

PROJECT REPORT
ON
Bank Management System
(Online Banking)

B.Tech (CE) Sem-IV
In the Subject of
SEPP & SP

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Contents

1. Introduction/Abstract.....	3
2. Software Requirement Specifications.....	4
3. Design.....	7
4. Implementation Detail.....	18
5. Work Flow/Layouts	26
6. Conclusion.....	36
7. Limitation and Future Extension.....	37
8. Bibliography.....	38

1. Introduction

This project is clone online banking system with minimal number major functionalities.

Project created using Django and other tools such that it supports features which are provided by other online banking software.

This project system works for same self-bank speedy transfer, check transactions, update profiles and raise an issue.

When users creates account they will be notified by email which contains their account number and IFSC code, after sending mail system redirects to register for online banking page. After success fully registration user can login into the system. There is responsibility of admin to add initial amount to the account manually at bank.

There is four option user can choose “View Balance”, “Make Transaction”, “Transaction History”, “Contact Us”.

By choosing “Contact Us” users can raise an issue to admin what they facing.

“Make Transaction” works for transfer money from one account to another after authentication, both user gets mail of that transaction. “View Balance” works for viewing amount in user account, and “Transaction History” works for seeing all the transaction user had made. “Logout” button is there to gets logout at any time.

2. Software Requirement Specifications

Users of Software:

1. Bank account holder
2. Bank Staff
3. Admin

1. Manage Account:

Description: User can create, delete and update account by managing it.

State:-Users are at home page, some option which is displayed for doing particular task.

R 1.1 Create account.

Input: “Create Account” option selection

Output: Form will be displayed which required some details.

R 1.1.1 Enter details.

Description: Here, users have to fill some personal details like name, age, adhaar-card number, birthdate, and address for creating an account in bank.

Input: Enter asked details of user in the given form and submit the form.

Output: An email goes to user mail and account number and IFSC code will be there.

R 1.2 Delete account.

Input: “Delete an account” option selection.

Output: Form will be displayed which required some details.

R 1.2.1 Enter details.

Description: User need to provide details about their account and have to submit it. Then after some days account will be deleted successfully.

Input: Enter details about user account as per asked in form and submit the form.

Output: conformation message will be send after successfully deletion

2. Manage User:

R 2.1 Register into online banking services

Description: At time of registration, it's necessary that users have to enter required information asked in form. Once this step done, then in future no need enter all those details only user-id and password is sufficient.

State: Form with asking of required information like account holder name, account number, IFS-Code of bank, user-name (user choice) as ID and password.

Output: Registered successfully redirect to Login page.

R 2.2 User login

Input: Enter user-id, password.

Output: You are success fully logged in (Redirect to home page).

(If not matched with data base stayed on login page).

R 2.3 Update own information.

Description: A person who changed his/her residential address, mobile no., email address; after logged into their account they can modify their information securely by selecting this option.

Input: Select option which you want to update.

(I.e. Mobile number, Residential address, Email address)

Output: Your information is updated.

3. Manage Transaction:

R 3.1 Transfer Money:

Description: A person can transfer money securely from his/her account to another's account by selecting this option. Person will be asked for verification code for transaction.

R 3.1.1 Enter account detail where to transfer money

State: A dialog box for asking beneficiary name, account number where to transfer money.

Input: Enter that beneficiary account details.

R 3.1.2 Enter amount of money to transfer

State: A dialog box for asking amount of money to transfer.

Input: Enter amount and press confirm.

R 3.1.3 Check for sufficient amount in account:

Description: To check that person has sufficient amount in his/her account for debit.

(If not sufficient amount of money in account)

Output: No sufficient amount of money in account. Aborting transaction.

(If have sufficient amount of money OTP will be sent)

State: Confirmation for transaction

R 3.2 Confirmation for transfer money:

State: A dialog box asking for OTP delivered to email and login password.

Input: Enter OTP and login password.

Output: Your transaction done successfully.

R 3.4 Transaction History

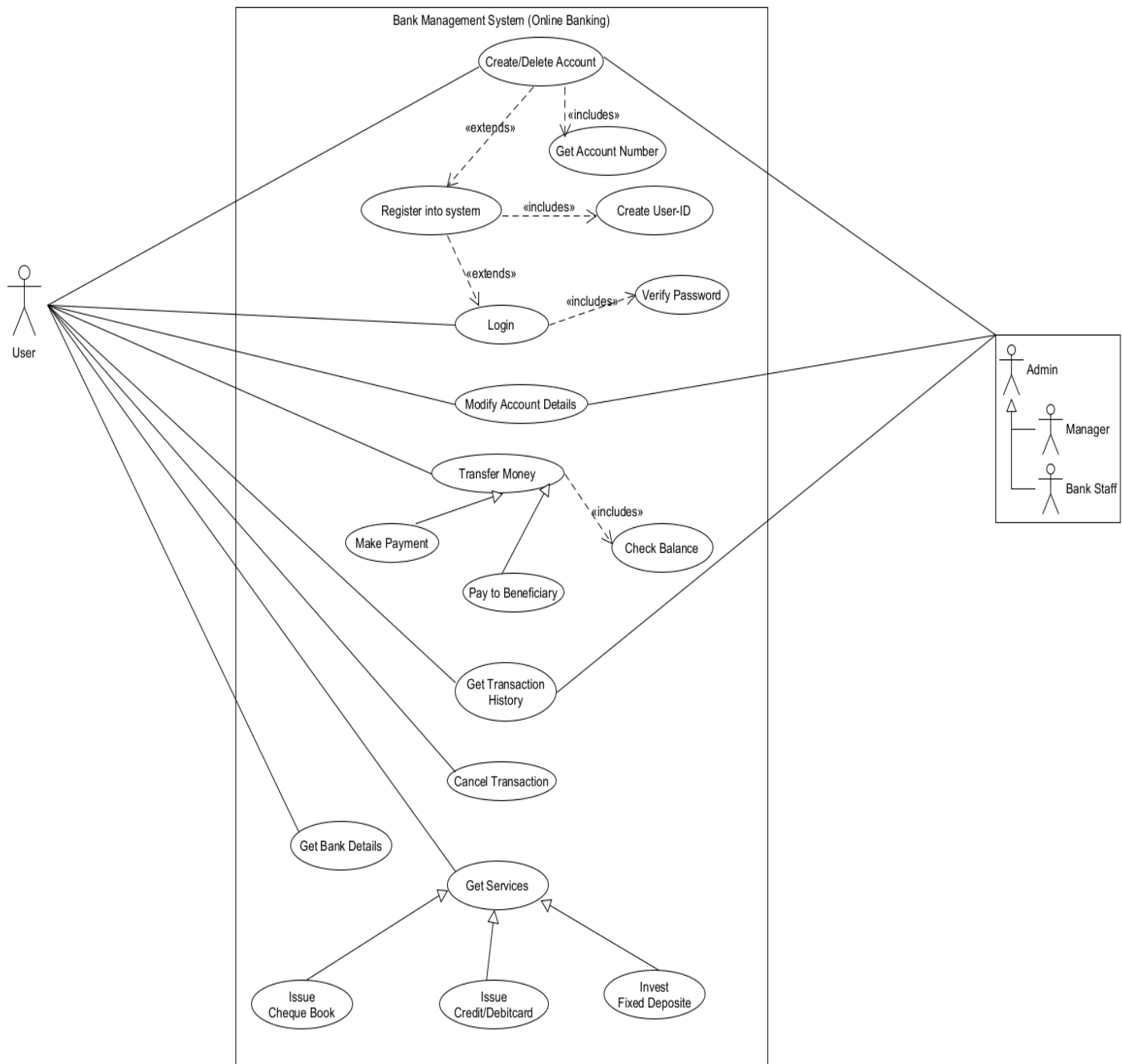
Description: Person can see his/her account transaction history.

Input: Click on button to see transaction history.

