GENBA SOPANRAO MOZE

ARTS COMMERCE & SCIENCE COLLEGE

191, Maharashtra Housing Board, Yerwada, Pune-6

Project Report On

"ELECTRICITY BILLING MANAGEMENT SYSTEM"

Developed by

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DEPARTMENT OF COMPUTER SCIENCE

Academic Year - 2018-2019

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Certificate

This is to certify that **Mr Manish Khullar and Mr Abrar Attar** have successfully presented their project entitled **"Electricity Billing Management System"** in the 6th semester of B.B.A. (C.A.) during the academic year 2018– 2019 Under guidance of HOD..

Hence certified.

Project Guide **Examiner**

Head of Department **Principal**

ACKNOWLEDGEMENT

It gives us great pleasure to get this opportunity and we sincerely thank all the people who had shown way to create a successful project and help us during the development of this project.

we want to thank our HOD sir Dr Dileep Baragade: project guide, and respective staff, parents, friends for the constant support and criticism

last but not least we would like to thanks the world wide web for its abundant resources

Thank You

MR. Abrar Attar

MR. Manish Khullar

ELECTRICITY

BILLING

MANAGEMENT

SYSTEM

ABSTRACT

Electricity billing Management System is a desktop system aimed at filing of bills of any geographical territory of regional area (Urban as well as Rural).

System takes unique ID no. from user as input and attempts to maintain the database while processing the elements of system for the desired output.

Electricity which is an essential utility in our day to day life also need to be maintained in terms of unit consumption per consumer and effectively calculate the resulting cost of the

INTRODUCTION

The purpose of this project is to provide learning curve using interactive Graphical User Interface. Our project Electricity Billing Management System includes:

- Login Screen
- Mode of User Selection.
- Database view
- Tabular Representation
- Insertion of Consumer Details
- Updating of Meter Details
- Updated Billing management

Login screen is accessible by a member User.

Only member is entitled to check their profit and loss and further details about stocks.

The stock can be progressively handled.

The interface is very user- friendly.

The data are well protected for personal use and makes the data processing very fast.

INDEX

Organization overview

Name of organization: Electricity Board

Type of organization: Center Government/Government aided

No of Permanent Staff: FOUR

Designation:

- Administrator(handles the accessibility of the users)
- Senior Manager(access to entire organization chain)
- Assistant Engineer(manages technical elements of organization)
- Cashier(manages and represents customer to organization relationship)

Description of System

ELECTRICITY BILLING MANAGEMENT SYSTEM has been developed to computerize the billing system of any electric provider where all dealing was done manually earlier. Now a day's computerization is spreading with great speed. Many organizations are being computerized and are surely enjoying the benefits of computerization.

Earlier one person was gone to collect the meter reading, then another one check the unit charge and another person calculate the total charge. These details are all stored in special records. Though al the most importance, tedious a care needed job is the bill calculation. Any one of mistakes may cause severe consequence. Computerization helps to overcome all these problems, by integrating the system that is the above said jobs can be done by a single person. That is one computer user ELECTRICITY BILLING MANAGEMENT SYSTEM helps to create accurate bills, with great speed. This includes the consumer details generation.

Limitation of Present System

A system can be regarded as a set of interacting elements, producing outputs from a set of inputs. Existing system is completely manual. There may be a lot of chance of clerical and procedural errors. Existing system has several disadvantages such as

1. Redundancy in stored data
2. Lack of security
3. Data is inconsistent
4. More time required
5. Waste storage space
6. Manpower required
7. Errors may occur
8. Regular watching and supervision is necessary

Propose System & It's advantages

The system avoids the difficulties of the existing system. The Advantages of proposed system are

1. Faster performance
2. Redundancy can be reduced
3. Time saving
4. Inconsistency can be avoided
5. Data Sharing
6. Security restrictions can be applied
7. Less storage space required
8. Debugging

Feasibility study

A feasibility study is a test of system proposal according to its workability, impact on the organization, ability to meet user need s and effective use of resources. The objective of a feasibility study is not to solve the problem but to acquire a sense of its scope. The result of feasibility study is simply a report. This report contains the nature and scope of the proposed solution the three aspects in feasibility study are technical feasibility, operational feasibility.

Project feasibility analysis is an activity that verifies whether a project can be started & successful completed. Activities to confirm project feasibility are as following:

1.Risk Management
2.Econmic Management
3.Organizational & Cultural feasibility
4.Tecnological feasibility
5.Schedual feasibility
5.Resource feasibility

1.Risk Management:-
Risk management concern with identifying the potential risk may occur while performing project will be successfully completed. In my project there are some problem with handling large amount of data produce but they can be surely fixed by taking guidance from well skilled person having enough knowledge of computing programing languages.

2.Econmic Management:-
It consist of**:-**
1.Is the anticipated value of the benefit greater than project cost of development?
-Yes. Absolutely value of the benefit is greater than project cost of development.
2.Does the organization have adequate cash flow to fund your project during the development period?
-Yes the organization has adequate cash flow to fund your project during the development period.

3.Organizational & Cultural feasibility:-

Each Organization has its own cultural

1.The organization is working under well-known organization so it is competent for standalone application.

2.No member of organization will come across any loss.

4.Tecnological feasibility:-

The developing project may produce challenges to the organization due to the organization due for lack of knowledge .if the project needs expertise from outside location to maintain software the problems may occur regarding money.

-Organization have computer enough with ideal configuration

5.Schedual feasibility:-

The deadline for the system implementation is oct 2018.

The phase as scheduled as preliminary investigation, requirement analysis, designing and project pass schedule feasibility.

6.Resource feasibility:-

The resource like computer, physical facilities are available. Hence project passes resource feasibility.as the project has passed all the feasibility test, the project is available.

Stakeholder

In our project stakeholder are persons that are related to the project and are concerned with successful implementation of it.

They are :-

- Administrator (handles the accessibility of the users)
- Senior Manager (access to entire organization chain)
- Assistant Engineer (manages technical elements of organization)
- Cashier (manages and represents customer to organization relationship)
- Consumer (consumer collect the bill)

Technology used

SOFTWARE:-

Front end: Java JDK,jvm

Back end: MYSQL

HARDWARE:-

Processor: x32 Bit or x64 Bit architecture

Hard disk:- Minimum 10 Gib available free space

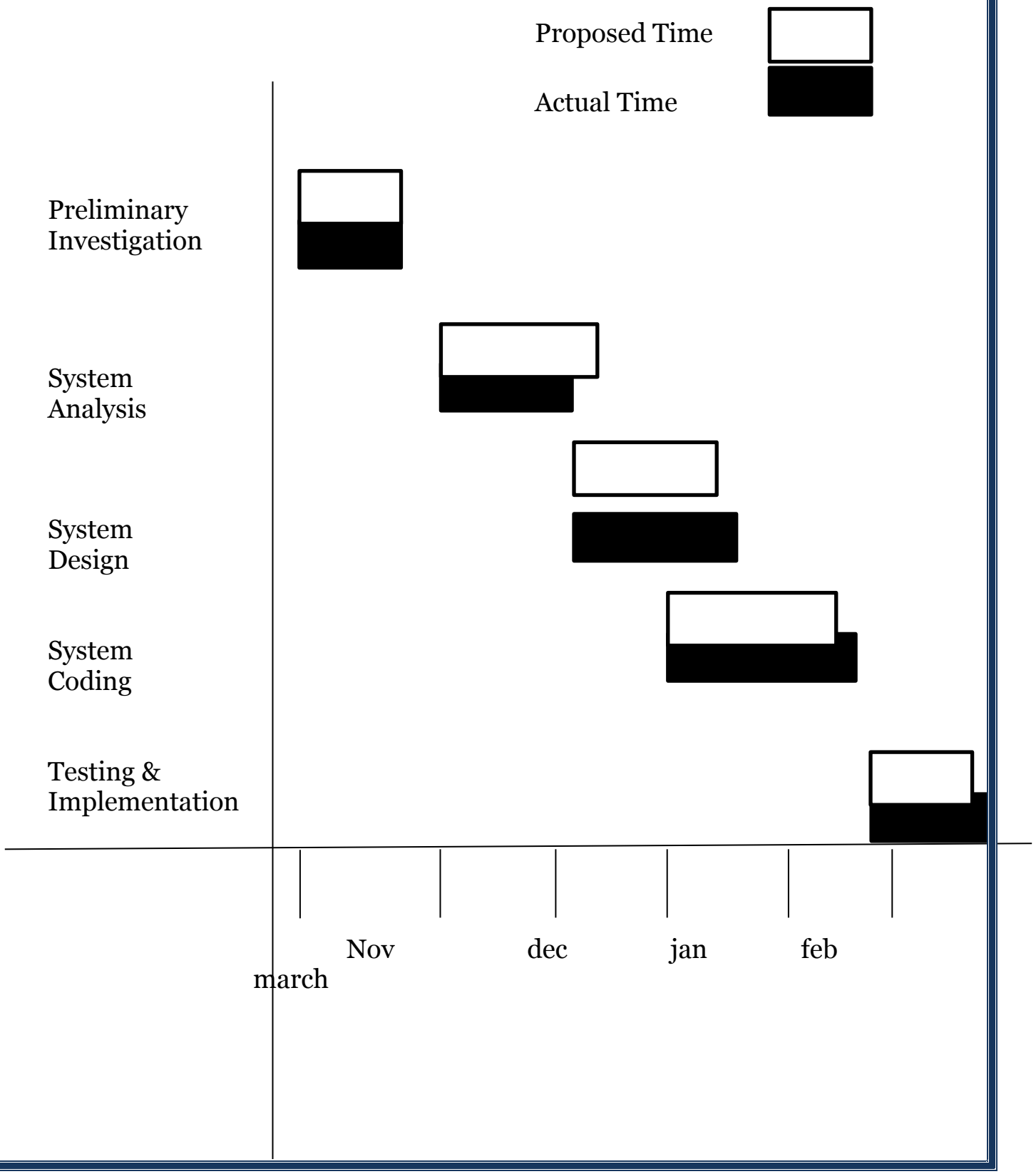
(SATA/PATA/SSD)

RAM:- 2 GB or more

Monitor:- 1360 x 768 pix

Gantt Chart

This chart display the expected date & originally completed date i.e actual completion of our project.



Fact Finding Techniques

Information gathering in large & complex organization is not an easy task. It has to be gathered in an organized way to that:

- No system details are left out
- Right problems are identified
- Repeated work is avoided
- Wrong & incomplete details are not collected

for this purpose fact finding techniques are commonly used, they are:

- Interviewing
- Questionnaires
- Record viewing
- Observation

Interviewing:-

Interview is a method, which is used to direct, interact with user. Interview is a method ,which is used to extract information from the user in a face to face manner. This is the best way to interact with the user. Interviews are successful to gather information ,suggestion and underlined problem.

Questionnaires:-

In this method we actually provide a list of question to the user answer questions, taking his own time without stress to answer quickly. In this method the result obtained are rather accurate and thoughtfully given. Questionnaires can be effective method for gathering facts.

- Why this system required?
- What are transaction?
- What about the result?
- How they keep records about system?
- How they do transaction?
- How many streams involved in proposed system?

Observation:-

Here on the basis of simple observation of the system, many things are considered and implemented to use in the system.

- There is no any database maintain in computer which keeps stored records
- Also devotes cannot give feedback experience of trust's facilities

Use case diagram

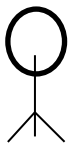
Use case describes the behavior of a system from a user's standpoint by using actions & reactions. They allow The definition of the system's boundary & the Relationships between the system & the environment.

Use cases associated with object-oriented techniques provide a complete approach for the whole project lifecycle, from specification to implementation. A use case corresponds to as specific king of a system use.it is an image of a system's functionally ,which is triggered in response to the simulation of an external actor.

How to draw tse case diagram-

1) Identify actors of the system.
2) After identifying the role of the actors next developed the list of flow of activities as the starting point for identifying various scenarios.

Symbols used for use case diagram-

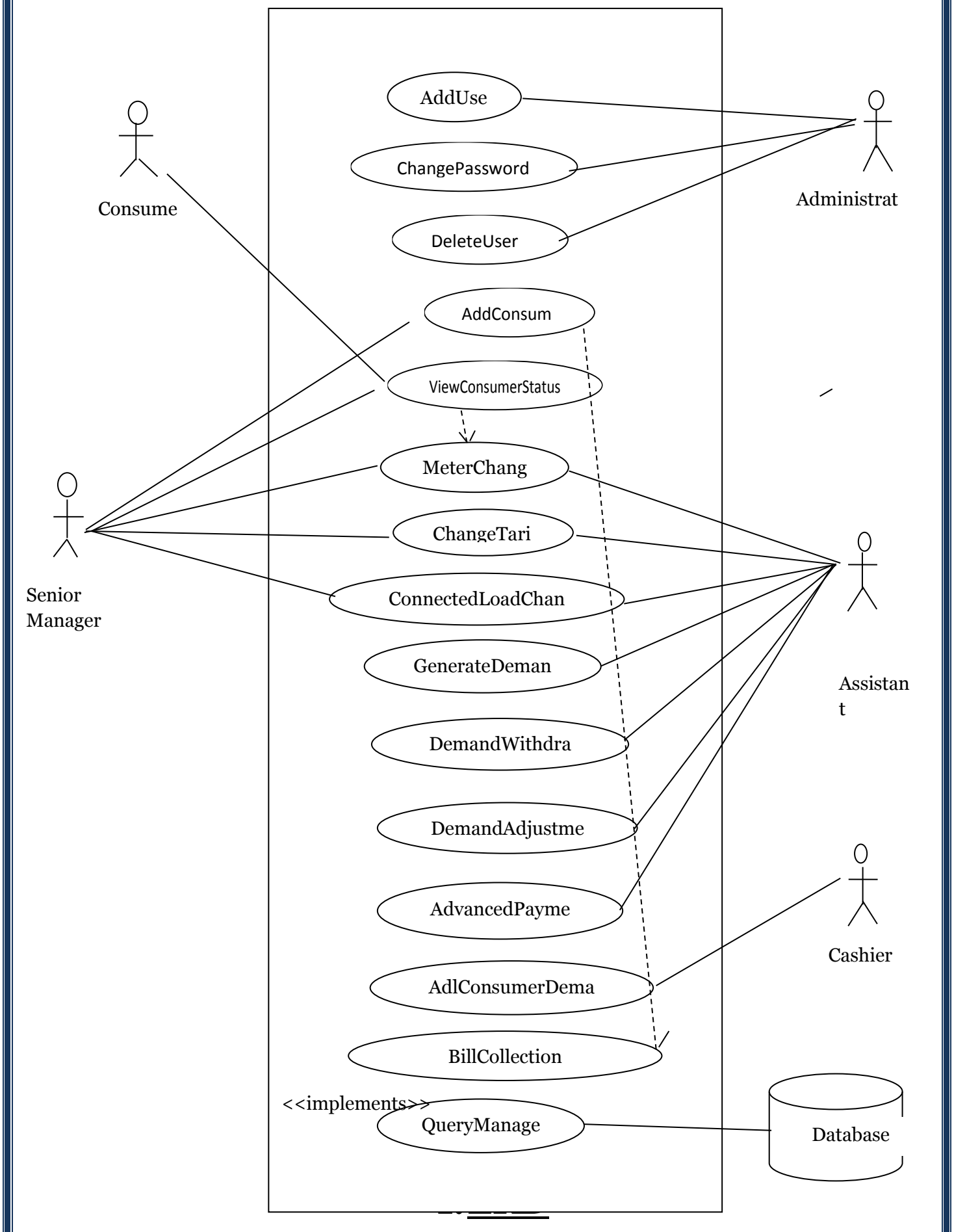


-Stick Person

-Use Case

-Connection Line

-Automation Boundary


AddUse
ChangePassword
DeleteUser
Consume
Administrat
AddConsum
ViewConsumerStatus
MeterChang
ChangeTari
ConnectedLoadChan
GenerateDeman
DemandWithdra
DemandAdjustme
AdvancedPayme
AdlConsumerDema
BillCollection
<<implements>>
QueryManage
Senior
Manager
Assistan
t
Cashier
Database

