

A project report on

**BNKPLX: OPEN SOURCE BANKING
APPLICATION**

Submitted in partial fulfilment of the requirement
for the award of the degree

**MASTER OF COMPUTER
APPLICATIONS**

Of

Visvesvaraya Technological University
Belgaum, Karnataka

By

**S.DIVYA
1CR18MCA60**

Under the guidance of

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132, IT Park Road, Kundalahalli, Bangalore-560037

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CMR INSTITUTE OF TECHNOLOGY
Department of Master of Computer Applications
Bangalore - 560 037



CERTIFICATE

This is to certify that the project work entitled

**BNK PLX:OPEN SOURCE BANKING
APPLICATION**

*Submitted in partial fulfilment of the requirement
for the award of the degree of
Master of Computer Applications of the
Visvesvaraya Technological University, Belgaum, Karnataka
Bonafide work carried out by*

S.DIVYA
1CR18MCA60

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- 2.

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SAN IT Solutions Pvt. Ltd.

(An ISO 9001-2015 Certified Company)

Date– Jan 12, 2020

PROJECT COMPLETION LETTER

We hereby confirm that Ms. S DIVYA of your college CMR Institute of Technology with USN: 1CR18MCA60 has successfully completed the internship at San IT Solutions Pvt. Ltd.

From: 13th January to 15th June

The Project based on .Net the title "BNK PLX: OPEN SOURCE BANKING MODULE FOR SECURED BANKING OPERATION" under the guidance of Mr. Selva Kumaran, Project Guide, San It Solutions Pvt. Ltd, Bangalore 560041.

For San It Solutions Pvt Ltd

HR Manager

DECLARATION

I, **S.DIVYA**, student of 6th MCA, **CMR Institution of Technology**, bearing the USN **1CR18MCA60**, hereby declare that the project entitled “**BNK PLX:OPEN SOURCE BANKING APPLICATION**” has been carried out by me under the supervision of External Guide **Mr. Selva Kumaran**, Project Manager, and Internal Guide **Dr. A. Abdul Rasheed, Professor, Dept. of Master of Computer Applications** and submitted in the partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications by the **Visvesvaraya Technological University** during the academic year 2018-2019. The reports has not been submitted to any other University or Institute for the award of any degree or certificate.

Place: Bangalore

S.DIVYA

Date:

(1CR18MCA60)

ACKNOWLEDGEMENT

I would like to thank all those who are involved in this endeavor for their kind cooperation for its successful completion. At the outset, I wish to express my sincere gratitude to all those people who have helped me to complete this project in an efficient manner.

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I am thankful to Dr. SANJAY JAIN, Principal CMRIT, Bangalore for his kind support in all respect during my study. I would like to thank Mr. Selva Kumaran Project Manager, SAN IT Solutions Pvt. Ltd., Bangalore, who gave opportunity to do this project at an extreme organization Most of all and more than ever, I would like to thanks my family members for their warmness, support, encouragement, kindness and patience. I am really thankful to all my friends who always advised and motivated me throughout the course.

S.DIVYA

(1CR18MCA60)

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CHAPTER 1

INTRODUCTION

1.1 PROJECT DESCRIPTION

The BNKPLX: OPEN SOURCE BANKING MODULE FOR SECURED BANKING OPERATION is the gateway application with GUI operational supporting features for managing the banking and online transactions. In the traditional banking gateway the end user like bank employees do not have permission to access the gateway related GUI operation or make update in any of gateway related modules. These users has the module of report where the bank employees can view the total banking transaction in the read only mode.

But in the BNK PLX the application has the GUI operational web pages where the updates are allowed by the bank employee to the gateway instruction. When we take a real time example if the bank received the customer complaint of cash debited from the account but not received the beneficiary bank needs to depend on the IT support team where they can view the history of the transaction like order number, the data time, the amount details and pending status. But this will be more user friendly when the bank employee can only enter the order details view the status of seller bank, received or the online portal company status of payment etc. The BNKPLX application give this technical feature for the user friendly data mining and resolving features of cases generated.

Another property of BNK PLX is this product is also be used as gateway product for the small scale industry. So the details of the small scale industry like product sold, the price collected, the service charge collected with the portal in the BNK PLX application.

In other words this gateway application is now working more as application friendly for bank users as well user who work E commerce activities too. For the security of data access are developed by user pooling server access and also with *text pattern technology* a sub module of alpha composting technology.

User pooling server: limiting the number of users to access the server at the same time. The algorithm calculated permitted user count from the data server connected and the data access. If more people are trying to access the data applications freeze the process and roll back the actions.

Text pattern: Instead of checking the user ID and the password the application will check the pattern assigned by the algorithm for each letters of user ID and password. For example if the user ID is BLR the algorithm will give text font colour for each letters of BLR. And for the database access the algorithm will be matching with font colours too.

The modules of the application

- ❖ The bank administration of BNKPLX
- ❖ The source and destination bank operation
- ❖ The user / online portal users module
- ❖ BNKPLX gateway GUI module
- ❖ The Report

The bank administration of BNKPLX

The module created for saving bank based information , the server connection details the authorization to manage the server connection are included in the BNKPLX administration module. The users of this administration level module are the employees of the BNK PLX organisation and the top level bank managers.

The source and destination bank operation

When a transaction is created from the application the tracking details of source bank, the destination bank, also the detail regarding other third party gateway other than BNKPLX used will be called in the module. Apart from the online portal base details like item sales, the Ecommerce sales made with BNKPLX all other banking operation like cheque based transfer the DD, the online, the E wallet etc. will be used in this module.

The user / online portal user's module

The user use E commerce operations to search and buy the product online. These user GUI is not directly linked with BNKPLX but events and operation made in the application will be saved in the BNKPLX report portal. This details will be saved in the centralised server and can viewed by the banking and tech support teams of the bank to speed up the transaction operations.

BNKPLX gateway GUI module

This module has the units for the online base transaction used with online portal. This module is a customization unit and will be designed on the base of the E commerce activities. The main advantage of this module is the any E commerce operation made with BNKPLX will be recorded and during any issues the bank can directly view the issues analysis the statement and make the payment related query. No need to wait for the any reply from the beneficiary bank. See proposed system for more details.

The Report

The report created by the history of bank transaction. The report is generated from the module where the customization module is operational report, the e commerce activity report, the bank to bank banking the report, the banking transaction to track the issues raised by the developers etc.

1.1 COMPANY PROFILE

The SANIT has involved in three E business activities, the freelancing project development, the SEO operations and the E commerce based software managements. SANIT develops the application using the Microsoft supporting tools and technology. Understanding the acceleration in the E commerce based business requirements the SANIT has developed software products to enhance the Ecommerce operations. The financial data sheet based software product, raspberry pi call support product are created from the tech support of the organisation.



Fig 1.1: Services of the SANIT.

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING SYSTEM AND PROPOSED SYSTEM

2.1.1: Existing system

In the existing system the BNKPLX application is gateway plug in with features of the banking transactions managements. This application has the coding for MOM based operation to connect the banking network and security network algorithm. The applications operate with an intermediate module where the bank network, the MOM architecture supporting controls and the network are loaded. This intermediate does not have any supporting correlation to the third party gateway migrations. This feature can ensure the security of the banking transactions but has bring down the efficiency since new modern banking operation demands that feature. Most of E commerce port has using the data E wallet, the offers where the details can be fetched from non-banking platforms. So the existing property of the software for non-third party denied can affect the software business and further sales.

Limitation of the Existing system

- ❖ Third party gateway communication is restricted to ensure the security of the gateway banking activities.
- ❖ Intermediate for the banks to bank transaction: all the security measurements, server access , the authentication are done with intermediate units
- ❖ Bank do not have access to view the E commerce based transaction details. The details regarding the rates and reference number will be available for the reference.
- ❖ User pooling technique is not included by dividing the department or branching, the poling is created to entire project architecture.

2.1.2: Proposed system

The highlight of the application is bank users or the technical support team of the respective bank can view of online transaction which is made through BNKPLX. We will see a scenario how this feature will help the bank to rectify the process. The user purchase an item through the online portal and paid the money to the seller's bank. If the money has debited from the user and not credited in the sellers bank the enquiry will start over the issues. In the current

banking the bank employee can view the transaction limited to the bank server modules, where the data of the E business or sales page cannot be view. So the tech support will just verify whether money is deducted from the source bank and received in the beneficiary bank. If the money is not debited from source bank the employee can refund bank to the user's account. But if it is funded to beneficiary bank and not credited to sellers account, the user has to approach the beneficiary bank and again make request over the issue raise. But if the all transaction is made under same portal the resolving this operations will be more convenient. But if the sellers E commerce portal is not using the BNKPX platform these features will not be available for the tracking the details.

Advantages

- ❖ Direct communication with bank to bank is allowed. Other third party features over the E wallet, reward, gift etc. will be processed in the E Business portal.
- ❖ User pooling and the text pattern technology is used for the enhancing the security of the transactions.
- ❖ Bank users are allowed to view the E commerce based operations carried. This will help to resolve cases if customer complaint regarding the transaction failed occurred.
- ❖ MOM 2.0 used for the network integration which has advance features for communication for the LINUX to Microsoft operating systems.

2.2 FEASIBLE STUDY

The feasibility study is conducted to study the new projects behaviour understanding within the new atmosphere. When an existing gateway software which was only used as intermediate has now been revised to the absolute software product which can handle the inputs form E commerce and banking operation managements. So the developers need make feasibility study over the BAKPLX and make sure this will not be a failure in these areas

- ❖ Technical feasibility
- ❖ Operational feasibility
- ❖ Cost feasibility

Technical feasibility

This feasibility contains the list of software tools used for the BNKPLX operations. This is the biggest challenging faced feasibility study since the developers needed to find tools which will support software development features, the MOM supporting features and the gateway methods for a single application module. ASP.NET can bring together the application IDE based tools and feasibility. The tool for developing the middleware coding and MOM based operation are supported in the ASP.NET and .NET frameworks.

Operational feasibility

In the operational feasibility the developers needed to conduct the case study regarding the banking and also the E business operations. The developers has to find how to integrate the operations used in the E business and influence the banking operation and design such a way that application must make easy in the tracking activities. The team of business analysts who are expertise in the domain of banking application and E commerce are needed to conduct the case study.

Cost feasibility

The final feasibility is carried in the domain of cost feasibility to ensure this application is under the budget of banks and the business who user BNK PLX for e commerce activities. So the cost feasibility of the BNK PLX is created in two groups where the requirements for the gateway – bank under one group and the other one for the E business operations. There cannot be made a single cost feasibility for both groups because the requirement and the maintenance cost for the gateway and the E commerce are totally different. The developers has to make sure both department must be feasible and found any one department no feasible the project plan must be dropped.

2.3 TOOLS AND TECHNOLOGY

The application is developed in .NET framework by visual studio as IDE. The IDE can integrate the MOM and development based software tools.

The list of tools and technologies used in the software applications are

- ❖ ASP.NET/ C#.NET/ ADO.NET
- ❖ Code editor

- ❖ INTELLITRACE Debugger
- ❖ Class mapping designer
- ❖ Team build
- ❖ SVN

ASP.NET/ C#.NET/ ADO.NET

The software used for the three tier architectural development: the ASP.NET used for design BNKPLX and e commerce application presentation layer. The C# has the business logic coding for the both network security and the banking operations. ADO.NET has the back end server saving units.

Code editor

Code edition has fundamental programming tools for the BNKPLX application. This software will help to speed up the front end based designing works. The auto complete feature will help to identify the special control in the master page and the CSS where developers need to code the initial braces. The intelligent sense will make the right syntax of the HTML when programmers write wrong inputs.

INTELLITRACE Debugger

The software tool used for easy debugging actions. This software will help the developers to find the line where the error occurred and it has intelligent smart menu has the solutions to fix the error with respect to error occurred. The module for the bank and e commerce are created from different system so during the debugging it's needed that all systems brought together and debug together. The INTELLITRACE has the feature of debugging with different system together.

Class mapping designer

Create the name of the class first and add the attributes for each class the class mapping designer will auto generate the class in the C#.NET and hence the software can reduce the time for coding the create class. The developers user remote system used in the BNKPLX application for class mapping designer software.

Team build

The module for bank web page and E commerce are developed in different sprints of the development methodology. But for the software building it is required all the sprints to put together and build. Team build is the software used for the connecting all the system used in the application and build together.

SVN

The software used to save the updates made (coding) in the software development. SVN can be used in the ASP for the front end coding updates, the C# based middleware and also in the SQL. Changes are saved as annotate and grouped annotate are known as change set in SVN.

2.4 HARDWARE AND SOFTWARE REQUIREMENTS.

Hardware Requirement

Hard Disk	250 GB
RAM (BNKPLX™)	2 GB
Processor (BNKPLX™)	Intel Core i3

Software Requirement

Front End design	ASP
Middleware (BNKPLX™)	C#
Back end (BNKPLX™)	SQL Server 2008 R2
Server (BNKPLX™)	Internet Information service
IDE(BNKPLX™)	Visual studio 2015 Express
Software Testing (BNKPLX™)	Microsoft Test Manger
Debugging (BNKPLX™)	INTELLITRACE™

CHAPTER 3

SOFTWARE REQUIREMENTS SPECIFICATION

3.1 USERS TYPES

The users of the BNKPLX are grouped in three category. The first category is the development department based users for giving the technical support for the BNKPLX operations this has users like admin domain, the network users. The second group for bank based operations normally the bank employee and the third user is E commerce domain group. The E commerce group has employee of the organisation and also the layman category of buyer and seller.

- Admin user
- Network user
- Bank employee
- E commerce users

The admin user of Development team

The user's access to the application module is as follows

Module	View info	Update permission	Truncate / delete
The bank administration of BNKPLX	Yes	No	No
The source and destination bank operation	Yes	No	No
The user / online portal users module	Yes	Yes	Yes
BNKPLX gateway GUI module	Yes	No	Yes

Network users

Module	View info	Update permission	Truncate / delete
The bank administration of BNKPLX	No	No	No
The source and destination bank operation	Yes	No	No
The user / online portal users module	Yes	No	No
BNKPLX gateway GUI module	Yes	Yes	Yes

Bank employee

Module	View info	Update permission	Truncate / delete
The bank administration of BNKPLX	Yes	Yes	Yes
The source and destination bank operation	Yes	Yes	Yes
The user / online portal users module	Yes	No	No
BNKPLX gateway GUI module	Yes	Yes	No

E commerce users

Module	View info	Update permission	Truncate / delete
The bank administration of BNKPLX	No	No	No
The source and destination bank operation	No	No	No
The user / online portal users module	Yes	Yes	Yes
BNKPLX gateway GUI module	No	No	No

3.2 FUNCTIONAL REQUIREMENTS

The functional requirement for bank to view the Online transaction for the resolving the customer compliant

Function requirement number 1:

Function requirement name: CRM number

Function requirement description: the auto generated reference number for the BNK PLX related transactions.

Input: NA

Process: Call the auto gen BNKPLX customer relation management number and increment the existing number by one. The next BNKPLX reference number will be this incremented number.

Output: latest CRM number for BNKPLX activity.

Function requirement number 2:

Function requirement name: Call E commerce based transaction details

Function requirement description: the details regarding the item tracking will be saved in the read only mode for the employees of the bank.

Input: Auto generated CRM number

Process: Call the method for the big data search and short the data related to given CRM number.

Output: Display the CRM based data.

Function requirement number 3:

Function requirement name: Amount transfer status

Function requirement description: If the amount do not transferred and remain in the pending to connect with beneficiary bank source ban user can cancel and refund the amount.

Input: CRM reference number

Process: check the user authentication of users to access the server, access or denied based on the users access permission, if approved the users can view the transaction for the BNKPLX gateway and the source bank integrations

Output: view transaction details in read form.

Function requirement number 4:

Function requirement name: beneficiary bank BNKPLX data access.

Function requirement description: If the amount is debited from the source bank and gateway the user need to verify the status of the amount paid to destination bank or amount not forwarded.

Input: order reference number

Process: call the attribute of data migration to beneficiary ban

Output: display the status.

3.3 NON-FUNCTIONAL REQUIREMENTS

The non-functional requirement is carried in the finished module of BNKPLX gateway and E commerce operations. The motto of business analysts do the non-functional requirement is to identify whether the operation of the product has good performance in the area of

- Reliability

- Security
- Integrity
- Flexibility

Reliability

The reliability of the BNKPLX is related to data fetching and the used for the banking operations. The data which are loaded must be accurate and also used for other operational interfaces. The application use AI implementation in BNKPLX searching techniques where the user's bank based data will be shortlisted to the stack for fast and accurate searching.

Security

The users has control to access the data from the source bank, the beneficiary bank and the server which has loaded data for the e commerce operations too. The developers made the data base different for each users and the access of the data authentication is called by the user's authorization server.

Integrity

The user of the bank as permitted to access the data from the E commerce server in the read only format. This feature is included for the first time of gateway application history. But BNKPLX application has restricted the access only for the organisation use BNKPLZ gateway. The integrity between the banking transaction and the e commerce transaction increase the integrity of the business model.

Flexibility

The flexibility of this product is its ability to work in the platform of gateway and the E commerce process. Developers has created module with different features to the better operability. The gateway module is needed with the network supporting IDE tools and the E-commerce with ERP based controls. BNKPLX application intermediate is programmed with better flexibility to over all the events and migration (data) in the Bank and E commerce application.

