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The Neo Energy Industry

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1 Project Description

1.1 Project Abstract

The main Idea of the project is to develop a new web application which regulates Gas & Electricity market and Promote competition, wherever appropriate & regulating the monopoly companies which run the gas & electricity networks .Helping the gas and electricity industries to achieve environmental improvements as efficiently as possible. Take account of the needs of vulnerable customers, particularly older people, those with disabilities and those on low incomes. There are 3 modules in the project GUI and Database Design, User Module and Administrator Module.

1.2 Existing System

When customer transfer to some other location or wants to switch to some other gas company or electric company within the location user used to browse different web sites and its time consuming.

1.3 Proposed System

The website provides the option for the users to register online for the GAS and POW

ER supply contract .It allows the consumer to initially calculate provided with the calibrations and depending upon their usage user can select their slab rate and use the services of the company irrespective of the location and that too within the country.

It's Time saving too.

Application/Service date: 11 / 20 / 2015

Applicable release: Release 1.0.3

1.4 Competitive Information

At present there is no such kind of website as this is the new application. Meeting all Gas and electric companies throughout the USA at place.

1.5 Relationship to Other Applications/Projects

As it is new web based application does not relate to any other projects and applications.

1.6 Assumptions and Dependencies

The each state has the government website which has gas and energy companies in their respective state but there is no such application where all gas and electric suppliers at one place.

1.7 Future Enhancements

S. No	Requirement	Release#
1	The project that allow user to change password for login to the	Release 2.0.1

	application	
2	Import and export functionality from GUI	Release 2.0.2
3	Different Payment modes	Release 2.0.3
4	Report extraction option for the user	Release 2.0.3
5	Multi user accessing the application	Release 2.0.3

1.8 Definitions and Acronyms

IIS - Internet Information Server

GUI - Graphical user interface

2 Technical Description

We are using the 3 Tier architecture which includes Data link layer, Application layer and Presentation layer. Please find the details for (i) Creation of tables and stored procedure in Table 1 and (ii) Business rules in Table 2

Table names
<p>Database with name 'Energy' and tables with columns as</p> <ol style="list-style-type: none"> 1. dbo.tblregistration – id(NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype 2. dbo.tblarea – areacode(not null,primary key), areaname 3. dbo.tblEnergysupplier – engsuppid(not null, primary key),engSuppliername, areacode 4. dbo.tblGasRate – id(not null, primary key), areacode, engsuppliername, standardrate, base rate, nightsaver 5. dbo.tblPowerRate - id(NOTNULL, PRIMARY KEY), areacode, engsuppliername, standardrate, base rate, nightsaver 6. dbo.tblpowercalculation – powercalid(NOTNULL, PRIMARY KEY), powertype, areacode, suppliername, ratetype, usage, noofunits,amount, name,mobileno, address, status, userid <p>And their respective stored procedure</p>

Table 1: creation of table and stored procedures.

PageDetails	Types	Fieldnames	Format	Navigation Control
Login page	User	Username	Textbox	
		Password	Textbox	
		Login	Buttton	Navigate to the power meter detail screen
		Gas	radio buttton	
		Electricity	radio buttton	
		Select area code	Dropdownlist	
		Select Supplier name	Dropdownlist	
		Select Rate type	Dropdownlist	
		Select usage	Dropdownlist	
		No.of Units	Textbox	

		Amount for Given Units	Textbox	
		Calculate	Buttton	
		Yes	radio buttton	
		No	radio buttton	
		Name	Textbox	
		Mobile Number	Textbox	
		Address	Textbox	
		Save Contract	Buttton	
		View Contract	Buttton	
		Clear	Buttton	
	Admin	Username	Textbox	
		Password	Textbox	
		Login	Buttton	Navigate to the power meter detail screen
		Areacode	Hyperlink	When clicked should naviate to Areacode detail screen
		1. areacode	Textbox	
		2. areaname	Textbox	
		3. Save	Buttton	
		Energy Supplier	Hyperlink	When clicked should navigate to Energy supplier name screen
		1. Energy supplier name	Textbox	
		2. Areaname	Dropdownlist	
		3. Save	Buttton	
		GasRate Master screen	Hyperlink	
		1. Areaname	Dropdownlist	
		2.Energysupplier Name	Dropdownlist	
		3.search	Buttton	
		4.Standard Rate	Textbox	
		5.Base Rate	Textbox	
		6.Night Rate	Textbox	
		7.Save	Buttton	
		8.Update	Buttton	
		Power Master screen	Hyperlink	When clicked should navigate to power meter master screen
		1. Areaname	Dropdownlist	
		2.Energysupplier Name	Dropdownlist	
		3.search	Buttton	
		4.Standard Rate	Textbox	

		5.Base Rate	Textbox	
		6.Night Rate	Textbox	
		7.Save	Buttton	
		8.Update	Buttton	
		Report Screen	Hyperlink	
		Areacode	radio buttton	When selected dropdownlist of energysuppliername should display and all the details should be display in grid view
		EnergySuppliername	radio buttton	When selected dropdownlist of areacode should display and all the details should be display in grid view
		Click here to admin screen	label	

Table 2: Business Rules

2.1 Project/Application Architecture

This Project follows 3 Tier Architecture

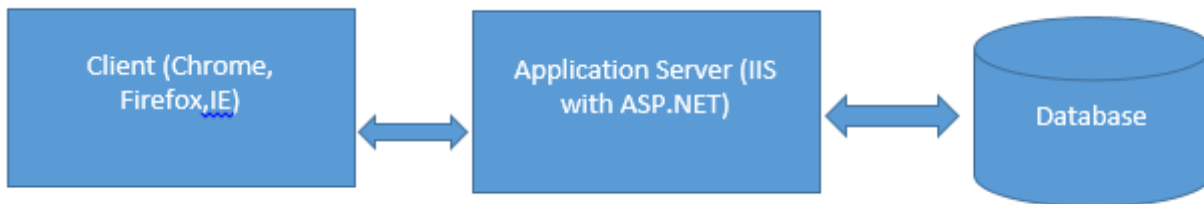


Figure 1: Project Architecture

2.2 Project/Application Information flows

Step1: First administrator will create details in Areacode, Energy Supplier , Gasrate master screen, Power meter master screen.

Step2: User/Customer needs to register.

Step3: User/Customer login to the application and fill all the details related to Gas and/or Electric and save the contracts.

2.3 Interactions with other Projects (if Any)

NA

2.4 Interactions with other Applications

1. Database application
2. Business application
3. Automation application

We need connection string established in the configuration file in code and need to provide the application URL for the automating the application.

2.5 Capabilities

1. A database application must provide capabilities to support business application such as retrieving/adding/updating user data.
2. An automation application chosen must provide capabilities to business application such as allow to automate all the web pages.

2.6 Risk Assessment and Management

Risk Assessment:

1. Project schedule will exceed 2months plus.
2. Project team members will not be in place when required.
3. Risks associated with any migrating of data from one Database version to other Database version.
4. Risks with the hardware and software (the development platform) chosen to perform project development. e.g., can this hardware and software handle the workload required to complete the project?
5. Risk to cost involved with the use of tools as a part of the development effort.
6. Risk to the project resulting from a mandatory completion date for the project.
7. As a less experience in coding there might be chances to get error.

Risk Management:

To manage all the risk assessed we have followed below mentioned points

1. We have included few requirements as part of development to meet the deadline.
2. We put extra efforts the next day to meet the release end date.
3. We have included other versions in between when needed as part of completing the project in time.
4. When the system was crashed we had backup data in our emails by this access from other laptops.
5. We managed error displays by following the books which was mentioned in the References.

3 Project Requirements

3.1 Identification of Requirements

<GSU-GS_FA2015-1 User-Capability-000100>

The project must allow new users to be added contract, View contract and Clear data by the application.

Implementation: Mandatory

<GSU-GS_FA2015-1 User-Capability-000200>

User log in must contain two options Gas and Electric.

Implementation: Mandatory

<GSU-GS_FA2015-1 User-Capability-000300>

When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

Implementation: Mandatory

<GSU-GS_FA2015-1 User-Capability-000400>

When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-000500>

The project must allow only administrator access to with name Areacode details, Energy Supplier details, Gasrate Master screen, Power Master screen, Report Screen.

<GSU-GS_FA2015-1 Admin-Capability-000600>

Areacode details that contain areacode , areaname and 'Save' button with message record saved successfully when clicked.

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-000700>

Energy Supplier details that contain Energy Supplier name , areaname (areaname entered in the areacode details page should be populate) and 'Save' button with message record saved successfully when clicked.

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-000800>

GasRate Master details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-0009000>

Power Meter details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-0001000>

When clicked on search button related result should be displayed for selection in GasRate Master screen and Power Meter details page

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001100>

Report screen should contain two radio buttons 1. Areacode 2. Energy Supplier name
When clicked areacode, all the areaname should be displayed in a dropdown list and when selected report should be displayed in a grid view with details powertype, areacode, areaname, energy supplier name, number of units, name and address

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as
Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype

dbo.tblarea - areacode(not null,primary key), areaname
dbo.tblEnergysupplier - engsuppid(not null, primary key
) ,engSuppliename, areacode

dbo.tblGasRate - id(not null, primary key), areacode, engsuppliename,
standardrate, base rate, nightsaver

dbo.tblPowerRate - id(NOTNULL, PRIMARY KEY), areacode, engsuppliename,
standardrate, base rate, nightsaver

`dbo.tblpowercalculation - powercalid(NOTNULL, PRIMARY KEY), powertype, areacode, suppliername, ratetype, ussage, noofunits, amount, name, mobileno, address, status, userid`

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001300>

Bulk Import functionality from Database

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001400>

Create a stored procedure for the tables mentioned in the Requirement 001200

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin/User-Capability-001500>

Should display Supply energy logo in all web pages on the top left side.

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001600>

The project must allow user to view his/her name

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin-Capability-001700>

The project must allow admin to navigate to admin screen when click on ‘Click here to admin screen’

link

Implementation: Mandatory

<GSU-GS_FA2015-1 Admin/User-Capability-001800>

The project must allow user to Logout from the application

Implementation: Mandatory

3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

Administration:

The privileges to provide the data is only given to the admin. Admin can maintain the Actual data as well as back-up data which is required by the user and if admin wants to recover the data he can import data from the excel from the database

Provisioning:

1. Install new / rebuild existing servers and configure hardware, peripherals, services, settings, directories, storage, etc. in accordance with standards and project/operational requirements.
2. Contribute to and maintain system standards.

Operations:

1. Perform daily system monitoring, verifying the integrity and availability of all hardware, server resources, systems and key processes, reviewing system and application logs, and verifying completion of scheduled jobs such as backups.
2. Perform regular security monitoring to identify any possible intrusions.
3. Perform daily backup operations, ensuring all required file systems and system data are successfully backed up to the appropriate media, recovery tapes or disks are created, and media is recycled and sent off site as necessary.
4. Perform regular file archival and purge as necessary.
5. Create, change, and delete user accounts per request.
6. Provide Tier III/other support per request from various constituencies. Investigate and troubleshoot issues.
7. Repair and recover from hardware or software failures. Coordinate and communicate with impacted constituencies.

Maintenance:

1. Perform periodic performance reporting to support capacity planning.
2. Perform ongoing performance tuning, hardware upgrades, and resource optimization as required. Configure CPU, memory, and disk partitions as required..

3.3 Security and Fraud Prevention

Application is secure by using the cloud proxy services.

3.4 Release and Transition Plan

Some schemes use a zero in the first sequence to designate alpha or beta status for releases that are not stable enough for general or practical deployment and are intended for testing or internal use only.

It can be used in the third position:

- 0 for alpha (status)
- 1 for beta (status)
- 2 for release candidate
- 3 for (final) release

As the below grid shows the releases for the respective project requirements. As we had multiple requirements and planned to divide into releases for the better clear and good result.

Requirement	Release#	Release Start Date	Release End Date	Priority	Status
<GSU-GS_FA2015-1 User-Capability-000100>	Release 1.0.2	10-12-2015	10-26-2015	Minor	100%
<GSU-GS_FA2015-1 User-Capability-000200>	Release 1.0.2	10-12-2015	10-26-2015	Minor	100%
<GSU-GS_FA2015-1 User-Capability-000300>	Release 1.0.2	10-12-2015	10-26-2015	Minor	100%
<GSU-GS_FA2015-1 User-Capability-000400>	Release 1.0.2	10-12-2015	10-26-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-000500>	Release 1.0.1	09-19-2015	10-09-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-000600>	Release 1.0.1	09-19-2015	10-09-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-000700>	Release 1.0.1	09-19-2015	10-09-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-000800>	Release 1.0.1	09-19-2015	10-09-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-000900>	Release 1.0.3	10-28-2015	11-15-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-0001000>	Release 1.0.3	10-28-2015	11-15-2015	Minor	100%
<GSU-GS_FA2015-1 Admin-Capability-0001100>	Release 1.0.3	10-28-2015	11-15-2015	Major	100%
<GSU-GS_FA2015-1 Admin-Capability-0001200>	Release 1.0.3	10-28-2015	11-15-2015	Major	100%
<GSU-GS_FA2015-1 Admin-Capability-0001300>	Release 1.0.3	10-28-2015	11-15-2015	Major	100%
<GSU-GS_FA2015-1 Admin-Capability-0001400>	Release 1.0.3	10-28-2015	11-15-2015	Major	100%

Table 3: Release and Transition plan

4 Project Design Description

There are two design views 1. Administrator 2. User or Customer whereas in Administrator view there is a functionality of Area code, Energy Supplier, Gas Rate Master screen, Power Master screen and Report Screen which allow admin to create the master data in the above mentioned functionality and likewise data is stored in the database in their respective tables. User view there is options to select Gas or Electric details. Here, the master data provided by the administrator can be accessed and provide the details like how much units user wants to use and for how many months user wants to save the contract.

