Software Engineering Process Group (SEPG) Project
(Defects and Customer information)

PROJECT REPORT P-592

Submitted in partial fulfillment of the requirements

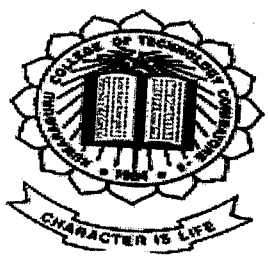
For the award of degree of

MASTER OF COMPUTER APPLICATIONS
Of
Bharathiar University
Done At
SPAN SYSTEMS CORPORATION
Bangalore.

by

M. G. BIJU
Reg.No. 9838M0501

Guided By
Mr. DINESH RANGANATHAN, B.Tech., M.S.(Comp.Science,Wisconsin), M.I.S.T.E
And
Mr. NAMDEV SHENOY, M.C.A.



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

KUMARAGURU COLLEGE OF TECHNOLOGY,

COIMBATORE-641 006
MAY 2001.

Certificate

This is to certify that this project work entitled

"SEPG Project"

(Defects And Customer Information)

Submitted to

KUMARAGURU COLLEGE OF TECHNOLOGY

(Affiliated to Bharathiar University)

in partial fulfillment of the requirements for the award of Degree of

MASTER OF COMPUTER APPLICATIONS

is record of original work done by

Mr. M. G. BIJU

(Reg. No. 9838M0501)

during his period of study in the Department of Computer Sciences and Engineering, Kumaraguru College of Technology, Coimbatore-641006, under my supervision and guidance and this project work has not formed the basis for the award of any Degree / Diploma / Associateship / Fellowship or similar title to any candidate of any university.

Professor and Head 26/4/01

Staff-in-charge (26/04/2K1)

Submitted for University Examination held on 11/05/2001

Internal Examiner 11/05/2K1

External Examiner 11/5/01

SPAN SYSTEMS CORPORATION
Steering Progress. Together.

EXPERIENCE CERTIFICATE

This is to certify that **Mr. M.G.Biju,** MCA student of Kumaraguru College of Technology was working as a Project Trainee in our organization from December 2000 to March 2001. During this period he participated in the development of "Software Engineering Process Group" (SEPG).

Mr. M.G.Biju is sincere, hardworking and has good communication skills.

We wish him all the best in his career.

26/03/01

Rajeshree Naik
Manager – Human Resources

108, Off Bull Temple Road, Gavipuram Guttahalli, Bangalore - 560 019, INDIA
Tel. : +91-80-6520165 Fax : 6520686 E-mail : spansys@blr.vsnl.net.in

DECLARATON

Declaration

I here by declare that this project work entitled

SEPG Project

(Defects And Customer Information)

Done At

SPAN SYSTMS CORPARATION

Bangalore.

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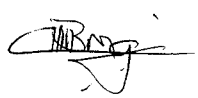
Under the supervision of

Mr. R. Dinesh, B.Tech., M.S.(Comp. Science, Wisconsin), M.I.S.T.E.

Name of the candidate	Register Number	Signature of the candidate
M. G. BIJU	**9838M0501**	

Place: Coimbatore

Date : 11-05-2001

DEDICATED TO MY
BELOVED FATHER

ACKNOWLEDGEMENT

Acknowledgement

Any achievement is possible only with the goodwill and support of helpful people. I take this opportunity to thank all of them.

With pleasure, I thank **SPAN SYSTEMS CORPORATION**, Bangalore for offering me this project.

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Finally I would also like to thank all others who helped me during this project.

SYNOPSIS

PROJECT SYNOPSIS

SEPG stands for Software Engineering Process Group. This project is aimed to ensure the quality of s/w to be developed and to estimate the cost and effort required to develop the project.

This project has 4 modules-one for Project characteristics, Resources, Customer Information and the last for finding Defects.

The Project characteristics reflect details like the architecture, type of application, platform used, size and complexity of the project, etc. that explain the type of project and other key features.

Resources screen explores the amount of resources utilized for each project. There are different categories of resources like man, machine, s/w s etc,.

All relevant Customer information including the address of the client, the contact persons at the client end, contact persons at the management and technical side are to be recorded in the Customer Information screen.

The Defects screen reflects the details about various defects during the s/w development and its reasons.

