diagram for Set Coin Scheme:

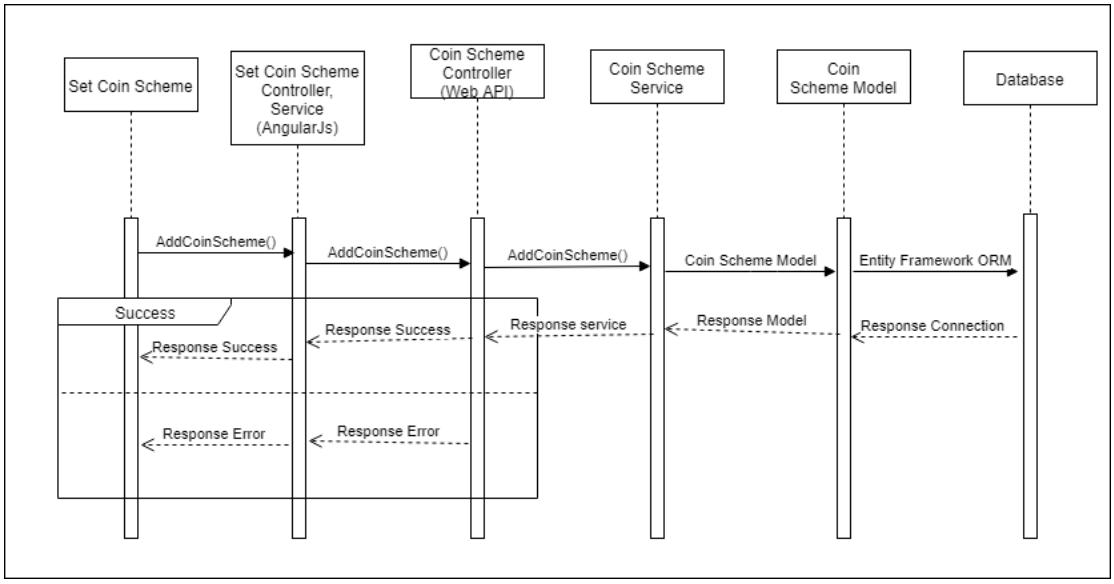

Figure 4.2: Sequence Diagram for Set Coin Scheme

 ©Daffodil International University

4.2.3 Sequence Diagram for Set Coin Rate:

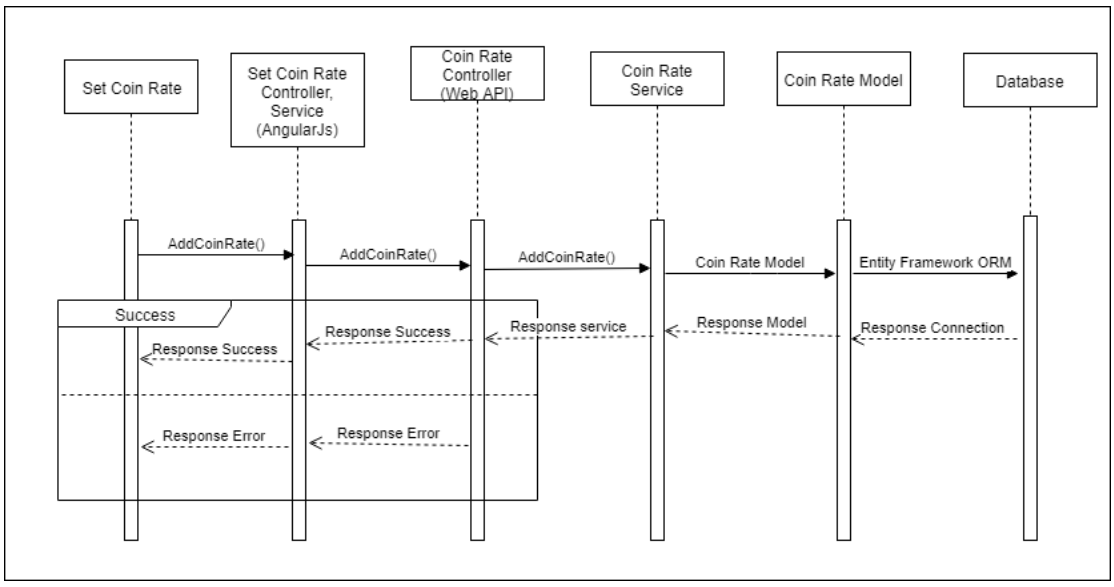

Figure 4.3: Sequence Diagram for Set Coin Rate

4.2.4 Sequence Diagram for Set Loan Scheme:

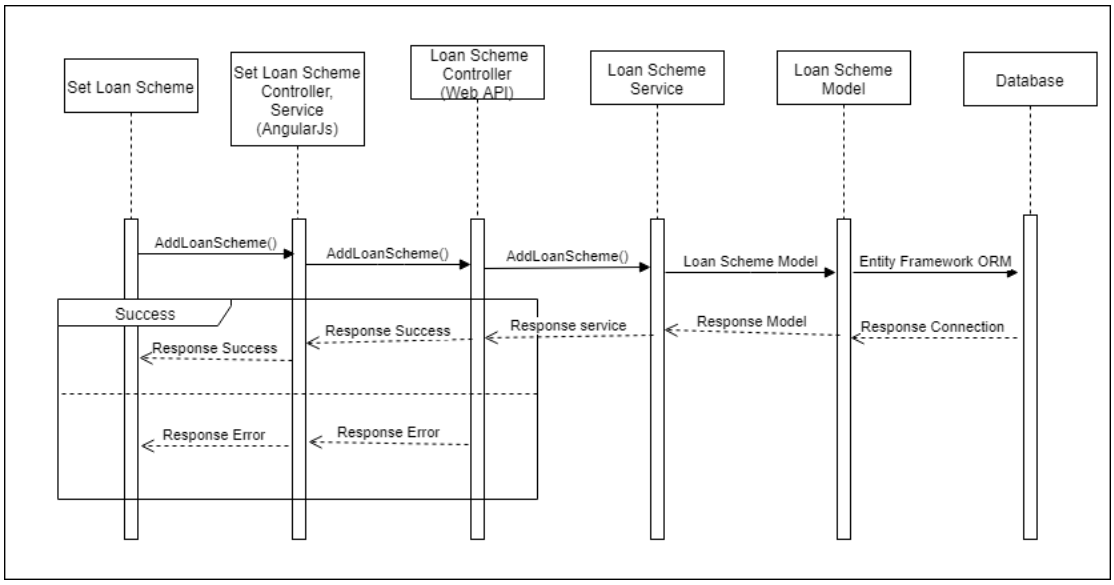

Figure 4.4: Sequence Diagram for Set Loan Scheme

 ©Daffodil International University

4.2.5 Sequence Diagram for Set Free Coin Claim Tasks:

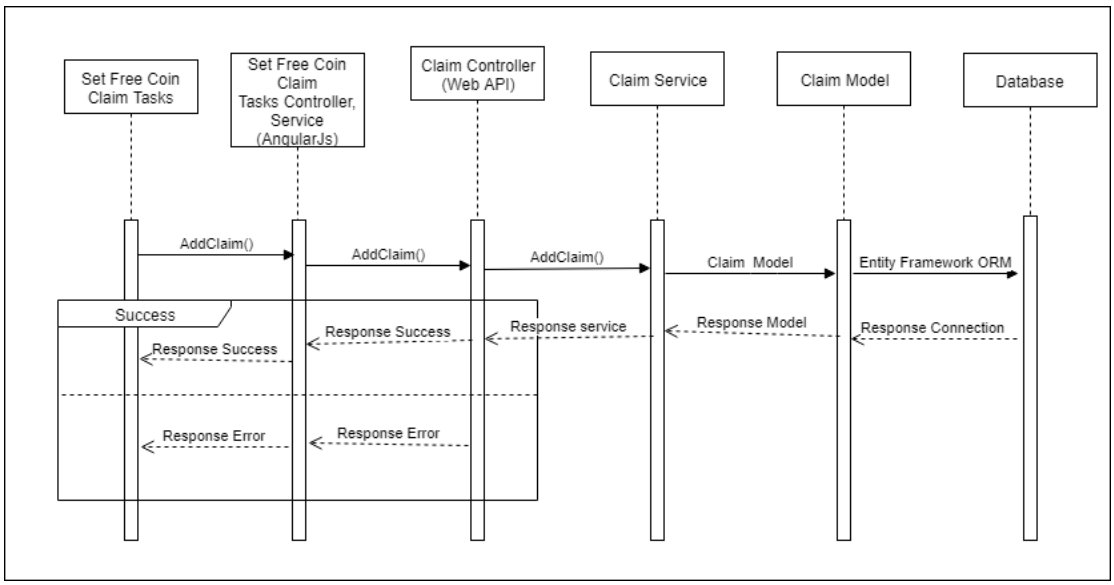

Figure 4.5: Sequence Diagram for Set Free Coin Claim Tasks

4.2.6 Sequence Diagram For Response Claim Free Coin:

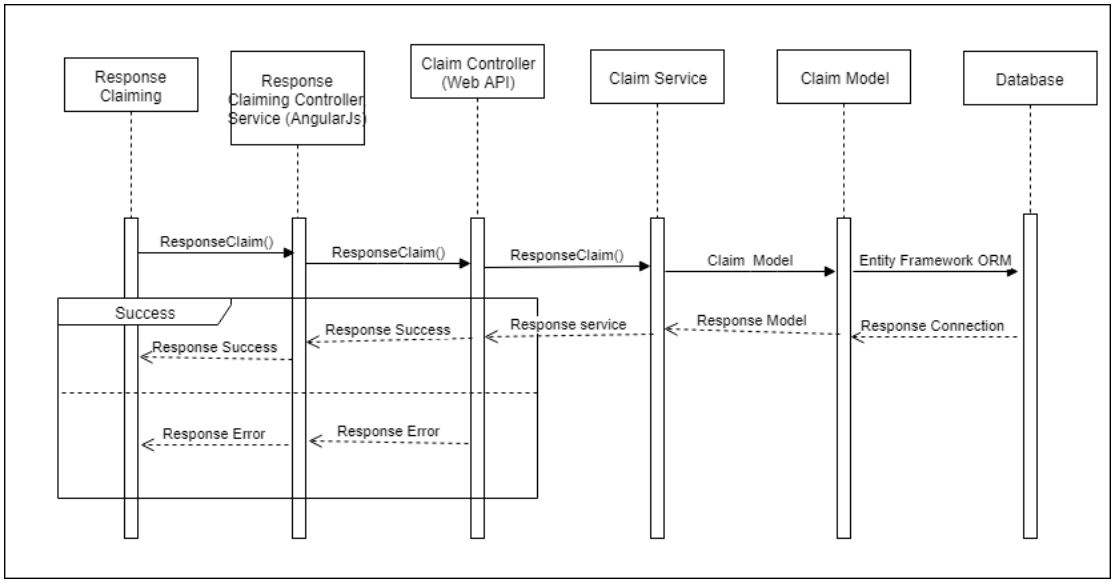

