CAPSTONE PROJECT CAP307

Program: BCA 5th semester
Session 2022-2023

CT University, Ludhiana

Submitted In partial fulfilment of the requirement for the award of the Degree of Bachelors of Computer Application

TITLE OF THE PROJECT:

E - WALLET APPLICATION (Google Pay, PayPal etc)

STEPHEN K.F OPPONG
REG ID - 72012018

1. INTRODUCTION (PROBLEM STATEMENT):

The purpose of this project is to create or develop an app (e-wallet) that is a way to carry cash in the digital format that has replaced cash and cards in the last few years. It is a more convenient, secure, and fastest way to perform transactions, pay bills and view transaction details using smartphones, tablets, and smartwatches.

This app will alleviate the stress of going to ATM's and standing in bank queues to withdraw money and paying of utilities bills etc. Being aware of this problem helps to find effective and secure ways to solve it.

It has become a comprehensive solution for all payment needs. With such technical advancements, customers do not need to take a risk of carrying physical cash or card while making a payment.

2. AIM AND OBJECTIVE

- **Intuitive and Easy to Use**

  The objective is to give the user or consumers freedom of using and monitoring their finances with ease and convenience. Find the best way to create such an app which will be easy to use, concise, secure and fast in performing multiple transactions.

  To not depend on banks and other financial bodies to review their accounts and read statements etc.

- **Cashless transactions**

  With the E-Wallet app, there is no need to carry debit/credit cards or cash while traveling. All you need to do is tap your device to make a payment or scan a QR code to pay for items you are purchasing.

- **Highly Secure**

  In case you lose your case or credit or debit card, is gone and you have to call your bank to block your card. While in the case of E-Wallet personal information such as pins, passwords, and biometrics is locked inside the third-party provider, and even if you lose your device, you can still make access when you get the new device.

- **Can be used in multiple stores and online transactions**

  E-Wallet is widely accepted in most places such as retail shops, hotels, travel booking sites, and other online transactions. The number of retailers that provide payment access this way continues to grow each year

- **Authorized Transactions**

  For payment processing, you need to enter a PIN to allow payment for devices. For devices with biometric authentication, fingerprint authentication is required to proceed with payments. Authorization provides security against online fraudulent purchases and identity theft.

3. TOOLS / TECHNIQUES TO BE USED FOR DATA ANALYSIS:

Before building an app like Google pay you must choose a tech stack to start your actual development. Here is the tech stack used for developing the Google pay application. Now you will get an idea about choosing a tech stack for your E-Wallet app.

- Programming languages: Python, Java, javascript
- UI technologies: Google Material Design, Preact
- Utilities: Google Analytics
- DevOps technologies: Kubernetes, Android Studio
- Collaboration and Sharing: GitHub, GitLab,

Recently, Google picked Flutter to drive its global product development by focusing on the fast and efficient development environment, which is advanced and intuitive and has the flexibility needed to keep UI clean.

Moreover, it must be able to work on both Android and iOS, with write once and deploy anywhere capability.

Flutter has the following three things that make it a better choice for Google Pay.

- Flutter uses Dart programming languages which allows writing once deployed anywhere both on Android and iOS.
- Flutter Hot Reload feature with Just-in-Time compiler enables rapid UI interactions increasing developers' efficiency.
- Ahead-of-Time compilation ensures high-performance deployment

4. KEY FEATURES FOR CREATING AN E-WALLET APP

- **Intuitive and smooth UI**
  The user interface (UI) should be user-friendly and easy to navigate so that customers can smoothly complete their payments.

- **Seamless transaction, user registration, and login**
  E-Wallet must ensure seamless account creation, secure login, and transactions. Users can complete their transactions in a few clicks.

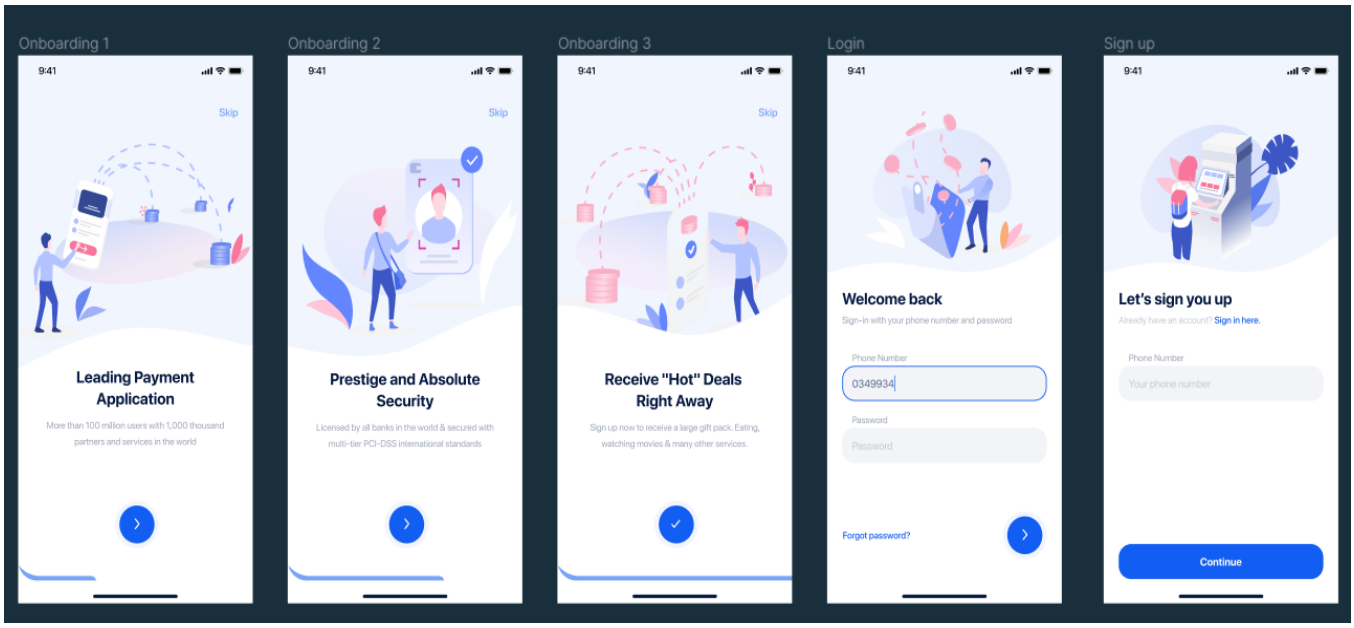
- **Quick Fund Transfer, check account balance, transaction history**
  E-Wallet makes money transfers faster and easy. You can transfer money anywhere anytime. Also, you can securely check your account balance and transaction history on click.