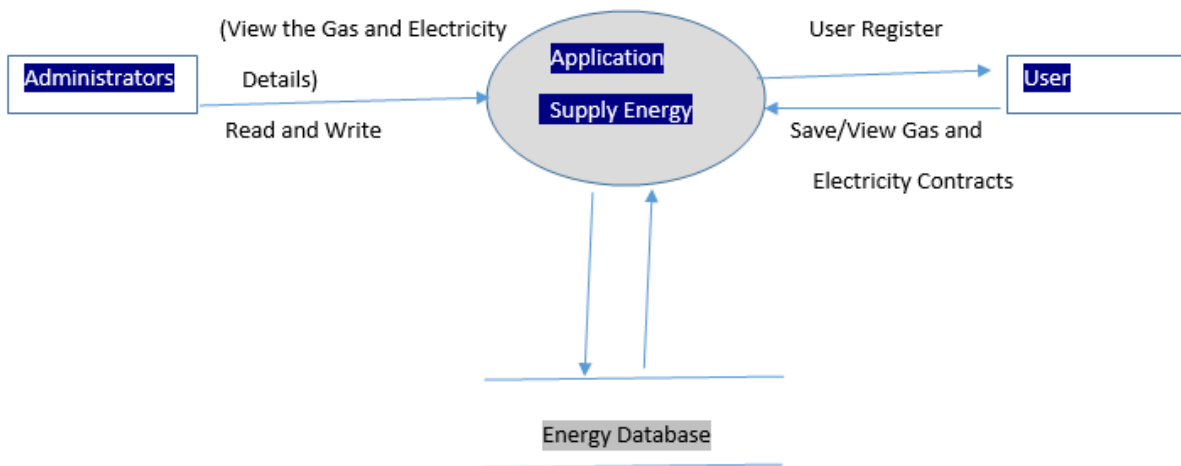


Figure 2: Design Architecture

Administrator Flowchart

- Scenario1: Administrator user can add area code (Admin user has authorize to database so he can update area code, area name from database as this is limit only to administrator)
- Scenario2: Administrator user can add energy supplier (Admin user has authorize to database so he can update Energy supplier name from database as this is limit only to administrator)
- Scenario3: Administrator user can add/Update Gas Rate master screens
- Scenario4: Administrator user can add/update Power master screens
- Scenario5: Administrator user can view report screen.

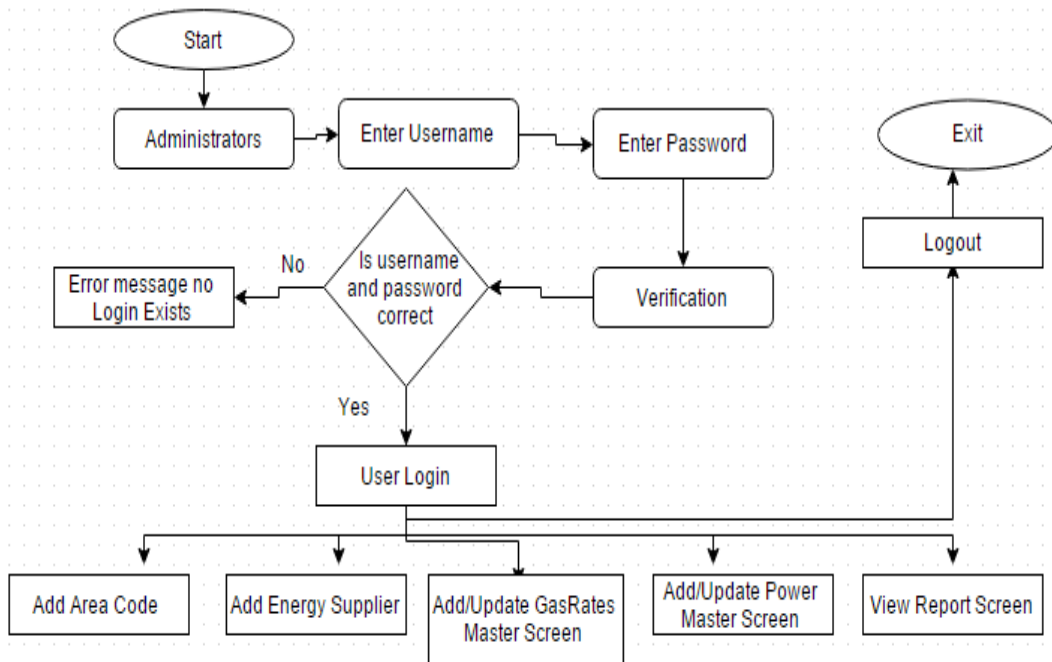


Figure3: Administrator Flow chart

User Flowchart

Scenario1: User can login to the application

Scenario2: User can enter Gas/power details and save the contract details

Scenario3: User can view contract details

Scenario4: User can clear the data.

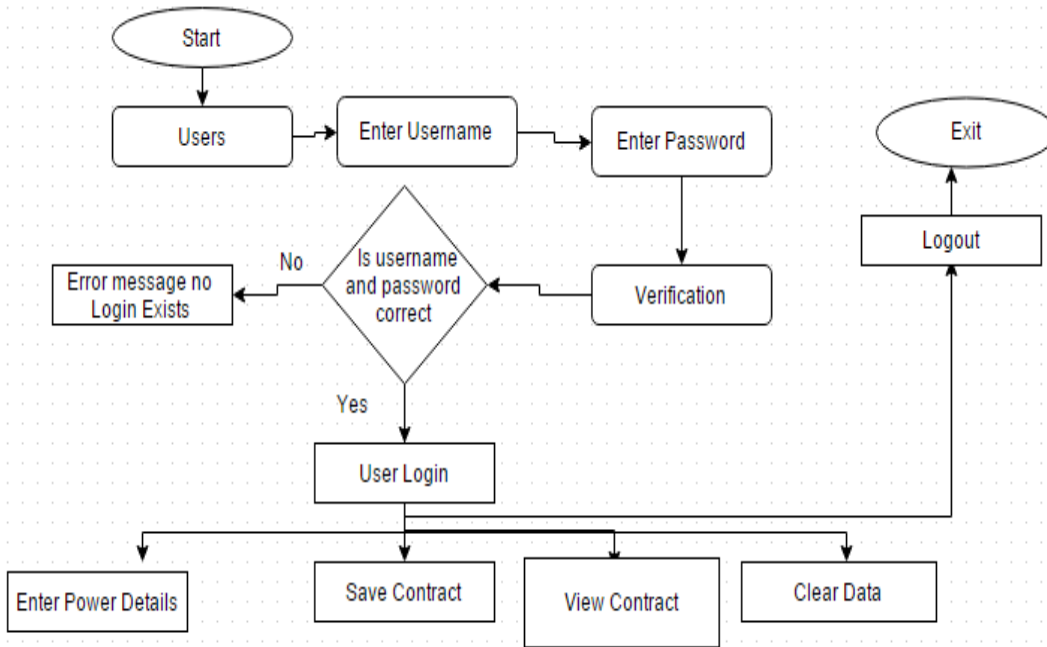
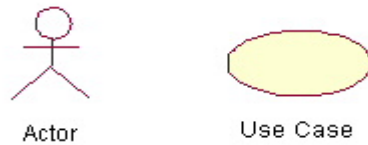


Figure4: User Flow chart

Use Case Diagram

A use case is a set of scenarios that describing an interaction between a user and a system. A use case diagram displays the relationship among actors and use cases. The two main components of a use case diagram are use cases and actors.



An actor is represents a user or another system that will interact with the system you are modeling. A use case is an external view of the system that represents some action the user might perform in order to complete a task.

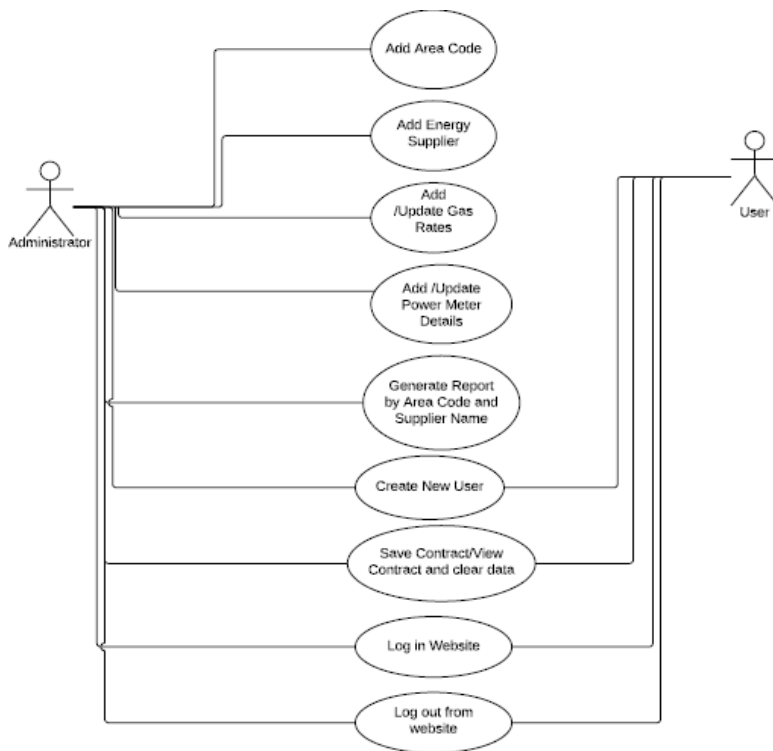


Figure5: Use case Diagram

Class Diagram

Class diagrams are widely used to describe the types of objects in a system and their relationships. Class diagrams model class structure and contents using design elements such as classes, packages and objects. Class diagrams describe three different

perspectives when designing a system, conceptual, specification, and implementation. These perspectives become evident as the diagram is created and help solidify the design. Class diagrams are arguably the most used UML diagram type. It is the main building block of any object oriented solution. It shows the classes in a system, attributes and operations of each class and the relationship between each class. In most modeling tools a class has three parts, name at the top, attributes in the middle and operations or methods at the bottom. In large systems with many classes related classes are grouped together to create class diagrams. Different relationships between diagrams are show by different types of Arrows. Below is a image of a class diagram.

In the class diagram all are associated with each other except power calculation class it uses generalization because it effects in calculation.

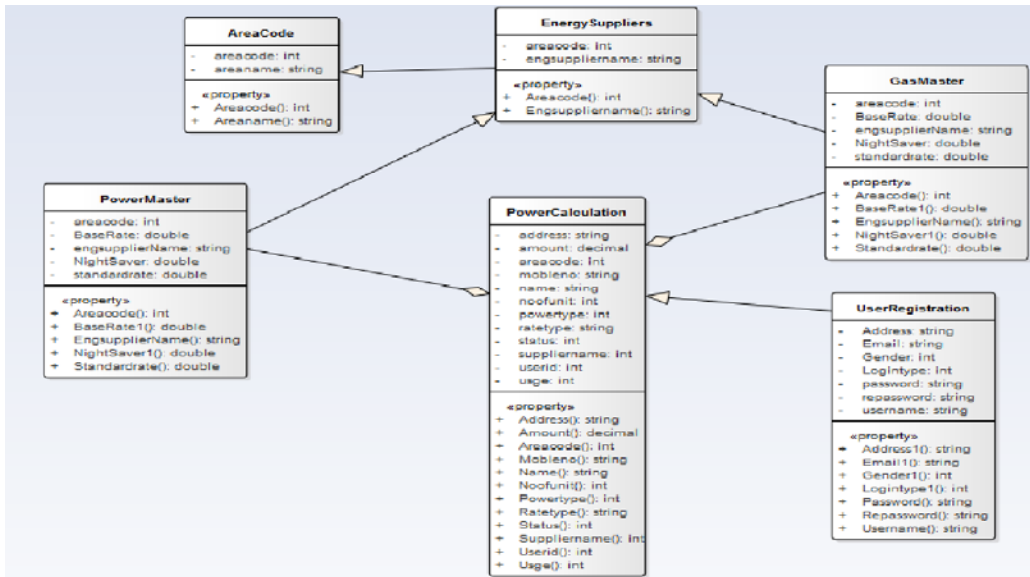


Figure6: Class Diagram

Database Diagram

The diagram below mainly focused on the tables that contains primary keys and foreign keys and there dependencies.

