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CMS – Consultant Management System

By

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Of

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COIMBATORE - 641006

BONAFIDE CERTIFICATE

Certified that this project report titled **"Consultant Management System"**is the bonafide work of **"Mr. Bhopathy L."** (Register Number: **71206621009**) 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.

Supervisor 9/6/09

Head of the Department

Submitted to Project and Viva Examination held on 06/07/2009

Internal Examiner

External Examiner 6/7/09

ACKNOWLEDGEMENT

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12th June 2009

TO WHOMSOEVER IT MAY CONCERN

We are glad to inform you that **Mr.Bhopathy L (Reg No: 71206621009)** has successfully completed his Academic Course Project in our Organization on the topic **"Consultant Management System"** during the period January 2009 to May 2009. During this period his conduct and performance has been good.

We wish him Every success for his future endeavours !

CG-VAK SOFTWARE & EXPORTS LTD. 171, MTP ROAD CBE-43

For CG-VAK Software & Exports Ltd

James Ravin Kumar
[Manager– Human Resources]

ABSTRACT

The objective of this **CONSULTANT MANAGEMENT SYSTEM** is to develop a complete repository for Human Resource Department of U.S consulting services to keep track of the candidate's / consultant's personal and academic details whom they Interview. Through this system the HR people can monitor candidate's details, resumes and to pick the eligible one for further process.

The system also accommodates an Expenses Recorder, which records various expenses met during outdoor visits. The nature of the system is, it provides the administrator to set privileges for the users.

The main focus of the system is to process Visa for Eligible Candidates. It includes various modes like Fast, Normal, and Slow. It also offers mailing services to intimate the candidates about the processing status. Reports can also be generated frequently. Effective part of the system will be when days count. The data entered into the system will be the reason to make decisions for future recruitment.

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CHAPTER 1

INTRODUCTION

1.1 ORGANISATION PROFILE

CG-VAK is a US $ 4.0 m organization having carved a niche for itself as a global software service provider. Specializing in consulting services and offshore software development, the company has successfully implemented many full life cycle projects in a short span of just 9 years. CG-VAK is a Public Limited Software House, incepted in 1995, with head quarters in India, and employing over 110 software professionals across the globe. They provide high quality & cost effective solution that help you to leverage the Information Technology, to improve competitive advantage through improved services to clients.

At CG-VAK, they continue to press ahead with a visionary zeal to bring out the very best solutions through our innovative products and services that include Custom Software Development, Offshore Software Services, IT Consulting Services and IT Enabled Services.

Their processes-driven methodology ensures high quality products and services delivered on time, every time. We are an ISO 9001:2000 certified company with proven, matured capability model in plane ensuring that the highest-level service is provided at all times. Det Norske VERITAS B.V., Netherlands, initially certified CG-VAK as ISO 9001 in September 2000. Subsequently got upgraded to ISO 9001:2000 in November 2003.

VISION

To be a leading global software service provider by delivering superior solutions to enhance the competitive advantage of the client.

- Well defined and customer centric quality processes & systems.
- Have a winning strategy in place and it's got us this far already.
- Highly motivated management team closely supports our highly skilled software professionals
- Value systems which brings in professional ethics, respect individual contribution & appreciate teamwork higher.
- Technical expertise on current technologies and state of the art infrastructure.

1.2 PROBLEM DEFINITION

Definition of Consultant:

Consultant-A person who acts as an advisor to users or to the technical staff. They are available for all aspects of the computer industry, including electronic circuit design, information system analysis and software development. In a business environment, consultants are often used to create the functional specifications from which vendors can respond. Consultants typically come from third party consulting firms, but the title is also used for internal specialists.

The objective of this **CONSULTANT MANAGEMENT SYSTEM** is to develop a complete repository for Human Resource Department of U.S consulting services to keep track of the candidate's / consultant's personal and academic details whom they Interview. Through this system the HR people can monitor candidate's details, resumes and to pick the eligible one for further process.

The system also accommodates an Expenses Recorder, which records various expenses met during outdoor visits. The nature of the system is, it provides the administrator to set privileges for the users.

The main focus of the system is to process VISA for Eligible Candidates. It includes various modes like Fast, Normal, and Slow. It also offers mailing services to intimate the candidates about the processing status. Reports can also be generated frequently. Effective part of the system will be when days count. The data entered into the system will be a reason to make decisions for future recruitment. Consultants are informed about their interview status and VISA details through mails by the mail generation facility through SMTP.

CHAPTER 2

SYSTEM ANALYSIS

2.1 EXISTING SYSTEM

Existing System in the concern is just acting like a storage medium in which the user interactive mechanism is missing. Though the data entering in the system is confidential, the efficient database is needed for security. The information's are dumped to the system in the form of excel sheets, so easy retrieval is not possible with the existing system. The executives are forced to monitor the VISA Processing Status regularly and the intimation about the status is made through telephone lines.

User of the system is not comfortable in making reports according to the needs of the HR Manager. Working with the date and time is not an easy job and the data is not structured since it doesn't have a back end, which also restricts the users to deal with bulk of information.

Disadvantages of Existing System

- Reports generated are not enough.
- Security level is very low.
- Periodical backup plan schedule is not present.
- It is not upgraded with the latest technology.
- Mail generation facility is not available.

2.2 PROPOSED SYSTEM

The demerits of the existing system are completely overcome by the proposed system. The system is designed in such a way that the users need not worry about the inner functionality. It's enough he/she has a basic knowledge in using the system. Though the users will be the executives or juniors of Human Resource Department, they

will look and feel easy to use the proposed system. The system is developed using Microsoft Visual Studio .net 2005 as front end and Microsoft SQL Server 2005 as back end.

The system is very useful for the management in order to make financial and managerial decisions based on the information wrapped. The system is legibly used for making consultant entry, costing entry and to plan a frequent out door visit schedule using year planner. System has an effective back end process for managing huge data. The tracking and reporting process is made simple. The consultants are intimated through their Email address about their VISA processing status. Reports are generated for costing and all important transaction process involved in the project.

Advantages of Proposed System

- Security level is very high.
- Periodical backup plan schedule is present.
- Reports are efficiently generated.
- Present system is developed with vb.net as front-end and sql-server 2005 as back-end providing efficient capabilities to the user.
- Mail generation facility through SMTP is made available for informing consultants interview status.

CHAPTER 3

DEVELOPMENT ENVIRONMENT

3.1 HARDWARE ENVIRONMENT (MINIMUM)

Processor	:	Pentium IV 2.4 GHz or Higher
RAM	:	512 MB SD or DDR
Hard Drive	:	5 GB HDD

3.2 SOFTWARE ENVIRONMENT

Operating System	-	Windows XP
Platform	-	.Net framework 1.1
Environment	-	Microsoft Visual Studio .net 2005
Technology	-	VB.NET
Back-End	-	SQL SERVER 2005
Report	-	Crystal Report 8.5

3.3 LANGUAGE DESCRIPTION

Introduction to Visual Studio.Net

Visual Studio.Net is not an invention that was made overnight. Visual Studio.Net is the result of extensive research and is also an extension to Visual studio6.0 another award winning, popular Environment.

The Visual Studio.Net IDE has advantage over the other programming environments. It is the flexibility provided to the programmers who are not familiar with the Visual Studio.Net IDE.

Features of .NET

Now that we know some basics of .NET, let us see what makes .NET a wonderful platform for developing modern applications.

OOPs Support

The advantages of Object Oriented Programming are well known. .NET provides a fully object oriented environment. The philosophy of .NET is "Object is mother of all." Languages like Visual Basic .Net now support many of the OOP features that were lacking traditionally. Even primitive types like integer and characters can be treated as objects-something not available even in OOP language like C++.

Visual Basic .NET

Visual Basic .NET provides the easiest, most productive language and tool for rapidly building Windows and Web applications. Visual Basic .NET comes with enhanced visual designers, increased application performance, and a powerful integrated development environment (IDE). It also supports creation of applications for wireless, Internet-enabled hand-held devices. The following are the features of Visual Basic .NET with .NET Framework 2.0 and Visual Basic .NET 2005 with .NET Framework 2.0.

Powerful Windows-Based Applications

Visual Basic .NET comes with features such as a powerful new forms designer, an in-place menu editor, and automatic control anchoring and docking. Visual Basic .NET delivers new productivity features for building more robust applications easily and quickly. With an improved integrated development environment (IDE) and a significantly reduced startup time, Visual Basic .NET offers fast, automatic formatting of code as you

type, improved IntelliSense, an enhanced object browser and XML designer, and much more.

Introduction to SQL Server 2005

IT investments SQL Server 2005 exceeds dependability requirement and provides innovative capabilities that increase employee effective, integrate heterogeneous IT ecosystems and maximize capital and operating budgets. SQL Server 2005 provides the Enterprise Data Management platform the organization needs to adapt quickly in a fast-changing environment. With the lowest implementation and maintenance cost in the industry.

SQL Server 2005 delivers rapid return on data management investment. SQL Server 2005 supports the rapid development of enterprise-class business application that can give the company a critical competitive advantage. Bench marked for scalability, speed and performance. SQL Server 2005 is a fully enterprise-class database product, providing core support for Extensible Markup Language (XML) and Internet queries.

How SQL Works

The strengths of SQL benefit all ranges of users including application programmers, database administrators, management and users. Technically speaking SQL is a data sub language. That is to say, the purpose of SQL is to interface to a relational database such as Oracle and SQL statements are instructions to the database. In this it differs from general purpose programming language like C and Basic.

CHAPTER 4

SYSTEM DESIGN

4.1 MODULE DESIGN

The various modules of the project are:

- Administration
- Consultants Repository
- Projects
- Expenses Recorder
- VISA Processing
- Reports Generation

Administration

In the Administration Module, the admin can set privileges to the users. It incorporates Role Based Access Privilege methodology and CRUD (Create, Retrieve, Update, and Delete) mechanism.

The HR Manager of the concern will be the admin to the system and he/she has the right to create or delete users. The different roles may be the designations prevailing in the department like Senior HR Executive, Junior HR Executive Etc., and based upon the role the system changes its visibility when they log in.

Consultants Repository

The short listed consultants are processed by recording their details, which suits the VISA permit. The mode of process is also mandatory according to the wish of the consultant. Short listed Consultants are informed via mail.

The academic and personal information of the consultants are cross verified and entered into the system with the format specified by the U.S. Government. The concern offers its own employees to visit United States, by considering their performance and

credentials. The projects done previously are also considered as an extra qualification for the developers.

Projects

Since Cgvak has it branches on New Jersey, California and on Middle East, So whenever a consultant detail is processed the company ensures that where he can be exactly placed. Some may be needed for Cgvak branches some for other companies based on which the allocation of projects will be done. They also confirm that whether the candidate has any previous experience in interacting with the US clients.

Expenses Recorder

The boarding, advertisement and other expenses met during out door visit for recruitment are recorded promptly. The information entered is treated as valuable hints by the concern to rely upon the responses given by the data fed for advertisement and visited place table.

Expenses recorder is also useful to submit report to the accounts department with the exact figures.

VISA Processing

The concern is tending to process VISA for consultants who are accepting the offer. It is a long procedure to process a H1B VISA for the consultant. Once the consultant is entered for process his/her original certificates are filed and verified then and there. The valid consultant is processed finally and the status is reported using auto-mailing facility of the system.

The eligibility criterion for consultants plays a major role for VISA processing. The mode of process differs based on the consultant's choice.

Reports Generation

Report generation in vb.net is an essential facility. Crystal reports generated are very useful in tracking different details needed for making managerial decisions.

4.2 INPUT DESIGN

Input design is the process of converting user inputs into computer-based format. The goal behind designing input data is to make the data entry easy and make it free from logical errors. Input design is one of the most expensive phases of the operation of computerized system and is often the major problem of a system.

The objectives of input design are:

- To produce a cost effective method of input
- To make the input forms understandable to the user
- To ensure the validation of the data input

Easy Data Input

Appropriate messages are provided in the message area, which prompt the user to enter the right data. If choice is to be made then a list is displayed in the form of selection mode.

User Friendliness

Appropriate messages are provided to keep the user informed of what is happening. Error message are prompted if incorrect data is entered.

Screen Design

The screens are designed in such a way that user can easily identify the data that are to be entered in each field. These are done by clearly mentioning the appropriate labels for the input field.

The major input fields are the checkbox field, where the user will select the appropriate answer and the button field, where he clicks for appropriate navigation. The next one is the combo box, where the users can select any one of the data available in that field.

The next one is the grid control, where users can select single row or multiple rows for certain operations.

4.3 OUTPUT DESIGN

Computer output is the most important and direct source of information to the user. Efficient, intelligible output design should improve the system's relationships with the user and help in decision making. Output design is a process that involves designing reports to be given to the users according to the requirements. The most common reports are screen displays, printed forms, graphical drawing etc.

