***Online Banking System***

*SRS*

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**1) Introduction**

Online Banking System provides is specifically developed for online banking for Balance Enquiry,

Funds Transfer to another account in the same bank, Request for cheque book/change of address/stop

payment of cheques, Mini statements (Viewing Monthly and annual statements).

1.1 Purpose

The Traditional way of maintaining details of a user in a bank was to enter the details and

record them. Every time the user need to perform some transactions he has to go to bank and perform

the necessary actions, which may not be so feasible all the time. It may be a hard-hitting task for the

users and the bankers too. The project gives real life understanding of Online Banking System and activities

performed by various roles in the supply chain. Here, we provide an automation for banking system

through Internet. Online Banking System project captures activities performed by different roles in

real life banking which provides enhanced techniques for maintaining the required information upto-

date, which results in efficiency. The project gives real life understanding of Online Banking System and

activities performed by various roles in the supply chain.

1.2 Scope of the Project

This Project investigates the entry threshold for providing a new transaction service

channel via the real options approach, where the entry threshold is established by using an Internet

banking system designed for the use of normal users(individuals), Industrialists, Entrepreneurs,

Educational Institutions(Financial sections), Organizations and Academicians under transaction

rate uncertainty.

Customer must have a valid User Id and password to login to the system

If a wrong password is given thrice in succession, that account will be locked and the

customer will not be able to use it. When an invalid password is entered a warning is given

to the user that his account is going to get locked.

After the valid user logs in he is shown the list of accounts he has with the bank.

On selecting the desired account he is taken to a page which shows the present balance in

that particular account number.

User can request for the details of the last ‘n’ number of transactions that he has performed.

A report can also be taken of this.

User can make a funds transfer to another account in the same bank. User is provided with a

transaction password which is different from the login password.

User can transfer funds from his account to any other account with this bank. If the

transaction is successful a notification should appear to the customer, in case it is

unsuccessful, a proper message should be given to the customer as to why it failed.

User can request for cheque book/change of address/stop payment of cheque’s

User can view his monthly as well as annual statements. He can also take print out of the

same.

Generate reports at every section

Administrator can take a back up of the database for every instance that is happening,

periodically.

All users are authenticated to avail the services

FAQ section is also included for end users benefit.

1.3 Definitions, Acronyms and Abbreviations

**Administrator:** He is the super user who can add new customers into banking system,

and assigns corresponding username, password, account type and other details. When any

customer withdraws his account from the bank, he can delete their account and stop the

transactions immediately. He can generate different reports. He also takes the system

backup.

**Team Members (Customers):** After logging in he can request for balance enquiry in

his account, Funds Transfer to another account in the same bank, Request for cheque

book/change of address/stop payment of cheques, Mini statements (Viewing Monthly and

annual statements).

**Industrialists, Entrepreneur, Organizations and academicians:** These are

another type of customers. They will have extra information to be entered while logging in

such as organization Id and so on. They can also perform all the actions what the normal

customers are going to perform.

**HTML:** Hypertext Markup Language is a markup language used to design static web

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pages.

**EJB:** Enterprise Java Beans.

**J2EE:** Java 2 Enterprise Edition is a programming platform part of the Java Platform for

developing and running distributed multitier architecture Java applications, based largely on

modular software components running on an application server.

**DB2:** DB2 Database is the database management system that delivers a flexible and cost

effective database platform to build robust on demand business applications.

**WAS:** Web sphere application server is an application server that runs business applications

and supports the J2EE and web services standards.

**WSAD:** Web sphere studio application developer is a toolkit which is designed for the

creation of more complex projects, providing fully dynamic web application utilizing EJB’s.

This consist of EJB tools , CMP ,data mapping tools & a universal test client that is designed

to aid testing of EJB’ s.

**HTTP:** Hypertext Transfer Protocol is a transaction oriented client/server protocol between

web browser & a Web Server.

**HTTPS**: Secure Hypertext Transfer Protocol is a HTTP over SSL (secure socket layer)

**TCP/IP:** Transmission Control Protocol/Internet Protocol, the suite of communication

protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main

ones being TCP and IP.