Key symbols are ‘Primary keys’

Infinite symbols are ‘Foreign keys’

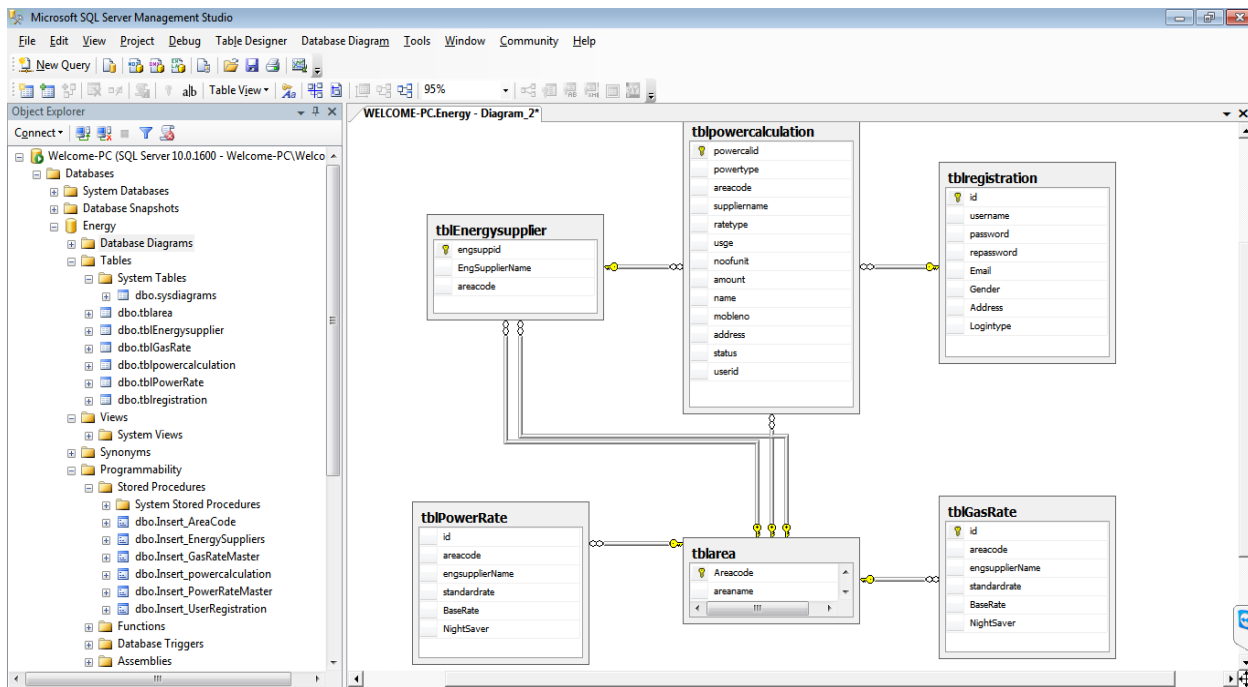


Figure7: Database Design Diagram

5 Project Internal/external Interface Impacts and Specification

1. Initially we unable to connect the internal server (IIS) due to connection strings for this we need to check prior connection as windows authentication or sql authentication.
2. In our application there was a navigation issues as the interfaces not calling actual code Energysuppliername.aspx.cs, and areacode.aspx.cs
3. Actual data was not populating on the GUI and unable to save the contract for this we need proper handshake with the presentation layer and the application layer.
4. We have created Database in SQL server express edition due to this we unable to create a website in windows Azure for this we need SQL server 2012.

6 Project Design Units Impacts

Admin Design:

Admin User has the authority of creating the Master data into the system for Gas services and the Power services. The Master data is created basically for the Domestic or Commercial users to select and create or select the contract for which they are interested depending upon their usage at their premises. Master data is created considering the location and amount of the services being used.

In Admin module we have five different pages namely

1. Area Code Screen
2. Energy Supplier Screen
3. Gas Rates Master Screen
4. Power Master Screen
5. Reports Screen

User Design:

User or Consumer initially registers himself via **New User** link available on the Login page of the website to use the services of the Supply Energy which provides the GAS and POWER to the consumers. Once the user registers himself and logged into the system user is displayed option for registering for the GAS or POWER contract by selecting different options available on the page depending upon the usage. Here in this page user also has the option for doing prior calculations for Monthly , Quarterly or Annually depending upon the approximate number of units used before registering themselves to actual contract. User has the option of viewing back anytime after registering the contract using Radio buttons and View button functionality. When user registers himself into the system the record is stored into the database in the table **dbo.tblregistration**

6. New User Registration Screen

6.1 Functional Area/Design Unit Areacode

6.1.1 Functional Overview

In Area code screen Admin enters the Area code with the corresponding Area. Normally Admin creates area codes based on the Pin code of the locality. The record when saved is inserted into the database in the table **dbo.tblarea**

6.1.2 Impacts

Areacode details will be displayed in the design pages in 'Energy Supplier', 'GasRate Master screen', 'Power Master Screen', 'Report Screen' when selected the areaname with respective areacode will also be displayed and when the user registering for the contract either GAS or POWER the Area name Master Data which is entered by the admin which be displayed for the users to select.

6.1.3 Requirements

<GSU-GS_FA2015-1 User-Capability-000300>

When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 User-Capability-000400>

When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 Admin-Capability-000500>

The project must allow only administrator access to with name Areacode details, Energy Supplier details, Gasrate Master screen, Power Master screen, Report Screen.

<GSU-GS_FA2015-1 Admin-Capability-000600>

Areacode details that contain areacode , areaname and 'Save' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000700>

Energy Supplier details that contain Energy Supplier name , areaname (areaname entered in the areacode details page should be populate) and 'Save' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000800>

GasRate Master details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000900>

Power Meter details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-001100>

Report screen should contain two radio buttons 1. Areacode 2. Energy Supplier name
When clicked areacode, all the areaname should be displayed in a dropdown list and when selected report should be displayed in a grid view with details powertype, areacode, areaname, energy supplier name, number of units, name and address

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as
Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender,
address, logintype

dbo.tblarea - areacode(not null,primary key), areaname
dbo.tblEnergysupplier - engsuppid(not null, primary key
) ,engSuppliername, areacode

dbo.tblGasRate - id(not null, primary key), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblPowerRate - id(NOTNULL, PRIMARY KEY), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblpowercalculation - powercalid(NOTNULL, PRIMARY KEY), powertype,
areacode, suppliername, ratetype, ussage, noofunits,amount,
name,mobileno, address, status, userid

<GSU-GS_FA2015-1 Admin-Capability-001300>

Bulk Import functionality from Database

<GSU-GS_FA2015-1 Admin-Capability-001400>

Create a stored procedure for the tables mentioned in the Requirement 001200

<GSU-GS_FA2015-1 Admin/User-Capability-001500>

Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001800>

The project must allow user to Logout from the application

6.2 Functional Area/Design Unit Energy Supplier

6.2.1 Functional Overview

In Energy Supplier Name screen Admin enter the Energy supplier name in that specific locality. Normally Admin creates the Energy suppliers names based on his agencies in the locality. The record when saved is inserted into the database in the table

dbo.tblEnergysupplier

6.2.2 Impacts

Energy Supplier details will be displayed in the design pages in 'GasRate Master screen', 'Power Master Screen', 'Report Screen' as a drop down list and when the user registering for the contract either GAS or POWER the energy supplier Master Data which is entered by the admin which be displayed for the users to select.

6.2.3 Requirements

<GSU-GS_FA2015-1 User-Capability-000300>

When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 User-Capability-000400>

When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 Admin-Capability-000500>

The project must allow only administrator access to with name Areacode details, Energy Supplier details, Gasrate Master screen, Power Master screen, Report Screen.

<GSU-GS_FA2015-1 Admin-Capability-000600>

Areacode details that contain areacode , areaname and 'Save' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000700>

Energy Supplier details that contain Energy Supplier name , areaname (areaname entered in the areacode details page should be populate) and 'Save' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000800>

GasRate Master details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-000900>

Power Meter details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-001100>

Report screen should contain two radio buttons 1. Areacode 2. Energy Supplier name
When clicked areacode, all the areaname should be displayed in a dropdown list and when selected report should be displayed in a grid view with details powertype, areacode, areaname, energy supplier name, number of units, name and address

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as
Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype

dbo.tblarea – areacode(not null,primary key), areaname

dbo.tblEnergysupplier – engsuppid(not null, primary key
) ,engSuppliename, areacode

dbo.tblGasRate – id(not null, primary key), areacode, engsuppliename,
standardrate, base rate, nightsaver

dbo.tblPowerRate – id(NOTNULL, PRIMARY KEY), areacode, engsuppliename,
standardrate, base rate, nightsaver

dbo.tblpowercalculation – powercalid(NOTNULL, PRIMARY KEY), powertype,
areacode, suppliename, ratetype, ussage, noofunits, amount,
name, mobileno, address, status, userid

<GSU-GS_FA2015-1 Admin-Capability-001300>
Bulk Import functionality from Database

<GSU-GS_FA2015-1 Admin-Capability-001400>
Create a stored procedure for the tables mentioned in the Requirement 001200

<GSU-GS_FA2015-1 Admin/User-Capability-001500>
Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001800>
The project must allow user to Logout from the application

6.3 Functional Area/Design Unit GasRate Master Screen

6.3.1 Functional Overview

In Gas Meter Details screen Admin enters the different slab rates for different type of consumers namely under different criteria based upon the usage like a) Standard Rate b) Base Rate and c) Night Rate. Normally Admin creates slab rates based on his estimations and profitability considering his costs to generate gas and supply to consumers. The record when saved after input the details is inserted into the database in the table **dbo.tblGasRate**

6.3.2 Impacts

All the slab rates will be displayed to the user while registering for the GAS contract on this screen.

6.3.3 Requirements

<GSU-GS_FA2015-1 User-Capability-000300>
When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 User-Capability-000400>
When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 Admin-Capability-000500>
The project must allow only administrator access to with name Areacode details, Energy Supplier details, Gasrate Master screen, Power Master screen, Report Screen.

<GSU-GS_FA2015-1 Admin-Capability-000800>
GasRate Master details that contain areaname (should allow admin to select), Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-0001000>
When clicked on search button related result should be displayed for selection in GasRate Master screen and Power Meter details page

<GSU-GS_FA2015-1 Admin-Capability-001100>

Report screen should contain two radio buttons 1. Areacode 2. Energy Supplier name
When clicked areacode, all the areaname should be displayed in a dropdown list and when selected report should be displayed in a grid view with details powertype, areacode, areaname, energy supplier name, number of units, name and address

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as
Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype

dbo.tblarea – areacode(not null,primary key), areaname
dbo.tblEnergysupplier – engsuppid(not null, primary key
) ,engSuppliername, areacode

dbo.tblGasRate – id(not null, primary key), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblPowerRate – id(NOTNULL, PRIMARY KEY), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblpowercalculation – powercalid(NOTNULL, PRIMARY KEY), powertype,
areacode, suppliername, ratetype, ussage, noofunits,amount,
name,mobileno, address, status, userid

<GSU-GS_FA2015-1 Admin-Capability-001300>

Bulk Import functionality from Database

<GSU-GS_FA2015-1 Admin-Capability-001400>

Create a stored procedure for the tables mentioned in the Requirement 001200

<GSU-GS_FA2015-1 Admin/User-Capability-001500>

Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001500>

Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001800>

The project must allow user to Logout from the application

6.4 Functional Area/Design Unit Power Master Screen

6.4.1 Functional Overview

In power Meter Details screen Admin enters the different slab rates for different type of consumers namely under different criteria based upon the usage like a) Standard Rate b) Base Rate and c) Night Rate. Normally Admin creates slab rates based on his estimations and profitability considering his costs to generate power and supply to consumers. The record when saved after input the details is inserted into the database in the table **dbo.tblPowerRate**

6.4.2 Impacts

All the slab rates will be displayed to the user while registering for the electric contract on this screen.

6.4.3 Requirements

<GSU-GS_FA2015-1 User-Capability-000300>

When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 User-Capability-000400>

When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 Admin-Capability-000500>

The project must allow only administrator access to with name Areacode details, Energy Supplier details, Gasrate Master screen, Power Master screen, Report Screen.

<GSU-GS_FA2015-1 Admin-Capability-0009000>

Power Meter details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-0001000>

When clicked on search button related result should be displayed for selection in GasRate Master screen and Power Meter details page

<GSU-GS_FA2015-1 Admin-Capability-001100>

Report screen should contain two radio buttons 1. Areacode 2. Energy Supplier name
When clicked areacode, all the areaname should be displayed in a dropdown list and when selected report should be displayed in a grid view with details powertype, areacode, areaname, energy supplier name, number of units, name and address

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as
Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype

dbo.tblarea - areacode(not null,primary key), areaname
dbo.tblEnergysupplier - engsuppid(not null, primary key
) ,engSuppliename, areacode

dbo.tblGasRate - id(not null, primary key), areacode, engsuppliename,
standardrate, base rate, nightsaver

dbo.tblPowerRate - id(NOTNULL, PRIMARY KEY), areacode, engsuppliename,
standardrate, base rate, nightsaver

dbo.tblpowercalculation - powercalid(NOTNULL, PRIMARY KEY), powertype,
areacode, suppliename, ratetype, ussage, noofunits, amount,
name, mobileno, address, status, userid

<GSU-GS_FA2015-1 Admin-Capability-001300>

Bulk Import functionality from Database

<GSU-GS_FA2015-1 Admin-Capability-001400>

Create a stored procedure for the tables mentioned in the Requirement 001200

<GSU-GS_FA2015-1 Admin/User-Capability-001500>
Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001800>
The project must allow user to Logout from the application

6.5 Functional Area/Design Unit Gas and Power Report Screen

6.5.1 Functional Overview

In this screen Admin has the provision of viewing the customer details who has taken and registered for the contract either Gas or Power. Admin has the option either viewing using the filters either by AreaCode or SupplierName , this screen displays the details of customers who have been registered with the services of the Supply Energy.

The details for the record is stored on the report table **dbo.tblpowercalculation**

6.5.2 Impacts

No Impacts.

6.5.3 Requirements

NA

6.6 Functional Area/Design Unit New User Registration and Login

6.6.1 Functional Overview

User or Consumer initially registers himself via **New User** link available on the Login page of the website to use the services of the Supply Energy which provides the GAS and POWER to the consumers. Once the user registers himself and logged into the system user is displayed option for registering for the GAS or POWER contract by selecting different options available on the page depending upon the usage. Here in this page user also has the option for doing prior calculations for Monthly, Quarterly or Annually depending upon the approximate number of units used before registering themselves to actual contract.

User has the option of viewing back anytime after registering the contract using Radio buttons and View button functionality.

When user registers himself into the system the record is stored into the database in the table

dbo.tblregistration

6.6.2 Impacts

All the details give in the login page will be displayed in the report screen which is only visible to administrator

6.6.3 Requirements

<GSU-GS_FA2015-1 User-Capability-000100>

The project must allow new users to be added contract, View contract and Clear data by the application.

<GSU-GS_FA2015-1 User-Capability-000200>

User log in must contain two options Gas and Electric .

