

Online Payment Channel (epay)

A.K.M. Ashraful Alam

Student Id: 012162037

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Approval Certificate

This project called " **Online Payment Channel (epay)** offered by A.K.M. Ashraful Alam, Student Id: 012162037, has been taken up as appeasement in completion of the necessity for the degree of Master of Science in Computer Science and Engineering(MSCSE) on September, 2019.

Board of Examiners

1.

Dr. Mohammad Nurul Huda

Supervisor

Professor & Director-MSCSE

Department of Computer Science & Engineering (CSE)

United International University (UIU)

Dhaka-1212, Bangladesh

2.

Dr. Hasan Sarwar

Examiner

Professor

Department of Computer Science & Engineering (CSE)

United International University (UIU)

Dhaka-1212, Bangladesh

3.

Dr. Mohammad Nurul Huda

Ex-Officio

Professor & Director-MSCSE

Department of Computer Science & Engineering (CSE)

United International University (UIU)

Dhaka-1212, Bangladesh

Declaration

I here by declare that the project designated “**Online Payment Channel (epay)** ” is the upshot of the research carried out by me under the overseer of Dr. Mohammad Nurul Huda, Professor & Director-MSCE, UIU.

A.K.M. Ashraful Alam

Student Id: 012162037

MSCE Program

Department of Computer Science and Engineering

United International University (UIU)

Dhaka-1212, Bangladesh.

In my strength as completion overseer of the candidate’s project, I attest that the above descriptions are true to the best of my wisdom.

Dr. Mohammad Nurul Huda

Professor& Director-MSCE

Department of Computer Science and Engineering

United International University (UIU)

Dhaka-1212, Bangladesh.

Abstract

Now a days, Payment is an important factor in a purchase transaction. Ease of payment is a convenience factor in shopping. The easier way of payment of the service users will be more comfortable in the shop. The conditions will be different if the groceries are many and varied and the quality but the payment difficulties. My payment system epay will provide more option to pay users payment I the shop. User just sc QR code d will pay their payment .

Along with the rapid development of Internet, e-commerce has become an integral part of life. We buy our needed products from online shop and pay through our suitable payment method. It owns most of its success to online payment. Nevertheless, some problems of the online payment are becoming the largest restricts in the development of e-commerce. My proposed epay Online Payment method effectively solves these problems. Applying empirical research approach and model research approach, my Online Payment Model System Design proposes payment mode combined with the secondary settlement payment mode and the credit-based payment mode. This model designs the structure supported by interface layer, business function layer, logic system layer and database layer, and sets up the model system. My Payment Model System can effectively reflect my online payment mode, which verifies the theoretical study, in order to provide a practical leading online payment mode. Key words Epay; Online payment; System; Design

Acknowledgment

To show my eagerly profound thankfulness to the all-mighty for imparting me power to put an end the assignment effectively among the scheduled time. The project designated “Online payment channel (EPAY)” is equipped to occupy the necessity of MSCSE. I am extremely having obtained heart-felt counsel, convoy and team-work.

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Terminology

EPAY	Electronic payment
AV	Approve
OPC	Online payment channel

Chapter 1

Introduction

1.1 Intention

EPAY is the system which assists users to cut down the risk, gives secure payment system, shorten losses, hack & misappropriation, reduce the cost and maintain the account balance properly. The Project purpose is to give users risk free, secure, user friendly & more payment method to complete their payment.

A systematic process of payment helps to provide details information to the users. It also assists to evaluate the current Online payment systems. By using the systematic and secure payment one can buy products from online. It also help to transfer money from one account to others. For transfer money no need to go to the bank. A complete payment system help user to payment any where they need to pay just using internet no need to carry money .

1.2 Motivation

This software application is designed for Online Payment Channel (EPY). This project can be deployed multiple banks, shop and e-commerce sites hosting using their own domain where each will get separate admin with specific role & rights. The project is totally customizable and fit for any banks, shop and e-commerce sites.

1.3 Layout

EPAY software has diverse beauty of modules. Earliest one is System Module-setup (User KYC, Rights and so on) & another is Master-setup (Payment methods, Category & so on), and Transaction module (Transfer, Mobile Recharge, Payment, Utility bills & so on).

Chapter 2

Literature Overview

2.1 Preface to EPAY

With the help of the internet, almost everything has become available online. Online Payment System all over the world have been effectively deploying information technology as an innovative resource to achieve speed, efficiency, cost reduction, customer service and competitive advantage. The result of this change is that Online Payment System has become away of life today. Online Payment System allows customers to perform banking activities at home with a secure website, via the internet operated by their virtual banks. Online Payment System is a cost-effective delivery channel for users.

Online Payment System facilitates migrating existing products to the net such as getting information about products, checking account balances, request for money, online bill payment, transfer of funds between wallets, payment for e-commerce transactions etc. This is to facilitate epay can earn a commission based income, on the transaction or sale value resulting in higher other income.

2.2 Subsisting Problem in Online Payment System (epay).

Online Payment System should be a core business process for any industries and effectively set a competitive rank. We often can find the risk of transfer, payment & carry money. Lack of security in the **Online Payment System**, users can face huge loss & may shut down the company profit.

2.3 Submitted Solution

This software provides secure Payment properly in systemic way. It also helps to instant money transfer to other account with dual security system. User can buy products from

grocery and pay using epay just scan dynamic QR code which is more secure. Epay is a complete payment system which provides cash less secure transaction with user friendly environment.

2.3.1 System Module Feature

- a. **User Profile:** make up user profile information taking advantage of his/her name, address & so on.
- b. **User Rights:** Set up user(Admin, Merchant, and System User) right in accordance with his/her role.

2.3.2 Master Setup

- a. Company Setup: Company will setup for Merchant.
- b. Admin User setup: Each company will get admin user of his own business. He can add sales executive with specific rights.
- c. Category Setup: Admin will setup category.

2.3.3 Transaction Module

- a. User Info: All user info, change photo, change password, change basic information.
- b. Sales: All item which user want to buy, just choice suitable payment method and print invoice.
- c. Product Setup: Admin will set up the payment method with other necessary information. Admin can update & delete the payment method.
- d. Invoice: User can create invoice for specific invoice.

Chapter 3

Definition of Requirement

3.1 Use Case Prototype

A Use Case prototype is a replica by that emerges how many sampling of vendees be in contact by means of the scheme & their accessibility of project. It recounts the target of Customers, the fundamental interactions into the vendees, and it recounts intentions which attain indispensable outlook of the system to pleasing operation.

Actor

Actor recounts a model component. Landmarks take in actors name and statement which accomplished earmarked role. Here admin, system admin, sales manager or executive & suppliers are actors.

Associations

Associations recount the kinships between actors and the UC that is called communicates-association.

Phenomenon

A model component recounts the Bourne of the way of part. It also recounts the physical area of the project.

Use Case Recount

A model material treat to put together the Use Case model to facilitate resolution, putting one's cards on the table. It is used to dive the use case lesser part to anticipate it readable.