CHAPTER 4

SYSTEM DESIGN

4.1 SYSTEM PERSPECTIVE

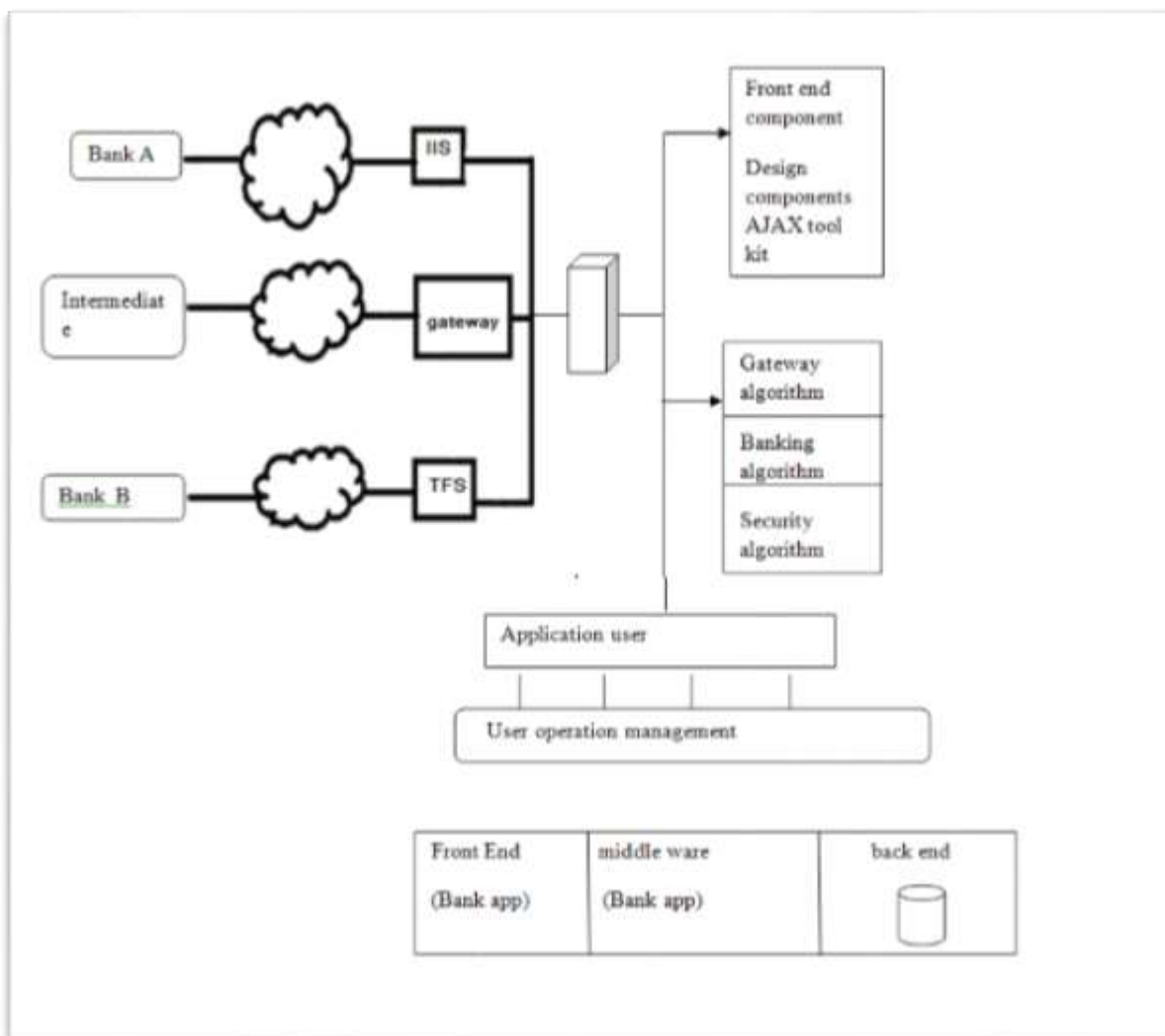


Fig 4.1: the BNKPLX architecture diagram

The architecture diagram for the BNKPLX is created in for data interacting between the bank and the application user of ecommerce. The gateway algorithm is placed as intermediate of bank and e commerce the server for the banking and the E commerce are created in separate and the direct access to the server is given for respective department only. If user of a domain need to access the server of other domain it will be possible with gateway interface.

4.2 CONTEXT DIAGRAM

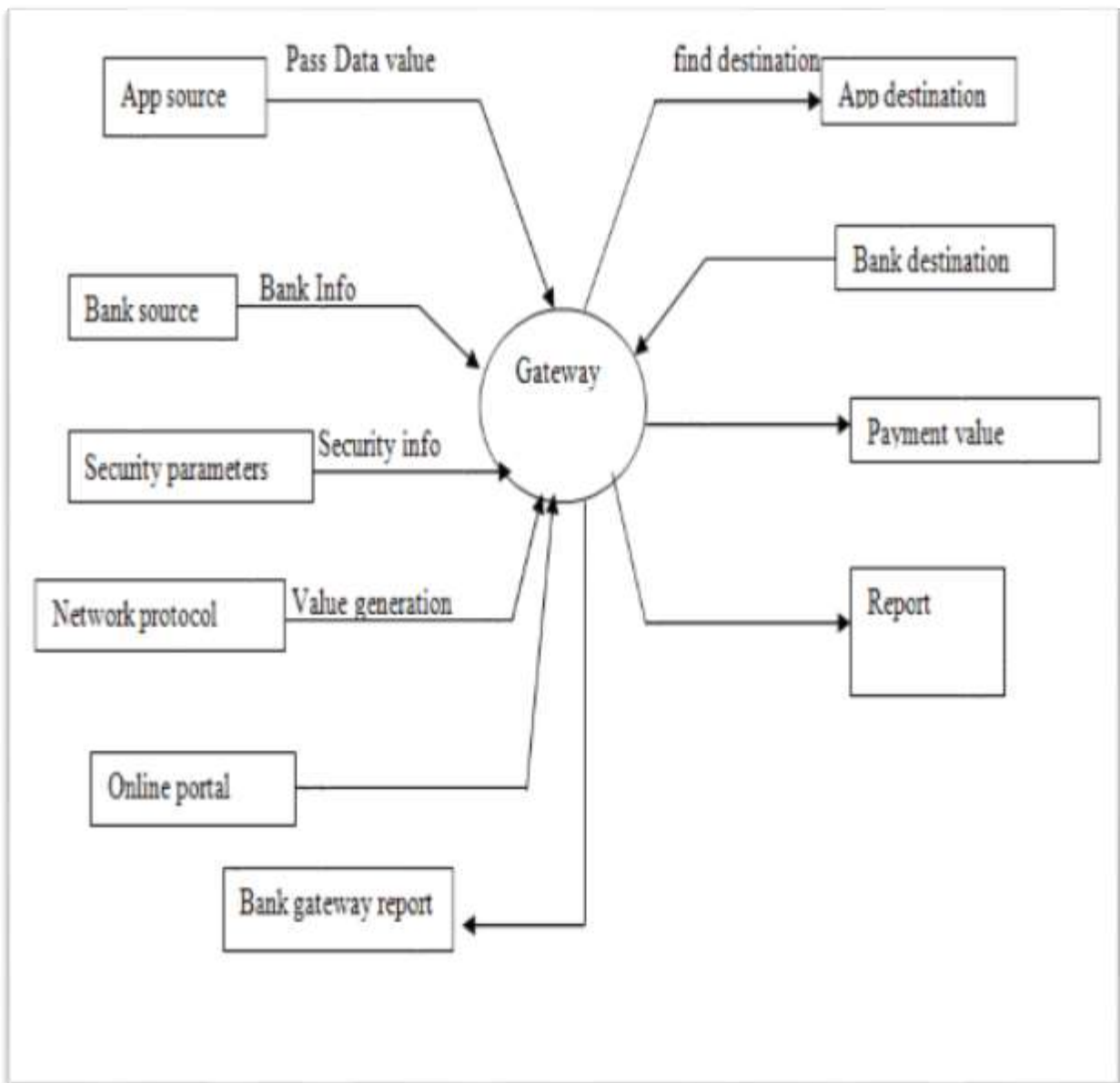


Fig 4.2: the operational context diagram

The context diagram is created for members of developing team. This context diagram shows the banking and E commerce objects lists and the output from the each objects will be operating with the gateway operations. The security parameter used in the application can connect user pool details which is used for the E commerce based user pooling and the Bank module separated.

CHAPTER 5

DETAILED DESIGN

5.1 USE CASE DIAGRAM

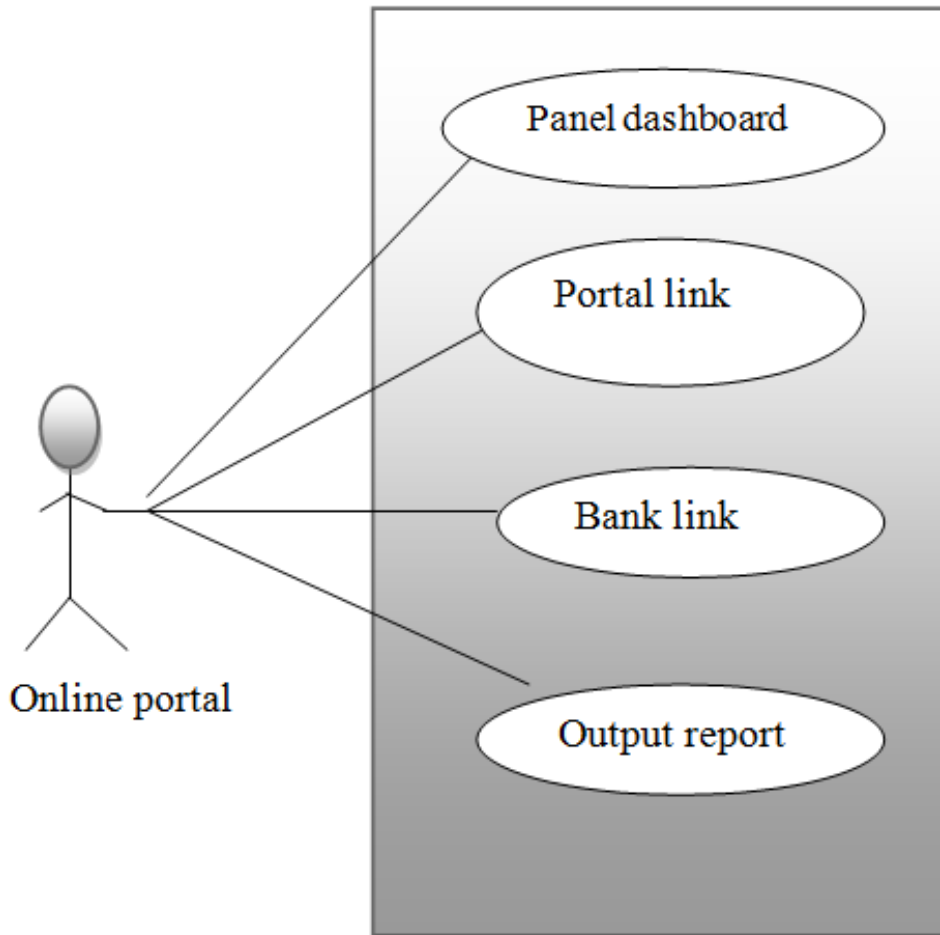


Fig 5.1.1: use case diagram for online portal user.

The online user are group of users from the bank and ecommerce who are permitted to view the bank and e commerce based operations. These users can view the details in the read for in the panel dash board and for the making the updates the users will be allowed only through the page of domain where the user belongs.

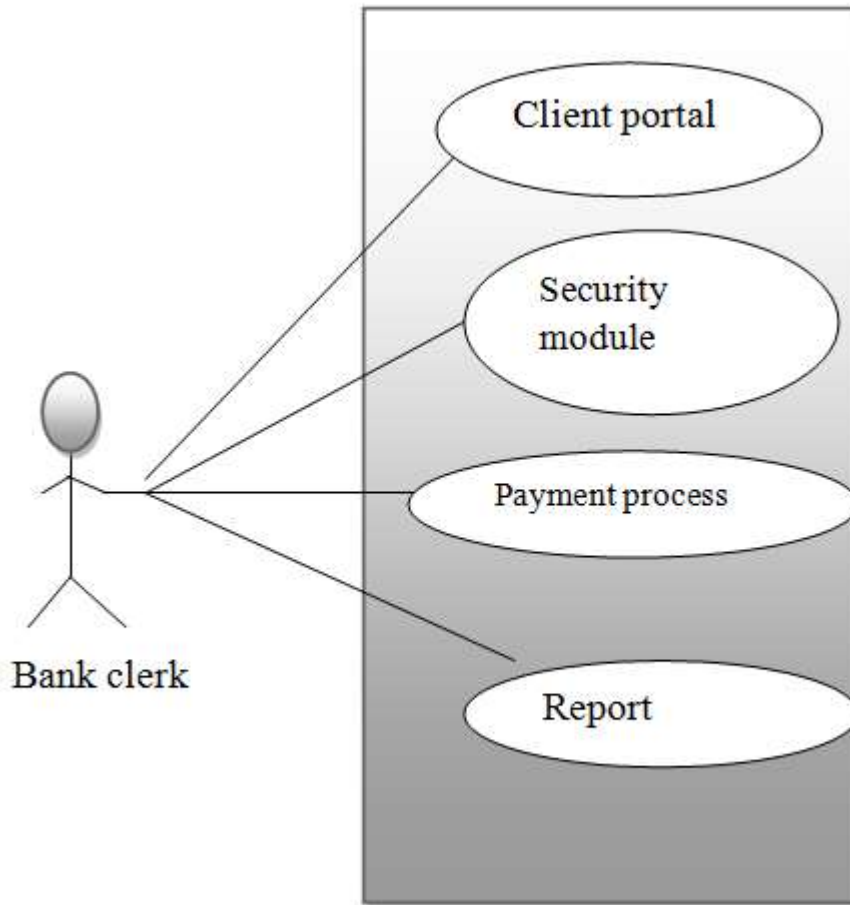


Fig 5.1.2: use case diagram for the bank clerk.

The domain page for the bank clerk to manage the client portal activates like list of users as account with bank and the BNKPLX server, the security measurements created and altered by the bank clerk, control the payment process with respect to the online and other banking activities with BNKPLX module.

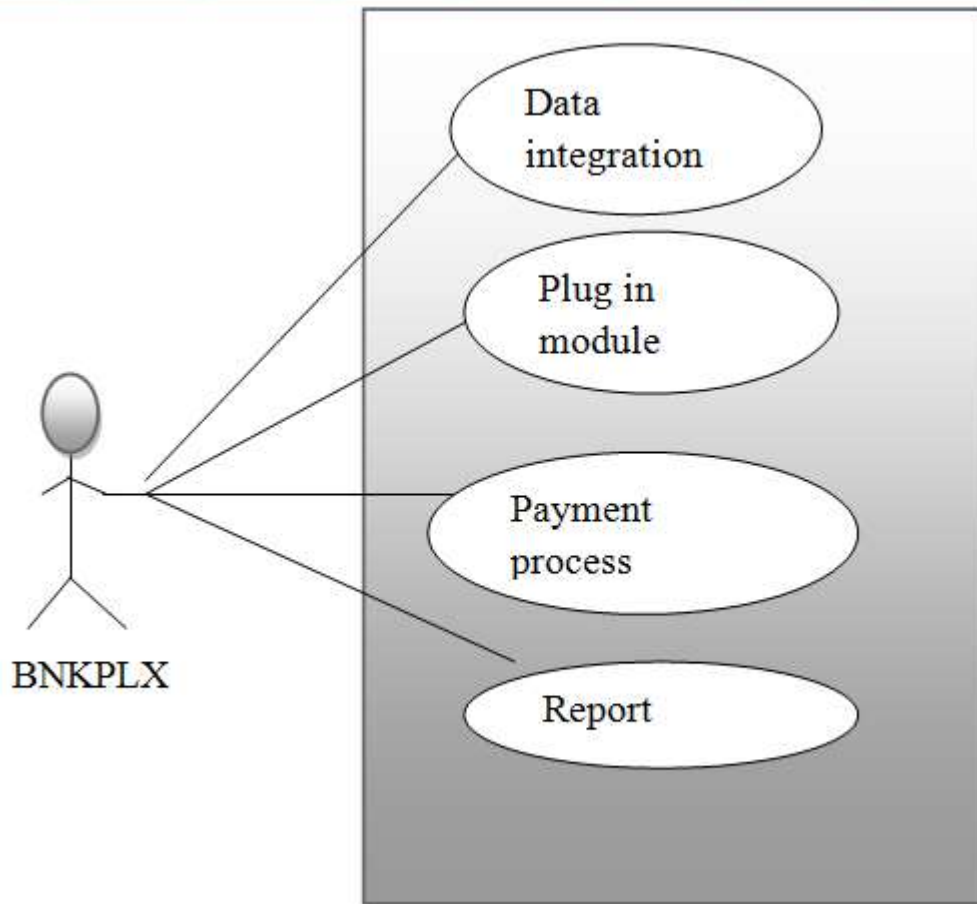


Fig 5.1.3: use case diagram of developers account user.

The role of the employee of gateway portal is managing the plug in integrations between the different bank who are registered for the use of BNKPLX, the data integrity over the gateway, the E commerce portal and the bank. The payment process through the connected gateway and the report of overall transaction made with the various BNKPLX objects and department are created

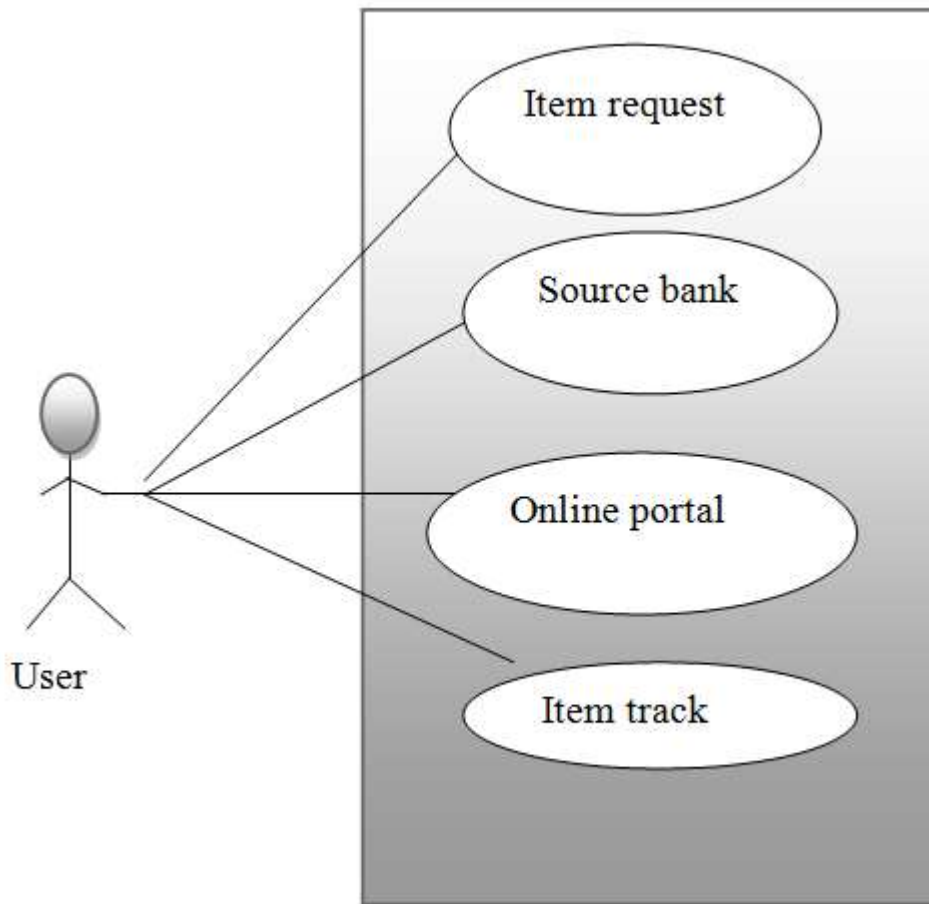


Fig 5.1.4: use case diagram in E commerce module user.