Figure 4.6: Sequence Diagram for Claim Free Coin

 ©Daffodil International University

4.2.7 Sequence Diagram for Transaction/ Buy & Exchange:

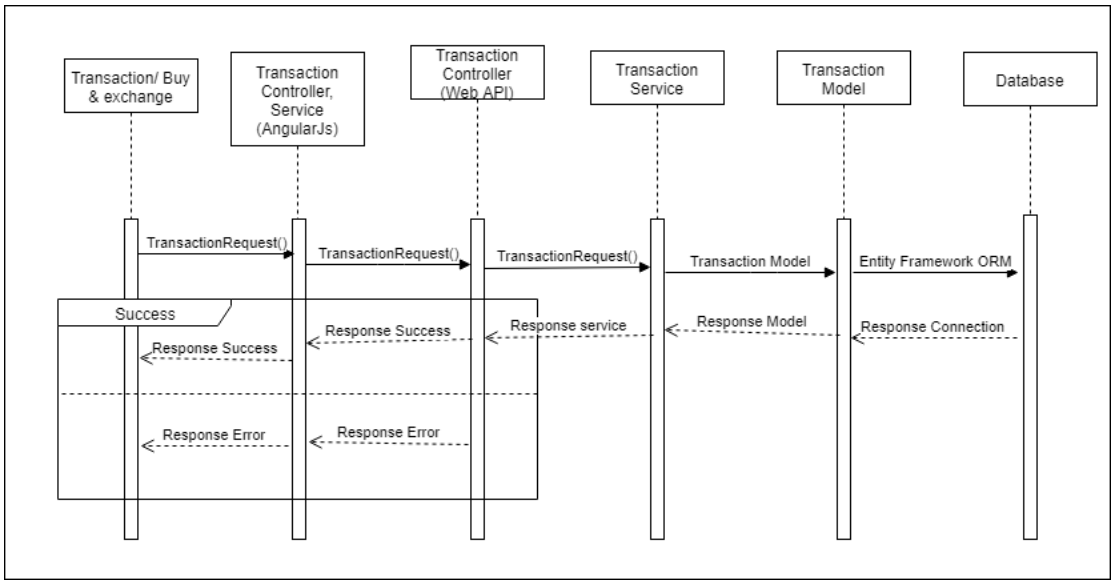

Figure 4.7: Sequence Diagram for Transaction/ Buy & Exchange

4.2.8 Sequence Diagram for Transaction Response:

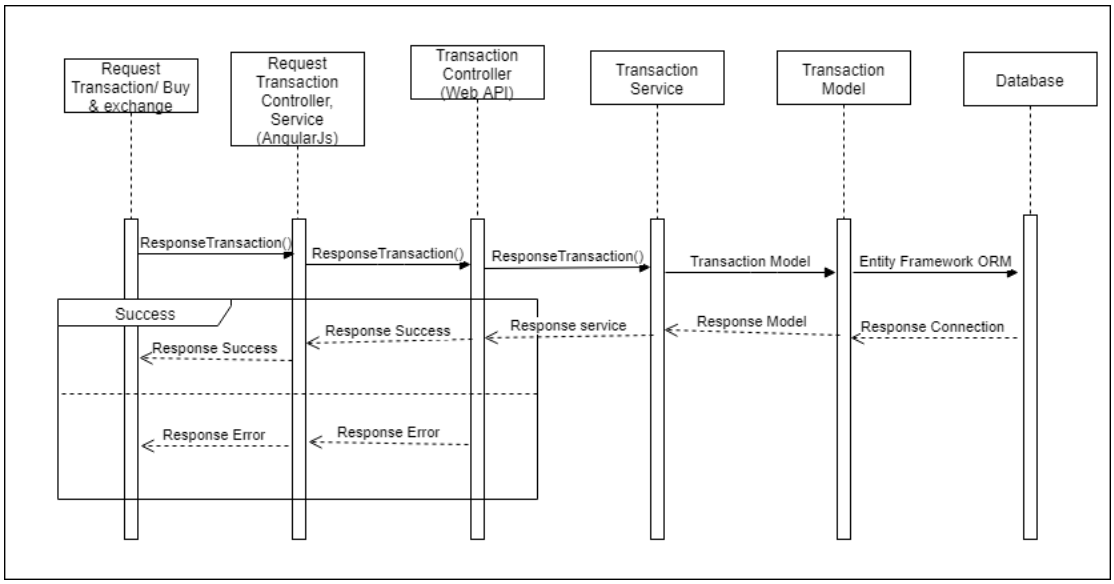

Figure 4.8: Sequence Diagram for Transaction Response

 ©Daffodil International University

4.2.9 Sequence Diagram for Complete KYC:

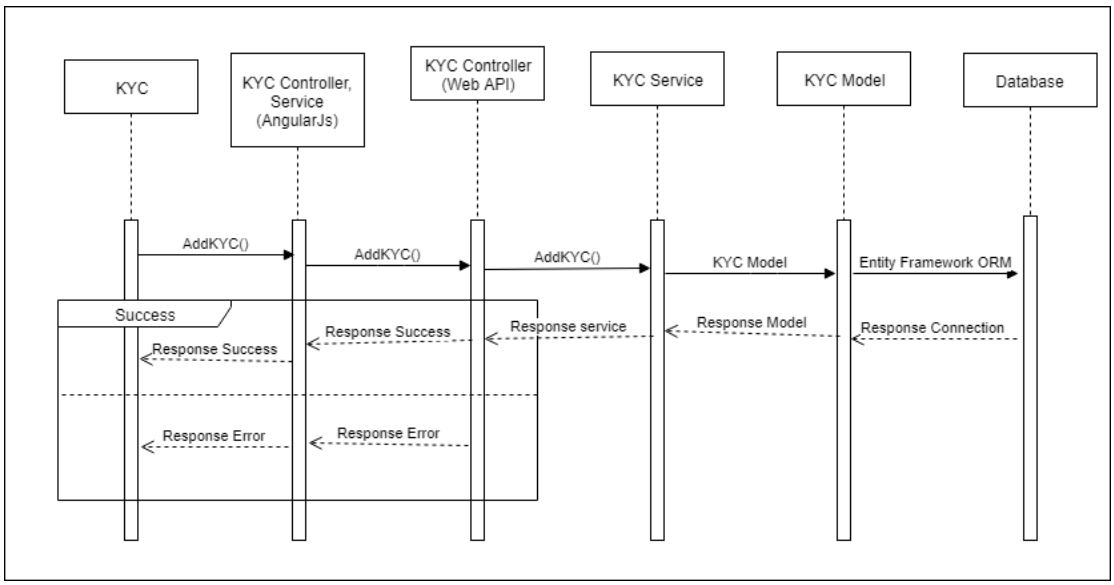

Figure 4.9: Sequence Diagram for KYC

4.2.10 Sequence Diagram for Apply For Loan:

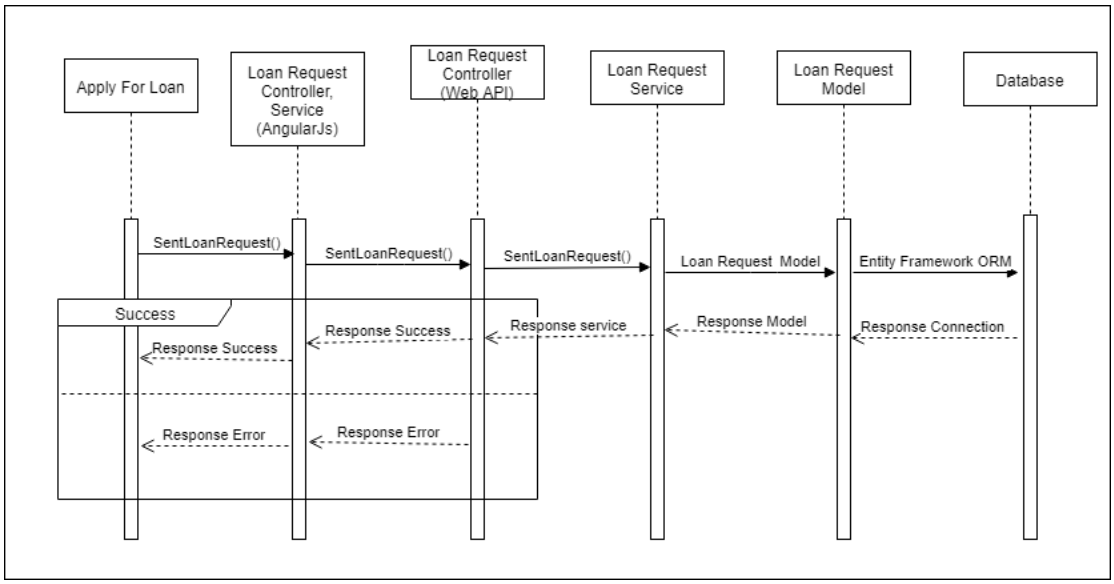

Figure 4.10: Sequence Diagram for Apply Loan

 ©Daffodil International University