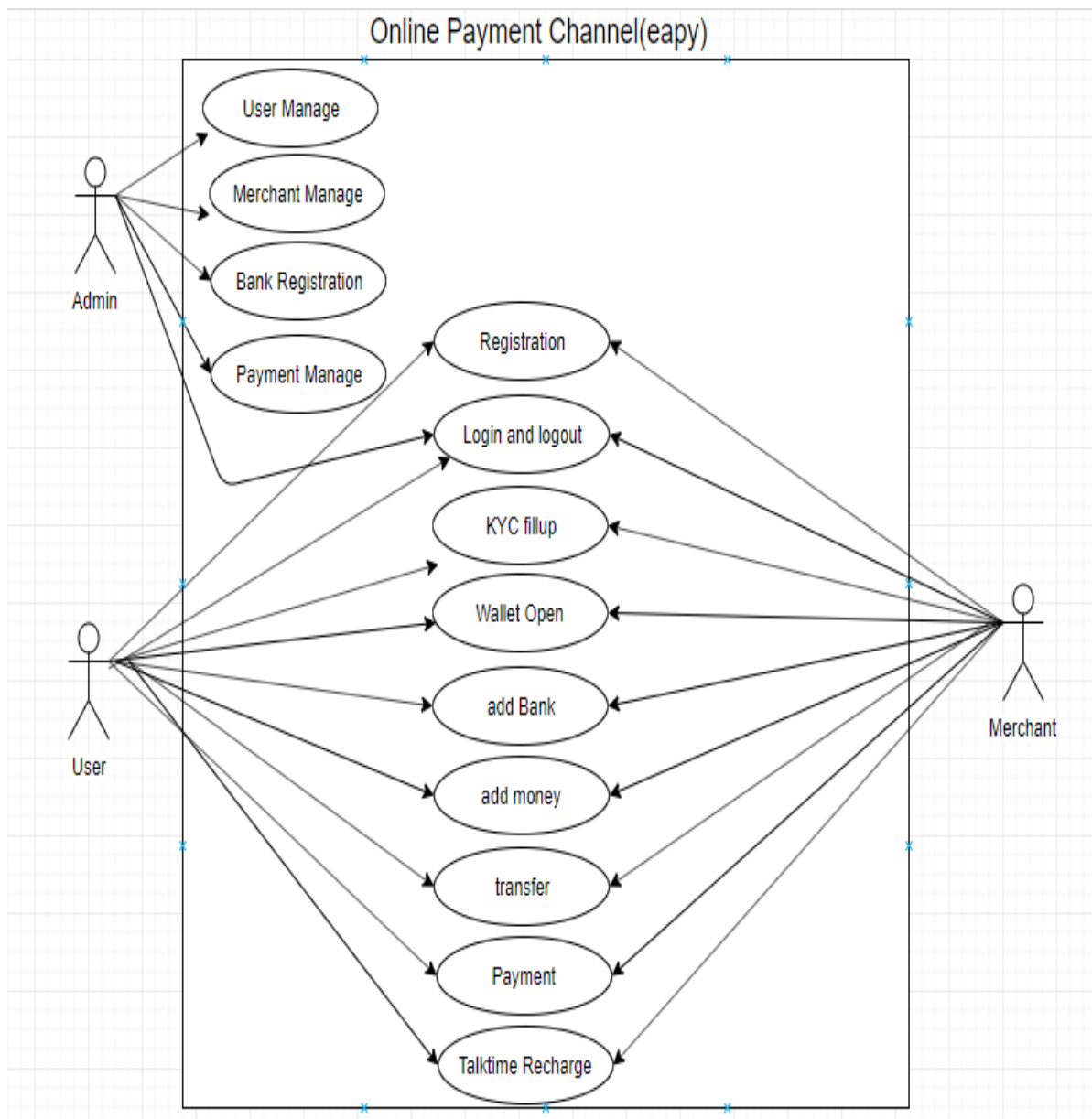


Figure-3.1-Use Case Diagram for EPAY

3.2 Narration of Use Case

Use case title : Sanctioned Maker/Checker User

Prerequisite : Login to EPAY after valid admin user & password

Player : Sales Executive/Manager/Admin

Key pathway : Login Using email & credential

Anomalous footing : oversight Sign-in Id or credential

Observation : Created on September, 2019

Use case title : Add user/Merchant

Prerequisite : Login to EPAY System

Player : System User/ admin

Key pathway : Sanctioned user and Merchant.

Anomalous footing : Without system permission, user can not add this. User must input name, default password, title, and so on.

Observation : Created on September, 2019

Use case title : Add User Right

Prerequisite : Login to EPAY System using admin user rights. Only listed User which is added by super admin

Player : Admin/ System user

Key pathway : Required right select for specific user/Merchant.

Anomalous footing : User who do not have the rights cannot add this.

Observation : Created on September, 2019

Use case title	:Bank Setup
Prerequisite	:Login to EPAY
Player	:admin
Key pathway	:Sanctioned admin
Anomalous footing	:Invalid user or user who do not have the right of menu of Stock Level.
Observation	:Created on September, 2019

Use case title	:Payment Setup
Prerequisite	:Login to EPAY with admin rights.
Player	:System Admin
Key pathway	:Only Sanctioned Admin
Anomalous footing	:Unsanctioned access to the menu & right.
Observation	:Created on September, 2019

Use case title	:Payment Details
Prerequisite	:Login in EPAY
Player	:Admin/System User
Key pathway	:After view details, user can buy using different payment method.
Anomalous footing	:Invalid user access.
Observation	:Created on September, 2019

Use case title	:Add Money
Prerequisite	:Login
Player	:Sanctioned User
Key pathway	:Select bank account & input amount.
Anomalous footing	:Invalid Amount
Observation	:Created on September, 2019

Use case title	: Send Money
Prerequisite	: Login.
Player	: Sanctioned User
Key pathway	: Send money to wallet or account.
Anomalous footing	: Invalid wallet or account.
Observation	: Created on September, 2019

Use case title	: Create Invoice
Prerequisite	: Login to System
Player	: Admin/System User/Merchant
Key pathway	: Search date wise and click print invoice button.
Anomalous footing	: Invalid date request to submit .
Observation	: Created on September, 2019

Use case title	: Transfer
Prerequisite	: Login system
Player	: User
Key pathway	: account to wallet or wallet to account. .
Exceptional pathway	: Invalid wallet or account number.
Observation	: Created on September, 2019

Use case title	: Transaction Report
Prerequisite	: Login
Player	: admi /User/Merchant
Key path	: Select the today transaction report. Enter date range & submit.
Anomalous footing	: Invalid Date range or invalid date.
Observation	: Created on April, 2019

Use case title	: Talktime Recharge
Prerequisite	: Login
Player	: User
Key path	: Select the Mobile operator enter number, amount & submit.
Anomalous footing	: Invalid Date range or invalid date.
Observation	: Created on April, 2019

3.3 Synopsis

Use Case model and in goings' on of model which is emergent for package method life cycle. Exotic examiner can conduct experiments whole characteristics of EPAY.

Chapter 4

Design

4.1.1 Data Model

The data model will as a rule compose of entity types, attributes, data model is recruitment of data conjecture that recounts the data, the data contact & data constraint.

The data model will as a rule compose of entity types, components, relationships, fairness rules, and the definitions of those purpose. The data contact & data constraint. It also describes the physical & logical notion.

