

CALL CENTER SUPPORT SYSTEM

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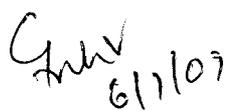
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Certified that this project report titled **Call Center Support System** is the bonafide work of **Mr.R.Thangadurai** (Registration Number: 71206621055) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


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TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr.R.Thangadurai, Reg.No.71206621055 final year M.C.A. candidate of Kumaraguru college of Technology,Saravanampatty has successfully completed the project "Call Center Support System" in our organization during the period Dec 2008 to May 2009 in ASP.Net/SQL server.

Thanking You

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Project co-ordinator

ABSTRACT

The project “Call Center Support System” is developed using Microsoft Visual Studio.Net 2005 as front end and Microsoft SQL Server 2000 as backend which works in .Net framework version 2.0.

The call center support system mainly used to assist an agent of a call center in processing calls. Specifically, the system assists the agent in processing calls more quickly by providing all the information to process a call on a single display screen. The information's are customer's information, troubleshooting steps, and documentation of processing. The customer's information includes personal details of customer. The system produces employee payroll for working employees.

Documentation, such as the customer information and troubleshooting steps for a call, may be automatically populated in a uniform manner so that the agent may update the documentation database.

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CHAPTERS

CHAPTER 1

INTRODUCTION

1.1 ORGANIZATION PROFILE

United Engineering Solutions is a provider of Information Technology services and business solutions. The company employs over 540 people, and has 2 international offices across the world, as well as offshore development centers in 3 cities in India. United Engineering Solutions clients include more than 20 Fortune 100 companies. United Engineering Solutions has registered revenues of US\$ 15.91 million for the year 2008.

United Engineering Solutions vision is to achieve global IT services leadership in providing value added high quality IT solutions to their clients in selected horizontal and vertical segments, by combining technology skills, domain expertise, process focus and a commitment to long-term client relationships.

United Engineering Solutions has vast experience in system and application development projects, across all major software platforms and environments. United Engineering Solutions have major software competency centers throughout India, with professionals employed on onsite as well as offshore projects. United Engineering Solutions spend a significant part of their revenue on training, ensuring that their employees are constantly updated on new technologies and skills.

Committed to quality, United Engineering Solutions adds value to client businesses through well established and structured methodologies, tools and techniques backed by Six Sigma processes. United Engineering Solutions is ISO 9001: 2000 certified and is also assessed at SEI-CMMI Level 5 and P-CMM Level 3

1.2 ABSTRACT

The project entitled “**Call Center Support System**” provides an ultimate solution for various requirements for the customers. The entire system is fully configurable so the administrator can add the content such as Text, Picture and Document. The system helps the customer to configure according to his needs. Then the users can view the information uploaded by the administrator. Normally the website creation is made for the particular concern so some of the pages look like static pages. But the entire system is configurable so the customer can upload any kind of information.

1.3 PROJECT OVERVIEW

The project titled “**CALL CENTER SUPPORT SYSTEM**” is designed using Active Server Pages .NET with Microsoft Visual Studio.Net 2005 as front end and Microsoft SQL Server 2000 as back end which works in .Net framework version 2.0. The coding language used is C# .Net

The **CALL CENTER SUPPORT SYSTEM** contains five main modules. Those modules are

- Home
- Admin
- Customer
- Employee
- Operation Manager

HOME:

The home page contains the information of the organization and the details of about us, contact us. It contains the register form for new customer for the call center.

ADMIN:

The admin page contains the login page to enter the admin home page. After entered the admin page, the admin has an authentication to edit the page, add the employee details and maintain employee payroll .The admin has four sub modules. Those modules are

- Employee
- Payroll
- View Query
- Send Response

Employee Profile:

The employee profile has to be maintained by the admin only. If the new employee entered into the organization, then the admin has to maintain their profile. The profile mode contains the employee id, employee name, qualification, designation, experience, date of joining, domain, salary, address, phone no, login user name, password, confirm password. After entering the details of the employee click save button to save the employee details into database.

Payroll Details:

Here, the employee's payroll details are maintained. Based on the attendance of that particular employee the salary is calculated. Based on number of working days, number absent and basic pay, dearness allowance, home rent allowance, loss of pay, net salary will be calculated by the administrator.

View Query:

The administrator can view list of query that was posted by the customer. It contains details of query which was posted by who, content of query.

Send Response:

The Administrator can send reply for customer query that was posted by customer.

CUSTOMER:

The customer module contains customer login page. After entered into the customer page, the customer can send query to the operation manager or admin or employee in the call center. It contains email id of operation manager or admin or employee, subject of query, and content of the query.

EMPLOYEE:

The employee module has to be handled by the employee only after their login. The employee module has following sub modules. The modules are

- Employee Personal Details
- Employee Payroll
- Customer Query

Employee Personal Details:

The employee has permission to view their profiles. The profile node contains the employee id, employee name, qualification, designation, experience, date of joining, domain, salary, address, phone no, login user name, password, confirm password.

Employee Payroll:

The employee can view their payroll of the employee that are all in the organization. The employee payroll contains Dearness Allowance, House Rent Allowance, number of working days, number of absent, Loss of pay and based on this allowances and deductions the Net Pay is calculated.

Customer Query:

The customer query sub-module is used to view the list of queries posted by the customer .It contains Email Id, subject of query and content of the query.

OPERATION MANAGER:

The operation manager module has been handled by operation manager after their login. The operation manager module has the following sub modules. The modules are

- Operation Manager query
- Scheme
- View Query

Operation Manager Query:

After operation manager has entered into their home page, they can post their query. That can be viewed by the employee and the admin. It contains toaddress where operation manager send query, from address of operation manager, subject of query and the content of query.

Scheme:

The operation manager only has permission to add new scheme. It contains Scheme Id, Scheme Type, and Description of the scheme.

View Query:

The operation manager can view list of query that was posted by the customer. It contains details of query which was posted to who, content of query.

CHAPTER 2

SYSTEM ANALYSIS

2.1 EXISTING SYSTEM

The backup of customer and employee details are taken manually in the existing system. The Customer has to post their query to the admin which is manual in the existing system. Here the employee of the organization cannot view their request for their salary and their attendance details. The administrator has to maintain all the information.

Navigating the current business environment can be challenging. Routine transactions and processes are easy to perform once they are mastered but it takes excessive time.

2.2 PROPOSED SYSTEM

It is difficult to note down all the problems manually. Instead it is decided to develop a “**CALL CENTER SUPPORT SYSTEM**” to ease the operation.

A system is required which is being capable of eliminating all the problems and become useful to admin, operation manager and the employee and thus the new system is derived. It will allow admin to quickly find the information needed to do their jobs. All necessary tools will be provided to perform business processes and transactions.

CHAPTER 3

DEVELOPMENT ENVIRONMENT

3.1 HARDWARE ENVIRONMENT

The hardware support required for deploying the application

Processor	:	Pentium III / IV
Hard Disk	:	40 GB
Ram	:	256 MB
Monitor	:	15VGA Color
Mouse	:	Ball / Optical
Keyboard	:	102 Keys

3.2 SOFTWARE ENVIRONMENT

The software support required for deployment is:

Operating System	:	Windows XP professional
Front End	:	Microsoft Visual Studio .Net 2005
Back End	:	SQL Server 2000

3.3 PROGRAMMING ENVIRONMENT

FEATURES OF ASP.NET

ASP.NET is the next version of Active Server Pages (ASP); it is a unified Web development platform that provides the services necessary for developers to build enterprise-class Web applications. While ASP.NET is largely syntax compatible, it also provides a new programming model and infrastructure for more secure, scalable, and stable applications.

ASP.NET is a compiled, NET-based environment, we can author applications in any .NET compatible language, including Visual Basic .NET, C#, and JScript .NET. Additionally, the entire .NET Framework is available to any ASP.NET application. Developers can easily access the benefits of these technologies, which include the managed common language runtime environment (CLR), type safety, inheritance, and so on.

ASP.NET has been designed to work seamlessly with WYSIWYG HTML editors and other programming tools, including Microsoft Visual Studio .NET. Not only does this make Web development easier, but it also provides all the benefits that these tools have to offer, including a GUI that developers can use to drop server controls onto a Web page and fully integrated debugging support.

Developers can choose from the following two features when creating an ASP.NET application. Web Forms and Web services, or combine these in any way they see fit. Each is supported by the same infrastructure that allows you to use authentication schemes, cache frequently used data, or customize your application's configuration, to name only a few possibilities.

Web Forms allows us to build powerful forms-based Web pages. When building these pages, we can use ASP.NET server controls to create common UI elements, and

program them for common tasks. These controls allow us to rapidly build a Web Form out of reusable built-in or custom components, simplifying the code of a page.

An XML Web service provides the means to access server functionality remotely. Using Web services, businesses can expose programmatic interfaces to their data or business logic, which in turn can be obtained and manipulated by client and server applications. XML Web services enable the exchange of data in client-server or server-server scenarios, using standards like HTTP and XML messaging to move data across firewalls. XML Web services are not tied to a particular component technology or object-calling convention. As a result, programs written in any language, using any component model, and running on any operating system can access XML Web services

Each of these models can take full advantage of all ASP.NET features, as well as the power of the .NET Framework and .NET Framework common language runtime.

Accessing databases from ASP.NET applications is an often-used technique for displaying data to Web site visitors. ASP.NET makes it easier than ever to access databases for this purpose. It also allows us to manage the database from your code.

ASP.NET provides a simple model that enables Web developers to write logic that runs at the application level. Developers can write this code in the `global.aspx` text file or in a compiled class deployed as an assembly. This logic can include application-level events, but developers can easily extend this model to suit the needs of their Web application.

ASP.NET provides easy-to-use application and session-state facilities that are familiar to ASP developers and are readily compatible with all other .NET Framework APIs.

ASP.NET offers the `IHttpHandler` and `IHttpModule` interfaces. Implementing the `IHttpHandler` interface gives you a means of interacting with the low-level request and response services of the IIS Web server and provides functionality much like ISAPI extensions, but with a simpler programming model. Implementing the `IHttpModule`

interface allows you to include custom events that participate in every request made to your application.

ASP.NET takes advantage of performance enhancements found in the .NET Framework and common language runtime. Additionally, it has been designed to offer significant performance improvements over ASP and other Web development platforms. All ASP.NET code is compiled, rather than interpreted, which allows early binding, strong typing, and just-in-time (JIT) compilation to native code, to name only a few of its benefits. ASP.NET is also easily factorable, meaning that developers can remove modules (a session module, for instance) that are not relevant to the application they are developing.

ASP.NET provides extensive caching services (both built-in services and caching APIs). ASP.NET also ships with performance counters that developers and system administrators can monitor to test new applications and gather metrics on existing applications.

Writing custom debug statements to your Web page can help immensely in troubleshooting your application's code. However, it can cause embarrassment if it is not removed. The problem is that removing the debug statements from your pages when your application is ready to be ported to a production server can require significant effort.

ASP.NET offers the `TraceContext` class, which allows us to write custom debug statements to our pages as we develop them. They appear only when you have enabled tracing for a page or entire application. Enabling tracing also appends details about a request to the page, or, if you so specify, to a custom trace viewer that is stored in the root directory of your application.

The .NET Framework and ASP.NET provide default authorization and authentication schemes for Web applications. We can easily remove, add to, or replace these schemes, depending upon the needs of our application.

ASP.NET configuration settings are stored in XML-based files, which are human readable and writable. Each of our applications can have a distinct configuration file and we can extend the configuration scheme to suit our requirements.

THE .NET FRAMEWORK

The .NET Framework is a new computing platform that simplifies application development in the highly distributed environment of the Internet.