4.2.11 Sequence Diagram for Approve Loan:

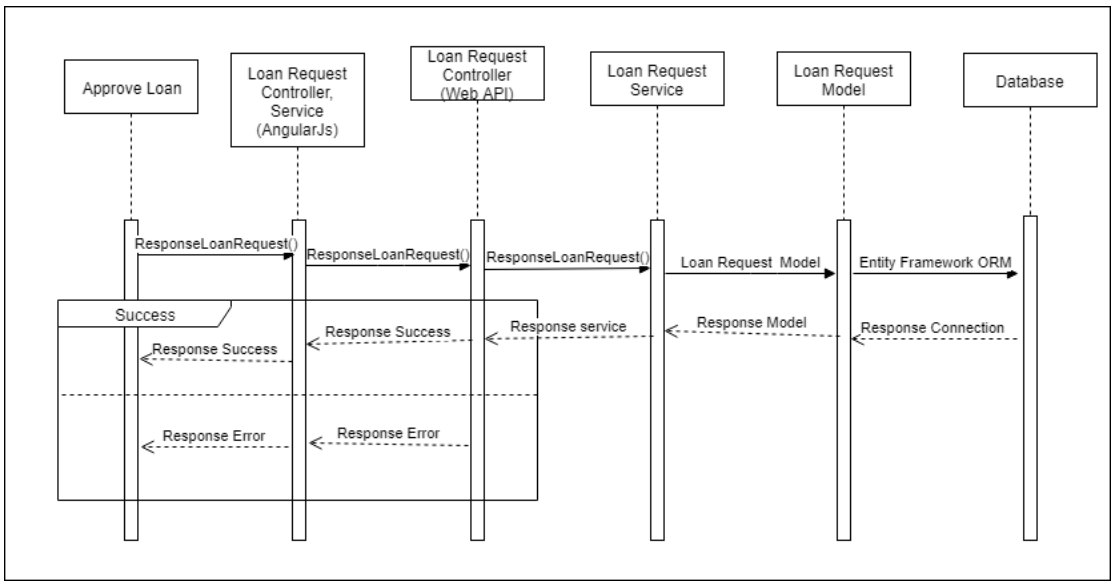

Figure 4.11: Sequence Diagram for Approve Loan

 ©Daffodil International University

4.3 Class Diagram

When all the internal relations and activities are represented in a schematic way then it is class diagram. Class diagram is the structure of a system.

Here is given my system's Class Diagram.

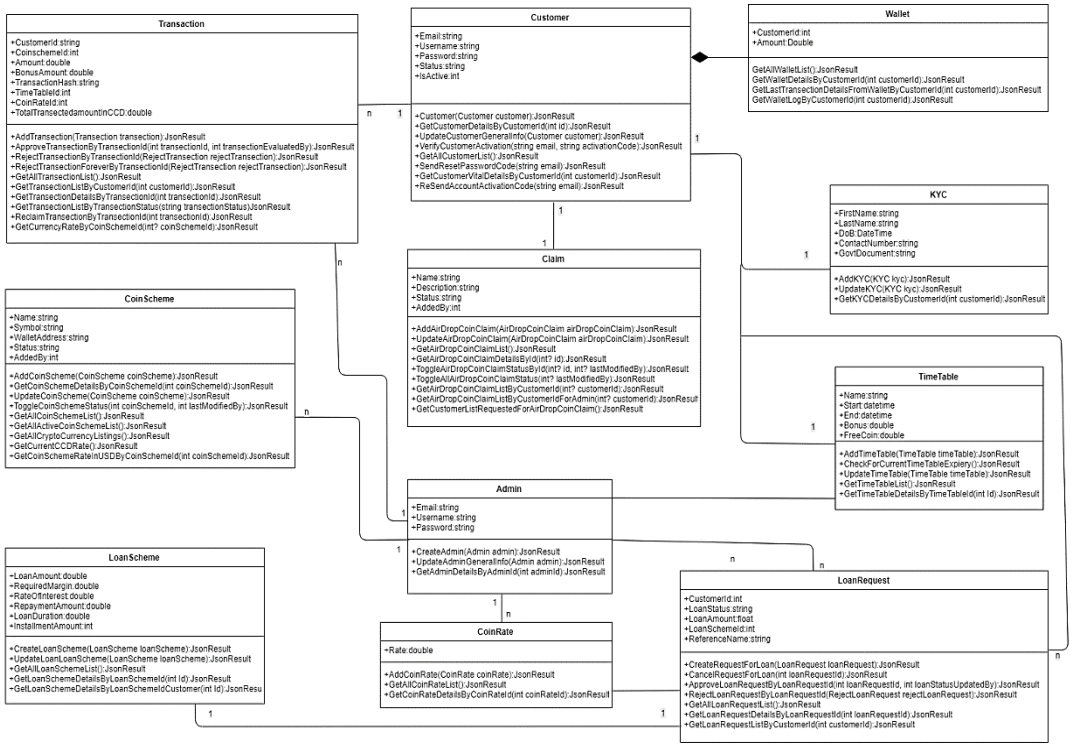

Figure 4.12: Class Diagram

 ©Daffodil International University

4.4 Database Design Diagram:

All the required data for a system is stored in database. A database diagram shows the internal relations among the entities of the database.

Following diagram is my system's database design diagram.