4.4 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The process of doing database design generally consists of a number of steps which will be carried out by the database designer. Not all of these steps will be necessary in all cases. Usually, the designer must:

- Determine the relationships between the different data elements
- Superimpose a logical structure upon the data on the basis of these relationships.

Normalization

Normalization is build around the concept of Normal Forms. Normalization reduces redundancy. Normalization is the process of structuring data to

minimize duplication and inconsistencies. The process usually involves breaking down a single table into two or more tables and defining relationship between those tables. During the process of Normalization dependencies can be identified, which can cause problems during deletion and updating.

The First Normal Form

"For each column in the table, each row should be in First Normal Form (1NF): which has a single value." When there is more than one field storing the same kind of information in a single table repeating group is formed. A table is in First Normal Form (1NF) if it contains no repeating groups.

This project has no repeating groups, so first normal form is satisfied in this project. We cannot trace a repeated field in any of the table.

The Second Normal Form

In second normal form, for relations where primary key contains multiple attributes, non-key attributes should be identified and it should not be functionally dependent on part of the primary key.

Third Normal Form

In third normal form, relation should not have a non-key attribute, which is functionally determined by another non-key attribute, i.e. there should be no transitive dependency of a non-key attribute on the primary key.

Normalization is carried out in this system for the following reasons.

- To structure the data this helps in saving space and repetition.
- To permit simple retrieval of data in response to query and report request.
- To simplify the maintenance of the data through updates, insertions and deletions.
- To reduce the need to restructure or reorganize the data whenever new application requirements arise.

Primary Key is assigned for this purpose. The primary key fields in almost all the tables help to ease the search and improve efficiency. The proposed system is using second normal form as it is found most suitable. In second normal form each row must contain associated field that describes an attribute of the entry that the table describes.

TABLES

A database is a collection of inter-related data with minimum redundancy from the server to the user to access quickly and efficiently. Database has been designed using MS-SQL server, which is used to keep all data in the database management system, and then the information is stored accordingly.

Table 4.1 Cgvak.Dbo.Advertisement_Master

Column Name	Data Type	Length	Constraint
Cgvak_Advt_Icode	Varchar	10	(Primary Key)
Cgvak_Advt_Mode	Varchar	25	Advertisement Mode
Cgvak_Advt_MediaName	Varchar	25	Media Name
Cgvak_Advt_Active	Bit	1/0	Is Active

Table 4.2 Cgvak.Dbo.Certification_Master

Column Name	Data Type	Length	Constraint
Cgvak_Advt_Icode	Varchar	10	(Primary Key)
Cgvak_Tech_Icode	Varchar	10	(Foreign Key)
Cgvak_Certification	Varchar	30	Certification
Cgvak_Cert_Active	Bit	1/0	Is Active

Table 4.3 Cgvak.Dbo.Document_Submission

Column Name	Data Type	Length	Constraint
Cgvak_DocSub_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Icode	Int	4	(Foreign Key)
Cgvak_DocSub_Document_Icode	Int	4	Document Code
Cgvak_DocSub_Given	Bit	1/0	Is Active

Table 4.4 Cgvak.Dbo.Consultant_Master

Column Name	Data Type	Length	Constraint
Cgvak_Cons_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Sal	float	4	Salary Details
Cgvak_Cons_FName	Varchar	25	Consultant First Name
Cgvak_Cons_LName	Varchar	25	Consultant Last Name
Cgvak_Cons_DOB	Smalldatetime	4	Consultant Date Of Birth
Cgvak_Cons_Marital_Status	Bit	1/0	Is Active
Cgvak_Cons_Location	Varchar	25	Consultant Location
Cgvak_Cons_Phone	Varchar	25	Consultant Phone
Cgvak_Cons_Mobile	Varchar	25	Consultant Mobile
Cgvak_Cons_EMail	Varchar	25	Consultant Email
Cgvak_Cons_Address	Varchar	50	Consultant Address
Cgvak_Cons_Qual_Icode	Varchar	10	(Foreign Key)
Cgvak_Cons_Tech_Icode	Varchar	10	(Foreign Key)
Cgvak_Cons_IDate_Icode	Varchar	10	Consultant Idate Code
Cgvak_Cons_PassportNo	Varchar	25	Consultant Passport Number
Cgvak_Cons_Passport_Issue_Date	Smalldatetime	4	Consultant Passport Issue
Cgvak_Cons_Passport_Expiry_Date	Smalldatetime	4	Consultant Passport Expiry
Cgvak_Cons_Passport_Issue_Place	Varchar	30	Consultant Passport Issue Place
Cgvak_Cons_Current_Company	Varchar	30	Consultant Current Comp
Cgvak_Cons_Yrs_Exp	Int	4	Consultant Experience
Cgvak_Cons_UserID	Varchar	20	(Foreign Key)
Cgvak_Cons_User_Pass	Varchar	20	Consultant User Pass
Cgvak_Cons_Offer_Status	Bit	1/0	Consultant Offer Status
Cgvak_Cons_Offered	int	4	Consultant Offered
Cgvak_Cons_Offer_Remarks	Varchar	50	Consultant Offer Remarks
Cgvak_Cons_Additional_Documents	Varchar	50	Consultant Additional
Cgvak_Cons_AddDoc_RemindDate	Smalldatetime	4	Consultant Remind Date
Cgvak_Cons_Month_Exp	Varchar	20	Consultant Exp

Table 4.5 Cgvak.Dbo.Previous_Employment

Column Name	Data Type	Length	Constraint
Cgvak_Prev_Emp_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Icode	Varchar	10	(Foreign Key)
Cgvak_Prev_Emp_Name	Varchar	30	Consultant Name
Cgvak_Prev_Emp_From	Varchar	50	Consultant From
Cgvak_Prev_Emp_To	Varchar	50	Consultant Pre Service To
Cgvak_Prev_Designation	Varchar	30	Consultant Pre Designation

Table 4.6 Cgvak.Dbo.Consultant_Previous_Travel

Column Name	Data Type	Length	Constraint
Cgvak_Prev_Traveled_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Icode	Varchar	10	(Foreign Key)
Cgvak_Prev_Traveled_Place	Varchar	30	Previous Travel Place
Cgvak_Prev_Traveled_From	Varchar	50	Travelled From
Cgvak_Prev_Traveled_To	Varchar	50	Travelled To
Cgvak_Prev_Traveled_VISAType	Varchar	20	VISA Type
Cgvak_Prev_Traveled_VISA_ValidDate	Varchar	50	VISA Valid Date

Table 4.7 Cgvak.Dbo.Consultant_Qualification

Column Name	Data Type	Length	Constraint
Cgvak_ConsQual_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Icode	Varchar	10	(Foreign Key)
Cgvak_Qual_Icode	Varchar	10	Qualification Code

Table 4.8 Cgvak.Dbo.Consultant_Skills

Column Name	Data Type	Length	Constraint
Cgvak_Skill_Icode	Varchar	10	(Primary Key)
Cgvak_Cons_Icode	Varchar	10	(Foreign Key)
Cgvak_Skill_Type	Varchar	10	Skill Type
Cgvak_Skill_Cert_Icode	Varchar	10	Certification Code

Table 4.9 Cgvak.Dbo.Costing_Entry

Column Name	Data Type	Length	Constraint
Cgvak_Costing_Icode	Varchar	10	(Primary Key)
Cgvak_Costing_Date_Icode	Varchar	10	Costing Code
Cgvak_Costing_Travel	Int	4	Travel Cost
Cgvak_Costing_Food	Int	4	Food Cost
Cgvak_Costing_BussinessCenter	Int	4	Business Centre Cost
Cgvak_Costing_Lodging	Int	4	Lodging Cost
Cgvak_Costing_Advertisement	Int	4	Advertisement Cost
Cgvak_Costing_Others	Int	4	Other Cost
Cgvak_Costing_Total	Int	4	Total Cost

Table 4.10 Cgvak.Dbo.Document_Master

Column Name	Data Type	Length	Constraint
Cgvak_Document_Icode	Varchar	10	(Primary Key)
Cgvak_Document_Name	Varchar	50	Document Name
Cgvak_Document_Type	Varchar	15	Document Type
Cgvak_Document_Active	Bit	1/0	Is Active

Table 4.11 Cgvak.Dbo.Interview_Status

Column Name	Data Type	Length	Constraint
Cgvak_IStatus_Icode	Varchar	10	(Primary Key)
Cgvak_IStatus_Date_Icode	Varchar	10	Status Code
Cgvak_IStatus_Total_Called	Int	4	Total Called
Cgvak_IStatus_Total_Attended	Int	4	Total Attended
Cgvak_IStatus_Total_Shortlisted	Int	4	Total Short listed
Cgvak_IStatus_Total_Rejected	Int	4	Total Rejected

Table 4.12 Cgvak.Dbo.Cgvak_Location

Column Name	Data Type	Length	Constraint
Cgvak_Location_Icode	Varchar	10	(Primary Key)
Cgvak_Location	Varchar	25	Location
Cgvak_Location_Active	Bit	1/0	Is Active

Table 4.13 Cgvak.Dbo.Qualification_Master

Column Name	Data Type	Length	Constraint
Cgvak_Qual_Icode	Varchar	10	(Primary Key)
Cgvak_Graduation	Varchar	20	Graduation
Cgvak_Graduation_Name	Varchar	50	Graduation Name
Cgvak_Qual_Active	Bit	1/0	Is Active
Cgvak_Qual_Type	Varchar	10	Qualification Type

Table 4.14 Cgvak.Dbo.Rejection_Master

Column Name	Data Type	Length	Constraint
Cgvak_Rejection_Icode	Varchar	10	(Primary Key)
Cgvak_Rejected_By	Varchar	25	Rejected By
Cgvak_Rejected_Reason	Varchar	50	Rejected Reason

Table 4.15 Cgvak.Dbo.Status.Master

Column Name	Data Type	Length	Constraint
Cgvak_Status_Icode	Varchar	10	(Primary Key)
Cgvak_Status_Name	Varchar	25	Status Name
Cgvak_Status_Active	Bit	1/0	Is Active

4.5 E-R DIAGRAM

In software engineering, an Entity-Relationship Model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion.

An entity may be defined as a thing which is recognized as being capable of an independent existence and which can be uniquely identified. An entity is an abstraction from the complexities of some domain. . This is pictorically depicted in Figure 4.11

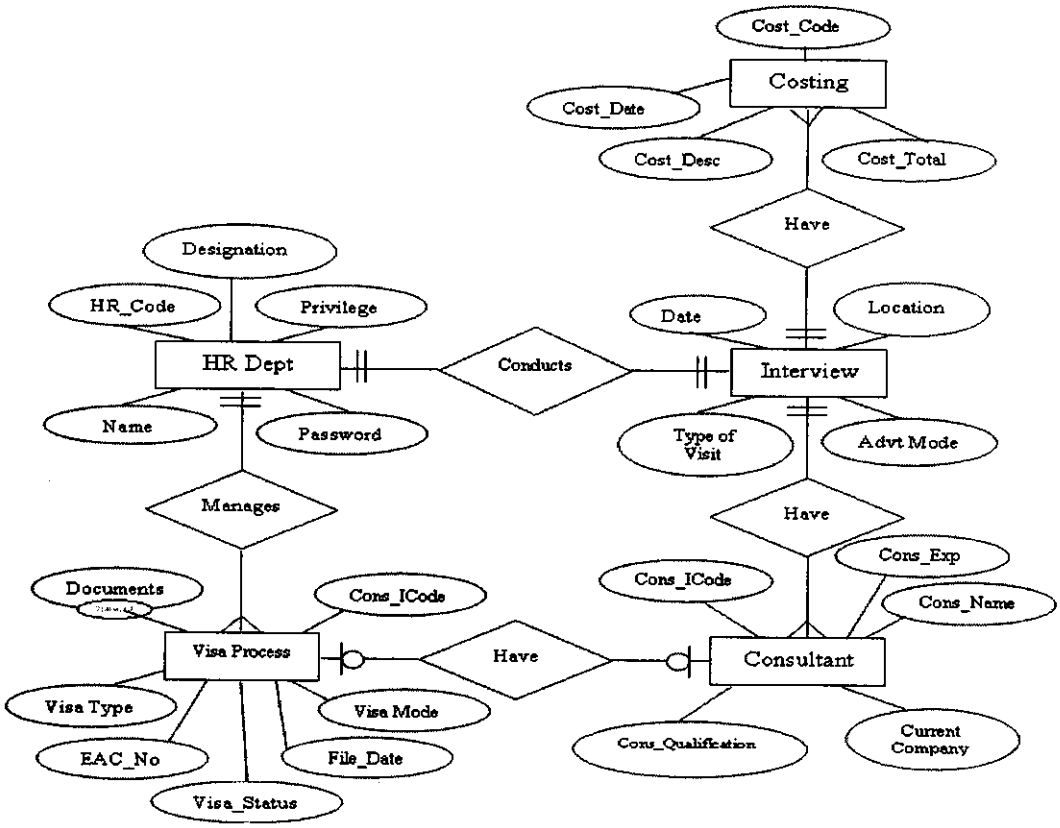

Figure 4.16 E-R Diagram

4.6 DATAFLOW DIAGRAM

The Data Flow Diagram (DFD) is a tool used for structured design. DFD shows the flow of data from external entities into the system, how the data move from one process to another as well as its logical storage.