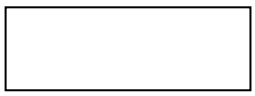
ENTITY RELATIONSHIP DIAGRAM

The traditional approach places a great deal of emphasis on data storage requirements for the new system. the model used to define the data storage requirements is called the entity relationship diagram(ERD)

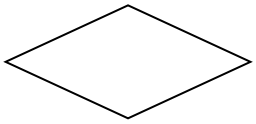
-Rectangles represent the data entities.

-Lines connecting the rectangles show relationship among the data entities

Symbols used to draw

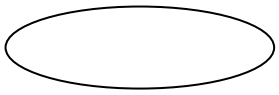


-Entity

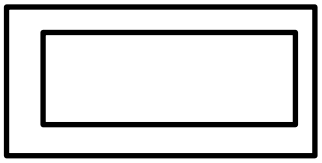


-Relationship

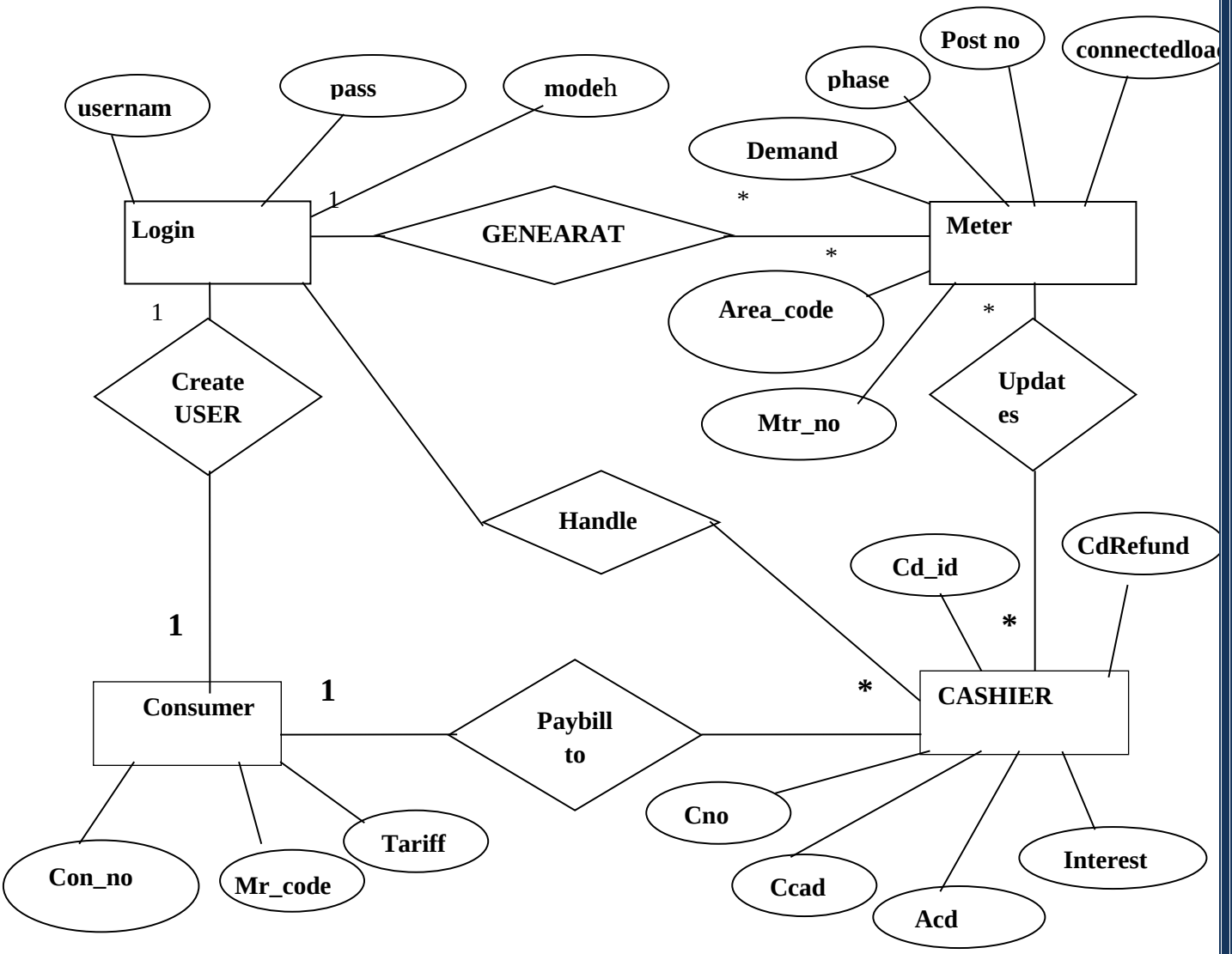
-connection Linbe



-Attribute



- Weak Entity


usernam
pass
modeh
Login
1
GENEARAT
Demand
*
Post no
phase
connectedloa
Meter
*
Area_code
Mtr_no
*
Updat
es
1
Create
USER
Handle
CdRefund
Cd_id
*
1
Consumer
1
Paybill
to
*
CASHIER
Cno
Ccad
Acd
Interest
Tariff
Con_no
Mr_code

Activity Diagram

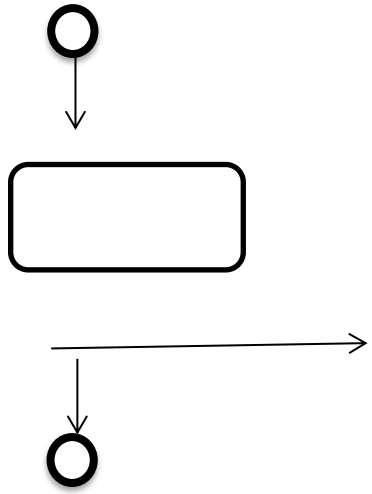
An activity diagram is a variant of state chart diagram organized according to actions , and mainly targeted towards representing the internal behavior of a method or a use case.

An activity is represented by rounded rectangle.

How to develop activity diagram:

1) Identify swim length.
2) Identify input message.
3) Describe message from external actor to system using message notation.
4) Identify and add any special condition on the input messages including iteration and true or false condition.
5) Identify and add the output return messages.

Symbols used to draw Activity diagram-

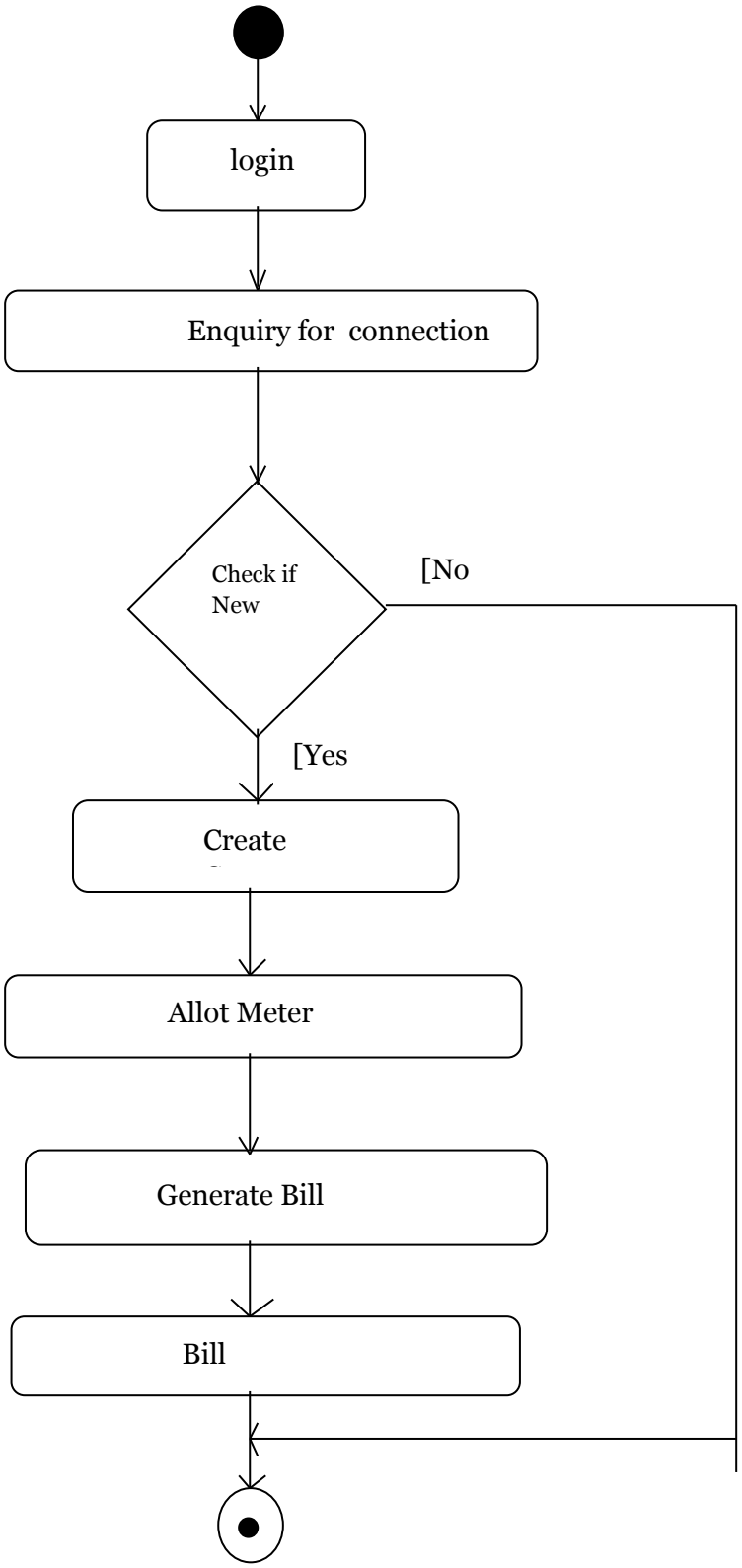


-start

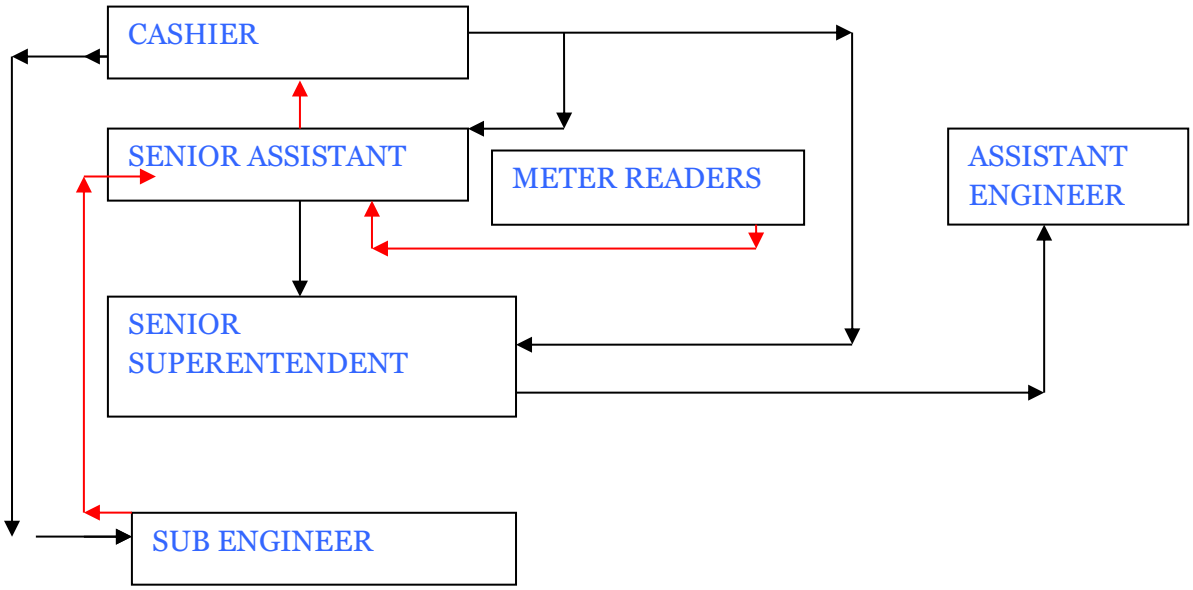
-Activity

-Connection line

-End


login
Enquiry for connection
Check if New
[No
[Yes
Create
Allot Meter
Generate Bill
Bill

Class Diagram



Demand flow

Collection statements and cash flow statements

Sequence/Collaboration Diagram

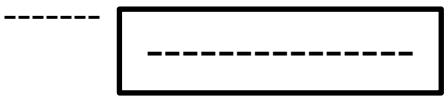
Sequence diagram document the information flows within a single use case or a single scenario. Sequence diagram show the sequence of the interaction between object that occurs during the flows of event of single scenario or use case.