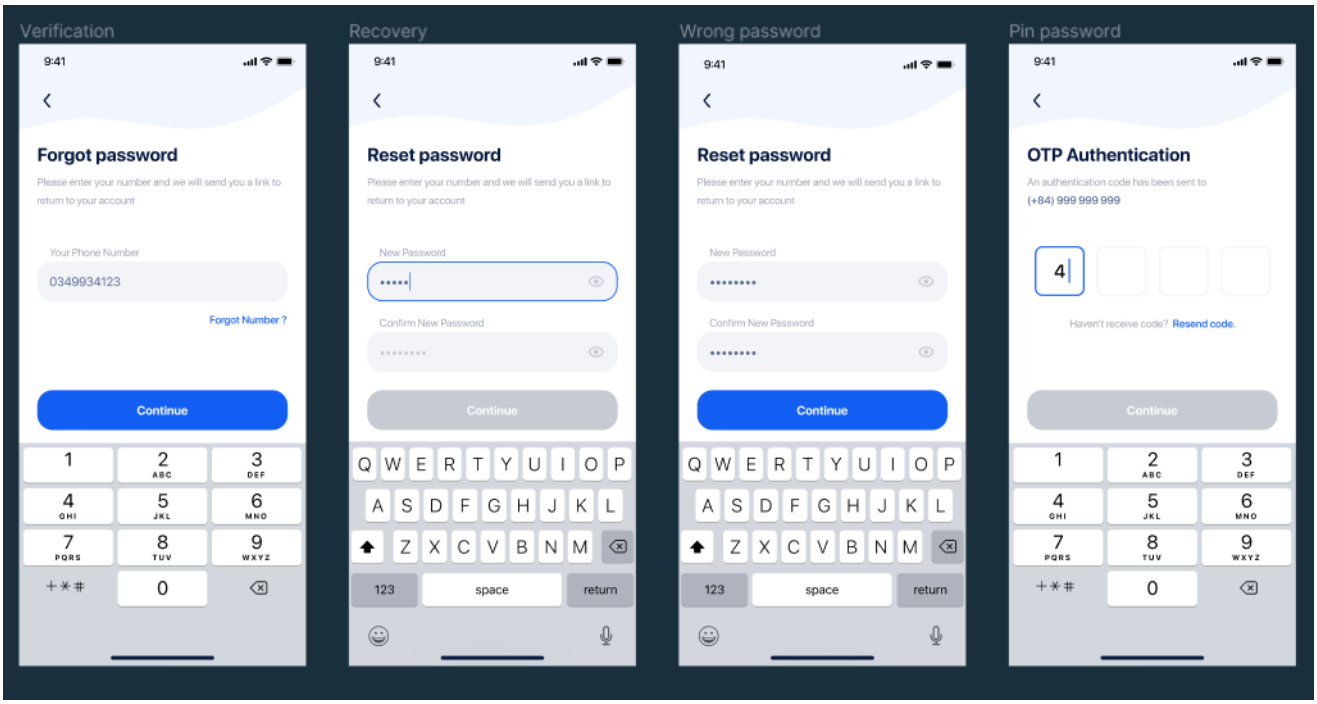
- **Add accounts**
  You can link single or multiple bank accounts to your E-Wallet app if you have the same mobile number registered with the accounts. Make Recharge, bill Payments
  You can make mobile recharge, utility bill payments, and get rewards and cashback on them.

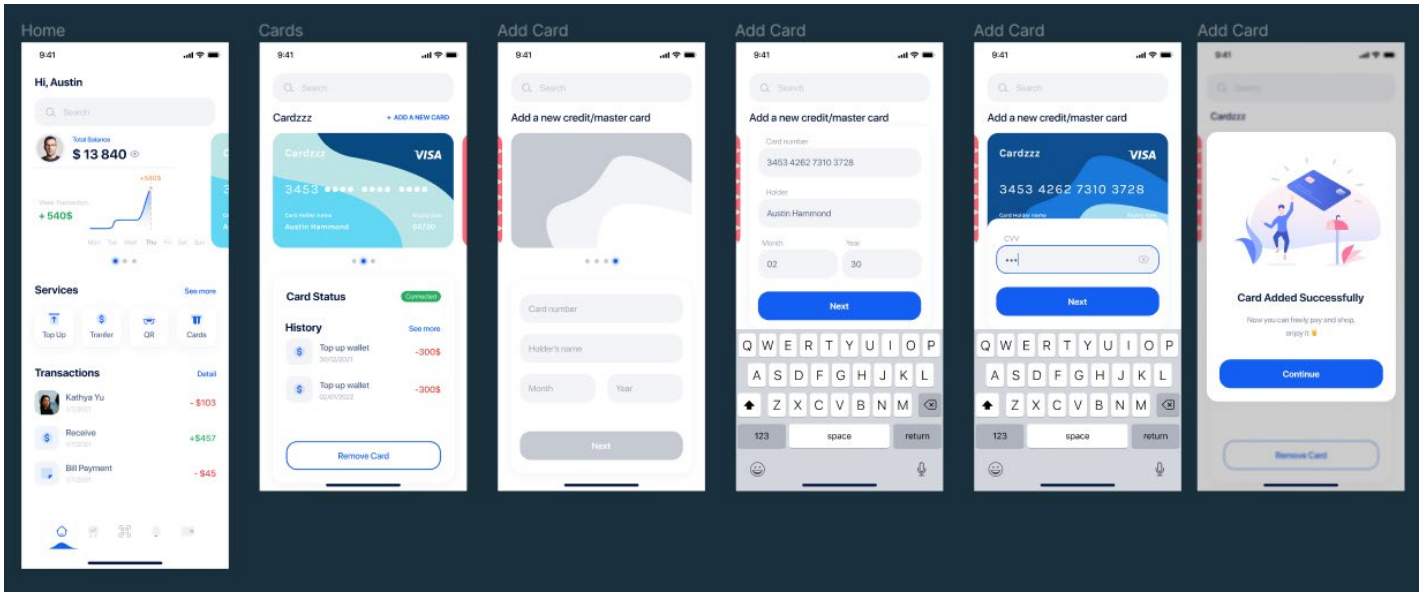
- **Real-time data synchronization**
  E-Wallet provides you with real-time data synchronization avoiding discrepancy of account balance after each transaction.