The intention is to organize, scope and prescribe business notions and rules. This model is typically constructed by Data Architects and Business Analysts. The purpose is to thrived technical map of rules and data structures This data model illustrate how the system will be accomplish using an ear marked DBMS system.

4.1.2 Business Flow Chart

Flow Chart of business model set forth an ocular narrations of the flux of data procedure & emerges us who is the liable for each degree.

Interpretation

Flow Chart of business model diagrammatically interpret the deeds else business process one by one.

Function

A flowchart is a type of diagram that represents an algorithm, workflow or process which describe the main point of program MODEL. These systems can concentrate on process which is integrated, human. The goal is achieving by creating a balanced, quality output based on a standardized set of methods.

Prominences

Three prominence of flow charts: sublime-level, manifest and deployment or matrix flowchart. High-level gives the details over view of main process.

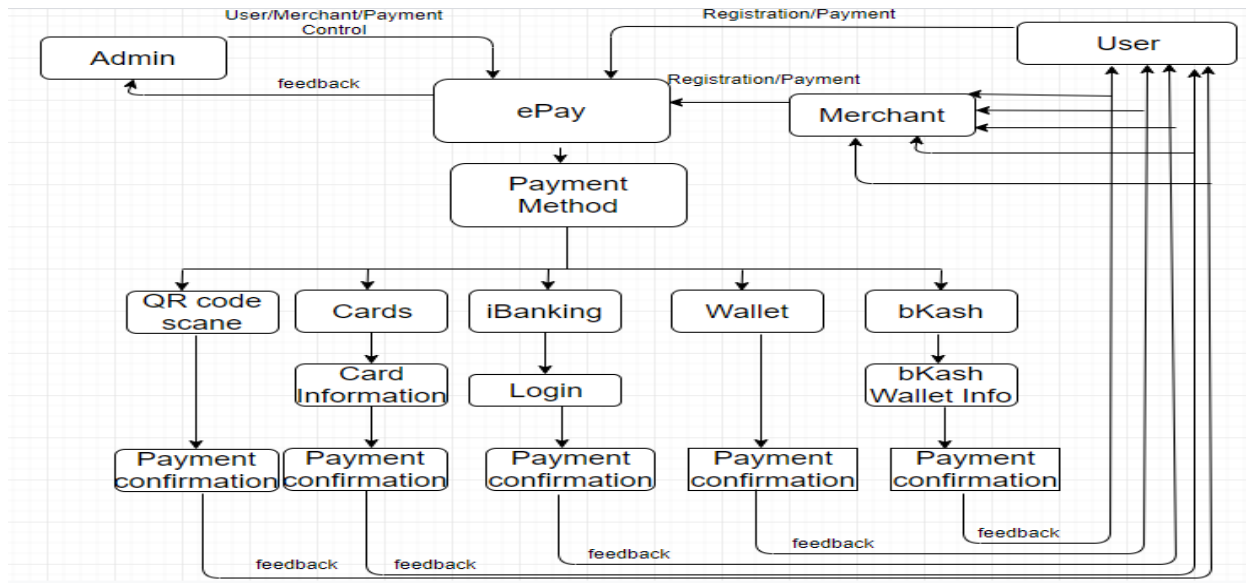
Uses

High-level flowchart illustrates the details body imaging process. Watchful reconsideration of flowcharts can express the valuable information affecting a process.

Shapes

Flowcharts use special features to describe different types of deeds or steps in a process. Lines and arrows represent the sequence of the steps, and relationships among them. These are called flowcharts symbols.

Business Flow Chart of Online Payment System :



Flow chart of business model are exercised to depicture the business's flow procedure for Online Payment System.

Figure-4.1 business flow

4.2 UI/UX Diagram & Response

User interface is a diagram which sets forth on the user's experience and interaction with the software.

4.2.1 Processes

There are various types user interface model: -

- Functionality of necessity in gathering – To attain the intention of the project, may employ calculations, technical details, data manipulation & processing. Now and again, a requirements analyst creates use cases after in gathering and affirming a set of functional requirements.
- User analysis –analysis the characteristic, user task & goal so that these findings can help making decision about project.

4.3 Requirements

Requirement ingathering is the system of ascertaining, documenting, and conducting stakeholder urgent & necessity to meet project intention.

4.4 Database Design

Design of Database is an emergent of context that naturalize the masterminding, development, implementation and maintenance of enterprise data.

Database is matured to keeping in reserve the tangible data. The design of a bodily database is following-