A Data Flow Diagram is a process-oriented graphical representation of an application system. It is a picture of the movement of the data between external entities and the processes and data stores within a system. The Data Flow Diagram is used to specify the path through which the data flows.

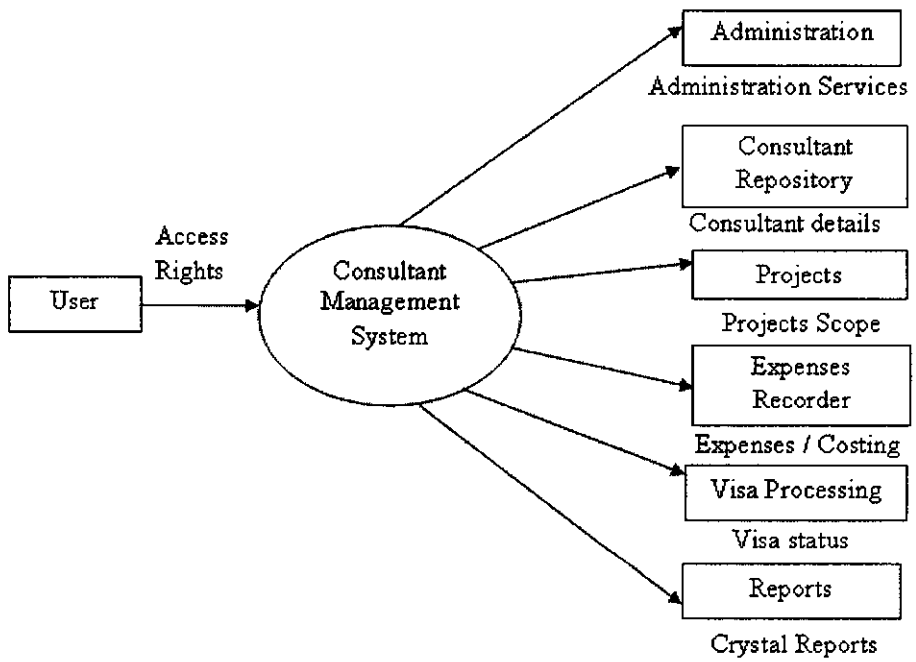

Figure 4.17 Data Flow Diagram - Level 0

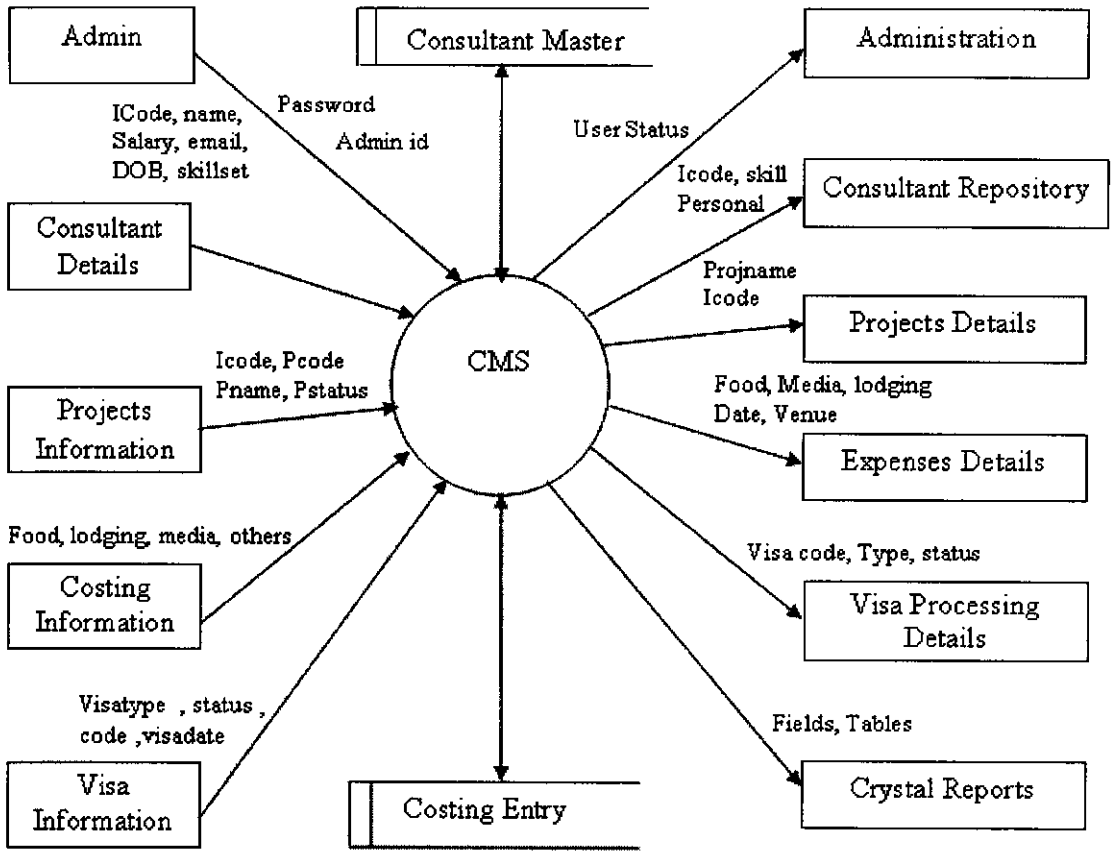

Figure 4.18 Data Flow Diagram - Level 1

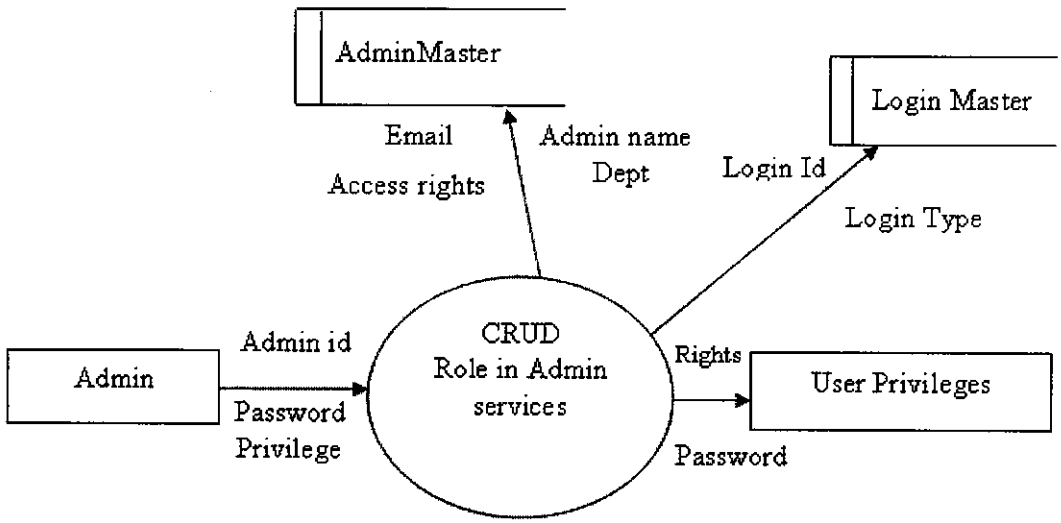

Figure 4.19 Data Flow Diagram - Level 2 (Administration)

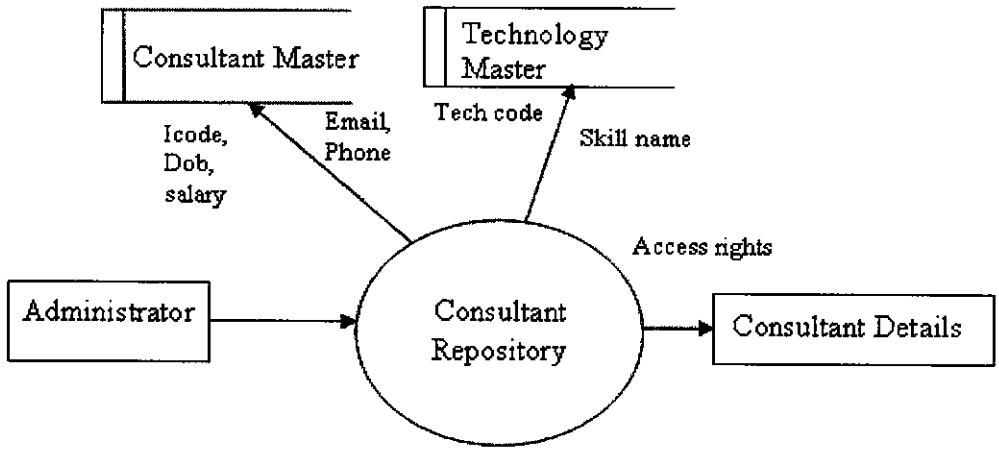

Figure 4.20 Data Flow Diagram - Level 2 (Consultant Repository)

4.7 ARCHITECTURAL DIAGRAM

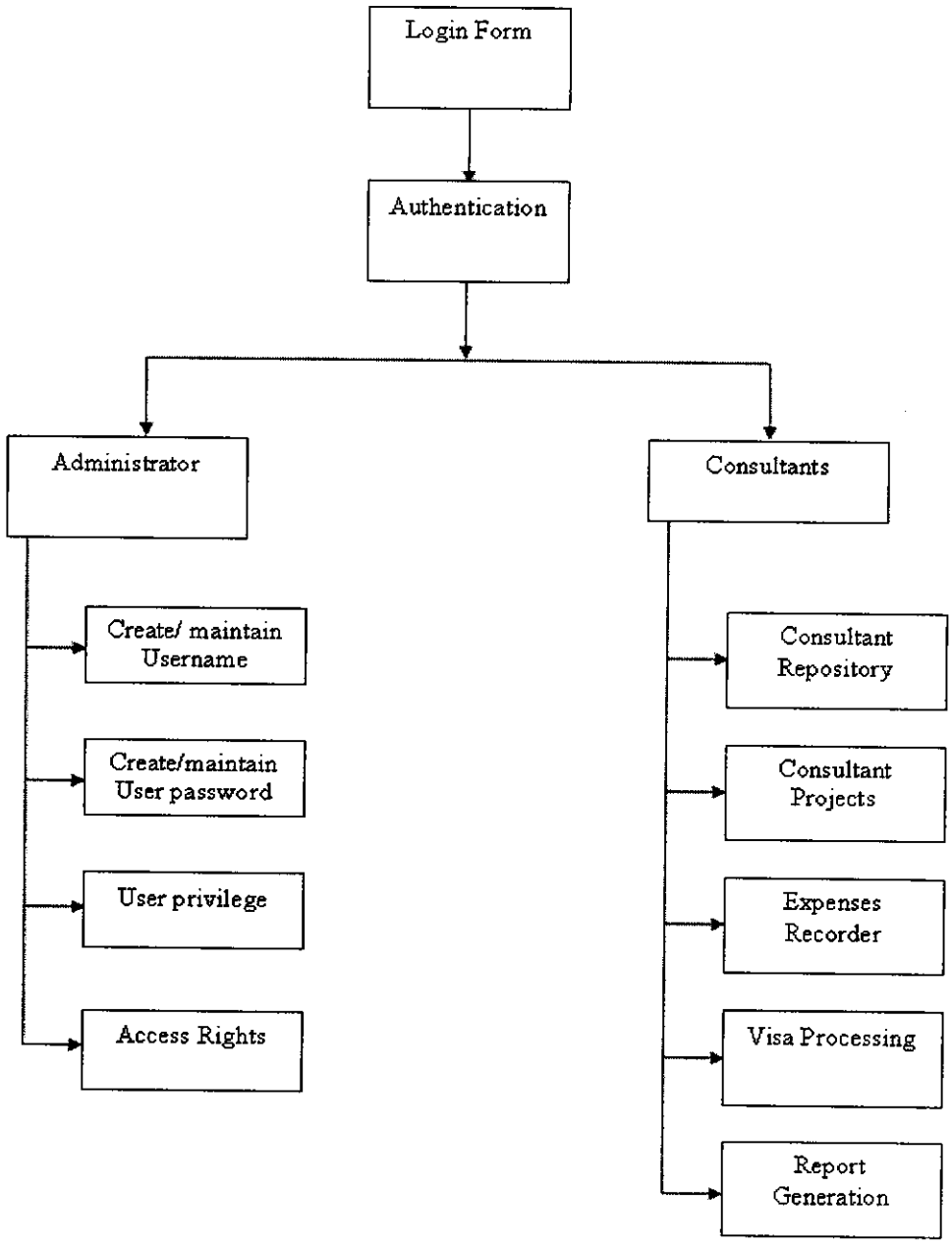

Figure 4.21 Architectural Diagram

CHAPTER 5

SYSTEM IMPLEMENTATION

5.1 SYSTEM IMPLEMENTATION

A Software application in general is implemented after navigating the complete life cycle method of a project. Various life cycle processes such as requirement analysis, design phase, verification, testing and finally followed by the implementation phase results in a successful project management. The software application which is basically a web based application has been successfully implemented after passing various life cycle processes mentioned above.