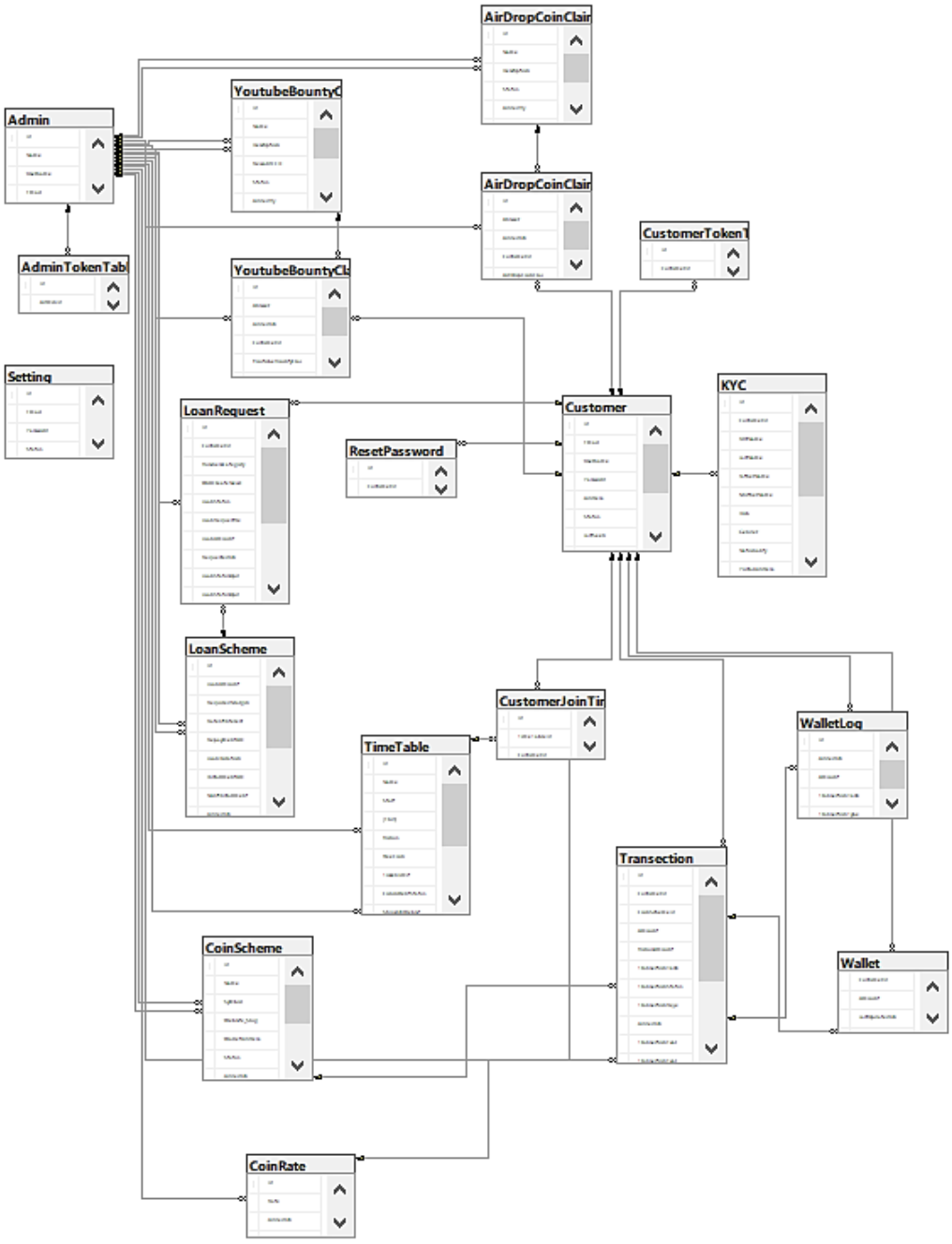

Figure 4.13 Database design Diagram

 ©Daffodil International University

4.5 Development Tools & Technology:

Development tools:

- Development IDE: Microsoft visual studio 2017
- Server: Microsoft SQL Server 2017
- Operating System: Windows 10

Development technology:

- Programming language: C#
- Pattern: Web API 2
- Framework: Entity framework 6.0.0, .Net framework 4.7.2

4.5.1 User Interface Technology:

- HTML
- CSS
- Bootstrap
- JavaScript
- Angular JS
- JQuery

4.5.2 Implementation tools & Platforms:

Implementation tools:

- Development IDE: Microsoft visual studio
- Server: Microsoft SQL Server
- Operating System: Windows 10

Implementation technology:

- Programming language: C#
- Pattern: Web API 2
- Framework: Entity framework 6.0.0, .Net framework 4.7.2

CHAPTER 5
SYSTEM TESTING

5.1 Testing Features:

For verifying the working process of the features of any system, Testing is very necessary. We can detect the proper performance of the features by testing properly.

- Admin Login
- Admin Registration
- Coin Scheme
- Coin Rate
- Time Table
- Loan Scheme
- Loan Apply
- Transaction
- Customer Login
- Customer Registration
- KYC

5.2 Testing strategies:

- Quality test
- Measure test

5.2.1 Test Approach:

In test approach there are two types of techniques:

- **Proactive** - An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.

- **Reactive** - An approach in which the testing is not started until after design and coding are completed.

 ©Daffodil International University

5.2.2 Pass/Fail criteria:

- When inserted data is ok then it is passed
- When inserted data is not ok then it is failed.

5.3 Testing Environment:

- Testing IDE: Microsoft Visual Studio 2017
- Browser: Google chrome
- Server: Microsoft SQL Server 2017
- Operating System: Windows 10
- Possessor: Core I 5

5.4 Test Case:

Test case is very important for justifying the activity of any system. Here is given my system's test cases.

5.4.1 Test case for customer registration:

Table 5.1: Test Case for Customer Registration

Test case ID: 01	Module name: Customer
Sub Module: customer registration	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 02-11-2018
Text title: registration with valid information	Test executed by: Ahsanul Banna
Description: test the system's on registration page	Text executed date:02-11-2018

Preconditions: The user navigate to registration page and input the required filled. And click on the Register button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/ Fail
1	Navigate to registration page	Click on registration button	Customer Registration	Customer should be	Custo mer	pass

 ©Daffodil International University

				registered successfully	registered	
2	Customer name	Mr. Nick				
3	Email	nick@gmail.com				
4	Password	123456				
5	gender	Male				

Post condition: If the user information's are valid then the information will be saved in the database otherwise show the invalid message.

5.4.2 Test case for customer login:

Table 5.2: Test Case for Customer Login

Test case ID: 02	Module name: Customer
Sub Module: customer login	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 02-11-2018
Text title: login with valid information	Test executed by: Ahsanul Banna
Description: test the system on login page	Text executed date: 02-11-2018

Preconditions: The user navigate to login page and input the required filled. And click on the login button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to login page	Click on buy now button	Customers/Login	Customer should be login successfully	Customer login	pass
2	Email	nick@gmail.com				
3	password	123456				

 ©Daffodil International University

5.4.3 Test case for Admin Login:

Table 5.3: Test Case for Admin Login

Test case ID: 03	Module name: Admin
Sub Module: Admin login	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 03-11-2018
Text title: login with valid information	Test executed by: Ahsanul Banna
Description: test the system on login page	Text executed date: 03-11-2018

Preconditions: The user navigate to login page and input the required filled. And click on the login button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to login page	Click on buy now button	Admin Login	Admin should be login successfully	Admin login	pass
2	Email	Ahsanulbanna3@gmail.com				
3	password	123456				

Post condition: If the user information's are valid then the information will be matching the database.

5.4.4 Test case for Time Table:

Table 5.4: Test Case for Time Table

Test case ID: 04	Module name: Time table
Sub Module: Time table	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 03-11-2018
Text title: Add time table	Test executed by: Ahsanul Banna
Description: Admin will insert data with maintain validity.	Text executed date: 03-11-2018

©Daffodil International University

Preconditions: The user navigate to Time table page and input the required filled. And click on the Time table button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to time table form	Click on Save button.	Time table	Data inserted successfully	Data inserted	pass
2	Name	SPA				
3	Start Date	03-11-2018				
4	End date	09-11-2018				
5	Bonus	50%				
6	Free coin	1000 CCD				

Post condition: If the user information's are valid then the information will be matching the database.

5.4.5 Test case for Coin Rate (CCD):

Table 5.5: Test Case for Coin Rate

Test case ID: 05	Module name: Coin Rate
Sub Module: Coin Rate	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 03-11-2018
Text title: Add Coin Rate	Test executed by: Ahsanul Banna
Description: Admin will insert data with maintain validity.	Text executed date: 03-11-2018

Preconditions: The user navigate to Coin Rate page and input the required filled. And click on the Save button.

 ©Daffodil International University

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to time table form	Click on Save button	Coin Rate	Data inserted successfully	Data inserted	pass
2	CCD rate	0.0005				

Post condition: If the user information's are valid then the information will be matching the database.

5.4.6 Test case for Loan scheme:

Table 5.6: Test Case for Loan Scheme

Test case ID: 06	Module name: Loan scheme
Sub Module: Loan scheme	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 04-11-2018
Text title: Add Coin Rate	Test executed by: Ahsanul Banna
Description: Admin will insert data with maintain validity.	Text executed date: 04-11-2018

Preconditions: The user navigate to Loan scheme page and input the required filled. And click on the Save button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to Loan scheme	Click on Save button	Loan scheme	Data inserted successfully	Data inserted	pass
2	Loan amount	1500				
3	Required margin	150				
4	Rate of interest	5%				

©Daffodil International University

5	Total repayment amount	1725				
6	Installment amount	287.50				
7	Loan duration	3				
8	Number of installment	6				
9	Currency	BTC				

Post condition: If the user information's are valid then the information will be matching the database.