<GSU-GS_FA2015-1 User-Capability-000300>

When User selects Gas option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 User-Capability-000400>

When User selects electric option, fields areaname, energy supplier name, rates, Contract (Monthly, Quaterly, Yearly) all these are selection type and 'calculate' button, when clicked should calculate according to the contract and rate selected

<GSU-GS_FA2015-1 Admin-Capability-000800>

GasRate Master details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-0009000>

Power Meter details that contain areaname (should allow admin to select) , Energy Supplier name (should allow admin to select) with search button, Standard rate , base rate, Nightsaver rate (Should be allow admin to enter value) and 'Save' button, 'Update' button with message record saved successfully when clicked.

<GSU-GS_FA2015-1 Admin-Capability-0001000>

When clicked on search button related result should be displayed for selection in GasRate Master screen and Power Meter details page

<GSU-GS_FA2015-1 Admin-Capability-001200>

Create a Database with name 'Energy' and create a tables with columns as

Tblregistration – id (NOTNULL, PRIMARY KEY), username, password, repassword, email, gender, address, logintype

dbo.tblarea - areacode(not null,primary key), areaname

dbo.tblEnergysupplier - engsuppid(not null, primary key
) ,engSuppliername, areacode

dbo.tblGasRate - id(not null, primary key), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblPowerRate - id(NOTNULL, PRIMARY KEY), areacode, engsuppliername,
standardrate, base rate, nightsaver

dbo.tblpowercalculation - powercalid(NOTNULL, PRIMARY KEY), powertype,
areacode, suppliername, ratetype, ussage, noofunits, amount,
name, mobileno, address, status, userid

<GSU-GS_FA2015-1 Admin-Capability-001300>

Bulk Import functionality from Database

<GSU-GS_FA2015-1 Admin-Capability-001400>

Create a stored procedure for the tables mentioned in the Requirement 001200

<GSU-GS_FA2015-1 Admin/User-Capability-001500>

Should display Supply energy logo in all web pages on the top left side.

<GSU-GS_FA2015-1 Admin/User-Capability-001800>

The project must allow user to Logout from the application

7 Open Issues

Need actual customers data from all the Gas and electric companies from all states of United states of America.

8 Acknowledgements

This project consumed huge amount of work, research and dedication. First of all we are thankful to the authors Ramez Elmasri, Shamkant B. Navathe ,Mary Delamater, and Anne Boehm, for their providing detailed steps of Database concepts, ASP.NET concepts which helps the project to run smoothly. Still, implementation would not have been possible if we did not have a support of team. I have referred youtubes which is the best friend for every individuals. Therefore we would like to extend our sincere gratitude to all of them. Nevertheless, we express our gratitude toward our professors Neng-Shin Chen, Dr. Soon-Ok Park and Xueqing Shih Tang for their kind co-operation and encouragement which help us in completion of this project.

9 References

All references should include, author, title of document, doc ID# and issue date.

Author: Ramez Elmasri, Shamkant B. Navathe

Title of Document: Fundamentals of Database Systems sixth Edition

ISBN ID#: 0-136-08620-9

Author: Mary Delamater, and Anne Boehm

Title of Document: Murach's ASP.NET 4.5 web programming with c# 2015

ISBN ID#: 978-1-890774-75-2

Websites links:

<https://www.youtube.com/watch?v=qSoleZn5o18>

<https://www.youtube.com/watch?v=Hla3VFy2lUk>

<https://www.apachefriends.org/index.html>

<http://cloudproxy.sucuri.net/>

10 Appendices

Appendix 1: Admin Modules with Related Database Screen shots and Stored Procedures.

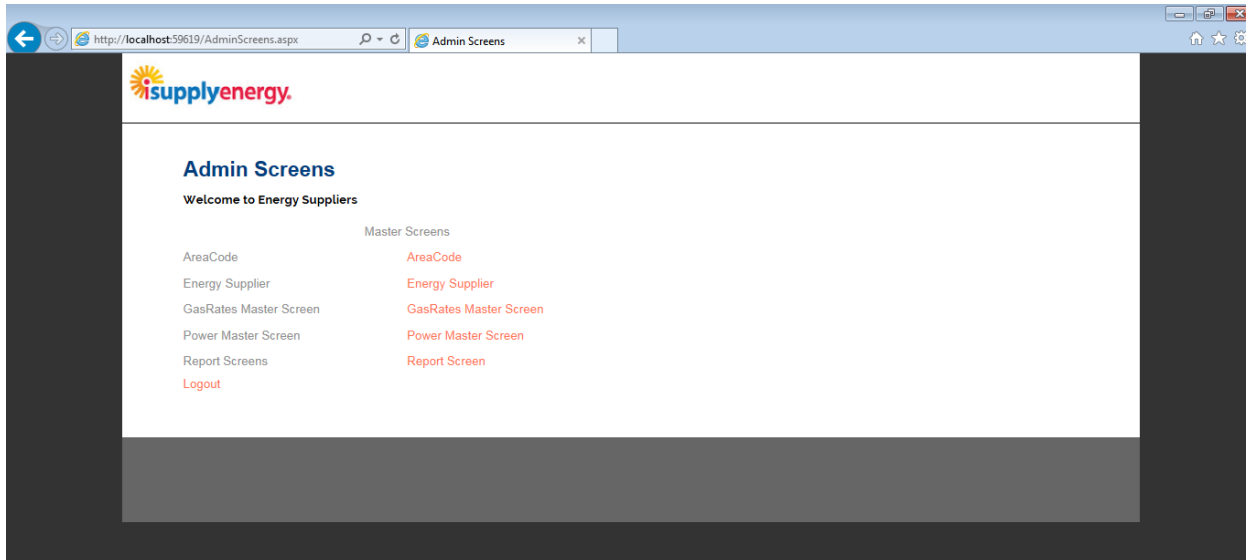


Figure 8: Admin Screen

Area Code Screen:

The Stored Procedure written for this inserting the record is

```
USE [Energy]

GO

/***** Object:  StoredProcedure [dbo].[Insert_AreaCode] *****/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO
create procedure [dbo].[Insert_AreaCode]
@Areacode int,
@areaname varchar(20)
as
insert into tblarea (Areacode,areaname)
values (@Areacode, @areaname) ;

GO
```

Screen Display

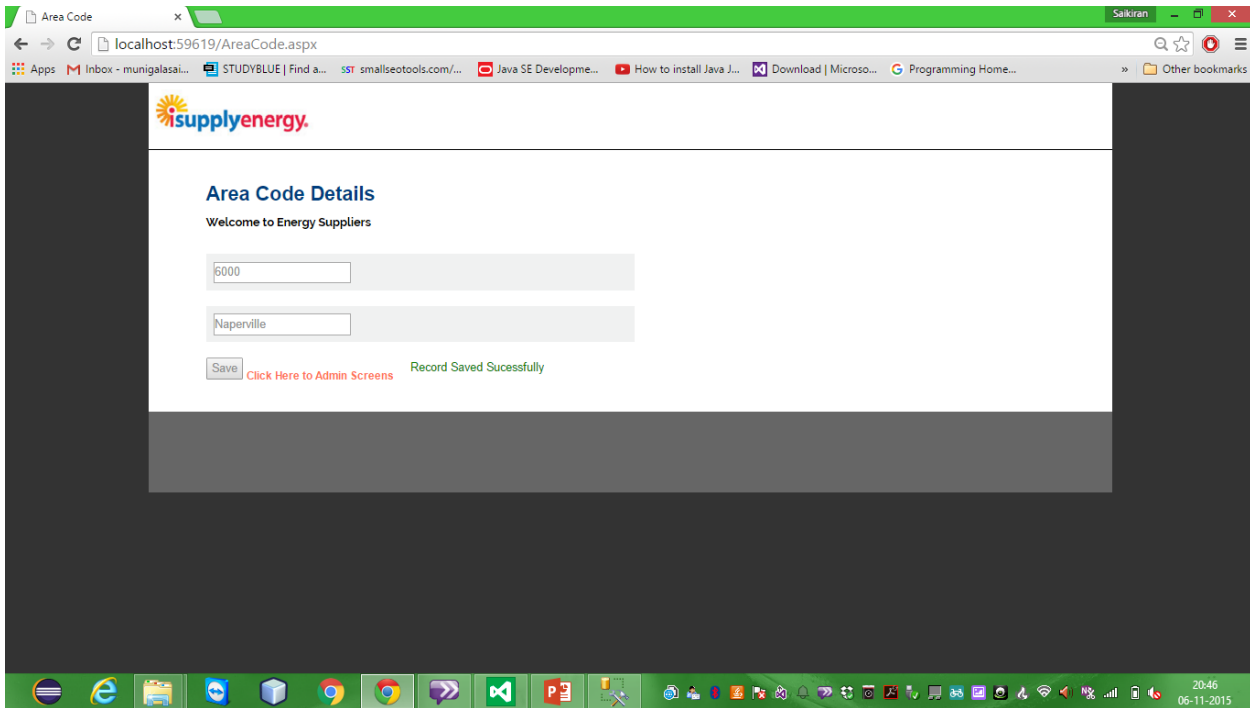


Figure 9: Areacode screen

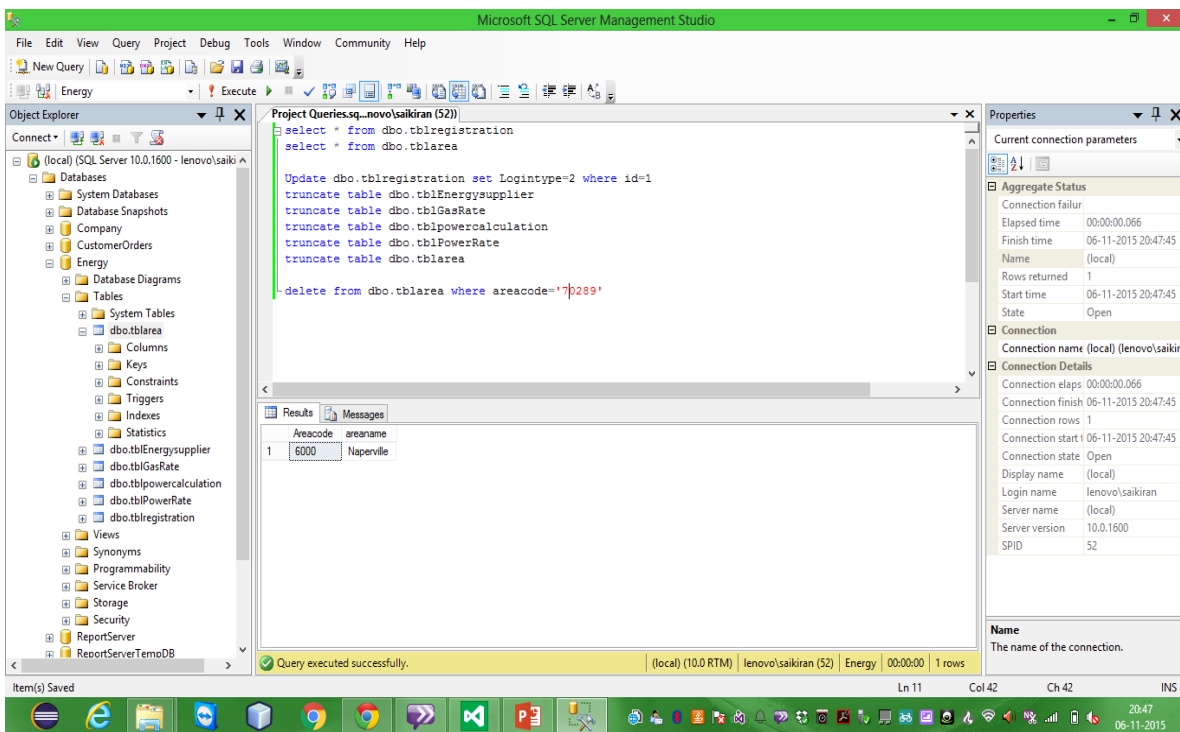


Figure10: Areacode database

Energy Supplier Name Screen:

The Stored Procedure written for this inserting the record is as below:

```

USE [Energy]
GO
/***** Object:  StoredProcedure [dbo].[Insert_EnergySuppliers] *****/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

create procedure [dbo].[Insert_EnergySuppliers]
@EngSupplierName varchar(50),
@areacode int
as
insert into tblEnergySupplier (EngSupplierName,areacode)
values (@EngSupplierName,@areacode);
GO