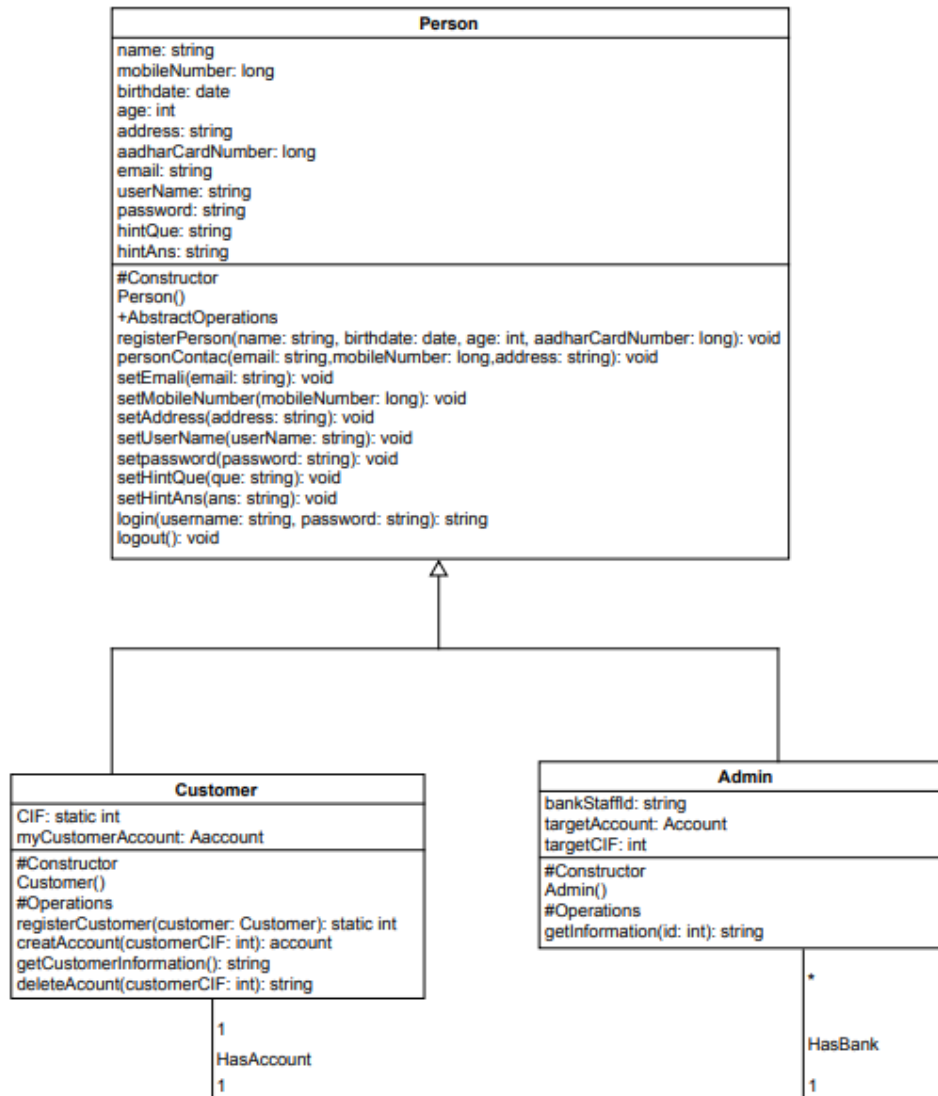
Output: Page containing transaction with full details.