1.4 References

SRS (IEEE SRS Format and Format provided by TGMC)

Project specification requirement (provided by TGMC)

Problem Definition (provided by TGMC)

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1.5 Technologies to be used

**J2EE** – Application architecture

**JAVA** – Application architecture

**WSAD** – Development tool

**WAS CE** - Application Server

**DB2** – Database

**Rational** – Design tool

**1.6 Overview**

SRS includes two sections overall description and specific requirements

 Overall description will describe major role of the system components and interconnections.

 Specific requirements will describe roles & functions of the actors.

**2) Overall Description**

The following sections describe the general factors that affect the product and its requirements.

Customer must have a valid User Id and password to login to the system. After the valid user logs in

he is shown the list of accounts he has with the bank. On selecting the desired account he is taken to a page

which shows the present balance in that particular account number, user can request details of the last ‘n’

number of transactions he has performed. User can make a funds transfer to another account in the same

bank. User is provided with a transaction password which is different from the login password.

User can transfer funds from his account to any other account with this bank. If the transaction is

successful a notification should appear to the customer, in case it is unsuccessful, a proper message should

be given to the customer as to why it failed. User can request for cheque book/change of address/stop

payment of cheque’s.

User can view his monthly as well as annual statements. He can also take print out of the same.

Appropriate help to be provided as and when requested by the user.

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**2.0.1 Product Perspective**

The client will have client interface in which he can interact with the banking system. It is a web

based interface which will be the web page of the banking application. Starting a page is displayed asking

the type of customer he is whether ordinary or a corporate customer. Then the page is redirected to login

page where the user can enter the login details. If the login particulars are valid then the user is taken to a

home page where he has the entire transaction list that he can perform with the bank. All the above activities

come under the client interface.

The administrator will have an administrative interface which is a GUI so that he can view the entire

system. He will also have a login page where he can enter the login particulars so that he can perform all his

actions. This administrative interface provides different environment such that he can maintain database &

provide backups for the information in the database. He can register the users by providing them with

username, password & by creating account in the database. He can view the cheque book request & perform

action to issue the cheque books to the clients.

**2.2 Software Interface**

**User on Internet** : Web Browser, Operating System (any)

**Application Server** : WAS

**Data Base Server** : DB2

**Network** : Internet

**Development Tools** : PHP MYSQL

**2.03 Hardware Interface**

**Client Side ( IE Along with Printer )**

**Processor Ram Disc Space**

**Internet Explorer**

**6.0**

Pentium II at

500 MHz

64 MB

1 GB

**Server Side**

**Web sphere**

**application server**

**V5.0**

Pentium III at

1 GHz 512 MB 2 GB

**DB2 V8.1**

Pentium III at

1 GHz

512 MB

1GB

(Excluding data size)

2.4 **Communication Interface**

Client on Internet will be using HTTP/HTTPS protocol.

Client on Intranet will be using TCP/IP protocol.

A Web Browser such as IE 6.0 or equivalent.

2.5 **Product Features :**

The Online Banking System consists of following modules :

1) Login Process**:** This module allows valid customers to access the functionalities provided by

the bank.

2) Balance Enquiry**:** This module maintains the balance details of a particular account.

3) Update Profile**:** This module allows the customer to update profile of their account.

4) Funds Transfer**:** This module allows the customers to transfer funds from one account to

another within the same bank.

5) Change of Password**:** This module allows customers to change their password.

6) Mini Statements**:** This module allows customers to view their transaction details.

2.6 **User Characteristics :**

Customers : The normal users will have an account of fixed or savings and should have a minimum

balance of 500 Rs. He can transfer funds to another account of the same bank & may view his monthly or

annual statements.

Industrialists, Entrepreneur, Organizations academicians: These users will have all the three

accounts & should have a minimum balance of 20,000 Rs. He can view the statements of his organization or

industry

2.7 **Design and Implementation Constraints**

Login and password is used for identification of customer’s account and there is no facility for

non users to login.

This system works only on a single server.

GUI is only in English

Limited to HTTP/HTTPS protocols

**2.8 Use-Case Model Survey:**

**Description and the priority of this system**

When we consider the online Online Banking System in this we provide the details of how to access the

bank account without going to the bank through internet.