5.4.7 Test case for Loan apply:

Table 5.7: Test Case for Loan Apply

Test case ID: 07	Module name: Loan Apply
Sub Module: Loan apply	Test design by: Ahsanul Banna
Test priority(low/medium/high): high	Test design date: 03-11-2018
Text title: Add Coin Rate	Test executed by: Ahsanul Banna
Description: Admin will insert data with maintain validity.	Text executed date: 03-11-2018

Preconditions: The user navigate to Coin Rate page and input the required filled. And click on the Add Coin Rate button.

Step	Test step	Test data	Code module	Expected result	Actual result	Pass/Fail
1	Navigate to time table form	Click on Save button	Coin Rate	Data inserted successfully	Data inserted	pass
2	CCD rate	0.0005				

Post condition: If the user information's are valid then the information will be matching the database.

©Daffodil International University

CHAPTER 6
USER MANUAL

6.1: Home Page:

This is my project home page when my application run the home page will show. Customers can completing registration process from home page through join us option.

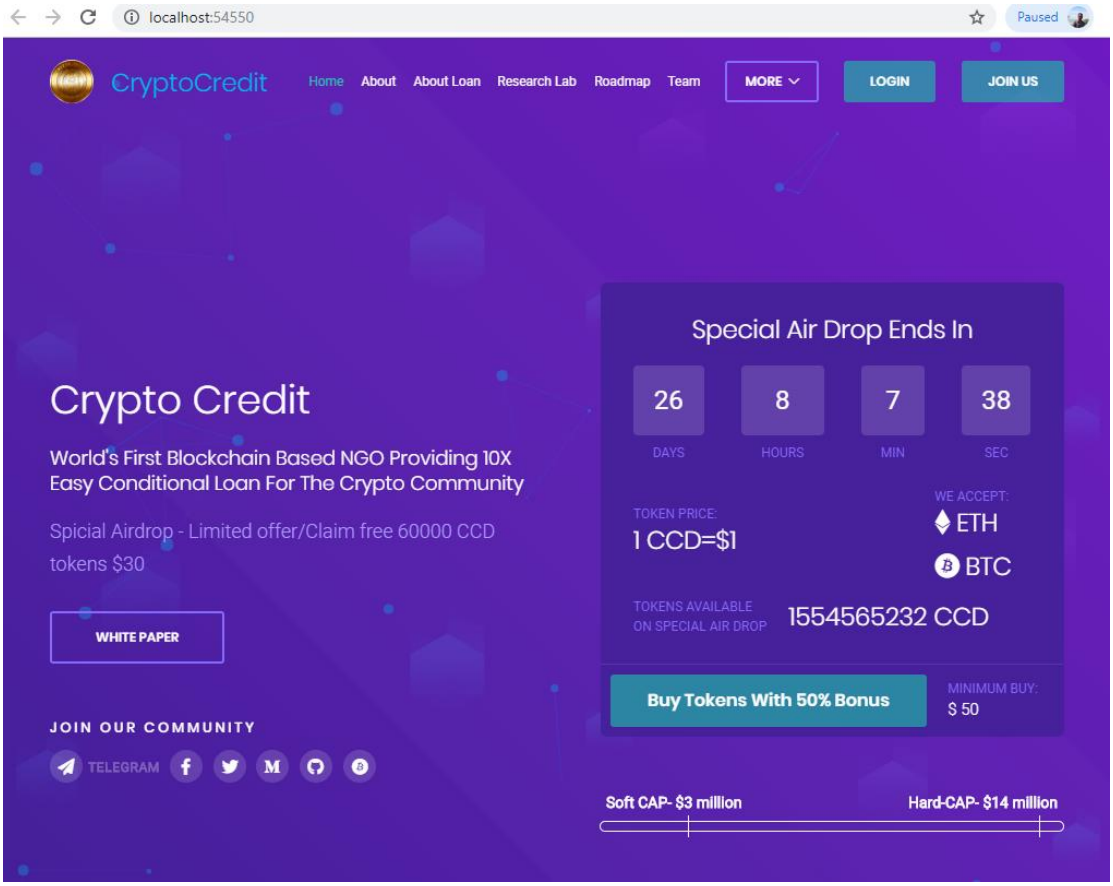

Figure 6.1: Home Page

6.2: Admin Dashboard:

Admin will be able to enter this field after authentication with credential information properly. Admin can add or set time table, coin scheme, coin rate, loan scheme. Admin can approve CCD coin transaction, loan request, free coin claiming etc. also. Admin can also monitor about the activity of visiting customer and transaction.

©Daffodil International University

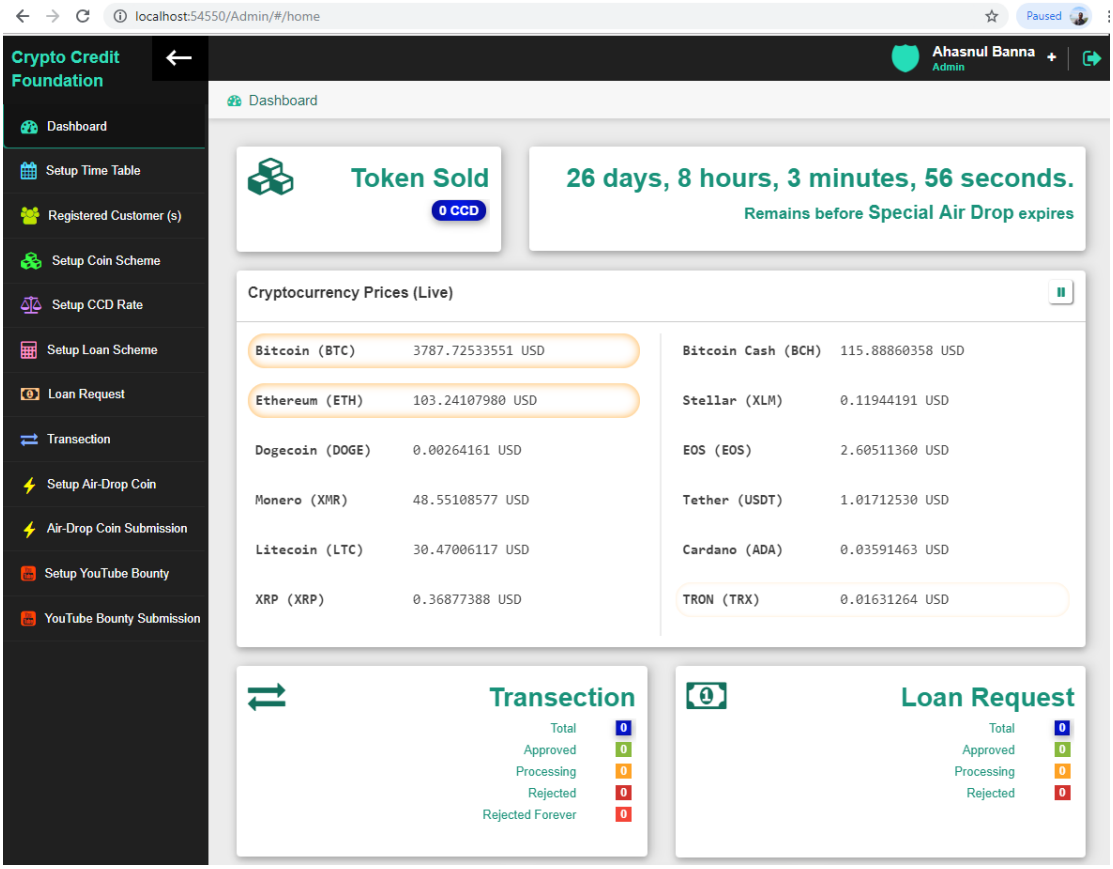

Figure 6.2: Admin Dashboard

6.2.1: Set Time Table:

Admin can access this feature only. Admin set time table with proper valid input and set Toggle Status or toggle coming soon. If admin set toggle status on then this time table is current.