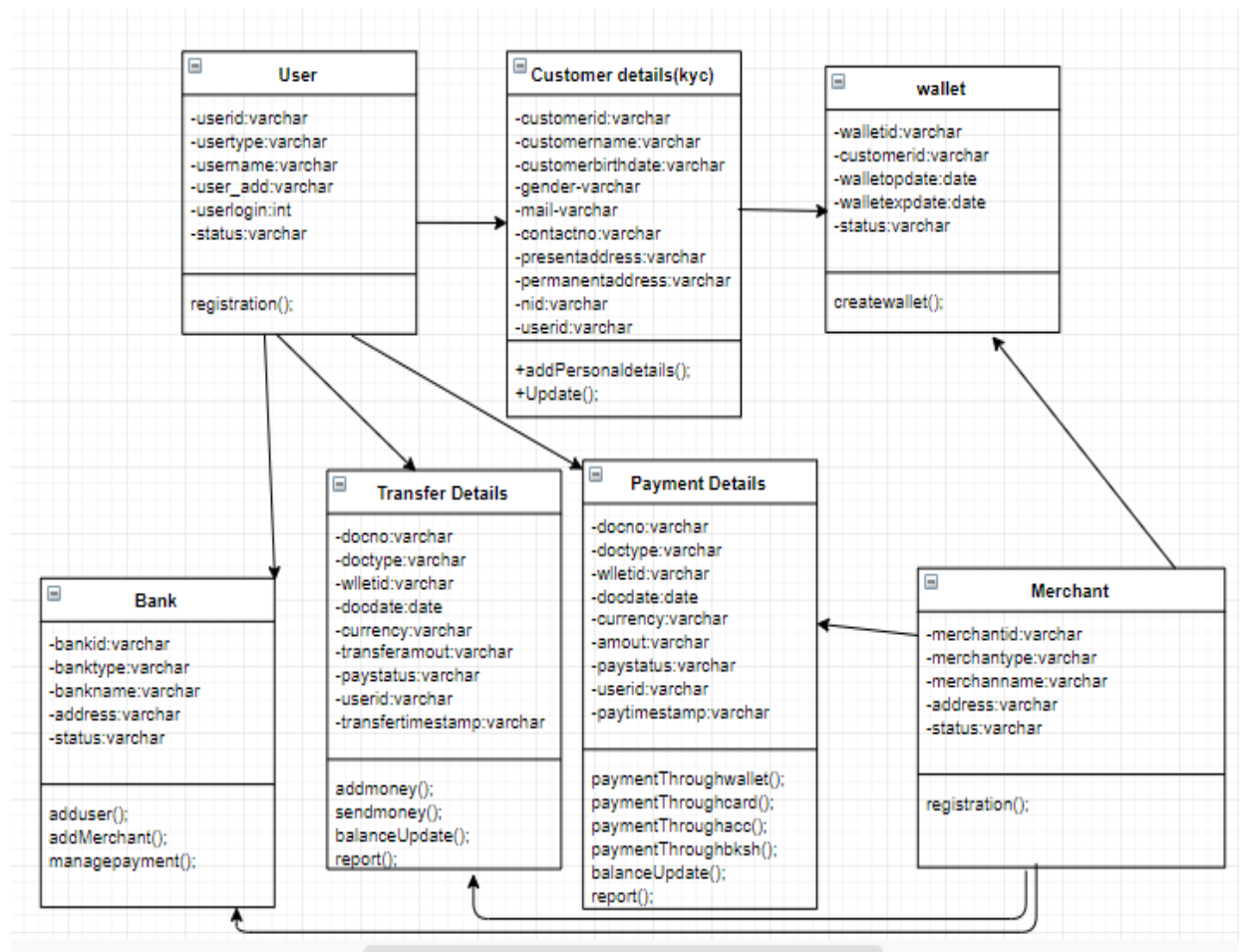


Figure-4.2-Entity Relationship Diagram

4.4.1 Details for Inventory of Ready Made Garments

Key Functionalities recounted are following:

4.4.1.1-Main Menu: Menu is brought forth mechanically founded on customer's rights. Main Menu are for storing main menu that means parent menu.

4.4.1.2 User : User rights are specific access and ability permissions that can be assigned to customizable user groups. Groups can then be assigned to (or removed from) users through the Special. Admin can sum up or trans locate any earmarked user.

4.4.1.3- Bank : Bank add here. Bank information like Bank id, Bank name, Bank type, Bank address .

4.4.1.4 Payment Details: For different type of payments are done. All Payment details are stored here according to document number. Wallet id, user id, document number, document type, amount etc. are stored here..

4.4.1.5 Transfer Details : Add money, send money, request for money data stored here.

4.4.1.6 Customer Details : username, id, image, password etc. are stored here. Password are encrypted string with Minimum 8 character with number & special character. Email should be valid & unique. Duplicate email is not allowed here. User role is defined here.

4.4.1.7 Merchant: Merchant details are stored here.

4.4.1.8 Wallet : Wallet information is stored here.

4.5 Synopsis

Chapter-4 recounts circumstantial graph of the EPAY table. Flow Chart of Business of diverse mode, UI/UX plan of EPAY and plan of database are recounted.

Chapter 5

Implementation & Evaluating

5.1 Implementation Overview:

The database keeps in reserve information, the application operates logic and the presentation tier is a picture sque user interface that enquire about with the other three tiers. The four tiers are rational, not tangible, and may or may not run on the same tangible server in EPAY.

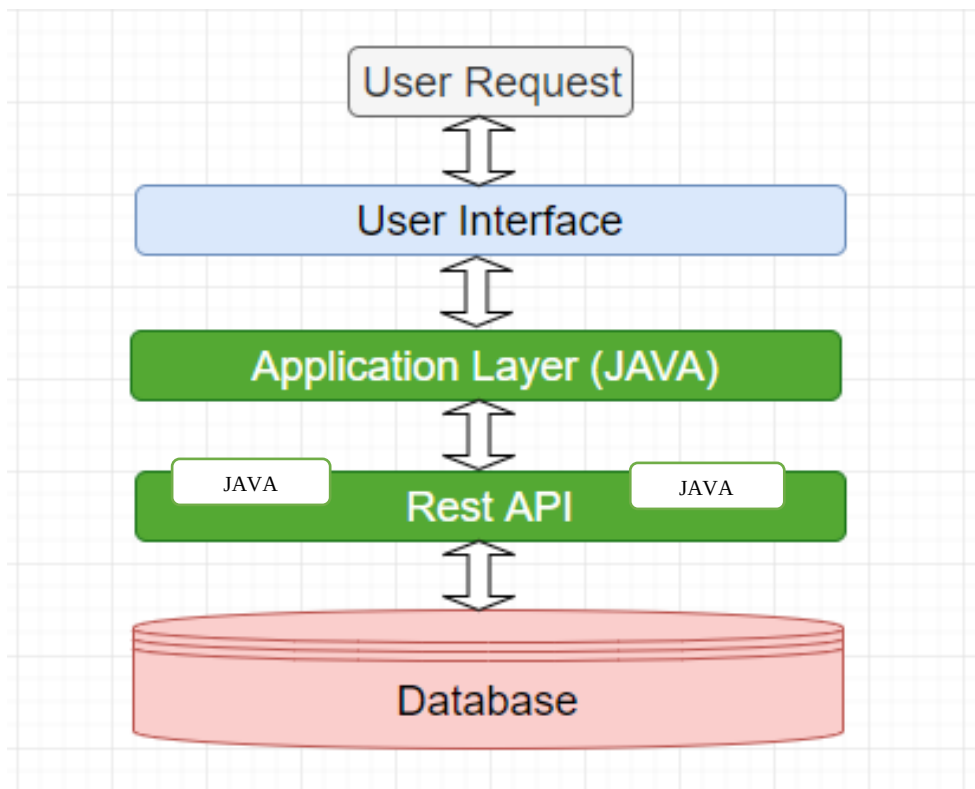


Figure-5.1-Architecture

Four tire architecture:

Presentation Tier: HTML5 with bootstrap 4, cascading style sheets (CSS) JavaScript, jquery.

Application Tier: Java programming language based on spring boot framework. Connected Business tier with rest api.

Business Tier : The business logic that supports the application's core functions. Java programming language based on spring mvc framework. Run on apache tomcat 8 server
Database: Potgres Sql Database but EPAY fully database independent.

5.1.2 Methodology

RDBMS: To make sure the utmost cohesion of database, Postgresql -RDMBS is conducted in EPAY.

5.1.3 Toolkits

Draw.io (Online): To quarterback UC model & Flow chart.

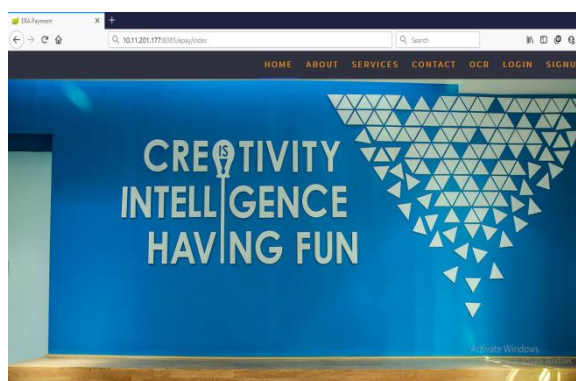
Eclipse: I have used STS for developing & design.

Toad, Postgresql query browser: use for accessing & create database with process.

iReport: For quarterbacking pdf-report iReport-tool is used.