Symbols used to draw Sequence diagram

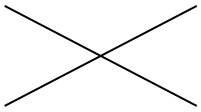
-Object

-Life line

-Message passing

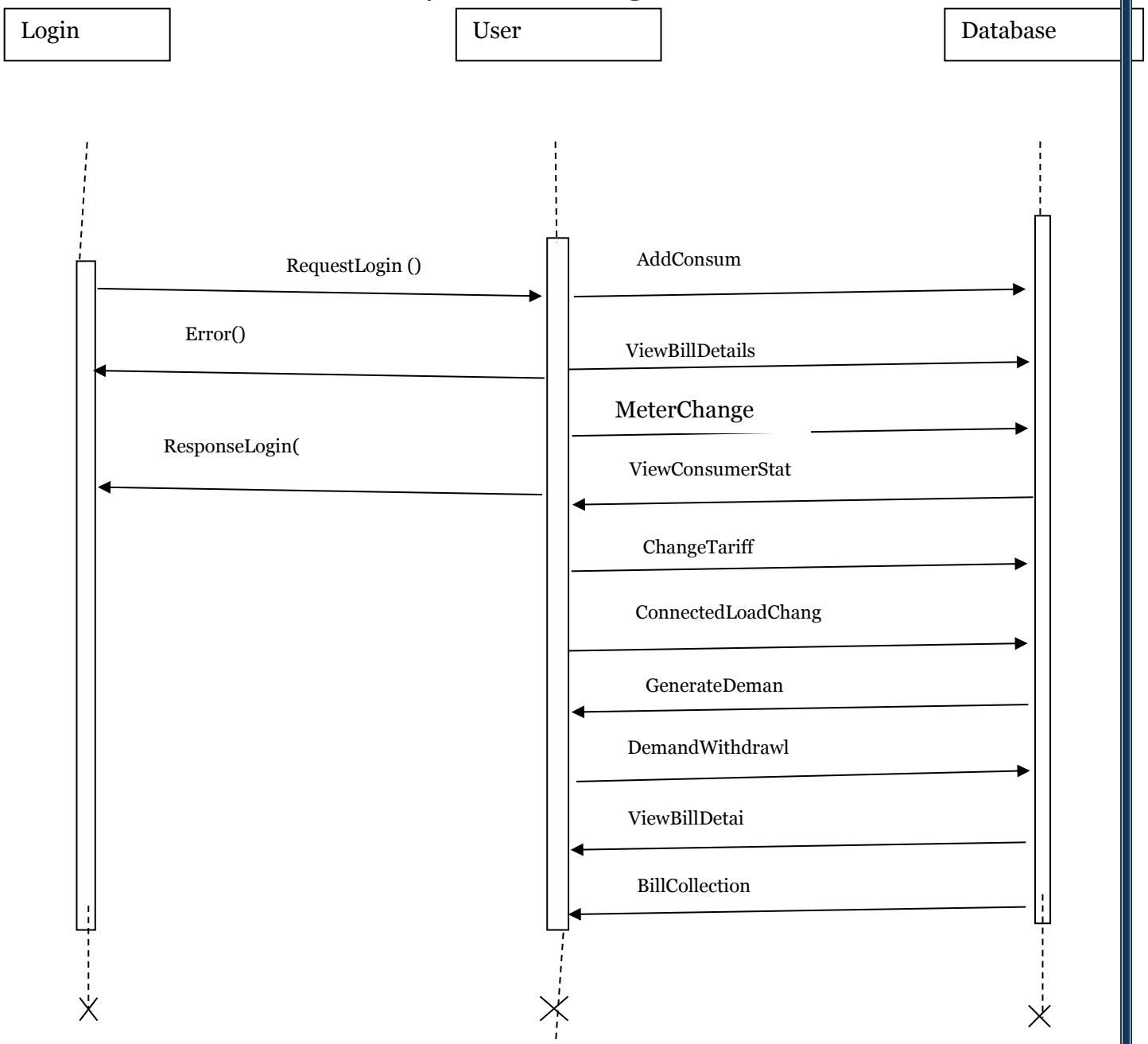


-Active Life-line



-close

Sequence Diagram:



4. Converting ERD to tables

DEMAND

SL NO	FIELD NAME	TYPE	WIDTH
1	Areacode	varchar	20
2	Mrcode	varchar	20
3	Conno	varchar	20
4	previousreading	numeric	
5	presentreading	numeric	
6	unitconsumed	numeric	
7	Demanded	varchar	20
8	Fixedcharge	numeric	
9	energycharge	numeric	
10	Duty	numeric	
11	Mtrrent	numeric	
12	Reconfee	numeric	
13	Demand	varchar	20
14	Subsidy	numeric	
15	Advancepaid	numeric	
16	previousarrears	numeric	
17	Total	numeric	

18	Intrestoncd	numeric	
19	Netamt	numeric	
20	Bd	varchar	
21	Dd	varchar	
22	Disd	varchar	

ACD COLLECTION

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	varchar	20
2	Acdcollected	varchar	20

CD

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Cdid	Varchar	20
3	Cdneeded	Numeric	
4	Cdavilable	Numeric	
5	Acd	Numeric	
6	Intrestoncd	Numeric	

ADV PAYMENT

SL NO	FIELD NAME	TYPE	WIDTH
1	Areacode	Varchar	20

2	mtr code	Varchar	20
3	Conno	Varchar	20
4	Period	Numeric	
5	expected cc	Numeric	
6	expected mr	Numeric	
7	Rebate	Numeric	
8	Total	Numeric	

CDADJ

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Cdid	Varchar	20
3	Cdadjcc	numeric	
4	Cdrefund	numeric	

CH TARIFF

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Areacode	Varchar	20
3	tariff id	Varchar	20
4	old tariff	Varchar	20
5	Newtariff	Varchar	20
6	Finalrdng	numeric	200

7	Chdate	Varchar	20
8	Note	Varchar	20

CONSUMER

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Areacode	Varchar	20
3	Mrcode	Varchar	20
4	Tariff	Varchar	20
5	Phase	Varchar	20
6	Posetno	Varchar	20
7	Connectedload	Varchar	20
8	Conname	Varchar	20
9	Address	Varchar	20

10	Connectiondate	Varchar	20
11	Tariffid	Varchar	20

DMD

ADJ

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Dmdid	Varchar	21
3	nameof office	Varchar	22
4	Dmdadjted	numeric	

DMD WDR

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Dmdid	Varchar	21
3	Totdmd	Varchar	22
3	Withdrawals	Varchar	23

LOGIN

SL NO	FIELD NAME	TYPE	WIDTH
1	Username	Varchar	20
2	Password	Varchar	20
3	Mode	Varchar	20

MTRCH

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	varchar	20
2	Prmtrno	varchar	20
3	Fr	numeric	
4	Newmtrno	varchar	20
5	Nodigits	varchar	20
6	Initreading	numeric	
7	Dch	varchar	20
8	Mch	varchar	20
9	Ych	varchar	20

MTRDETAILS

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Meterno	Varchar	20
3	Noofdigits	Varchar	20
4	Initialreading	numeric	

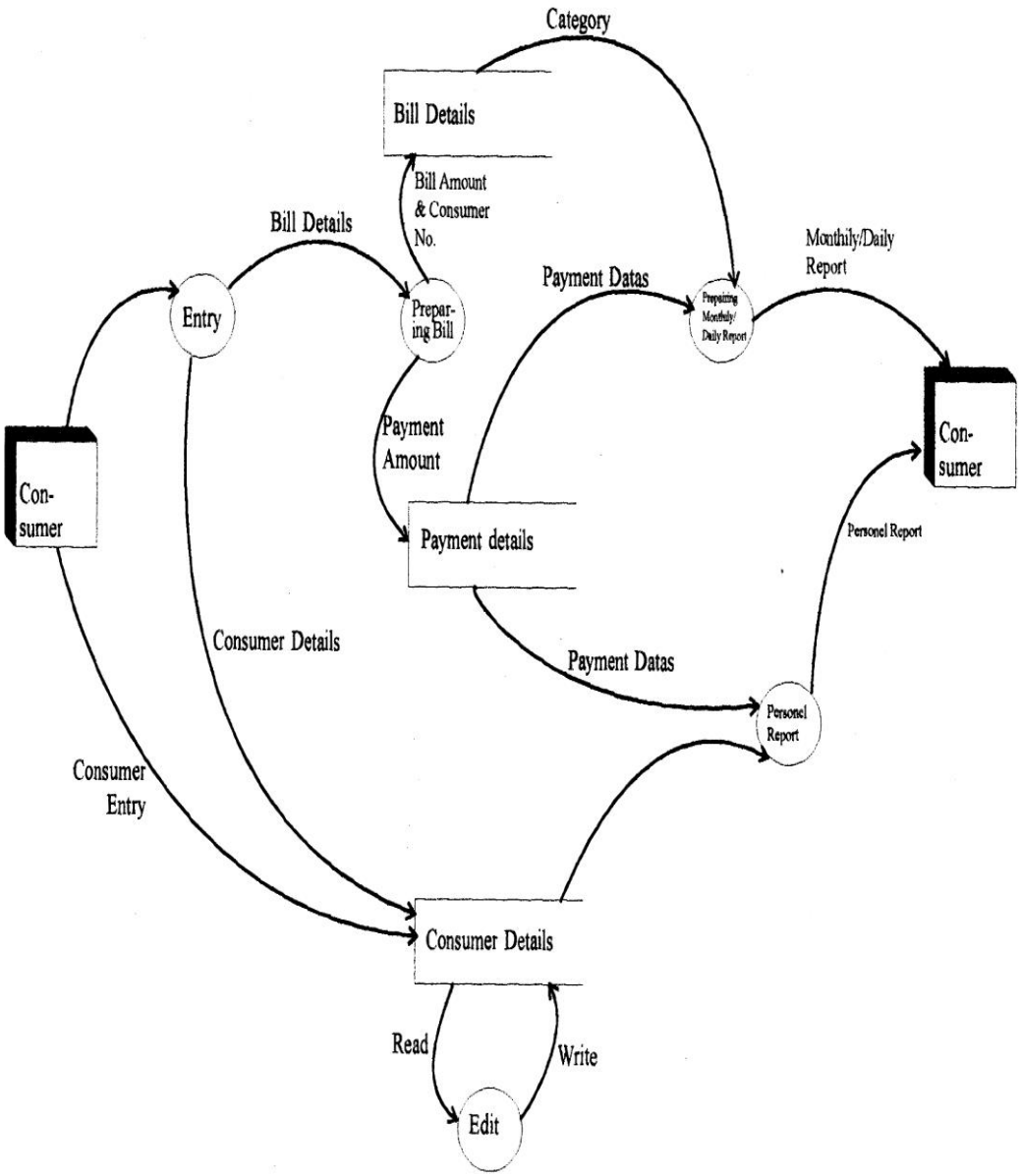
MG

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Lemgamt	Varchar	20
3	Scmgamt	Varchar	20
4	Lramt	Varchar	20
5	Ilemg	Varchar	20
6	Iscmg	Varchar	20
7	Ilr	Varchar	20
8	Mgendingdate	Varchar	20

SBCOLLECTION

SL NO	FIELD NAME	TYPE	WIDTH
1	Conno	Varchar	20
2	Areacode	Varchar	20
3	Mrcode	Varchar	20
4	Amtcollected	numeric	