The user can be direct BNKPLX E commerce module operating users or other E commerce domain which used gateway (without GUI) features of the BNKPLX. The user can access the details regarding the online portal, the source bank and the tracking events.

5.2: SEQUENCE DIAGRAM

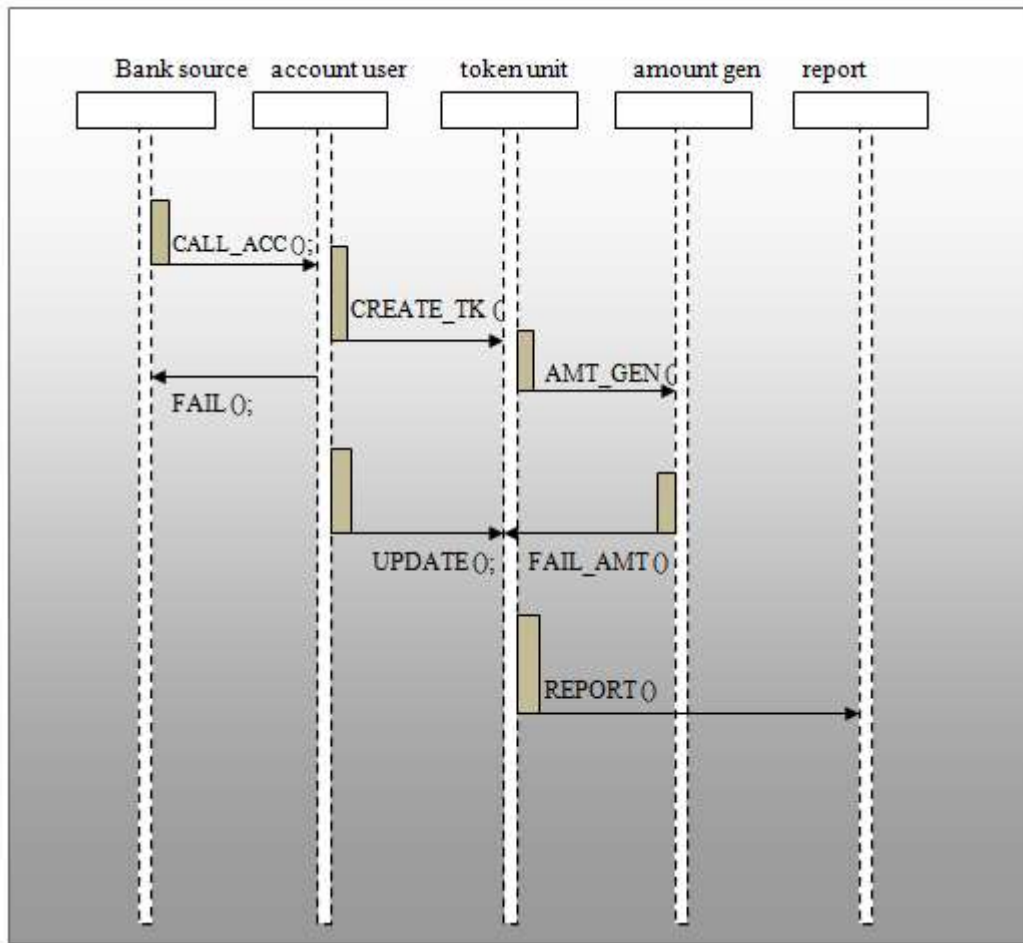


Fig 5.2.1: sequence diagram in the bank.

For every banking activities the BNKPLX will create a token unit which is unique and used for the reference during the tracking the software. When an account holder makes the transaction regarding the E commerce or direct banking the application will create the token and this token ID will be forwarded to all the activities within the BNKPLX and the final report will be generated

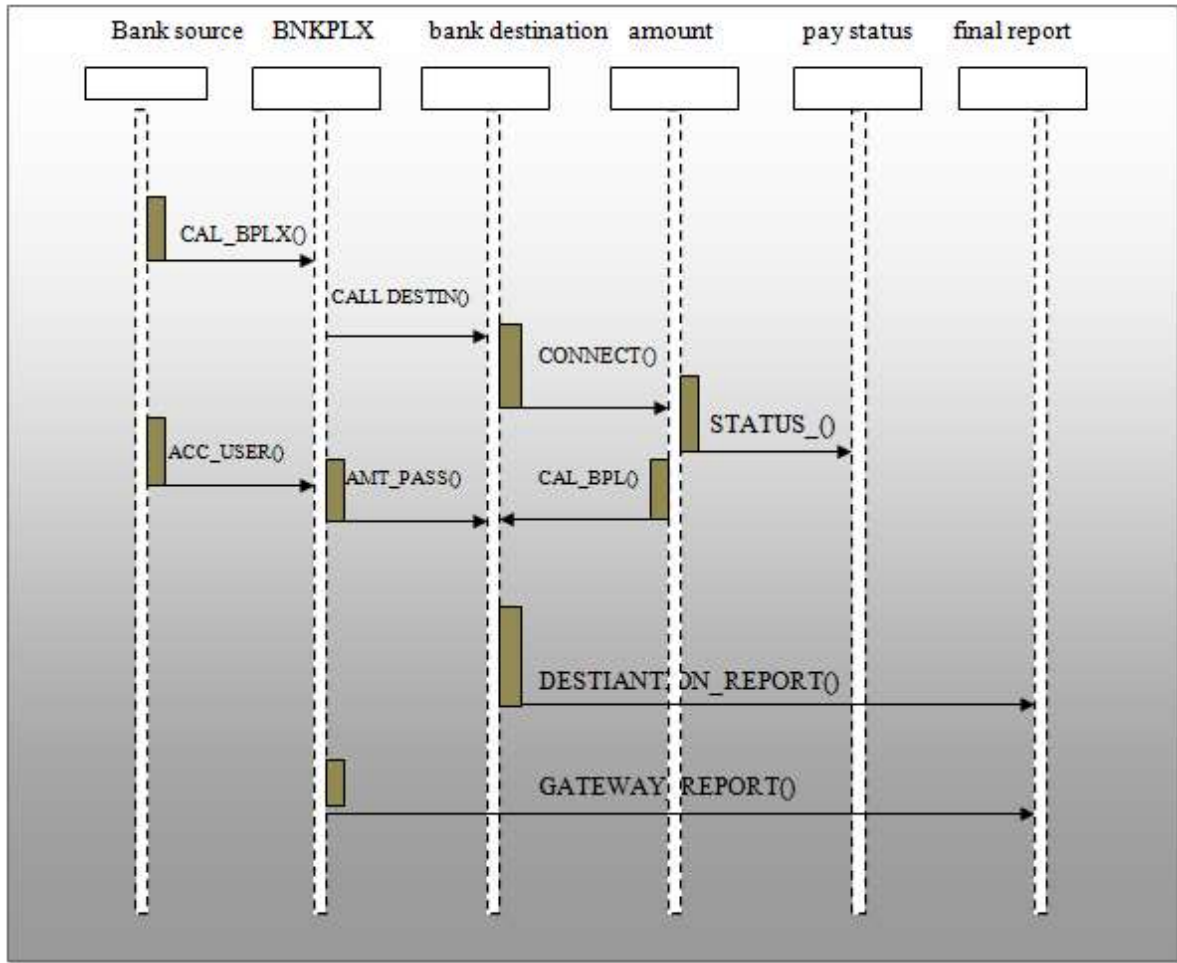


Fig 5.2.2: sequence diagram for the source and beneficiary bank transaction with BNPLX gateway.

The source bank can access the server of the destination bank is only with BNKPLX intermediate. The authentication check, the migrations, the report over the server connected the list of data migrated or received are marked in the report. For the cases of the payment status there is created a separate the unit to cross verify when CRM or bank request about the pending status is received.

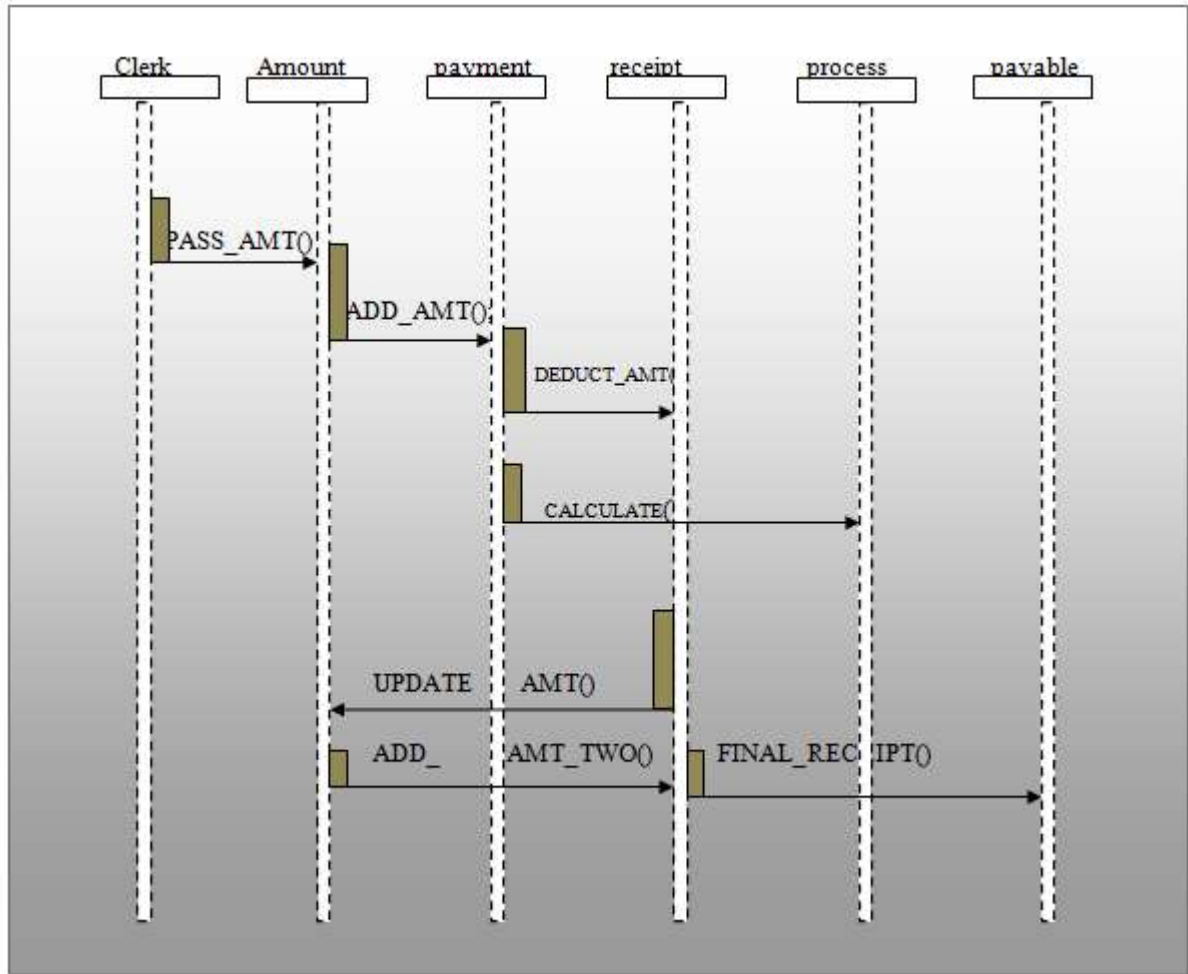


Fig 5.2.3: sequence diagram for the beneficiary bank where the payment is received.

After the successful connection with the user end the steps for the money transfer will start. The amount to be transferred and the end server details are created by the clerk. The amount details and the updated amount from the source account and increment in the beneficiary account are managed with BNKPLX gateway, the record over the receipt and the payable will be saved in all three branches of the application units.

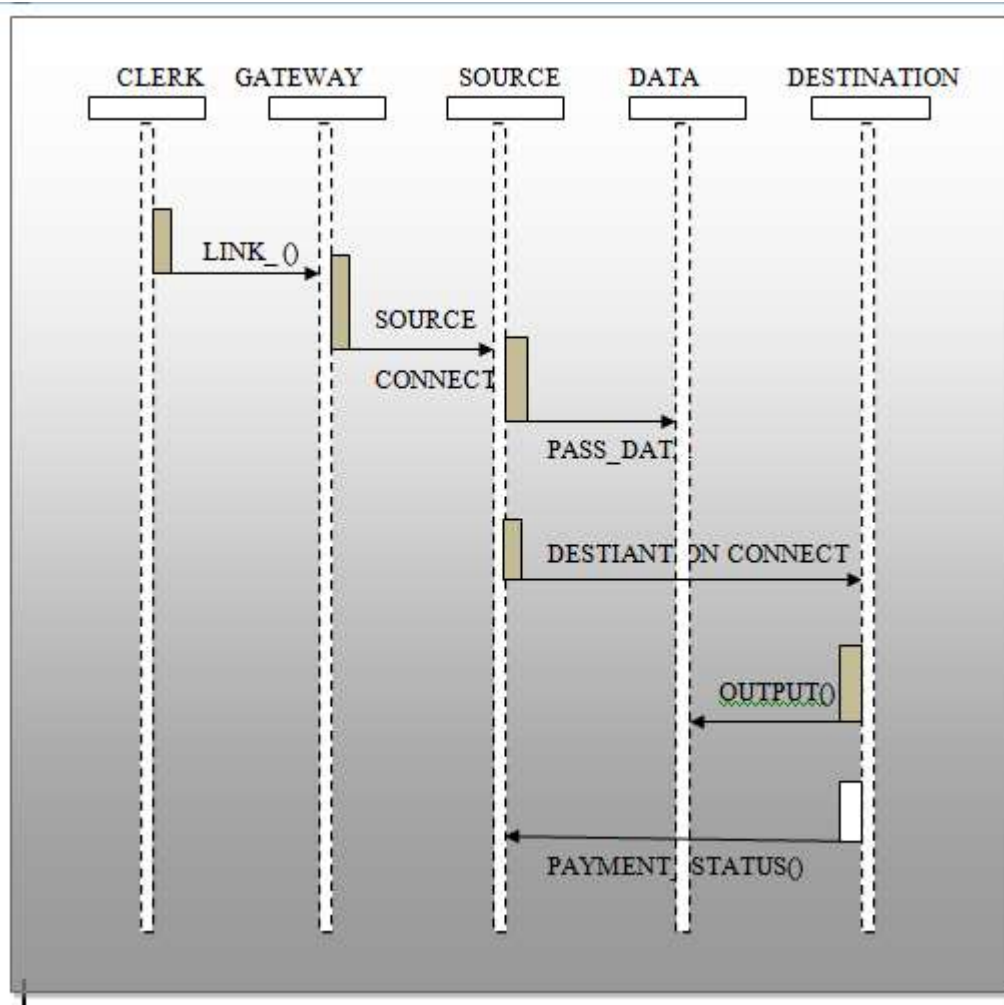


Fig 5.2.4: sequence diagram for the sketching the flow in the source and destination bank

This sequence diagram is designed for non E commerce based transactions. The algorithm used in the BNKPLX will support the bank to bank transactions too. The steps for the bank to bank, pass data related to the banking operations, response from the bank to approve or reject the request etc. are explained in the sequence diagram.