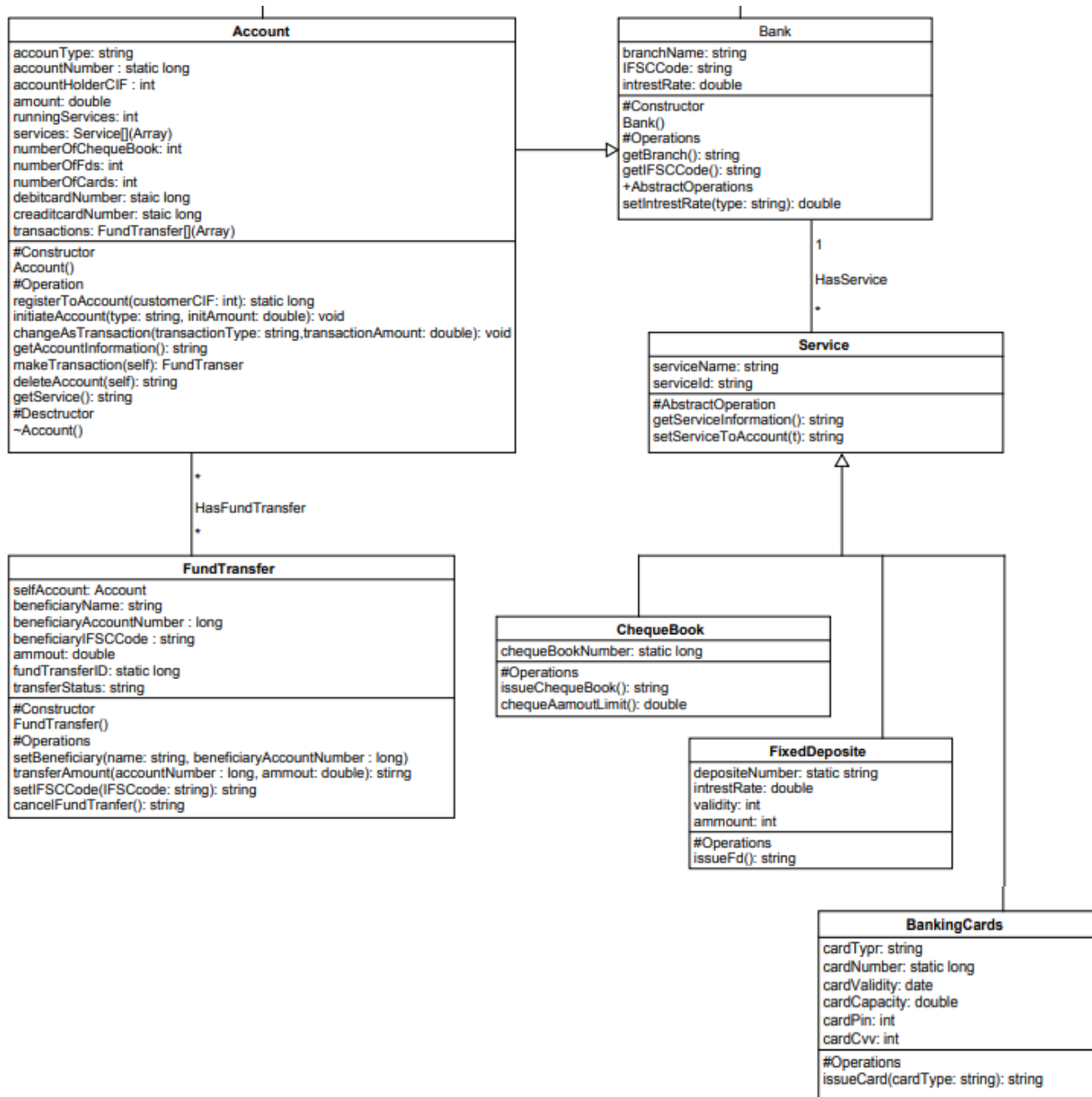
3. Designs Documents

1. Use case Diagram:



2. Class Diagram

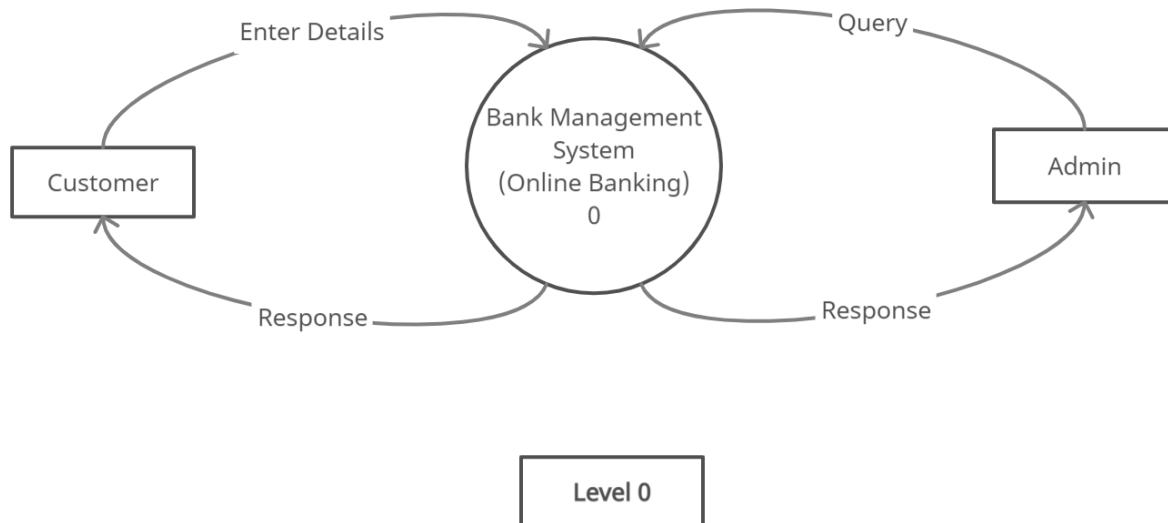




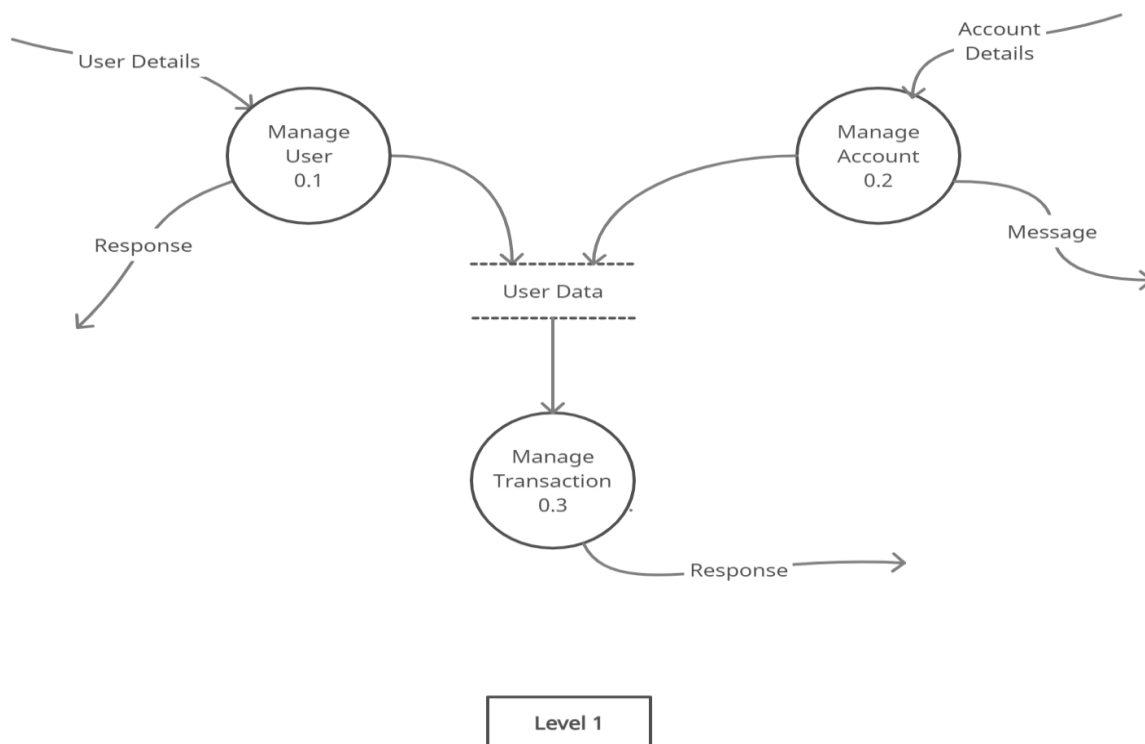
3. DFD Model and Structure Chart:

DFD:

Level: 0

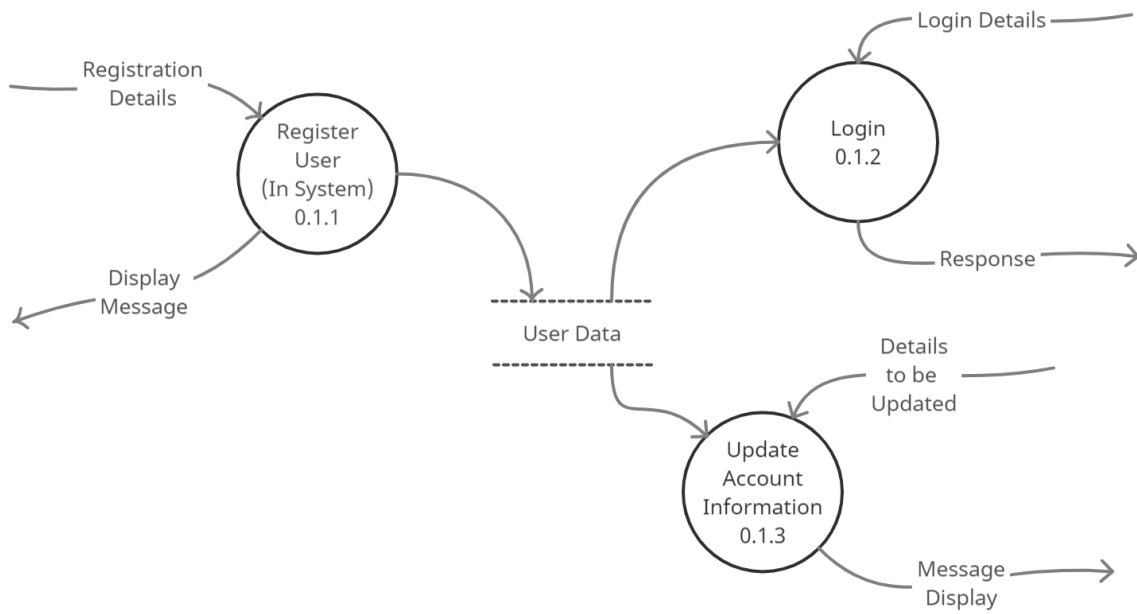


Level: 1

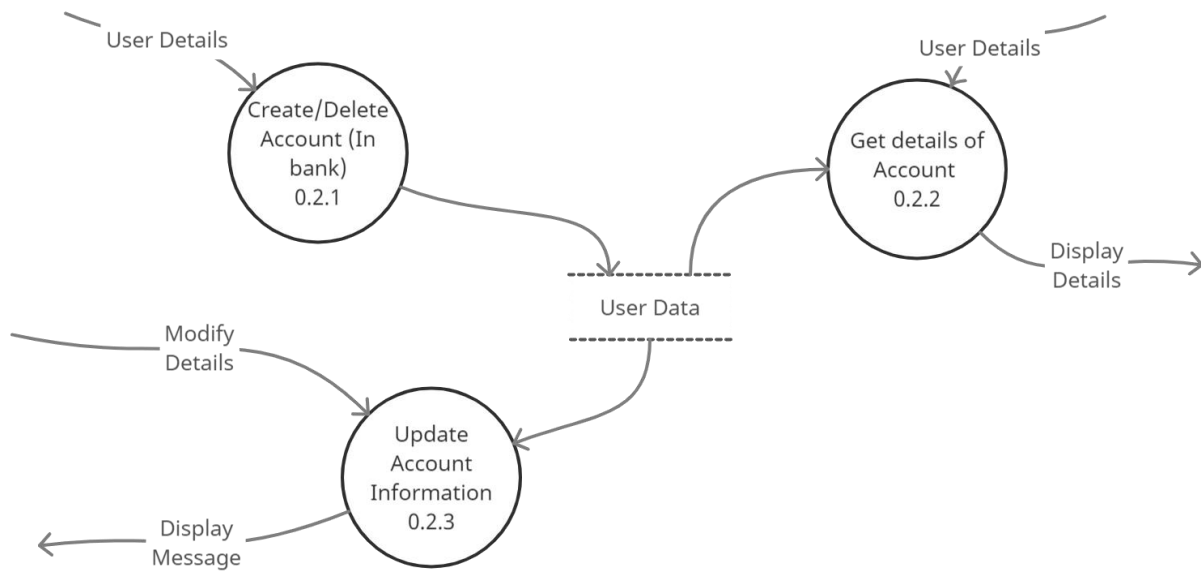


Level: 2

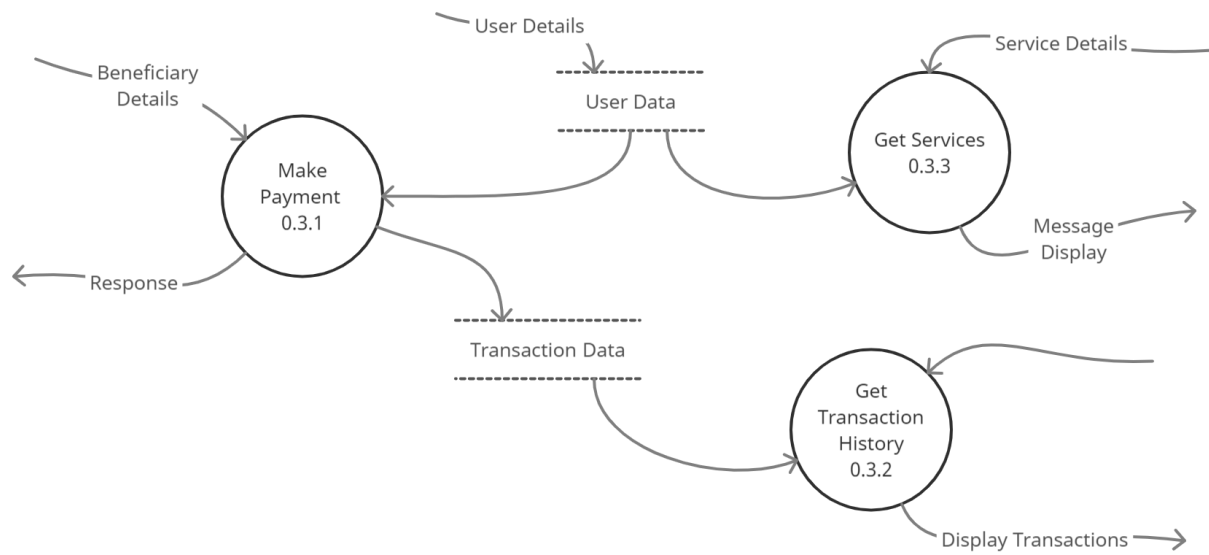
Decompose 0.1



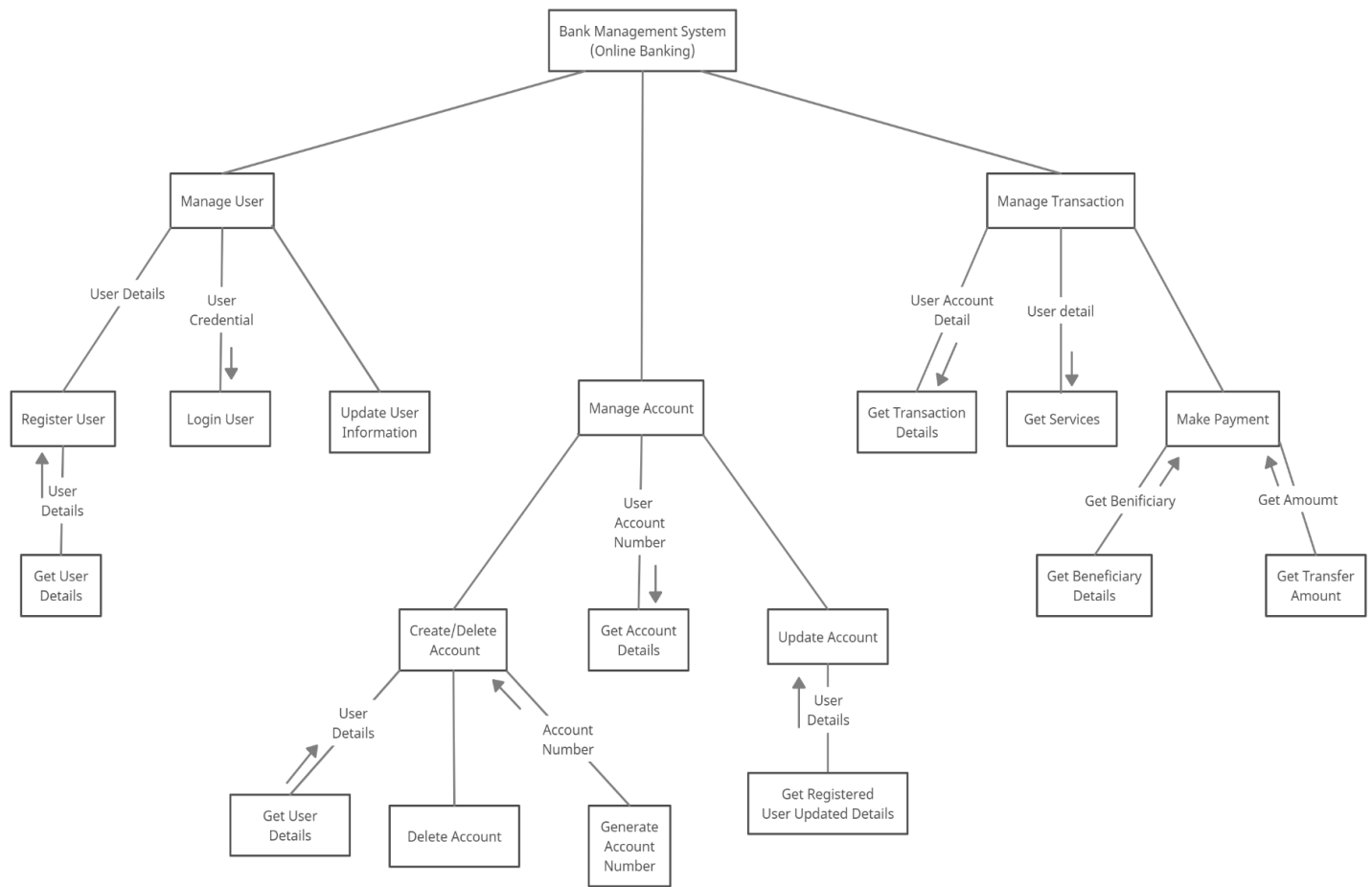
Decompose 0.2



Decompose 0.3



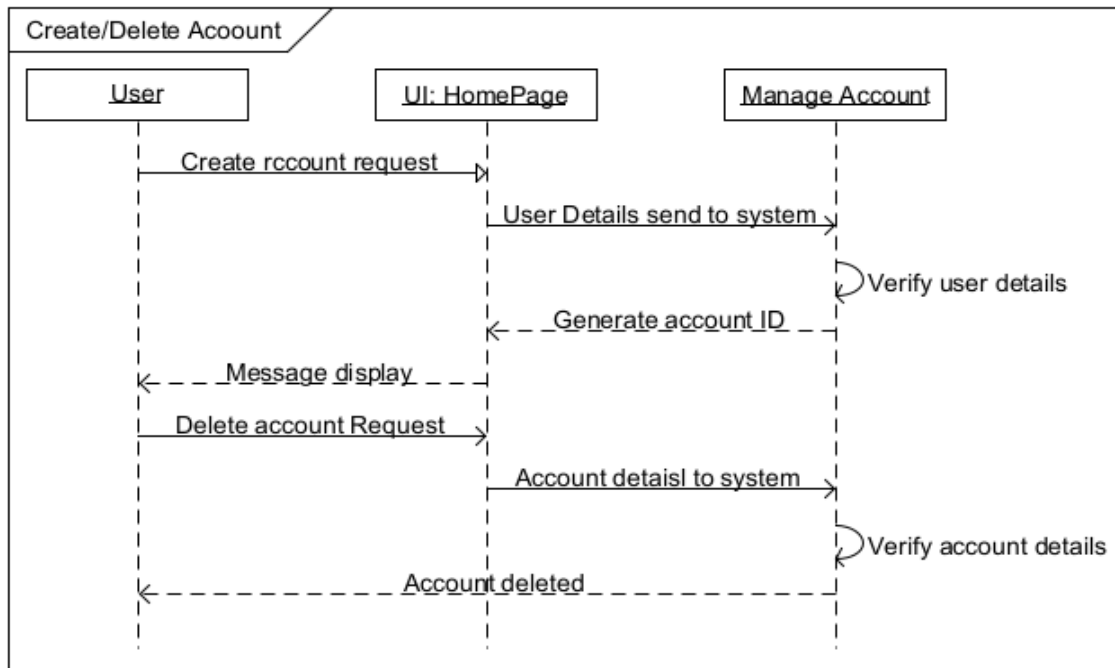
Structure Chart



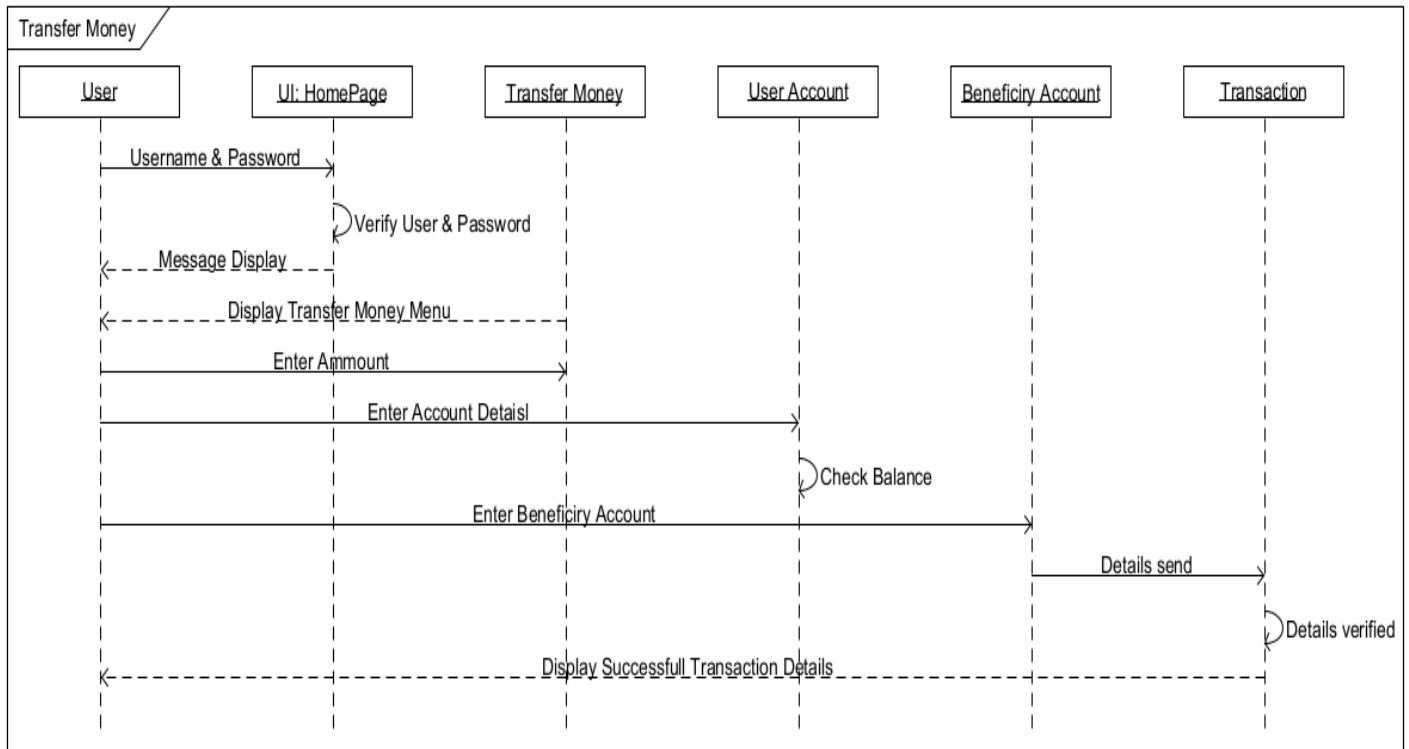
4. Sequence and Activity Diagram:

Sequence Diagram:

Create – Delete Account

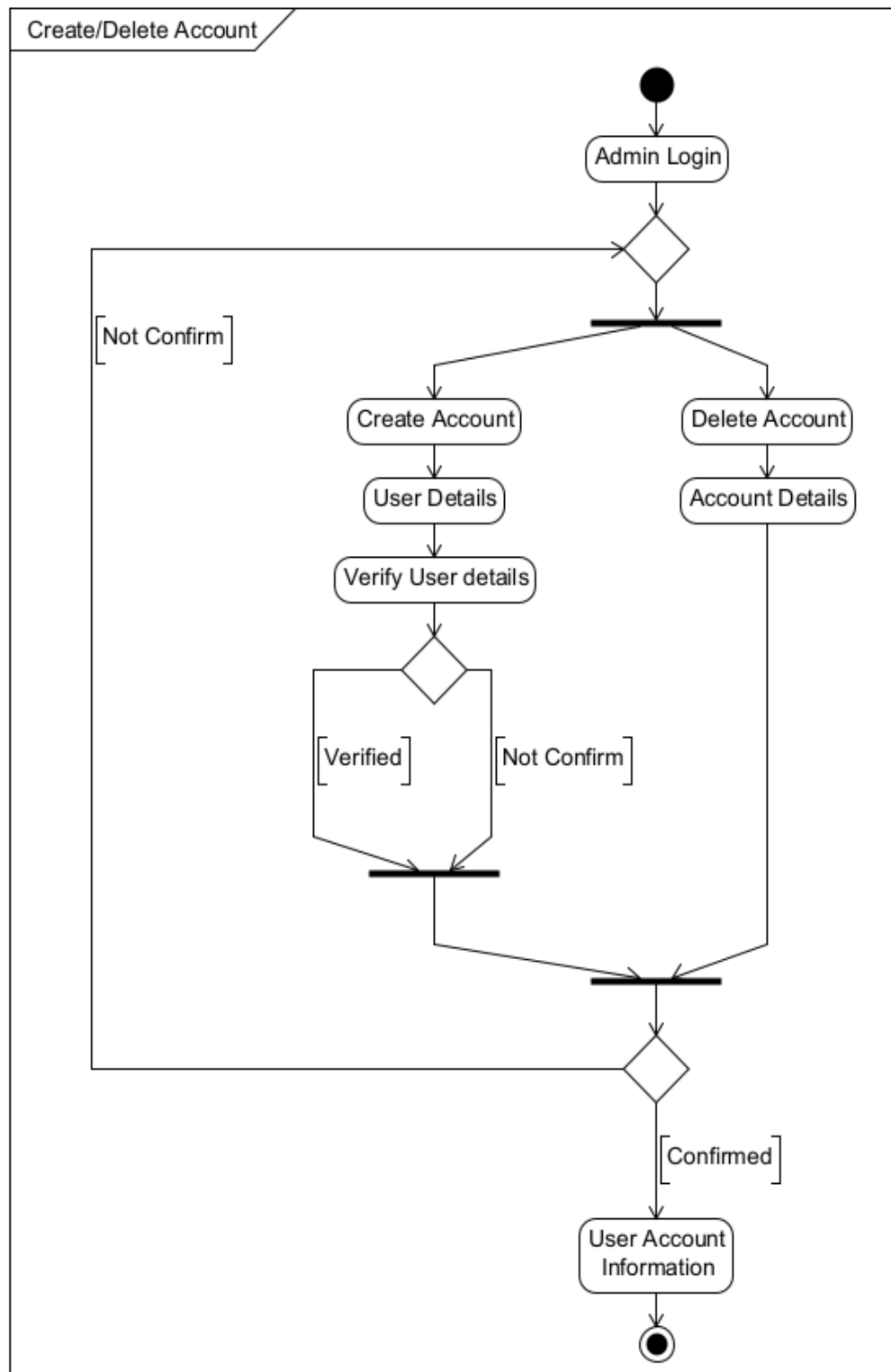


Transfer Money

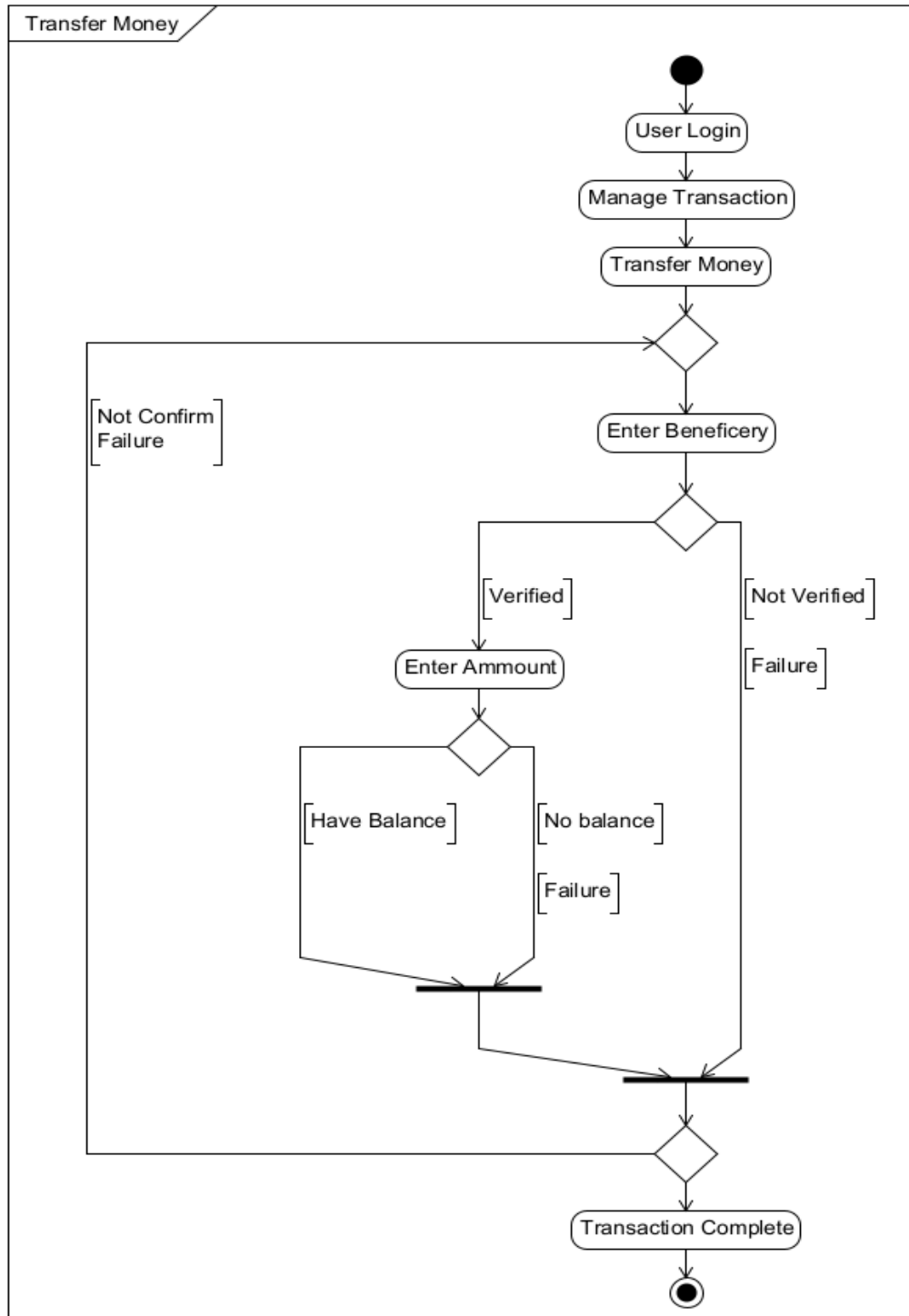


Activity Diagram

Create – Delete Account



Transfer Money:



4. Implementation Details

Models:

```
class transaction(models.Model):
    user = models.ForeignKey(User, on_delete=models.CASCADE)
    accountNumber = models.BigIntegerField()
    Name = models.CharField(max_length=25)
    TransactionID = models.CharField(max_length=12)
    TransactionAmount = models.IntegerField()
    date = models.DateField(auto_now_add=True)
    Balance = models.IntegerField()

class Contactus(models.Model):
    #user = models.ForeignKey(User, on_delete=models.CASCADE)
    AccountHolder = models.CharField(max_length=25)
    AccountNumber = models.BigIntegerField()
    #email = models.EmailField(max_length=200)
    MobileNumber = models.BigIntegerField()
    Address = models.TextField()
    IssueType = models.CharField(max_length=8)
    Issue = models.TextField()
    PostalZip = models.CharField(max_length=6)
    date = models.DateTimeField(auto_now_add=True)

    class Meta:
        verbose_name_plural = "ContactUs"

class details(models.Model):
    user = models.OneToOneField(User, on_delete=models.CASCADE)
    name = models.CharField(max_length=30)
    BirthDate = models.DateField()
    mobileNo = models.BigIntegerField()
    homeAddress = models.TextField()
    accountNo = models.BigIntegerField( unique=True )
    AadharNo = models.BigIntegerField( unique=True )
    IFSC_code = models.CharField(max_length=7, default='ABC1234')
    accBalance = models.BigIntegerField( default=0 )

    def __str__(self):
        return self.name
```

Views:

```
def login(request):
    if request.method=='POST':
        username=request.POST['username']
        password=request.POST['password']

        user = auth.authenticate(username=username,password=password)
        if user is not None:
            auth.login(request,user)
            return redirect('/Accounts/home')
        else:
            messages.info(request,'Username or Password is incorrect')
            return redirect('login')
    else:
        return render(request,'login.html')

def logout(request):
    auth.logout(request)
    return redirect('/')
```

```

def register(request):
    if request.method=='POST':
        userAccNumber=request.POST['userAccNumber']
        userIFSC=request.POST['userIFSC']
        username=request.POST['username']
        password=request.POST['password']
        ConfiPassword=request.POST['ConfiPassword']

        if(password==ConfiPassword):
            if details.objects.filter(accountNo=userAccNumber,IFSC_code=userIFSC).exists():
                u = details.objects.get(accountNo=userAccNumber,IFSC_code=userIFSC)
                user = User.objects.get(id=u.user_id)
                # key = request.session['key']
                key = str(user.first_name+str(u.AadharNo)+user.last_name)
                print(user.first_name+str(u.AadharNo)+user.last_name)
                if user.username==key:
                    try:
                        uname = User.objects.get(username=username)
                        print(uname)
                        messages.info(request,"This Username is alredy taken")
                    except User.DoesNotExist:
                        user.username=username
                        user.set_password(password)
                        user.save()
                        return render(request,'login.html')
                else:
                    messages.info(request,"You can not alter your username more than once.")
            else:
                messages.info(request,"No Account Found!..")
        else:
            messages.info(request,"Password doesn't matched with each other!")
    return render(request,'UserRegistration.html')

```

```

def createAccount(request):
    if request.method=='POST':
        first_name = request.POST['fname']
        last_name = request.POST['lname']
        fullname=first_name+' '+last_name
        BirthDate = request.POST['BirthDate']
        mobileNo = request.POST['mobileNo']
        emailAddress = request.POST['UserEmail']
        AadharCardNo = request.POST['AadharCardNo']
        homeAddress = request.POST['HomeAddress']
        key=first_name+AadharCardNo+last_name

        AccountNo = create_AccountNo()
        unique=False
        while not unique:
            if not details.objects.filter(accountNo=AccountNo).exists():
                unique=True
            else:
                AccountNo= create_AccountNo()

        user = User.objects.create_user(username=key,password=key,email=emailAddress,first_name=first_name,last_name=last_name)
        user.save()
        OtherDetails = details(user=user,accountNo=AccountNo,name=fullname,BirthDate=BirthDate,mobileNo=mobileNo,AadharNo=AadharCardNo,homeAddress=homeAddress)
        OtherDetails.save()
        request.session['name']=fullname
        request.session['accNo']=AccountNo
        request.session['key']=key

        return redirect('/Accounts/send_email')
    return render(request, 'CreateAccount.html')

```

```

def home(request):
    return render(request, 'home.html')

def viewBalance(request):
    user = details.objects.get(user_id=request.user.id)
    accBalance = user.accBalance
    accNumber = user.accountNo
    accountNo = "XXX"+str(accNumber)[3:]
    Name = user.name
    userdata = {'accBalance':accBalance,'accountNo':accountNo,'Name':Name}
    return render(request, 'viewBalance.html',userdata)

```

```

def viewProfile(request):
    user=details.objects.get(user_id=request.user.id)
    obj=User.objects.get(id=user.user_id)
    Email = obj.email
    if request.method=='POST':
        email= request.POST['inputEmail']
        MobileNo= request.POST['inputmobile']
        Address= request.POST['inputAddress']
        user.mobileNo=MobileNo
        user.homeAddress=Address
        user.save()
        obj.email=email
        obj.save()
        messages.success(request,"Your Details Updated Successfully ..")
        return render(request,'viewProfile.html',{'user':user,'Email':Email})
    else:
        return render(request,'viewProfile.html',{'user':user,'Email':Email})

def create_TransactionID():
    return ''.join(random.choices(string.digits,k=9))

```

```

def send_credit_mail(request):

    accountNumber= request.POST['AccountNumber']
    AccountHolder =details.objects.get(accountNo=accountNumber)
    AccHolderName = AccountHolder.name
    TransactionAmount = str(request.POST['TransactionAmount'])
    subject = AccHolderName + ",Your Transactions done successfully. :)"
    user=User.objects.get(id=AccountHolder.user_id)
    mail=user.email
    sender=config('SENDERMAIL')#sender@mail
    password=config('PASSWORD')#sender@mail&password
    messages="\n"+subject+"\nRupees " + TransactionAmount + "/- is Credited to Your account."
    if subject:
        try:
            server = smtplib.SMTP('smtp.mail.yahoo.com',587)
            server.ehlo()
            server.starttls()
            server.login(sender,password)
            server.sendmail(sender,mail,messages)
        except BadHeaderError:
            return HttpResponse('Invalid header found.')
    else:
        return HttpResponse('Make sure all fields are entered and valid.')

```

```

def send_debit_mail(request):

    AccountHolder = details.objects.get(user_id=request.user.id)
    AccHolderName = AccountHolder.name
    TransactionAmount = str(request.POST['TransactionAmount'])

    subject = AccHolderName + ",Your Transactions done successfully. :)"
    user=User.objects.get(id=request.user.id)
    mail=user.email
    sender=config('SENDERMAIL')#sender@mail
    password=config('PASSWORD')#sender@mail&password
    messages="\n"+subject+"\nRupees " + TransactionAmount + "/- is Debited from Your account."
    if subject:
        try:
            server = smtplib.SMTP('smtp.mail.yahoo.com',587)
            server.ehlo()
            server.starttls()
            server.login(sender,password)
            server.sendmail(sender,mail,messages)
        except BadHeaderError:
            return HttpResponse('Invalid header found.')
    else:
        return HttpResponse('Make sure all fields are entered and valid.')