All the above mentioned main screens contains appropriate sub-screens to reduce the over all effort required to develop this project.

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CONTENTS

APPENDICES

- **Data Flow Diagrams.**
- **Table structure.**
- **Input output screens.**
- **IEEE standard for s/w requirement specification.**

INTRODUCTION

1.0. INTRODUCTION

1.1. Project Overview

The project was done using HTML for front end screens, Java Script for client side validations, JSP for server side programming, Java 2.0 for creating beans to connect and query with back end and Oracle as back end.

The Project has following main modules:

Login module

Here the system accepts request from the user in order to allow him into the system. This module does the validation process to know whether the user is a valid person or not. If the request is accepted then the user is allowed to do further movement.

There are two categories of users—administrator and ordinary user. User of type administrator has got some special privileges over the system. After validation this module pioneers them to the corresponding section.

Administrator Module

This module deals all necessary action to be done by an administrator. He can view all details and do modifications on them. He has full access over the entire system. Only administrator is given right to create/remove users along with other areas of access.

Defects Module

Defects module deals with the various defects encountered during the development stages. It gives summary of defects mentioning,

1. Origin of defect,
2. Stage at which defects were found,
3. Module at which defects were found,
4. Severity of defects (High, Medium, Low),
5. Number of defects,
6. Rework effort(in man hrs.), etc,.

By viewing the report produced by this module, the concerned person can take appropriate decisions.

Customer Information Module

The purpose of this module is to record relevant client information regarding each of the projects deals within the organization. All relevant customer information including Name of the client, Address, Phone number, Fax etc. are recorded and produced as report accordingly. The other details recorded using this module are Marketing persons, Contact persons at Management and Technical side for each of the project.

1.2. Organization Profile

SPAN is an ISO 9001 certified software development company with 100% customer satisfaction as goal. In fact, they guarantee the quality on all of their projects. SPAN achieved its ISO 9001 certification with Software Engineering Institute Capability Maturity Model (SEI CMM) Level 3 in mind.

Mission

To bridge the large gap in the Software Industry's requirement of cost effective, quality software development with timely and professional delivery mechanisms.

Background

SPAN Systems Corporation is an established and fast growing ISO 9001 certified software development company. Founded in the U.S. in 1993 by a team of professionals with extensive experience in the IT industry, SPAN continues to provide the highest quality onsite and offshore software development options. We have four offices in the U.S. and two development centers, one in Connecticut and one in Bangalore-(Silicon Valley of India). Recently SPAN has entered into business agreements in European countries.

SPAN offers high caliber services in the areas of E-Commerce, Web-enabled applications development, Client/Server, Object Oriented Technologies, Database Management, Midrange to Mainframes and Forté to name a few.SPAN believes that bridging the software industry's requirements with our expert professionals in the changing world of high-tech software on time at attractive commercial terms with personalized attention creates a win-win situation for all.

SYSTEM STUDY AND ANALYSIS

2.0. SYSTEM STUDY AND ANALYSIS

System analysis is a problem solving activity that requires intensive communication between the system requests and the system developer. System analysis is concerned with becoming aware of the problem identifying the relevant variable, analyzing and synthesizing the various factors and determining an optimal, at least a satisfying solution or program of action. Information obtained through different processes such as gathering and interpreting facts, diagnosing problems, is used to recommended improvements to the new system.

2.1. Requirement Analysis

Requirement Analysis is done to get a sound knowledge about the existing system, its advantages and its limitations to use effective methods to overcome these while developing the new system. To get a firm idea about the existing system, various methods were employed. The various projects and their characteristics are studied, resources utilized are collected, various defects about different projects are collected at each stage, and the customer information and their dealings are studied. A clear idea about the existing system is obtained after requirement analysis.

2.2. Existing System

Existing System Limitations.

The above system is currently followed manually and the records are maintained. However few pitfalls exist in the existing system. Which are listed below.

1. Since the area under operation is wide and lot operations are involved the process becomes complex and slow.
2. When the concerned persons want to check the availability of a developer, they have to do it manually. This creates lots of wastage in time and effort.
3. Inaccurate and inconsistent data due to inefficient tracking of day-to-day activities.
4. It requires a lot of paperwork to be done and are time consuming process.

Need for the new System.