5.3 COLLABORATION DIAGRAM

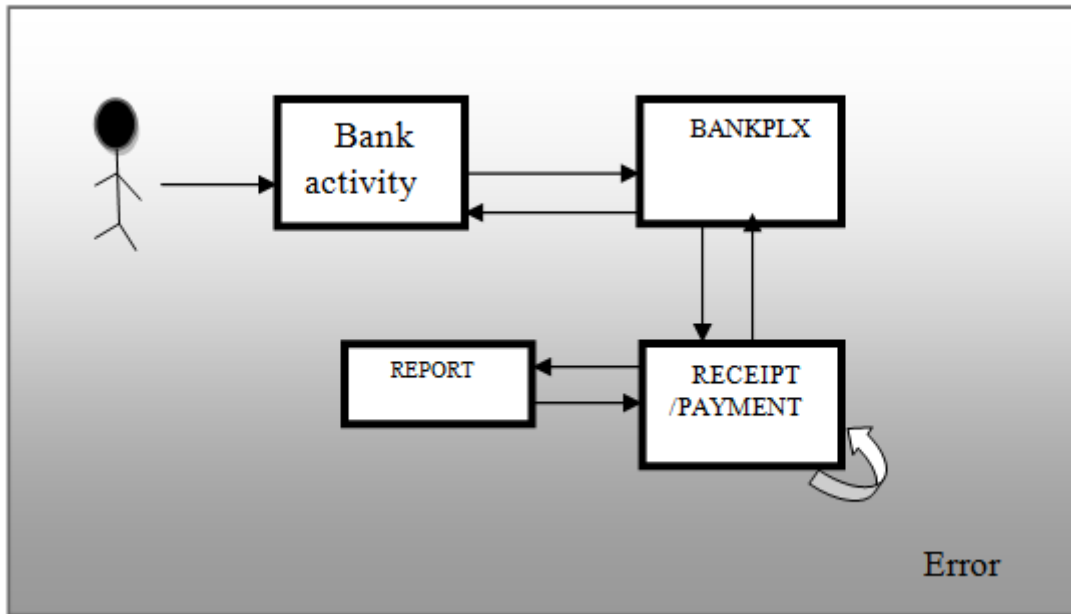


Fig 5.3.1: collaboration diagram for the payment / receipt

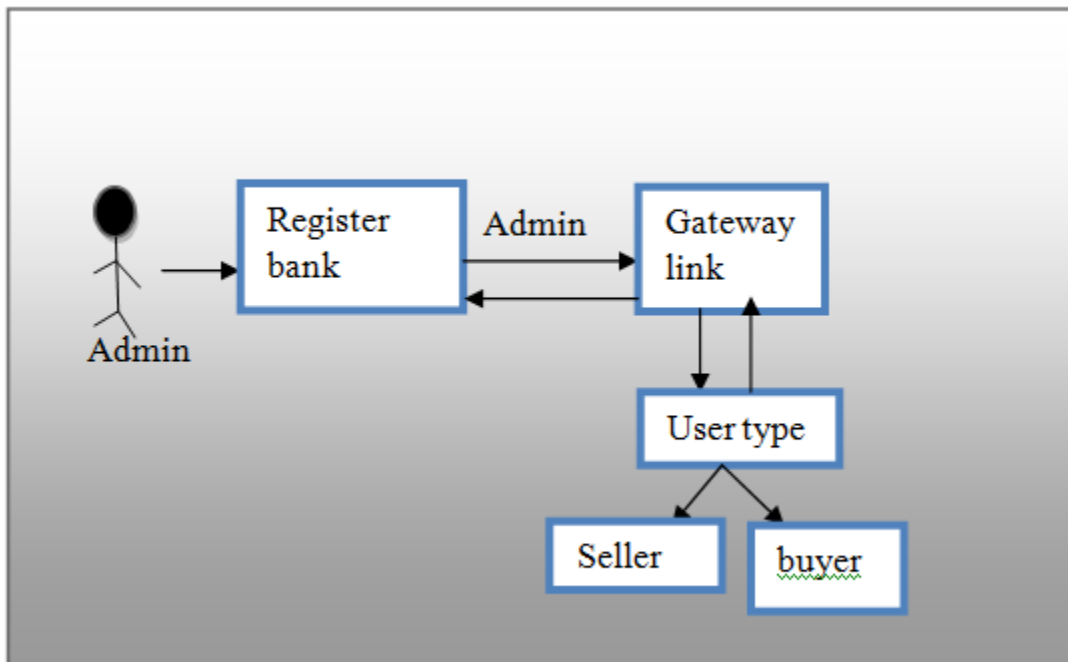


Fig 5.3.2: collaboration diagram user type in BNKPLX

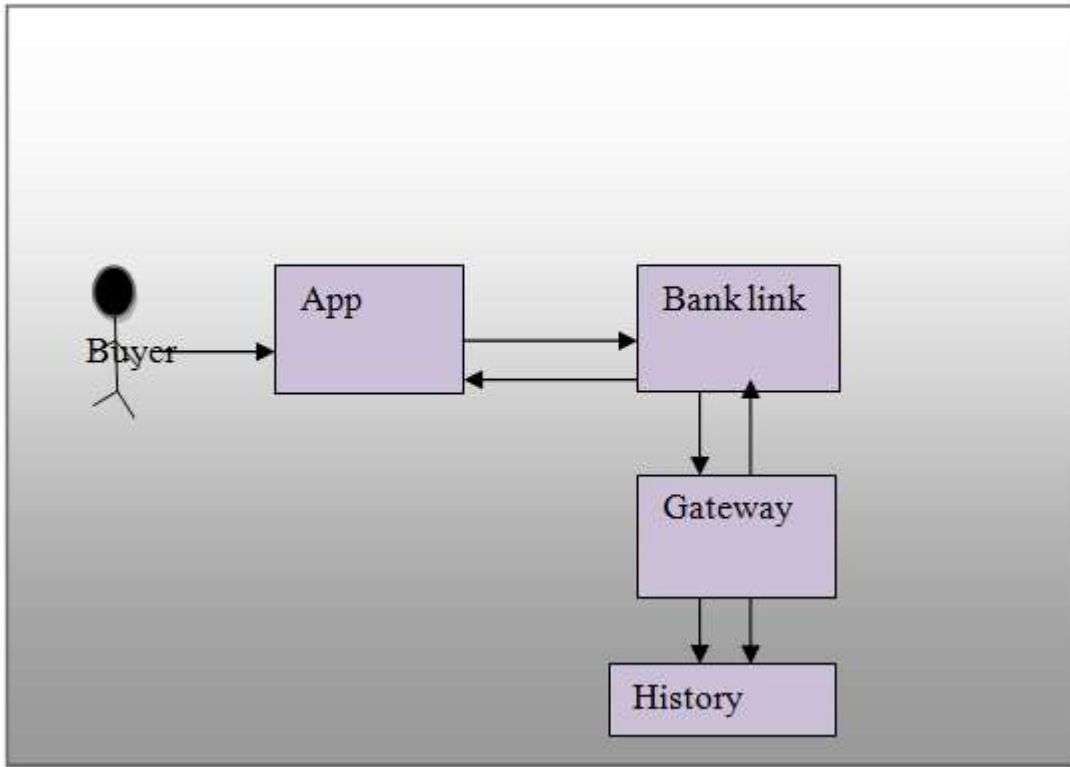


Fig 5.3.3: collaboration diagram for buyer the layman type of E commerce user.

5.4 ACTIVITY DIAGRAM

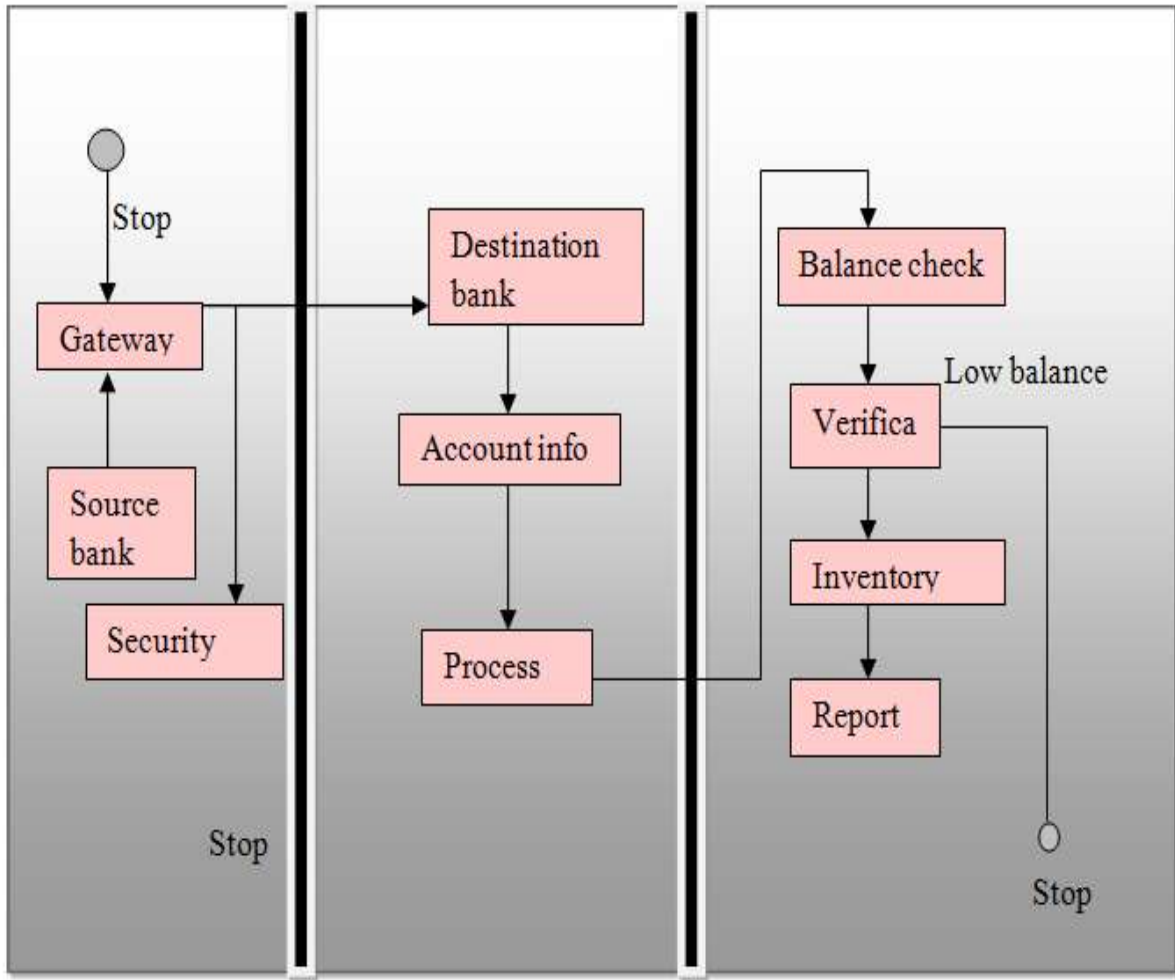


Fig 5.4.1: activity diagram for the source bank to destination bank.

The algorithm for the security is added with the source bank. It's not good practise to call the security algorithm of the destination bank since there will be multiple server and making the access and checking the security parameter will be made highly complicated in the network transaction as well the security parameters too. So it will be a better practise to make the security algorithm operations checking within the source machine and if success allows the users to operated BNKPLX modules.

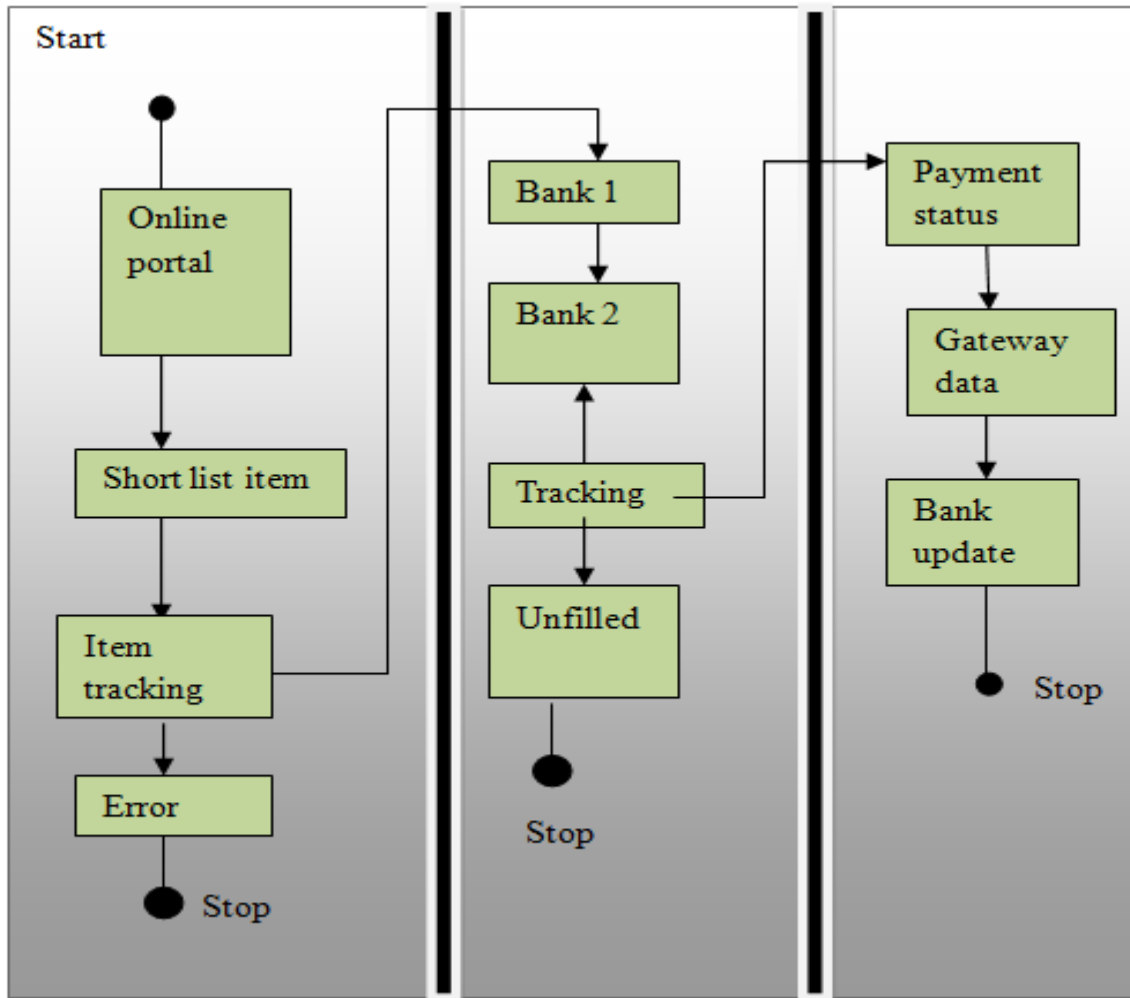


Fig 5.4.2: activity diagram in E commerce to bank.

The e commerce module of BNKPLX will be affluent with online based data like item, the tracking and gateway based data. The e commerce platform will be intermediate for the sellers and the buyer's bank. The BNKPLX order to start the banking operation will give once the item short list is approved by the seller. The progress can be cancelled due to insufficiency balance or not received the response from the seller's bank and the further progress will be cancelled.

5.5 DATABASE DESIGN

Table name: DBO.BANK_REPORT

Table attribute	Data type	Primary key
DV_BKX CRT BANK ID	INT	PRIMARY KEY,
DV_BKX CRT DATE	DATE,	NA
DV_BKX CRT STATEMENT_REF	VARCHAR (25) ,	NA
DV_BKX CRT FORWARD_BALANCE	FLOAT,	NA
DV_BKX CRT RECONSILED	VARCHAR (25) ,	NA

Column Name	Data Type	Allow Nulls
DV_BKX CRT BANK ID	int	<input type="checkbox"/>
DV_BKX CRT DATE	date	<input checked="" type="checkbox"/>
DV_BKX CRT STATEMENT_REF	varchar(25)	<input checked="" type="checkbox"/>
DV_BKX CRT FORWARD_BALANCE	float	<input checked="" type="checkbox"/>
DV_BKX CRT RECONSILED	varchar(25)	<input checked="" type="checkbox"/>
DV_BKX CRT ACC_NUMBER	varchar(25)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Table name: DBO.DV_BKX CRT_BANK_CHEQUE

Table attribute	Data type	Primary key
DV_BKX CRT BANK ID	INT PRIMARY KEY,	PRIMARY KEY,
DV_BKX CRT ACC HOLDER	VARCHAR (50) ,	NA
DV_BKX CRT ACC_NUMBER	VARCHAR (6) ,	NA
DV_BKX CRT TOTAL_AMOUNT	FLOAT,	NA
DV_BKX CRT REMARK	VARCHAR (25)	NA

Column Name	Data Type	Allow Nulls
DV_BKX CRT BANK ID	int	<input type="checkbox"/>
DV_BKX CRT ACC_H...	varchar(50)	<input checked="" type="checkbox"/>
DV_BKX CRT ACC_N...	varchar(6)	<input checked="" type="checkbox"/>
DV_BKX CRT TOTAL_...	float	<input checked="" type="checkbox"/>
DV_BKX CRT REMARK	varchar(25)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Table name: DBO.DV_BKX CRT_BANK_SOURCE

Table attribute	Data type	Primary key
DV_BKX_CRT_BANK_ID	INT	PRIMARY KEY,
DV_BKX_CRT_CURRENT_BALANCE	FLOAT,	NA
DV_BKX_CRT_AMT_TRANSFERED,	FLOAT	NA
DV_BKX_CRT_CLOSING_BALANCE	FLOAT	NA

Column Name	Data Type	Allow Nulls
DV_BKX_CRT_BANK_ID	int	<input type="checkbox"/>
DV_BKX_CRT_CURRENT_BALANCE	float	<input checked="" type="checkbox"/>
DV_BKX_CRT_AMT_TRANSFERED	float	<input checked="" type="checkbox"/>
DV_BKX_CRT_CLOSING_BALANCE	float	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Table name: DBO. DV_BKX_CRT_GATEWAY

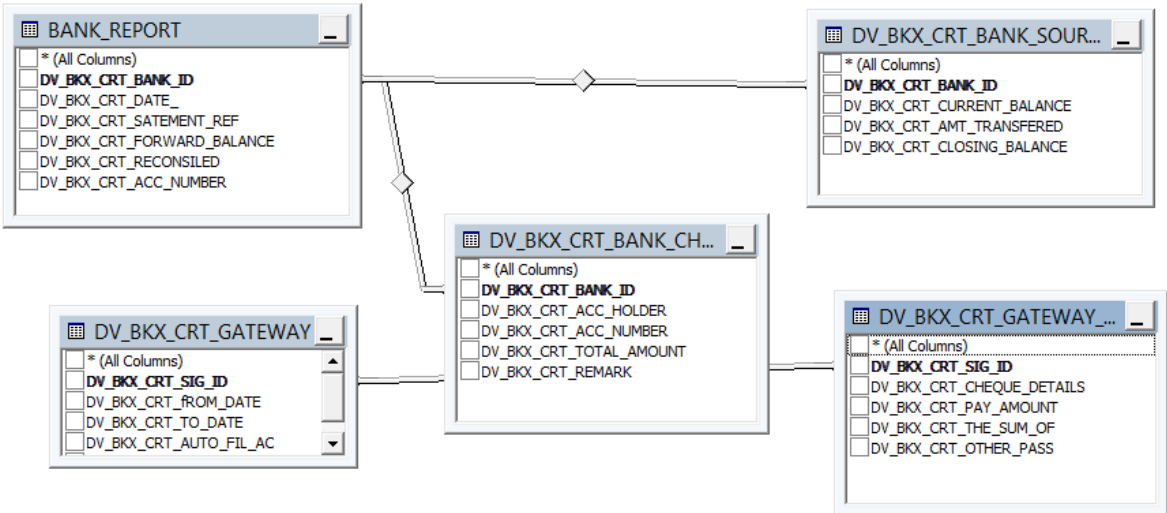
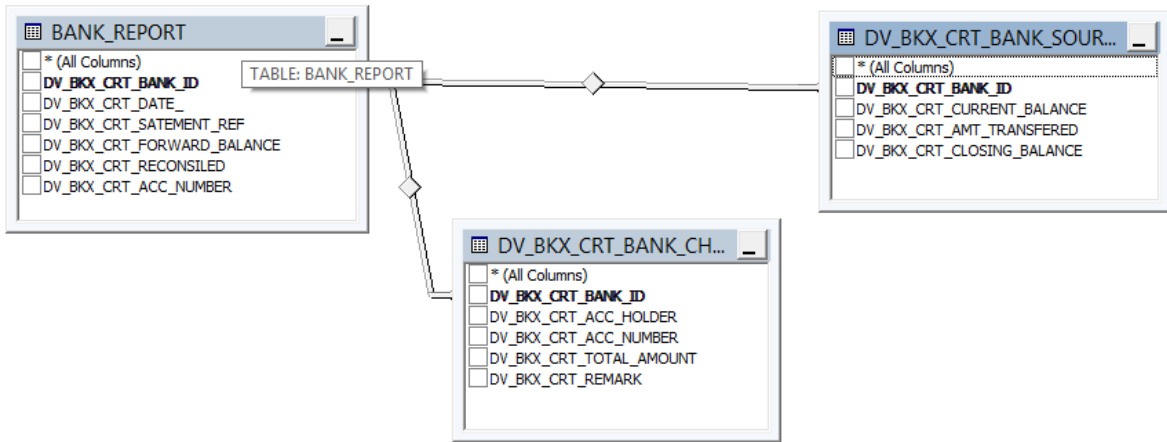
Table attribute	Data type	Primary key
DV_BKX_CRT_SIG_ID	INT	PRIMARY KEY,
DV_BKX_CRT_FROM_DATE	FLOAT	NA
DV_BKX_CRT_TO_DATE	FLOAT	NA
DV_BKX_CRT_AUTO_FIL_AC	FLOAT	NA
DV_BKX_CRT_GRID_VIEW	VARCHAR (25)	NA

Column Name	Data Type	Allow Nulls
DV_BKX_CRT_SIG_ID	int	<input type="checkbox"/>
DV_BKX_CRT_FROM_DATE	float	<input checked="" type="checkbox"/>
DV_BKX_CRT_TO_DATE	float	<input checked="" type="checkbox"/>
DV_BKX_CRT_AUTO_FIL_AC	float	<input checked="" type="checkbox"/>
DV_BKX_CRT_GRID_VIEW	varchar(25)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