5.2 Opening Landing Page

5.2.1 Carousel: Showing image left to right using bootstrap carousel. Display some information of the project.



5.2.2 Meet the Team: There is little tidings of the team together with designation & outline.

Meet the Team

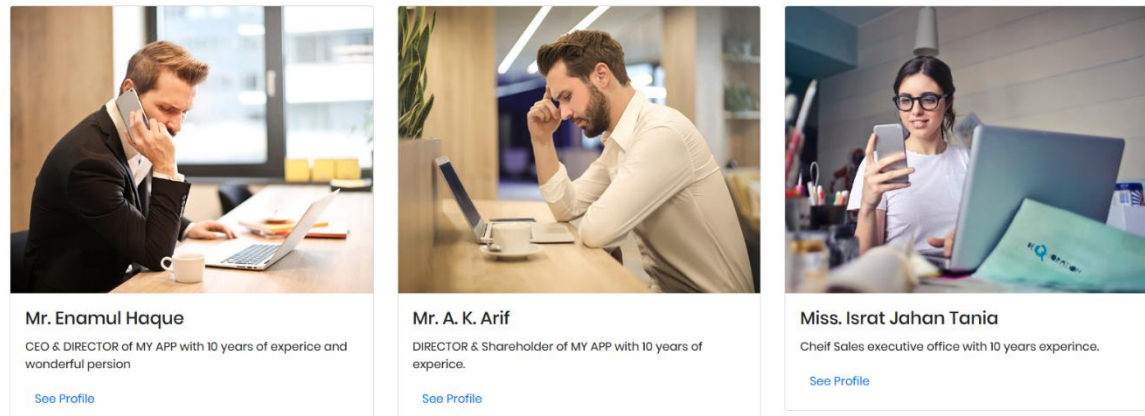


Figure-5.2.2 Team

5.2.3 Footer: Social connection & footer are recounted here. Any one connect to Facebook, twitter, Google plus, instagram & YouTube. Contact information & copyright are given in footer section.

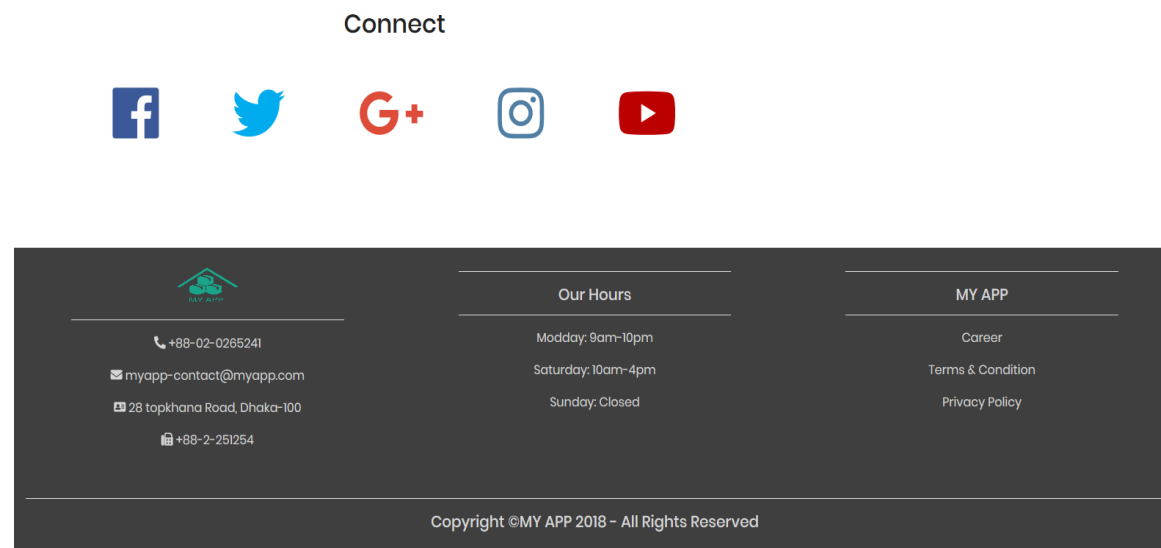


Figure-5.2.3 Footer Section

5.2.4 Login to EPAY

A convincing user-email-id and credential are needed to **EPAY** login. Unauthorized email Id & credential return same page & show the proper message.

ERA Payment x +

10.11.201.177:8085/epay/login?sessionid=122D72FA219C31AFB303E95DDDD901B7

Search

LOG IN

Email ID

Password

☐ Remember Me

LOGIN

[Forgot Password?](#)

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Activate Windows
Go to Settings to activate Windows.

Figure-5.2.4 Login

5.2.5 Menu Master & Home Page

Menus display according to user rights in the side menu. Menu is dynamically generated from database. Menu brings forth mechanically emerged on user role-rights. Overseer can be examiner. How much money he has spend out. Graph view shows today transaction.

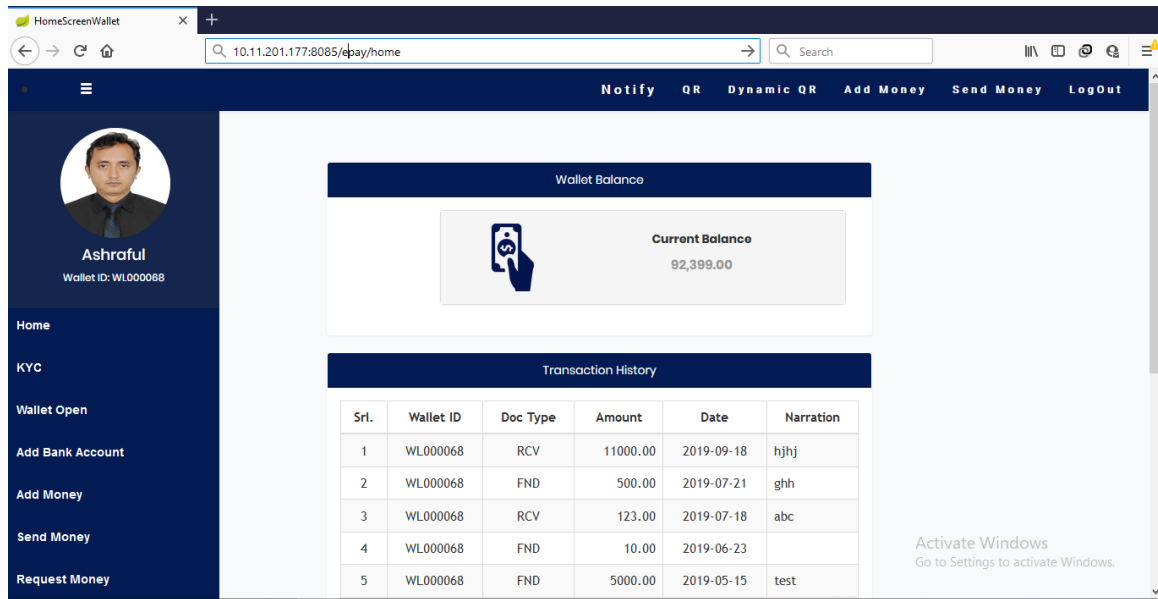


Figure-5.2.5- Menu Master & Home Page

5.2.6 KYC Screen: From this screen, user will up his/her information which help user to get access the home screen. Admin will approve the user.