When we consider the priority of this project it is mainly of medium cost, efficient to user access

data, provides the required data, safe and secure one .we can know the details of our account whether

it may be a transaction or deposit or balance enquiry etc.

**Overall view of the banking system:**

The Online Online Banking System provides us the banking facility through internet.

The overall view of the banking System is as shown below:

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**Use-Case Model Survey:**

customer

corporate

account list

balance enquiry

funds transfer

update profile

ministatements

initialises

shutdowns

request cheque book

End sessions

start sessions

Login

Data Backup

Crash recovery

help

performs

administrator

log out

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**Activity Diagram for overall system:**

Enter userid &

passwd

valid user

balance enquiry Funds transfer update profile request cheque

book

Ministatements

yes

no

your account

balance is ::....

to:

ammount: .

Log out

start

stop

**Users of the system:**

In this online Online Banking System, the users are

 Administrators

 Customers

 Corporate.

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**1. Administrator**: He is the super user responsible for managing system users, taking system backup,

generating reports, maintaining organization details, Starting Sessions and ending Sessions and also

manages various requests from different Types of users.

Providing UserName, Password and other information required for the users to start an account.

**Starting Sessions:** The Administrator creates the system users and will be assigned with the

different roles. He is also responsible to start the session when a particular user wants to use the

system every time(It is automatically managed setup).

**Managing Data Backup:** The Administrator is responsible for managing entire details by

taking the backup periodically. He also takes the Backup of the database in order to prevent loss

of data on system crashes or inorder to prevent malfunctioning. He can take a backup of entire

database or a particular section.

**Crash Recovery:** The Administrator manages the crash recovery at the time of system crash or

failure occurs.

**Ending session:** The administrator is responsible for ending the session when the particular

user logged out of the system(It is automatically managed setup).

**2. Customer(Normal/others):** Ordinary customers have a user name & password with which they can login into

their account. They can perform all the transactions such as funds transfer, balance enquiry, cheque book

request, etc by sitting at their home on internet.

**Login:** User can login to the system by providing appropriate username and password provided

by the administrator.

**Selecting the Account:** After logging in the user is provided with a screen showing the details

of accounts and he selects one of the account inorder to perform the transaction.

**Balance Enquiry:** He can view the balance left in his account, if once he has entered into his

account.

**Funds Transfer:** Upon the request the user can transfer funds from his account to other

accounts.

**Request for cheque book :** He can request for cheque book.

**Mini statements:** He also can take a mini statement print out upon his requirement.

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**3. Corporate:** The corporate users include Industrialists, Entrepreneur, Organizations and Academicians etc.

They have a corporate id along with username & password. The organization will have an administrator to

maintain all the details of their employees. He deposits salaries of the employees into the accounts of the

corresponding employees. These employees can perform all the transactions that ordinary customer does.

**Login:** corporate can login to the system by providing appropriate username, password and

along with Corporate-ID provided by the administrator.

**Selecting the Account:** After logging in the user is provided with a screen showing the details of

accounts and he selects one of the account inorder to perform the transaction.

**Balance Enquiry:** He can view the balance left in his account, if once he has entered into his

account.

**Funds Transfer:** Upon the request the user can transfer funds from his account to other

accounts.

**Request for cheque book :** He can request for cheque book.

**Mini statements:** He also can take a mini statement print out upon his requirement.

**Internal administrator:** Every corporation will be having its own internal administrator who is

responsible for maintaining details of their employees, deposits salaries of the employees into

their accounts.

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**2.09 Architecture Diagram :**

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**2.10 ER- Diagram :**

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**2.11 Assumptions and Dependencies**

The details of customers such as username, password, account type and their corresponding

authority details should be manually entered by the administrator before using this system.

Every user should be comfortable of working with computer and net browsing.

He should be aware of the banking system.

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administrator

Customer

organization

manag

es

password

Customer id address

Phone no

manag

es Works

in

Org\_nam IS

Funds\_transfer

Balance\_enq

Accounts\_types

Cheque\_req updations Mini stmts

Admin id password

Genera

te the

accoun

Checks

the

availabl

Update

profile

Perfor

m

Grant

request

displays

Genera

te

Internal\_admin

manag

e

Admin id

password

He must have basic knowledge of English too.