As the software is to be implemented in a high standard industrial sector, various factors such as application environment, user management, security, reliability, and finally performance are taken as key factors throughout the design phase. These factors are analyzed step by step and the positive as well as negative outcomes are noted down before the final implementation.

Security and authentication is maintained in both user level as well as management level. The data is stored in SQL Server 2005 as RDBMS, which is highly reliable and simpler to use, the user level security is managed with the help of password options and sessions, which finally ensures that all the transactions are made secure.

The application's validations are made, taken into account the entry levels available in various modules. Possible restrictions like number formatting, date formatting and confirmation for both save and update options ensures the correct data to be fed into the database. Thus all the aspects are charted out and the complete project study is practically implemented successfully for the end users.

5.2 SYSTEM MAINTENANCE

Software maintenance is of course, far more than finding mistakes. Provision must be made for environment changes, which may affect either the computer, or other parts of the computer based systems. Such activity is normally called maintenance. It includes both the improvement of the system functions and the correction of faults, which arise during the operation of a new system. It may involve a large proportion of computer department resources. The main task may be to adapt existing system in a changing environment.

Systems should not be changed casually following informal requests. To avoid unauthorized amendments, all requests for changes should be channeled to a person nominated by management. The nominated person has sufficient knowledge of the organization's computer based systems to be able to judge the relevance of each proposed change.

5.3 SAMPLE CODING

APPLICATION CONFIGURATION FILE (app.config)

Setting Database Property

This sample client side coding is used to display the application screen.

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
    <appSettings>
        <add key="ConnectionString" value="Data
Source=home;Initial Catalog=consultant;Integrated
Security=True"/>
    </appSettings>
   <system.diagnostics>
```

```
        <sources>
            <!-- This section defines the logging
configuration for My.Application.Log -->
            <source name="DefaultSource"
switchName="DefaultSwitch">
                <listeners>
                    <add name="FileLog"/>
                    <!-- Uncomment the below section to
write to the Application Event Log -->
                    <!--<add name="EventLog"/>-->
                </listeners>
            </source>
        </sources>
        <switches>
           <add name="DefaultSwitch" value="Information" />
        </switches>
        <sharedListeners>
            <add name="FileLog"
type="Microsoft.VisualBasic.Logging.FileLogTraceListener,
Microsoft.VisualBasic, Version=8.0.0.0, Culture=neutral,
PublicKeyToken=b03f5f7f11d50a3a,
processorArchitecture=MSIL"
                 initializeData="FileLogWriter"/>
            <!-- Uncomment the below section and replace
APPLICATION_NAME with the name of your application to write
to the Application Event Log -->
            <!--<add name="EventLog"
type="System.Diagnostics.EventLogTraceListener"
initializeData="APPLICATION_NAME"/> -->
        </sharedListeners>
    </system.diagnostics>
</configuration>
```

Database Connectivity

```
Imports System.Data.Sqlclient
Imports System.Configuration

Public Class Commonclass
    Public Objsqlconnection As Sqlconnection
    Sub Pconnect()
        Objsqlconnection = New Sqlconnection
        Objsqlconnection.Connectionstring =
Configurationsettings.Appsettings("Connectionstring")
        Objsqlconnection.Open()
    End Sub
    Sub Pconnectclose()
        Objsqlconnection.Close()
    End Sub
End Class
```

Sample Trigger

```
CREATE TRIGGER
        Cgvak_Wings_Cons_Insert                 \\ Trigger Name
ON
        Cgvak.Dbo.Consultant_Master             \\ Action Table
FOR
        INSERT                                  \\DML Command
AS
        DECLARE @ConsQual VARCHAR (10)
        SET @ConsQual=(  SELECT
                                INSERTED.Cgvak_ConsQual_Icode
                        FROM
                                INSERTED
                        )
BEGIN
        INSERT INTO
                Cgvak.Dbo.Qualification_Master (Cgvak_ConsQual_Icode)
        VALUES
                (@ConsQual)
```

```
END
GO
```

Description:

The Cgvak_ConsQual_Icode is inserted into Cgvak.Dbo.Qualification_Master Table automatically as soon as it is inserted into Cgvak.Dbo.Consultant_Master

Tables:

Cgvak.Dbo.Consultant_Master

Cgvak.Dbo.Qualification_Master

Inserted Field:

Cgvak_ConsQual_Icode

Sample Stored Procedure:

```
CREATE PROCEDURE
        Pro_Cgvak_Wings_Report              \\ Procedure Name
        @Cons_Icode                         \\ Input Parameter
AS
        SELECT
                Cgvak_Cons_Icode,
                Cgvak_Cons_Sal,
                Cgvak_Cons_Fname,
                Cgvak_Cons_DOB,
                Cgvak_Cons_Martial_Status,
                Cgvak_Cons_Location,
                Cgvak_Cons_Phone,
                Cgvak_Cons_Email
        FROM
                Cgvak.Dbo.Consultant_Master     \\Table