```

```

def transactionHistory(request):
    user = details.objects.get(user_id=request.user.id)
    histobj=transaction.objects.filter(user_id=request.user.id)
    print(user.name,user.accountNo)
    return render(request,'transactionHistory.html',{'history':histobj,'user':user})

def delsession(request):
    del request.session['name']
    del request.session['accNo']
    return redirect('/UserRegistration')

def giveIssue(request):
    user = details.objects.get(user_id=request.user.id)
    username=user.name
    useraccountnumber=user.accountNo
    usermobile=user.mobileNo
    #useremail=user.email
    useraddress=user.homeAddress
    userdata={'username':username,'useraccountnumber':useraccountnumber,'usermobile':usermobile,'useraddress':useraddress}
    return render(request, 'contactus.html',userdata)

```

```
def contactus(request):
    if request.method=='POST':
        username=request.POST.get('inputUserName')
        useraccountNo=request.POST.get('inputaccountnumber')
        mobileNo = request.POST.get('inputmobile')
        #emailAddress = request.POST.get('inputEmail')
        homeAddress = request.POST.get('inputAddress')
        issuewith = request.POST.get('issuewith')
        userIssue= request.POST.get('userIssue')
        inputZip=request.POST.get('inputZip')
        #print(username,useraccountNo,mobileNo,homeAddress,issuewith,userIssue,inputZip)
        prob = Contactus.objects.create(AccountHolder=username,AccountNumber=useraccountNo,MobiLeNumber=mobileNo,Address=homeAddress,Issu
        prob.save()
        return redirect('/Accounts/home')
    else:
        HttpResponse("Bad Error in contactus")
        return redirect('/Accounts/home')
```

```
def send_email(request):
    account=request.session['accNo']
    AccHolderName=request.session['name']
    IFSC="ABC1234"
    subject = AccHolderName+" your Account is created. :)"
    obj=details.objects.get(accountNo=account)
    user=User.objects.get(id=obj.user_id)
    mail=user.email
    sender=config('SENDERMAIL')#sender@mail
    password=config('PASSWORD')#sender@mail&password
    messages="\n"+subject+"\nYour Account Number is:- "+str(account)+"\nYour IFSC Code is- "+str(IFSC)+"\nThank You."
    if subject:
        try:
            server = smtplib.SMTP('smtp.mail.yahoo.com',587)
            server.ehlo()
            server.starttls()
            server.login(sender,password)
            server.sendmail(sender,mail,messages)
        except BadHeaderError:
            return HttpResponse('Invalid header found.')
        return redirect('/Accounts/delsession')
    else:
        # In reality we'd use a form class
        # to get proper validation errors.
        return HttpResponse('Make sure all fields are entered and valid.')
```



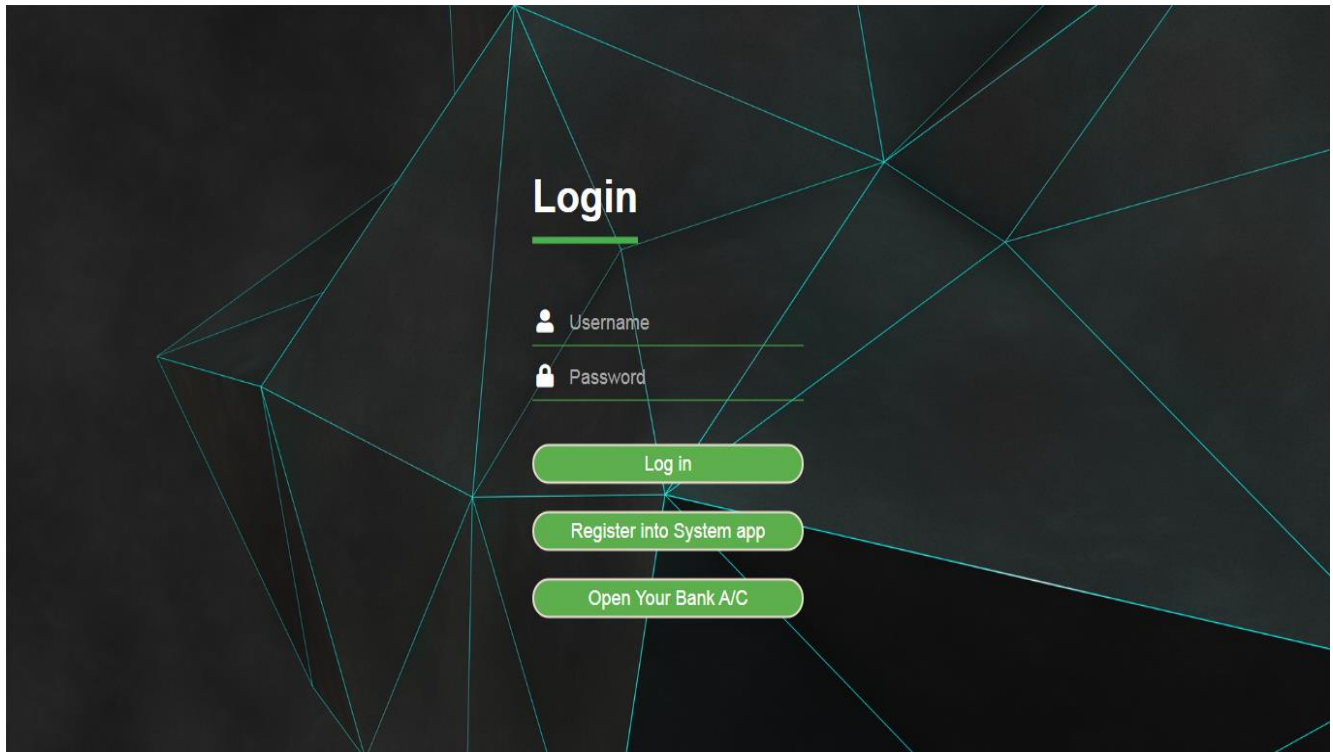
```

def makeTransaction(request):
    if request.method=='POST':
        beneficiaryName = request.POST['BeneficiaryName']
        BeneficiaryAccountNumber = request.POST['AccountNumber']
        ReAccountNumber = request.POST['ReAccountNumber']
        TransactionAmount = int(request.POST['TransactionAmount'])
        password = request.POST['password']
        user = User.objects.get(id=request.user.id)
        username = user.username
        user = auth.authenticate(username=username,password=password)
        if (BeneficiaryAccountNumber==ReAccountNumber):
            AccountHolder = details.objects.get(user_id=request.user.id)
            beneficiary = details.objects.filter(accountNo=BeneficiaryAccountNumber).exists()
            print("++",beneficiary)
            if beneficiary is not False:
                beneficiary = details.objects.get(accountNo=BeneficiaryAccountNumber)
                if user is not None:
                    if(int(AccountHolder.accBalance) > 0 and int(TransactionAmount<=AccountHolder.
                        accBalance)):
                        AccountHolder.accBalance = int(AccountHolder.accBalance - TransactionAmount)
                        AccountHolder.save()
                        beneficiary.accBalance = int(beneficiary.accBalance + TransactionAmount)
                        beneficiary.save()
                        print(AccountHolder.accBalance)
                        print(beneficiary.accBalance)
                        TransactionID = "YoB"+str(create_TransactionID())
                        Transaction1 = transaction.objects.create(accountNumber=AccountHolder.accountNo,
                            Name=AccountHolder.name,TransactionID=TransactionID ,
                            TransactionAmount=-TransactionAmount,Balance=beneficiary.accBalance ,
                            user_id=beneficiary.user_id)
                        Transaction1.save()
                        Transaction2 = transaction.objects.create(accountNumber=beneficiary.accountNo,
                            Name=beneficiary.name,TransactionID=TransactionID,
                            TransactionAmount=TransactionAmount,Balance=AccountHolder.accBalance,
                            user_id=request.user.id)
                        Transaction2.save()
                        messages.success(request,'<font style="color: rgb(75, 224, 75);">Your Transaction
                            complete successful</font>', extra_tags='safe')
                        send_debit_mail(request)
                        send_credit_mail(request)
                        return redirect('/Accounts/makeTransaction')
                    else:
                        return redirect('/Accounts/viewBalance')
                else:
                    messages.info(request,"May your login password is wrong.")
                    return redirect('/Accounts/makeTransaction')
            else:
                messages.info(request,"May some details>(i.e beneficiary A/C) is wrong")
                return redirect('/Accounts/makeTransaction')
        else:
            messages.info(request,"Account number doesn't match with eachother")
            return redirect('/Accounts/makeTransaction')
    else:
        return render(request,'makeTransaction.html')