```

Screen Display

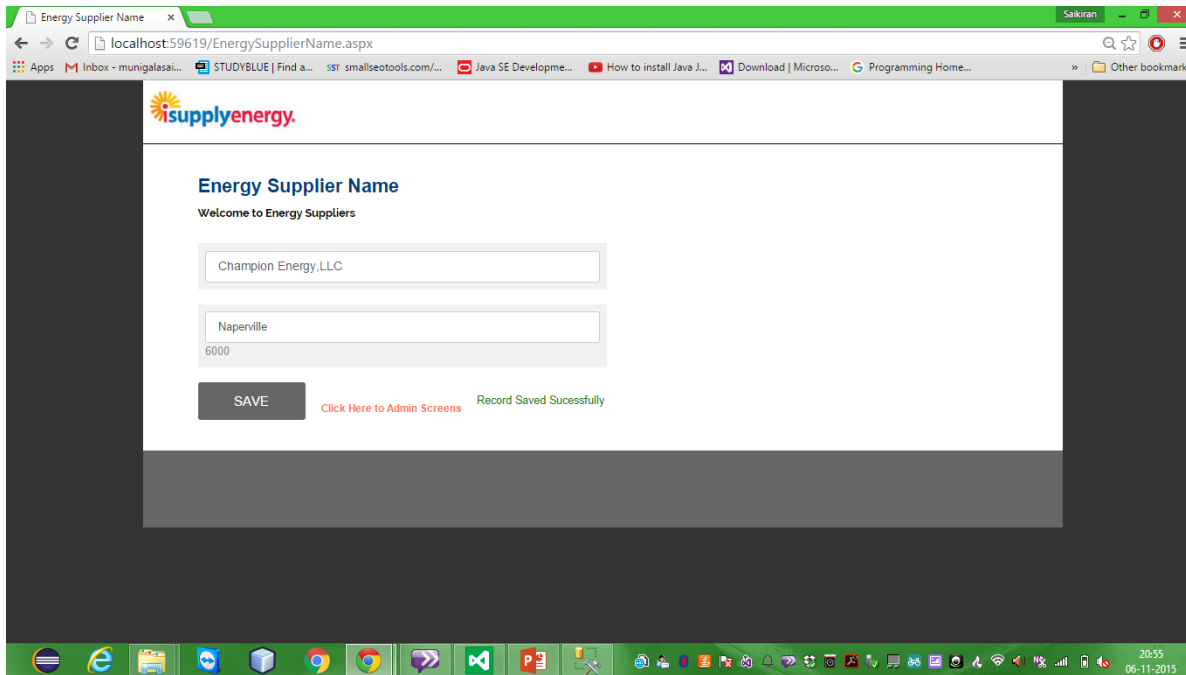


Figure11: Energy Supplier Screen

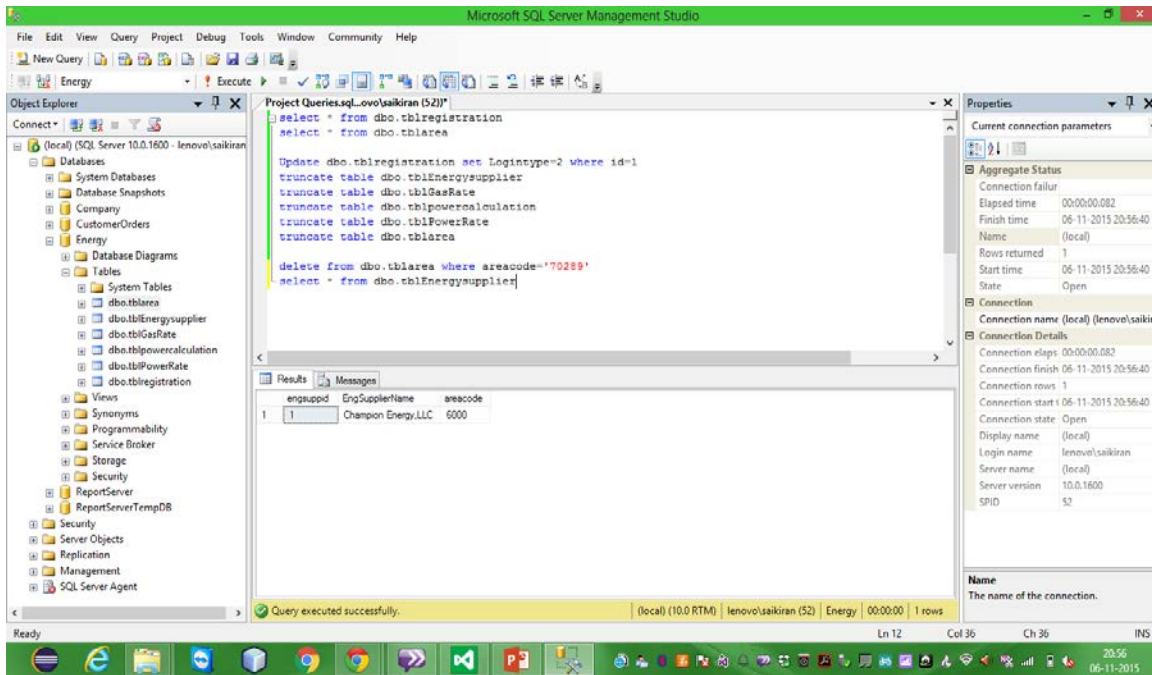


Figure12: Energy Supplier Database

Gas Meter Details Screen:

The Stored Procedure written for this inserting the record is as below:

```

USE [Energy]
GO
/***** Object:  StoredProcedure [dbo].[Insert_GasRateMaster]*****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create procedure [dbo].[Insert_GasRateMaster]
@areacode int,
@engsupplierName varchar(50),
@standardrate float,
@BaseRate float,
@NightSaver float
as
insert into tblGasRate (areacode, engsupplierName, standardrate, BaseRate, NightSaver)
values (@areacode, @engsupplierName, @standardrate, @BaseRate, @NightSaver) ;
GO

```

Screen Display

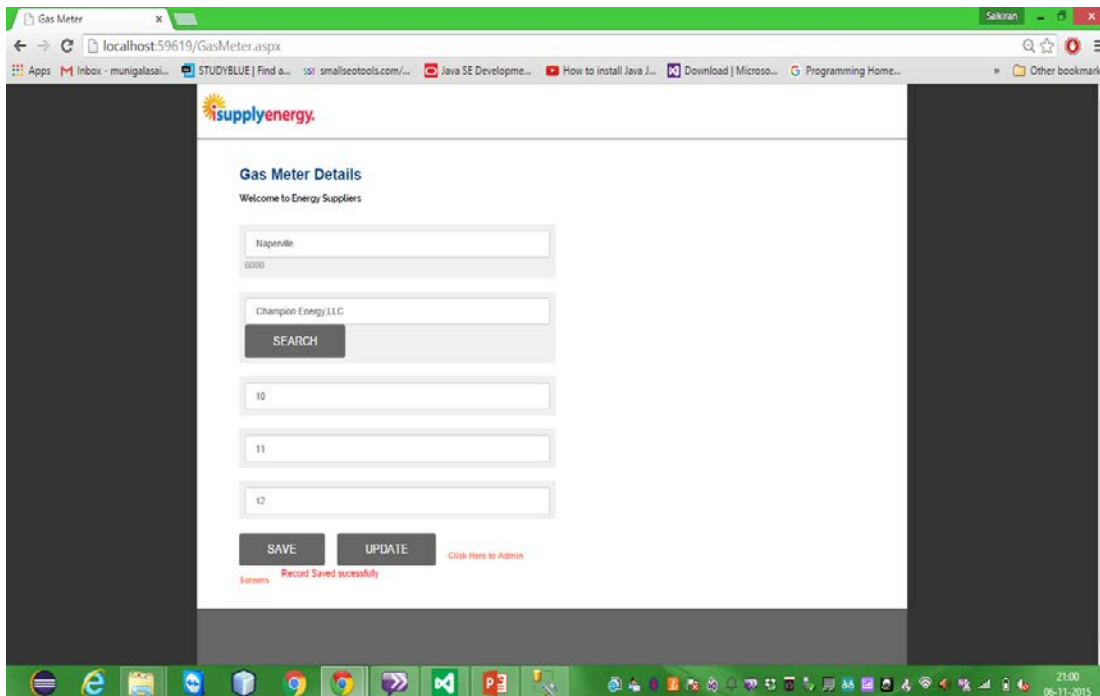


Figure13: Gas Meter details screen

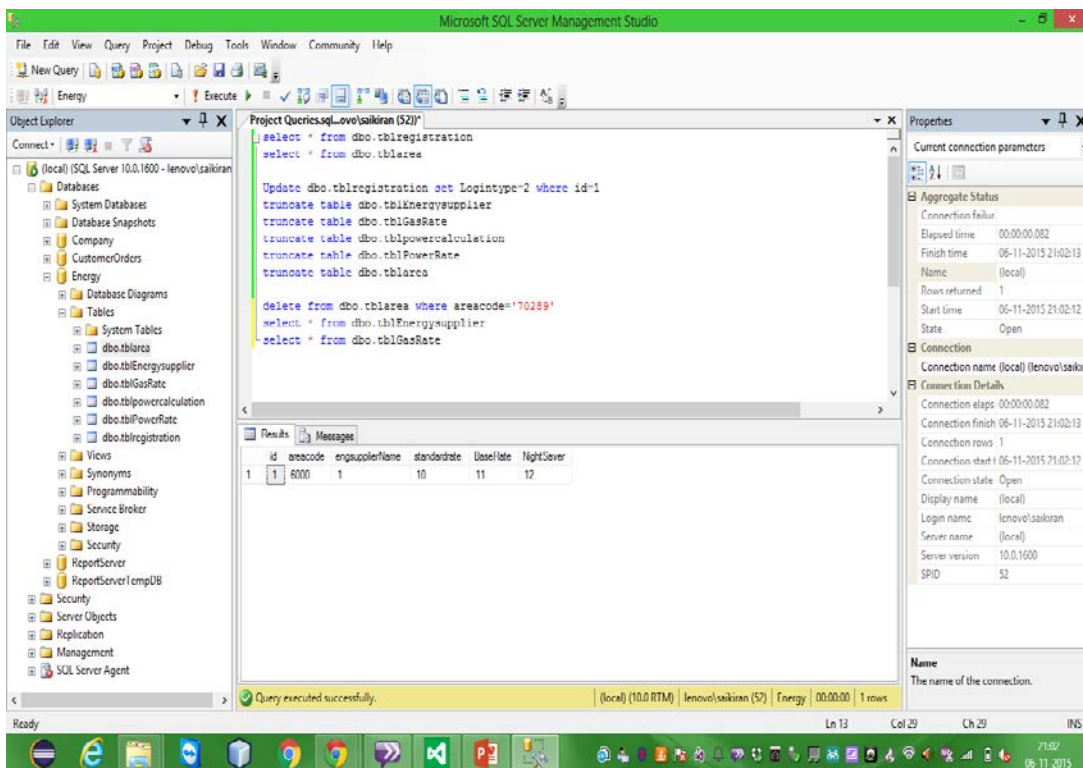


Figure 14: Gas meter data base

Power Meter Details Screen:

The Stored Procedure written for this inserting the record is as below:

```
USE [Energy]
GO
/***** Object:  StoredProcedure [dbo].[Insert_PowerRateMaster]*****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create procedure [dbo].[Insert_PowerRateMaster]
@areacode int,
@engsupplierName varchar(50),
@standardrate float,
@BaseRate float,
@NightSaver float
as
insert into tblPowerRate (areacode, engsupplierName, standardrate, BaseRate, NightSaver)
values (@areacode, @engsupplierName, @standardrate, @BaseRate, @NightSaver);
GO
```