WHERE
        Cgvak_Cons_Icode = @Cons_Icode          \\Condition
GO

EXECUTE Pro_Cgvak_Wings_Report Ic59             \\Procedure Call
```

Description:

The Stored procedure Pro_Cgvak_Wings_Report retrieves the fields from Cgvak.Dbo.Consultant_Master for a particular Cgvak_Cons_Icode.

Table:

Cgvak.Dbo.Consultant_Master

Fields:

Cgvak_Cons_Icode, Cgvak_Cons_Sal, Cgvak_Cons_Fname,
Cgvak_Cons_DOB, Cgvak_Cons_Martial_Status,
Cgvak_Cons_Location, Cgvak_Cons_Phone, Cgvak_Cons_Email

CHAPTER 6

TESTING

Testing is done with one primary objective to ensure the quality of software before live operations. The main purpose of testing, from the procedure's viewpoint, is to gain confidence. The producer needs to have some knowledge about the quality of software, even if the knowledge is not perfect. If no errors are found in testing, the producer feels confident that the quality of software is good.

6.1 SYSTEM TESTING

Software testing is the crucial element of the software quality assurance and represents the ultimate review of specification, design and coding. Testing represents an interesting anomaly for the software. During earlier definitions and development phases, it was attempted to build software from an abstract concept to tangible information. The testing phase is a very important phase since we make sure that the system will perform the task without any error. Testing is vital to the success of the system and is being done by classifying it in two ways- System Testing and Program Testing. Program Testing involves checking the syntax and logic of the program. This checking results in achieving error free programs.

No matter how carefully a programmer designs and plans application, the programs are sure to have a few bugs in them. Errors in the program immediately stop program execution and display an error message if the errors are syntax errors. After debugging one can identify the limitations of this project and hence corrections are made. During the system development, each source code was tested for its level of correctness. Each form was run a number of times in order to ensure that the details are entered correctly and works properly.