The area under the operation is getting wide and a lot of operations are involved. The process becomes more and more complex. Taking into consideration all the factors the organization has decided to develop integrated software that will cater the needs if the organization .The product is developed in such a way manner that it can be used by the organization. The advantages of computerization are discussed as following.

Greater processing speed.

Since computers process data very quickly, computer based systems has to achieve fast retrieval information, frees people from tedious calculations.

Better Accuracy, Reliability and Improved Consistency.

Computer based systems improves the accuracy, reliability and consistency in calculations etc.

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Better Accuracy, Reliability and Improved Consistency.

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Faster Information retrieval

Computer in an organization will help greatly in locating and retrieving from data storage conducting complex searches.

Better Security

In computerized organization sensitive and important data can be protected using authorization & other features.

Multi-user facility

Multi user facility can be provided which enables more than one user to use the resources at the same time.

2.3. Feasibility Study

Feasibility Study is essential for each and every system that is to be developed according to the future usage and user requirements. It gives a deep knowledge of the existing system and the system to be developed. It is duty that to find maximum details from the existing system like drawbacks, modifications needed, the level up to which the system can be divided into separate functions etc,

Concluding such a feasibility study on the above system could yield the following information,

- Delay in getting the results.
- Inaccuracy.
- Less reliability.
- Wastage of time and money.

- Less performance etc,

Necessary movements have been taken in the proposed system to overcome the above and to improve the users convenience.

2.4. Proposed System

The proposed system could overcome above problems by implementing necessary constraints at appropriate junctions. It is developed using technologies, which are capable to work at any platform. It uses HTML for improving the user interactivity of the system through creating screens with necessary services provided.

The proposed system makes use of a powerful database called Oracle, which supports high data access through simple methods provided with high security. Only authorized persons can make use of this software so that the information is kept secret.

2.5. User Characteristics

This system was developed with the valuable help of users who have special knowledge of the existing system. Also it obvious that the system is going to use by users who are well experienced in computerized systems.

Throughout the analysis and design phase greater emphasis was given to understand user characteristics and include user involvement during these stages, which helped a lot to develop an efficient system of their choice

COMPUTATIONAL ENVIRONMENT

3.0. COMPUTATIONAL REQUIREMENT

The following sections describe in detail various specifications needed for the application to perform.

3.1. Hardware Requirements

SERVER:

Processor	:	Intel Pentium Family
Ram	:	48MB
Hard Disk Drive	:	4.3 GB or higher
Keyboard	:	Standards 101/102 or DigiSync Family or Microsoft Natural Keyboard.
Monitor	:	Display Panel(640x480).Preferably Samtron 13" or LG Studioworks 14" color.
Display Adapter	:	Trident Super VGA.
Network Adapter	:	SMC EtherCard Elite 16 ultra or PowerNIC Network Interface Card
Floppy Drive	:	3.5", 1.44 MB.
Mouse	:	Logitech Serial Mouse,PS/2 compatible Mouse Port.
CD_ROM Drive	:	Creative Infra 48 Series.

WORKSTATIONS:

Number	:	As Required.
RAM	:	48 MB.
Hard Disk Drive	:	4.3 GB or higher.
Keyboard	:	Standards 101/102 or DigiSync Family or Microsoft Natural Keyboard.
Monitor	:	Display Panel(640x480).Preferably Samtron 13" or LG Studioworks 14" color.
Display Adapter	:	Trident Super VGA.
Network Adapter	:	SMC EtherCard Elite 16 Ultra or PowerNIC Network Interface Card.
Floppy Drive	:	3.5",1.44 MB.
Mouse	:	Logitech Serial Mouse,PS/2 compatible Mouse Port.
CD-ROM Drive	:	Creative Infra 48 Series.

3.2. Software Requirements

Front End:

HTML—GUI Screens.

JavaScripts—Client side validation.

JSP—Server side Programming.

Java—Creating beans to act as a middleware.

Back End:

Oracle 8i—Database Manipulation.

Specification as follows:

- Oracle 8 Enterprise Edition Release 8.0.4.0.0-Production.
- PL/SQL Release 8.0.4.0.0-Production.
- CORE version 4.0.4.0.0-Production.