**3) Specific Requirements**

**3.1 Use-Case Reports**

**i) Administrator**: He is the super user responsible for managing clients of the system, taking

system backup, generating reports, maintaining organization details.

**Manage Clients:** The Administrator assigns new users when a new client joins the

online bank. Also he can delete an account when any of the clients leave the bank

organization.

**Maintain Organization Details:** The Administrator maintains entire details of the

organization that includes details of the clients, entrepreneur details etc.

**Take System Backup:** The Administrator Backup the database in order to prevent

loss of data on system crashes. He can backup entire database or a particular section..

**Generate Reports: :** Responsible for checking the logs of different system users for

auditing and maintaining the integrity of the system

**Manage Clients**

 **Name Of Use-Case:** Manage clients.

**Description:**

The Administrator assigns new users when a new client joins the online

bank. Also he can delete an account when any of the clients leave the

bank organization.

**Preconditions:**

Administrator is already logged in.

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delete\_account

create\_account

manage clients

 **Name Of Use-Case:** Maintain organizational details

**Description:** The Administrator should maintain all the

organizational details.

**Preconditions:**

Administrator is already logged in.

enterprenuar\_details

client \_details

details

**Activity diagram for maintain organizational details:**

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Store details in

database

Enter organizatin

details

 **Name Of Use-Case:** Take System backup.

**Description:**

The Administrator Backup the database in order to

prevent loss of data on system crashes. He can backup

entire database or a particular section.

**Preconditions:**

Administrator is already logged in.

 **Name Of Use-Case:** Generate Reports.

**Description:** The Administrator is responsible for

checking the logs of different clients for auditing and

maintaining the integrity of the system.

**Preconditions:**

Administrator is already logged in.

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**ii) Customer :**

. Ordinary customers have a user name & password with which they can login into their account. They

can perform all the transactions such as funds transfer, balance enquiry, cheque book request, etc by sitting at their

home on internet.

**Login:** User can login to the system by providing appropriate username and password provided

by the administrator.

**Selecting the Account:** After logging in the user is provided with a screen showing the details

of accounts and he selects one of the account inorder to perform the transaction.

**Balance Enquiry:** He can view the balance left in his account, if once he has entered into his

account.

**Funds Transfer:** Upon the request the user can transfer funds from his account to other

accounts.

**Request for cheque book:** He can request for cheque book.

**Mini statements:** He also can take a mini statement print out upon his requirement.

 **Name Of Use-Case:** Login.

**Description:** Customer must provide a valid User Id and

password to login to the system

**Preconditions:**

Customer must have a valid User Id and password to login to

the system.

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access account

warning message

Login

+access

<<success>>

+warning

+relogin <<failure>>

**Activity Diagram for Login:**

When the user opens the web page, he is shown with a page which asks him whether he is normal

or a corporate customer. Then he is redirected to login page. Here the customer is asked to enter user name &

password (corporate id if he selects corporate). When the user enters the details & submits it goes to a validation

engine where it checks valid/not. If valid he is shown with list of accounts he has with the bank.

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customer System

prompt for user

id & passwd

Enter user id &

password

validate user &

passwd

shows accounts

list

valid

invalid

 **Name Of Use-Case:** Accounts accessing.

**Description:** Here the page will display all the accounts

that the user has with the bank.

.**Preconditions:**

Client has already logged in.

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Current

Savings

fixed

accounts list

**Accessing view:**

User after logging into his/her account a page is displayed with the basic requirements:

1) Balance Enquiry.

2) Funds Transfer (same bank).

3) Request Cheque Book.

4) Mini statements.

5) Update profile.

User can perform various actions on his/her account.

**Name Of Use-Case:** Balance enquiry.

**Description:** Client can view the balance left in his account, if once he

has entered into his account.

.**Preconditions:**

The client has already been logged in.

selects account requests balance

enquiry

**Activity Diagram for balance enquiry:**

When the customer needs to check the balance, he selects balance enquiry option from the home page.

Then the system checks the balance in his/her account & displays it on the balance enquiry screen.