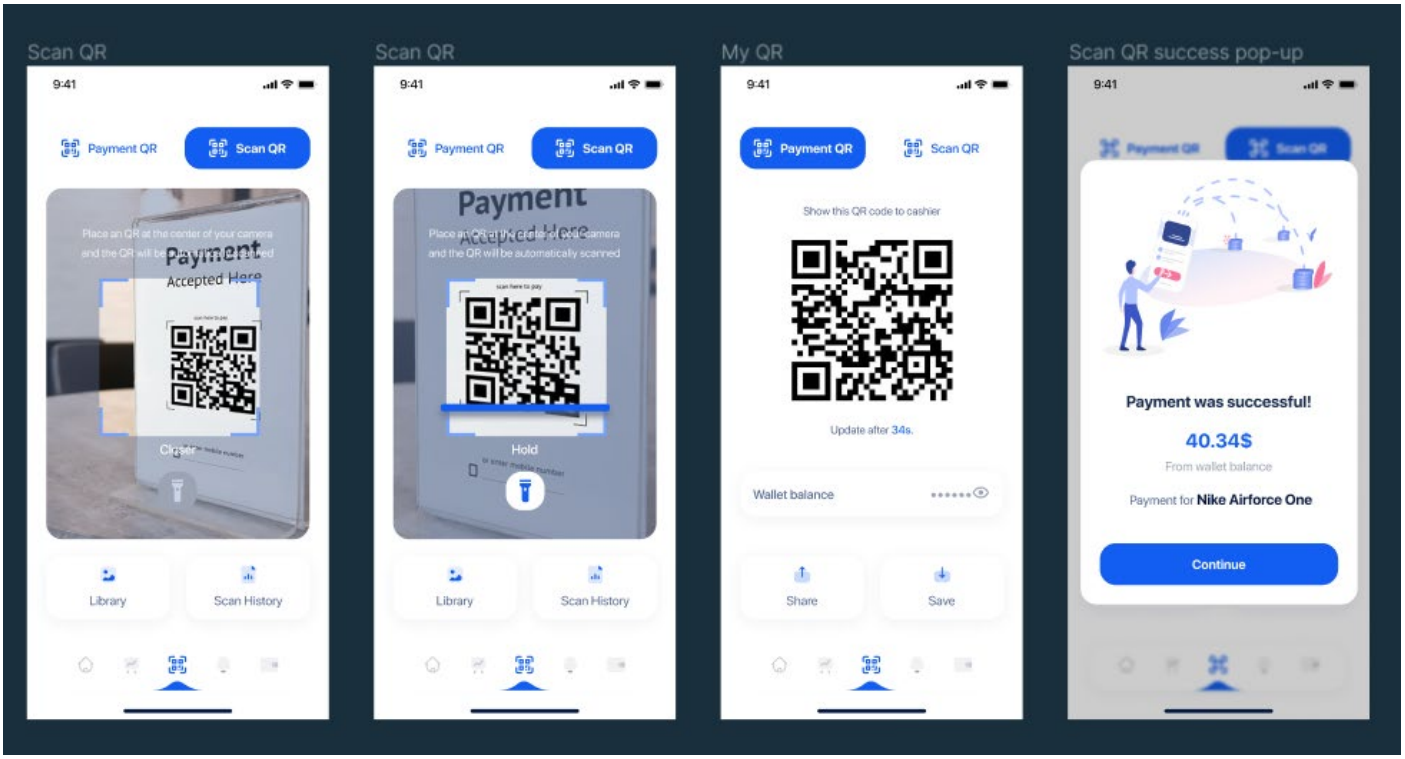
- **Privacy and security**
  When it comes to financial apps, security is the prime concern. Most of the apps provide authorization through OTP, QR codes, or biometric information to make transactions more secure. Other than the above features you can add Gift cards, Membership cards, GPS tracker and navigation, Reward offers, integrated geotags, and wearable device integration.