Software Features:

HTML

The HyperText Markup Language, or as it is more commonly referred as HTML, is the formatting language of the World Wide Web. It is derived from SGML (Standard Graphical Markup Language), a complex specification for marking up text. HTML is a series of instructions that the browser uses to display the content of the document being received. One of the main benefits of HTML is that it is platform independent. Any operating system/application combination that can display HTML formatted documents can be a participant on the Web.

The World Wide Web Consortium standards group governs the HTML language, and the current revision level is 4.0.

One key point about HTML development that we need to understand is that in addition to the formatting attributes, which you specify, you will also specify the logical connections or links between pages. This capability to hyperlink within and between

documents enables you to seamlessly travel between related topics. This gave birth to the idea of The Web.

The Basics

The HTML language is composed of tags, elements, and attributes. There are currently several standardization levels of HTML.

The level 1 is a mandatory for all WWW browsers. It is essentially what the first browsers (level 0) accepted, plus images.

The level 2 includes all the elements of level 1, plus tags for defining user input fields .This is currently the standard although many browsers already support level 3 elements.

The level 3 that is also known as HTML 3 is being finalized. It includes markup tags for objects such as tables, figures, and mathematical equations.

Java Scripts

An explanation of exactly what JavaScript is has to begin with Java. Java is a new kind of Web programming language developed by Sun Microsystems. A Java program, or applet, can be loaded by an HTML page and executed by the Java Interpreter, which is embedded into the browser. Java is a complex language, similar to C++. Java is object-oriented and has a wide variety of capabilities; it's also a bit confusing and requires an extensive development cycle. That's where JavaScript comes in.

JavaScript is one of a new breed of Web languages called scripting languages. These are simple languages that can be used to add extra features to an otherwise dull and dreary Web page. While Java is intended for programmers, scripting languages make it easy for non-programmers to improve a Web page.

Netscape Corporation originally developed Java Script for use in its browser, Netscape Navigator. It includes a convenient syntax, flexible variable types, and easy access to the browser's features. It can run on the browser without being compiled; the source code can be placed directly into a Web page. You can program in JavaScript easily; no development tools or compilers are required. You can use the same editor you use to create HTML documents to create JavaScript, and it executes directly on the browser (currently, Netscape or Microsoft Internet Explorer).

JavaScript was originally called Live Script, and was a proprietary feature of the Netscape browser. JavaScript has now been approved by Sun, the developer of Java, as a scripting language to complement Java. Several other companies have also announced support. It can work directly with HTML elements in a Web page, something Java can't handle. It is also simple to use, and you can do quite a bit with just a few JavaScript statements. At this writing, JavaScript is still under development. Although I made every effort to include all the latest features, there may be changes to the language before it becomes final.

JavaServer Pages

JavaServer™ Pages is a simple, yet powerful technology for creating and maintaining dynamic-content web pages. Based on the Java programming language, JavaServer Pages offers proven portability, open standards, and a mature re-usable component model.

The JavaServer Pages architecture enables the separation of content generation from content presentation. This separation not only eases maintenance headaches, it also allows webteam members to focus on their areas of expertise. Now, webpage designers can concentrate on layout, and web application designers on programming, with minimal concern about impacting each other's work.

The rest of this document gives you the bigger picture:

- Portability
- Composition
- Processing
- Access Models

Portability

JavaServer Pages files can be run on any web server or web-enabled application server that provides support for them. Dubbed the *JSP engine*, this support involves recognition, translation, and management of the JavaServer Page lifecycle and its interactions with associated components.

The JSP engine for a particular server might be built-in or might be provided through a 3rd-party add-on. As long as the server on which you plan to execute the JavaServer Pages supports the same specification level as that to which the file was written, no changes should be necessary as you move your files from server to server. Note, however, that instructions for the setup and configuration of the files may differ between files.

To date, there has been no upwards- or backwards-compatibility between JavaServer Pages specifications. A JavaServer Pages file written to the 0.92 specification can be run *only* on a server supporting JavaServer Pages 0.92. The same file could not run on a server supporting only JavaServer Pages 1.0 or JavaServer Pages 0.91.

Composition

It was mentioned earlier that the JavaServer Pages architecture can include reusable Java components. The architecture also allows for the embedding of a scripting language directly into the JavaServer Pages file.