6.2 UNIT TESTING

Unit testing focuses verification effort on the smallest limit of software design. Using the unit test plan prepared in the design phase of the system, important control paths are tested to uncover the errors within the module. This testing was carried out during the coding itself. In this testing step, each module should work satisfactorily on the expected output from the module.

In unit testing, sample data were taken and applied on each module of the system independently to ensure that they perform the required task effectively. Both valid and invalid data were taken as sample data to check whether the system displays the error message when it is given invalid data.

6.3 INTEGRATION TESTING

The integration testing was performed to check whether the whole system works perfectly. The following cases are done under Integration Testing.

- The way the system stores the data
- The way the system retrieves data from the database
- The way the system transfers data from one module to another module

6.4 VALIDATION TESTING

Validation testing is one whether the user have entered the required information in the specified fields or not. If the user enters the wrong data type in the field, the application should display the error message saying that they have fed wrong data in the field and it also checks whether they have missed any of the data in the fields specified.

If the user enters wrong data type or didn't specify the value for a particular field it will display an error message by denoting the fields in the **red** color, and also the control will not be passed to the next field.

6.5 USER ACCEPTANCE TESTING

User acceptance of a system is the key factor for the success of any system. The system under consideration is tested for user acceptance by constantly keeping in touch with the prospective system users at time of developing and making for **CG-VAK**

SOFTWARE & EXPORTS.

The testing of the software began along with coding, since the design was fully object – oriented, first the interfaces were developed and tested. Then unit testing was done for every module in the software giving various inputs, such that each line of code is at least once executed.