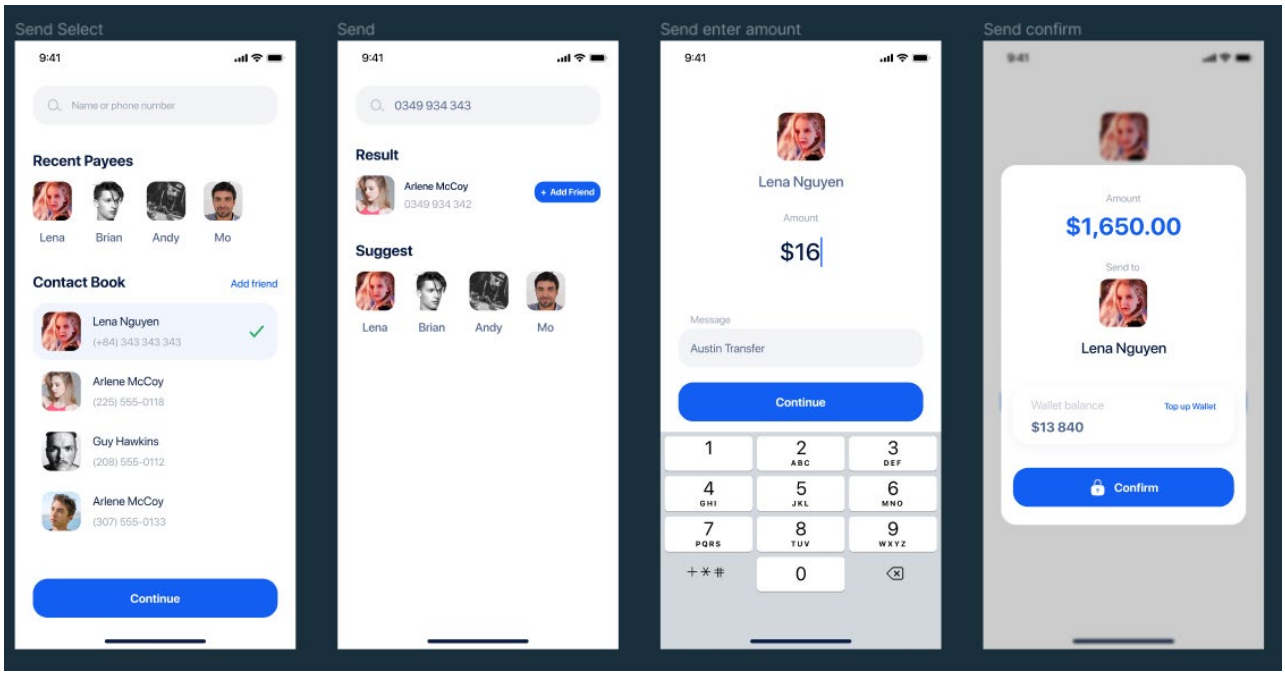
5. SCREENSHOTS OF APP

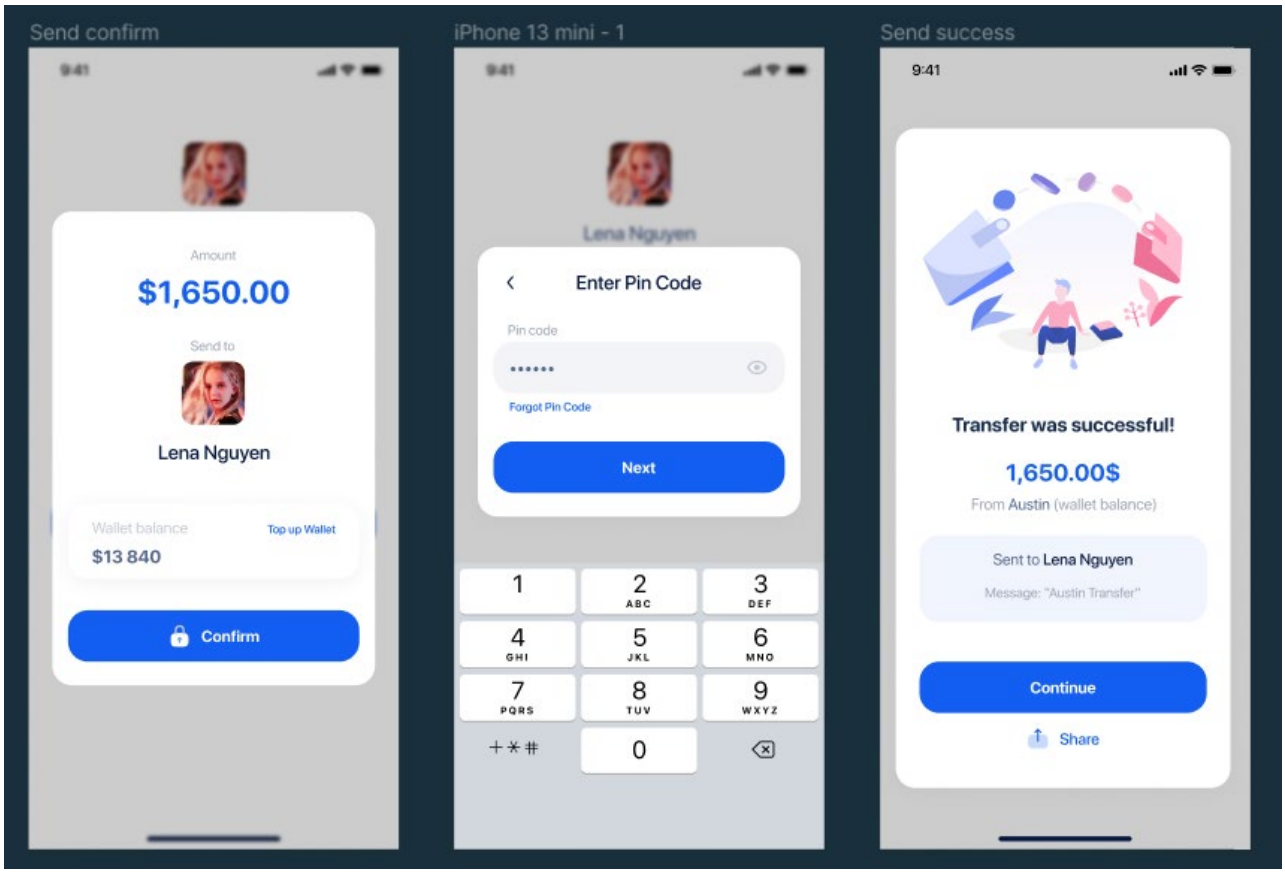


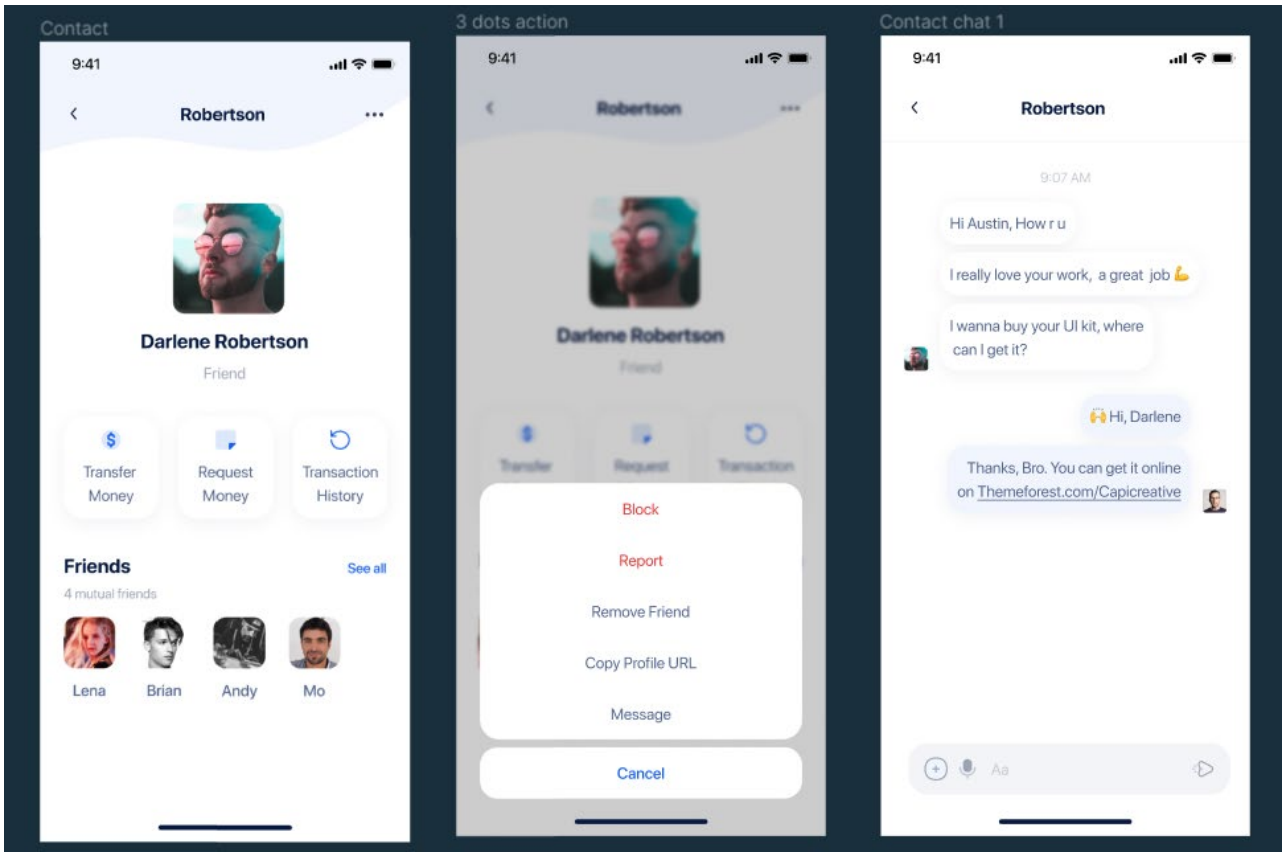


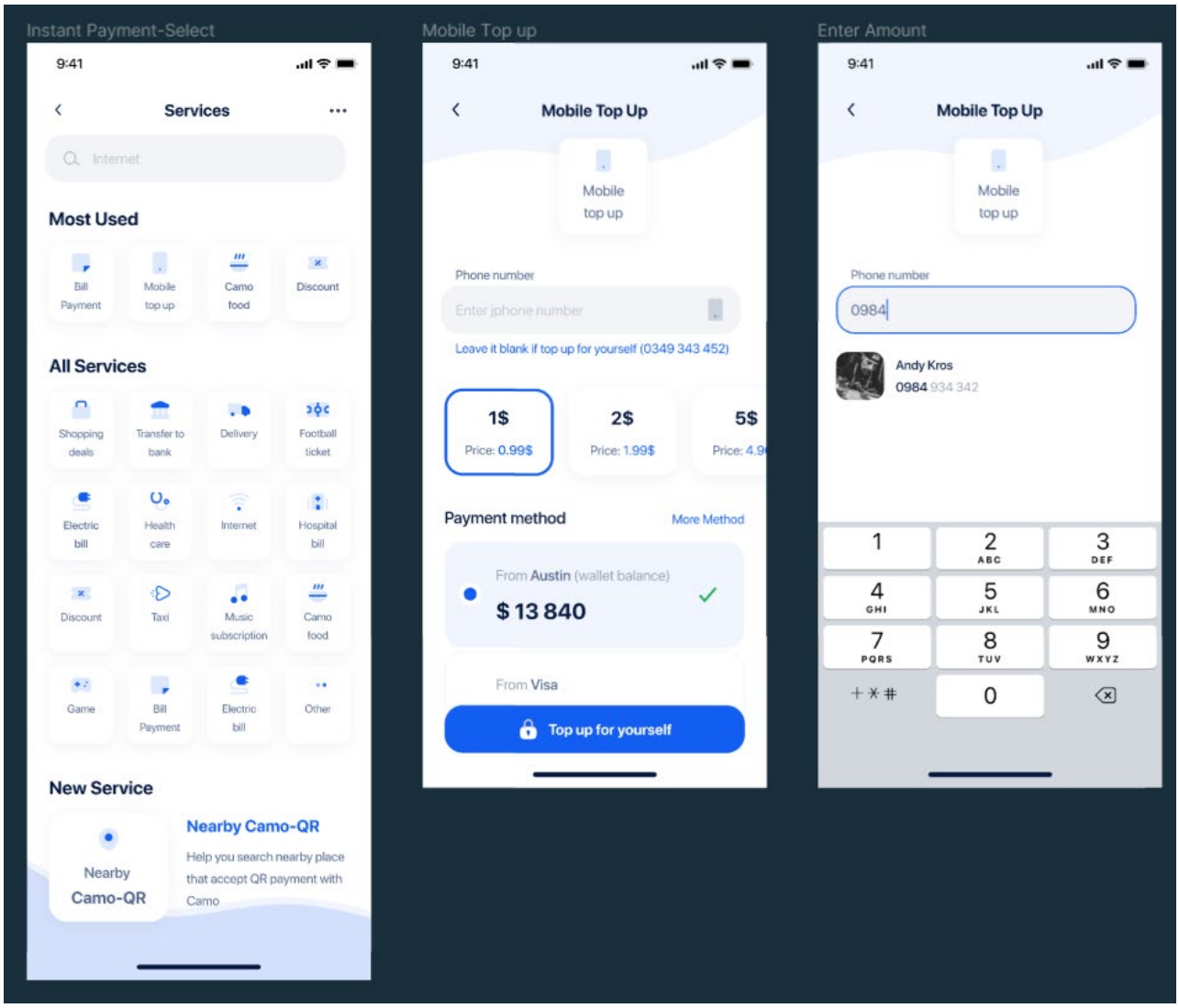

Home
Hi, Austin
$ 13 840
Services
Transactions
Cards
Cardzzz
Card Status
History
Remove Card
Add Card
Add a new credit/master card
Card number
Holder's name
Month
Year
Next
Add Card
Add a new credit/master card
3453 4262 7310 3728
Austin Hammond
Next
Add Card
Add a new credit/master card
3453 4262 7310 3728
CVV
Next
Add Card
Cardzzz
Card Added Successfully
Continue