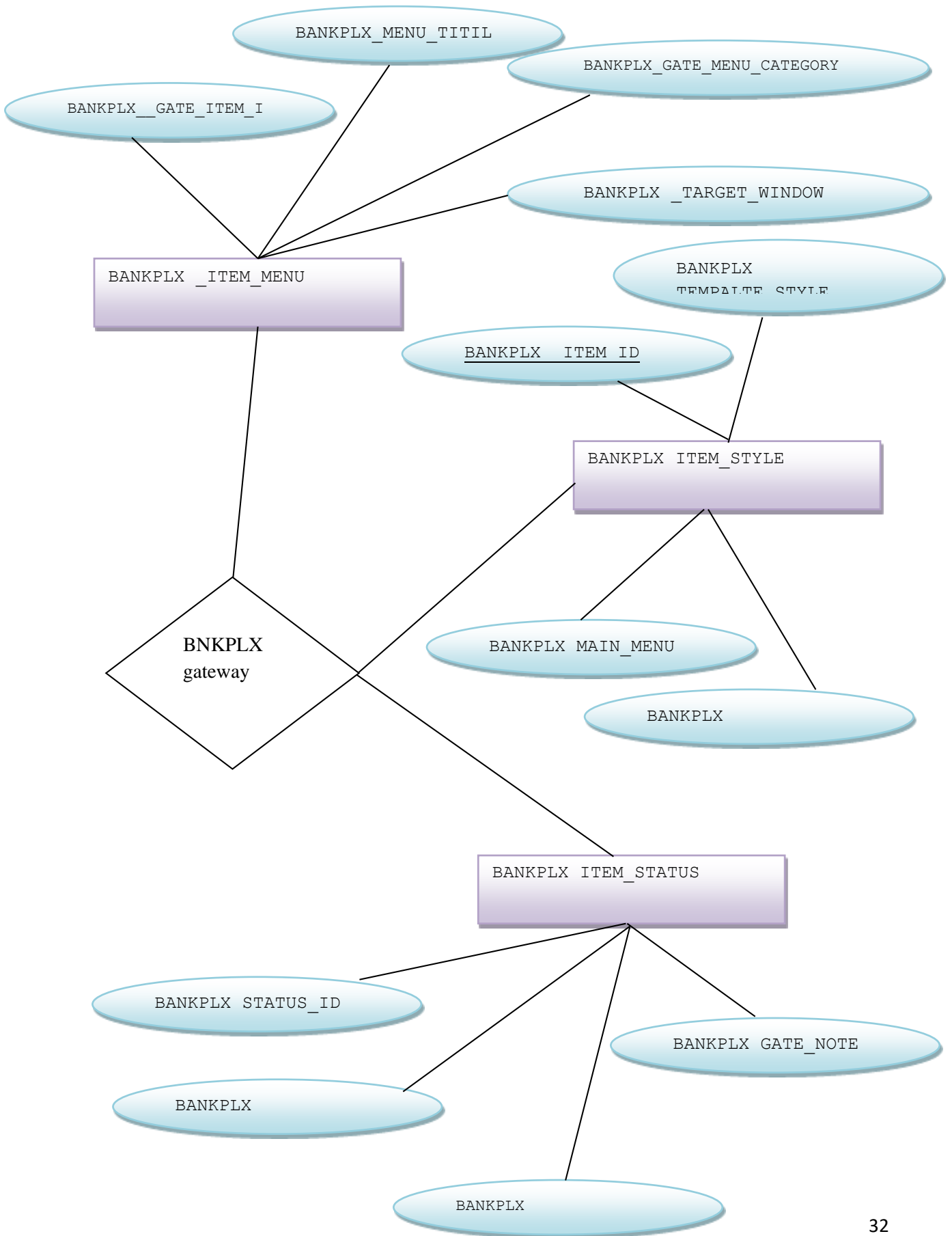
Table name: DBO. DV_BKX_CRT_GATEWAY_STORE

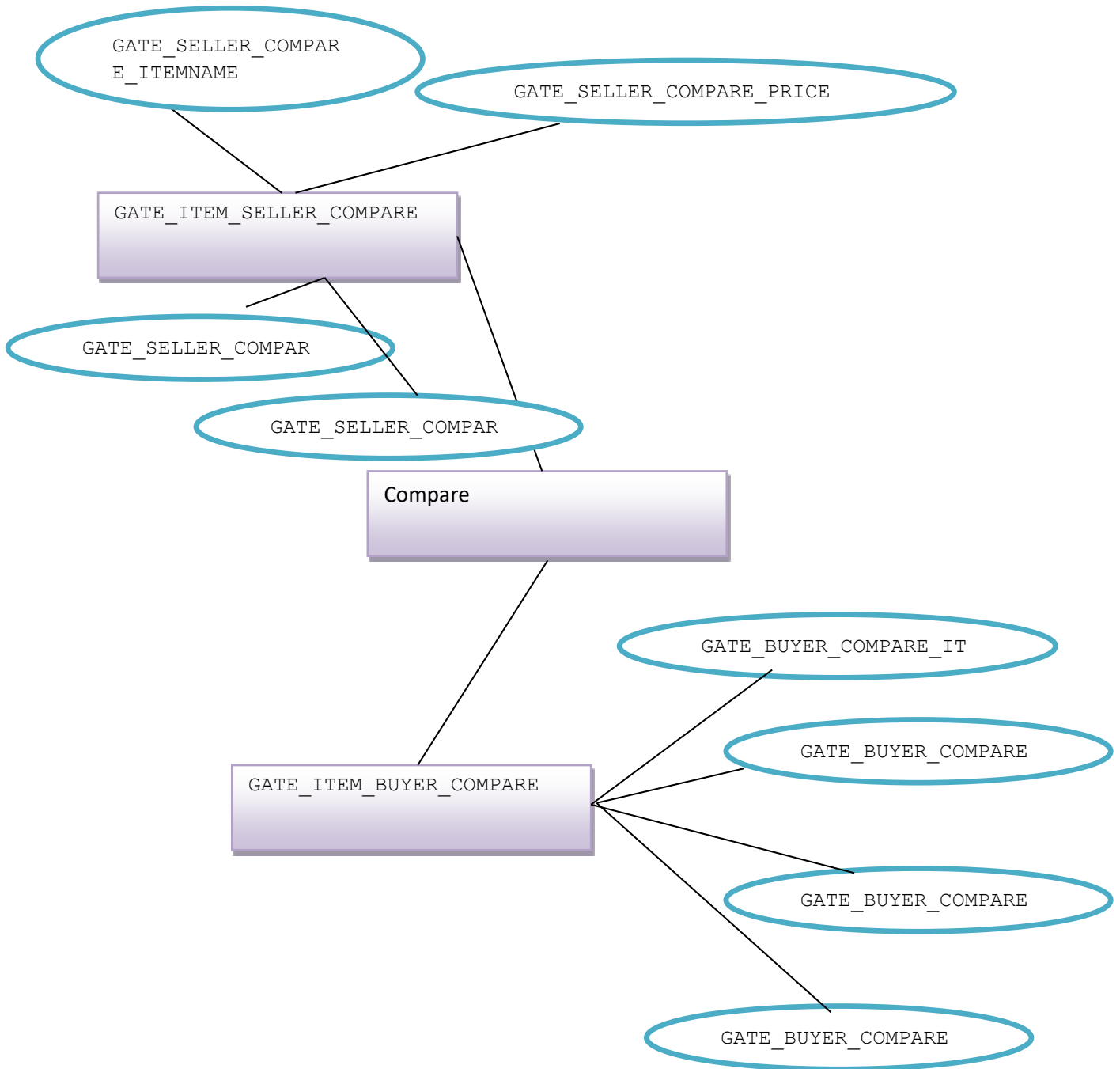
Table attribute	Data type	Primary key
DV_BKX_CRT_SIG_ID	INT	PRIMARY KEY,
DV_BKX_CRT_CHEQUE_DETAILS	VARCHAR (6) ,	NA
DV_BKX_CRT_PAY_AMOUNT,	FLOAT	NA
DV_BKX_CRT_THE_SUM_OF,	FLOAT	NA
DV_BKX_CRT_OTHER_PASS	FLOAT	NA

	Column Name	Data Type	Allow Nulls
🔔	DV_BKX_CRT_SIG_ID	int	<input type="checkbox"/>
	DV_BKX_CRT_CHEQUE_DETAILS	varchar(6)	<input checked="" type="checkbox"/>
	DV_BKX_CRT_PAY_AMOUNT	float	<input checked="" type="checkbox"/>
	DV_BKX_CRT_THE_SUM_OF	float	<input checked="" type="checkbox"/>
	DV_BKX_CRT_OTHER_PASS	float	<input checked="" type="checkbox"/>
			<input type="checkbox"/>



5.6 ER Diagrams: (a) ER diagram for item tracking with BNKPLX





(b)ER diagram for item compare

CHAPTER 6

IMPLEMENTATION

It is the process that turns strategies and plans into actions in order to accomplish strategic objectives and goals. It carries out execution, or practise of plan, a method, or any design idea, model, specification, standard or policy for doing something.

6.1 SCREENSHOT

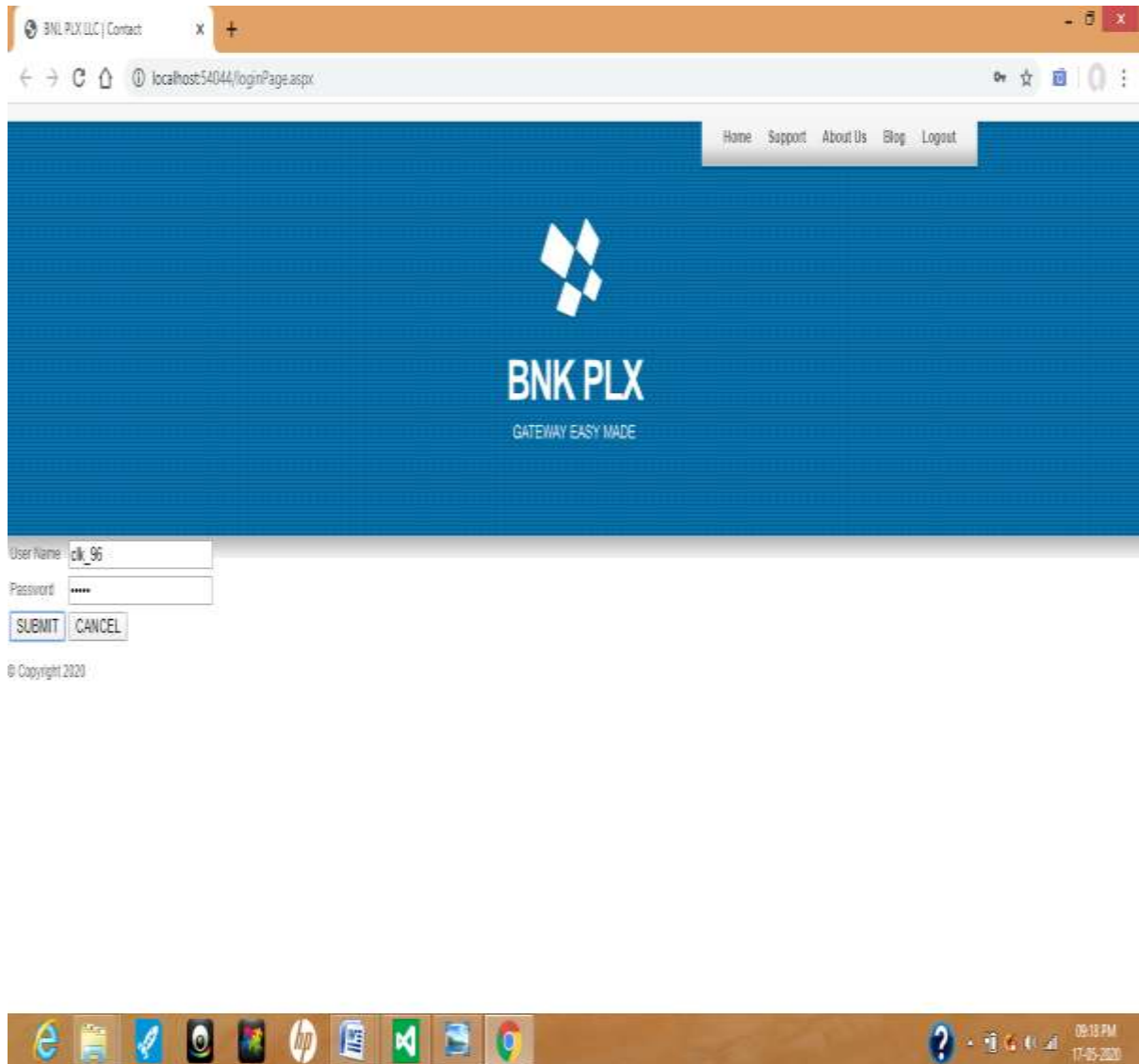
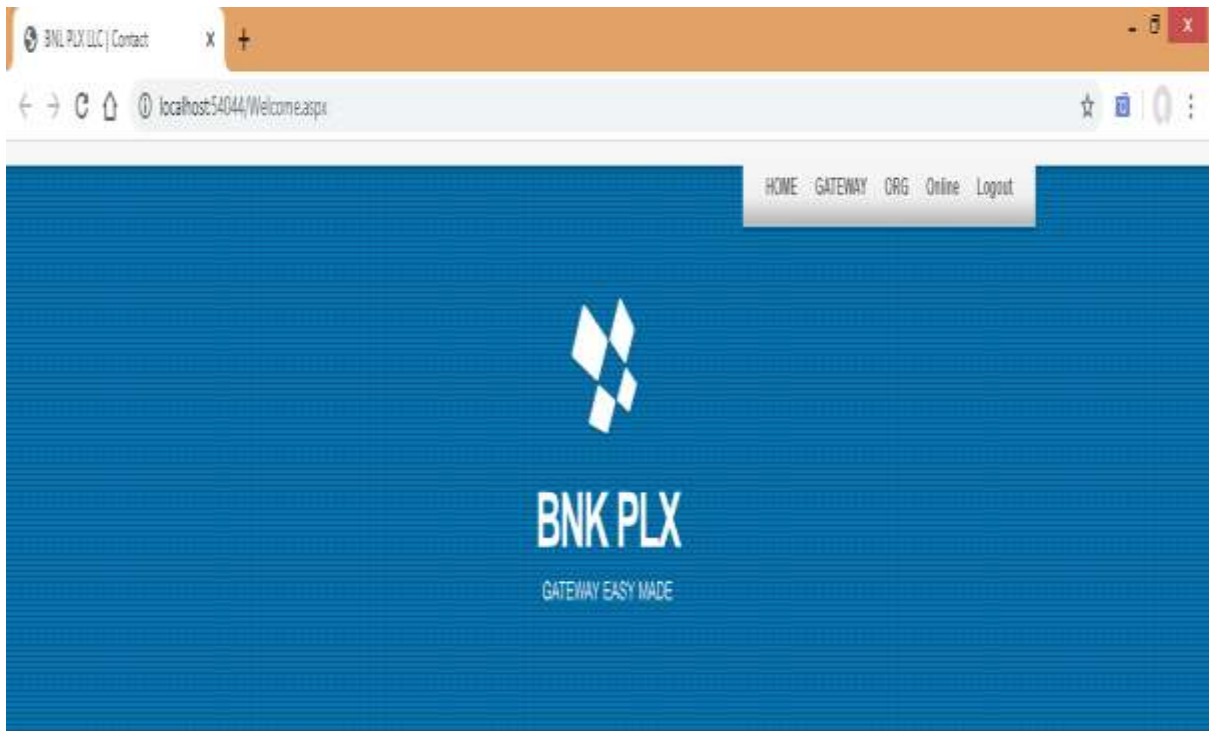


Fig 6.1: the clerk for the BNKPLX organisation login



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Fig 6.2: the welcome page. When the user click the gateway link button the following bank page details will be loaded.

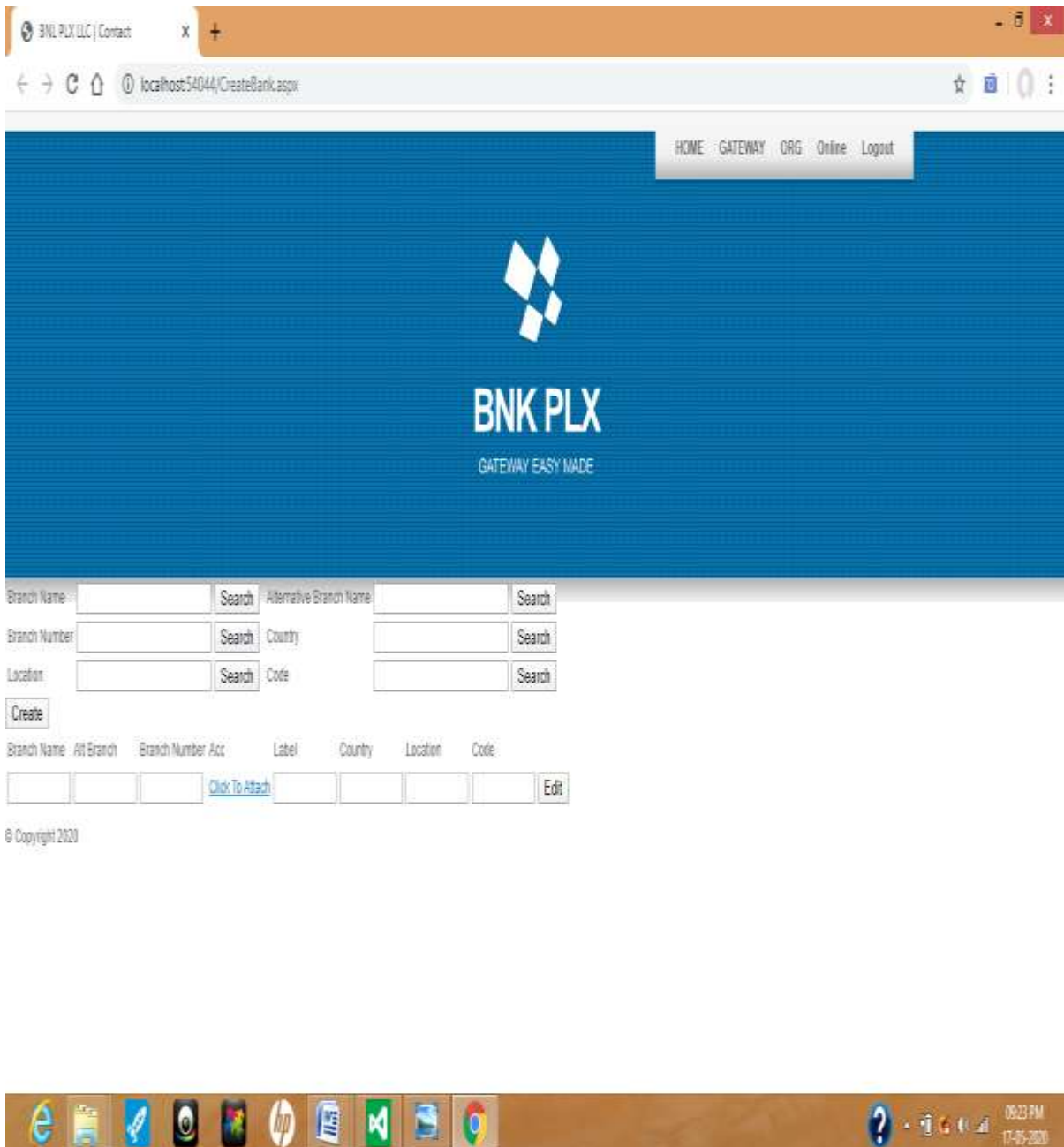


Fig 6.3: the page where the clerk needed to enter the bank details.