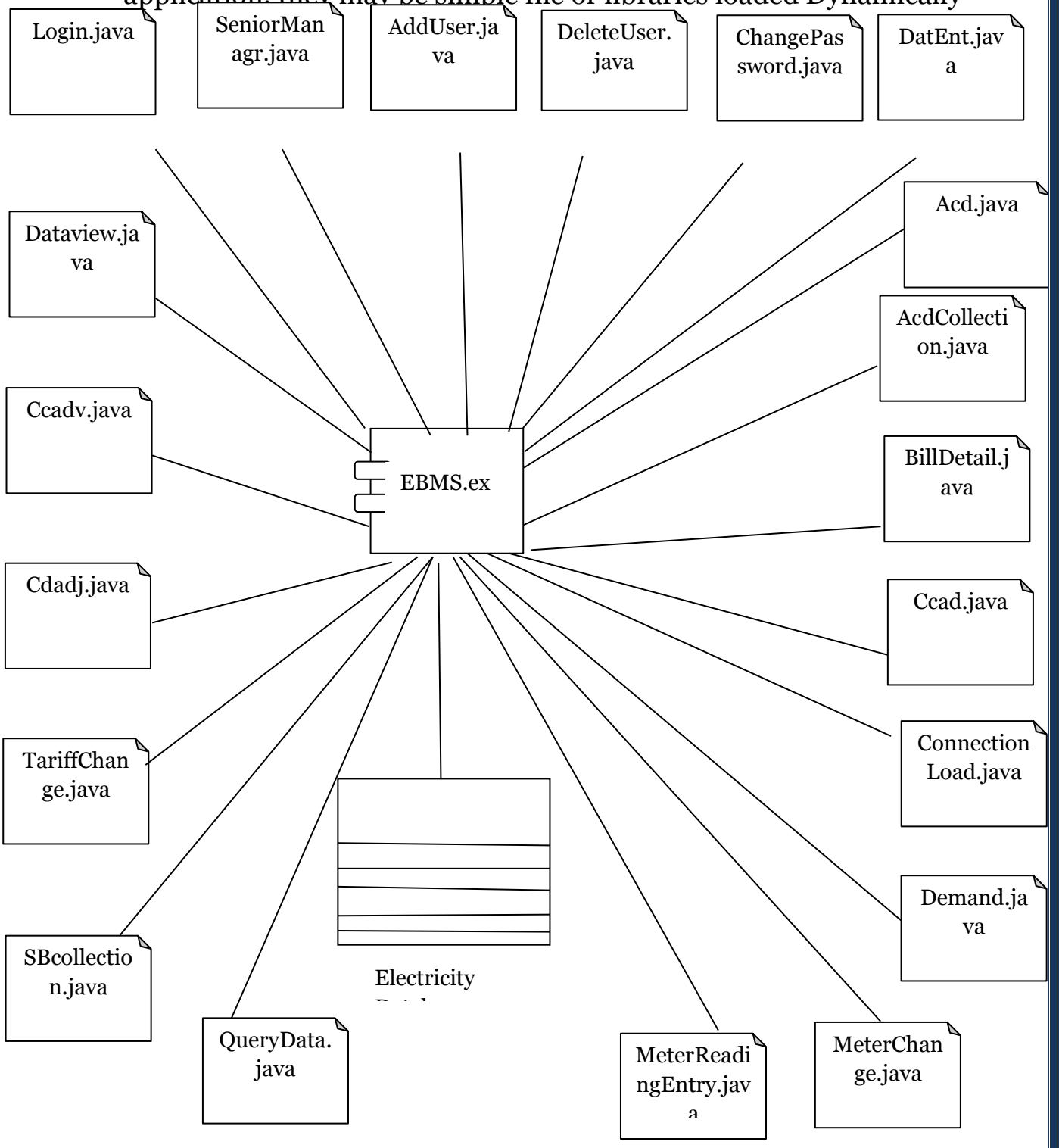
DFD Diagram



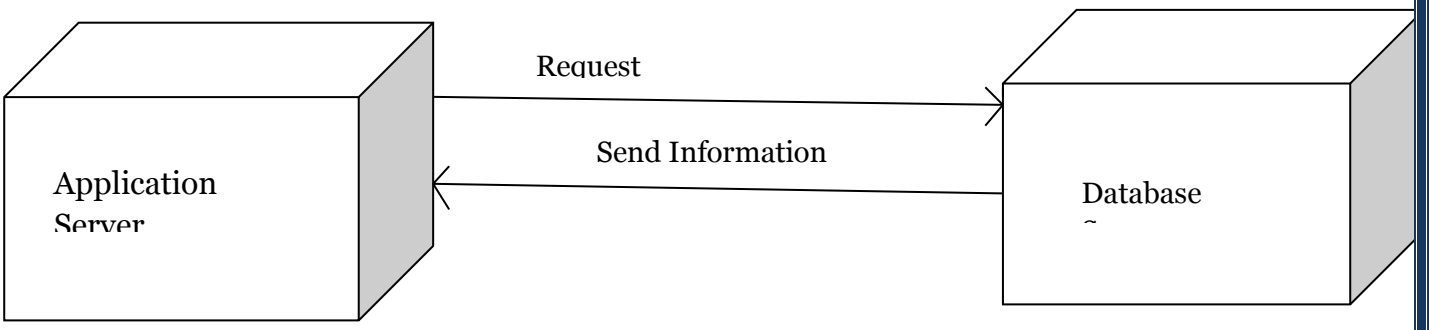
DATAFLOW DIAGRAM

Component Diagram

Component diagram describes software computer and their relationship within the implementation environment. Components represents all kinds of elements that work together as a software application. they may be simple file or libraries loaded Dynamically



Deployment Diagram:



Validations & Test cases

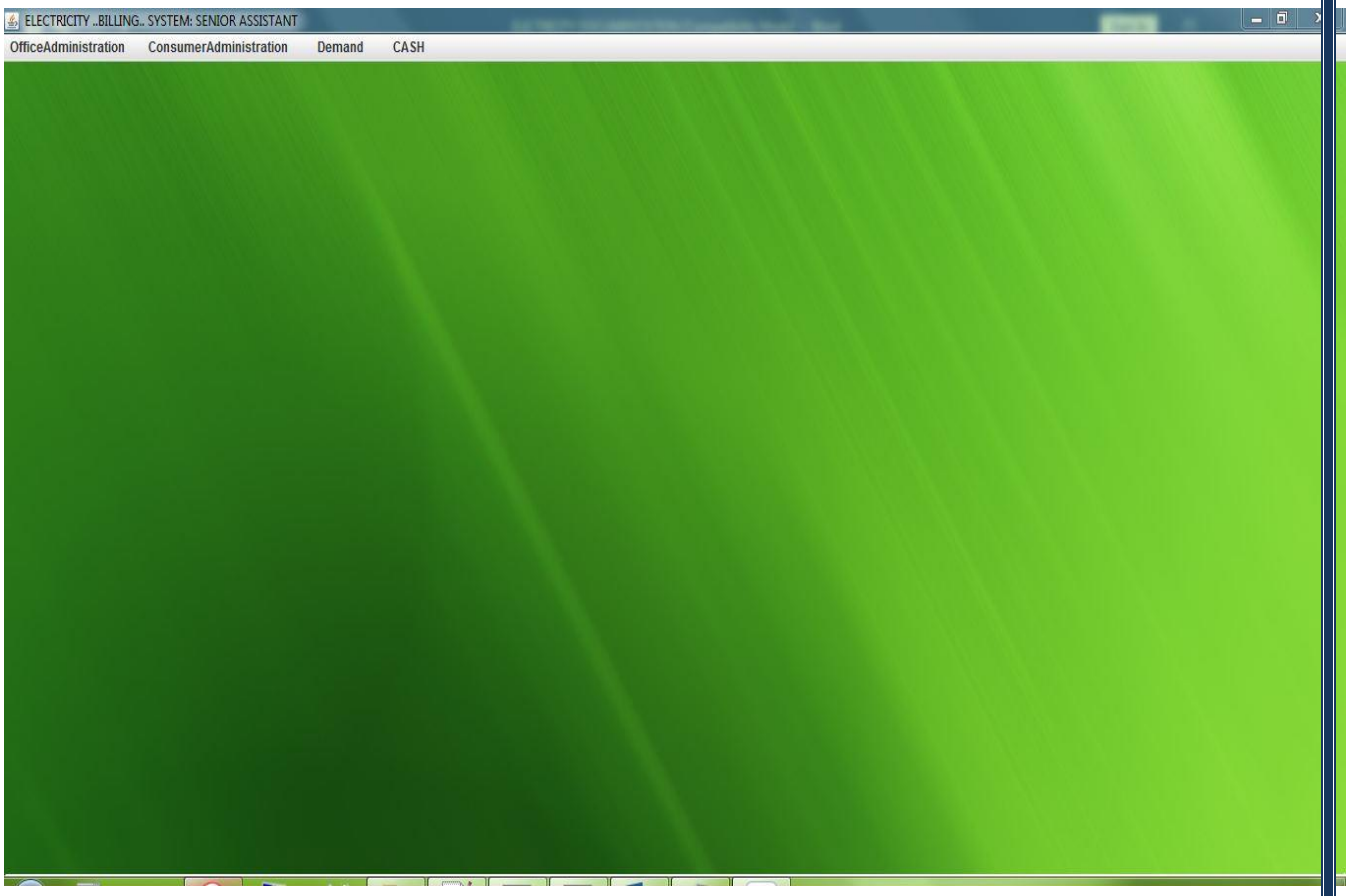
Validation refers to a different set of activities that ensures that the software that has been built is traceable to customer requirements

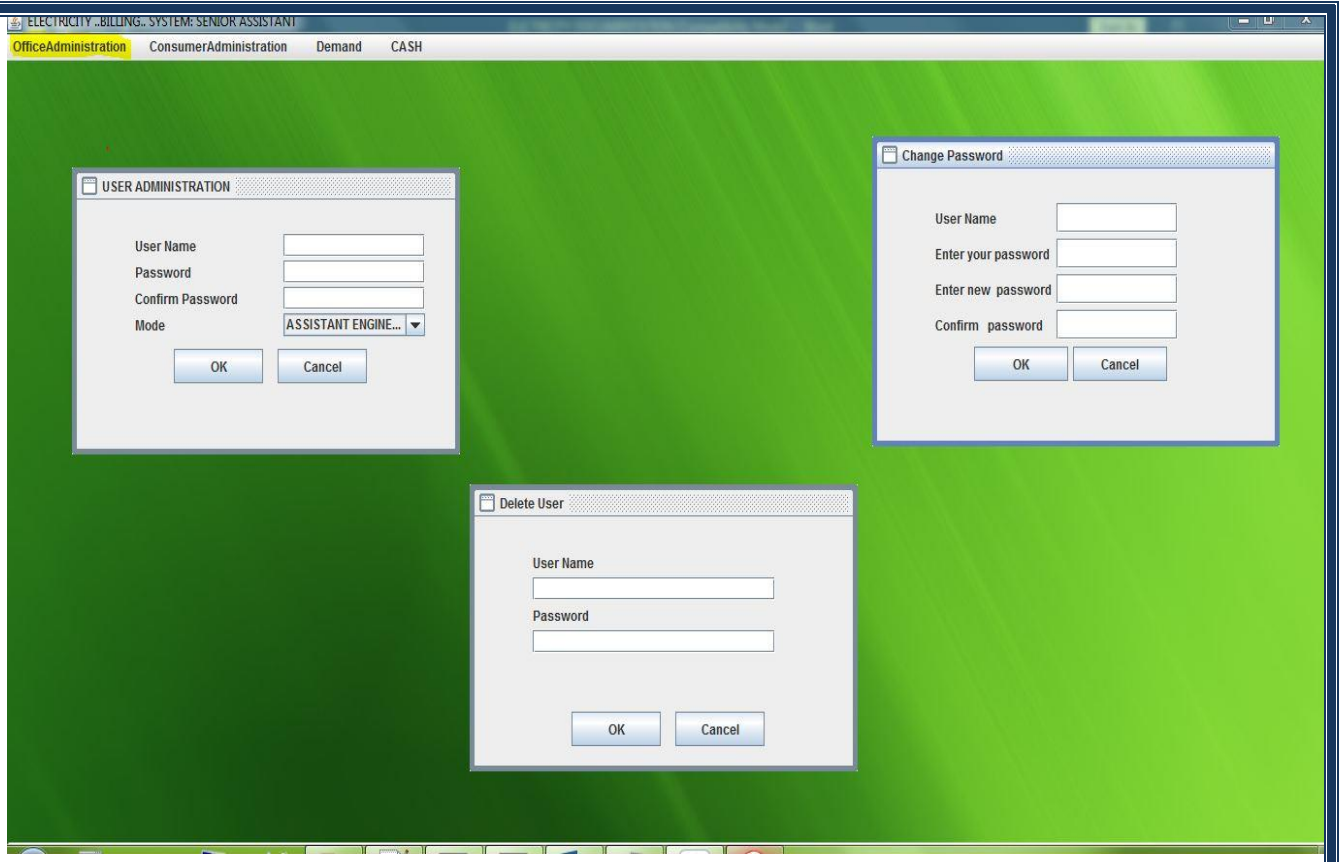
Validation: ”Are we building the right product?”

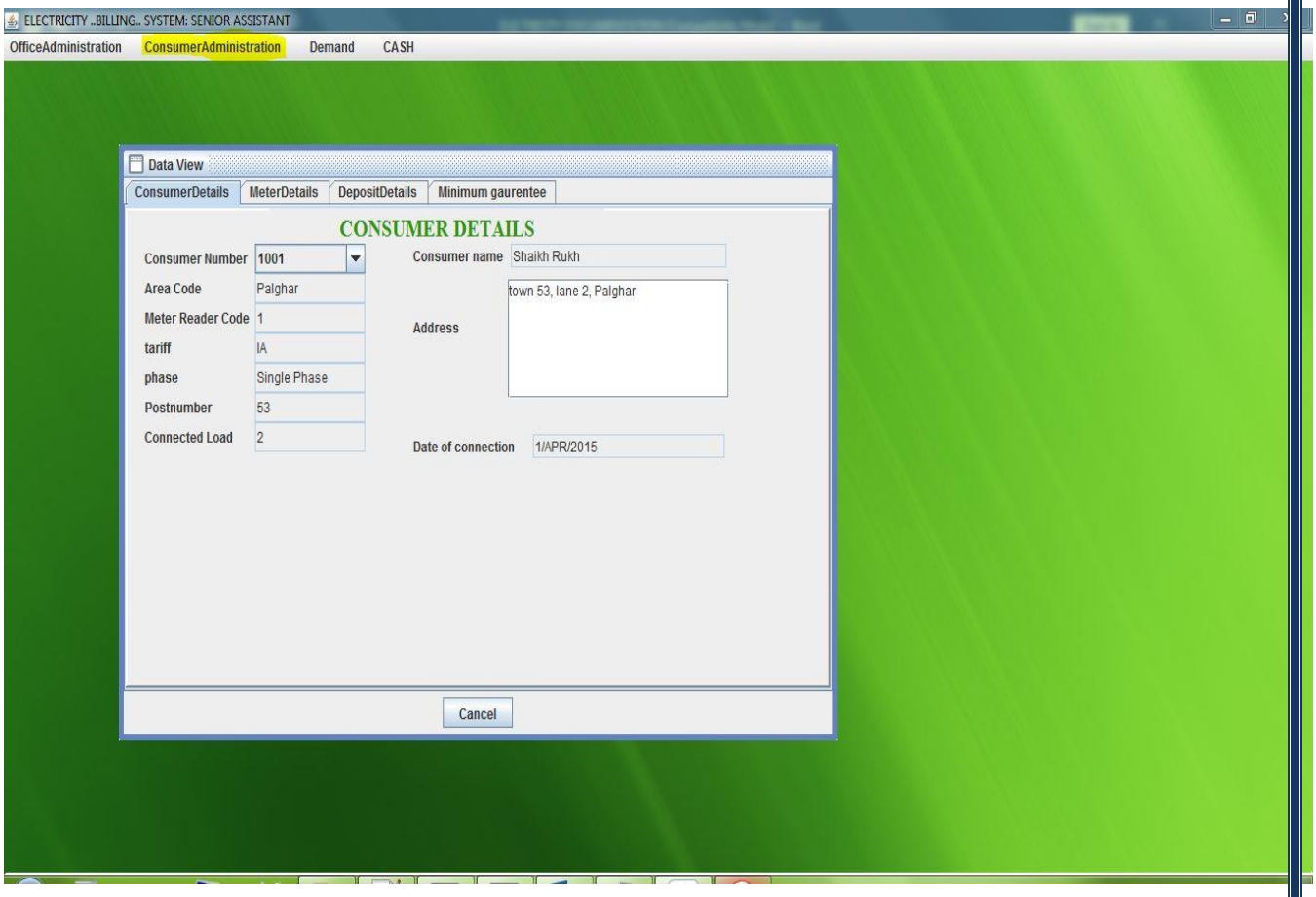
Test cases:

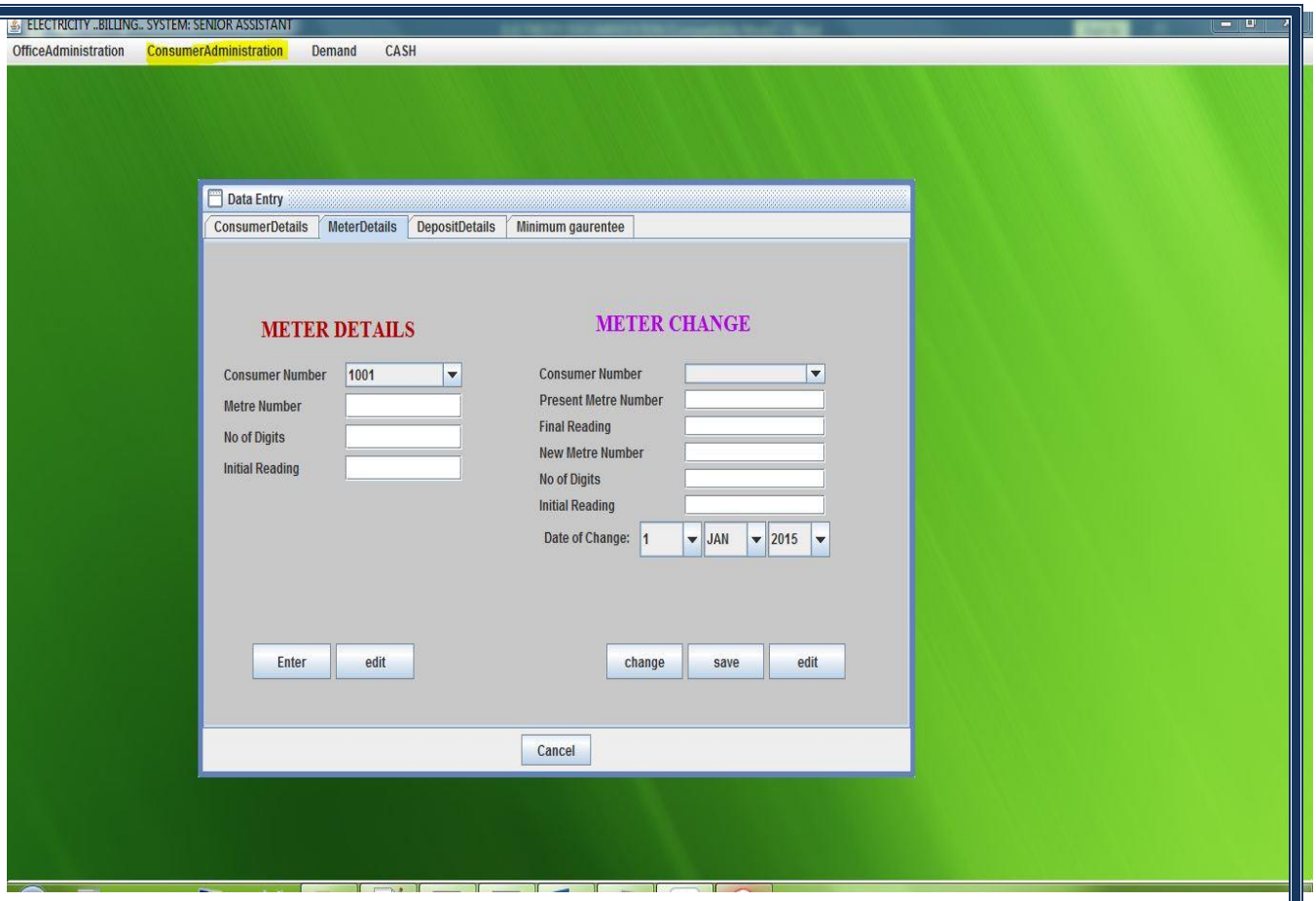
1) It deals eith details of testing unit;
2) It shows which test cases are to be used.
3) Test case specification gives information about
   a) Unit cases.
   b) Actual output
   c) Excepted output
   d) Condition to be tested.
   e) Actual output.

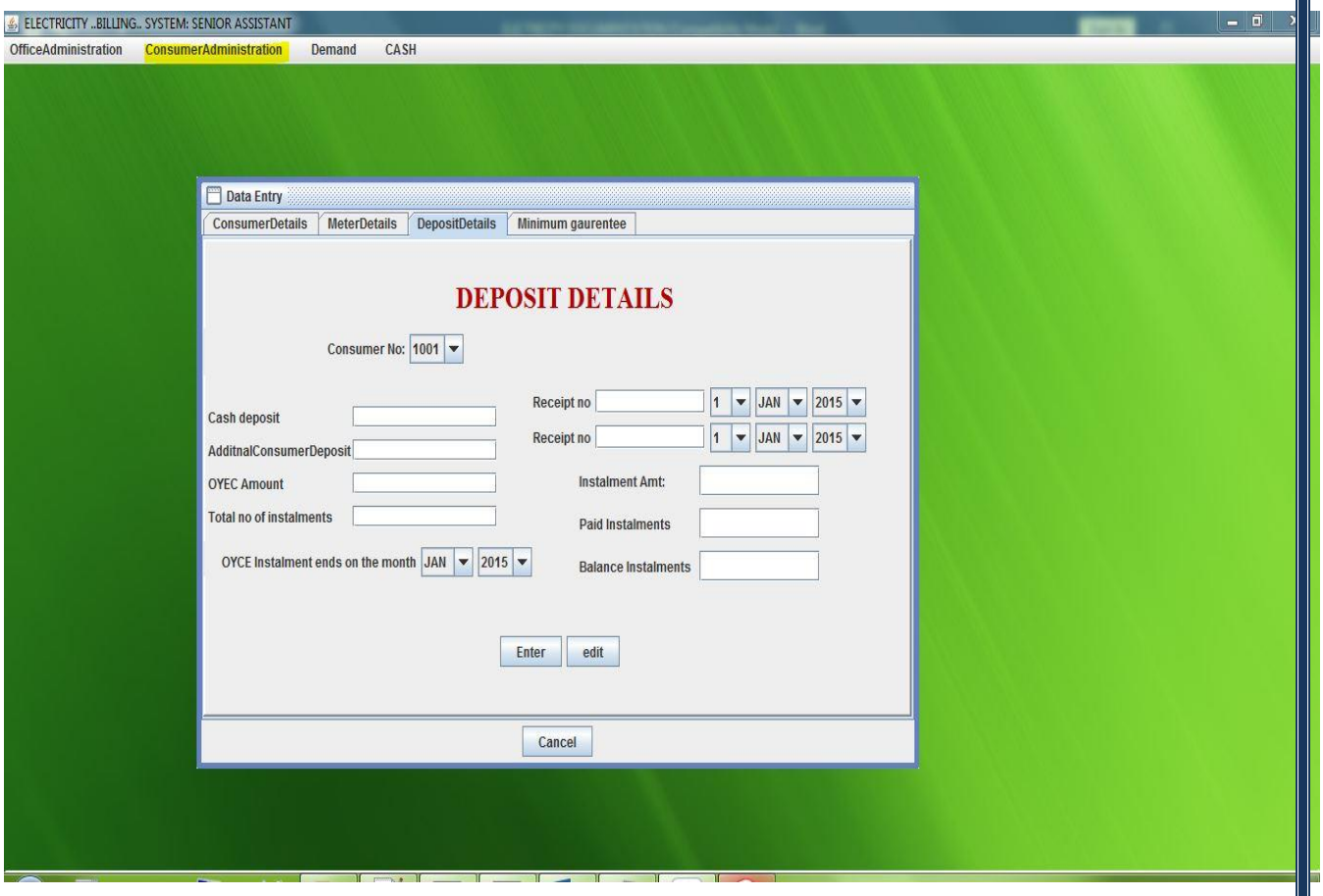
Screen layout & report layouts

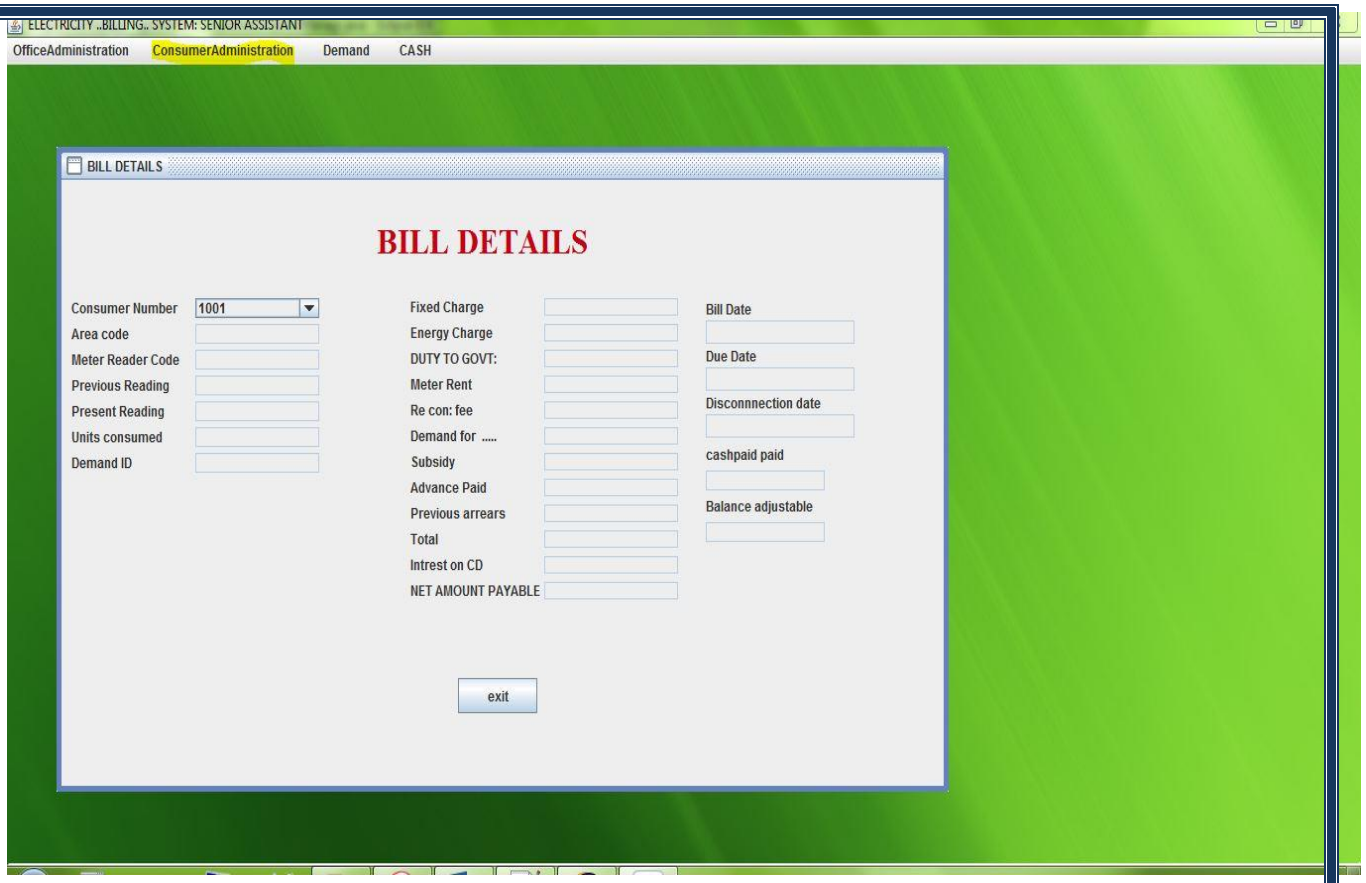


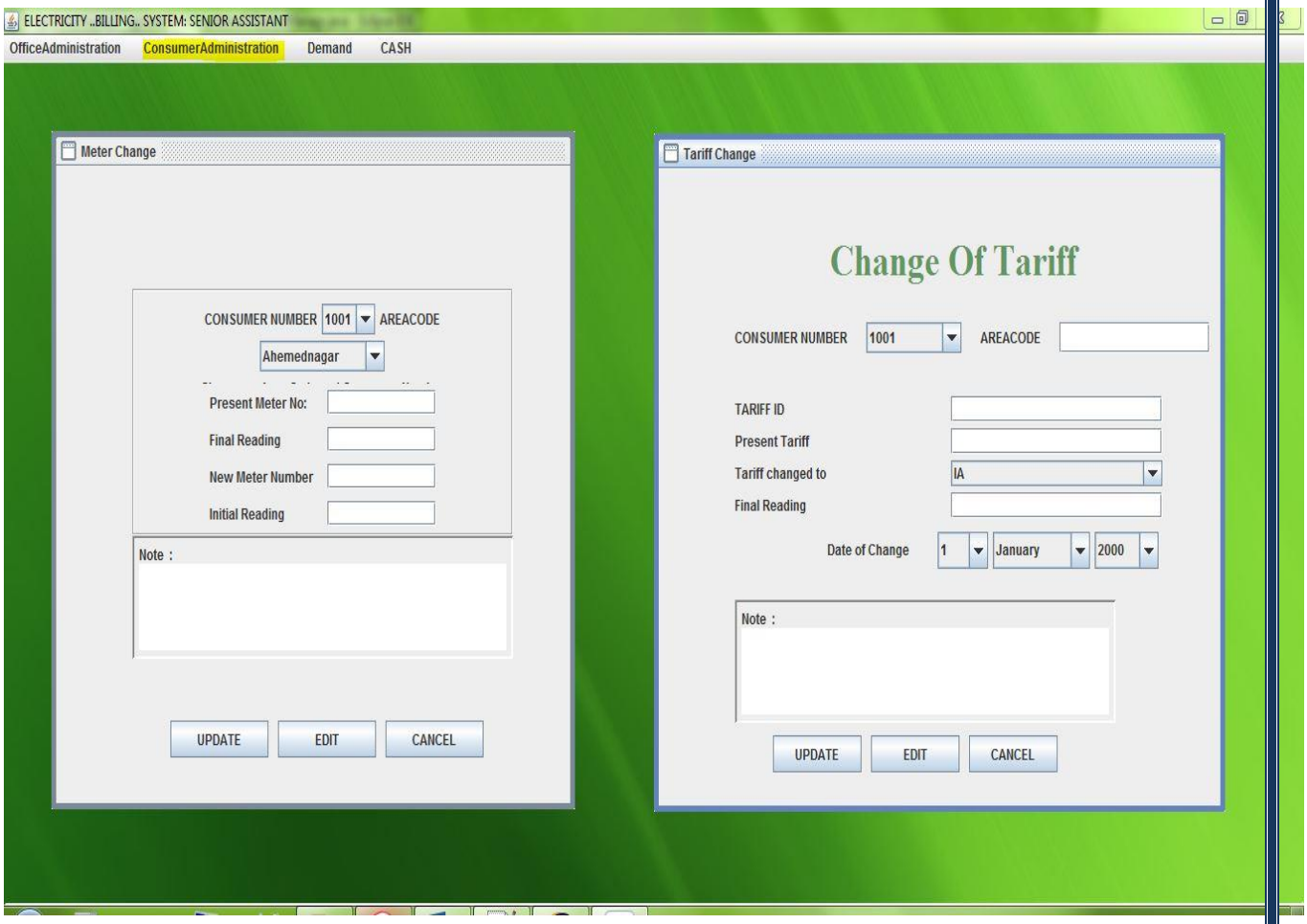

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
USER ADMINISTRATION
User Name
Password
Confirm Password
Mode
ASSISTANT ENGINE...
OK
Cancel
Change Password
User Name
Enter your password
Enter new password
Confirm password
OK
Cancel
Delete User
User Name
Password
OK
Cancel