CHAPTER 7

CONCLUSION

The project was successfully completed within the time span allotted. Every effort has been made to present the system in more user–friendly manner. All the activities provide an easy walk through to the user who is interfacing with the system. All the disadvantages of the existing system have been overcome using the present application. A trial run of the system has been made and is checked for promptness and good results.

The system has been developed using the present scenario language Microsoft Visual Basic .NET as its front-end tool and Microsoft SQL Server 2005 as its backend. All the modules are tested separately and put together to form the main system. Finally the system is tested with real data and everything worked successfully. Thus the system has fulfilled the entire objective identified.

The system has been developed in an attractive dialogs fashion and the entire user interface is attractive and user friendly and suits all the necessities laid down by the clients initially, such that any user with minimum knowledge about the computers and the system can easily work with the application.

CHAPTER 8

PERFORMANCE AND FUTURE ENHANCEMENT

8.1 PERFORMANCE

The goal of this project is to record the consultant's information that is short listed for the US VISA processing. The system keeps track of the status and reminder is sent to the consultant through his/her mail address.

The system elements are designed in such a way that the essential functions and the performance of the system satisfy the constraints reported by the Human Resource Department.

The necessary hardware and software are available for the system. The available resources are enough to run the proposed system.

The technology employed in this project supports the system in such a way that it is easy to keep track of the consultant. It also helps to make managerial decisions based on the previous visit and to intimate the status through mailing facility.

8.2 FUTURE ENHANCEMENTS

