**ONLINE BANKING SYSTEM**

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GRADUATE PROJECT

Submitted in partial fulfillment of the requirements

For the Degree of Master of Science,

With a Major in Computer Science



Governors State University

University Park, IL 60484

2016

ABSTRACT

This application is designed to provide secure and efficient net banking facilities to the customers over internet, where all banking customers can login through the secured web page by their account login id and password.  User can login, do withdrawal, Request a Deposit amount, Transfer amount from one account to another account, check his/her current balance, view reports of all the transaction, and send money to inter banking as well as other banking customers by simply adding them as payees. We have used database to store all the details of customer account in a table. We have six modules, they are:

## ****Modules****

1. Registration
2. Account Details
3. Deposit Cash
4. Withdraw Cash
5. Transfer Money
6. Transaction History

The application is designed for an online banking system by using interactive web client by using JSP, Servlet with safer way to access and encapsulate database. This project supports the functionalities of banking services with secure login procedure to interact within the CUSTOMERS and DATABASE.

Technologies used to develop this project:

1. J2EE
2. JavaScript
3. Java Servlets
4. Oracle 12c sql developer

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1. **Project Description**

## Competitive Information

In today’s world, use of computers and internet has become effective in almost all the aspects including in study. So our objective is to design a web-based application in which users can access effective net banking facilities. “Online Net banking” allows users to gain access to effective and secure net banking facilities through the application by creating their respective accounts. With the Online net banking users can have the more flexible in having knowledge of their respective bank accounts. This will help in ease of Banking for the users.

## Relationships to Other Applications/Projects

This application mainly contains the information of user accounts like balance transfer, withdraw and deposit. It eases the users more to know about any activity going through their account. In general, it saves the time for many users of going to a bank, by just creating an online bank account.

## Future Enhancements

Presently we are developing an independent project which doesn’t have any relationships with the other application. May be in future we will try relate with the other application

1. **System Requirements**

**Hardware Requirements**.

* Hard disk 250 GB
* Ram 4 GB and above
* Processor i3 and above.

**Software Requirements**.

* J2EE
* JavaScript
* Java Servlets
* Oracle 12c sql developer
* Apache Tomcat 8

1. **Project Technical Description**

In this project we have six modules which include a registration page, home page which holds account details like name, account number and total balance, deposit amount, withdraw amount, transfer amount, and transaction details. These web pages are designed to be responsive for every screen. The database contains two tables which can store the account details like account number name, email id, password, balance. The second table is transaction table which holds id, to account, from account, type of transaction and amount.

## 3.1 Project/Application Information flows

INTERNET

USER INTERFACE



Registration Page

Account details

Database

Deposit Amount

Withdraw al

Transactions

Transfer Amount

Server

1. **Implementation:**

Now-a-days Online Banking are providing sufficient accessibility at any time. There are some silent features are there they are

1. The main motto of net banking is to keep the user in safety and securable manner.
2. User can keep his credentials safe and secure from phishing. This mainly help to keep business in safe and secure manner.
3. The customers those who are involving in business can access if they are in overseas on business trips. For this the Business internet banking is extremely prevalent for this motive.
4. The main aspect of this net banking is to pay bill payments through electron ally mode.

## 4.1 Stored Procedures:

**Create Account:**

create or replace PROCEDURE CREATE\_ACCOUNT

(

NAME\_P IN VARCHAR2

, EMAIL\_P IN VARCHAR2

, PASSWORD\_P IN VARCHAR2

) AS

BEGIN

insert into aaACCOUNTS(name, email, password, account\_number) values(NAME\_P, EMAIL\_P, PASSWORD\_P, -1);

update aaACCOUNTS set account\_number = id + 10000;

END CREATE\_ACCOUNT;

**Login Account:**

create or replace PROCEDURE LOGIN

(

EMAIL\_P IN VARCHAR2

, PASSWORD\_P IN VARCHAR2

, ID\_P OUT NUMBER

, NAME\_P OUT VARCHAR2

, ACCOUNT\_NUMBER\_P OUT NUMBER

, BALANCE\_P OUT NUMBER

, STATUS\_P OUT NUMBER

) AS

cnt int;

BEGIN

select count(\*) into cnt from aaaccounts where email = email\_P and password = password\_p;

if cnt = 0 then

status\_p := -1;

else

select id, name, account\_number, balance into id\_p, name\_p, account\_number\_p, balance\_p

from aaaccounts where email = email\_P and password = password\_p;

status\_p := 1;

end if;

END LOGIN;

**Deposit Amount:**

create or replace PROCEDURE DEPOSIT\_AMOUNT

(

ACCOUNT\_NUMBER\_P IN NUMBER

, AMOUNT\_P IN NUMBER

, STATUS\_P OUT NUMBER

) AS

BEGIN

if amount\_p <= 0 then

status\_p := -2;

else

update aaaccounts set balance = balance + amount\_p where account\_number = account\_number\_p;

insert into aatransactions (from\_account, type, amount) values(account\_number\_p, 'Deposit', amount\_p);

status\_p := 1;

end if;