The details of the bank will be already loaded in the BNKPLX server since the centralised banking server access is allowed. And manually entering the all bank details through the page is also not a practical solution since numerous banks are registered in India But this page is needed to make updates created in the bank profile changes like IFSC code change, the location change, or if the banking merge occur like corporation bank -union bank merging.

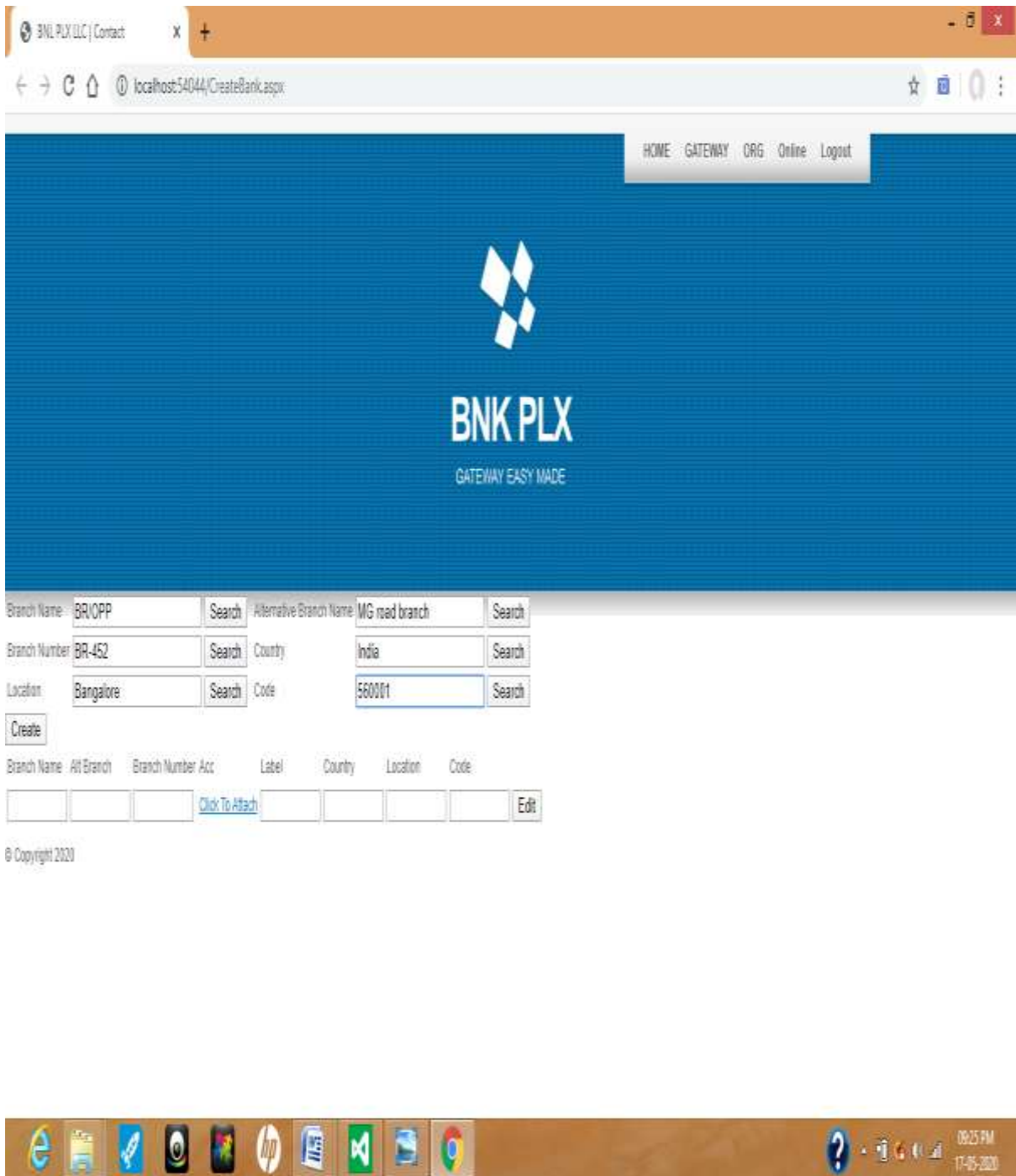


Fig 6.4: after entering the each details the users can click the search button to verify whether the bank details are saved.

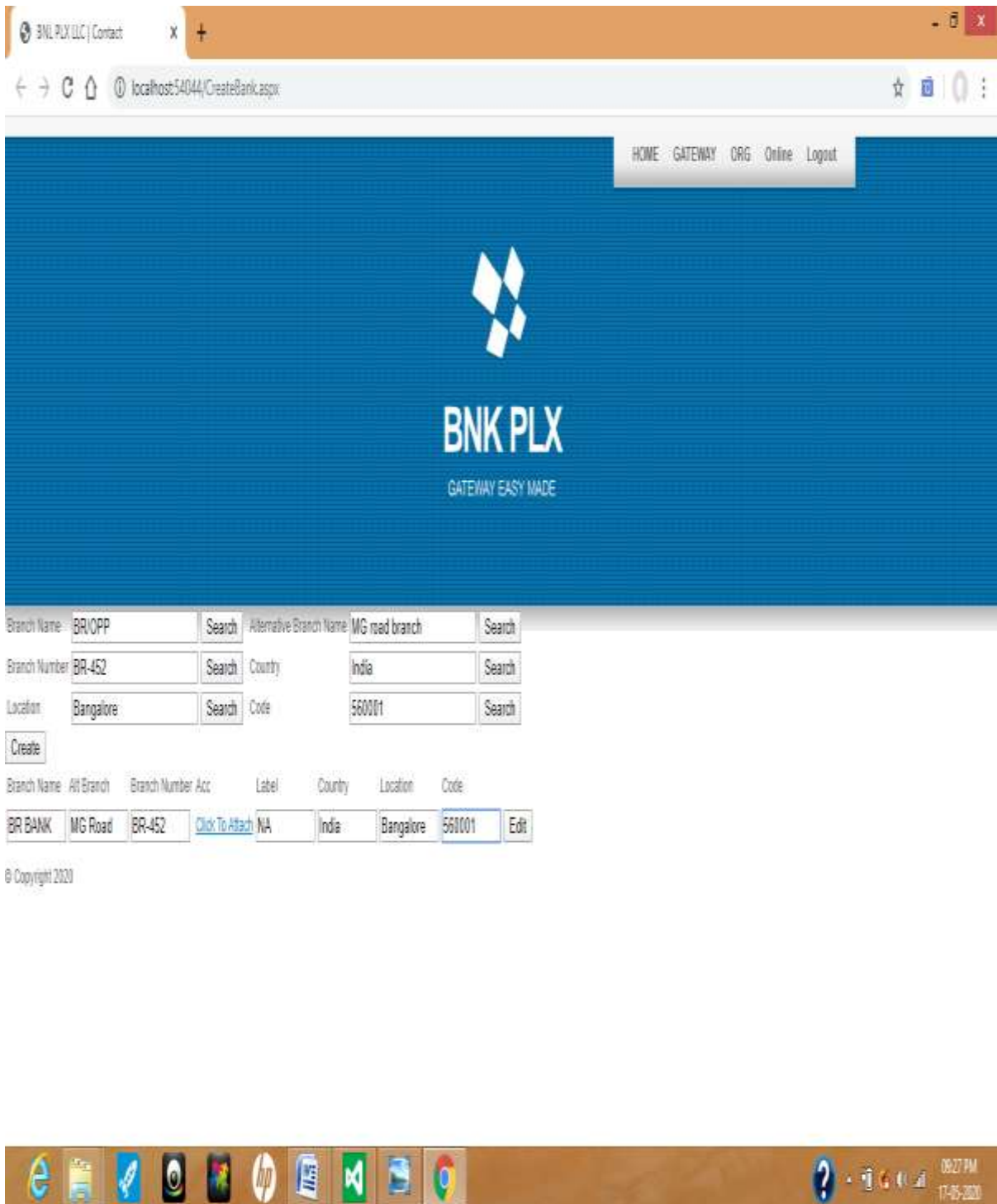


Fig 6.5: when user click the create button the details which is auto varied by the BNKPLX will be loaded in the text box.

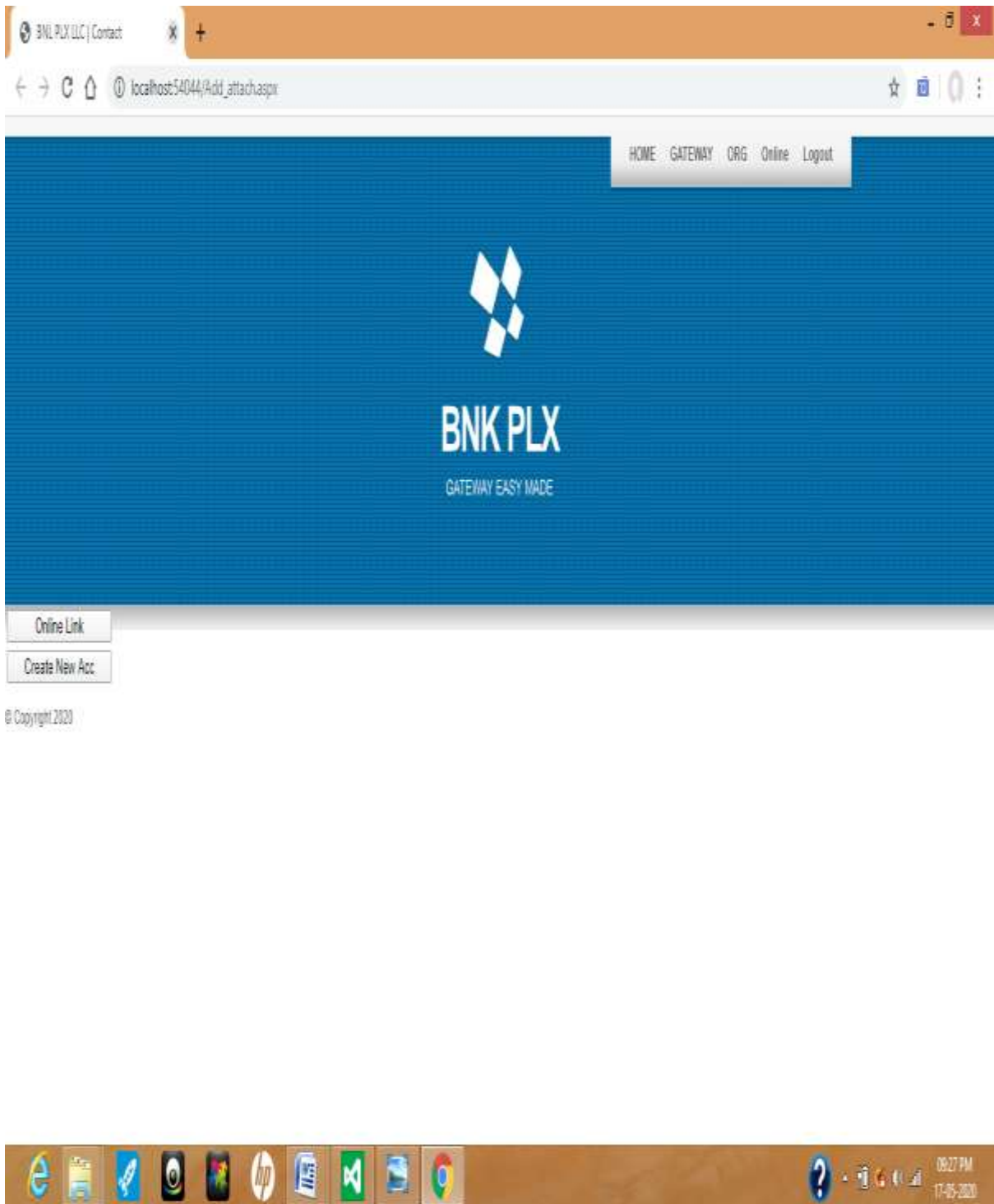


Fig 6.6: the web form to link the E commerce details with BNKPLX gateway.

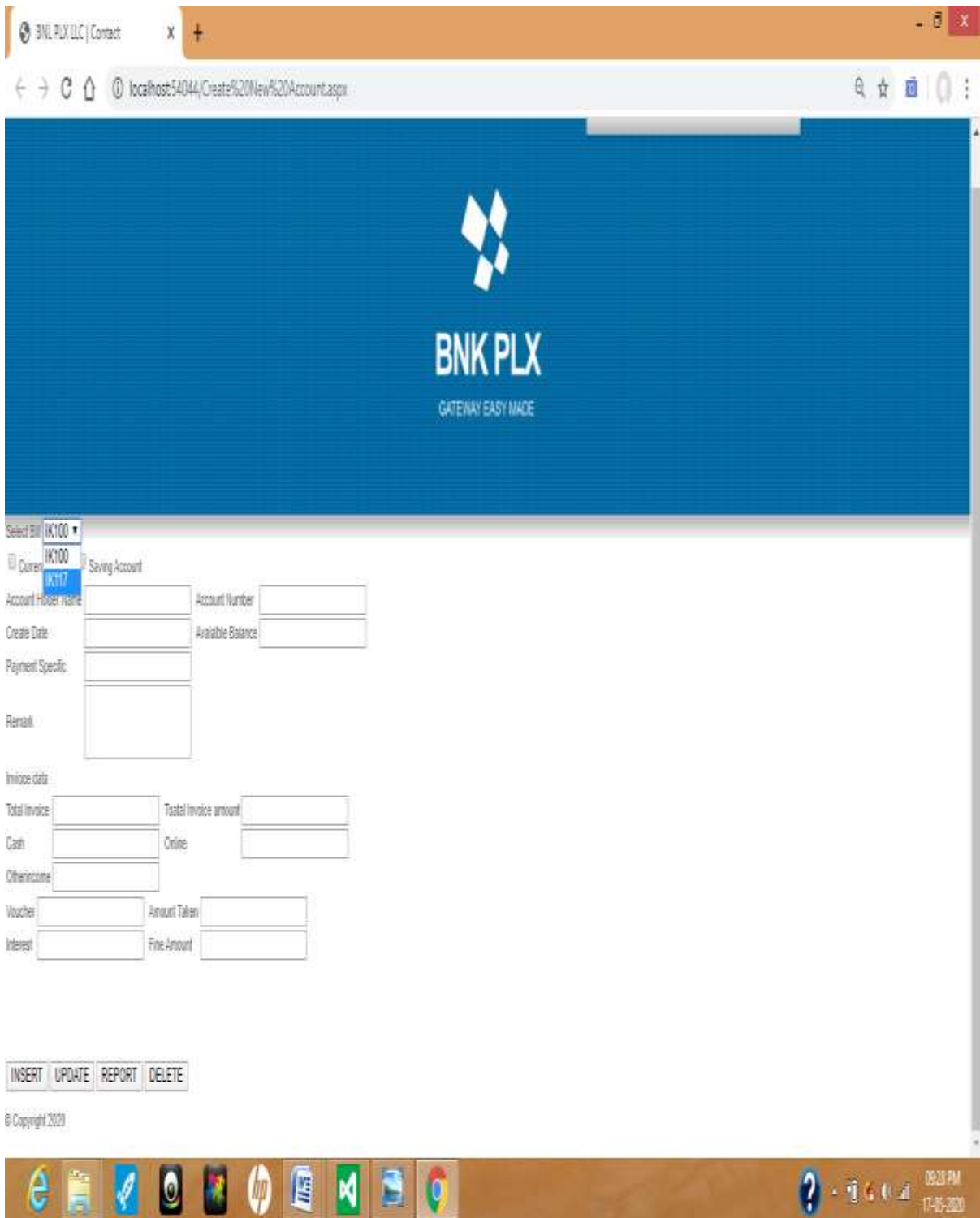


Fig 6.7: When a new transaction is created and customer relationship management query comes the billing details of the selected bill will be loaded in the combo box.

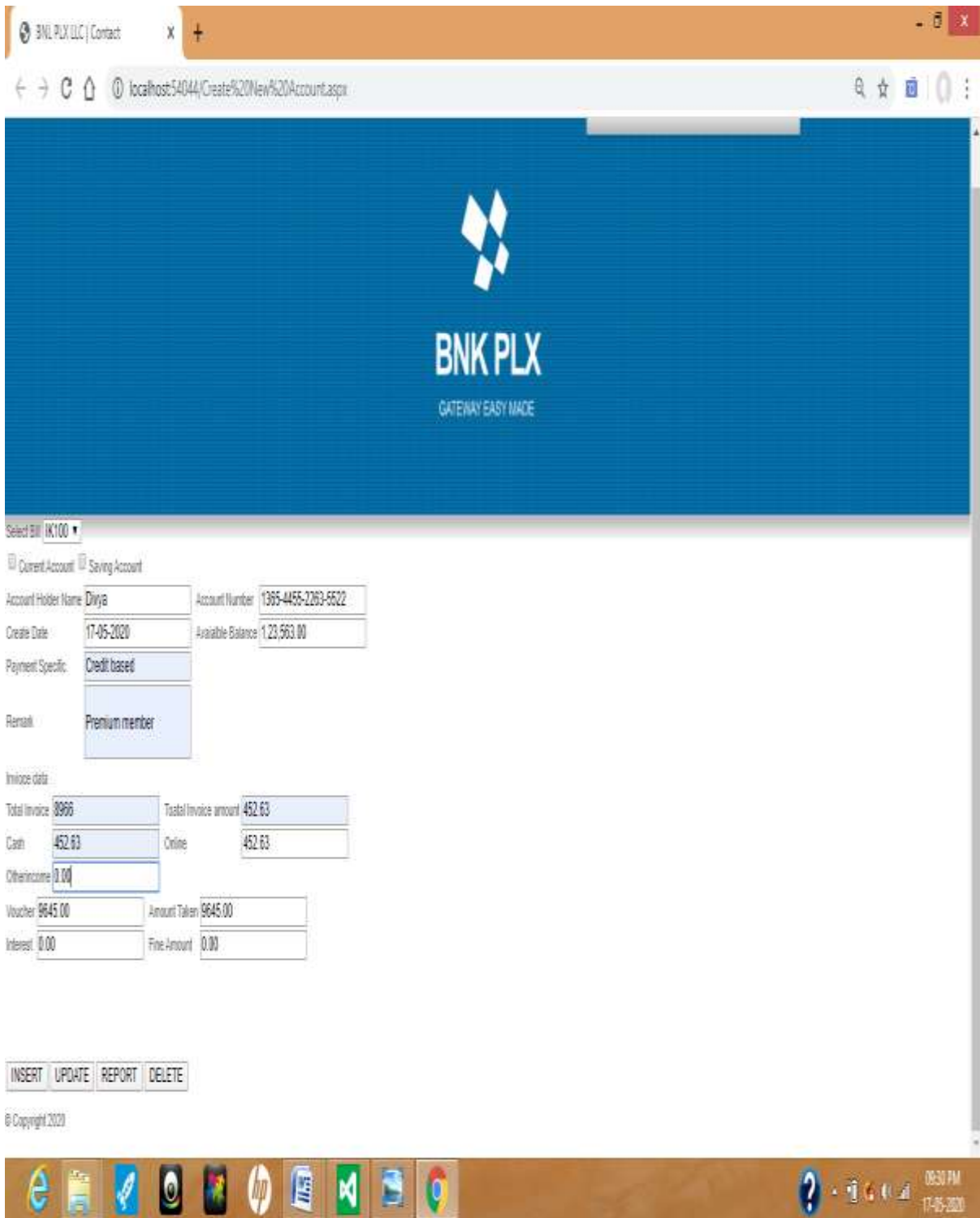


Fig 6.8: the detail of the transaction are loaded in the form.