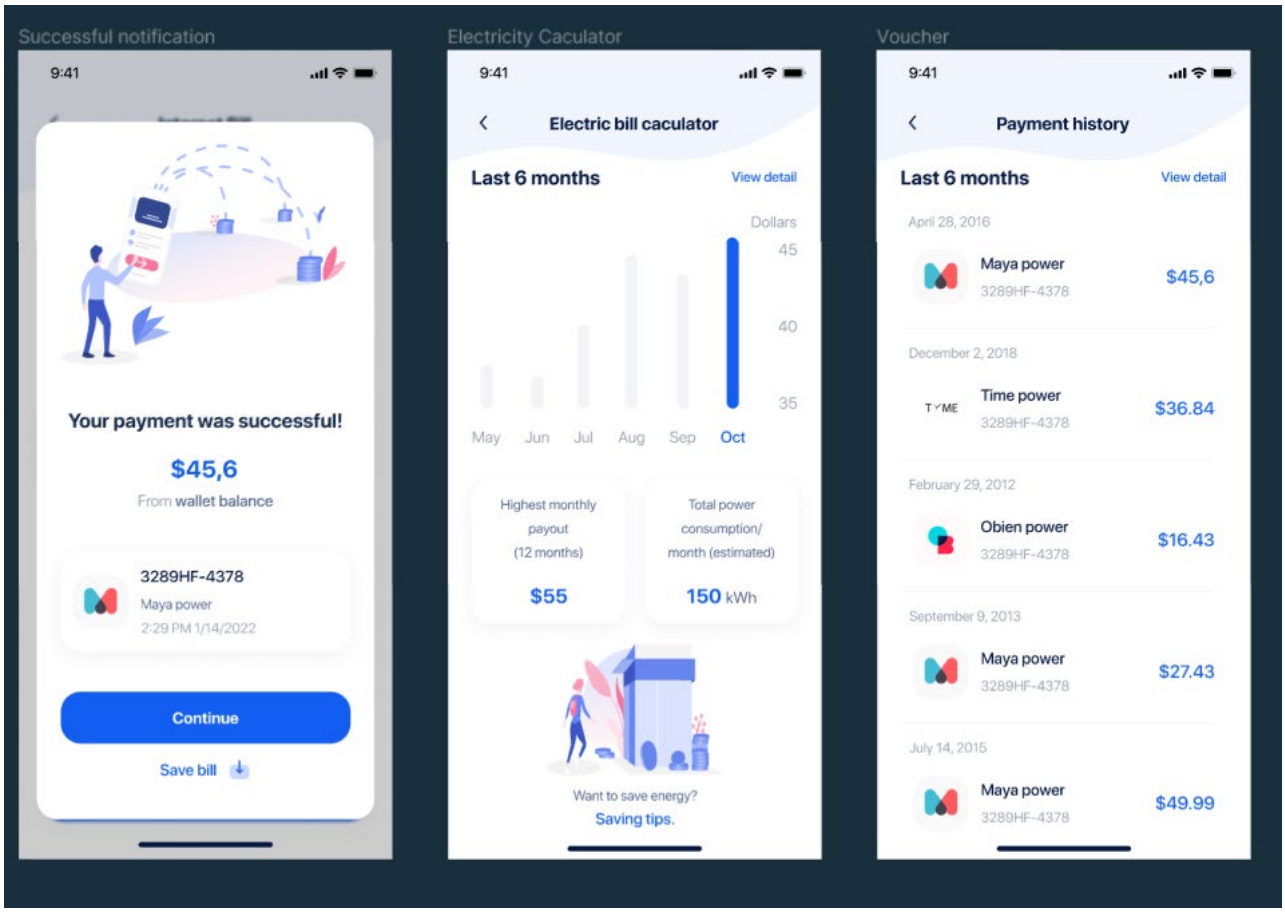

Scan QR
Payment QR
Scan QR
Library
Scan History
Scan QR
Payment QR
Scan QR
Hold
Library
Scan History
My QR
Payment QR
Scan QR
Show this QR code to cashier
Update after 34s.
Wallet balance
Share
Save
Scan QR success pop-up
Payment was successful!
40.34$
From wallet balance
Payment for Nike Airforce One
Continue

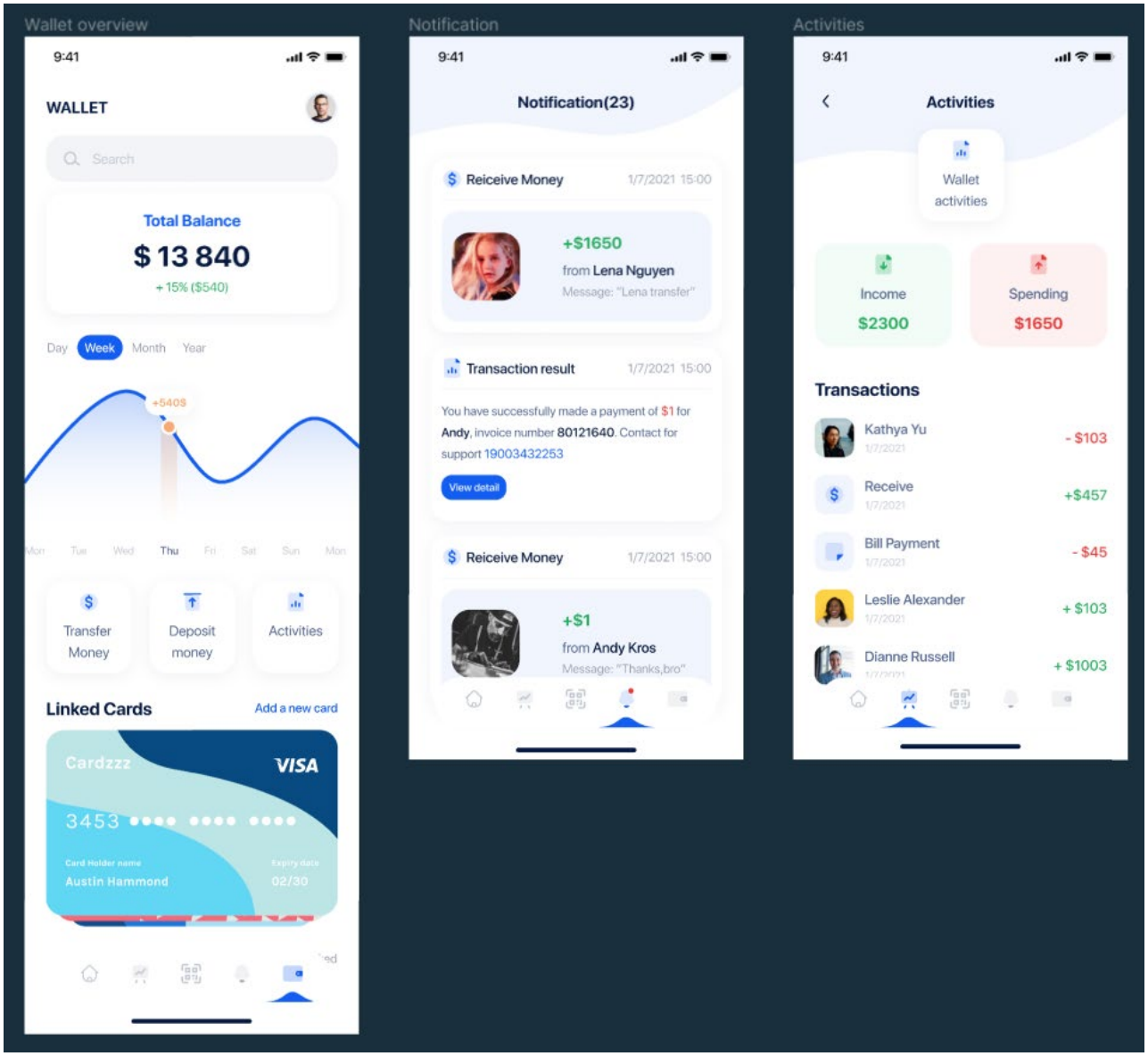

Send Select
9:41
Name or phone number
Recent Payees
Lena
Brian
Andy
Mo
Contact Book
Add friend
Lena Nguyen
(+84) 343 343 343
Arlene McCoy
(225) 555-0118
Guy Hawkins
(208) 555-0112
Arlene McCoy
(307) 555-0133
Continue
Send
9:41
0349 934 343
Result
Arlene McCoy
0349 934 342
+ Add Friend
Suggest
Lena
Brian
Andy
Mo
Send enter amount
9:41
Lena Nguyen
Amount
$16
Message
Austin Transfer
Continue
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
+ * #
0
Send confirm
9:41
Amount
$1,650.00
Send to
Lena Nguyen
Wallet balance
Top up Wallet
$13 840
Confirm