END DEPOSIT\_AMOUNT;

**Withdraw Amount:**

create or replace PROCEDURE WITHDRAW\_AMOUNT

(

ACCOUNT\_NUMBER\_P IN NUMBER

, AMOUNT\_P IN NUMBER

, STATUS\_P OUT NUMBER

) AS

bal int;

BEGIN

bal := 0;

if amount\_p <= 0 then

status\_p := -2;

else

select balance into bal from aaaccounts where account\_number = account\_number\_p;

if amount\_p > bal then

status\_p := -1;

else

update aaaccounts set balance = balance - amount\_p where account\_number = account\_number\_p;

insert into aatransactions (from\_account, type, amount) values(account\_number\_p, 'Withdraw', amount\_p);

status\_p := 1;

end if;

end if;

END WITHDRAW\_AMOUNT;

**Transfer Amount:**

create or replace PROCEDURE TRANSFER\_AMOUNT

(

FROM\_ACCOUNT\_P IN NUMBER

, TO\_ACCOUNT\_P IN NUMBER

, AMOUNT\_P IN NUMBER

, STATUS\_P OUT NUMBER

) AS

bal int;

cnt int;

BEGIN

if amount\_p <= 0 then

status\_p := -3;

else

select balance into bal from aaaccounts where account\_number = FROM\_ACCOUNT\_P;

if amount\_p > bal then

status\_p := -2;

else

select count(\*) into cnt from aaaccounts where account\_number = TO\_ACCOUNT\_P;

if cnt = 0 then

status\_p := -1;

else

update aaaccounts set balance = balance - amount\_p where account\_number = FROM\_ACCOUNT\_P;

update aaaccounts set balance = balance + amount\_p where account\_number = TO\_ACCOUNT\_P;

insert into aatransactions (from\_account, type, to\_account, amount) values (FROM\_ACCOUNT\_P, 'Transfer', TO\_ACCOUNT\_P, amount\_p);

status\_p := 1;

end if;

end if;

end if;

END TRANSFER\_AMOUNT;

## 4.2 Functions:

create or replace FUNCTION GET\_TRANSACTIONS

(

FROM\_ACCOUNT\_P IN NUMBER

) RETURN aaTRAN\_T AS

transactionList aaTRAN\_T;

BEGIN

select aaTRAN(id, from\_account, type, to\_account, amount) bulk collect

into transactionList from aatransactions

where from\_account = from\_account\_p;

return transactionList;

END GET\_TRANSACTIONS;

## 4.3 Triggers:

AAACCOUNTS\_TRG:

create or replace TRIGGER AAACCOUNTS\_TRG

BEFORE INSERT ON AAACCOUNTS

FOR EACH ROW

BEGIN

IF INSERTING AND :NEW.ID IS NULL THEN

SELECT AAACCOUNTS\_SEQ.NEXTVAL INTO :NEW.ID FROM SYS.DUAL;

END IF;

END;

AATRANSACTIONS\_TRG:

create or replace TRIGGER AATRANSACTIONS\_TRG

BEFORE INSERT ON AATRANSACTIONS

FOR EACH ROW

BEGIN

IF INSERTING AND :NEW.ID IS NULL THEN

SELECT AATRANSACTIONS\_SEQ.NEXTVAL INTO :NEW.ID FROM SYS.DUAL;

END IF;

END;

## 4.4 Types:

create or replace type aaTRAN\_T is table of AaTran;

create or replace TYPE AaTran AS OBJECT

(

id int,

from\_account int,

type varchar2(20),

to\_account int,

amount decimal

);

**Java Connection String:**

Class.*forName*("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.*getConnection*("jdbc:oracle:thin:@gsuORACLE1.govst.edu:1521:orcl", "gadef16", "a1161764");

## 4.5 Release and Transition Plan

Once after the testing and debugging is performed, this application would be released. The release date would be Decmeber 7th 2016.

**5. Project Design Description**

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering.

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system. The designer’s goal is to produce the model or representation of an entity that will later be built. Beginning, once a system requirement have been specified and analysed, system design is the first of the three technical activities – design, code and test that is required to build and verify software.

After the requirement collection phase when we started the designing phase we have divided the project into parts like developing the Front End pages using Html and CSS. These pages are designed responsive so that the page will display accordingly to the size of the screen. The second part of the development phase is designing the Database of the project. We have Oracle 12c to construct tables, procedures, triggers, objects and sequences. The total database consists of tables which are interconnected to each other using the foreign key relation. In the database we can store the account details and transaction histroy.