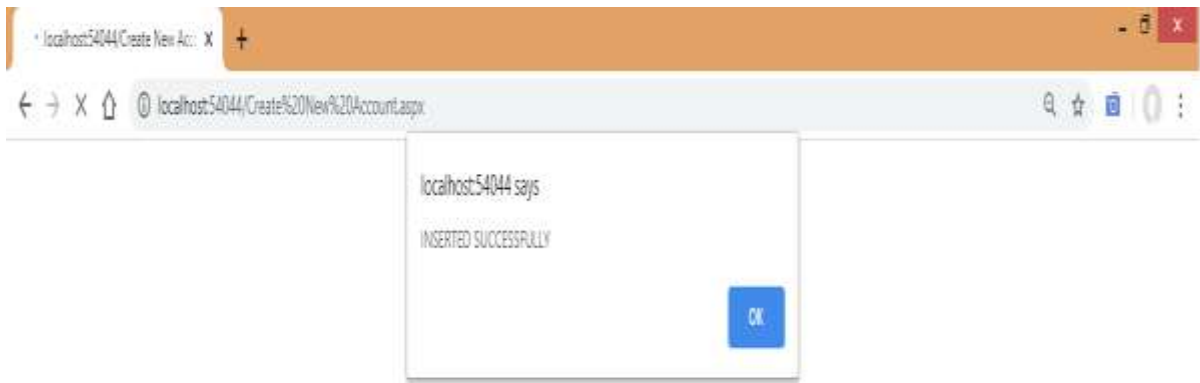


Fig 6.9: the details of the user with the E commerce billing detail inserted successfully.

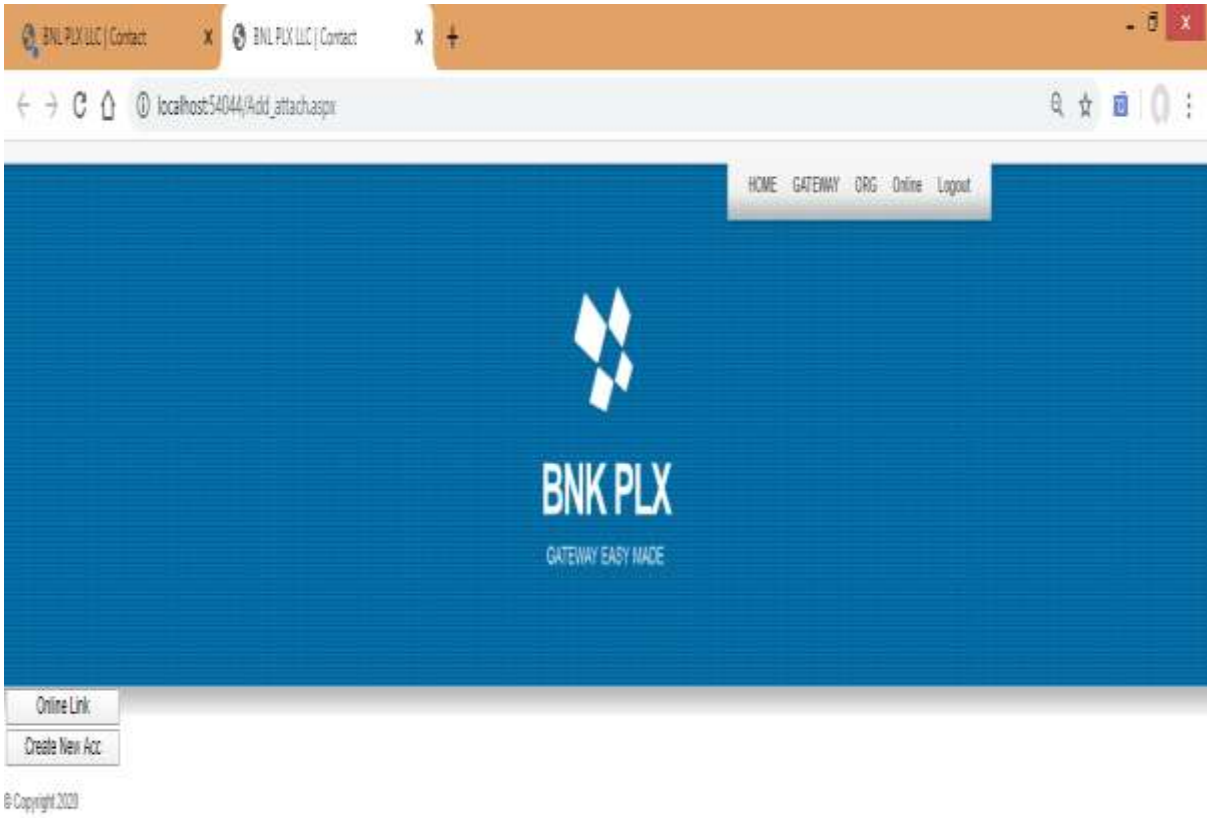


Fig 6.10: the details of CRM is needed to be transferred to the source bank to verify the banking transactions.

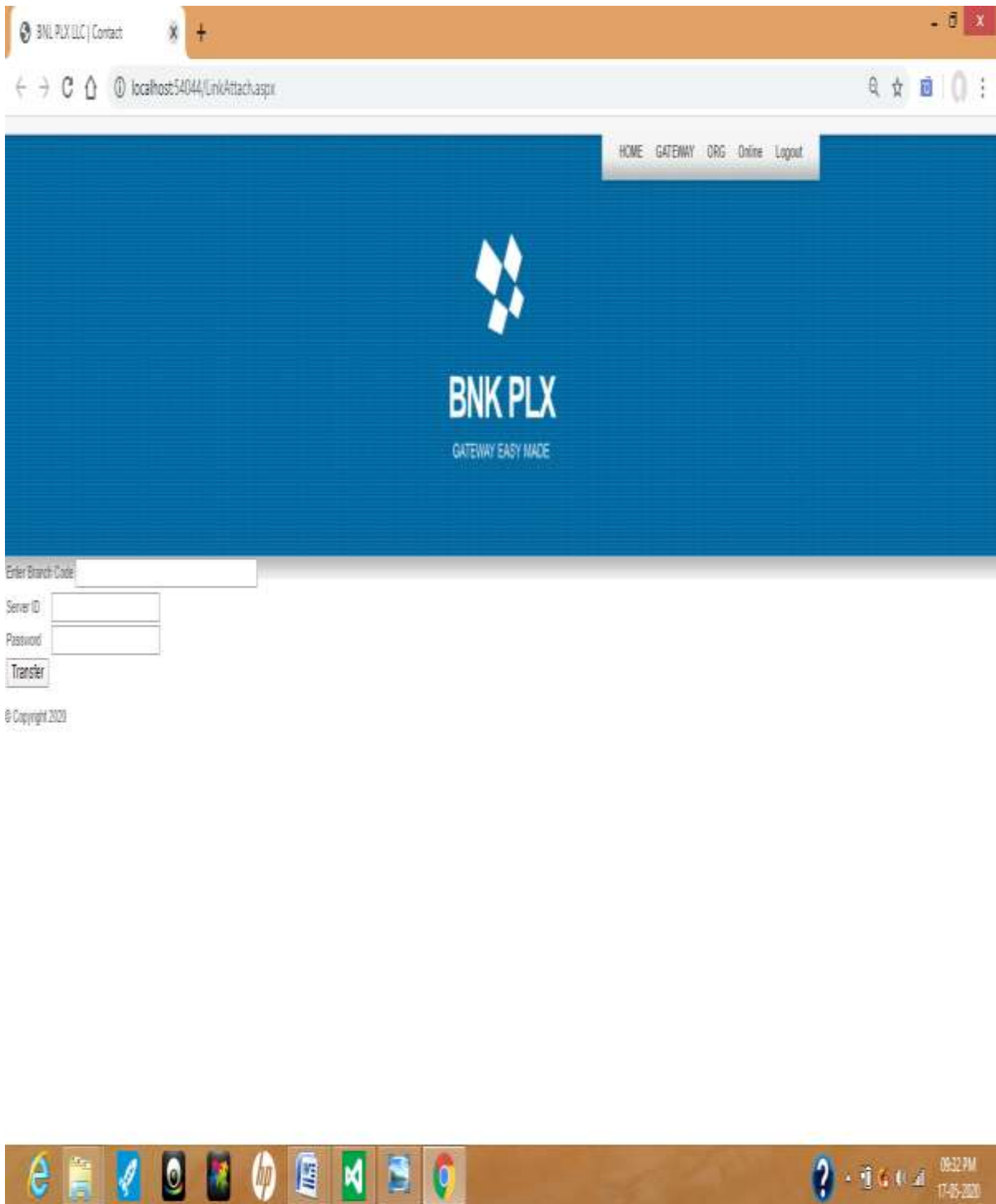


Fig 6.11: for accessing the remote banking server the clerk users needed to provide the security parameters where the text pattern technique will be used for connection.

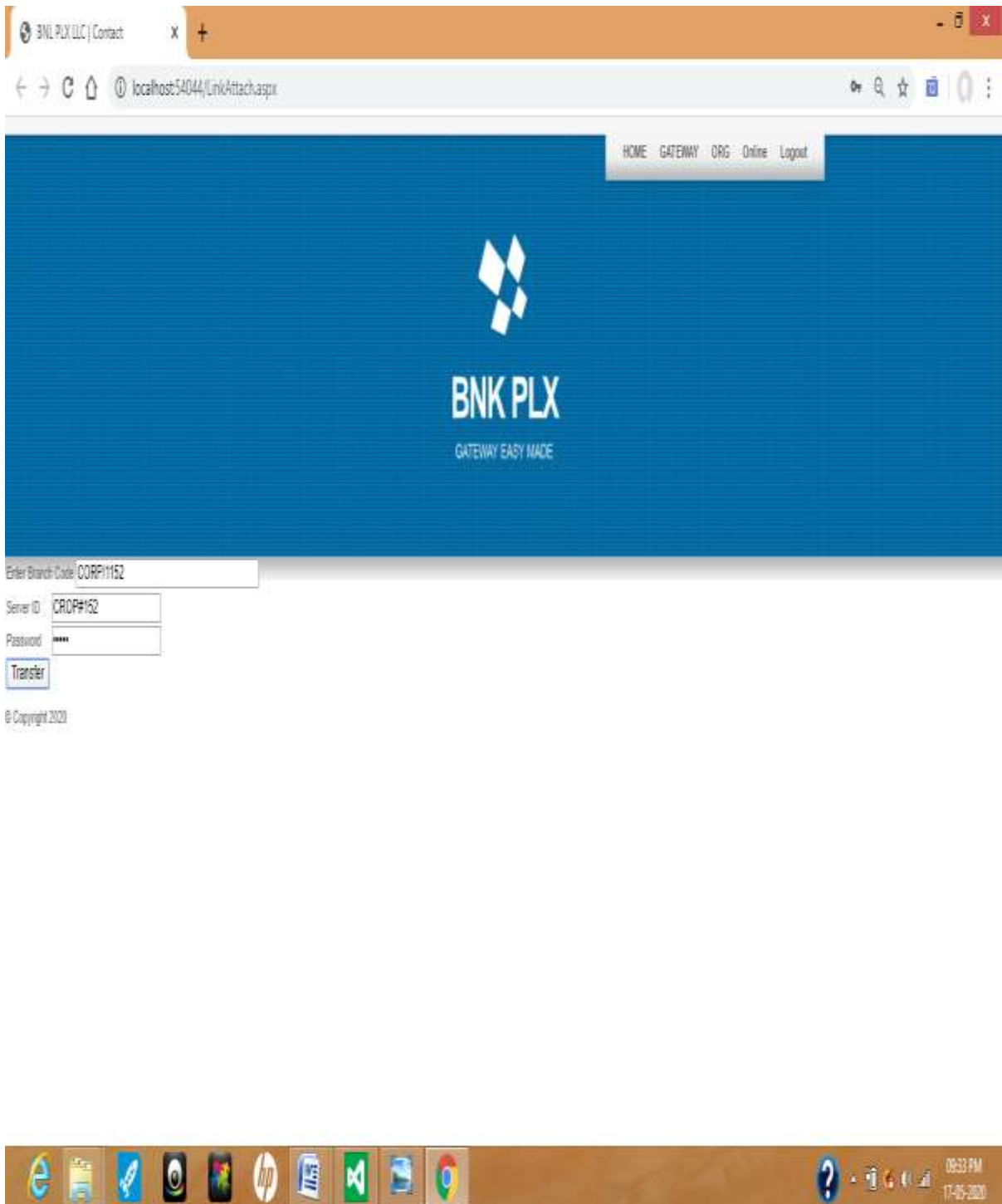


Fig 6.12: Enter the parameters needed for the text pattern conversion and if success the connection with remote source bank will be called.