Screen Display

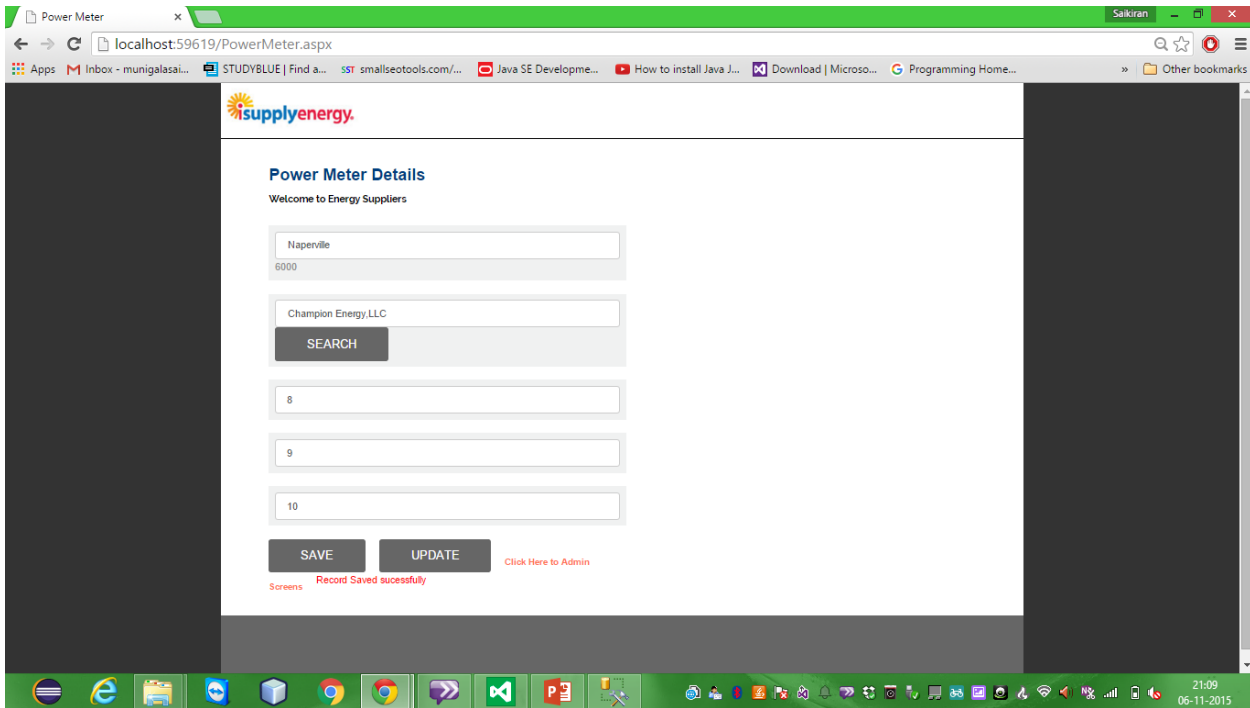


Figure 15: Power meter details screen

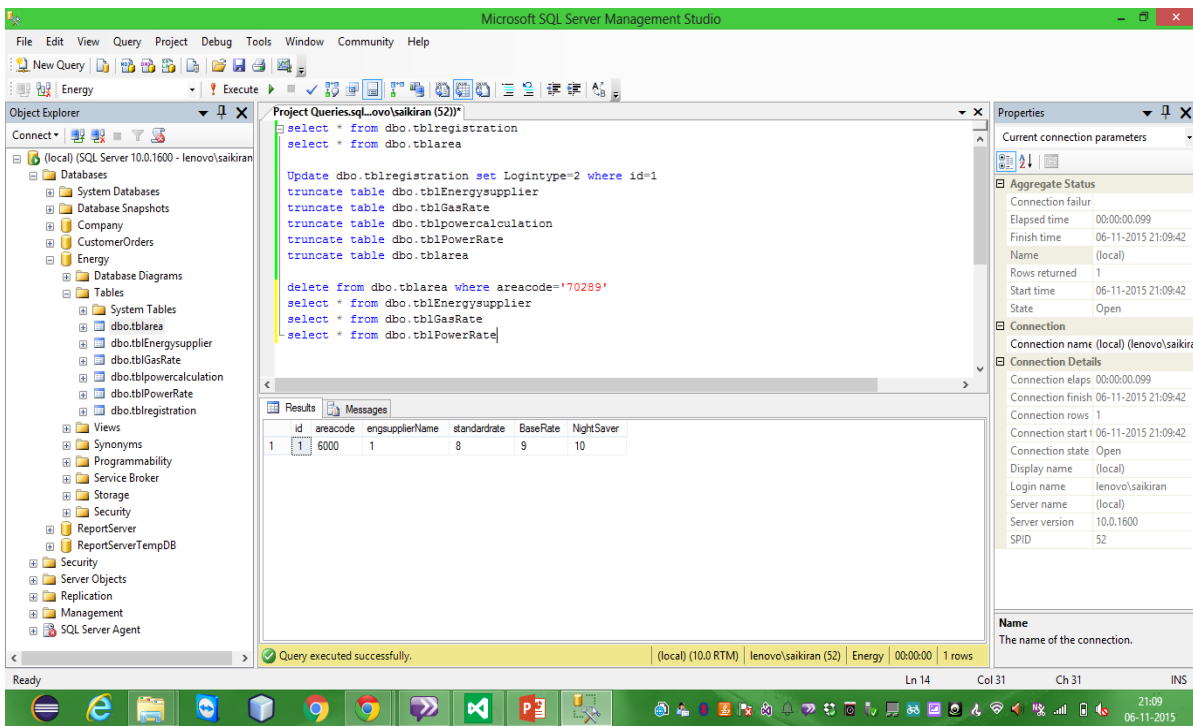


Figure 16: Power meter database

Gas And Power Report Screen

The Stored Procedure written for this inserting the record is as below:

USE [Energy]
GO


```

/***** Object: StoredProcedure [dbo].[Insert_powercalculation *****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE procedure [dbo].[Insert_powercalculation]
@powertype int,@areacode int,
@suppliername int,@ratetype varchar(100),
@usge int,@noofunit int,
@amount float,@name varchar(100),
@moblno varchar(100),@address varchar(200),
@status int,@userid tinyint
as
insert into tblpowercalculation
(powertype,areacode,suppliername,ratetype,usge,noofunit,amount,name,moblno,address,s
tatus,userid)
values(@powertype,@areacode,@suppliername,@ratetype,@usge,@noofunit,@amount,@name,@m
oblno,@address,@status,@userid);
GO

```

Screen Display

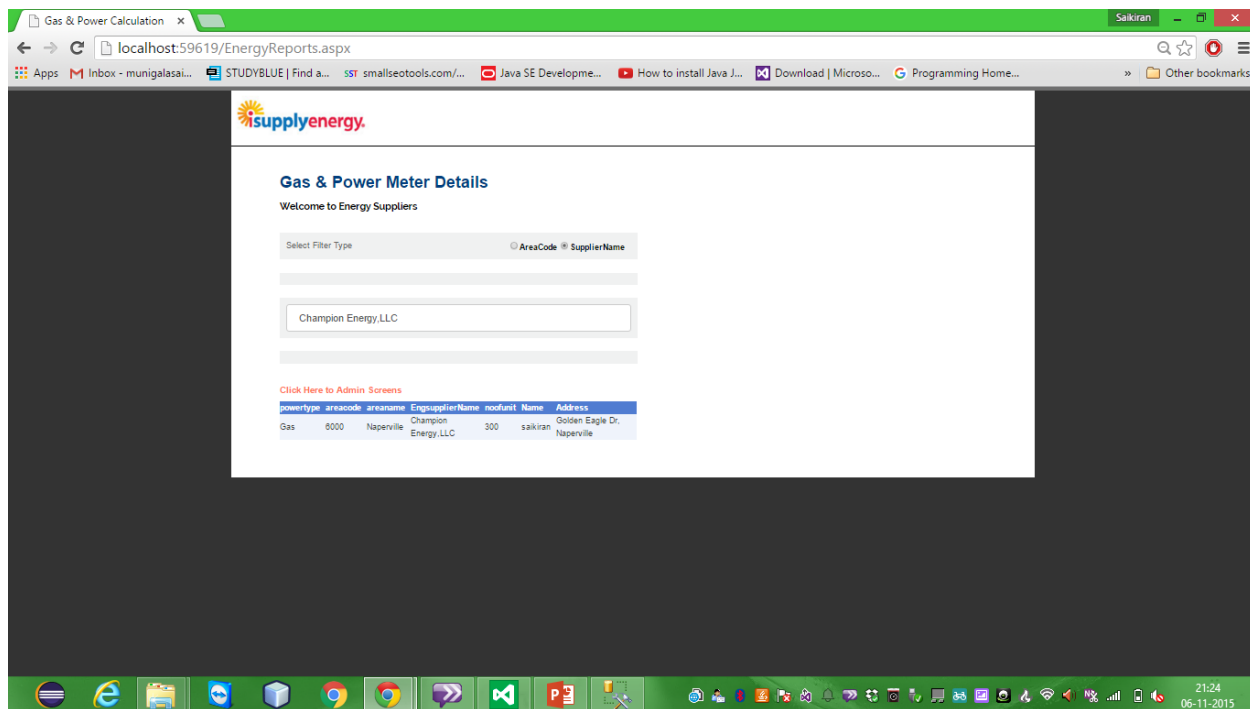


Figure 17: Report screen

Appendix2: User Module with Related Database Screen shots and Store Procedures.

The Stored Procedure written for this inserting the record is as below:

```

USE [Energy]
GO

```

```
/****** Object:  StoredProcedure [dbo].[Insert_UserRegistration] *****/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

create procedure [dbo].[Insert_UserRegistration]
@username varchar(50),
@password varchar(20),
@repassword varchar(20),
@email varchar(50),
@Gender int,
@Address varchar(50),
@Logintype int
as
insert into tblregistration
(username,password,repassword,Email,Gender,Address,Logintype)
values(@username,@password,@repassword,@Email,@Gender,@Address,@Logintype);

GO
```

Screens:

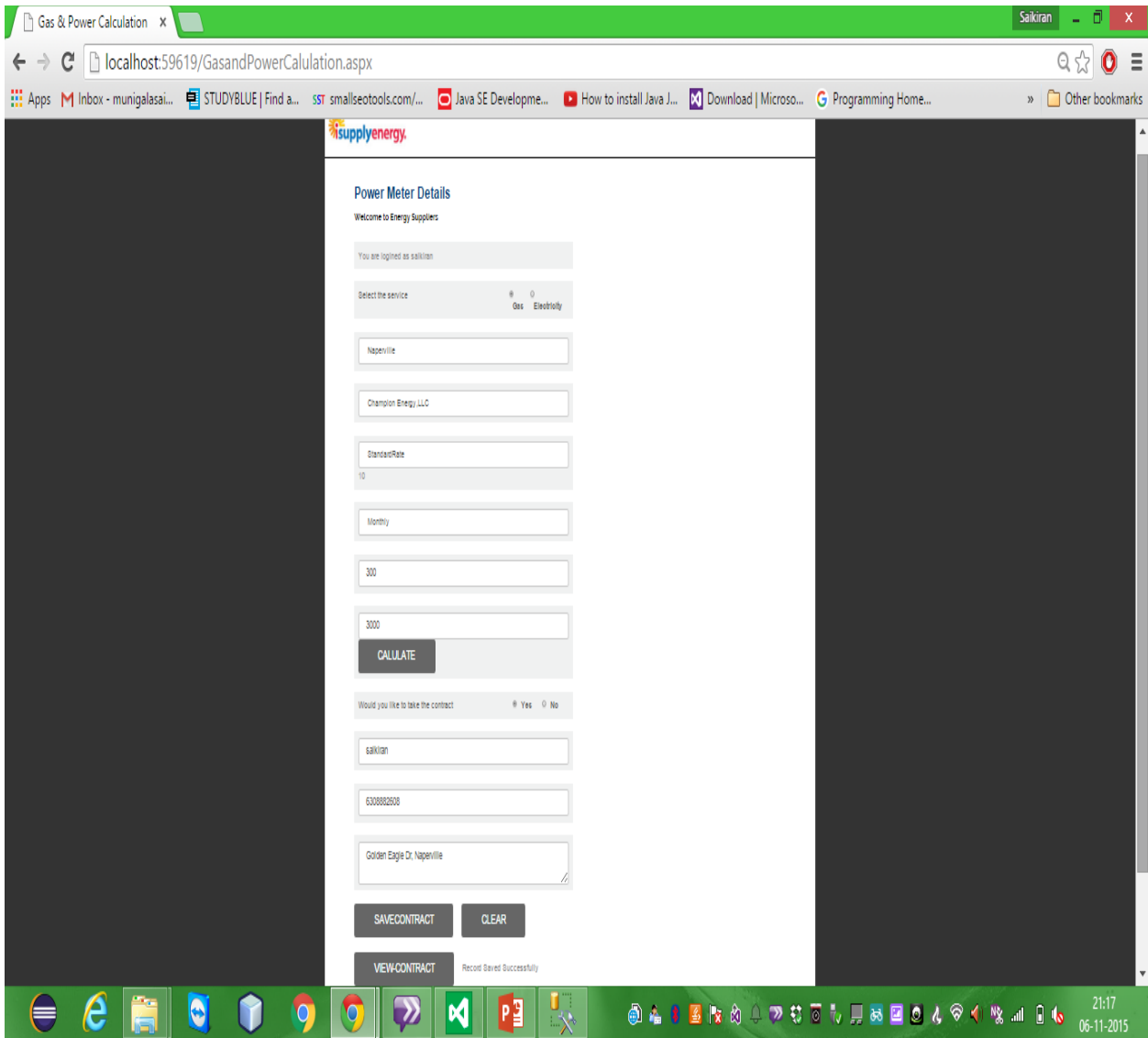


Figure19: User screen

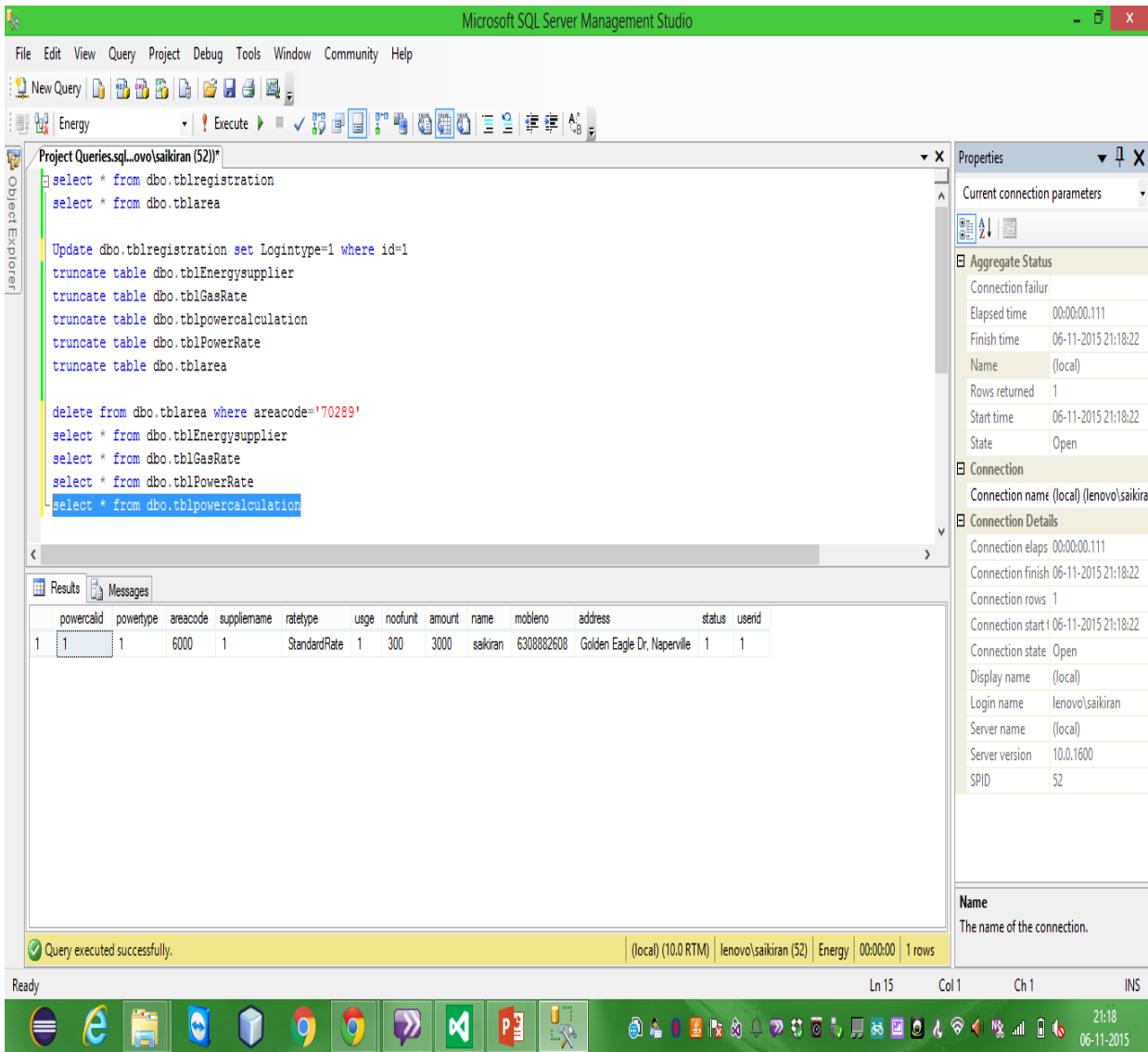


Figure 18: Power calculation database

New User Registration

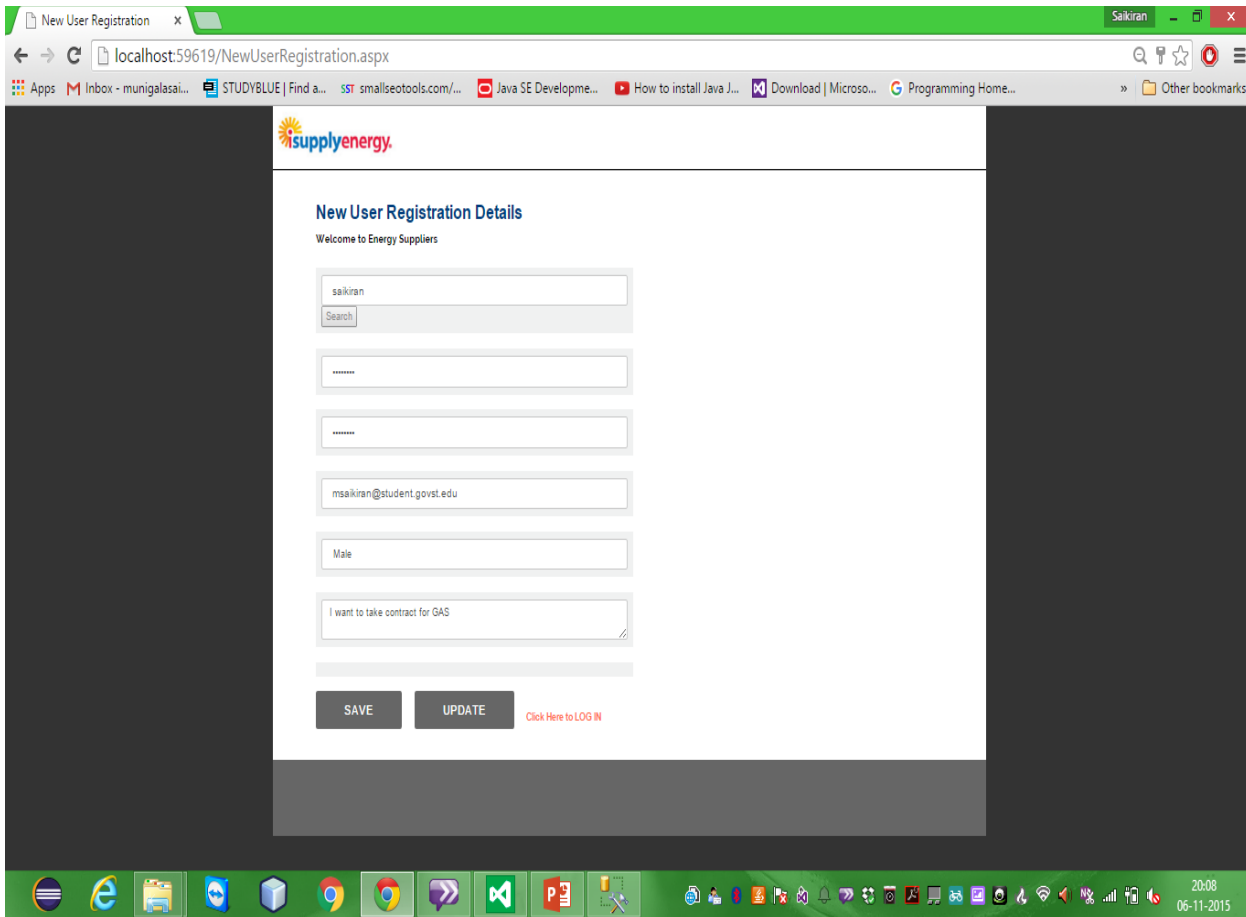


Figure19: New User registration screen

Appendix3: Testing/Defect tracker implementation.

Unit Testing

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format

- No duplicate entries should be allowed

All links should take the user to the correct page

System Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications.

Manual test suite as shown in the below Table 4

Supply Energy	Project Name:	The Neo Energy Industry	Test Designed by:	Saikrishna Munigala,Shivaraj Vodapalli		
	Module Name:	ADMIN/USER	Test Designed date:	11-12-2015		
	Release Version:	v1	Test Executed by:	Saikiran Munigala		
			Test Execution date:	11/14/2015		
Test Case#	Test Title	Test Summary	Test Steps	TestCase	Expected Result	Status
TC_001	To test the Areacode details page	Verify whether admin is able create data in areacode details	Step1	Login to the application with valid credntials	User should be able to successfully log in	PASS
			step2	Click on 'Areacode' link	Should be able to click on 'Areacode' link	PASS

			step3	Enter some data in areacode and areaname	Should be able to enter data in areacode and areaname	PASS
			step4	Click on 'Save' button	Should be able to successfully save button	PASS
			step5	Click on 'Logout' button	User should be able to successfully log out from application	PASS
TC_002	To test the EnergySupplier details page	Verify whether admin is able to create data in energy supplier details	Step1	Login to the application with valid credentials	User should be able to successfully log in	PASS
			step2	Click on 'Energy Supplier' link	Should be able to click on 'Energy Supplier' link	PASS
			step3	Enter some data in Energysupplier name and select the areaname	Should be able to enter data in Energysupplier name and select the	PASS

					areaname	
			step4	Click on 'Save' button	Should be able to successfully save button	PASS
			step5	Click on 'Logout' button	User should be able to successfully log out from application	PASS
TC_003	To test the GasRateMaster screen details page	Verify whether admin is able create data in GasRateMaster screen details	Step1	Login to the application with valid credntials	User should be able to successfully log in	PASS
			step2	Enter some data in areacode	Should be able to enter data in areacode	PASS
			step3	select any energy supplier name	Should be able to select any energy supplier name	PASS
			step4	Enter the value in standard rate	Should be able to enter the value in standard	PASS

					rate	
			step5	Enter the value in base rate	Should be able to enter the value in base rate	PASS
			step6	Enter the value in night saver rate	Should be able to enter the value in night saver rate	PASS
			step7	Click on 'Save' button	Should be able to successfully save button	PASS
			step8	Click on 'Logout' button	User should be able to successfully log out from application	PASS
TC_004	To test the Power Master screen details page	Verify whether admin is able to create data in Power Master screen details	Step1	Login to the application with valid credntials	User should be able to successfully log in	PASS
			step2	Enter some data in areacode	Should be able to enter data in areacode	PASS

			step3	select any energy supplier name	Should be able to select any energy supplier name	PASS
			step4	Enter the value in standard rate	Should be able to enter the value in standard rate	PASS
			step5	Enter the value in base rate	Should be able to enter the value in base rate	PASS
			step6	Enter the value in night saver rate	Should be able to enter the value in night saver rate	PASS
			step7	Click on 'Save' button	Should be able to successfully save button	PASS
			step8	Click on 'Logout' button	User should be able to successfully log out from application	PASS
TC_005	To test the Report Master	Verify whether admin is able	Step1	Login to the application with	User should be able to	PASS

	screen details page	retrieve data Power Master screen details		valid credntials	successfully log in	
			step2	Click on 'Report' screen link	Should be able to click on 'Report' screen	PASS
			step3	Select radio button for areacode	Should be able to Select radio button for areacode	PASS
			step4	Select the areaname and Verify respective report is genereated on the screen	Respective report should be genereated on the screen	PASS
			step7	Click on 'Save' button	Should be able to successfully save button	PASS
			step8	Click on 'Logout' button	User should be able to successfully log out from application	PASS

Table 4: Manual Test cases

Smoke Testing

It is a preliminary testing to reveal simple failures severe enough to reject a prospective software release. A subset of test cases that cover the most important functionality of a component or system is selected and run, to ascertain if crucial functions of a program correctly work

Automation Testing

To automate the application we have installed Telerik Test Studio and Run the smoke test suites.

Defect Tracker

We used Mantis Bug tracking tool to log defects.

STLC (Software Testing Life Cycle) for our project is as follows:

New-> Feedback-> acknowledged->confirmed->resolved->closed

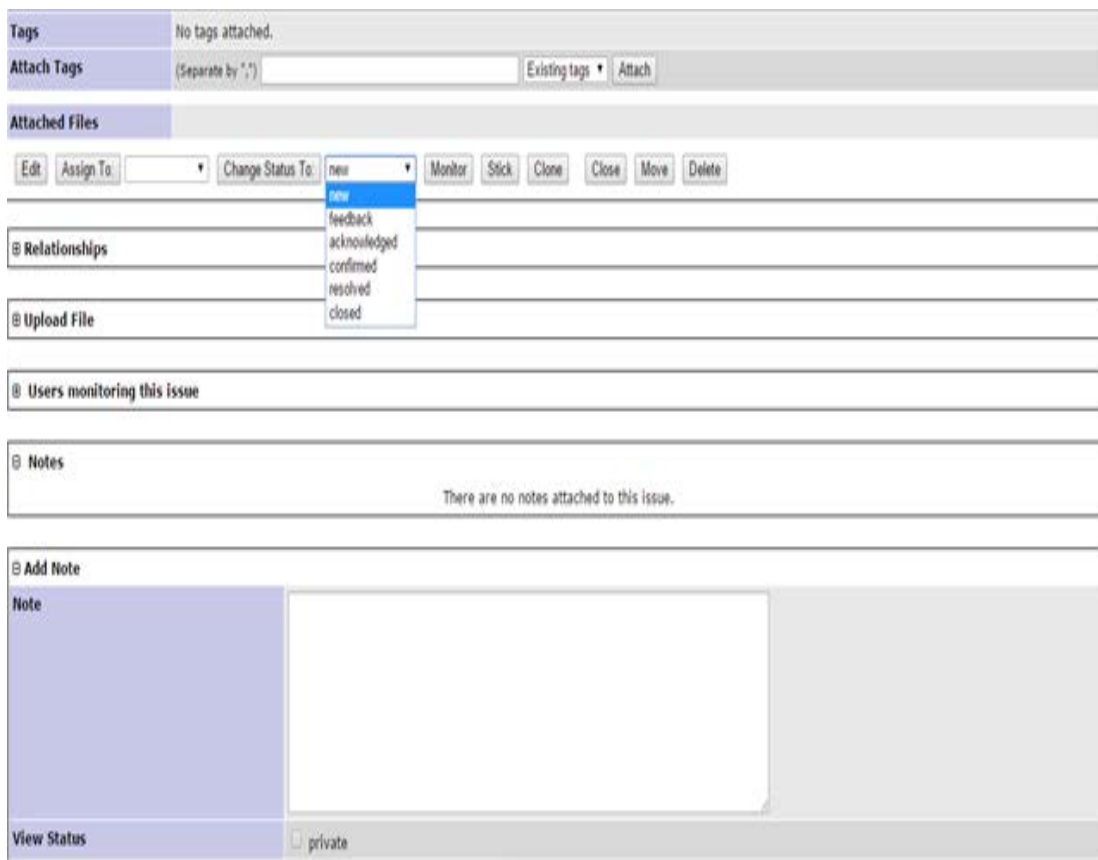


Figure20: Mantis defect flow screen

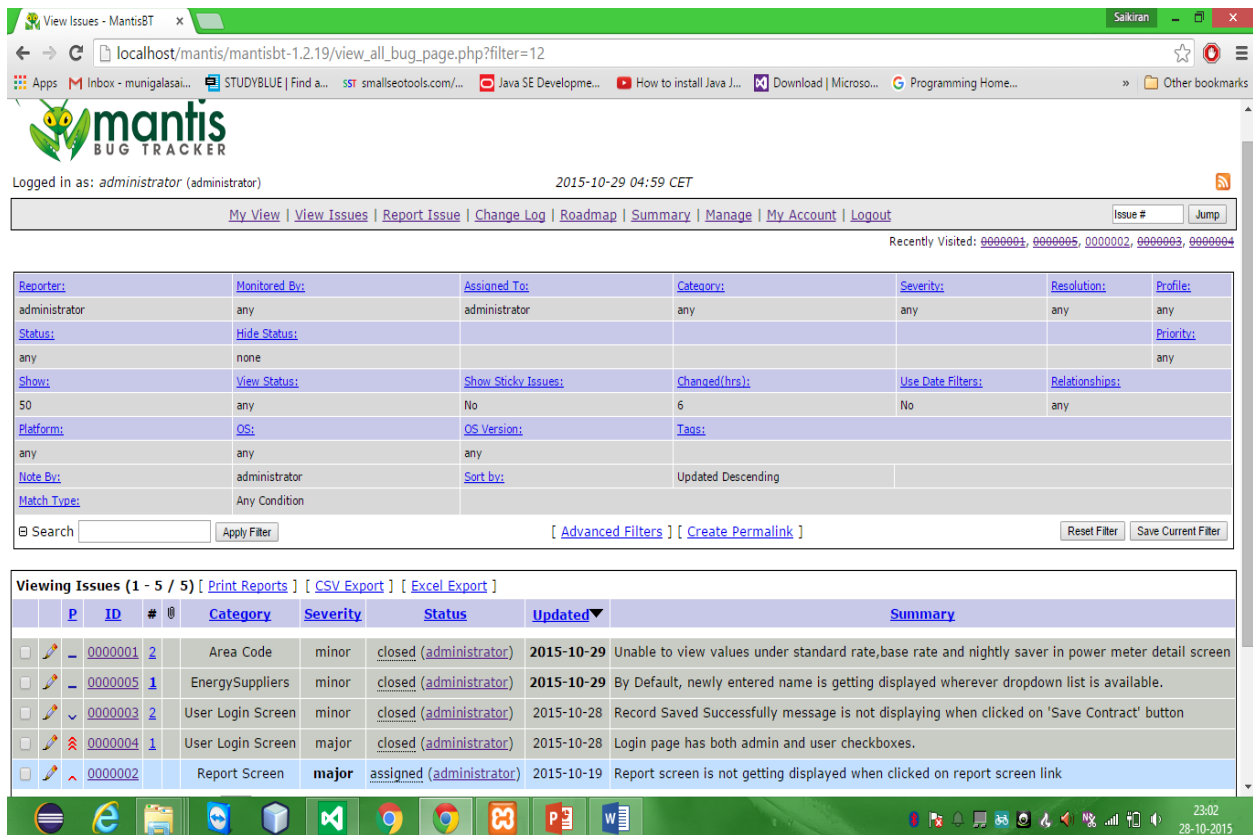


Figure 21: Mantis defects logged screen

How to download Mantis bug tracker

1. Goto URL : <https://www.mantisbt.org/download.php>
2. Goto Downloads, click on 'Download' button under stable release.
3. Click on 'Download Now' button.