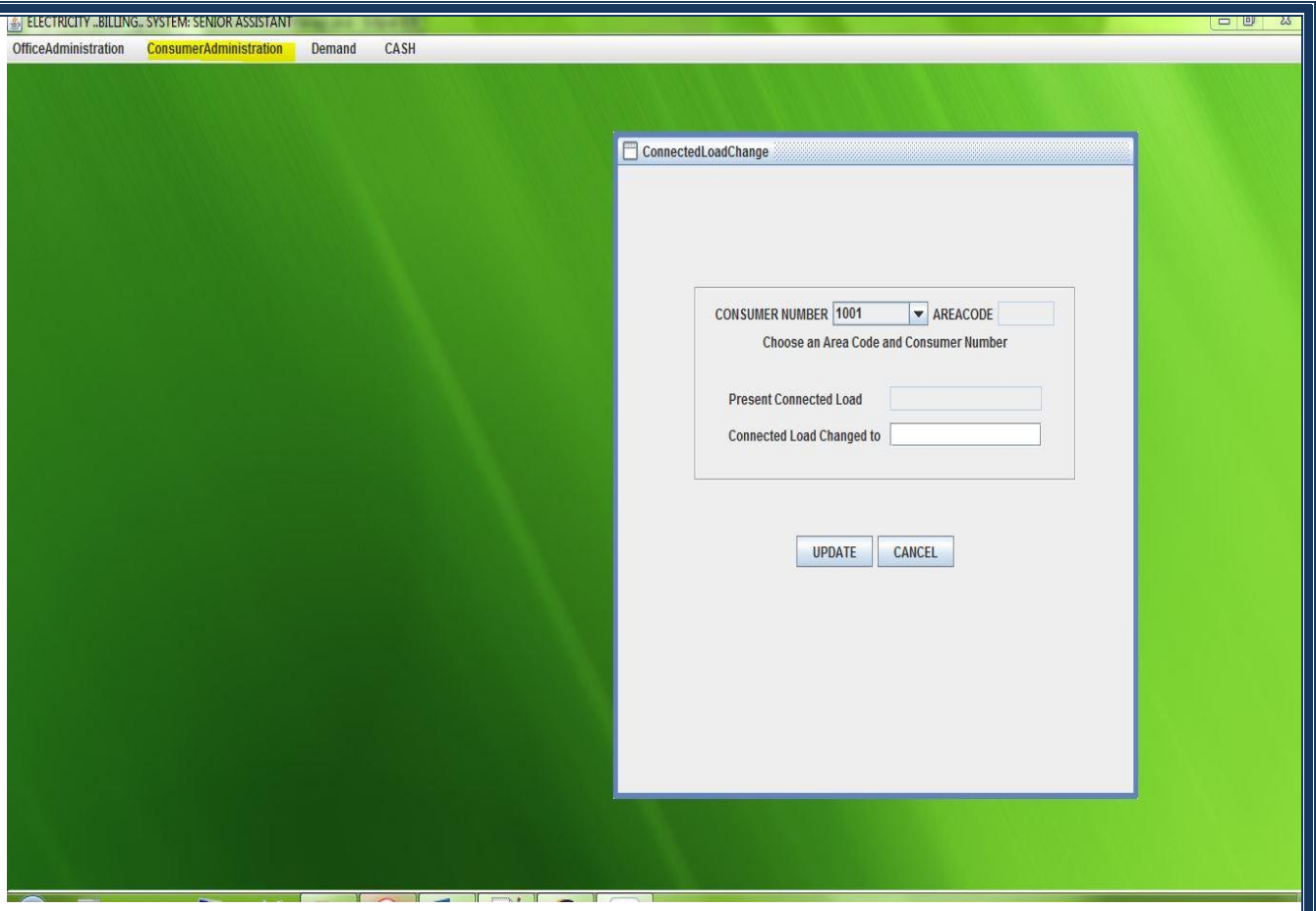

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
Data View
ConsumerDetails
MeterDetails
DepositDetails
Minimum gaurentee
CONSUMER DETAILS
Consumer Number
1001
Area Code
Palghar
Meter Reader Code
1
tariff
IA
phase
Single Phase
Postnumber
53
Connected Load
2
Consumer name
Shaikh Rukh
Address
town 53, lane 2, Palghar
Date of connection
1/APR/2015
Cancel

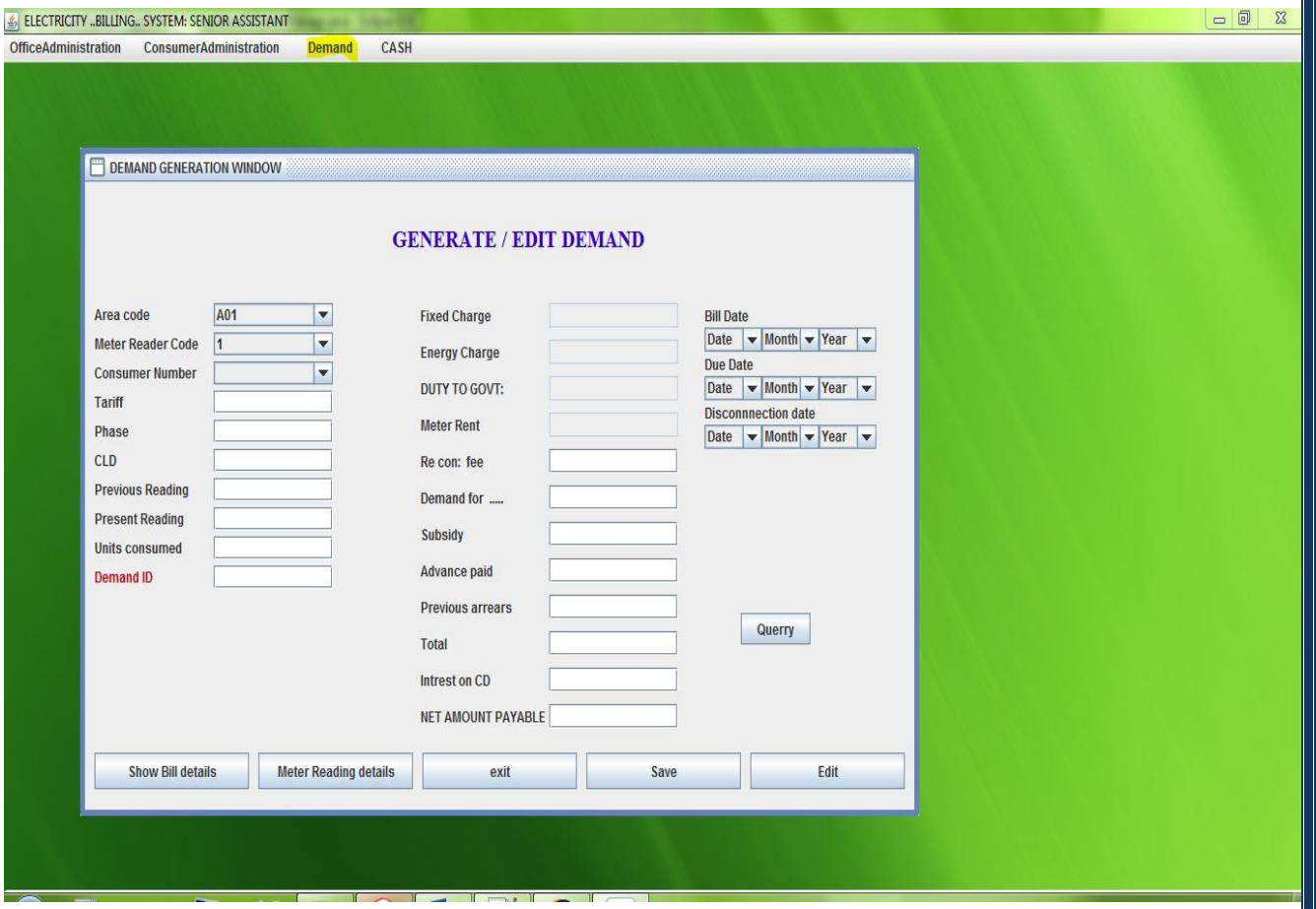

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
Data Entry
ConsumerDetails
MeterDetails
DepositDetails
Minimum gaurentee
METER DETAILS
Consumer Number
1001
Metre Number
No of Digits
Initial Reading
Enter
edit
METER CHANGE
Consumer Number
Present Metre Number
Final Reading
New Metre Number
No of Digits
Initial Reading
Date of Change:
1
JAN
2015
change
save
edit
Cancel

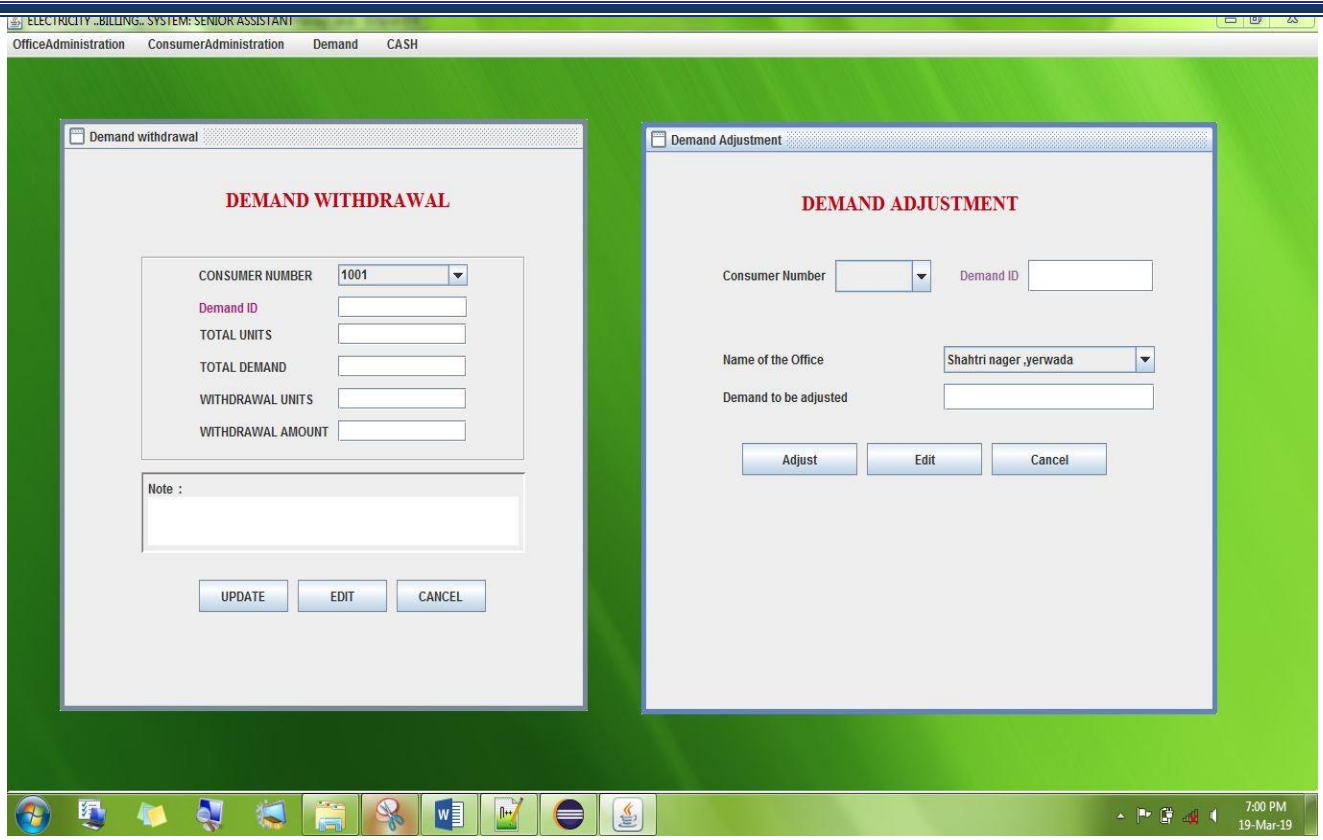

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
Data Entry
ConsumerDetails
MeterDetails
DepositDetails
Minimum gaurentee
DEPOSIT DETAILS
Consumer No:
1001
Cash deposit
AdditnalConsumerDeposit
OYEC Amount
Total no of instalments
OYCE Instalment ends on the month
JAN
2015
Receipt no
1
JAN
2015
Receipt no
1
JAN
2015
Instalment Amt:
Paid Instalments
Balance Instalments
Enter
edit
Cancel