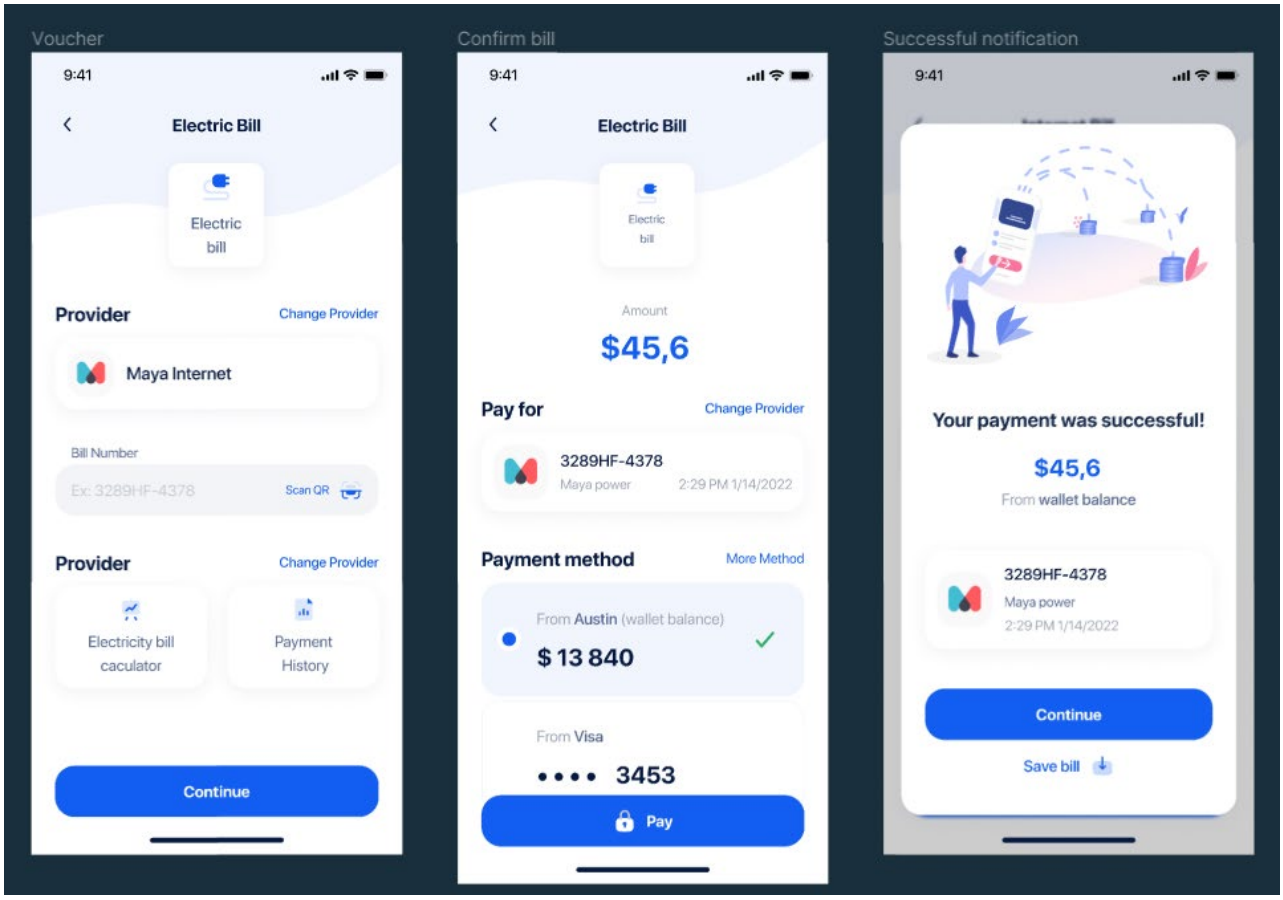

Send confirm
9:41
Amount
$1,650.00
Send to
Lena Nguyen
Wallet balance
Top up Wallet
$13 840
Confirm
iPhone 13 mini - 1
9:41
Lena Nguyen
Enter Pin Code
Pin code
Forgot Pin Code
Next
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
+ * #
0
Send success
9:41
Transfer was successful!
1,650.00$
From Austin (wallet balance)
Sent to Lena Nguyen
Message: "Austin Transfer"
Continue
Share