©Daffodil International University

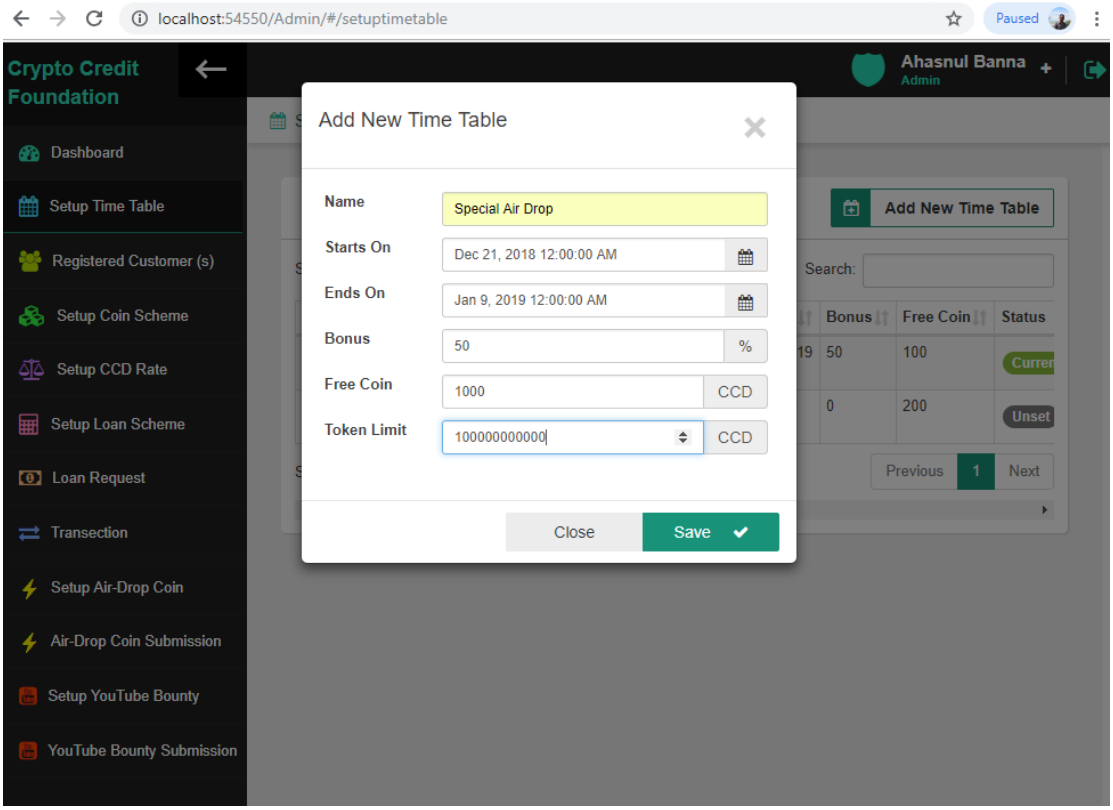

Figure 6.3: Set Time Table

6.2.2: Setup Coin Scheme

Admin can access this feature only. Admin set coin scheme with proper valid input and set Toggle Status. If admin set toggle status on then this coin scheme will be added.

©Daffodil International University

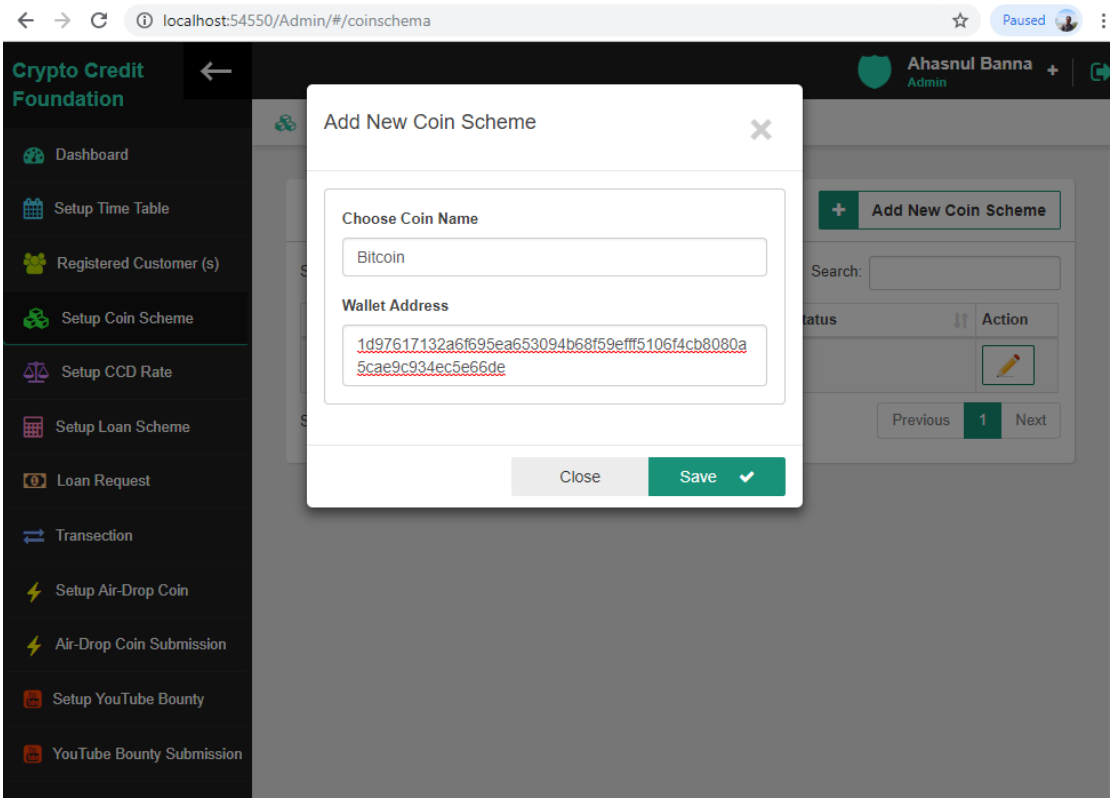

Figure 6.4: Set Coin Scheme

6.2.3: Set Free Coin Claim Task:

Admin can access this feature only. Admin set claim tasks with proper valid field and set Toggle Status. If admin set toggle status on then this feature will be available to customers.

©Daffodil International University

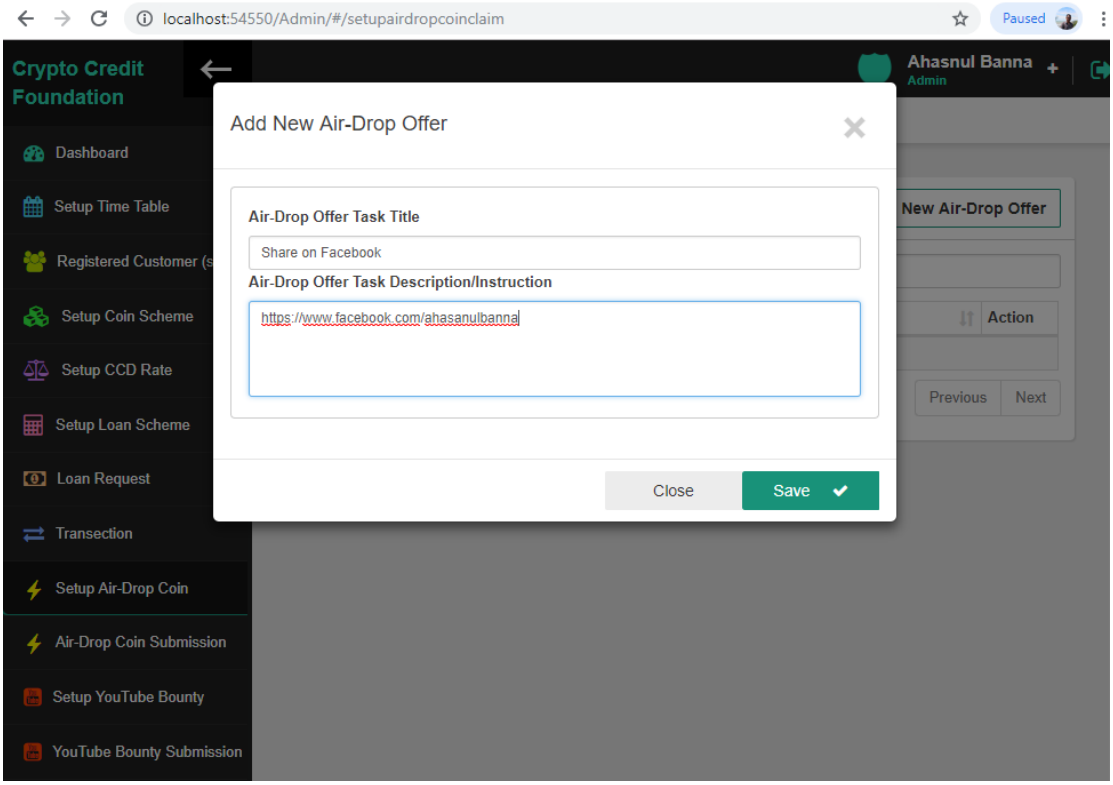

Figure 6.5: Set Free Coin Claim Task

6.3: Customer Dashboard:

By proper authentication with credential information customer can get accessed here. Then customers can buy/exchange CCD coin, complete tasks for getting free coins, complete KYC for taking loan. Then they can request for loan. Customers can also see the other informations what is valid for them about the system.