For designing the front end we have designed six responsive jsp pages which also have the validations created. These pages are linked with each other, so that the user can be redirected from one page to another by clicking the respective Button controls.

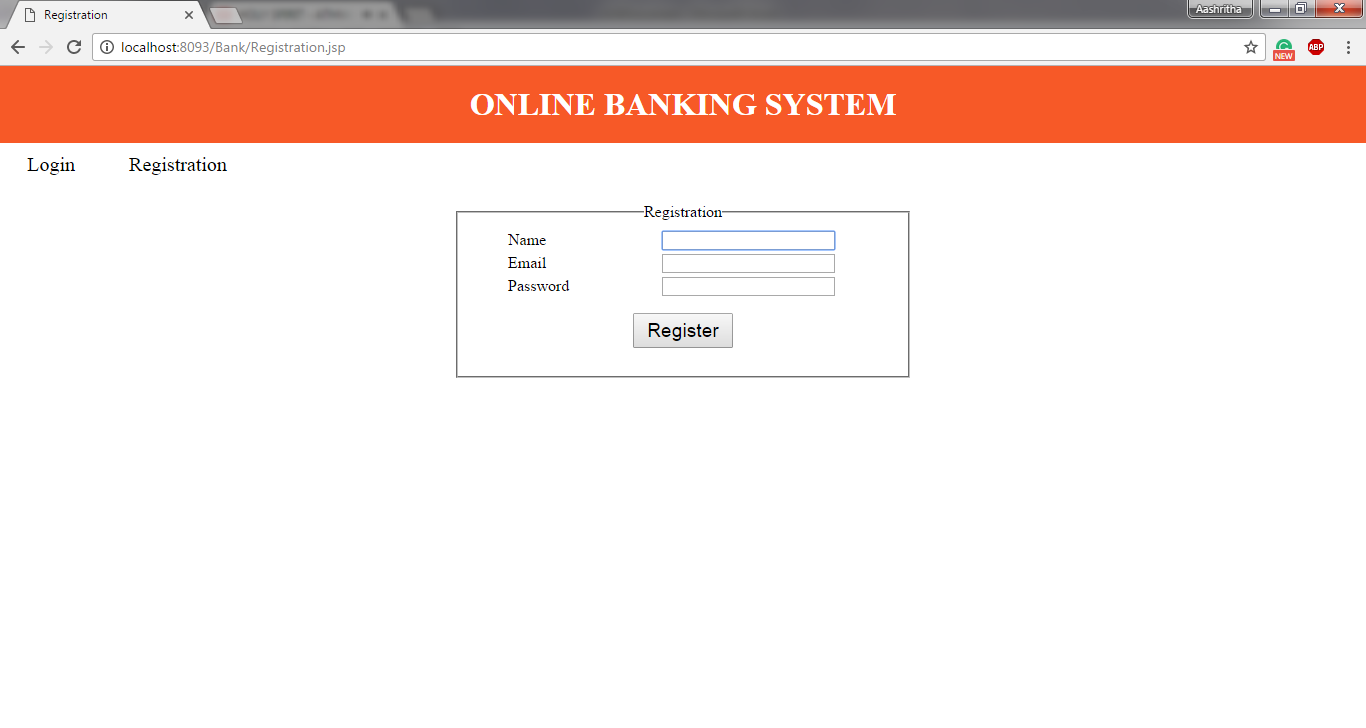
The following is a diagram which shows the design of the application