OBJECTIVES OF .NET FRAMEWORK:

1. To provide a consistent object-oriented programming environment whether object codes is stored and executed locally on Internet-distributed, or executed remotely.
2. To provide a code-execution environment to minimizes software deployment and guarantees safe execution of code.
3. Eliminates the performance problems.

There are different types of application, such as Windows-based applications and Web-based applications. To make communication on distributed environment to ensure that code be accessed by the .NET Framework can integrate with any other code.

COMPONENTS OF .NET FRAMEWORK

1. THE COMMON LANGUAGE RUNTIME (CLR):



The common language runtime is the foundation of the .NET Framework. It manages code at execution time, providing important services such as memory management, thread management, and remoting and also ensures more security and robustness. The concept of code management is a fundamental principle of the runtime. Code that targets the runtime is known as managed code, while code that does not target the runtime is known as unmanaged code.

THE .NET FRAME WORK CLASS LIBRARY

It is a comprehensive, object-oriented collection of reusable types used to develop applications ranging from traditional command-line or graphical user interface (GUI) applications to applications based on the latest innovations provided by ASP.NET, such as Web Forms and XML Web services.

The .NET Framework can be hosted by unmanaged components that load the common language runtime into their processes and initiate the execution of managed code, thereby creating a software environment that can exploit both managed and unmanaged features. The .NET Framework not only provides several runtime hosts, but also supports the development of third-party runtime hosts.

Internet Explorer is an example of an unmanaged application that hosts the runtime (in the form of a MIME type extension). Using Internet Explorer to host the runtime enables embeds managed components or Windows Forms controls in HTML documents.

FEATURES OF THE COMMON LANGUAGE RUNTIME:

The common language runtime manages memory; thread execution, code execution, code safety verification, compilation, and other system services these are all run on CLR.

- Security.
- Robustness.
- Productivity.
- Performance.

SECURITY:

The runtime enforces code access security. The security features of the runtime thus enable legitimate Internet-deployed software to be exceptionally featuring rich. With regards to security, managed components are awarded varying degrees of trust, depending on a number of factors that include their origin to perform file-access operations, registry-access operations, or other sensitive functions.

ROBUSTNESS:

The runtime also enforces code robustness by implementing a strict type- and code-verification infrastructure called the common type system (CTS). The CTS ensures that all managed code is self-describing. The managed environment of the runtime eliminates many common software issues.

PRODUCTIVITY:

The runtime also accelerates developer productivity. For example, programmers can write applications in their development language of choice, yet take full advantage of the runtime, the class library, and components written in other languages by other developers.

PERFORMANCE:

The runtime is designed to enhance performance. Although the common language runtime provides many standard runtime services, managed code is never interpreted. A feature called just-in-time (JIT) compiling enables all managed code to run in the native machine language of the system on which it is executing. Finally, the runtime can be hosted by high-performance, server-side applications, such as Microsoft® SQL Server™ and Internet Information Services (IIS).

DATA ACCESS WITH ADO.NET

As you develop applications using ADO.NET, you will have different requirements for working with data. You might never need to directly edit an XML file containing data - but it is very useful to understand the data architecture in ADO.NET.

ADO.NET offers several advantages over previous versions of ADO:

- Interoperability
- Maintainability
- Programmability
- Performance Scalability

INTEROPERABILITY:

ADO.NET applications can take advantage of the flexibility and broad acceptance of XML. Because XML is the format for transmitting datasets across the network, any component that can read the XML format can process data. The receiving component need not be an ADO.NET component.

The transmitting component can simply transmit the dataset to its destination without regard to how the receiving component is implemented. The destination component might be a Visual Studio application or any other application implemented with any tool whatsoever.

The only requirement is that the receiving component be able to read XML. SO, XML was designed with exactly this kind of interoperability in mind.

MAINTAINABILITY:

In the life of a deployed system, modest changes are possible, but substantial, Architectural changes are rarely attempted because they are so difficult. As the performance load on a deployed application server grows, system resources can become scarce and response time or throughput can suffer. Faced with this problem, software architects can choose to divide the server's business-logic processing and user-interface processing onto separate tiers on separate machines.

In effect, the application server tier is replaced with two tiers, alleviating the shortage of system resources. If the original application is implemented in ADO.NET using datasets, this transformation is made easier.

ADO.NET data components in Visual Studio encapsulate data access functionality in various ways that help you program more quickly and with fewer mistakes.

PERFORMANCE:

ADO.NET datasets offer performance advantages over ADO disconnected record sets. In ADO.NET data-type conversion is not necessary.

SCALABILITY:

ADO.NET accommodates scalability by encouraging programmers to conserve limited resources. Any ADO.NET application employs disconnected access to data; it does not retain database locks or active database connections for long durations.

VISUAL STUDIO .NET

Visual Studio .NET is a complete set of development tools for building ASP Web applications, XML Web services, desktop applications, and mobile applications. In addition to building high-performing desktop applications, you can use Visual Studio's powerful component-based development tools and other technologies to simplify team-based design, development, and deployment of Enterprise solutions.

Visual Basic .NET, Visual C++ .NET, and Visual C# .NET all use the same integrated development environment (IDE), which allows them to share tools and facilitates in the creation of mixed-language solutions. In addition, these languages leverage the functionality of the .NET Framework and simplify the development of ASP Web applications and XML Web services.

Visual Studio supports the .NET Framework, which provides a common language runtime and unified programming classes; ASP.NET uses these components to create ASP Web applications and XML Web services. Also it includes MSDN Library, which contains all the documentation for these development tools.

XML WEB SERVICES

XML Web services are applications that can receive the requested data using XML over HTTP. XML Web services are not tied to a particular component technology or object-calling convention but it can be accessed by any language, component model, or operating system. In Visual Studio .NET, you can quickly create and include XML Web services using Visual Basic, Visual C#, JScript, Managed Extensions for C++, or ATL Server.

XML SUPPORT

Extensible Markup Language (XML) provides a method for describing structured data. XML is a subset of SGML that is optimized for delivery over the Web. The World Wide Web Consortium (W3C) defines XML standards so that structured data will be uniform and independent of applications. Visual Studio .NET fully supports XML, providing the XML Designer to make it easier to edit XML and create XML schemas.

VISUAL BASIC .NET

Visual Basic .NET, the latest version of visual basic, includes many new features. The Visual Basic supports interfaces but not implementation inheritance.

Visual basic.net supports implementation inheritance, interfaces and overloading. In addition, Visual Basic .NET supports multithreading concept.

COMMON LANGUAGE SPECIFICATION (CLS)

Visual Basic.NET is also compliant with CLS (Common Language Specification) and supports structured exception handling. CLS is set of rules and constructs that are supported by the CLR (Common Language Runtime). CLR is the runtime environment provided by the .NET Framework; it manages the execution of the code and also makes the development process easier by providing services.

Visual Basic.NET is a CLS-compliant language. Any objects, classes, or components that created in Visual Basic.NET can be used in any other CLS-compliant language. In addition, we can use objects, classes, and components created in other CLS-compliant languages in Visual Basic.NET .The use of CLS ensures complete interoperability among applications, regardless of the languages used to create the application.

IMPLEMENTATION INHERITANCE

Visual Basic.NET supports implementation inheritance. This means that, while creating applications in Visual Basic.NET, we can derive from another class, which is known as the base class that the derived class inherits all the methods and properties of the base class. In the derived class, we can either use the existing code of the base class or override the existing code. Therefore, with help of the implementation inheritance, code can be reused.

CONSTRUCTORS AND DESTRUCTORS

Constructors are used to initialize objects, whereas destructors are used to destroy them. In other words, destructors are used to release the resources allocated to the object. In Visual Basic.NET the sub finalize procedure is available. The sub finalize procedure is used to complete the tasks that must be performed when an object is destroyed. The sub finalize procedure is called automatically when an object is destroyed. In addition, the sub finalize procedure can be called only from the class it belongs to or from derived classes.

GARBAGE COLLECTION

Garbage Collection is another new feature in Visual Basic.NET. The .NET Framework monitors allocated resources, such as objects and variables. In addition, the .NET Framework automatically releases memory for reuse by destroying objects that are no longer in use. In Visual Basic.NET, the garbage collector checks for the objects that are not currently in use by applications. When the garbage collector comes across an object that is marked for garbage collection, it releases the memory occupied by the object.

OVERLOADING

Overloading is another feature in Visual Basic.NET. Overloading enables us to define multiple procedures with the same name, where each procedure has a different set

of arguments. Besides using overloading for procedures, we can use it for constructors and properties in a class.

MULTITHREADING

Visual Basic.NET also supports multithreading. An application that supports multithreading can handle multiple tasks simultaneously, we can use multithreading to decrease the time taken by an application to respond to user interaction. To decrease the time taken by an application to respond to user interaction, we must ensure that a separate thread in the application handles user interaction.

STRUCTURED EXCEPTION HANDLING

Visual Basic.NET supports structured handling, which enables us to detect and remove errors at runtime. In Visual Basic.NET, we need to use Try...Catch...Finally statements to create exception handlers. Using Try...Catch...Finally statements, we can create robust and effective exception handlers to improve the performance of our application.

FEATURES OF SQL SERVER 2000

The OLAP Services feature available in SQL Server version 7.0 is now called SQL Server 2000 Analysis Services. The term OLAP Services has been replaced with the term Analysis Services. Analysis Services also includes a new data mining component. The Repository component available in SQL Server version 7.0 is now called Microsoft SQL Server 2000 Meta Data Services. References to the component now use the term Meta Data Services. The term repository is used only in reference to the repository engine within Meta Data Services

SQL-SERVER database consist of six type of objects,

They are,

- TABLE
- QUERY
- FORM
- REPORT
- MACRO

TABLE:

A database is a collection of data about a specific topic.

VIEWS OF TABLE:

We can work with a table in two types,

- Design View
- Datasheet View

Design View

To build or modify the structure of a table we work in the table design view. We can specify what kind of data will be hold.

Datasheet View

To add, edit or analyses the data itself we work in tables datasheet view mode.

QUERY:

A query is a question that has to be asked the data. Access gathers data that answers the question from one or more table. The data that make up the answer is either dynaset (if you edit it) or a snapshot(it cannot be edited).Each time we run query, we get latest information in the dynaset.Access either displays the dynaset or snapshot for us to view or perform an action on it ,such as deleting or updating.

FORMS:

A form is used to view and edit information in the database record by record .A form displays only the information we want to see in the way we want to see it. Forms use the familiar controls such as textboxes and checkboxes. This makes viewing and entering data easy.

Views of Form:

We can work with forms in several primarily there are two views,

- Design View
- Form View

Design View

To build or modify the structure of a form, we work in forms design view. We can add control to the form that are bound to fields in a table or query, includes textboxes, option buttons, graphs and pictures.

Form View

The form view which display the whole design of the form.

REPORT:

A report is used to vies and print information from the database. The report can ground records into many levels and compute totals and average by checking values from many records at once. Also the report is attractive and distinctive because we have control over the size and appearance of it.

MACRO :

A macro is a set of actions. Each action in macros does something. Such as opening a form or printing a report .We write macros to automate the common tasks the work easy and save the time.

CHAPTER 4

SYSTEM DESIGN

4.1 INPUT DESIGN

Input design is the process of converting user-originated inputs to a computer-based format. Input design is one of the most expensive phases of the operation of computerized system and is often the major problem of a system. In the project, the input design is made in various web forms with various methods.

For example, in the Admin form, the empty username and password is not allowed. The username if exists in the database, the input is considered to be invalid and is not accepted. Likewise, during the “Employee Creation” process, the employee name, employee_ID, age, address, salary and also his designation will be noted.