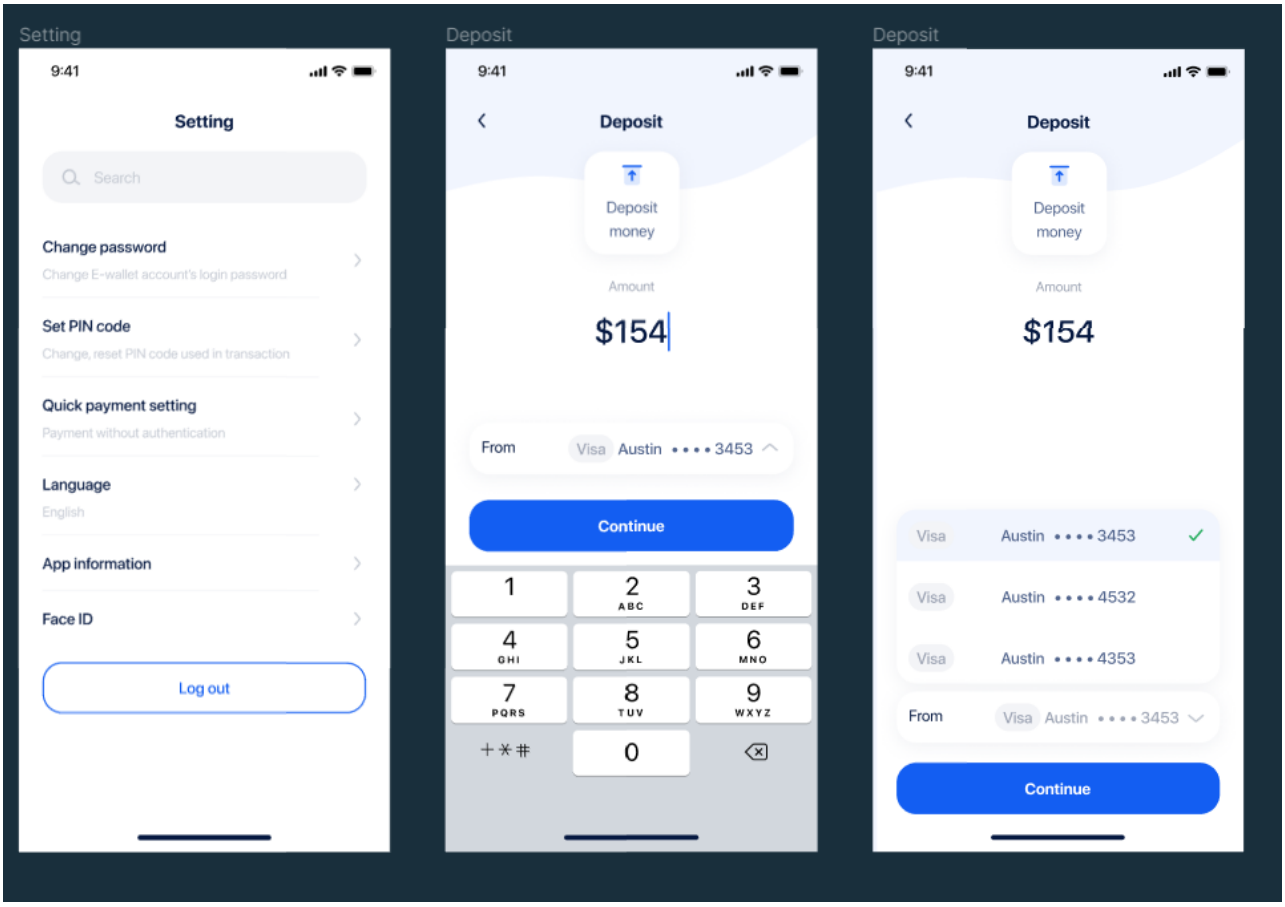

Contact
9:41
Robertson
Darlene Robertson
Friend
Transfer Money
Request Money
Transaction History
Friends
See all
4 mutual friends
Lena
Brian
Andy
Mo
3 dots action
9:41
Robertson
Darlene Robertson
Friend
Block
Report
Remove Friend
Copy Profile URL
Message
Cancel
Contact chat 1
9:41
Robertson
9:07 AM
Hi Austin, How r u
I really love your work, a great job
I wanna buy your UI kit, where can I get it?
Hi, Darlene
Thanks, Bro. You can get it online on Themeforest.com/Capicreative
Aa
Contact chat 4
9:41
Robertson
9:07 AM
Hi Austin, How r u
I really love your work, a great job
I wanna buy your UI kit, where can I get it?
Hi, Darlene
Thanks, Bro. You can get it online on Themeforest.com/Capicreative
Aa
Photo
Location
File
Contact chat 2
9:41
Robertson
I really love your work, a great job
I wanna buy your UI kit, where can I get it?
Hi, Darlene
Thanks, Bro. You can get it online on Themeforest.com/Capicreative
Thanks for your support,
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
return
Contact chat 3
9:41
Robertson
can I get it?
Hi, Darlene
Thanks, Bro. You can get it online on Themeforest.com/Capicreative
Thanks for your support, appreciate it!
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
return


Instant Payment-Select
9:41
Services
Internet
Most Used
Bill Payment
Mobile top up
Camo food
Discount
All Services
Shopping deals
Transfer to bank
Delivery
Football ticket
Electric bill
Health care
Internet
Hospital bill
Discount
Taxi
Music subscription
Camo food
Game
Bill Payment
Electric bill
Other
New Service
Nearby Camo-QR
Nearby Camo-QR
Help you search nearby place that accept QR payment with Camo
Mobile Top up
9:41
Mobile Top Up
Mobile top up
Phone number
Enter jphone number
Leave it blank if top up for yourself (0349 343 452)
1$
Price: 0.99$
2$
Price: 1.99$
5$
Payment method
More Method
From Austin (wallet balance)
$ 13 840
From Visa
Top up for yourself
Enter Amount
9:41
Mobile Top Up
Mobile top up
Phone number
0984
Andy Kros
0984 934 342
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0


Successful notification
9:41
Your payment was successful!
$45,6
From wallet balance
3289HF-4378
Maya power
2:29 PM 1/14/2022
Continue
Save bill
Electricity Caculator
9:41
Electric bill caculator
Last 6 months
View detail
Dollars
45
40
35
May
Jun
Jul
Aug
Sep
Oct
Highest monthly payout (12 months)
$55
Total power consumption/ month (estimated)
150 kWh
Want to save energy?
Saving tips.
Voucher
9:41
Payment history
Last 6 months
View detail
April 28, 2016
Maya power
3289HF-4378
$45,6
December 2, 2018
Time power
3289HF-4378
$36.84
February 29, 2012
Obien power
3289HF-4378
$16.43
September 9, 2013
Maya power
3289HF-4378
$27.43
July 14, 2015
Maya power
3289HF-4378
$49.99


Wallet overview
9:41
WALLET
Search
Total Balance
$ 13 840
+ 15% ($540)
Day
Week
Month
Year
+540$
Mon
Tue
Wed
Thu
Fri
Sat
Sun
Mon
Transfer Money
Deposit money
Activities
Linked Cards
Add a new card
Cardzzz
VISA
3453
Card Holder name
Austin Hammond
Expiry date
02/30
Notification
9:41
Notification(23)
Reiceive Money
1/7/2021 15:00
+$1650
from Lena Nguyen
Message: "Lena transfer"
Transaction result
1/7/2021 15:00
You have successfully made a payment of $1 for Andy, invoice number 80121640. Contact for support 19003432253
View detail
Reiceive Money
1/7/2021 15:00
+$1
from Andy Kros
Message: "Thanks,bro"
Activities
9:41
Activities
Wallet activities
Income
$2300
Spending
$1650
Transactions
Kathya Yu
1/7/2021
- $103
Receive
1/7/2021
+$457
Bill Payment
1/7/2021
- $45
Leslie Alexander
1/7/2021
+ $103
Dianne Russell
+ $1003


Voucher
9:41
Electric Bill
Electric bill
Provider
Change Provider
Maya Internet
Bill Number
Ex: 3289HF-4378
Scan QR
Provider
Change Provider
Electricity bill caculator
Payment History
Continue
Confirm bill
9:41
Electric Bill
Electric bill
Amount
$45,6
Pay for
Change Provider
3289HF-4378
Maya power
2:29 PM 1/14/2022
Payment method
More Method
From Austin (wallet balance)
$ 13 840
From Visa
•••• 3453
Pay
Successful notification
9:41
Your payment was successful!
$45,6
From wallet balance
3289HF-4378
Maya power
2:29 PM 1/14/2022
Continue
Save bill



6. REFERRENCES

The following are work done till date.

- Documented process of how create the app
- Analyzed apps like Google pay, PayPal, Paytm etc
- Dhiwise website
- Google research (programming languages, durations and cost of developing an e-wallet app