To make it successful we need

- a. Apache Server
- b. MySQL
- c. PHP

On the computer and we can download all of these in one package 'xampp' which install these things.

1. <https://www.apachefriends.org/index.html>
2. Download and install xampp
3. To check whether its successfully installed just type in the URL: <http://localhost/dashboard/>
4. After installation copy and paste the mantisbt in the 'htdocs' folder and change the name of the mantis folder.
5. Type URL: <http://localhost/mantisbt>
6. Click on 'mantisbt-1.2.19' link
7. Click on 'Install\Upgrade Database' button
8. Scroll down and click on login as the admin link
9. Now use the URL: http://localhost/mantisbt/mantisbt-1.2.19/login_page.php
10. Username/password: administrator / root

Appendix4: Collected Data and Excel sheet used to import bulk data into Database.

Asreacode Table:

Areacode	areaname
21093	Baldwin
6641	Banner
84	Bannockburn
1343	Bardolph
4062	Barrington
3278	Bartelso
20404	Bartlett
134	Bartonville
261	Basco
56571	Batchtown
59864	Bath
50153	Baylis
5014	Beaverville
5016	Beecher
5019	Belgium
55841	Belknap
867	Bellevue
54871	Bellflower
54872	Bellwood
54873	Benson
16611	Berkeley
97	Berlin
40220	Bethalto
118	Bethany
108	Biggsville
150	Bingham
155	Blandinsville
737	Bluffs
113	Bolingbrook
162	Bondville
174	Bonfield
176	Bonnie
25866	Bowen
192	Braceville
40614	Bradford
195	Bridgeview
191	Broadlands
49803	Broughton
213	Browning

42889	Buckley
219	Buckingham
221	Bull Valley
230	Calumet Park
240	Camargo
241	Cambria
276	Cambridge
287	Camden
296	Campus
1296	Cantrall
305	Carlock
307	Carpentersville
329	Cary
332	Caseyville
23279	Catlin
13279	Cave-In-Rock
49818	Cedar Point
56929	Cedarville
8962	Central City
392	Chadwick
407	Chandlerville
471	Channahon
56212	Cherry
76212	Chesterfield
86212	Clifton
19436	Coal Valley
970	Coalton
56697	Coatsburg
50156	Cobden
343	Coleta
40577	Colfax
49730	Columbus
59730	Compton
69730	Cowden
79730	Crainville
89730	Creston
40429	Cypress
56162	Fairmount
562	Fairview
49853	Farina
588	Farmersville
599	Fayetteville
4959	Ferris
689	Fidelity
56220	Flanagan

694	Florence
727	Flossmoor
1733	Foosland
2733	Forest City
3733	Forest Park
745	Forest View
12698	Forrest
13698	Forreston
750	Forsyth
12359	Fox Lake
796	Frankfort
798	Franklin
803	Freeburg
40208	Fults
807	Freeman Spur

Table 5: Areacode Data

Energy Supplier Table

EngSupplierName	areacode
3 Phases Energy Services	21093
4-County Electric Power Assn	6641
A & N Electric Coop (Virginia)	84
AEP Generating Company	1343
AEP Ohio	4062
AEP Texas Central Company	3278
AEP Texas North Company	20404
AES Eastern Energy LP	134
AGC Division of APG Inc	261
AP Holdings LLC	56571
AP Holdings LLC (New York)	59864
APN Starfirst, L.P.	50153
APN Starfirst, L.P. (Illinois)	5014
APN Starfirst, L.P. (Ohio)	5016
APN Starfirst, L.P. (Texas)	5019
APNA Energy	55841
ARCO Products Co-Watson	867
Accent Energy Holdings, LLC	54871
Accent Energy Holdings, LLC (New York)	54872
Accent Energy Holdings, LLC (Texas)	54873
Access Energy Coop	16611
Adams Electric Coop	97
Adams Electric Cooperative Inc	40220
Adams Rural Electric Coop, Inc	118
Adams-Columbia Electric Coop	108
Adrian Public Utilities Comm	150

Agralite Electric Coop	155
Aguila Irrigation District	737
Agway Energy Services, LLC	113
Aiken Electric Coop Inc	162
Aitkin Public Utilities Comm	174
Ajo Improvement Co	176
Ak-Chin Electric Utility Authority	25866
Akiachak Native Community Electric Co	192
Alabama Municipal Elec Authority	40614
Alabama Power Co	195
Alamo Power District No 3	191
Alaska Electric & Energy Coop	49803
Alaska Electric Light&Power Co	213
Alaska Energy Authority	42889
Alaska Power and Telephone Co	219
Alaska Village Elec Coop, Inc	221
Albany Water Gas & Light Comm	230
Albemarle Electric Member Corp	240
Albertville Municipal Utils Bd	241
Alcorn County Elec Power Assn	276
Alder Mutual Light Co, Inc	287
Alfalfa Electric Coop, Inc	296
Alfalfa Electric Coop, Inc (Kansas)	1296
Alger-Delta Coop Electric Assn	305
Algoma Utility Comm	307
Allamakee-Clayton El Coop, Inc	329
Allegheny Electric Coop Inc	332
Allegheny Energy Supply Co LLC	23279
Allegheny Energy Supply Co LLC (Maryland)	13279
Alliance Power Co LLC	49818
Alliance Star Energy LLC	56929
Alliant Energy	8962
Alpena Power Co	392
Altamaha Electric Member Corp	407
Amana Society Service Co	471
Ambit Energy, L.P.	56212
Ambit Energy, L.P. (Maryland)	76212
Ambit Energy, L.P. (New York)	86212
Ameren Energy Marketing	19436
Ameren Energy Marketing (Illinois)	970
Ameren Illinois Company	56697
AmeriPower LLC	50156
American Electric Power Co., Inc.	343
American Mun Power-Ohio, Inc	40577
American PowerNet	49730

American PowerNet (District of Columbia)	59730
American PowerNet (Maine)	69730
American PowerNet (Maryland)	79730
American PowerNet (New Jersey)	89730
American Samoa Power Authority	40429
American Transmission Systems Inc	56162
Amicalola Electric Member Corp	562
Amigo Energy	49853
Anadarko Public Works Auth	588
Anchorage Municipal Light and Power	599
Aniak Light & Power Co Inc	4959
Anoka Electric Coop	689
Anthracite Power & Light	56220
Anza Electric Coop Inc	694
Appalachian Electric Coop	727
Appalachian Power Co	1733
Appalachian Power Co (Virginia)	2733
Appalachian Power Co (West Virginia)	3733
Applied Energy Inc	745
Aquila Inc	12698
Aquila Inc (Missouri)	13698
Arab Electric Coop Inc	750
Arizona Corporation Commission	12359
Arizona Electric Pwr Coop Inc	796
Arizona Power Authority	798
Arizona Public Service Co	803
Ark Valley Elec Coop Assn, Inc	40208
Arkansas Electric Coop Corp	807

Table 6: Energy Supplier data

GasRate Table data

areacode	engsupplierName	standardrate	BaseRate	NightSaver
21093	6	10	9	7
6641	7	11	10	8
84	8	12	11	9
1343	9	13	12	10
4062	10	14	13	11
3278	11	15	14	12
20404	12	16	15	13
134	13	17	16	14
261	14	18	17	15
56571	15	19	18	16
59864	16	20	19	17
50153	17	21	20	18
5014	18	22	21	19

5016	19	23	22	20
5019	20	24	23	21
55841	21	25	24	22
867	22	26	25	23
54871	23	27	26	24
54872	24	28	27	25
54873	25	29	28	26
16611	26	30	29	27
97	27	31	30	28
40220	28	32	31	29
118	29	33	32	30
108	30	34	33	31
150	31	35	34	32
155	32	36	35	33
737	33	37	36	34
113	34	38	37	35
162	35	39	38	36
174	36	40	39	37
176	37	41	40	38
25866	38	42	41	39
192	39	43	42	40
40614	40	44	43	41
195	41	45	44	42
191	42	46	45	43
49803	43	47	46	44
213	44	48	47	45
42889	45	49	48	46
219	46	50	49	47
221	47	51	50	48
230	48	52	51	49
240	49	53	52	50
241	50	54	53	51
276	51	55	54	52
287	52	56	55	53
296	53	57	56	54
1296	54	58	57	55
305	55	59	58	56
307	56	60	59	57
329	57	61	60	58
332	58	62	61	59
23279	59	63	62	60
13279	60	64	63	61
49818	61	65	64	62
56929	62	66	65	63
8962	63	67	66	64

392	64	68	67	65
407	65	69	68	66
471	66	70	69	67
56212	67	71	70	68
76212	68	72	71	69
86212	69	73	72	70
19436	70	74	73	71
970	71	75	74	72
56697	72	76	75	73
50156	73	77	76	74
343	74	78	77	75
40577	75	79	78	76
49730	76	80	79	77
59730	77	81	80	78
69730	78	82	81	79
79730	79	83	82	80
89730	80	84	83	81
40429	81	85	84	82
56162	82	86	85	83
562	83	87	86	84
49853	84	88	87	85
588	85	89	88	86
599	86	90	89	87
4959	87	91	90	88
689	88	92	91	89
56220	89	93	92	90
694	90	94	93	91
727	91	95	94	92
1733	92	96	95	93
2733	93	97	96	94
3733	94	98	97	95
745	95	99	98	96
12698	96	100	99	97
13698	97	101	100	98
750	98	102	101	99
12359	99	103	102	100
796	100	104	103	101
798	101	105	104	102
803	102	106	105	103
40208	103	107	106	104
807	104	108	107	105

Table 7: Energy Supplier data

Power Rate Table data

areacode	engsupplierName	standardrate	BaseRate	NightSaver
21093	6	10	9	7
6641	7	11	10	8
84	8	12	11	9
1343	9	13	12	10
4062	10	14	13	11
3278	11	15	14	12
20404	12	16	15	13
134	13	17	16	14
261	14	18	17	15
56571	15	19	18	16
59864	16	20	19	17
50153	17	21	20	18
5014	18	22	21	19
5016	19	23	22	20
5019	20	24	23	21
55841	21	25	24	22
867	22	26	25	23
54871	23	27	26	24
54872	24	28	27	25
54873	25	29	28	26
16611	26	30	29	27
97	27	31	30	28
40220	28	32	31	29
118	29	33	32	30
108	30	34	33	31
150	31	35	34	32
155	32	36	35	33
737	33	37	36	34
113	34	38	37	35
162	35	39	38	36
174	36	40	39	37
176	37	41	40	38
25866	38	42	41	39
192	39	43	42	40
40614	40	44	43	41
195	41	45	44	42
191	42	46	45	43
49803	43	47	46	44
213	44	48	47	45
42889	45	49	48	46

219	46	50	49	47
221	47	51	50	48
230	48	52	51	49
240	49	53	52	50
241	50	54	53	51
276	51	55	54	52
287	52	56	55	53
296	53	57	56	54
1296	54	58	57	55
305	55	59	58	56
307	56	60	59	57
329	57	61	60	58
332	58	62	61	59
23279	59	63	62	60
13279	60	64	63	61
49818	61	65	64	62
56929	62	66	65	63
8962	63	67	66	64
392	64	68	67	65
407	65	69	68	66
471	66	70	69	67
56212	67	71	70	68
76212	68	72	71	69
86212	69	73	72	70
19436	70	74	73	71
970	71	75	74	72
56697	72	76	75	73
50156	73	77	76	74
343	74	78	77	75
40577	75	79	78	76
49730	76	80	79	77
59730	77	81	80	78
69730	78	82	81	79
79730	79	83	82	80
89730	80	84	83	81
40429	81	85	84	82
56162	82	86	85	83
562	83	87	86	84
49853	84	88	87	85
588	85	89	88	86
599	86	90	89	87
4959	87	91	90	88
689	88	92	91	89
56220	89	93	92	90
694	90	94	93	91

727	91	95	94	92
1733	92	96	95	93
2733	93	97	96	94
3733	94	98	97	95
745	95	99	98	96
12698	96	100	99	97
13698	97	101	100	98
750	98	102	101	99
12359	99	103	102	100
796	100	104	103	101
798	101	105	104	102
803	102	106	105	103
40208	103	107	106	104
807	104	108	107	105

Table 8: Power rate data