4.2 OUTPUT DESIGN

Output design generally refers to the results and information that are generated by the system for many end-users; output is the main reason for developing the system and the basis on which they evaluate the usefulness of the application.

In the project, the admin details and employee details once are given. It stores in to the data base added. The reports here generated vividly and the employee salary details & his attendance details can be seen through the reports.

4.3 DATABASE DESIGN:

The database design is a must for any application developed especially more for the data store projects. Since the chatting method involves storing the message in the table and produced to the sender and receiver, proper handling of the table is a must.

In the project, login table is designed to be unique in accepting the username and the length of the username and password should be greater than zero.

The salary and attendance table are common for all employee details. The different users view the data in different format according to the privileges given.

The complete listing of the tables and their fields are provided in the annexure under the title 'Table Structure'.

Admin :

Table 4.1:crm_admin

Key	Column Name	Data type	Width	Usage
	Adminname	Varchar	15	Stores the admin name for login
	Pwd	Varchar	15	Stores the password for login

Customer Query

Table 4.2:crm_CustQuery

Key	Column Name	Data type	Width	Usage
	Custto	Varchar	40	This is used for destination address
	subject	Varchar	40	This field contains subject of customer problem..
	content	Text	200	This field contains content of customer problem..

Customer :**Table 4.3:crm_Custreg**

Key	Column Name	Data type	Width	Usage
	Custname	Varchar	20	This is used for destination address
	pwd	Varchar	10	This field contains subject of customer problem..
	Sex	Varchar	7	This field contains content of customer problem..
	age	numeric	5	Contains age of customer
	Emailed	Varchar	15	Contains Email id of customer
	Address	Varchar	40	Contains address of customer
	Lanline	Varchar	10	Contains lanline number of customer
	mobilen0	Varchar	15	Contains mobile number of customer

Employee Payroll:**Table 4.4:crm_emppayroll**

Key	Column Name	Data type	Width	Usage
PK	Empid	Varchar	20	Contains ID of employee
	Accno	Numeric	32	Contains account number of employee
	Basicpay	Numeric	32	Contains basic pay of employee
	HRA	Numeric	32	Contains HRA of employee
	PF	Numeric	32	Contains PF of employee

	IT	Numeric	32	Contains IT of employee
	Allowance	Numeric	32	Contains Allowance of employee
	Total days	Numeric	32	Contains number of working days of employee
	Total leave	Numeric	32	Contains number of leave days of employee
	LOP	Numeric	32	Contains loss of pay of employee
	Net salary	Numeric	32	Contains net salary of employee

Employee Profile:

Table 4.5:crm_empreg

Key	Column Name	Data type	Width	Usage
PK	Empid	Varchar	20	Contains ID of employee
	Empname	Varchar	32	Contains name of employee
	Emppwd	Varchar	10	Contains password of employee
	Empsex	Varchar	10	Contains sex of employee
	Empge	Numeric	10	Contains age of employee
	Empfathername	Varchar	20	Contains father name of employee
	EmpDOJ	Varchar	10	Contains joining date of employee
	Empexperience	Varchar	5	Contains experience of employee
	Empmail	Varchar	22	Contains mail ID of employee
	Empaddress	Varchar	32	Contains address of employee
	Empphone	Numeric	15	Contains phone number of employee

Operation Manager :**Table 4.6:crm_opermgr**

Key	Column Name	Data type	Width	Usage
	Name	Varchar	15	Stores the operation manager name for login
	Pwd	Varchar	15	Stores the password for login

Operation Manager Query:**Table 4.7:crm_opermgrQuery**

Key	Column Name	Data type	Width	Usage
	Omtto	Varchar	40	This is used for destination address
	Omfrom	Varchar	40	This is used for source address
	Subject	Varchar	40	This field contains subject of operation manager query .
	Content	Text	200	This field contains content of operation manager query

Scheme:**Table 4.8:crm_schemetype**

Key	Column Name	Data type	Width	Usage
PK	Schemeid	Varchar	40	Contains ID of new scheme
	Schemetype	Varchar	40	Contains type of new scheme
	Description	varchar	200	Contains description of new scheme

4.4 DATA FLOW DIAGRAM

LEVEL 0:

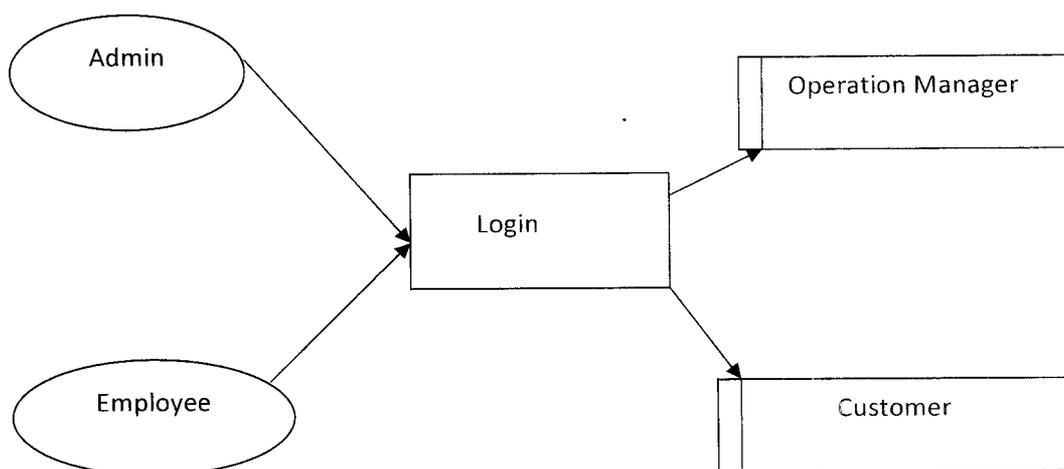
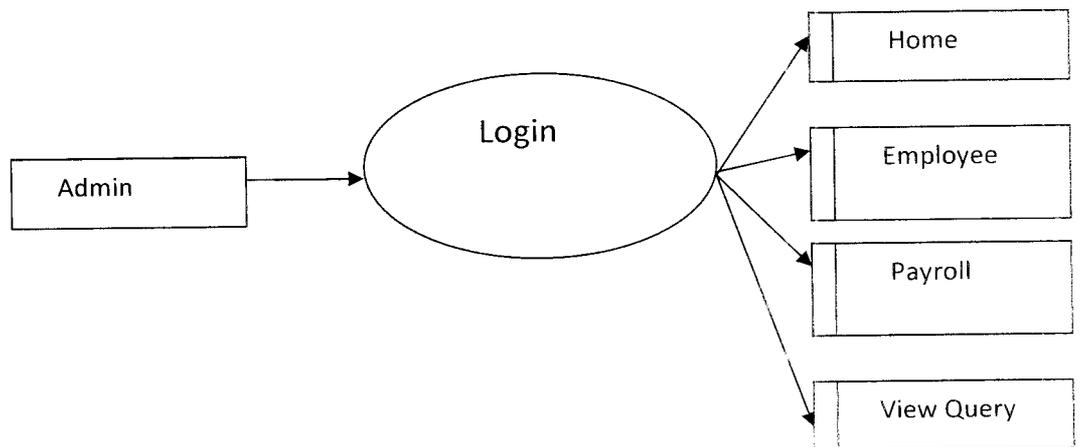
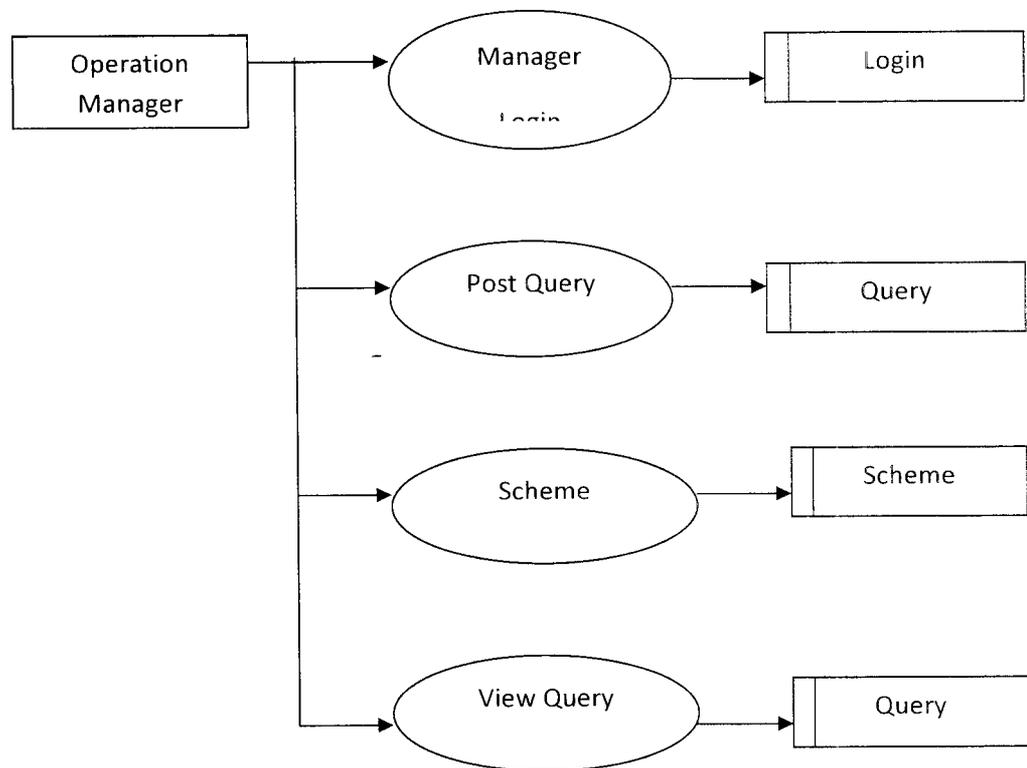
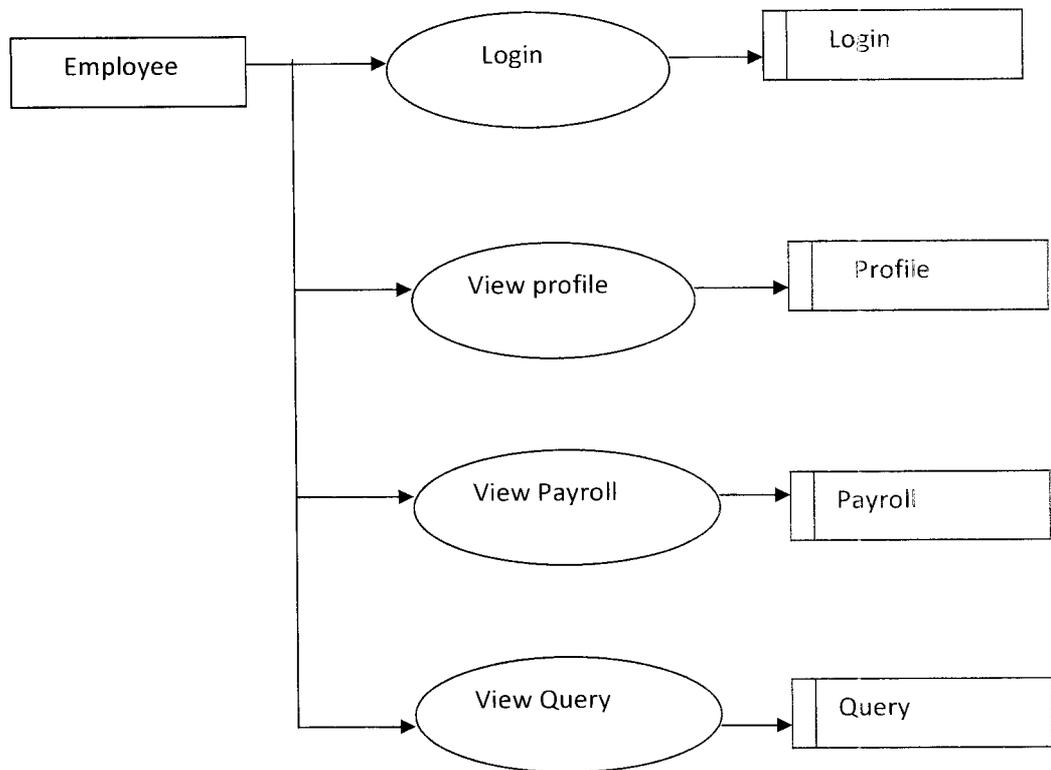