Fig 6.13: the details of text pattern has transferred successfully

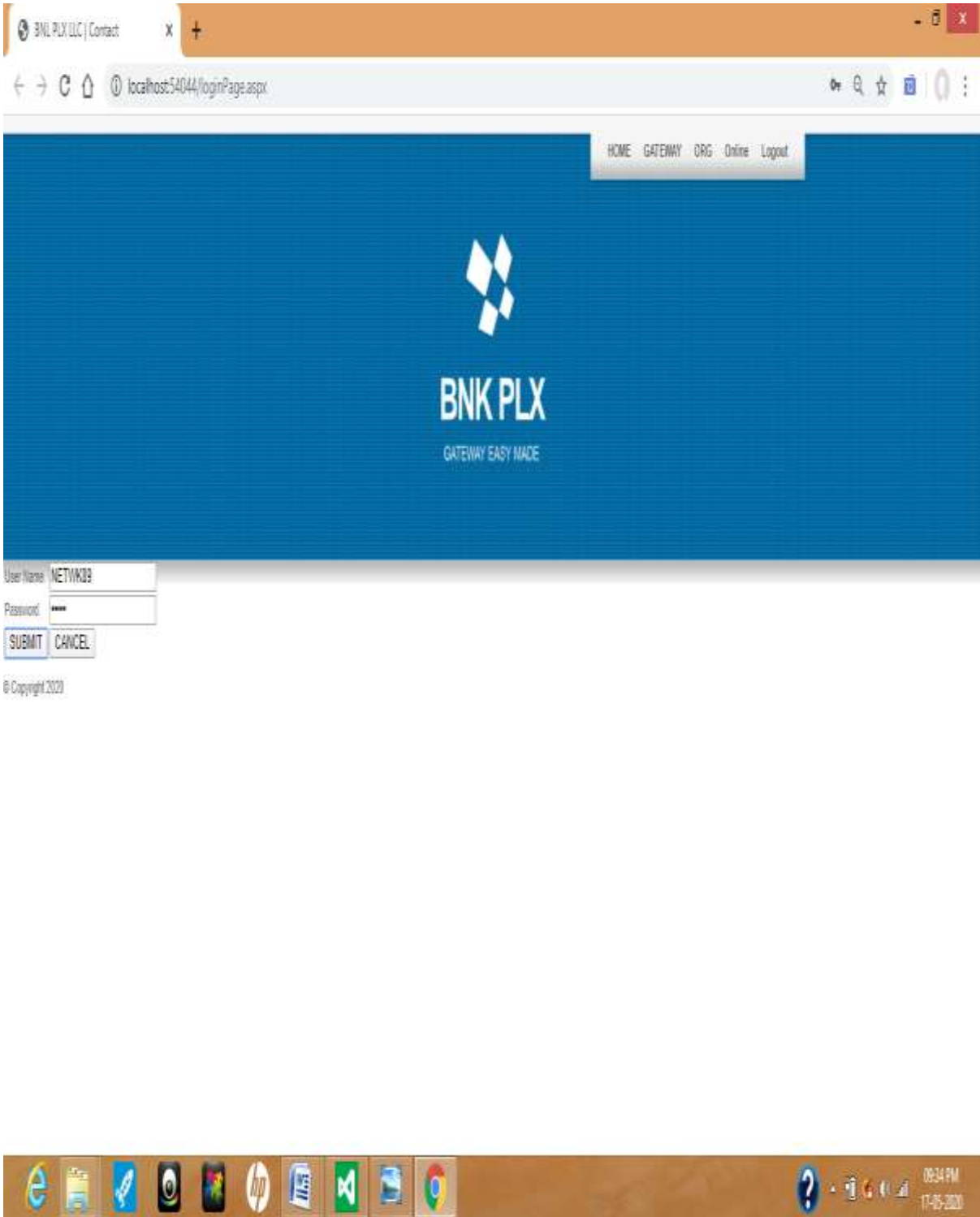


Fig 6.14: the Network user login

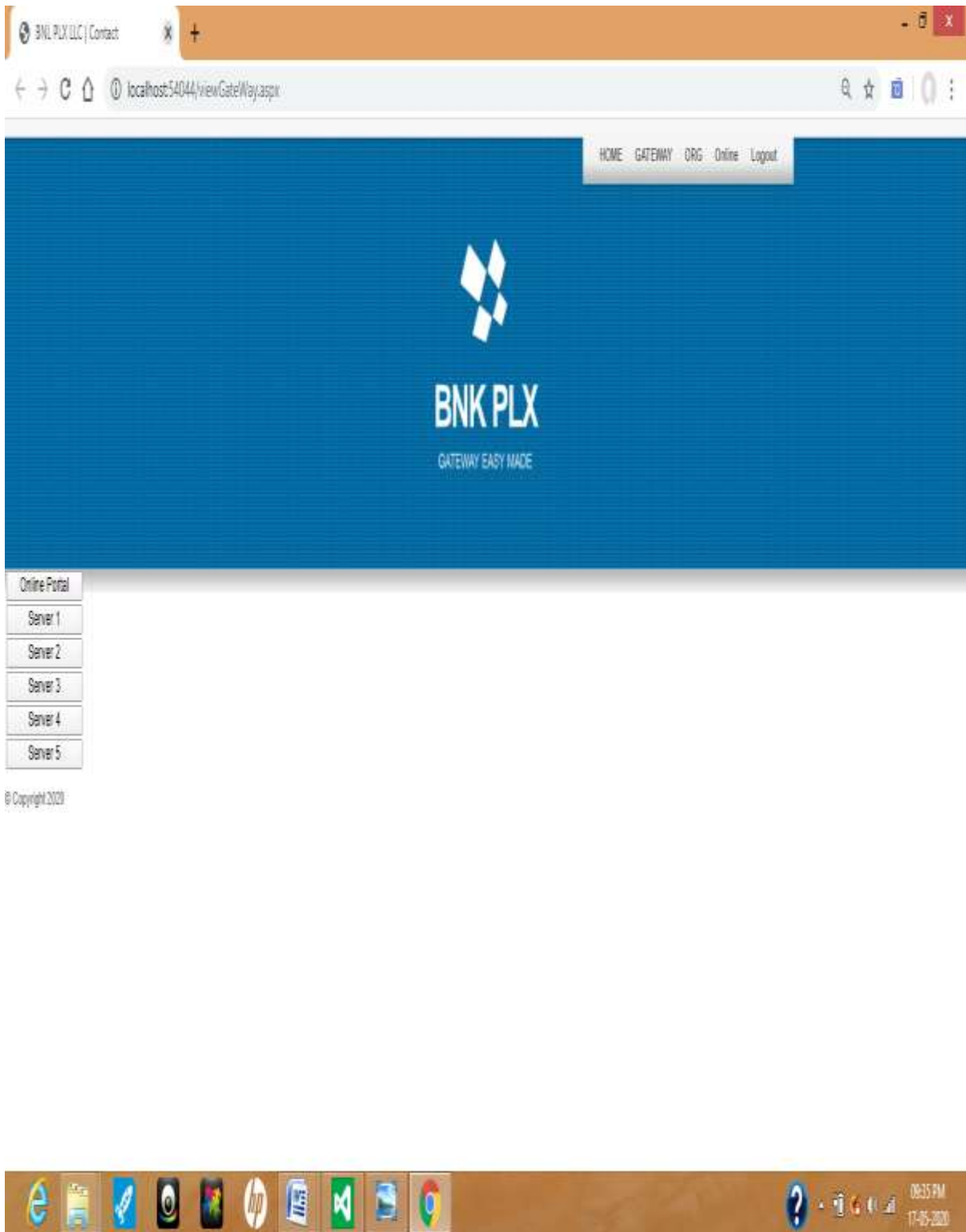


Fig 6.15: welcome page for the network users with list of server. The each server has the details related to Banking or E commerce or gateways are saved. Selecting which server is the choice left to the organisation where BNKPLX is implemented.

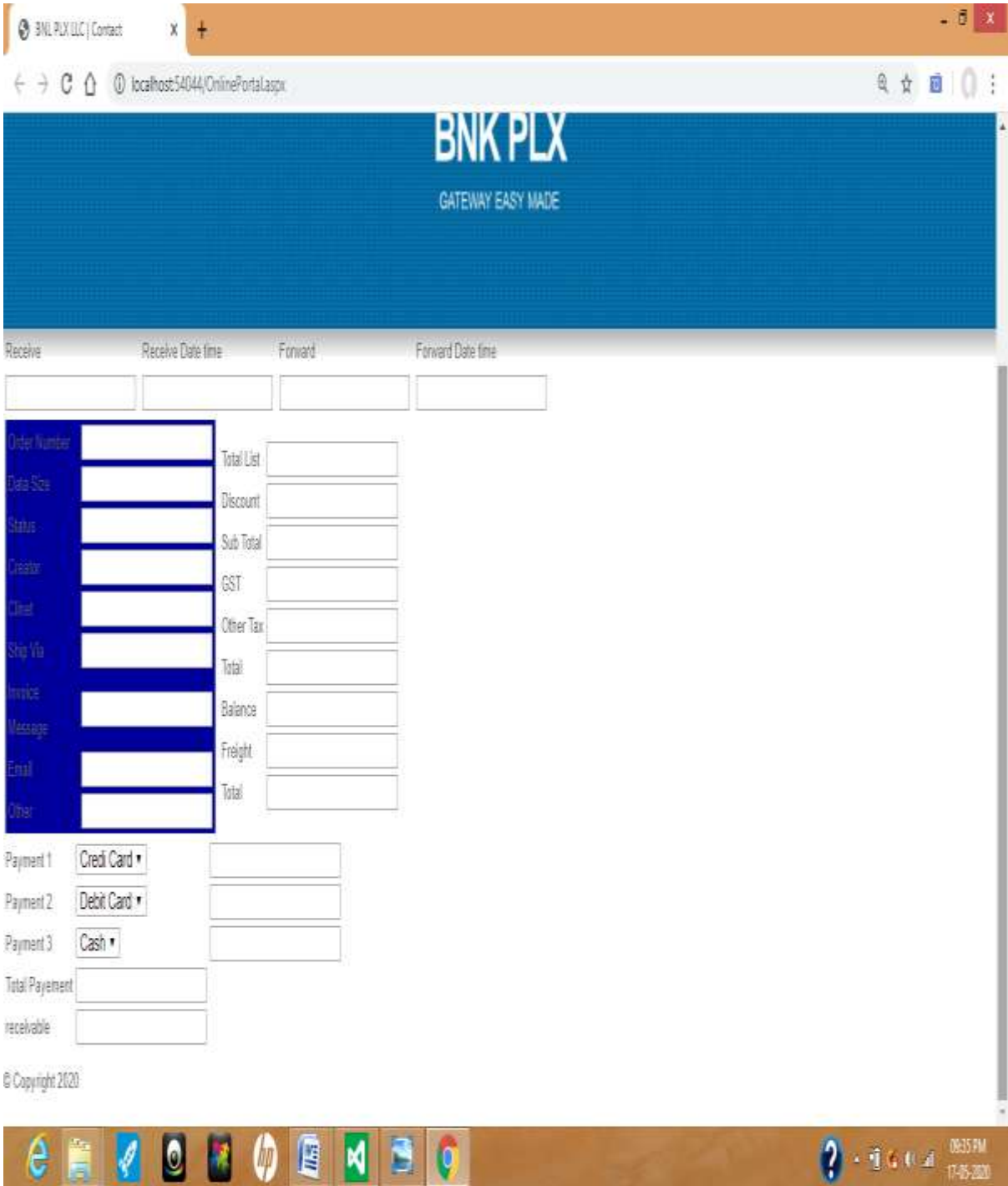


Fig 6.16: when the user click the server for the online portal this page will be loaded.

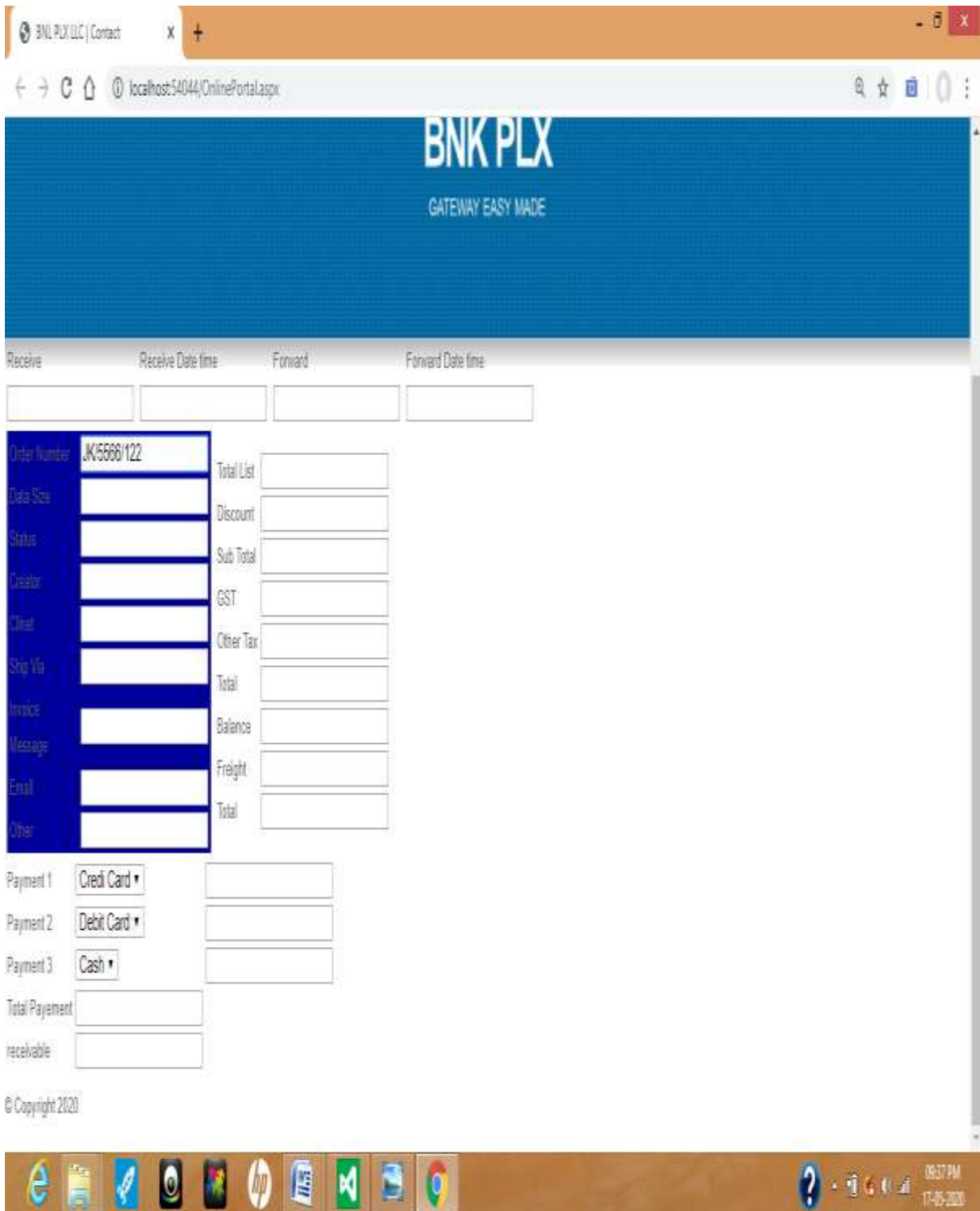


Fig 6.17: after the text pattern algorithm request send to the source bank and if permission for the server access is granted from the beneficiary bank the details of online transaction will be loaded. User enter the order number.

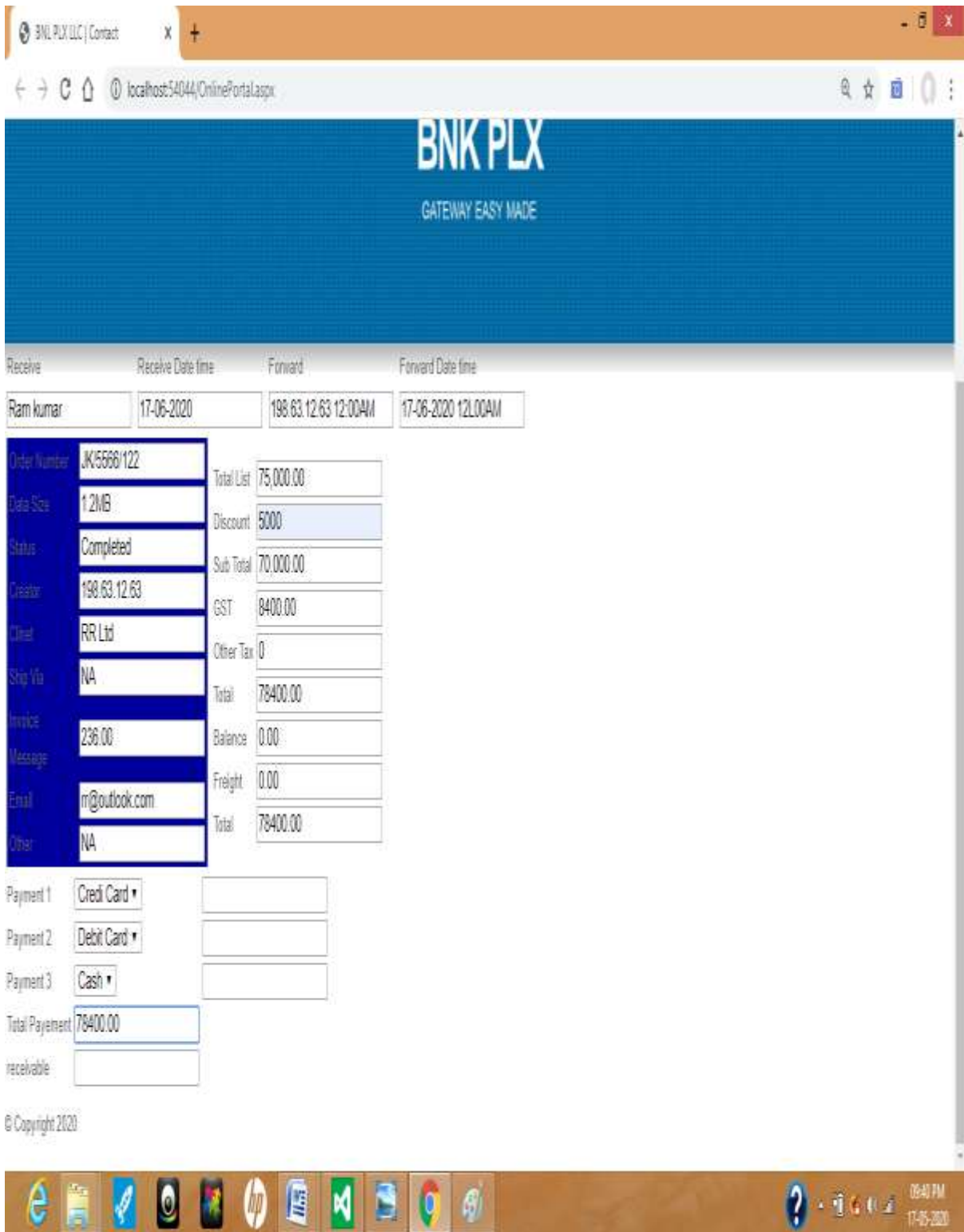


Fig 6.18: the details form the E commerce and the beneficiary bank is loaded. This details can be used for CRM activities and solve the customer complaint received for any banking issue

CHAPTER 7

SOFTWARE TESTING

7.1 TEST CASES:

7.2.1 Sign up/Sign in Test:

Test Case ID	Test Case Description	Purpose	Input	Output	Result
1.	Register	If new user client has to register	Successful	Successful	Pass
2.	Login	If already Registered	Successful	successful	Pass
3.	Login with user name and password	Check for the network connection before login	Credential should be network failure	Unsuccessful	Pass
4.	Login with user name	If login fails	Wrong user name	Unsuccessful	Pass
5.	Login with password	If password is wrong	Wrong password	Unsuccessful	Pass
6.	Registered data for login	Login successful after recorded page	Successful	Successful	Pass
7.	Logout	Sign out of the page	Successful	Successful	Pass

7.2.2 Profile Test

Test Case ID	Test Case Description	Purpose	Input	Output	Result
1.	Update	User should update the profile with name/address/ Contact number.	Update Successful	Successful	Pass
2.	Edit	User can change their profile information and update	Edited Successful	Successful	Pass
3.	Delete	User can delete his profile if he no longer wants to use	Deleted Successful	Successful	Pass

7.2.3 Configuration Test

Test Case ID	Test Case Description	Purpose	Input	Output	Result
1.	Account Configuration	Account linked with social apps for conformation	Confirmed is Successful	Successful	Pass
2.	URL	For tracking details	URL is confirmed	Successful	Pass
3.	Email Sending	Recorded for the tracking of the multiple user	Successful	Successful	Pass

CHAPTER 8

CONCLUSION

The new idea of converting the bank gateway operation for more user friendly and with more E commerce operational controls are created by BNKPLX. This common portal for the E business can be used for the small scale business to promote their brands and products. The idea of gateway with GUI for the E commerce is not invented by BNKPLX and existing gateway application will also have the feature. But a gateway with more feature and forms are included by the BNKPLX application.

Limitation

Banking and E commerce portal must use BNKPLX for the integrated CRM activity , if the online portal is not supporting the BNKPLX then data access will be limited to their own sever access.

Text pattern algorithm must be coded in the both source and beneficiary bank for the access. If any of the bank do not support the feature algorithm for text pattern is not included and use other algorithm formats.

CHAPTER 9

FUTURE ENHANCEMENT

This revising the application of gateway for the banking transaction like cheque processing the ATM based transactions are included in the future enhancements. This features will be added in the BNKPLX 2.0 version and details of existing e commerce, the gateway can be connected with BNKPLX operations too.

Most of organization are still use cheque for the large amounting transactions. These organisation cannot proceed with QR scanning payment or Google pay for the transactions. Because current account cannot be used open access since this can be misused. So the developers has decided to use the BNKPLX with cheque or DD based transaction in the future enhancement

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DATABASE

Database systems Models, Languages, Design and Application Programming, RamezElmasri, Shamkhant B.Navathe, 6th Edition.

Fundamentals of database systems, RamezElmasri, Shamkhant B.Navathe, 7th edition 2017, Pearson.

User Manual

Install the software

Install the software which is necessary to run the project, includes following

The server side installation

Visual studio for the integrating the development environment

1. 2015 ultimate version
2. Inbuilt SQL server 2014
3. Team Foundation server
4. TFS server for active server page running

Procedure of TFS activation

Go to control panel>program and features>turn windows feature “ON” Team foundation server to activate

Right click on the server manager>Add Roles>click next and>activate the check box web server TFS

Path Setting

Set the following path after the installation of visual studio software

MyComputer>Properties>Advanced>SystemSetting>EnvironmentVariables>System Variables

Next go to MYSQL developer and provide the connection

Connection >Right Click>New Database Connection

Username: Login001

Password: pass001

Hostname: Local host

SID: XE