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Customer System

display the

transactions

select balance

enquiry option

display the

balance

 **Name Of Use-Case:** Funds Transfer.

**Description:** The client can transfer the amount from his

account in the bank to the other account in the same bank.

.**Preconditions:**

The client has already been logged in.

not valid

Transaction paswd

+wrong passwd

+try again

enter valid

+passwd correct

Payee exists

in our list

Enter payee

Payee not

in list

enter **SASIYAGNITES** / Andhra Pradesh, 2008 **Page 24**

**Activity Diagram for funds transfer:**

When the customer selects the funds transfer option in the home page. Then the system prompts for

transaction password. When the user enters the transaction password, system checks whether the password is

correct or not. If valid it prompts for payee & amount. User enters the payee details & amount, system checks

whether the balance is available. If available it transfers & updates both the accounts. Customer is notified whether

transaction is success or not.

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 **Name Of Use-Case:** Request cheque book.

**Description:** The client can request for cheque book by giving the

details required.

.**Preconditions:**

The client has already been logged in.

request

chequeBook

cheque book

issue

Enter address submit

**Activity diagram for cheque book request:**

When the customer requests for a cheque book in the home page, the system prompts for address

details of the customer. After entering the particulars it goes to validation engine & checks the particulars are valid

or not. If valid it accepts the request & proper message is displayed to the customer.

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Customer System

display the

transactions

select cheque book

request option

prompt for

address details

Enter address

details

validation

accept request

show success/failure

notice

yes

no

 **Name Of Use-Case:** Stop payments of cheques.

**Description:** Client can request to stop the payment of the

cheque giving its details.

**Preconditions:**

The client has already been logged in.

stop payment

of cheques

Enter Submit

cheque details

**Activity Diagram for stop payments of cheques:**

When the customer selects stop payments of cheques option in the home

page, the system prompts for cheque details which is to be stopped. Customer enters the

details such as cheque number, payee, date, etc. The system accepts the request &

provides the customer success/failure notice.

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 **Name Of Use-Case:** Mini Statements.

**Description:** The client can request the mini statements i.e monthly, annual or

‘n’ number of transactions.

.**Preconditions:**

The client has already been logged in.

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Customer System

display the

transactions

select stop payment of

cheques option

prompt for

cheque details

Enter cheque

details

accept request

show success/failure

notice

Monthly stmts

Ministatements print outs

Annual stmts

**Activity Diagram for Mini Statements:**

When the user requests for mini statements in the home page, system asks the type of statement needed

by the customer. When the customer selects the type of statement (monthly/annual/’n’ number of transactions). The

system displays the list of transactions on the screen. If the customer wants to take print outs he can take the print

outs of the same.

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Customer System

display the

transactions

select ministatements

option

prompt for type

of stmt

select type of

statement

accept request &

provide transaction list

view/take print

out of list

 **Name Of Use-Case:** Update Profile.

**Description:** The client can update his profile, i.e he can

change his password, address, mobile number, e-mail id,

etc.

**Preconditions:**

The client has already been logged in.

request for

updating

enter new values

in the fields

submit **Activity Diagram for update profile:**

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When the customer requests for update profile in the home page, the system shows present details to the

customer. The customer changes the required fields he wishes to change & submits. The system updates the

information & a proper message is displayed to the customer about the updated information.

Customer System

display the

transactions

select update

profile

Shows present details with

edit option

select edit option for the

field to be changed

prompt for new

value

Enter new value

for the field

update the

change

send the updated

information

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**iii) Corporate users** :

The corporate users will have the same functionalities as that of

a customer. The extra functionality of corporate user is to have an internal

administrator.

 **Name Of Use-Case:** Internal administrator duties.

**Description:** The internal administrator has to maintain

company accounts & transfer salaries to the employees

accounts.

**Preconditions:**

The internal administrator should have valid corporate\_id, username &

password.

The internal administrator has already been logged in.

manage company

accounts

internal

administrator

transfers money

to employee's account

**3.2 Supplementary requirements:**

**1) Performance Requirements**

System can withstand even though many no. of customers request the desired service.