Figure 4.4.1 LEVEL 0 DFD

LEVEL 1:**Figure 4.4.2 LEVEL 1 ADMIN DFD**

OPERATION MANAGER**Figure 4.4.3 LEVEL 1 OPERATION MANAGER DFD**

EMPLOYEE**Figure 4.4.4 LEVEL 1 EMPLOYEE DFD**

4.5 SYSTEM FLOW DIAGRAM

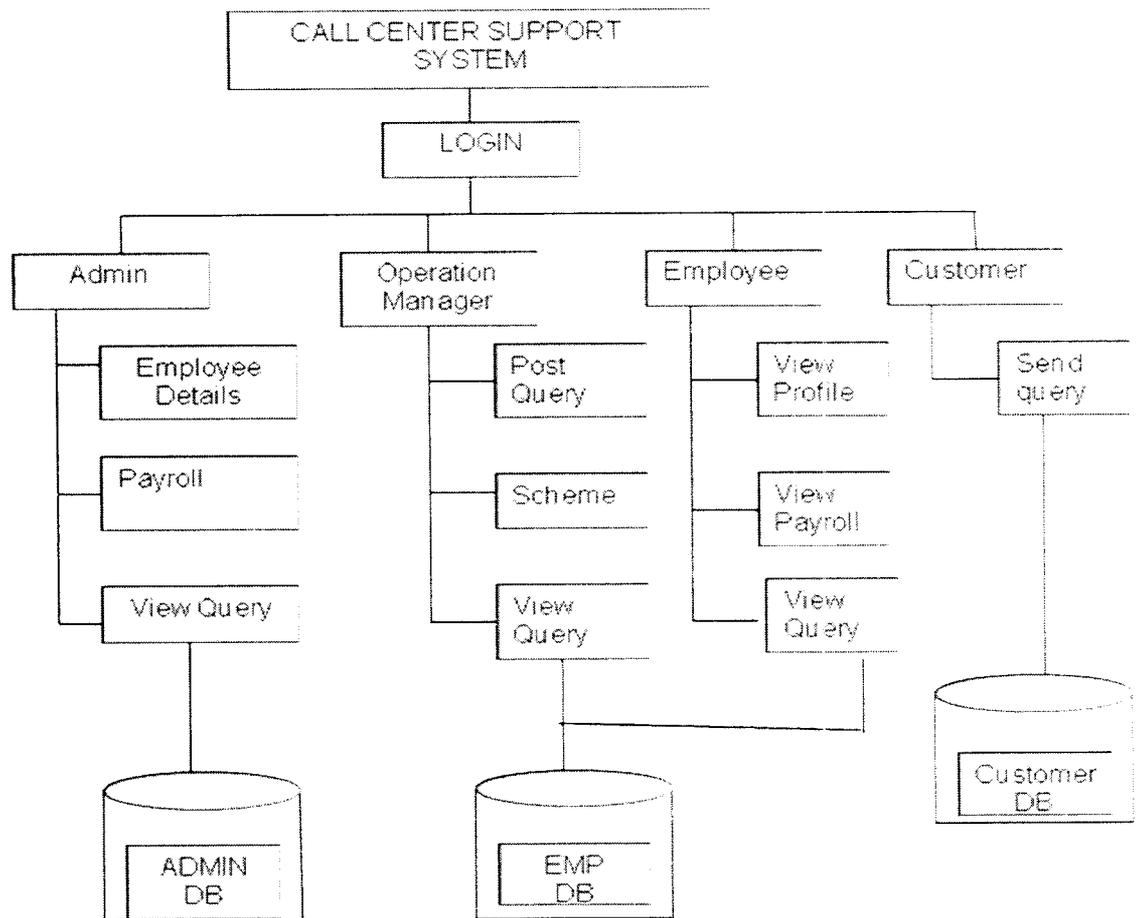


Figure 4.5.1 SYSTEM FOLW DIAGRAM

CHAPTER 5

TESTING AND MAINTENANCE

Software testing is the process used to assess the quality of computer software. It is an empirical technical investigation conducted to provide stakeholders with information about the quality of the product or service under test, with respect to the context in which it is intended to operate. This includes, but is not limited to, the process of executing a program or application with the intent of finding software bugs. Software testing methods are traditionally divided into **black box testing and white box testing**.

Black box testing treats the software as a black-box without any understanding of internal behavior. It aims to test the functionality according to the requirements. Thus, the tester inputs data and only sees the output from the test object. **White box testing**, however, is when the tester has access to the internal data structures, code, and algorithms. White box testing methods include creating tests to satisfy some code coverage criteria.

Testing can be done on the following levels:

- Unit Testing
- Integration Testing
- Validation Testing

5.1 UNIT TESTING

The procedure level testing is made first. By giving improper inputs, the errors occurred are noted and eliminated. Then the web form level testing is made. For example storage of data to the table in the correct manner.

In the company as well as seeker registration form, the zero length username and password are given and checked. Also the duplicate username is given and checked. In

the job and question entry, the button will send data to the server only if the client side validations are made.

The dates are entered in wrong manner and checked. Wrong email-id and web site URL (Universal Resource Locator) is given and checked.

5.2 INTEGRATION TESTING

Testing is done for each module. After testing all the modules, the modules are integrated and testing of the final system is done with the test data, specially designed to show that the system will operate successfully in all its aspects conditions. Thus the system testing is a confirmation that all is correct and an opportunity to show the user that the system works.

5.3 VALIDATION TESTING

The final step involves Validation testing, which determines whether the software function as the user expected. The end-user rather than the system developer conduct this test most software developers as a process called “Alpha and Beta Testing” to uncover that only the end user seems able to find.

The compilation of the entire project is based on the full satisfaction of the end users. In the project, validation testing is made in various forms. In question entry form, the correct answer only will be accepted in the answer box. The answers other than the four given choices will not be accepted.

5.4 MAINTENANCE:

The objectives of this maintenance work are to make sure that the system gets into work all time without any bug. Provision must be for environmental changes which may affect the computer or software system. This is called the maintenance of the system. Nowadays there is the rapid change in the software world. Due to this rapid change, the system should be capable of adapting these changes. In our project the process can be added without affecting other parts of the system.

Maintenance plays a vital role. The system liable to accept any modification after its implementation. This system has been designed to favour all new changes. Doing this will not affect the system's performance or its accuracy.

In the project system testing is made as follows:

The procedure level testing is made first. By giving improper inputs, the errors occurred are noted and eliminated. Then the web form level testing is made. For example storage of data to the table in the correct manner.

In the form, the zero length username and password are given and checked. Also the duplicate username is given and checked. The client side validations are made. The dates are entered in wrong manner and checked. Wrong email-id is given and checked.

This is the final step in system life cycle. Here we implement the tested error-free system into real-life environment and make necessary changes, which runs in an online fashion. Here system maintenance is done every months or year based on company policies, and is checked for errors like runtime errors, long run errors and other maintenances like table verification and reports.

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in

achieving a successful new system and in giving the user, confidence that the new system will work and be effective.

The implementation stage involves careful planning, investigation of the existing system and its constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

Implementation is the process of converting a new system design into operation. It is the phase that focuses on user training, site preparation and file conversion for installing a candidate system. The important factor that should be considered here is that the conversion should not disrupt the functioning of the organization.

The application is implemented in the Internet Information Services 5.0 web server under the Windows 2000 Professional and accessed from various clients.

CHAPTER 6

PERFORMANCE AND LIMITATION

6.1 MERITS OF THE SYSTEM

- Easy to use and simple.
- New modules can be added with ease without many modifications to the existing system.
- Flexible and Scalable.
- Data available on demand.
- Retrieval of data and reports will be much simpler.
- Consumes very less time when compared to the existing system.

6.2 LIMITATIONS OF THE SYSTEM

- Time Consuming.
- Wastage of Human resources.
- Unavailability of standard template.
- Difficulty in understanding needs from varied domains.

CHAPTER 7

CONCLUSION

It is concluded that the application works well and satisfy both the Admin and Users. The application is tested very well and errors are properly debugged. The site is simultaneously accessed from more than one system. Simultaneous login from more than one place is tested.

The site works according to the restrictions provided in their respective browsers. Further enhancements can be made to the application, so that the web site functions very attractive and useful manner than the present one. The speed of the transactions become more enough now.

CHAPTER 8

FUTURE ENHANCEMENT

The project has covered almost all the requirements. Further requirements and improvements can easily be done since the coding is mainly structured or modular in nature. Improvements can be appended by changing the existing modules or adding new modules.

Call centers are typically utilized to support a product or service for a business. The support may be in answering a customer's question or in receiving information from the customer. For example, call centers may be staffed by one or more agents to answer questions relating to the business' product or service, such as setup or operation of the product. As another example, call centers may receive information from customers or potential customers, such as warranty information, complaints, credit-card activation, or the like.

In Future the call center may receive a request from the customer, either in the form of an incoming telephone call, an e-mail, or some other electronic message. The agents who staff the call center may respond to the request of the customer, such as by answering the telephone call, responding to the e-mail, or the like.