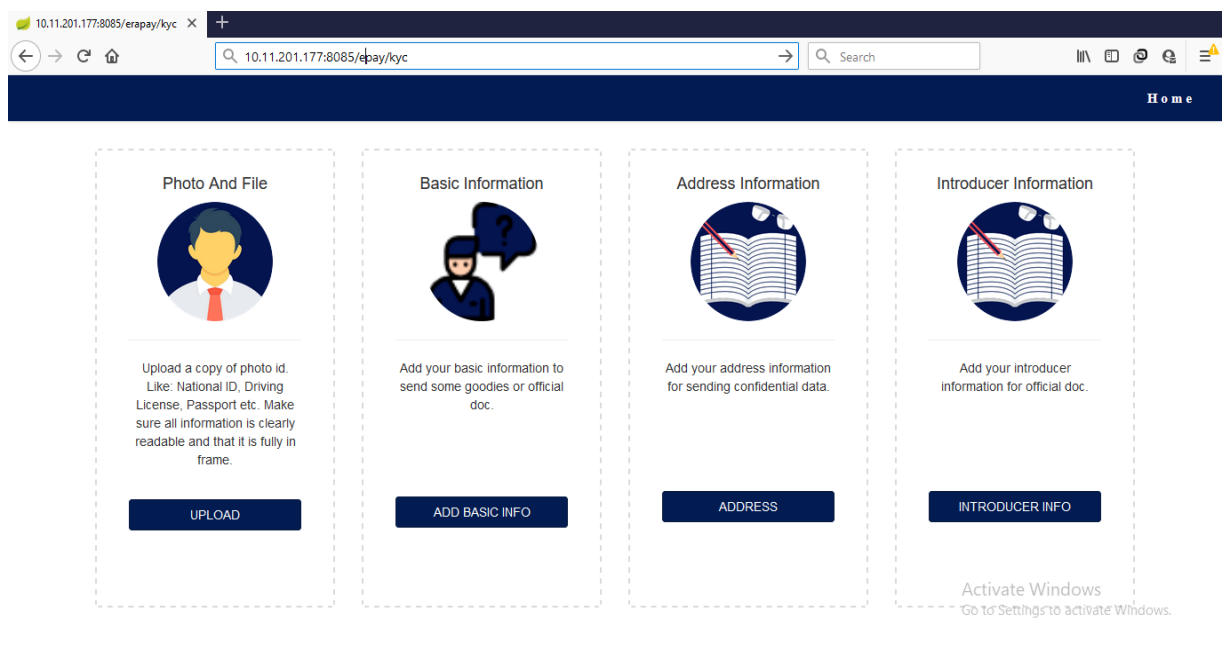


Figure-5.2.6 KYC Screen

5.2.7 User Info Screen:

User can change photo address using his/her password. Email & other information is cannot chain because it is read-only field. After browsing the image from pc, user must submit.

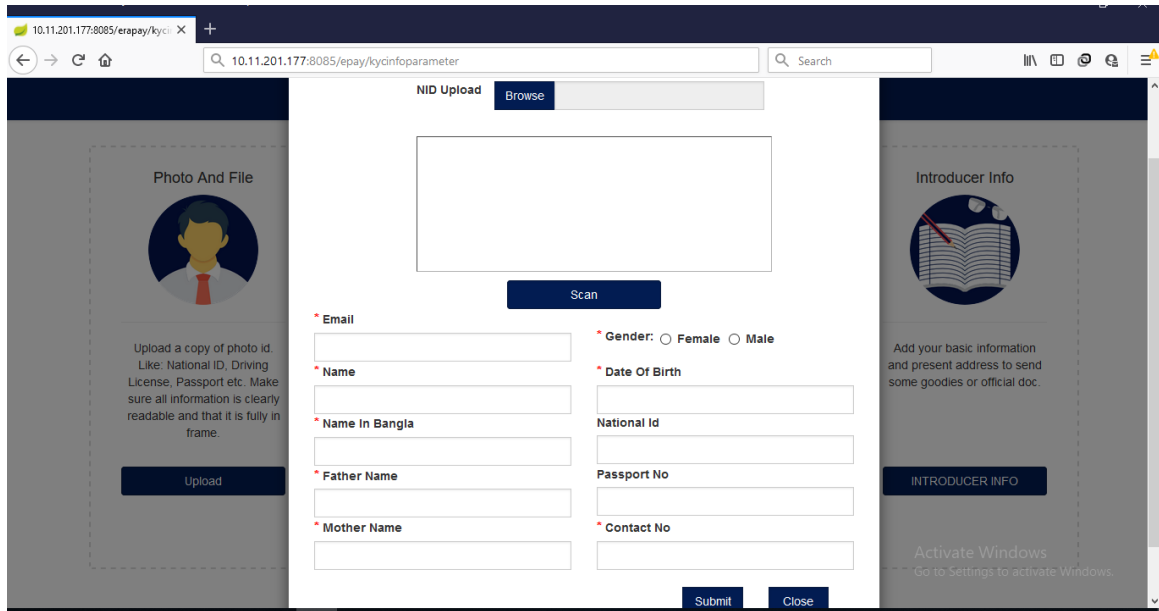


Figure-5.2.7-User Info

5.2.8 Wallet Open : User/Merchant will open their own wallet id from this screen.

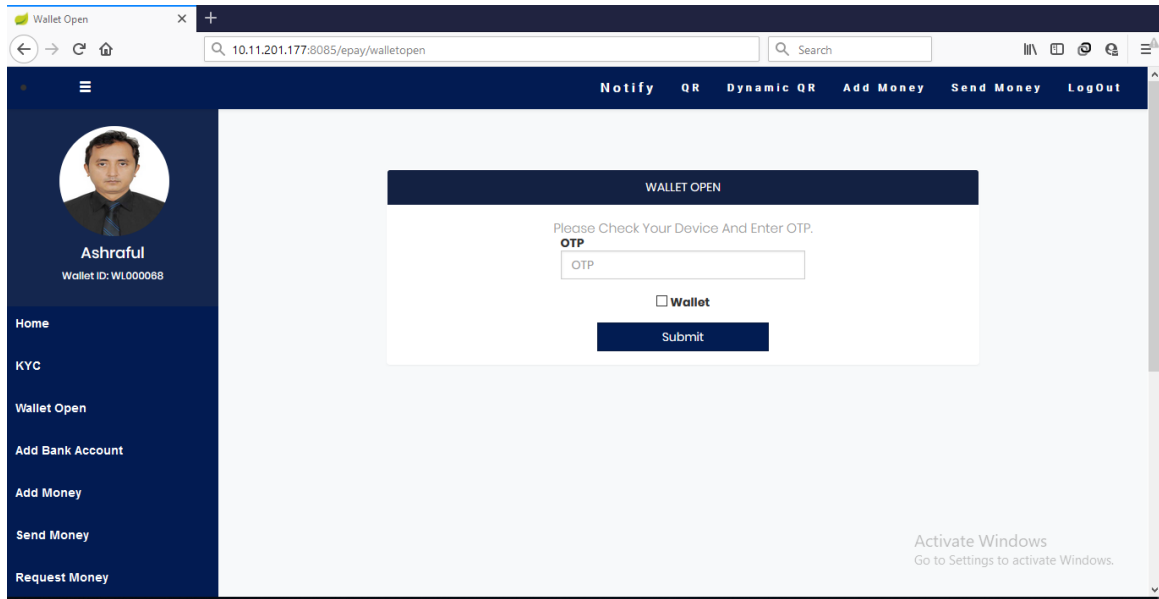


Figure-5.2.8 Wallet Open

5.2.9 Add Money: User can add money to his/her wallet from this screen.

Bank Account To Wallet

Account No

Bank Name

Branch Name

Account Title

Narration

Amount

Charge

Submit

Activate Windows
Go to Settings to activate Windows.