Front End

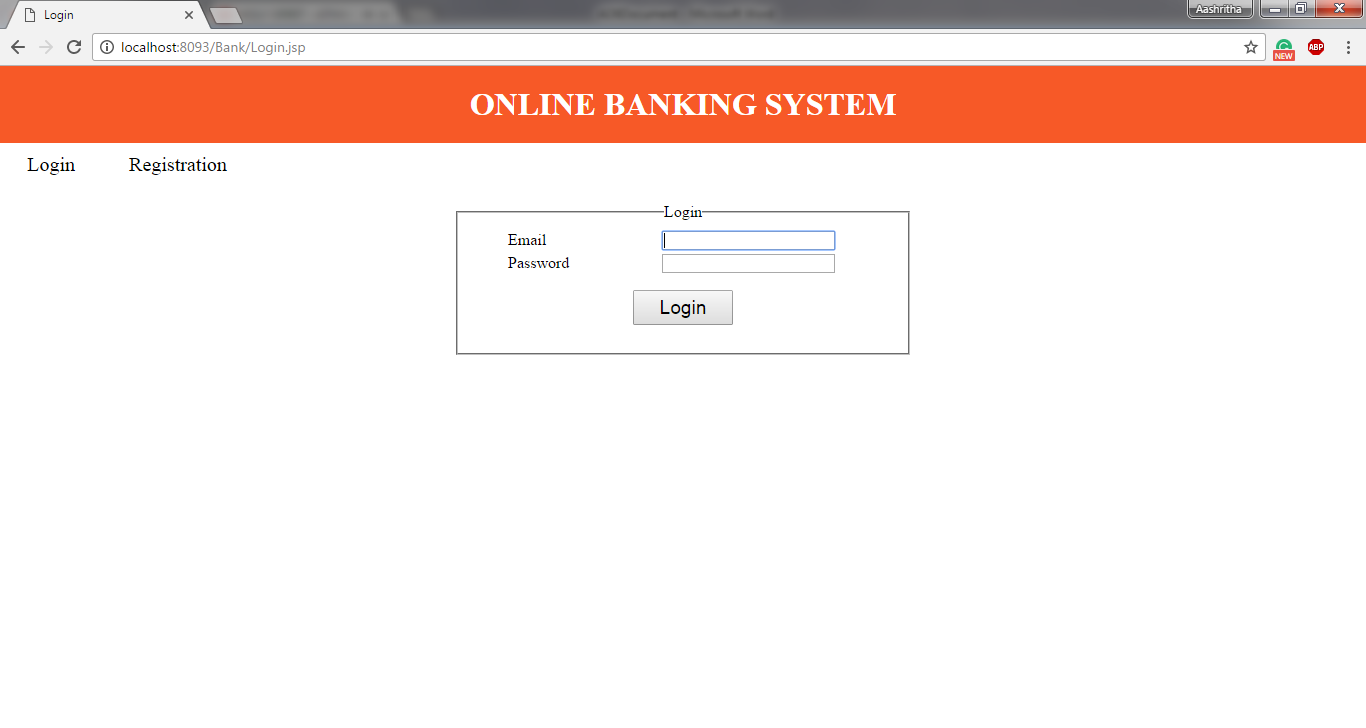
Database

The proposed design for the project:

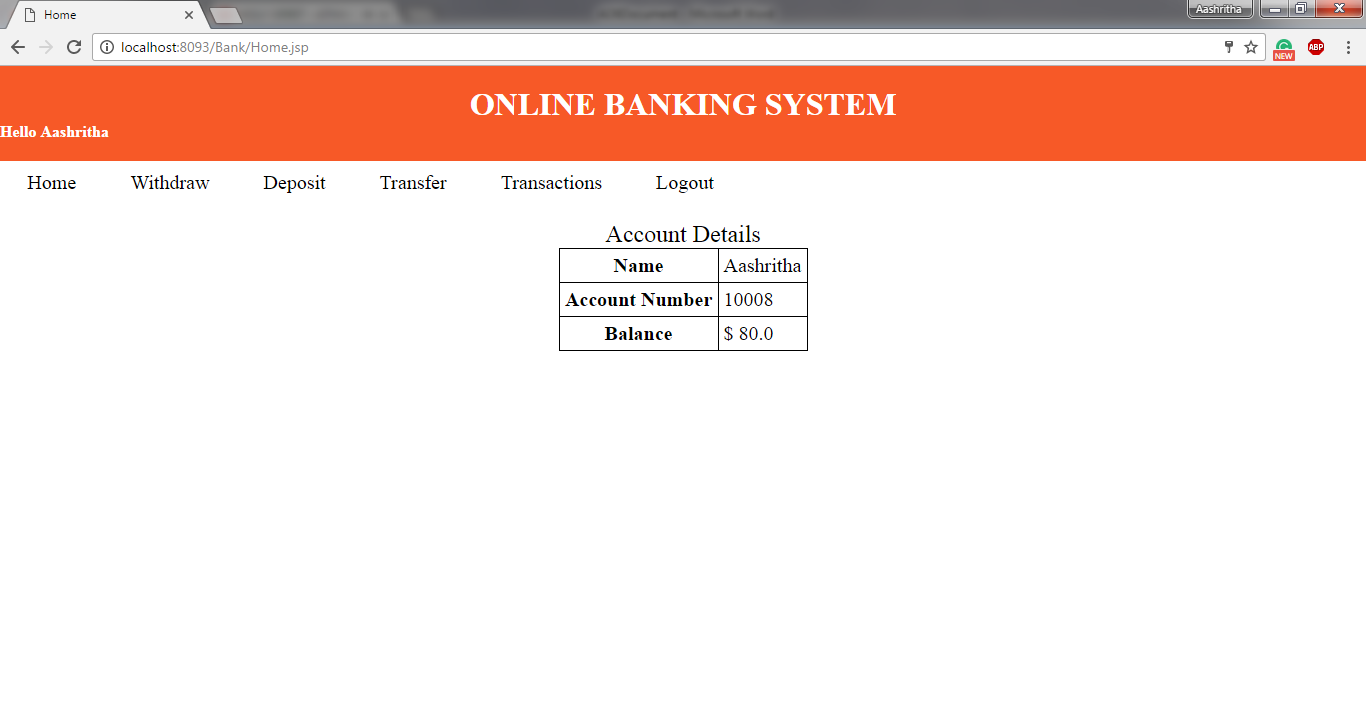
**Registration Page:**

****

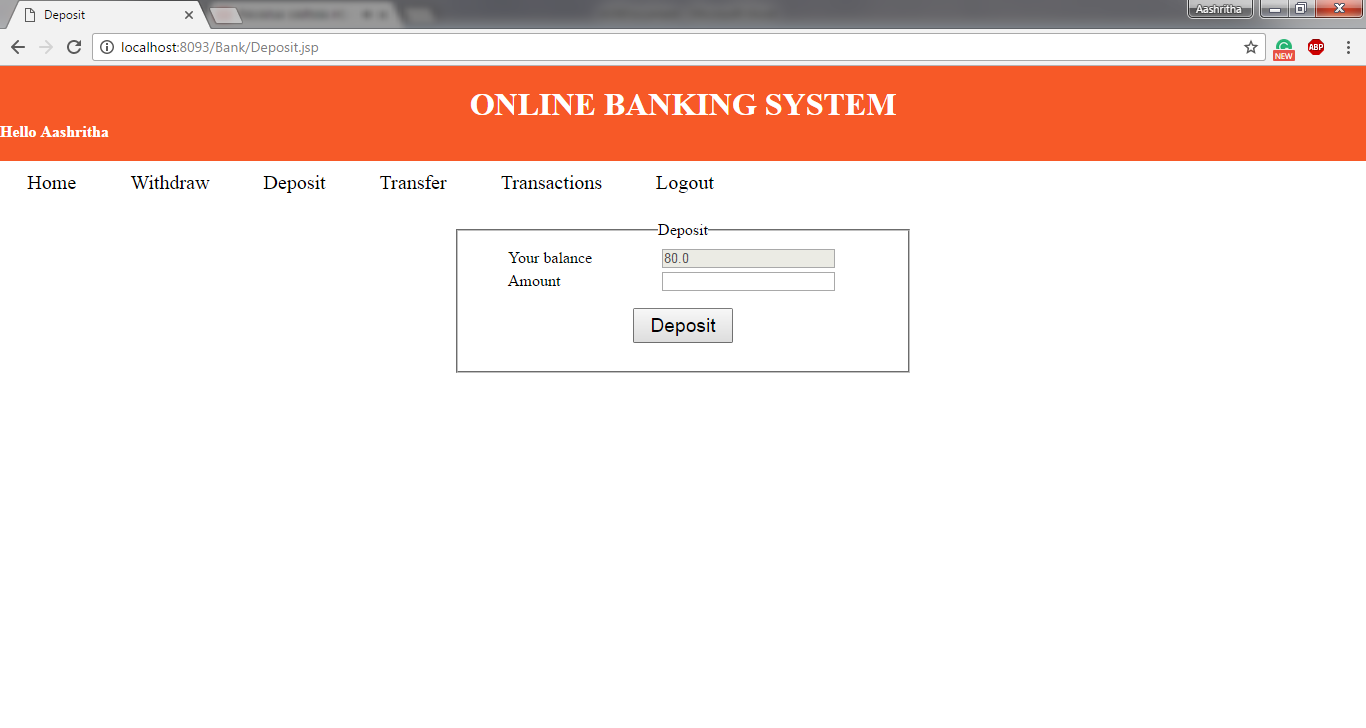
**Login Page:**

****

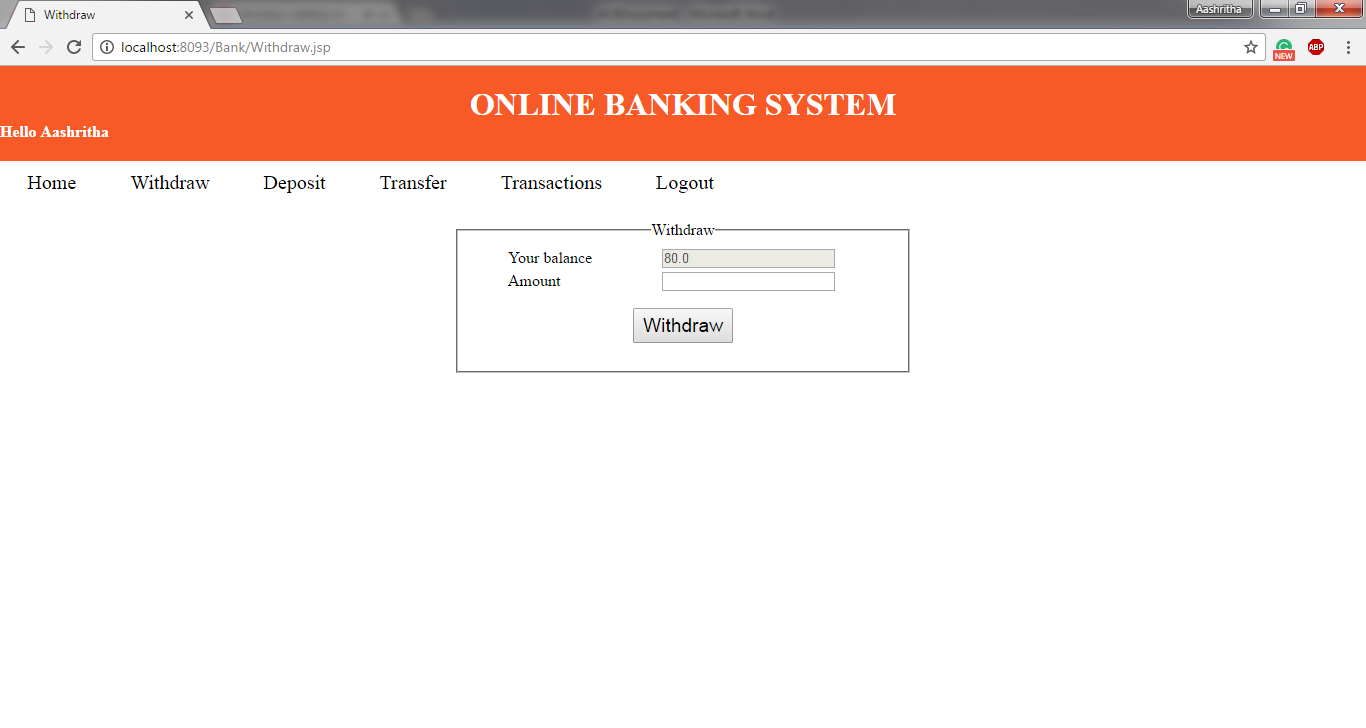
**Home Page:**



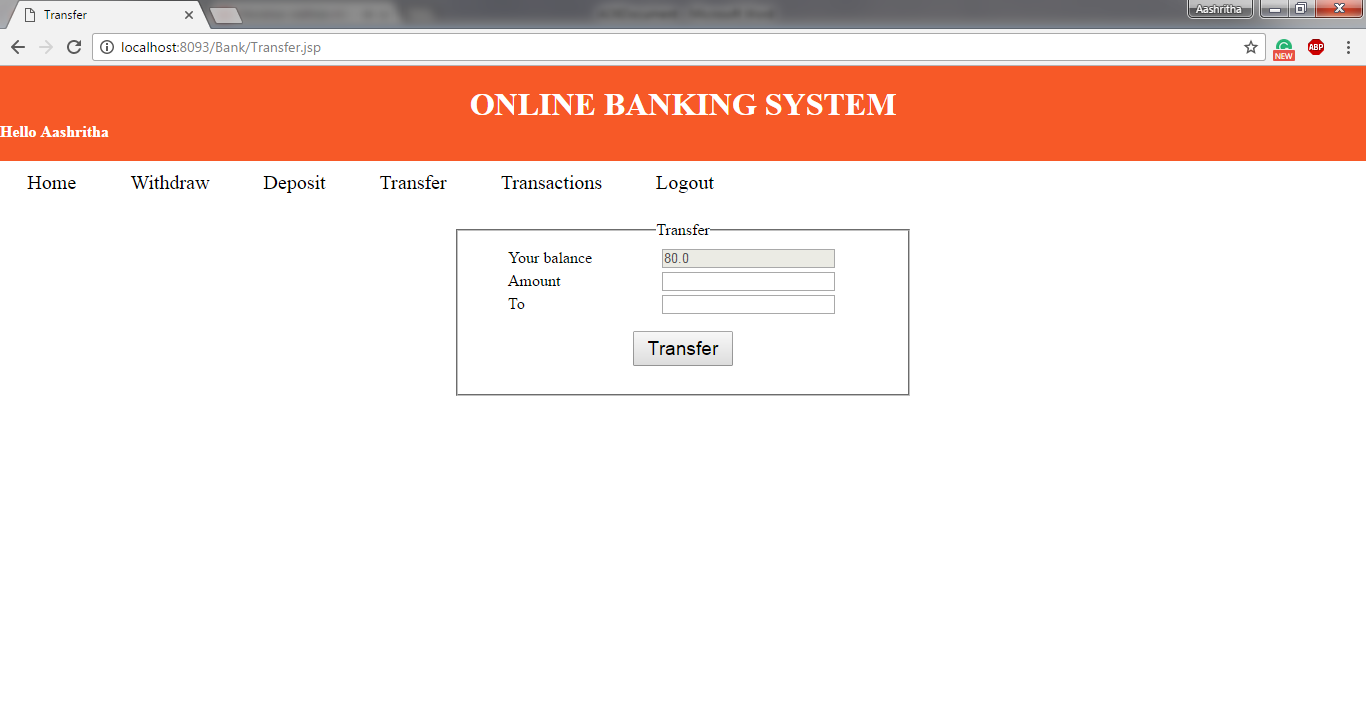
**Deposit Amount:**

****

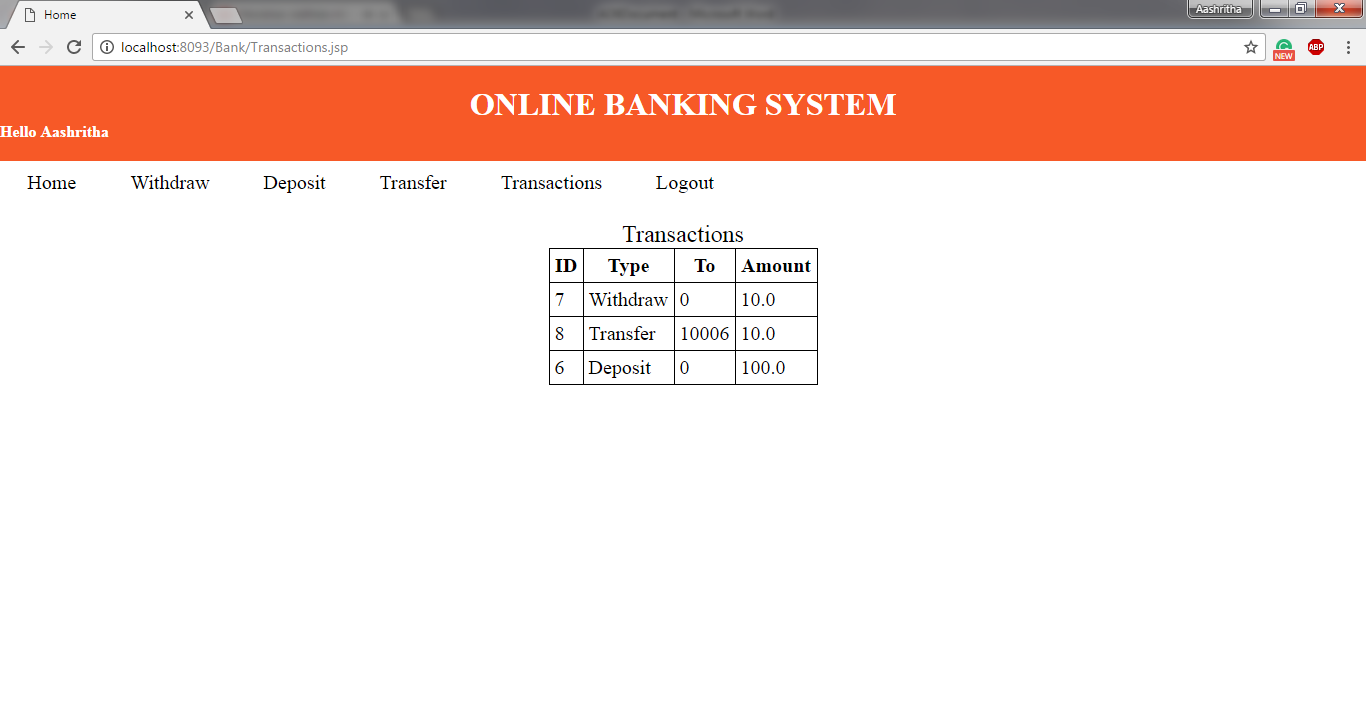
**Withdraw Amount:**

****

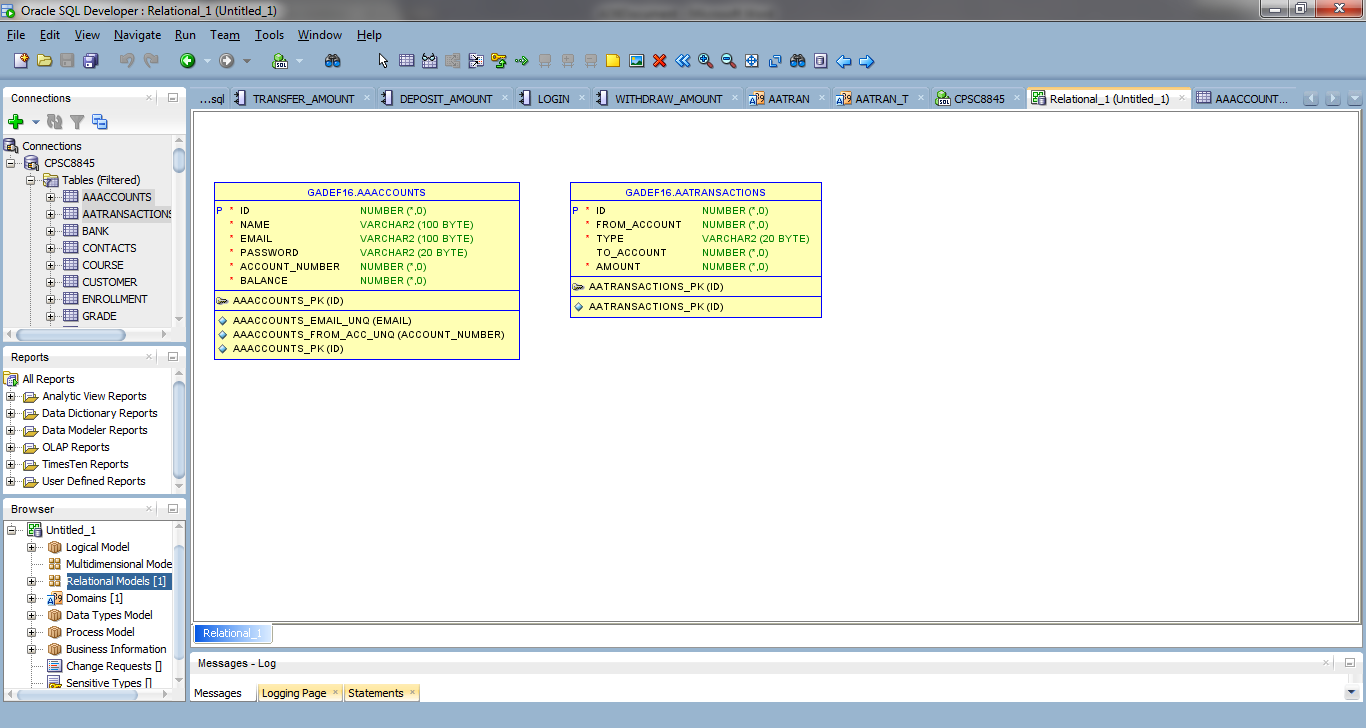
**Transfer Amount:**

****

**Transaction History:**

****

**Relational Model:**

****

**Database Tables:**

**Accounts Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column\_Name** | **Data\_Type** | **Nullable** | **Data\_Default** | **Column\_ID** |
| ID | Nmuber(38,0) | No | (null) | 1 |
| Name | Varchar2(100 BYTE) | No | (null) | 2 |
| Email | Varchar2(100 BYTE) | No | (null) | 3 |
| Password | Varchar2(20 BYTE) | No | (null) | 4 |
| Account\_Number | Nmuber(38,0) | No | (null) | 5 |
| Balance | Nmuber(38,0) | No | 0 | 6 |