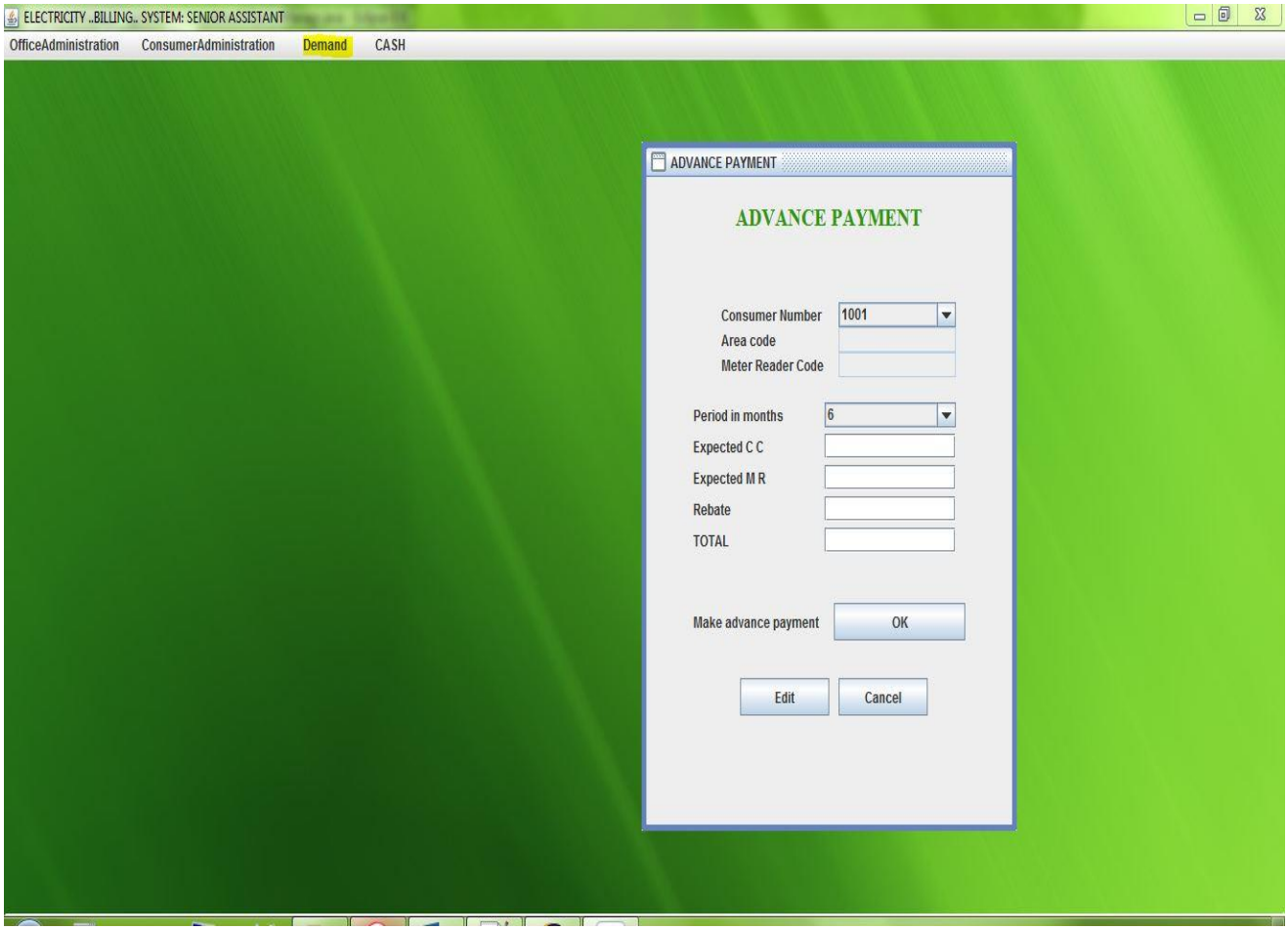

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
BILL DETAILS
BILL DETAILS
Consumer Number
1001
Area code
Meter Reader Code
Previous Reading
Present Reading
Units consumed
Demand ID
Fixed Charge
Energy Charge
DUTY TO GOVT:
Meter Rent
Re con: fee
Demand for .....
Subsidy
Advance Paid
Previous arrears
Total
Intrest on CD
NET AMOUNT PAYABLE
Bill Date
Due Date
Disconnnection date
cashpaid paid
Balance adjustable
exit

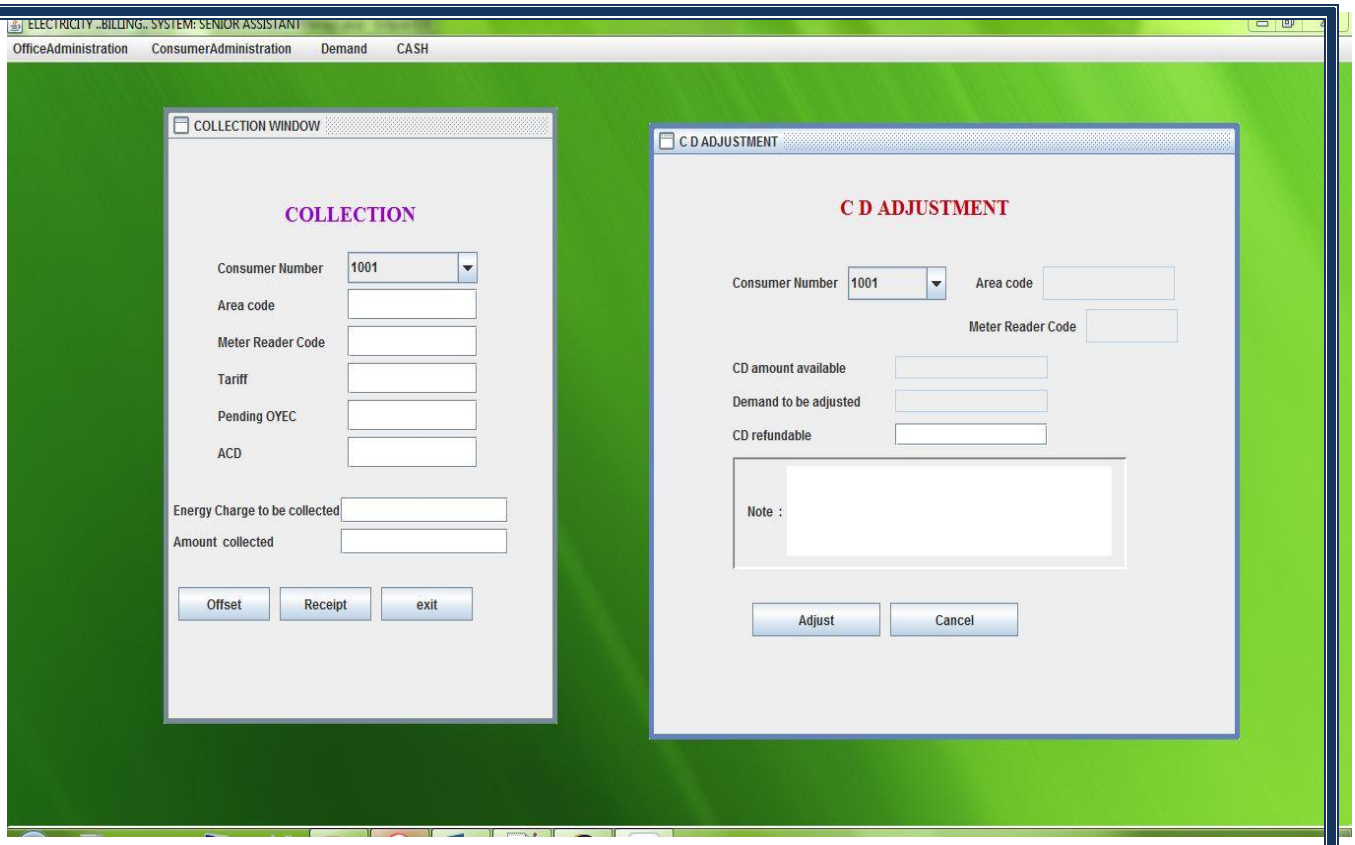

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
Meter Change
CONSUMER NUMBER
1001
AREACODE
Ahemednagar
Present Meter No:
Final Reading
New Meter Number
Initial Reading
Note :
UPDATE
EDIT
CANCEL
Tariff Change
Change Of Tariff
CONSUMER NUMBER
1001
AREACODE
TARIFF ID
Present Tariff
Tariff changed to
IA
Final Reading
Date of Change
1
January
2000
Note :
UPDATE
EDIT
CANCEL

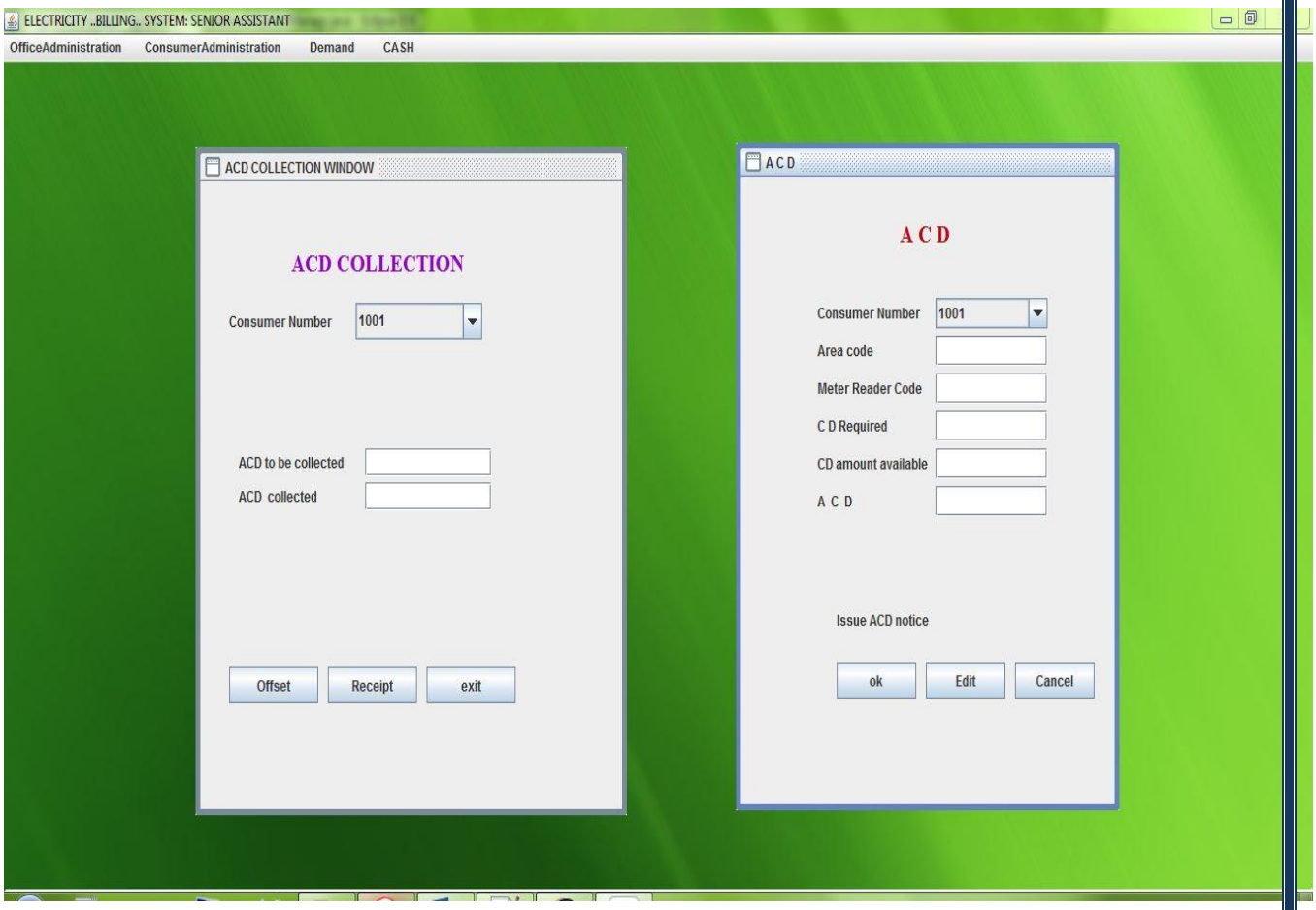

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
ConnectedLoadChange
CONSUMER NUMBER
1001
AREACODE
Choose an Area Code and Consumer Number
Present Connected Load
Connected Load Changed to
UPDATE
CANCEL


ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
DEMAND GENERATION WINDOW
GENERATE / EDIT DEMAND
Area code
A01
Meter Reader Code
1
Consumer Number
Tariff
Phase
CLD
Previous Reading
Present Reading
Units consumed
Demand ID
Fixed Charge
Energy Charge
DUTY TO GOVT:
Meter Rent
Re con: fee
Demand for .....
Subsidy
Advance paid
Previous arrears
Total
Intrest on CD
NET AMOUNT PAYABLE
Bill Date
Date
Month
Year
Due Date
Disconnnection date
Querry
Show Bill details
Meter Reading details
exit
Save
Edit