Figure-5.2.9- Add Money

5.2.10 Send Money to bank account: Here user can send for money to other epay user through wallet id.

Wallet To Bank Account

Account No

Bank Name

Branch Name

Account Title

Amount

Charge

Submit

Activate Windows
Go to Settings to activate Windows.

Figure-5.2.10 Send Money to bank account

5.2.11 Send Money to wallet : Here user can send for money to other epay user through wallet id.

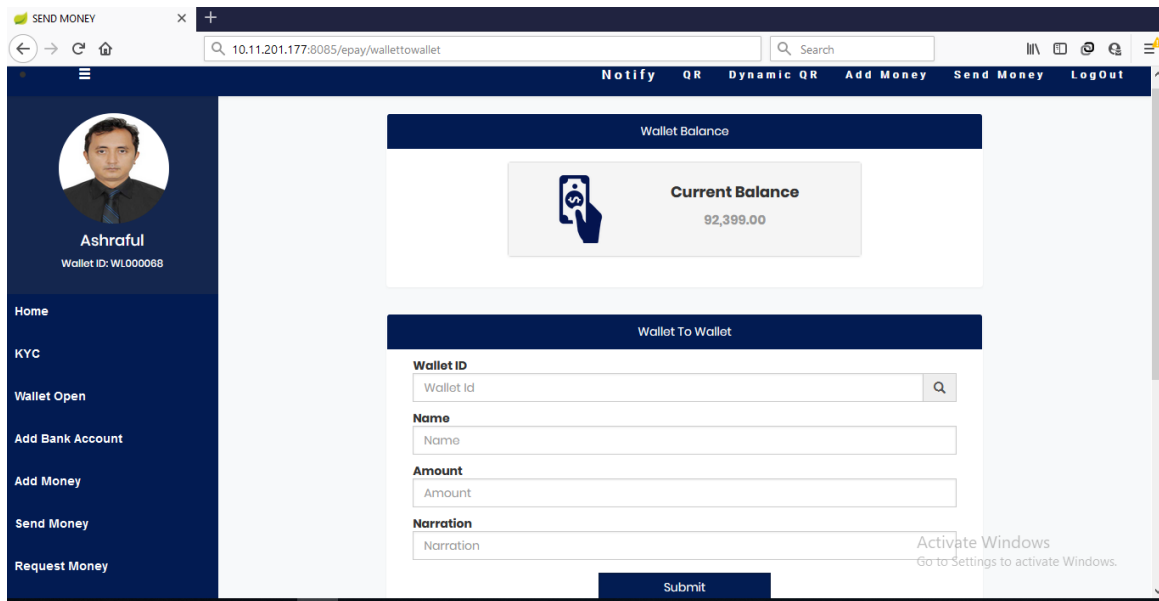


Figure-5.2.11 Send Money to wallet

5.2.12 Request Money: Here user can request for money to other epay user through wallet id.

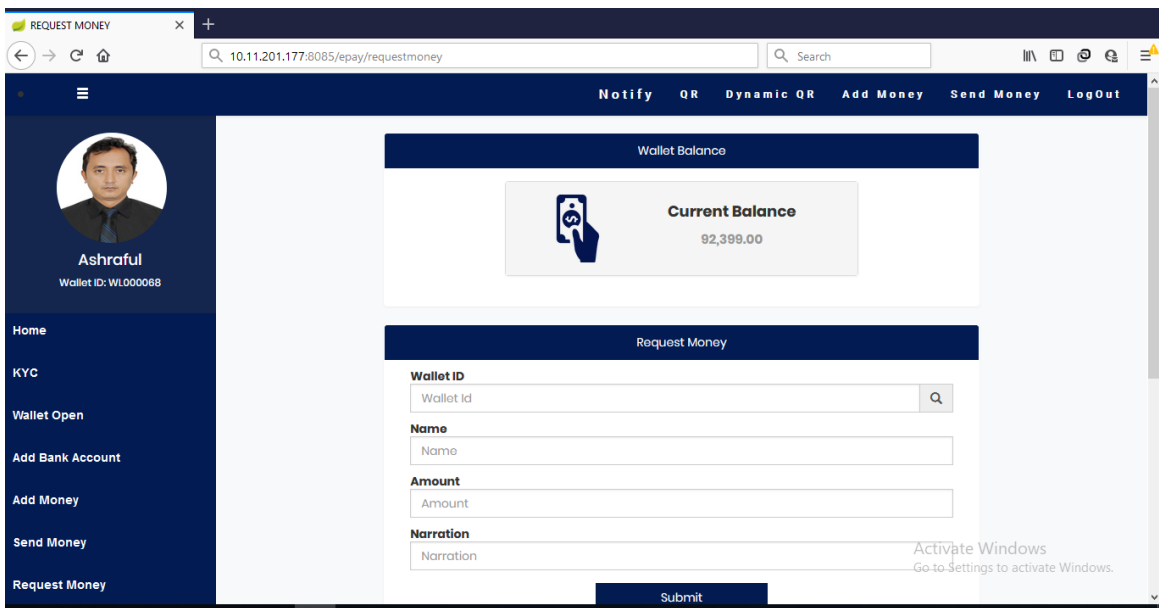


Figure-5.2.12 Request Money

5.2.13 Transfer method : Here, Display transfer methods. User can transfer money to his/her wallet and account.

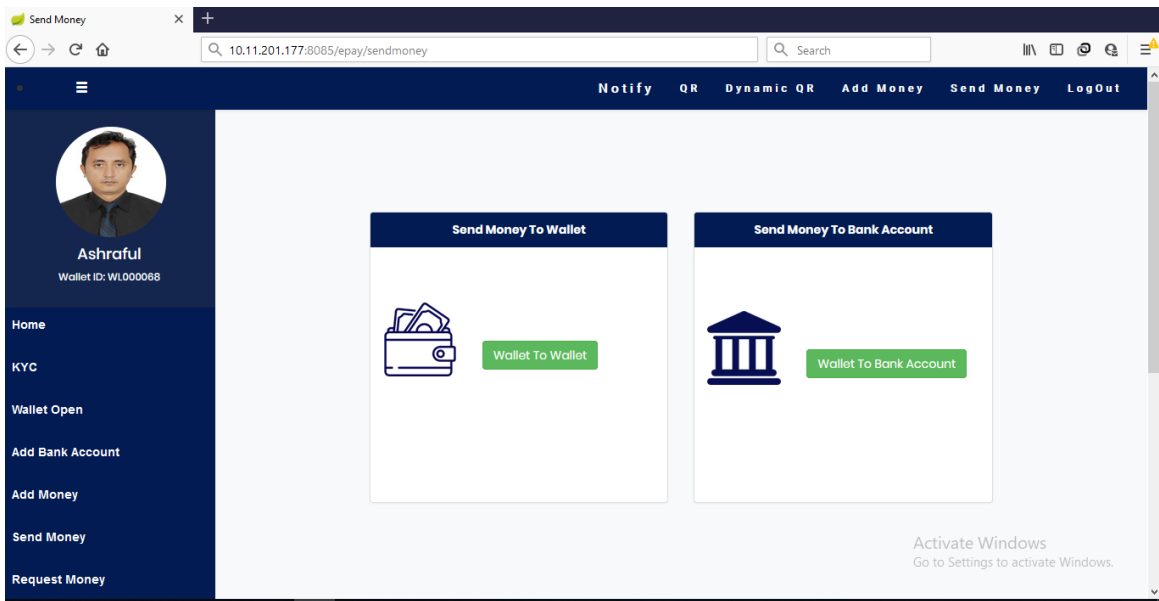


Figure-5.2.13 Transfer method

5.2.14 User to merchant payment: After purchase products user can pay money through his/her wallet or bank account.

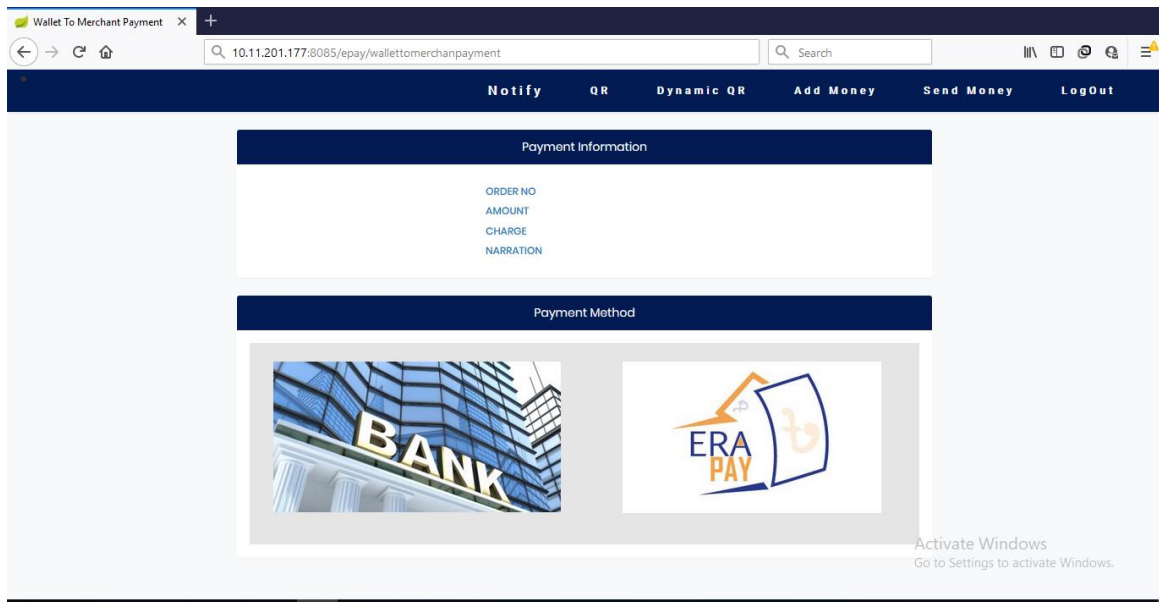


Figure-5.2.14 Sales

5.2.15 Dynamic QR code Payment: User can pay his/her payment using QR code scan. just scan the QR code and click on the submit button to complete the payment.

Figure-5.2.15 Dynamic QR code

5.2.16 Transaction Enquiry : Date wise transaction information shows here. Invoice amount, payment method, date, invoice created by are display are. Transaction details and invoice print also shows here.

Srl.	Wallet ID	Reference No	Transaction Date	Payment Type	Amount	Narration	Print Voucher
1	WL000068	CD000851	2019-04-15	FND	5	aa	print voucher
2	WL000068	CD000851	2019-04-15	FND	5	aa	print voucher
3	WL000068	CD000945	2019-05-15	FND	500	Test	print voucher
4	WL000068	CD000948	2019-05-15	FND	5000	test	print voucher
5	WL000068	CD000973	2019-06-23	FND	10		print voucher

Figure-5.2.16 Date wise transaction

5.2.17 Date wise transaction Details:

Transaction details shows here.

The screenshot shows a web browser window with the URL `10.11.201.177:8085/epay/paymentvoucher?walletid=WL000068&docnum=CD000851&narration=aa`. The page title is "Payment Voucher" and the main heading is "Transaction Details". The details are as follows:

Field	Value
Wallet ID	WL000068
Transaction ID	CD000851
Narration	aa
Amount	5
Charge/Fee	
Net Amount	

At the bottom right, there is a watermark that says "Activate Windows Go to Settings to activate Windows."

Figure-5.2.17 Date wise transaction Details

5.2.18 Talktime Recharge: User/Mercht can recharge their mobile from this screen.