©Daffodil International University

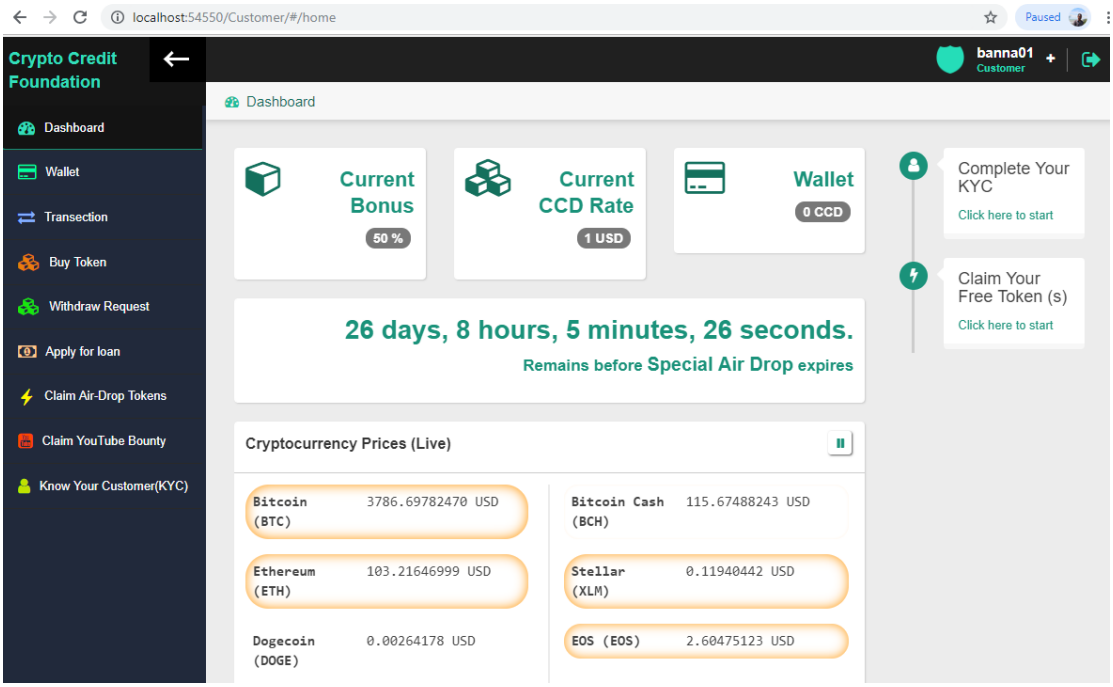

Figure 6.6: Customer Dashboard

6.3.1: Buy/Exchange:

First customers have to input the amount of CCD coin. Then they have to select the definite currency with that they want to exchange. Then customer have to pay through the hash key provided by admin. Then customer have to input customer wallet hash key and press Send Request button. Admin check those transection and response on transection validity. Customer can show the transection response.

©Daffodil International University

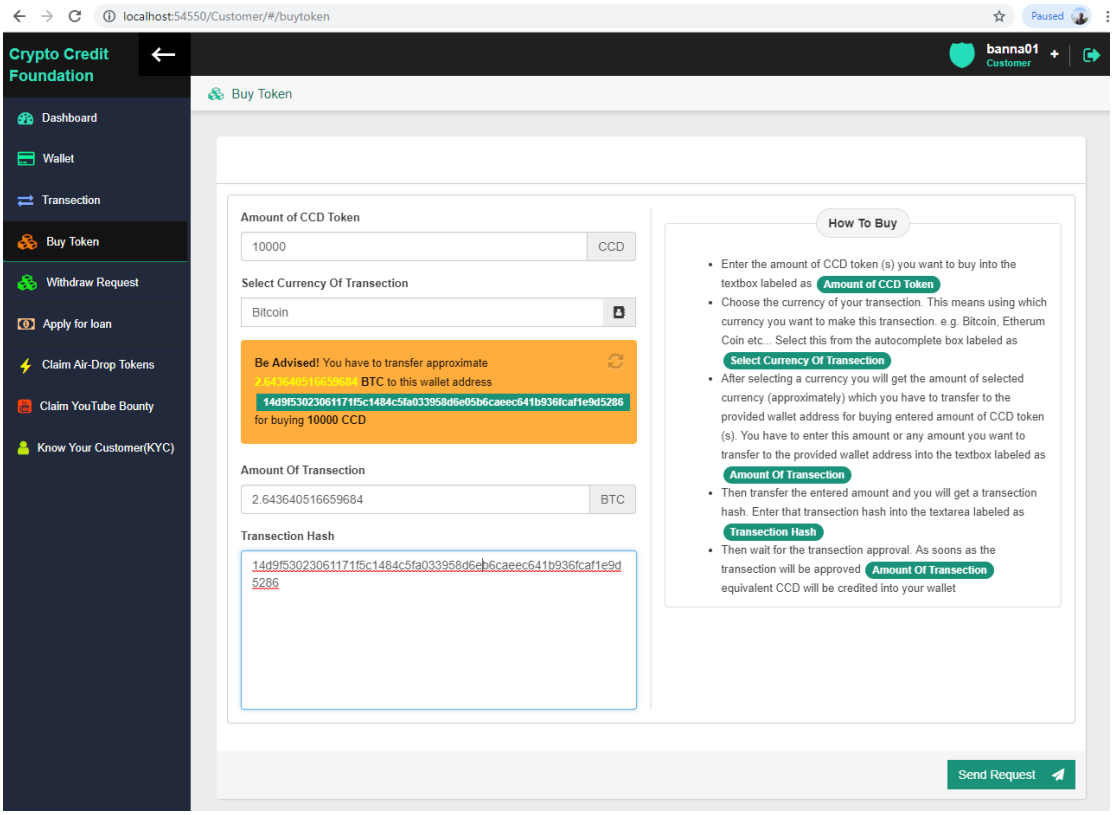

Figure 6.7: Buy/Exchange

6.3.2: Claim free Coin:

Customer will get free coin while registering to my system. Customer have to complete some tasks provided by admin to claim free coins. Amount of free coins may differ in different time period.

©Daffodil International University

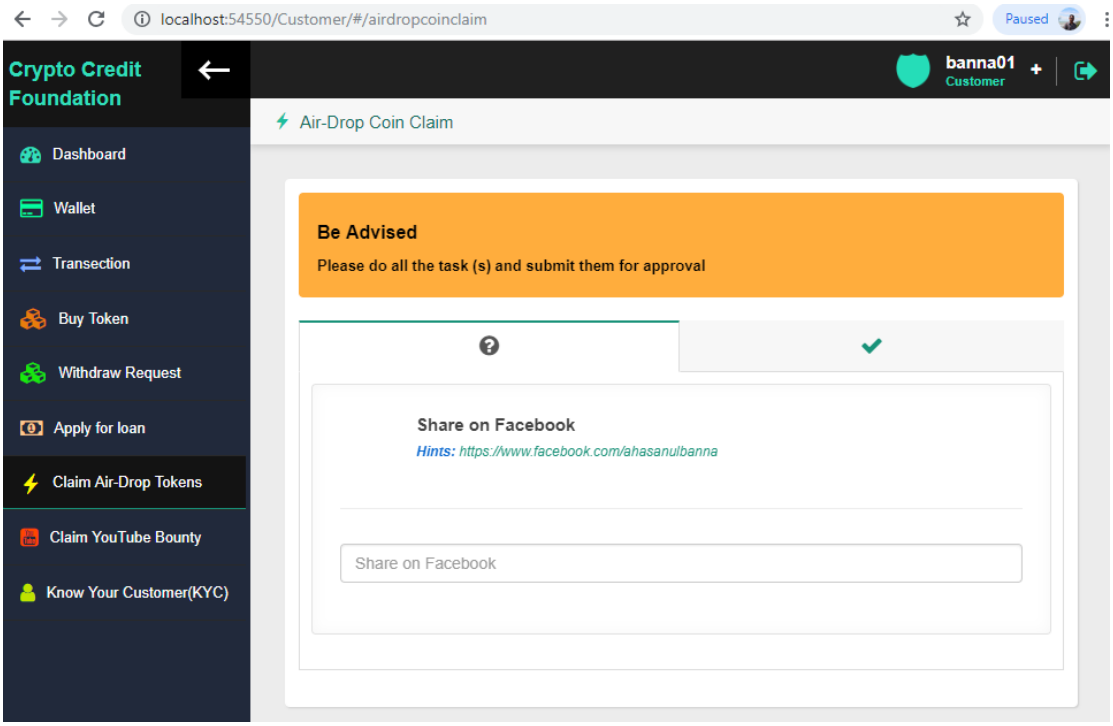

Figure 6.8: Claim Free Coin

6.3.3: YouTube Bounty Claim:

If anyone make any video about CCD coin on YouTube platform and if he input that link in definite field then he can get YouTube bounty coins.