CHAPTER 9

APPENDICES

APPENDIX 1: SAMPLE SCREENS

Home Page

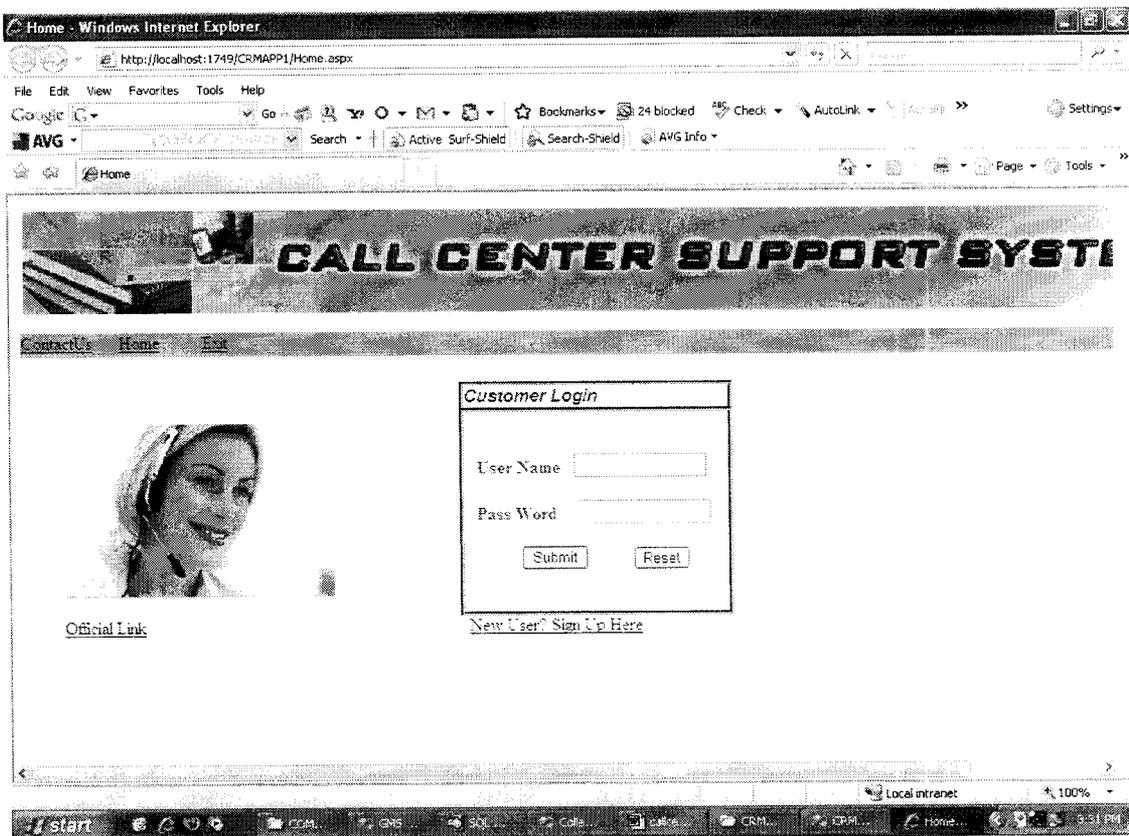


Figure A 9.1 Home Page

Official Link Page

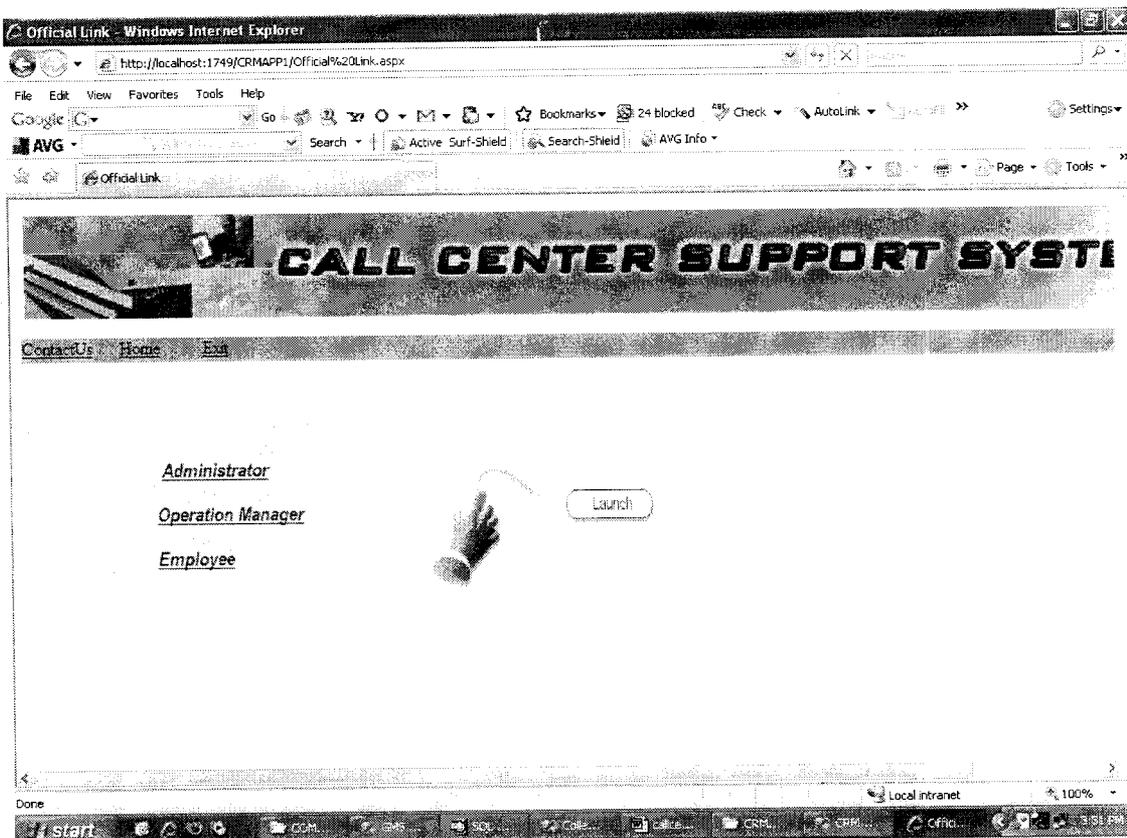


Figure A 9.2 Official link Page

Admin Login

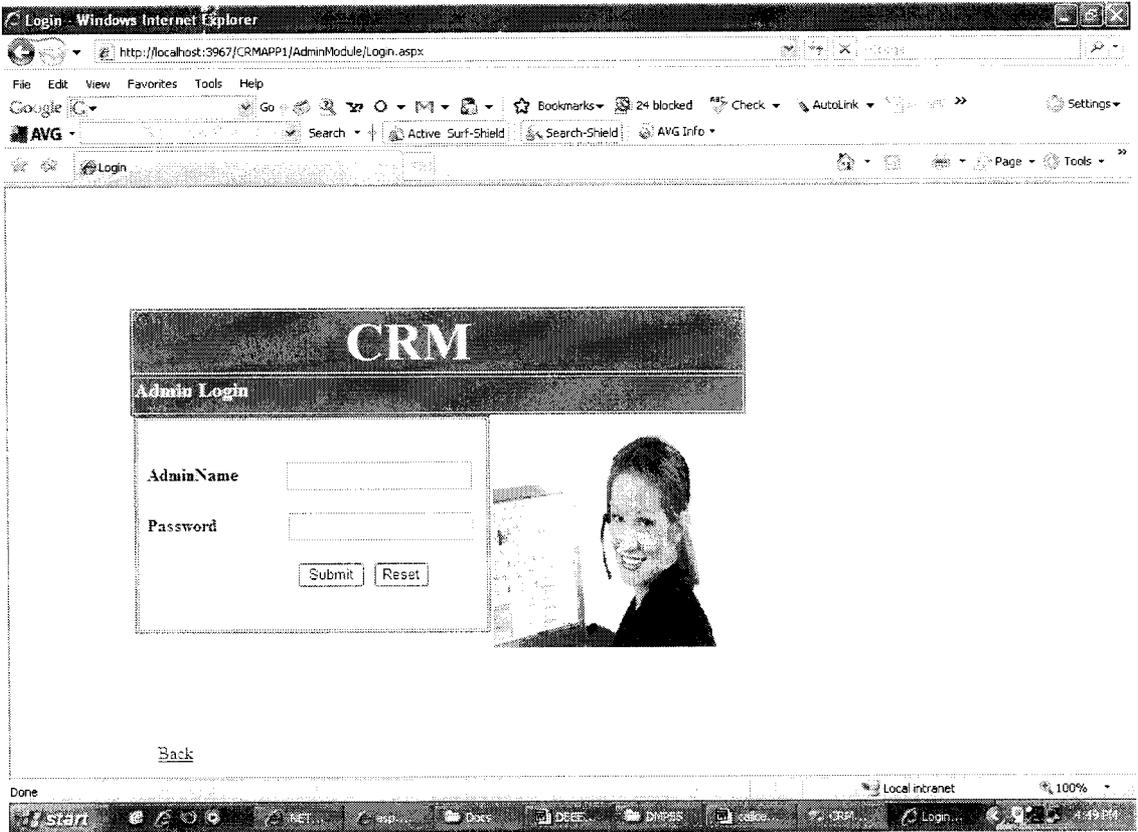


Figure A 9.3 Login Page

Admin Page

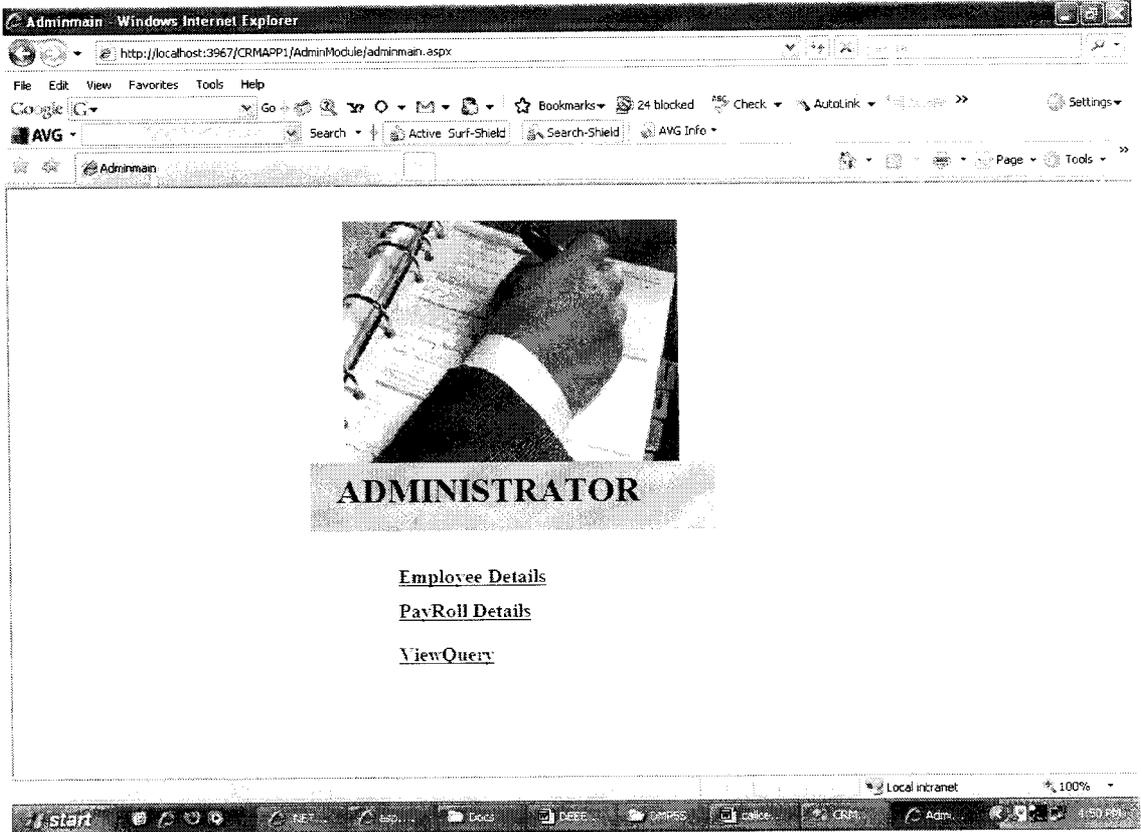
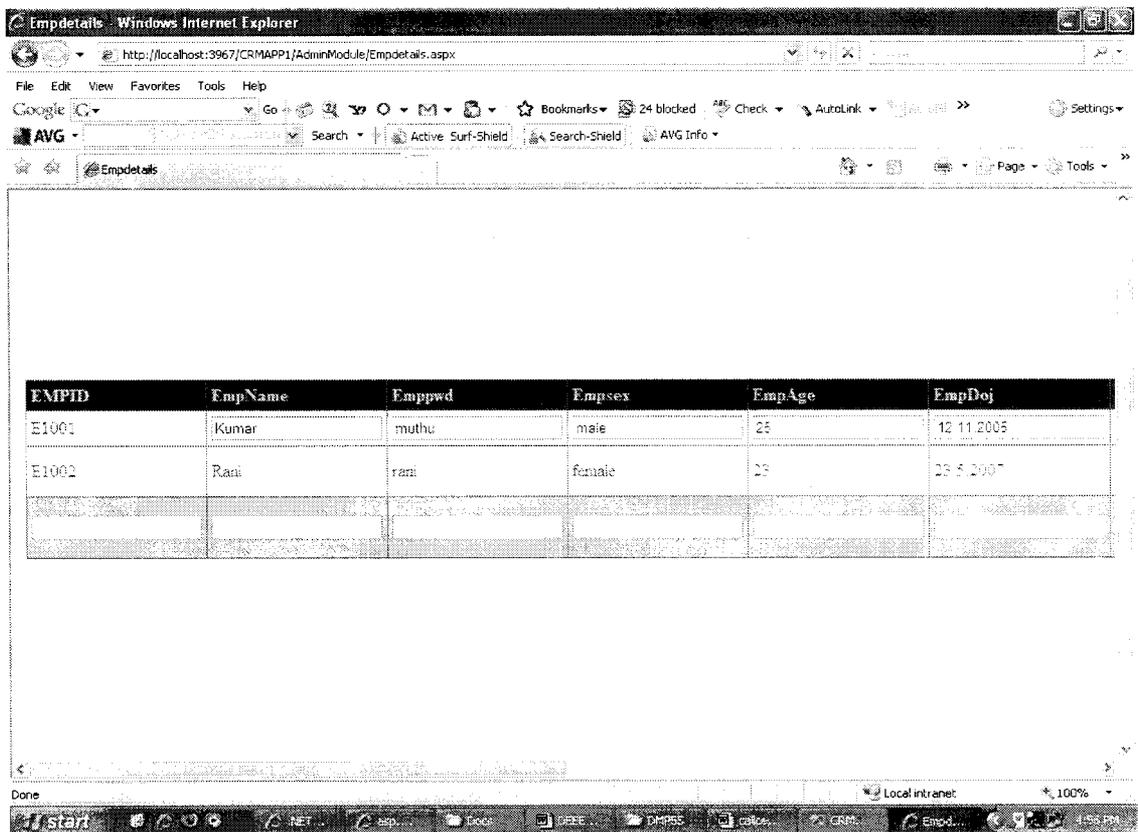