The screenshot shows a web browser window with the URL `10.11.201.177:8085/epay/talktimerecharge`. The page has a dark blue header with the title "TALKTIME RECHARGE" and a navigation bar with links: "Notify", "QR", "Dynamic QR", "Add Money", "Send Money", and "LogOut". On the left, there is a sidebar menu with a user profile for "Ashraf" (Wallet ID: WL000068) and links for "Home", "KYC", "Wallet Open", "Add Bank Account", "Add Money", "Send Money", and "Request Money". The main content area is titled "Talk Time Recharge" and contains the following form:

Field	Value
Mobile No	
Prepaid / Postpaid	☐ Prepaid ☐ Postpaid
Amount	
Payment By	☒ Payment By Wallet

At the bottom right, there is a watermark that says "Activate Windows Go to Settings to activate Windows."

5.2.18 Talktime Recharge

5.3 Software Testing

Testing discovers oversight or failing of software so that software's operation functionates completely according the requirement.

5.3.1 Testing Methods

Static Testing is ascertaining as a software testing deftness by which we can examine the drawbacks in software without actually executing the code.

Dynamic Testing is a sort of software testing method using which the progressive dealing of the code is analyzed.

5.3.2 The box approach

- **White-Box Testing:** White-box testing is the testing process which is based on the code based testing or structural testing. Code should be visible to the tester when tester is goring test a software
- **Black-box testing:** Tester test can be functional and no-functional where test does not know design, coding and so on which is called behavioral testing system.

5.4 Synopsis

To examine the module, we have examined whole screens as ocular experiment. We detect whole operations are operating clearly and entire screens conduct barring any oversight data.

Chapter 6

Conclusion & Future Works

6.1 Conclusion

So, we can say, like other payment channel our payment channel is more secure , avoid time consuming and user friendly. It is complete payment channel where user can pay their different types of payment using suitable payment method.

Lastly I would like to say using “Online payment Channel” software it is very beneficial to keeping up the down to carry cash and it will assist to grow from small-medium - business to big business.

6.2 Limitations

EPAY needs money and man power to maintain. Every time user need to have internet connection to access the EPAY.

6.3 Future Work

Following may be added to Online payment Channel in future:

- AI base wallet and account maintain.
- Used AR Technology
- Build Android& IOS app (Native Flavor).
- Gives user more payment method(Like bKash).

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