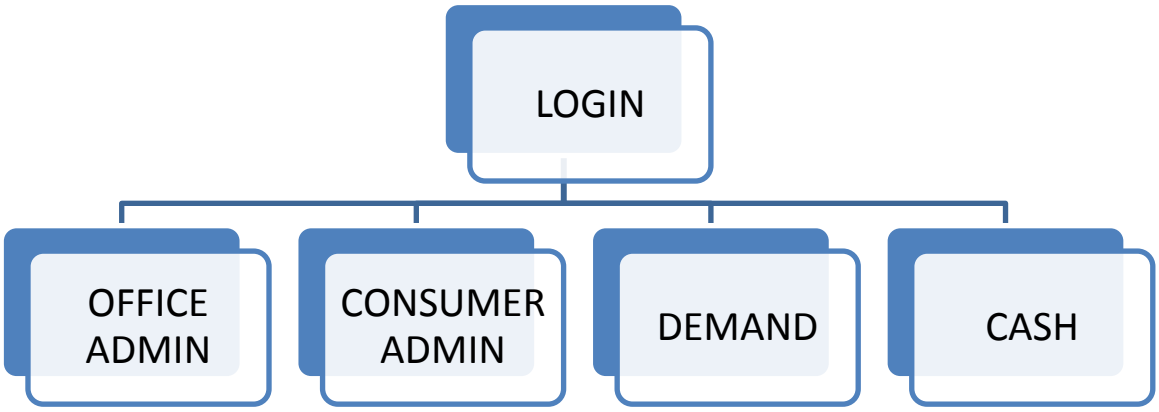

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
Demand withdrawal
DEMAND WITHDRAWAL
CONSUMER NUMBER
1001
Demand ID
TOTAL UNITS
TOTAL DEMAND
WITHDRAWAL UNITS
WITHDRAWAL AMOUNT
Note :
UPDATE
EDIT
CANCEL
Demand Adjustment
DEMAND ADJUSTMENT
Consumer Number
Demand ID
Name of the Office
Shahtri nager ,yerwada
Demand to be adjusted
Adjust
Edit
Cancel
7:00 PM
19-Mar-19


ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
ADVANCE PAYMENT
ADVANCE PAYMENT
Consumer Number
1001
Area code
Meter Reader Code
Period in months
6
Expected C C
Expected M R
Rebate
TOTAL
Make advance payment
OK
Edit
Cancel

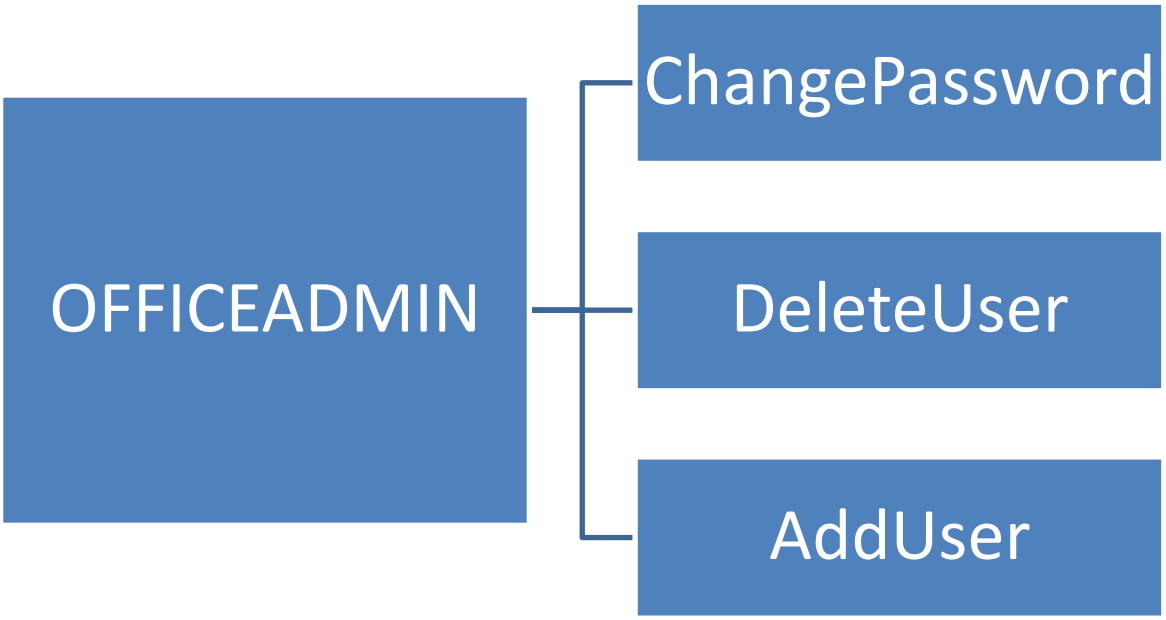

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
COLLECTION WINDOW
COLLECTION
Consumer Number
1001
Area code
Meter Reader Code
Tariff
Pending OYEC
ACD
Energy Charge to be collected
Amount collected
Offset
Receipt
exit
C D ADJUSTMENT
C D ADJUSTMENT
Consumer Number
1001
Area code
Meter Reader Code
CD amount available
Demand to be adjusted
CD refundable
Note :
Adjust
Cancel

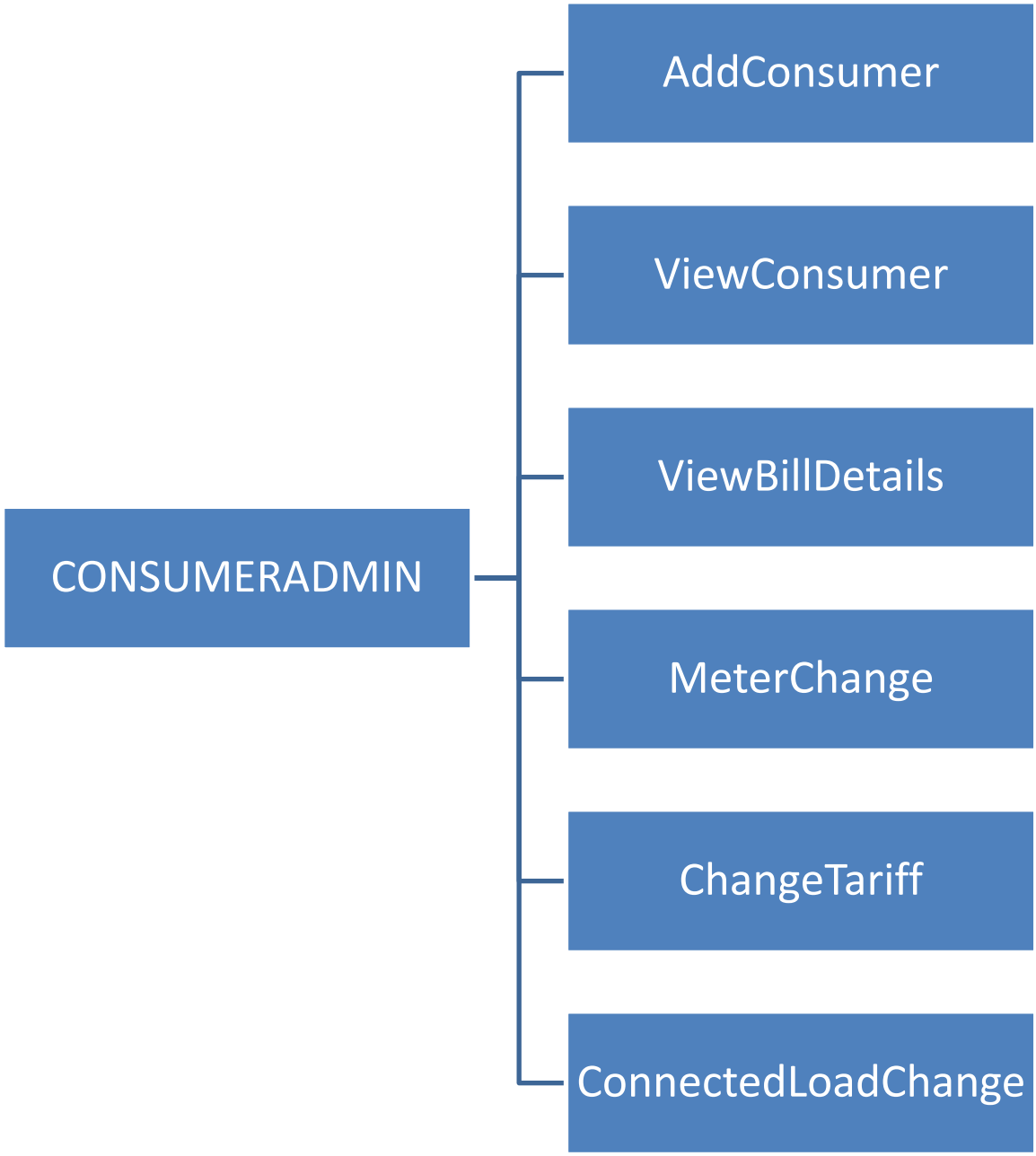

ELECTRICITY ..BILLING.. SYSTEM: SENIOR ASSISTANT
OfficeAdministration
ConsumerAdministration
Demand
CASH
ACD COLLECTION WINDOW
ACD COLLECTION
Consumer Number
1001
ACD to be collected
ACD collected
Offset
Receipt
exit
A C D
A C D
Consumer Number
1001
Area code
Meter Reader Code
C D Required
CD amount available
A C D
Issue ACD notice
ok
Edit
Cancel

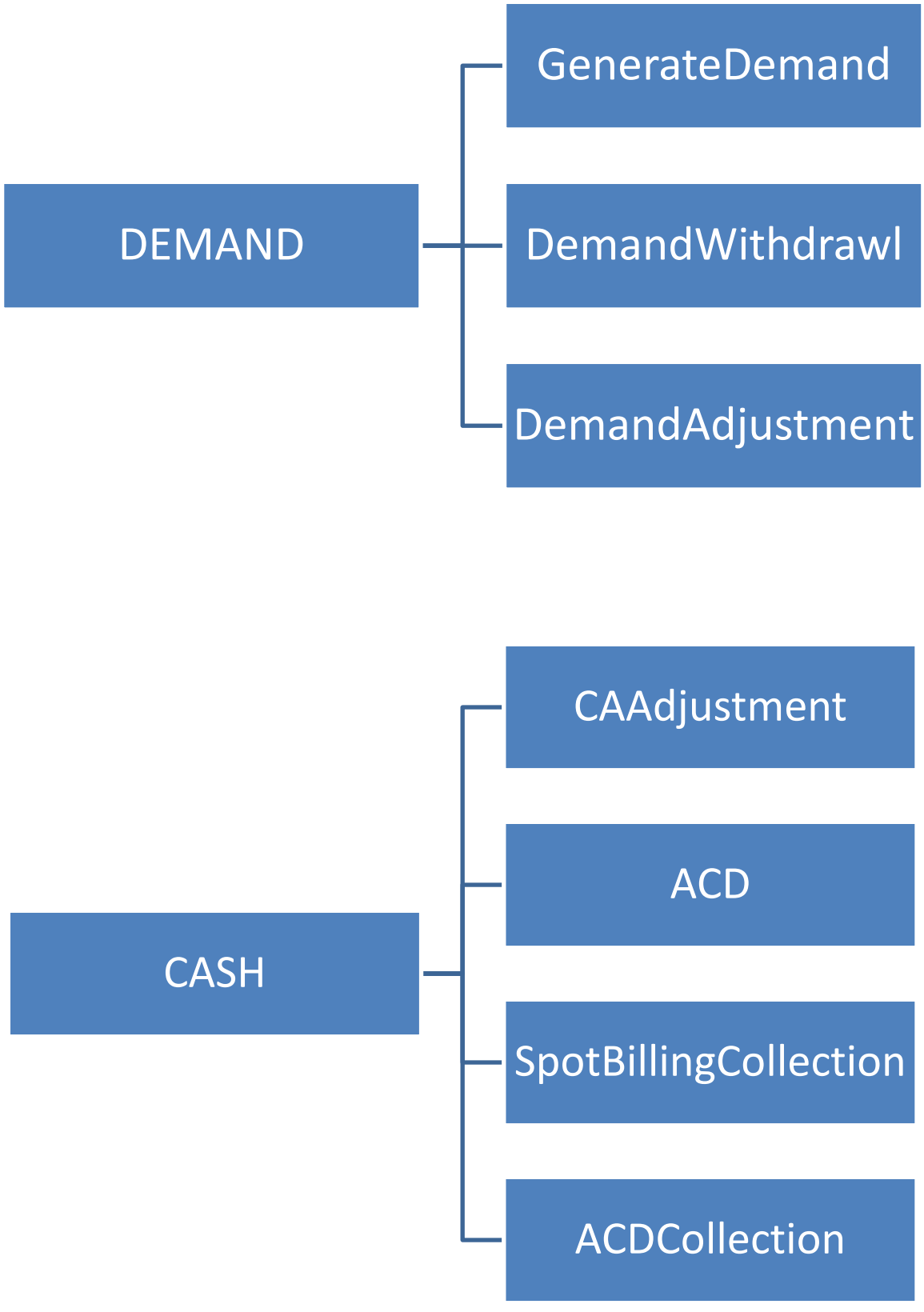
Program listing



L




CONSUMERADMIN
AddConsumer
ViewConsumer
ViewBillDetails
MeterChange
ChangeTariff
ConnectedLoadChange


DEMAND
GenerateDemand
DemandWithdrawl
DemandAdjustment
CASH
CAAdjustment
ACD
SpotBillingCollection
ACDCollection

System Implementation

In the case of program development first of all the problem is defined. It includes input-output specifications, requirements, execution times, accuracy etc. A necessary system flowchart is expended to show additional detail input and out files are identified, and computer programs logic flowchart are prepared for each computer program component. An algorithm can also write to solve the problem. The following are the stages for the development of software.

1. Problem definition
2. Program design
3. Coding
4. Debugging
5. Testing
6. Documentation
7. Maintenance, Extension, and Redesign.

The criteria for evolution of a program are reliability, speed hardware cost, programming time and cost of use error tolerance and extensibility. A good program should utilize memory and times efficiently. An interface should be simple and less costly as far as possible to perform a ascertain task. Good design and clear documentation make a program simple and it can be used by others.

Future Enhancements

The future scope of this project involves two aspects

1. Future Usage Scope
2. Future Development Scope

Future Usage Enhancements

This involves the possible uses of the project which may extend from implementing it in Electricity board office, to implementing them in systems for local and remote area.

Future Development Enhancements

With more extensive and wide usage, the scope of development of the project would no doubt increase. Instead of using frames, applets may be used later, embedded in websites thus allowing registration online and allow online payments as well

We might also be able to include a standard and secure payment gateway

We can export this model to the e commerce giants like AMAZON, PAYTM, FREECHARGE for online payment system using Web service frameworks or java applets

References & Bibliography

References:-

- Java Complete Reference : - Herbert Schildt.
- Black Book : - Steven Holzener.
- Software Engineering :- Roger Pressman

Website References:

- www.java2s.com
- www.w3schools.com
- www.stackoverflow.com
- www.tutorialspoint.com