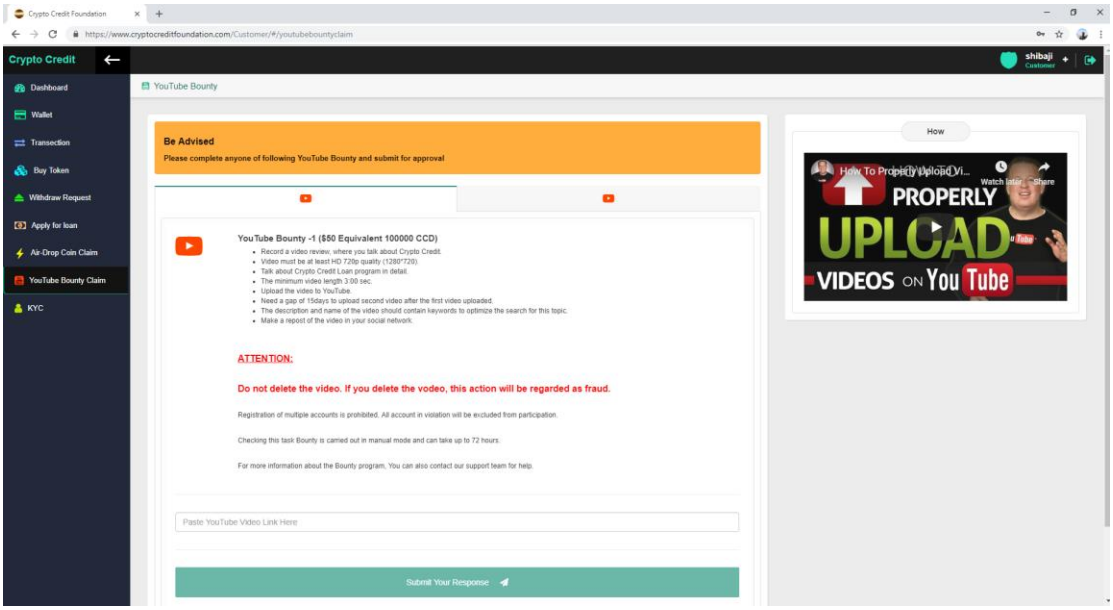

Figure 6.9: Claim YouTube Bounty

©Daffodil International University

6.3.4: KYC:

Customer have to complete KYC form with his proper information. Then he will be able to apply for loan.

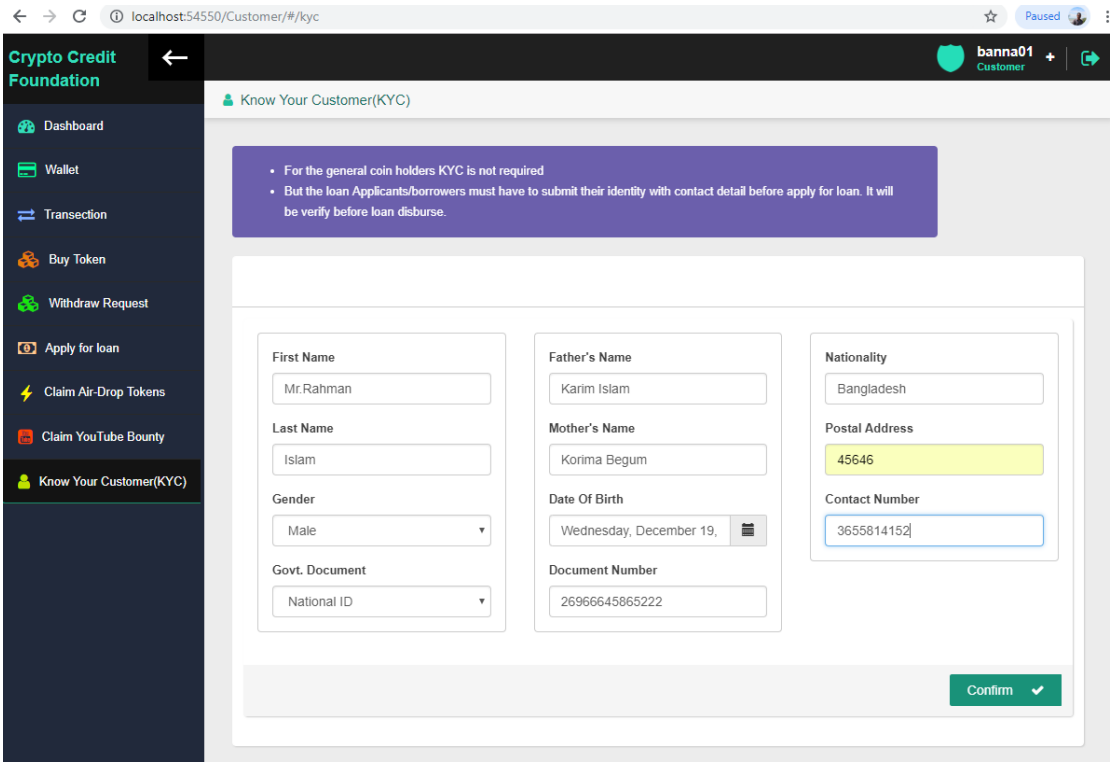

Figure 6.10: KYC

6.3.5: Apply Loan:

Those customers will be able to apply for loan who completed KYC form with proper information and followed loan scheme required margin.

©Daffodil International University

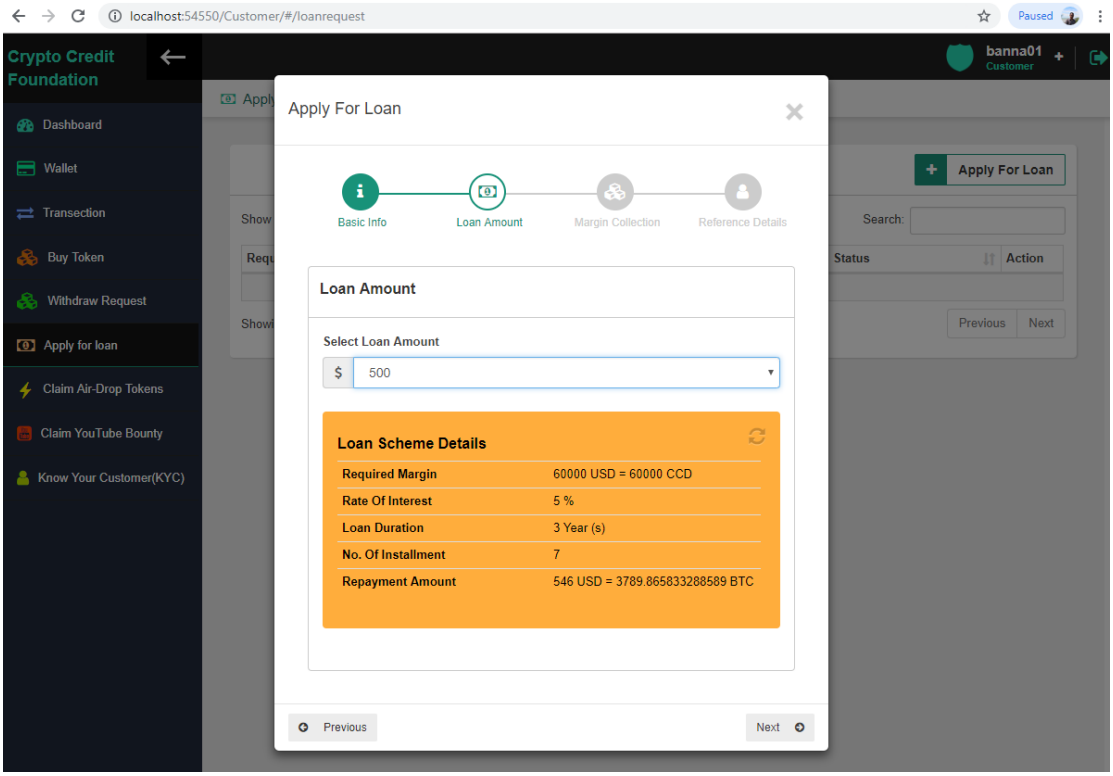

Figure 6.11: Apply Loan

©Daffodil International University

CHAPTER 7
PROJECT SUMMARY

7.1 Critical Evolution:

- Knowing information about current all electric currency
- Security issue
- Gathering Requirement issue

7.2 Limitations:

- As my system is on international perspective but there is a limitation for users to access at a time.

7.3 Obstacles & Achievements:

- Requirement collecting was an obstacle.
- I have learned many things about API design and UI/UX design, SQL query

7.4 Future Scope:

- When CCD coin will be established in electric coin market then block chain engine will be implemented.

7.5 Discussion and Conclusion:

Crypto Credit (CCD) is a decentralized crypto currency token issued by Crypto Credit Foundation. Crypto credit is a decentralized Block chain based funding source for the crypto currency users, offering immediate Loan facilities to its coin holders. In our Block chain Technology we are using an Intel patent application that has set out a system for automatically creating and validating blocks on a distributed ledger.