Access is given to only valid users of bank who requires the services such as balance enquiry, update

profile, funds transfer, mini statements, and request for stop payments and for cheque book

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**2) Safety Requirements**

By incorporating a robust and proven DB2 UDB into the system, reliable performance and integrity

of data is ensured. There must be a power backup for server system. Since the product is of 24x7 availability

there should be power backup for server which provides the information .Every day the data should be backup

even when the operation of an user is not successful i.e., while performing the operation power failure occurs

then data should be backup.

**3) Security Requirements**

Sensitive data is protected from unwanted access by user’s appropriate technology and

implementing strict user-access criteria. Facility of unique user number and Password in such a way that

unauthorized user cannot log in. Operational rights for each user/terminal can be defined. Thus, a user can have access

to specific terminals and specific options only.

Online Banking uses the SSL (Secure Socket Layer) protocol for transferring data.

SSL is encryption that creates a secure environment for the information being transferred between

customer browser and Bank. Online Banking uses 128-bit digital certificate from VeriSign for

encryption of the Secure Sockets Layer (SSL) session. SSL is the industry standard for encrypted

communication and ensures that customer's interaction with the Bank over the Internet is secure.

Secure Socket Layer (SSL) protects data in three key ways:

 **Authentication** ensures that you are communicating with the correct server. This prevents

another computer from impersonating Bank.

 **Encryption** scrambles transferred data.

 **Data integrity** verifies that the information sent by customer to Bank wasn't altered during the

transfer. The system detects if data was added or deleted after customer sent the message. If any

tampering has occurred, the connection is dropped.

**4) Supporting Information:**

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4.1) **System in context:**

The “Online Banking System” is an independent system. In Version 1.0, the system is a Web based

application which performs various activities of banking.

 Takes data from the customer.

 Interact with the database for the data storing.

 Includes business logic that supports inventory and payroll.

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**4.2) Class diagram:**

Balance Enquiry

userId : String

accountType : String

balance : Currency

showBalance()

Cheque Book

userId : String

chequeBookDetails : String

requestChequeBook()

stopPayCheques()

Update Profile

userId : String

password : String

firstName : String

lastName : String

address : String

mobile : String

updateProfile()

Funds Transfer

userId : String

accountType : String

TransId : String

payee : String

amount : Currency

transfer()

Customer

userId : String

password : String

firstName : String

lastName : String

address : String

mobile : String

login()

performTransaction()

logOut()

Mini Statements

userId : String

transList : String

showTransList()

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**5) Appendices:**

**5.1) Appendix A: Sequence Diagrams**

Login process:

: customer login page system services

enter userid & passwd

verification of valid user

allow access to services

login failed

relogin(+3)/block account

Balance Enquiry:

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: customer main page balance enquiry DataBase

Requests BalanceEnq.

redirect

check

shows balance

view

Funds Transfer:

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: customer main page funds transfer

page

database

request fund transfer

redirect

ask for trans passwd

enter passwd

enter payee & amount

notify customer

request for payee & amount

success/failure

check balance

display message

check passwd

request ok

notify

Update Profile:

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: customer main page update page database

request update

redirect

edit the feilds to be updated

updated

notify

display updated details

update

display all fields

get the details

details

Cheque Book Request:

: customer main

page

cheque book banker database

Request for chequeBook

redirect

request details

provides details

accepts details

request processing

notify customer check available

check numbers

available numbers

send to customer

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Stop payment of cheques:

: customer main page stop

payamen...

database

request stop payments

redirect

asks for cheque details

provide cheque details

stop cheque

display message

notify customer

validate

Mini Statements:

: customer main page ministmts page database

request ministatements

redirect

select type of statement

access data requested

provides stmt details

displays transactions list

request printouts

provides printout format

type of statement?

**5.2) Appendix B: Sample Screen Shots**

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 Login screen

 Account details screen

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 Home page screen

 Balance enquiry screen

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 Funds transfer screen

 Cheque book request screen

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 Update Profile screen

 Help screen

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 Mini Statements screen

**5.3) Appendix C: References**

tgmc website(www.tgmc.in)

ICICI portal(www.icici.com)

Google search engine(www.google.com-->online Online Banking System)

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