Further this application can be upgraded using ASP.net which provides web service technology. Other technologies like AJAX can also be used for producing faster, more interactive and usable web page which does not require re-loading every time a user changes a request.

Database may be changed in the future for more security purpose. Oracle may be suggested for up gradation.

CHAPTER 8

SAMPLE SCREEN SHOTS

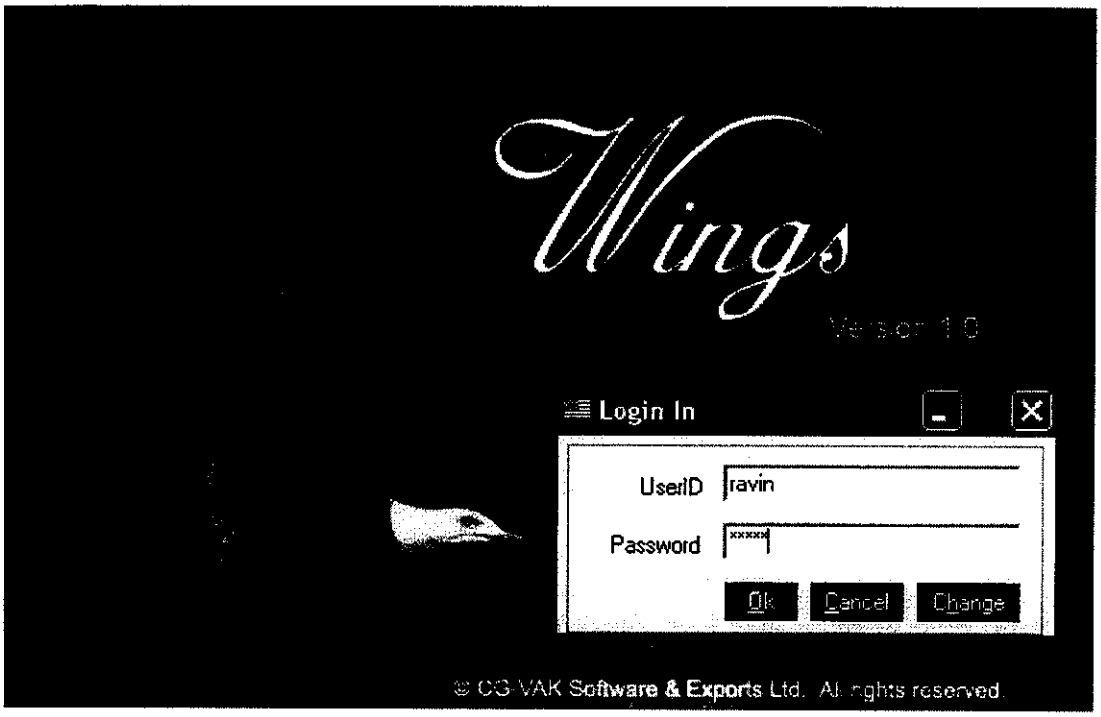

Figure A.1 Login Form

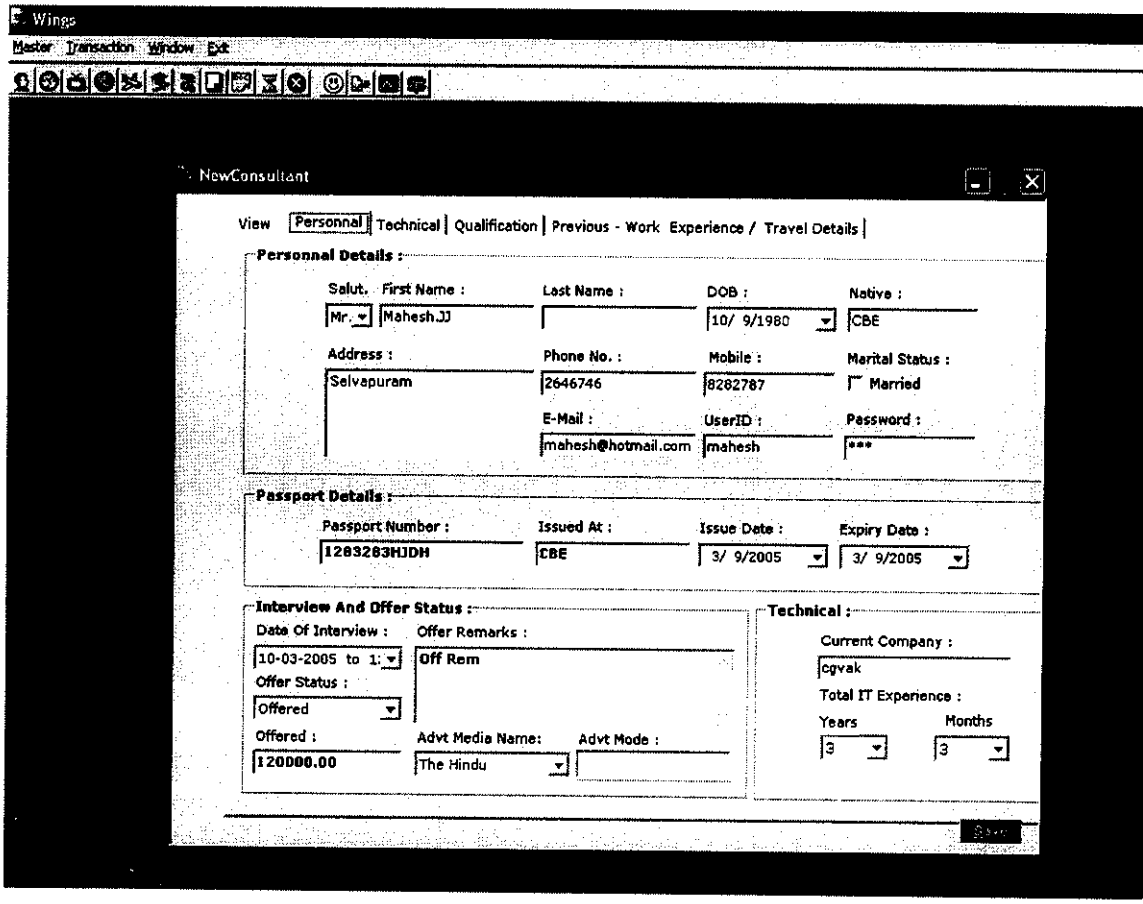

Figure A.2 Transaction: New Consultant Personal Details

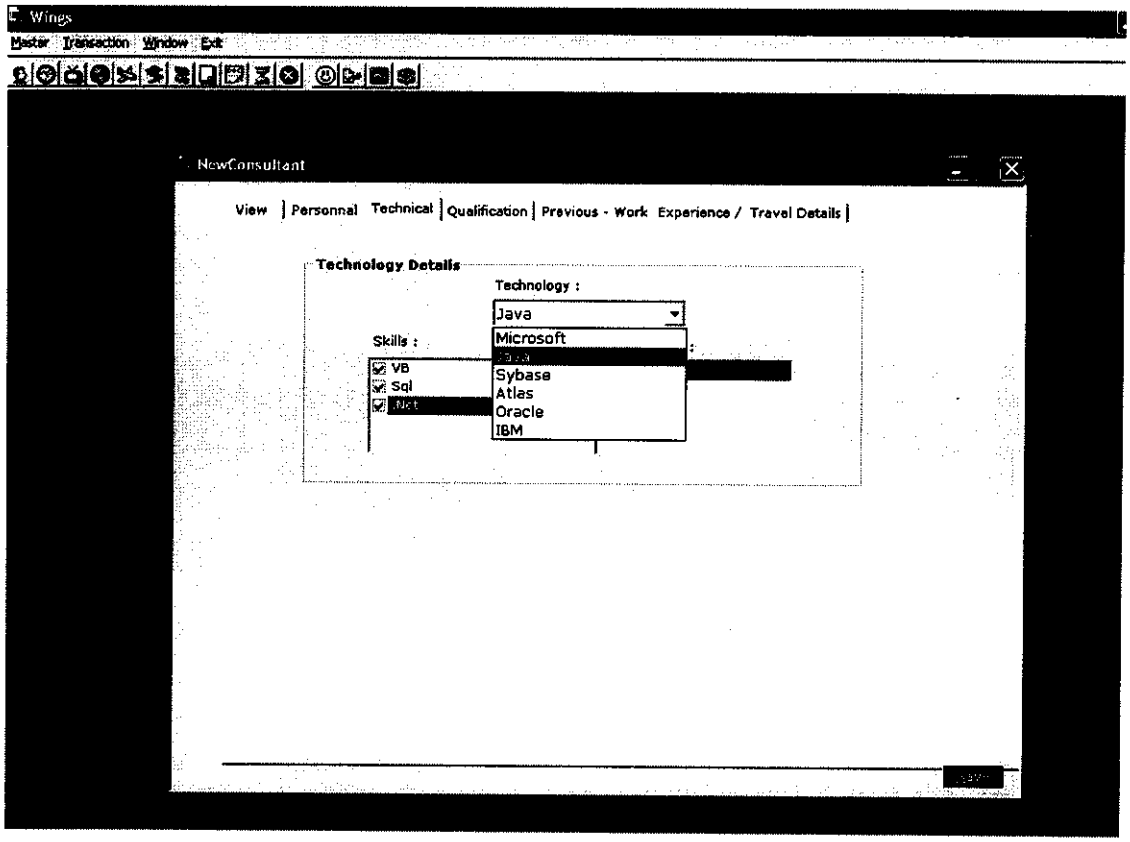

Figure A.3 Transaction: New Consultant Technical Details

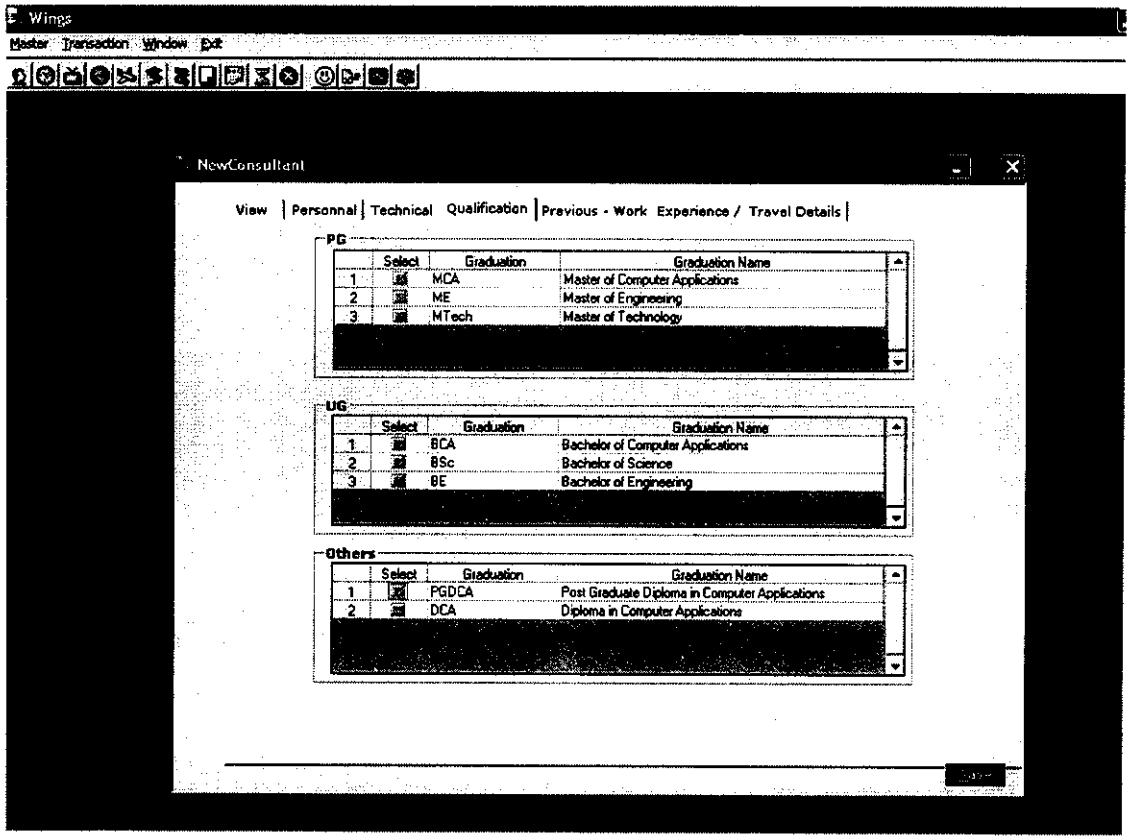

Figure A.4 Transaction: New Consultant Qualification Details

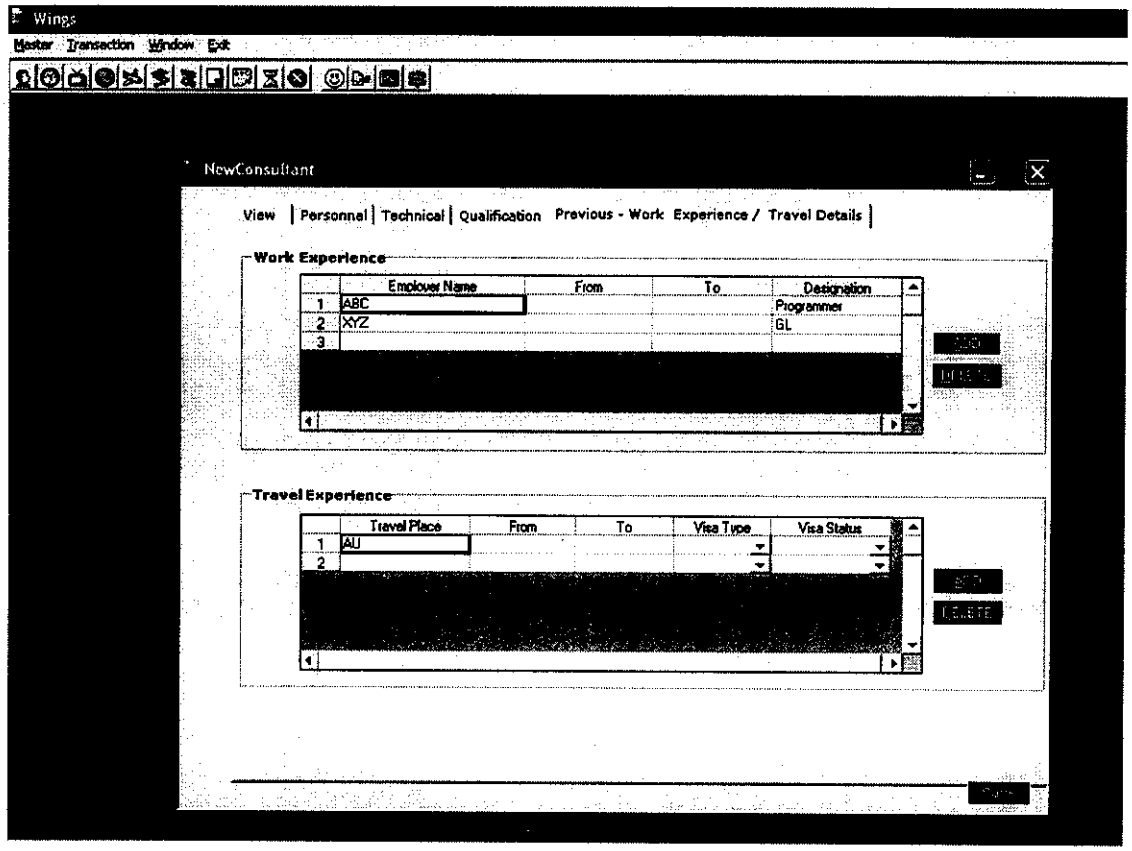

Figure A.5 Transaction: New Consultant Pervious – Work Experience / Travel Details

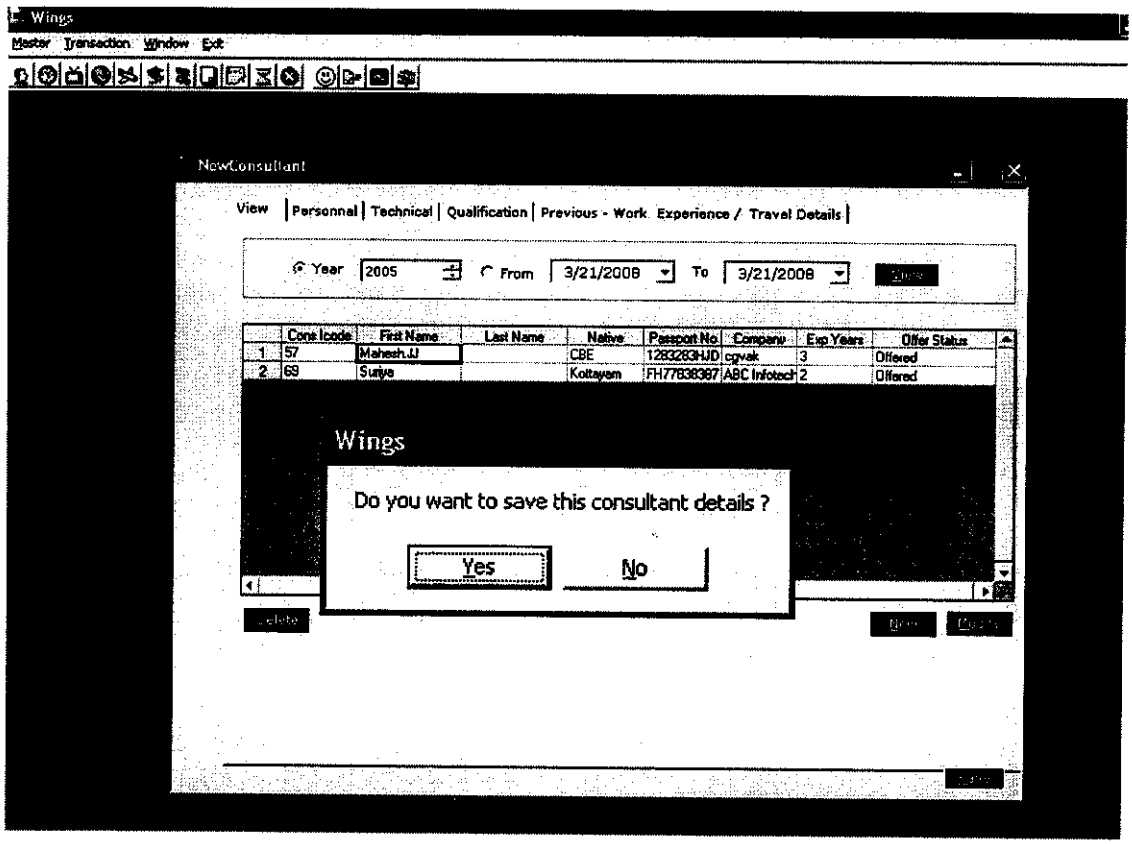

Figure A.6 Transaction: New Consultant Added Record View

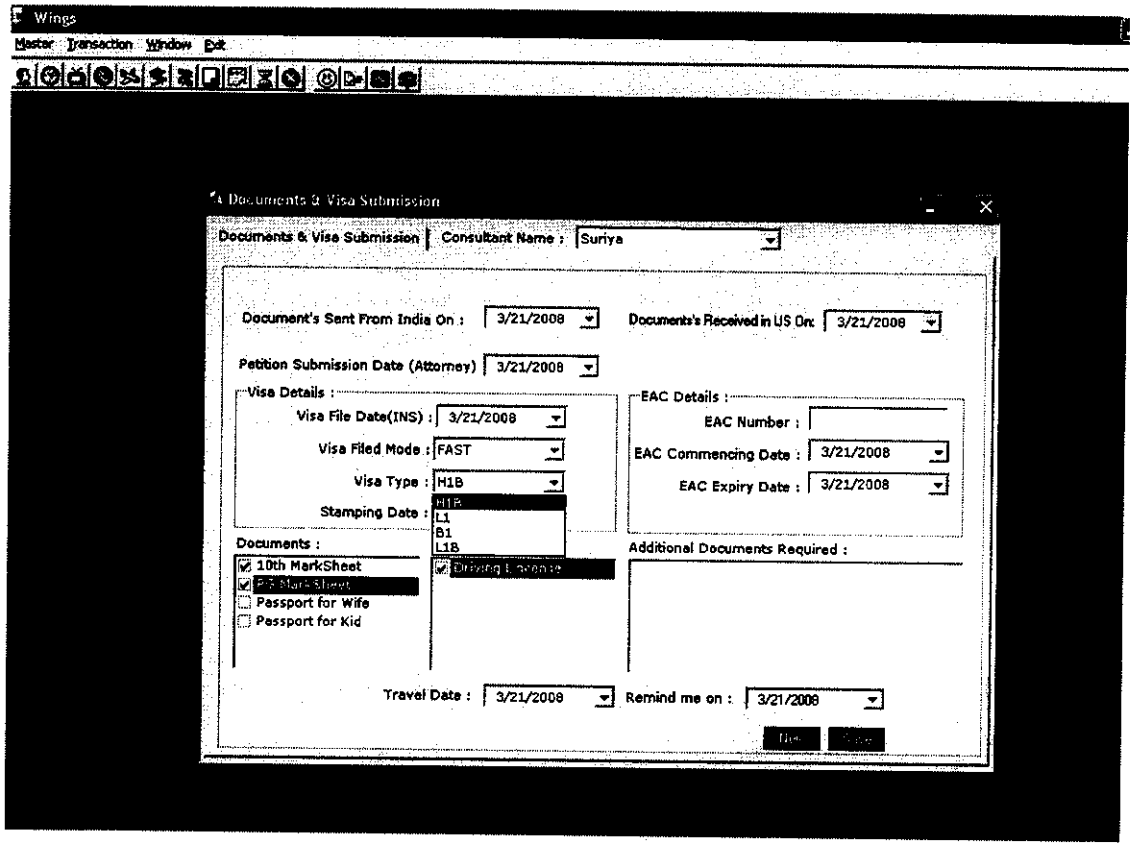

Figure A.7 Transaction: New Consultant Personal Details

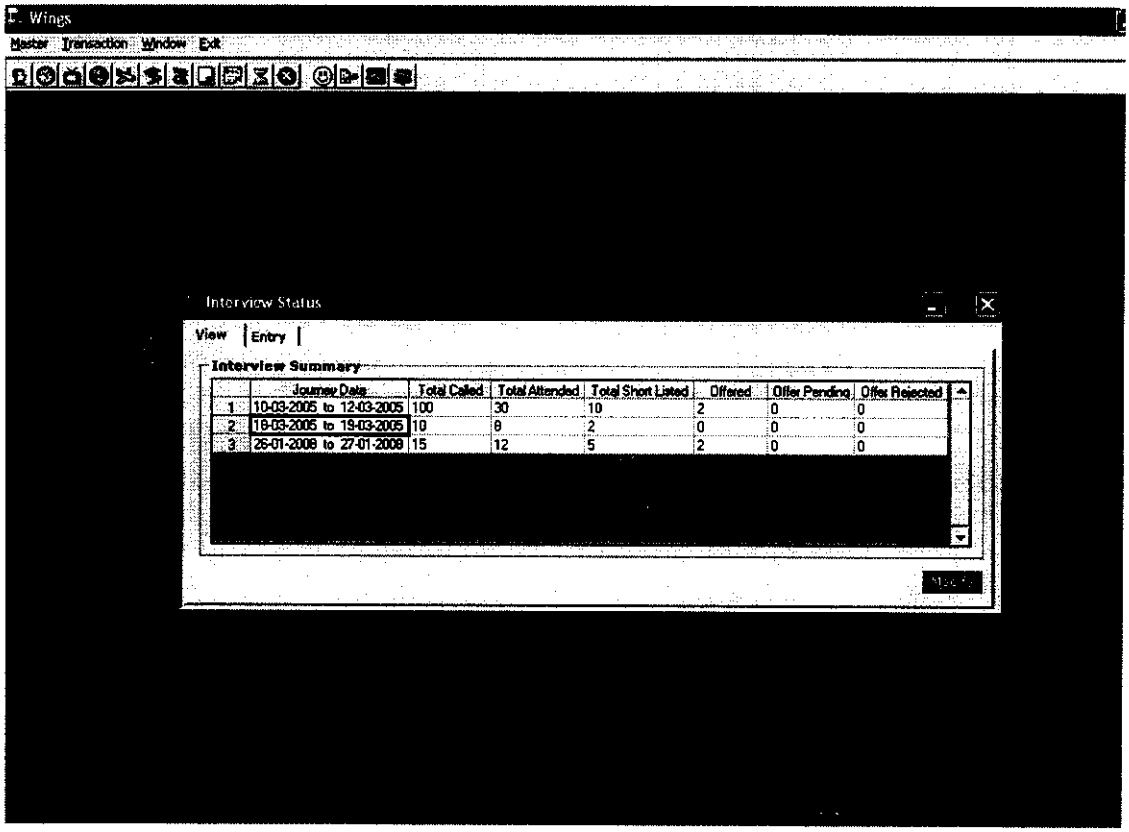

Figure A.8 Transaction: Interview Status View and Entry

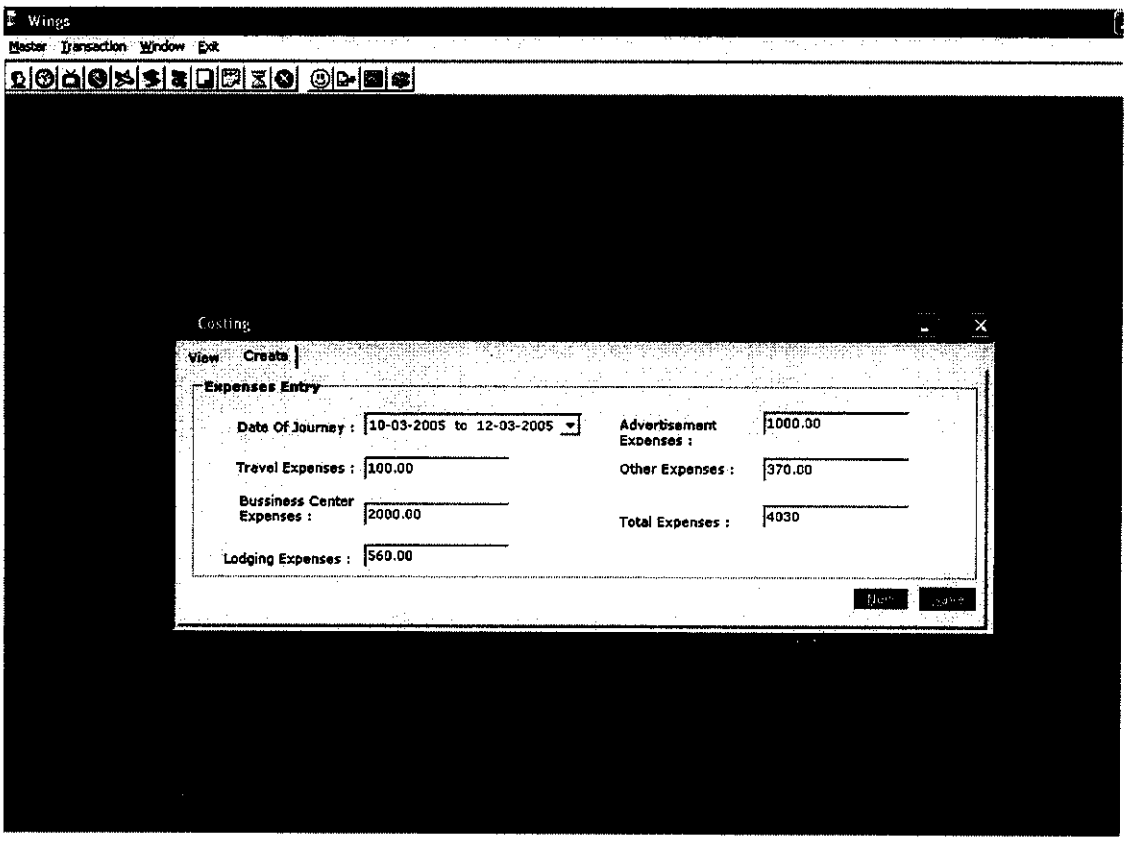

Figure A.9 Costing Master: Expense View and Entry

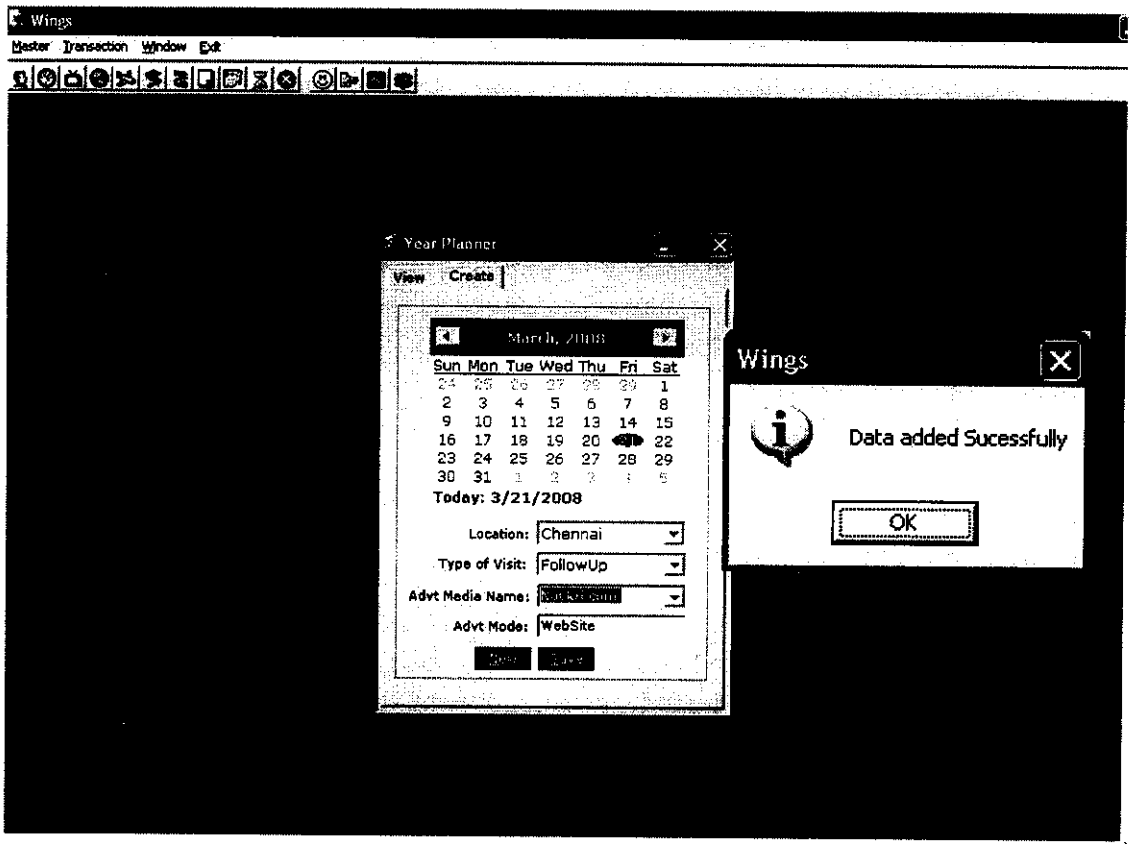

Figure A.10 Outdoor Visit Year Planner

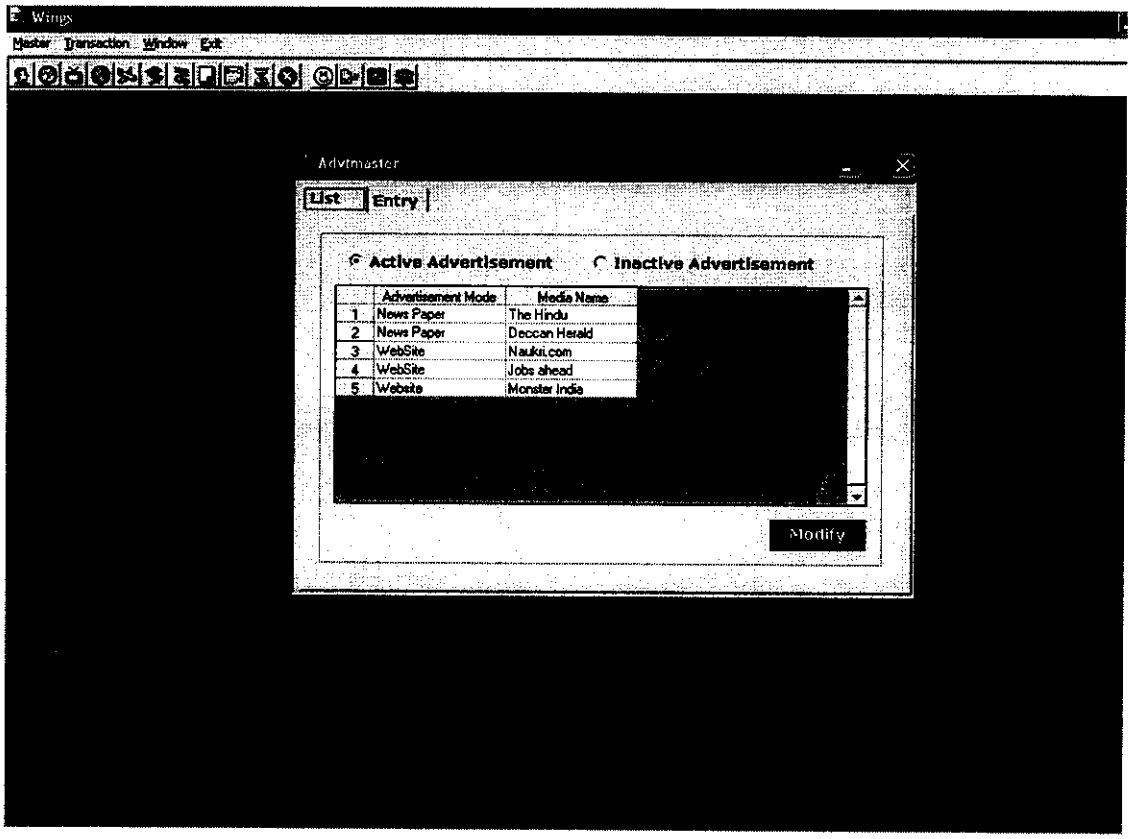

Figure A.11 Advertisement Master: Entry and View

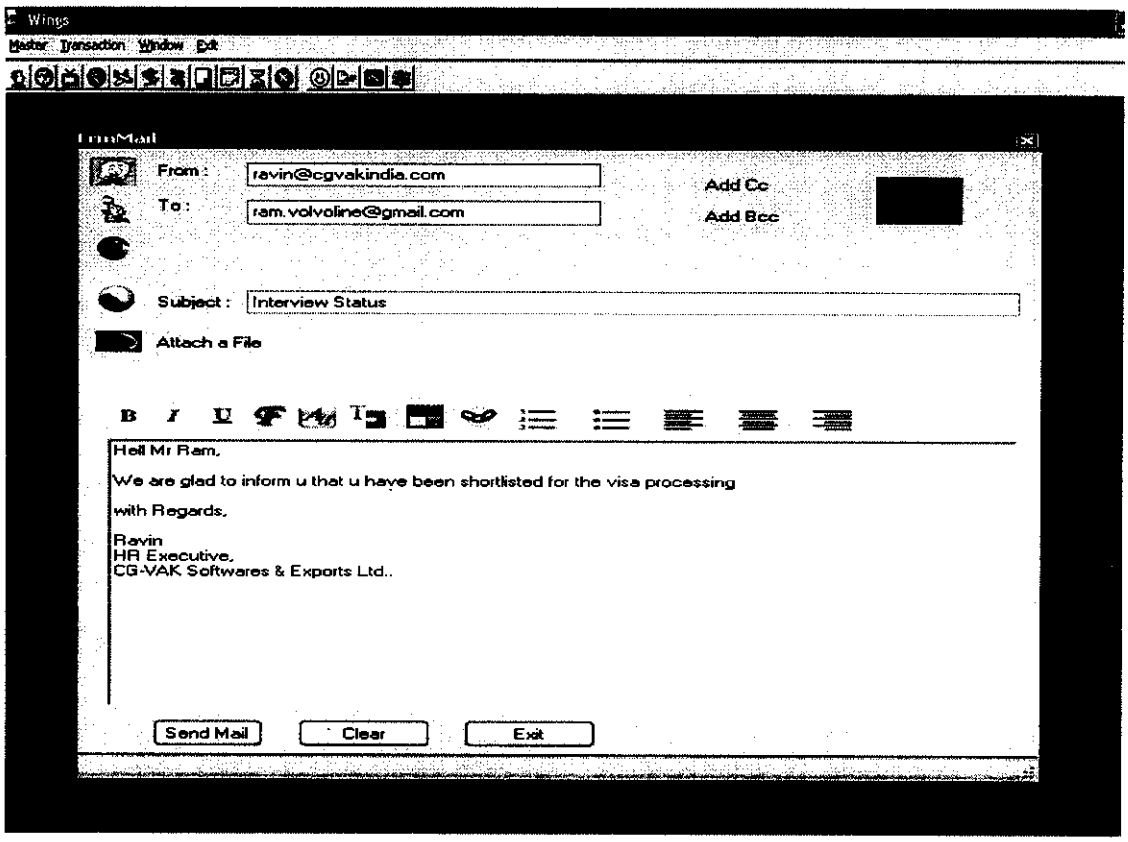

Figure A.12 Email Reminder: Mail Editor

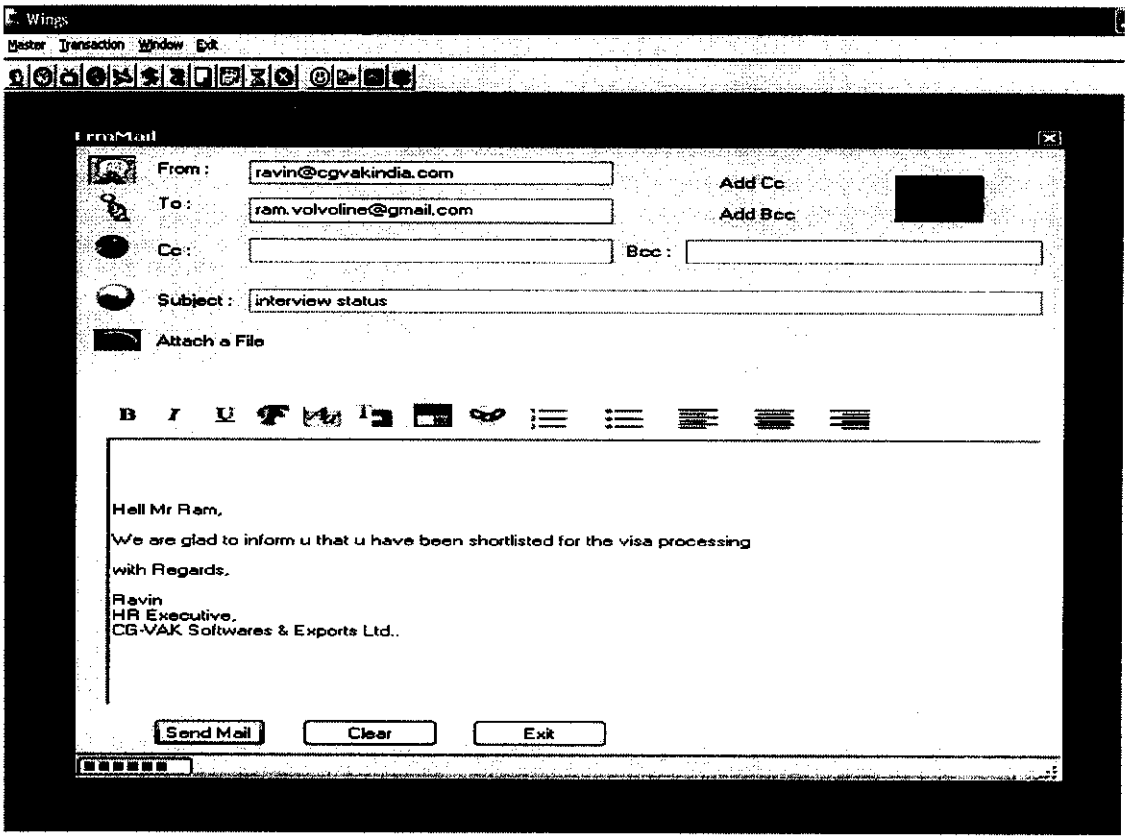

Figure A.13 Email Reminder: Mail Editor with Carbon Copy

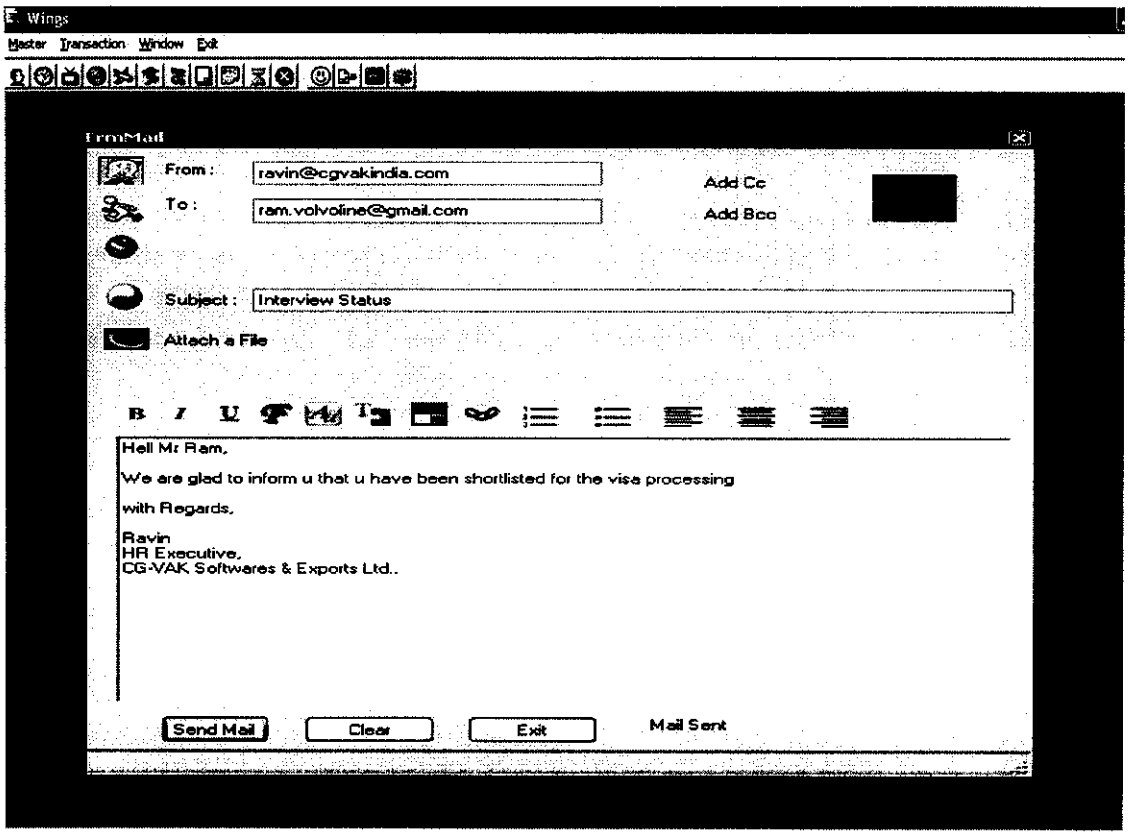

Figure A.14 Email Reminder: Mail Delivered

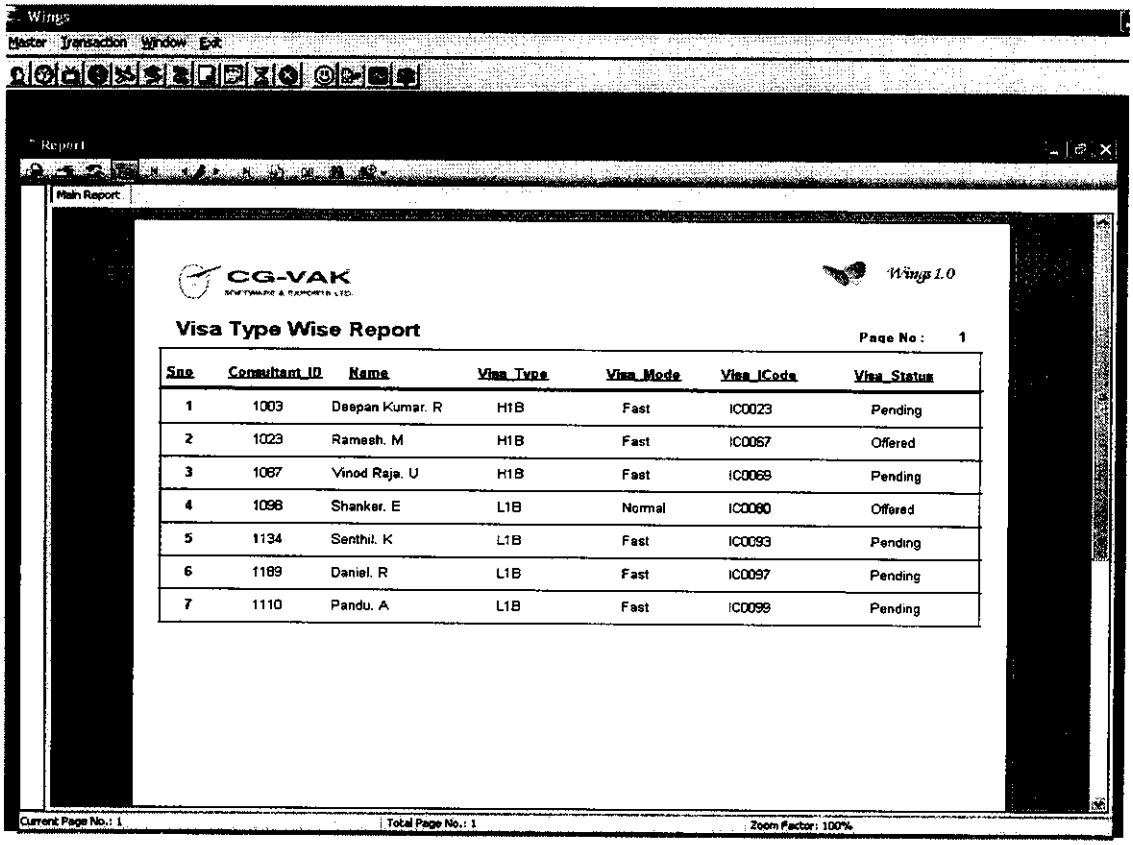

Figure A.15 VISA Processing Status: VISA Type Wise Report

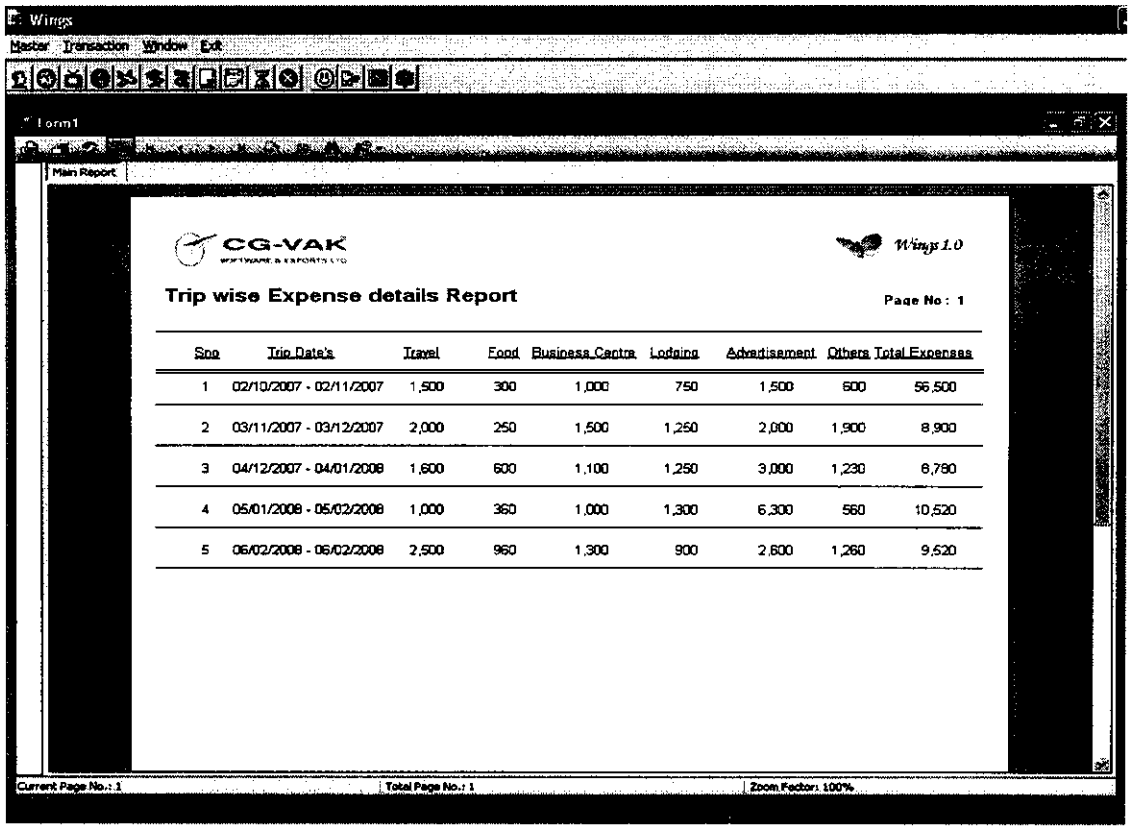

Figure A.17 Expense/Costing: Trip Wise Expense Details Report

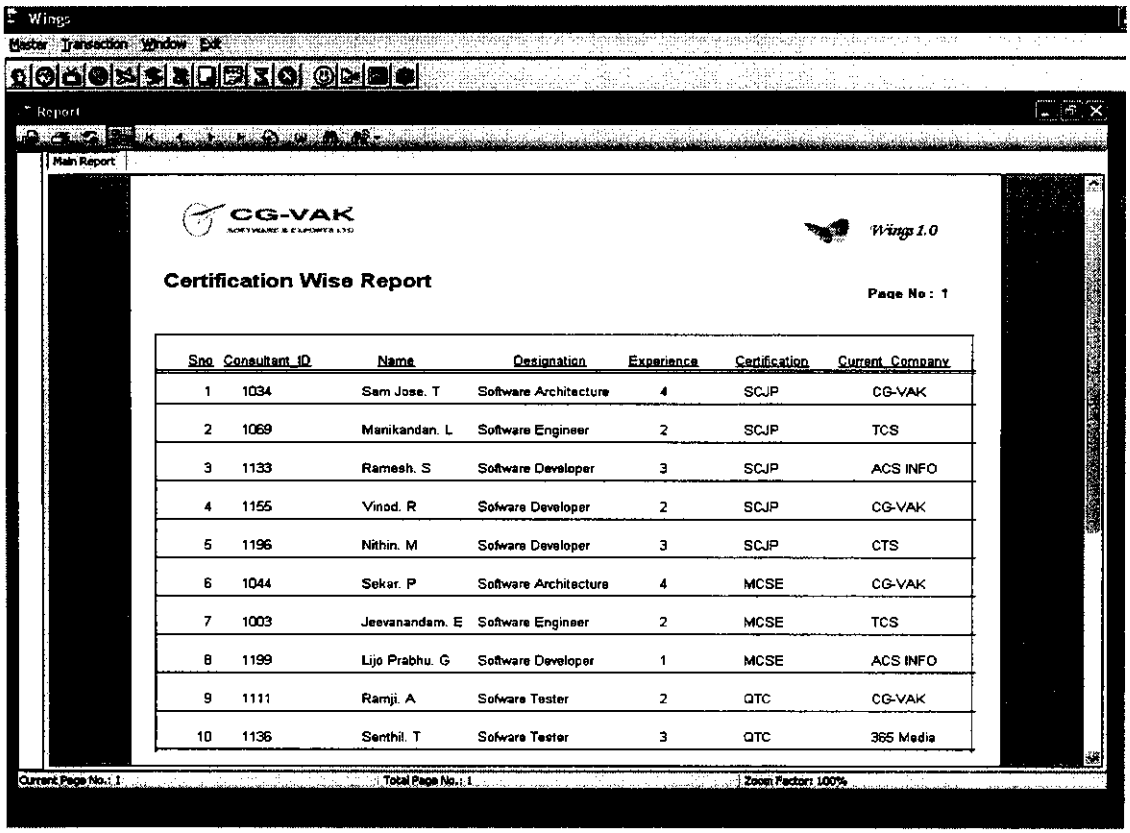

Figure A.18 Consultant: Certification Wise Report

CHAPTER 9

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6. **www.a1vbcode.com**