Figure A 9.4 Admin Page

Employee Profile Page



EMPID	EmpName	Emppwd	Empsex	EmpAge	EmpDoj
E1001	Kumar	muthu	male	25	12-11-2005
E1002	Rani	rani	female	23	28-5-2007

Figure A 9.5 Employee Profile Page

Operation Manager Login

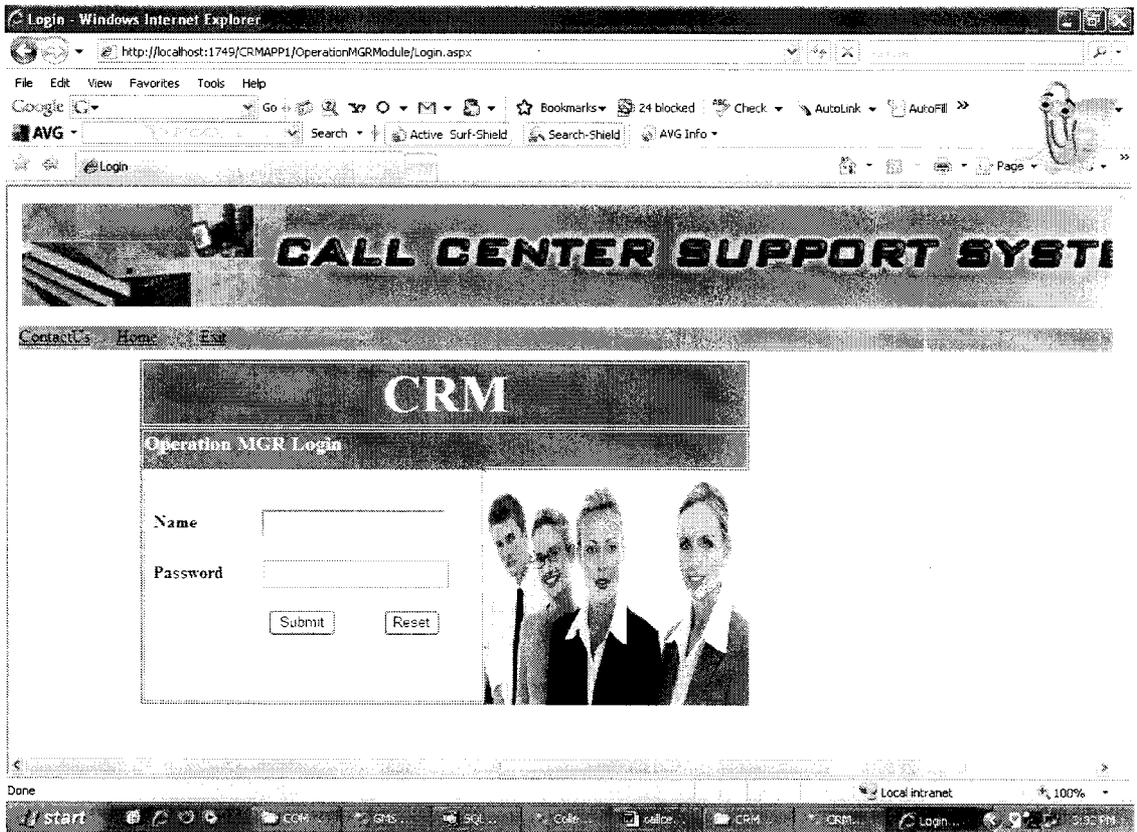


Figure A 9.6 Operation Manager Login page

Operation Manager Page

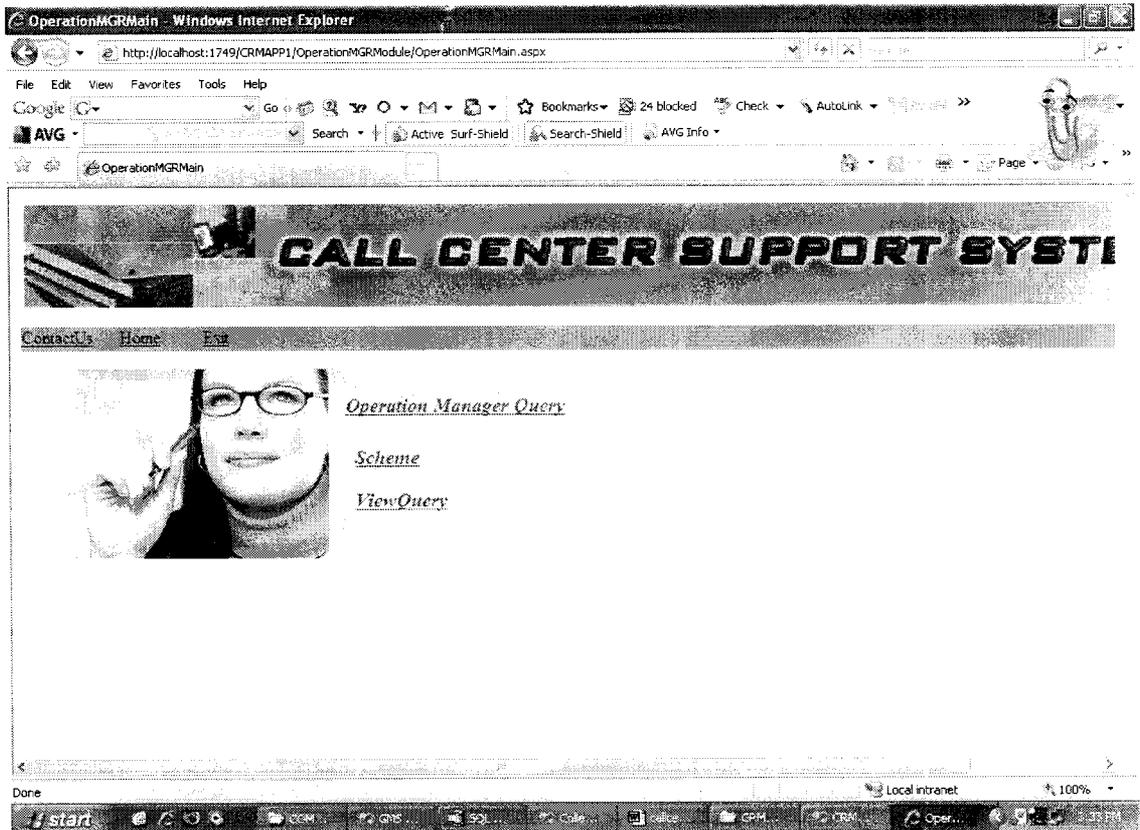


Figure A 9.7 Operation Manager page

Query Page

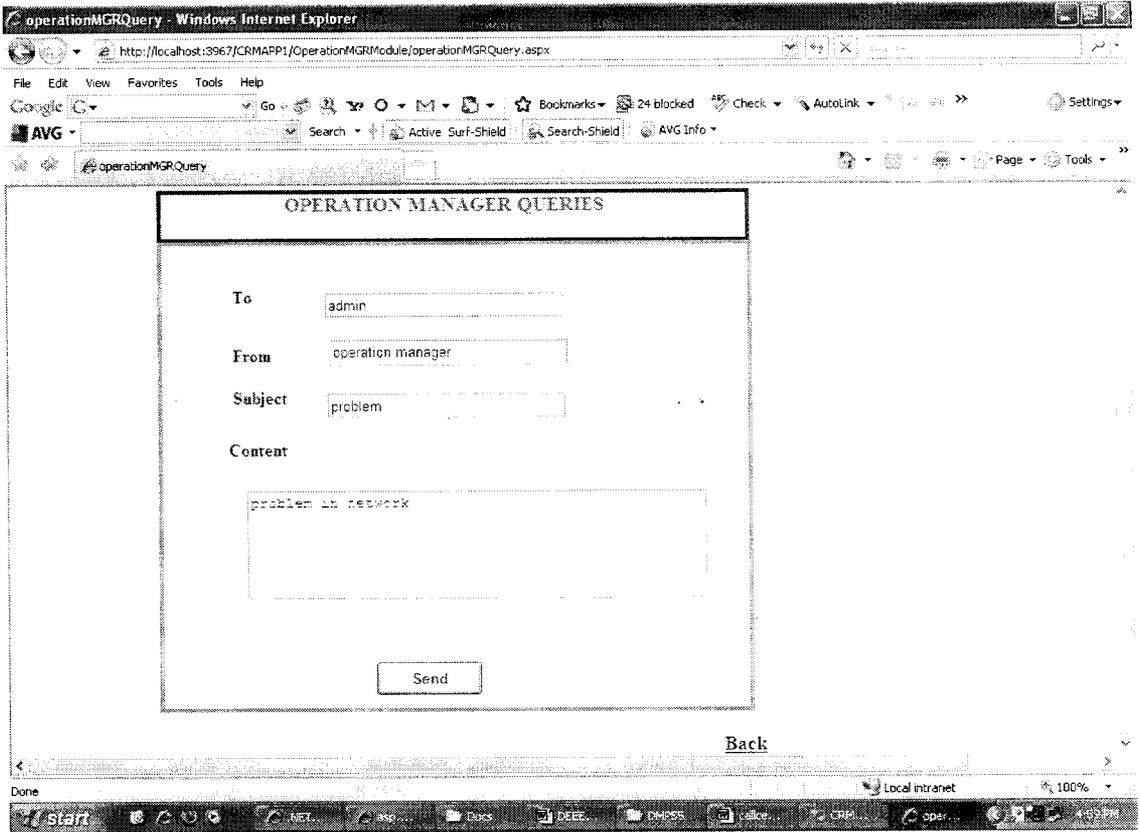


Figure A 9.8 Operation Manager Query page

View Query Page

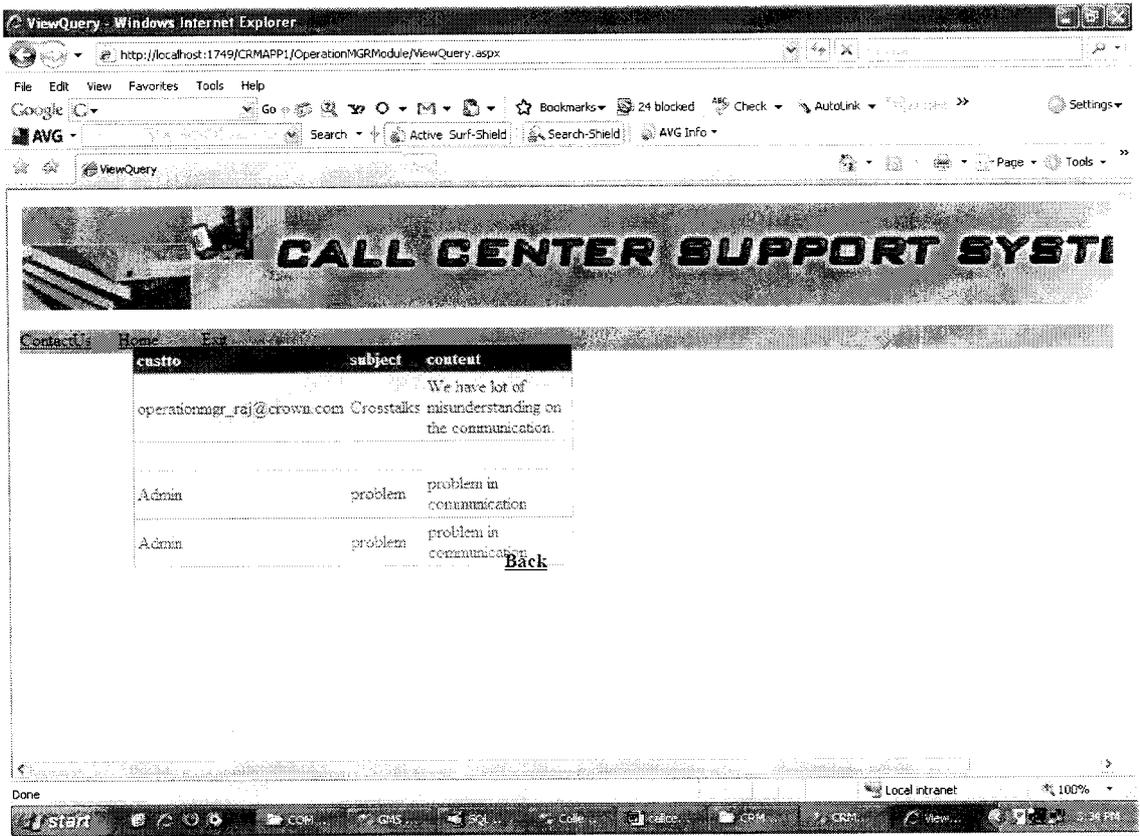


Figure A 9.9 Operation Manager View Query page

Scheme Page

The screenshot shows a web browser window titled 'Scheme - Windows Internet Explorer'. The address bar displays 'http://localhost:1749/CRMAPP1/OperationMGRModule/Scheme.aspx'. The browser interface includes a menu bar (File, Edit, View, Favorites, Tools, Help), a search bar, and various toolbars. The main content area features a header for 'CALL CENTER SUPPORT SYSTEM' and a table with the following data:

SchemeID	SchemeType	Description	UPDATE	DELETE
s10001	yy	chk	Update	Delete

Below the table, there is an 'ADD' button and a 'Back' link.

Figure A 9.10 Scheme page

Employee Login

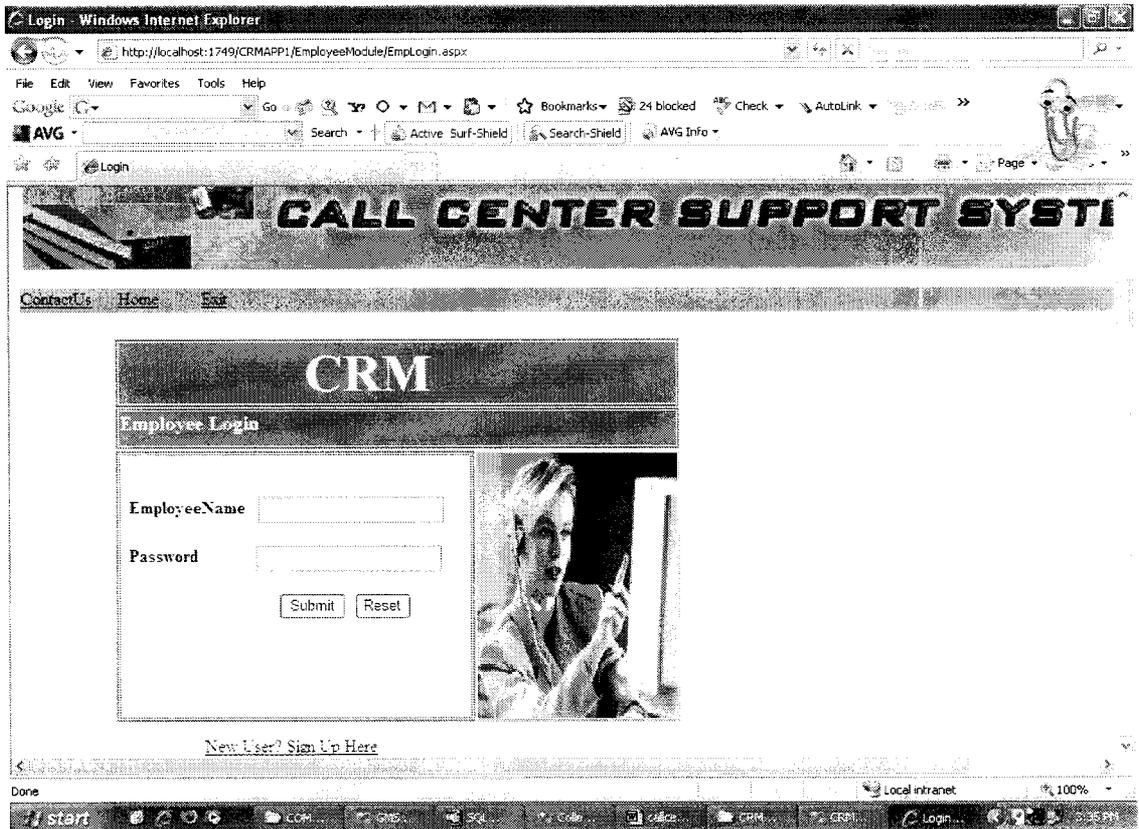


Figure A 9.11 Employee Login page

Employee Page

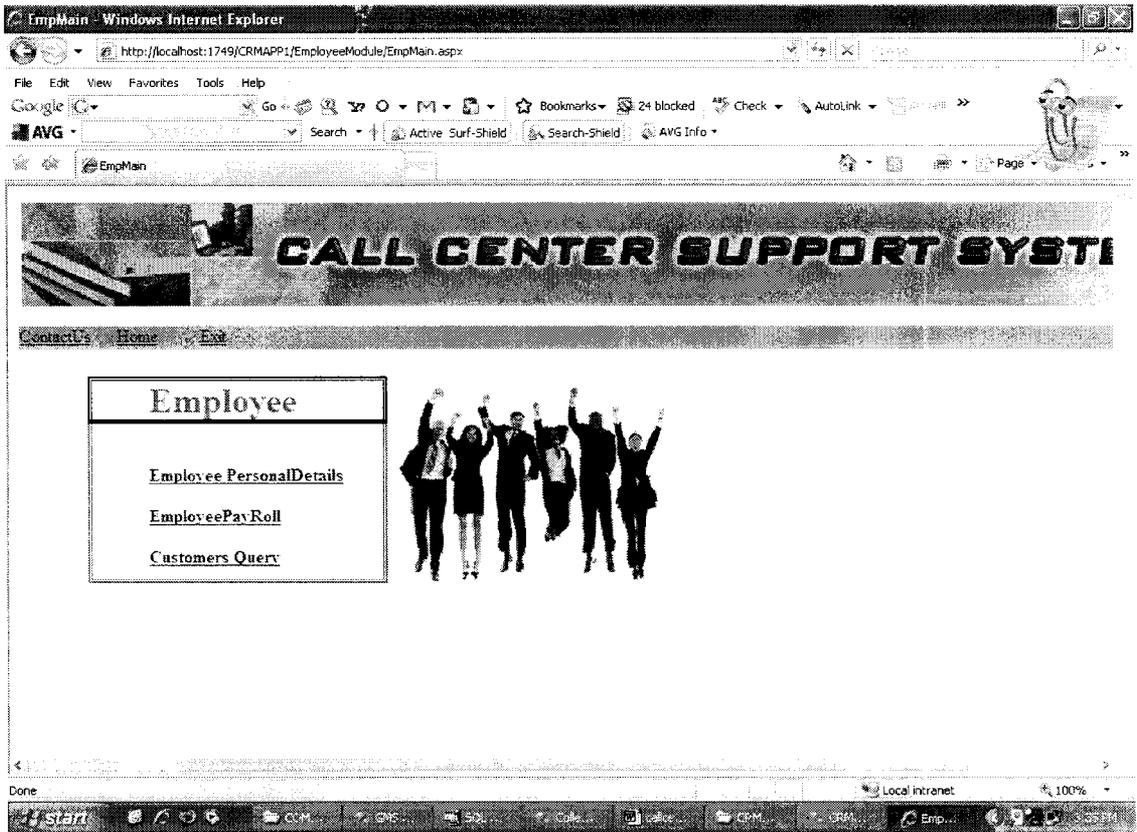


Figure A 9;.12 Employee page

View Employee Personal Details

The screenshot shows a web browser window titled 'EmpPDetail - Windows Internet Explorer'. The address bar shows the URL 'http://localhost:1749/CRMAPP1/EmployeeModule/EmpPDetail.aspx'. The page content includes a header banner for 'CALL CENTER SUPPORT SYSTEM' and a search form titled 'Employee Personal Details'. The form contains the text 'Enter the Empid' followed by a text input field containing 'E1001' and a 'Submit' button. Below the form is a table with the following data:

empid	empname	emppwd	empsex	empage	empdoj	empexperience	empfathername	empmail	empaddress	emp...
E1001	Kumar	mutan	male	25	12-11-2005	3	Sivakumar	kumar@gmail.com	45-23-A,Ram Nagar,Coimbatore	905