```

5. Workflow / Layouts

1. Login



Login

Log in

Register into System app

Open Your Bank A/C

2. Create Account

Open Your Bank Account

first name

Last name

dd - - - - yyyy

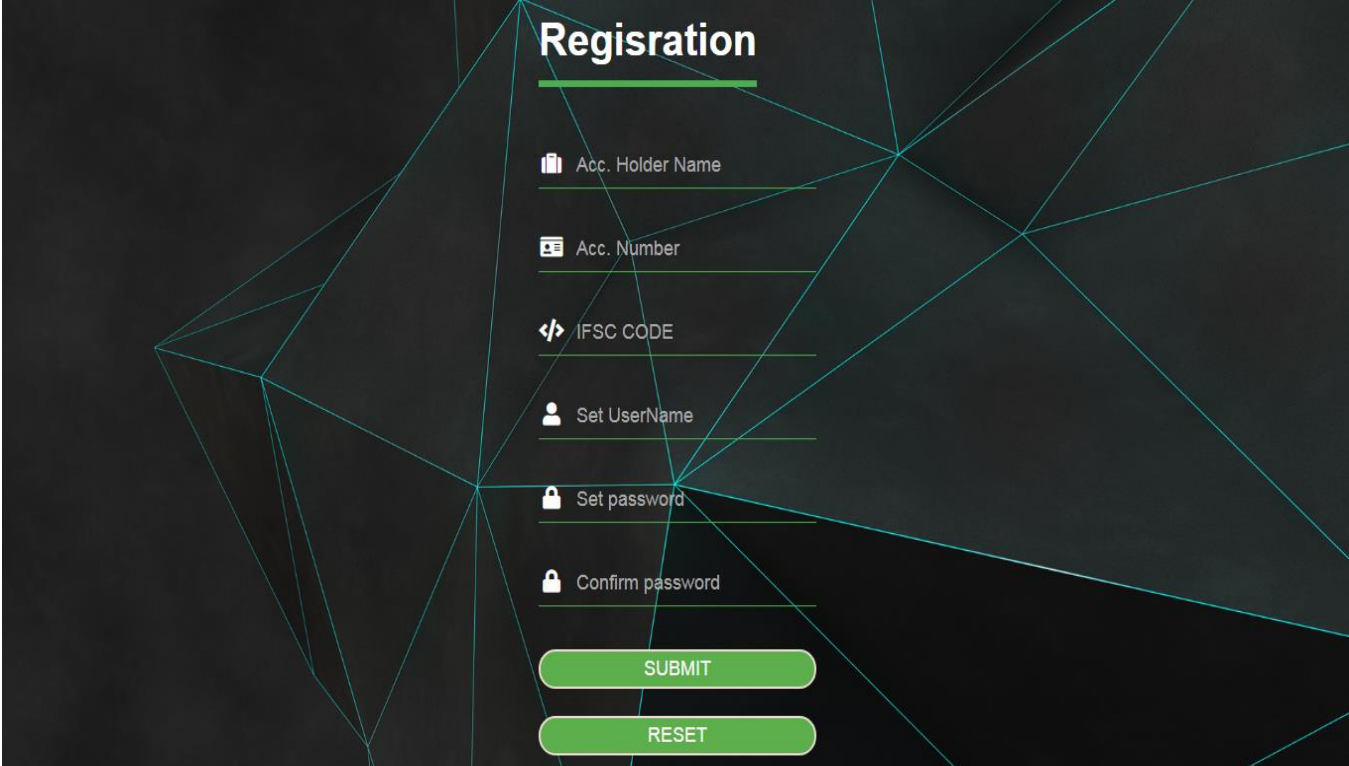
Enter Email Address

Enter MobileNo


Enter Aadhar Card No


Enter your address


3. User Registration:





Registration


 Acc. Holder Name

 Acc. Number

 IFSC CODE

 Set UserName

 Set password

 Confirm password

SUBMIT

RESET

4. Admin Panel

Django administration

WELCOME, **ADMIN** [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Site administration

ACCOUNTS

ContactUs [+ Add](#) [Change](#)

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [Change](#)

Users [+ Add](#) [Change](#)

USERLOGIN

Detailss [+ Add](#) [Change](#)

Recent actions

My actions

None available

5. Amin User Profile

Django administration

WELCOME, **ADMIN** [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Userlogin > Detailss > Chandresh Gohel

ACCOUNTS

ContactUs [+ Add](#)

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#)

Users [+ Add](#)

USERLOGIN

Detailss [+ Add](#)

«

Change details

HISTORY

User:

cgoheh [Change](#) [+](#)

Name:

Chandresh Gohel

BirthDate:

2001-11-26 Today

Note: You are 5.5 hours ahead of server time.

MobileNo:

1111222233

HomeAddress:

DDU Nadiad

AccountNo:

8007445

AadharNo:

1234123411

IFSC code:

ABC1234

AccBalance:

10000

Delete

Save and add another

Save and continue editing

SAVE

6. Admin Contact Us

Django administration

WELCOME, [ADMIN](#) [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Accounts > ContactUs > Contactus object (1)

ACCOUNTS

ContactUs [+ Add](#)

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#)

Users [+ Add](#)

USERLOGIN

Detailss [+ Add](#)

Change contactus

HISTORY

AccountHolder:

Chandresh Gohel

AccountNumber:

63226292

MobileNumber:

1112223333

Address:

DDU Nadiad

IssueType:

Account

Issue:

Applied for Initial Credit of 10000

PostalZip:

123456

Delete

Save and add another

Save and continue editing

SAVE

7. Account Created Mail



██████████@yahoo.com

Kenil Gopani your Account is created. :)
Your Account Number is:- 00728462
Your IFSC Code is- ABC1234
Thank You.

8. Home Page

Yo Bank [Home](#) [Services](#) [Contact us](#)

[View Profile](#)

[Log out](#)

[View Balance](#)

[Make
Transaction](#)

[View
Transaction
History](#)

9. Contact Us (User)

[Yo Bank](#) [Home](#) [Services](#) [View Profile](#) [Log out](#)

We are always here for you :)

Account Holder

Chandresh Gohel

Account Number

89781843

Email

Mobile Number

1111222233

Address

DDU Nadiad

What's an issue with you

Issue With ☒ Account ☐ Services

Applied for initial Credit

Postal Zip

123456

Submit Issue

10. View Balance

[Yo Bank](#) [Home](#) [Services](#) [Contact us](#) [View Profile](#) [Log out](#)

Hey Chandresh Gohel, makesure that you have sufficient balance in your account for using services. X

Hey, Your A/C No:- XXX81843.
Your A/C Balance is ₹10000 /-

Back

11. View/Update Profile

Yo Bank [Home](#) [Services](#) [Contact us](#)

[Log out](#)

Profile

Account Holder

Chandresh Gohel

Account Number

89781843

IFSC_code

ABC1234

AadharCard No

123412341234

Birth Date

Nov. 26, 2001

Email

[REDACTED]

Mobile Number

1111222233

Address

DDU Nadiad

[Submit](#)

12. Transfer Money

Yo Bank Home Services Contact us

View Profile

Log out

Beneficiary Details

Beneficiary Name

Kenil Gopani

Account Number

728462

Re-Account Number

728462

(Please ensure correctness),the beneficiary name and account number.

Amount

3000

Password

☐ Accept Term & Condition

Make Payment

13. Transaction Information:

1: From Account:



██████████@yahoo.com

Chandresh Gohel,Your Transactions done successfully. :)
Rupees 3000/- is Debited from Your account.

2: To Account



██████████@yahoo.com

Kenil Gopani,Your Transactions done successfully. :)
Rupees 3000/- is Credited to Your account.

14. Transaction History:

Welcome Chandresh Gohel

Your Transactions are as per below

Date	Details	Debit	Credit	Balance
March 31, 2021	Transfer To Account Number-728462 YoB720533892/Kenil Gopani	3000	-	5999
March 31, 2021	Transfer To Account Number-63226292 YoB573452922/Chandresh Gohel	1001	-	8999

Welcome Kenil Gopani

Your Transactions are as per below

Date	Details	Debit	Credit	Balance
March 31, 2021	Transfer from Account Number-89781843 YoB720533892/Chandresh Gohel	-	3000	13000

6. Conclusion

All the functionalities are implemented after understanding all models and diagrams of system. By the use of system all users of bank can interact with banking services and bank admins, increased user ease.

Functionalities are successfully implemented are as below mentioned.

- Login
- User Registration
- Create Account
- View Balance
- Make Transaction
- Inform User transaction
- Transaction History
- View Profile
- Update Profile
- Contact Admin

After the implementation all functionalities were successfully tested, and working properly.

7. Limitation and future extension

Limitation:

- In this system we can make transaction among only who belongs to same bank. Not with other banks, as made for Local System.
- Current system users can't delete their account directly from user panel.
- Current system doesn't define limitation of transaction amount.

Future Extension:

- User interface will be improved to provide better interaction with system.
- In further version delete account functionality.
- Services (fixed deposit, issue debit/credit card, issue cheque book) will be added.
- At time of transaction OTP functionality will be added.
- User will be able to print his/her transactions.

8. Bibliography

Referred links for project:

- www.docs.djangoproject.com
- www.stackoverflow.com
- www.askpython.com
- www.geeksforgeeks.com
- www.github.com