**Transaction Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column\_Name** | **Data\_Type** | **Nullable** | **Data\_Default** | **Column\_ID** |
| ID | Nmuber(38,0) | No | (null) | 1 |
| From\_Account | Nmuber(38,0) | No | (null) | 2 |
| Type | Varchar2(20 BYTE) | No | (null) | 3 |
| To\_Account | Nmuber(38,0) | No | Yes | 4 |
| Amount | Nmuber(38,0) | No | (null) | 5 |

**6. Project Internal/External Interface Impacts and Specifications**

The project we are creating is a Online Banking System for which we need design and develop a website for the transactions. For this we need to design a website for the user input and we need to maintain a database for storing those user input data, we also need to control the data which the user inputs. Basically we need to design the web applications by going through three phases which are User Interface, Database Connections and maintaining the Database.

This design will totally cover all the requirements of the customer and fulfils the project. We are designing the User interface (Front end) by using the HTML5 and CSS3 sheets. We are doing the design in a responsive which gives user providing optimal viewing and interaction experience by using Bootstrap. The controller will be giving the database connections by using the ojdbc conncetions strings which will control the data and it will helps the data to store in the database. This web design is maintain a database which is going to store the user inputs and we are going to create a database model in Oracle 12c sql developer. The database which we created is totally normalized.

1. **Open Issues**

The major issue that application may face is too much users at a time. When there are so many users login at a time it overloads the application server and may cause down of the server. Regular maintaining and updating the portal is very important thing to do.

Using customization and personalization.

In the developing stage cost may also become one of the issue to the design because it needs to be maintained after the development

1. **Acknowledgement**

We take this opportunity in thanking all the people who have supported us throughout the project by sharing their knowledge and valuable time with us. We thank Dr. Soon-Ok-Park for guiding us throughout the project work. She has supported us right through the beginning till the end by sharing his ideas, knowledge and time and also correcting us in the areas which needed improvement. We also take this opportunity to thank College of Arts and Science and Computer Science Department, for giving us an opportunity to proceed with our project.

We also thank Governors State University for sharing with us resources which help in completing the project. Also, we as team are thankful to us in successful completion of the project through complete team work and dedication toward our field.