Figure A 9.13 Employee Personal details page

View Employee Payroll Details

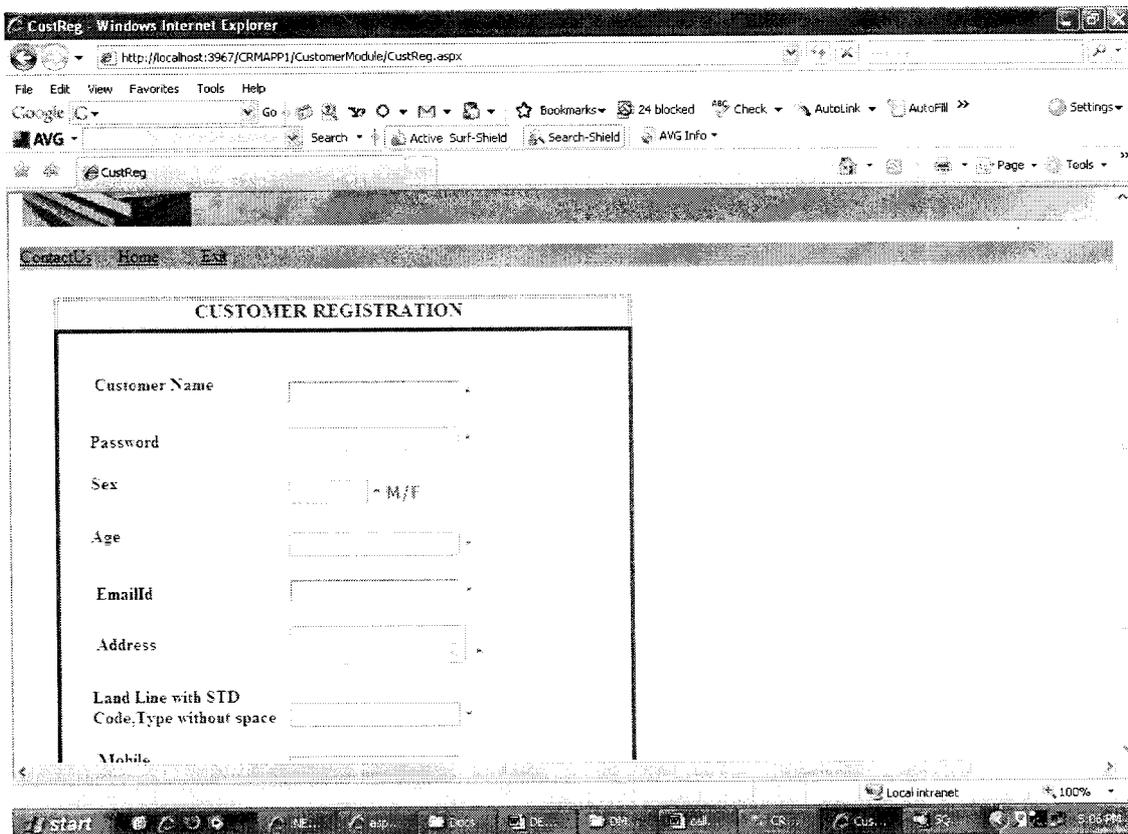
The screenshot shows a web browser window titled 'EmpPayRoll - Windows Internet Explorer'. The address bar displays 'http://localhost:1749/CRMAPP1/EmployeeModule/emp payroll.aspx'. The page content includes a banner for 'CALL CENTER SUPPORT SYSTEM' and a section titled 'Employee Payroll Details'. A search form prompts the user to 'Enter the Empid' with the input field containing 'E1001' and a 'Submit' button. Below the form is a table with the following data:

empid	AccNo	BasicPay	HRA	PF	Loan	IT	Loss of pay	Bonus	Increment	Allowance
E1001	34453	34000	5000	2455	7845	233	450	789	750	300

The browser's taskbar at the bottom shows the 'start' button and several open applications including 'COM', 'GMS', 'SQL', 'Calc', 'calice', 'CPM', 'CRM...', and 'Emp...'. The system tray shows 'Local intranet' and '100%' zoom level.

Figure A 9.14 Employee Payroll page

Registration Page



The image shows a screenshot of a web browser displaying a customer registration form. The browser is Windows Internet Explorer, and the address bar shows the URL `http://localhost:3967/CRMAPP1/CustomModule/CustReg.aspx`. The page title is "CustReg". The form is titled "CUSTOMER REGISTRATION" and contains the following fields:

- Customer Name
- Password
- Sex (with a dropdown menu showing "M/F")
- Age
- EmailId
- Address
- Land Line with STD Code, Type without space
- Mobile

The form is enclosed in a rectangular border. The browser's taskbar at the bottom shows the Start button and several open applications, including "start", "IE...", "asp...", "Docs", "DE...", "DB...", "Call", "CR...", "Cus...", "SC", and "SIP5-288". The system tray shows "Local intranet" and "100%".

Figure A 9.15 Customer Registration page

Customer Page

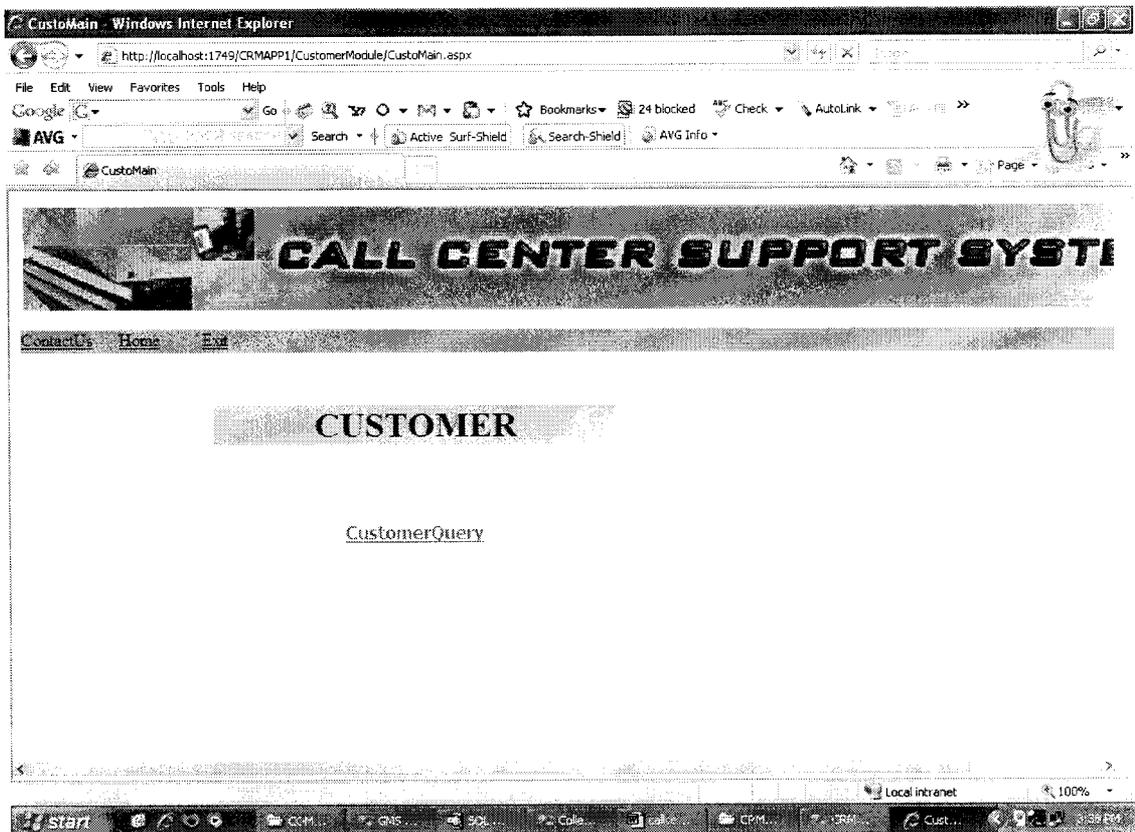


Figure A 9.16 Customer page

Query Page

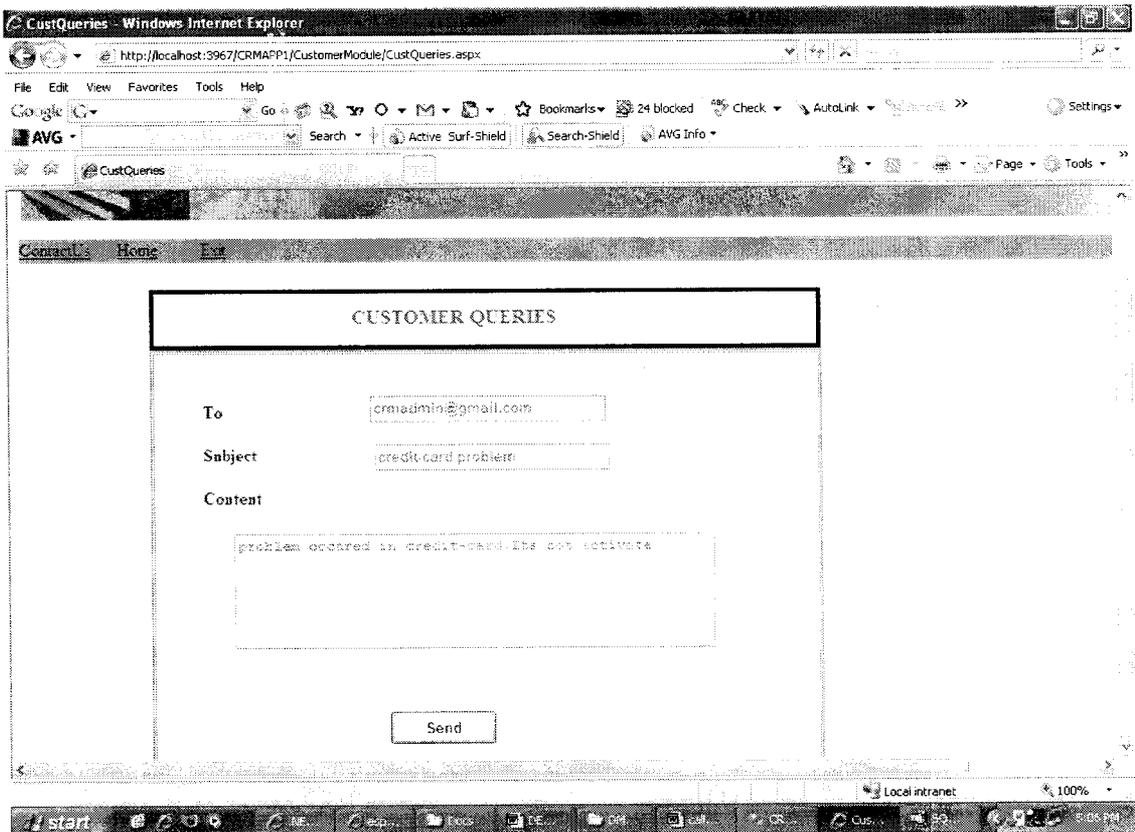


Figure A 9.17 Customer query page

APPENDIX 2: SAMPLE REPORT:

Customer Report:

6/30/2008

custname	sex	age	emailid	address	lanline	mobilen0
Arasan						
Arasan	m	26	aras@yahoo@mail.com	Erode,Tamilnadu	245,700	1,486,621
Mani						
Mani	f	34	mani@hotmail.com	chennai,Tamilnadu	1,876,555	1,499,910
Muthu						
Muthu	m	22	muthu@yahoo.com	covai,Tamilnadu	230,244	1,349,918
Thangadurai						
Thangadurai	m	21	gold@gmail.com	Salem,Tamilnadu	228,890	1,349,919
Thangadurai						

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

Figure B 9.1 Customer query page

Payroll Report:

Form1

Main Report

6/30/2001

NetSalary	Emoid	Accno	Basicpay	HRA	PF	IT	Allowance	TotalDays	TotalLeav	LOP
<u>7,038</u>										
7,038	E1001	1,142,378	7,500	150	375	98	300	30	2	500
<u>7,038</u>										
<u>7,250</u>										
7,250	E1005	1,868,584	10,000	200	500	50	400	25	7	2,900
<u>7,250</u>										
<u>13,751</u>										
13,751	E1002	1,277,899	15,000	300	750	75	600	34	3	1,324
<u>13,751</u>										
<u>18,386</u>										
18,386	E1003	1,345,678	20,000	400	1,000	103	900	35	3	1,714
<u>18,386</u>										
<u>23,875</u>										
23,875	E1004	1,979,696	25,000	500	1,250	125	1,000	40	2	1,250
<u>23,875</u>										

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

Start Windows - MS-DOS Windows Applications Documents - Microsoft untitled - MS Form1

Figure B 9.2 Customer query page

CHAPTER 10

REFERENCES

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- **www.roseindia.com**

- **www.4guysfromrolla.com**