The components current supported include JavaBeans, and Servlets. Support for Enterprise Java Beans components will likely be added in a future release. As the default scripting language, JavaServer Pages use the Java programming language. This means that scripting on the server side can take advantage of the full set of capabilities that the Java programming language offers. Support for other scripting languages might become available in the future.

Processing

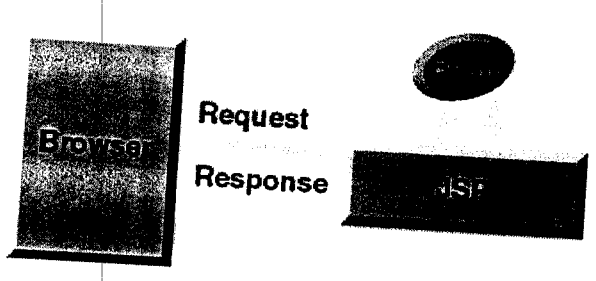
A JavaServer Pages file is essentially an HTML document with JSP scripting or tags. It may have associated components in the form of .class, .jar, or .ser files--or it may not. The use of components is not required.

The JavaServer Pages file has a *.jsp* extension to identify it to the server as a JavaServer Pages file. Before the page is served, the JavaServer Pages syntax is parsed and processed into a servlet on the server side. The servlet that is generated outputs real content in straight HTML for responding to the client. Because it is standard HTML, the dynamically generated response looks no different to the client browser than a static response.

Access Models

A JavaServer Pages file may be accessed in at least two different ways:

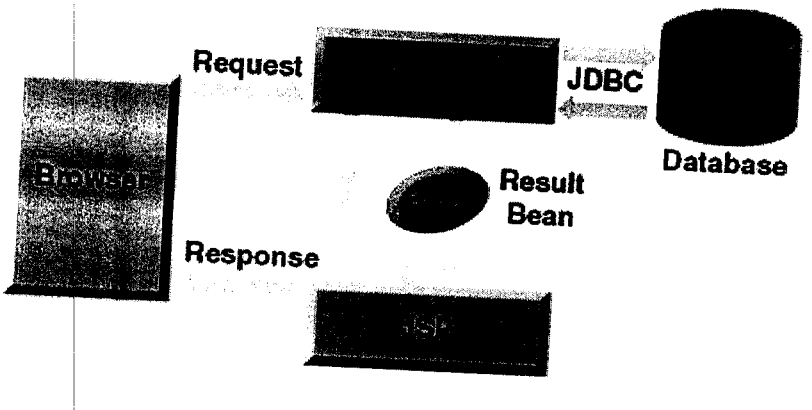
1. A client request comes directly into a JavaServer Page.



In this scenario, suppose the page accesses reusable JavaBean components that perform particular well-defined computations like accessing a database. The result of the Bean's computations, called *result sets* are stored within the Bean as

properties. The page uses such Beans to generate dynamic content and present it back to the client.

2. A request comes through a servlet.



The servlet generates the dynamic content. To handle the response to the client, the servlet creates a Bean and stores the dynamic content (sometimes called the *result set*) in the Bean. The servlet then invokes a JavaServer Page that will present the content along with the Bean containing the generated from the servlet.

There are two APIs to support this model of request processing using JavaServer Pages. One API facilitates passing context between the invoking servlet and the JavaServer Page. The other API lets the invoking servlet specify which JavaServer Page to use.

In both of the above cases, the page could also contain any valid Java code. The JavaServer Pages architecture encourages separation of content from presentation--it does not mandate it.

How to Choose Between Access Models With at least two access models, the question naturally arises "When does it make sense to have a JavaServer Page as the front-end to a servlet, as the back-end to a servlet, or use only the servlet? Here are some possible guidelines:

- If a graphical interface (GUI) is necessary to collect the request data--use a JavaServerPages file.

- If the request and request parameters are otherwise available to the servlet, but the results of the servlet processing requires a graphical interface to present them--use a JavaServerPages file.

- If presentation layout is minimal (will not require very many println lines in your servlet code) and you don't need to make that presentation logic available to a customer or your webpage designer, then a Servlet might suffice.

Why JavaServer Pages?

We built the JavaServer Pages technology to help you write dynamic Web pages as easily and simply as possible, with maximum power and flexibility. As we developed the JavaServer Pages technology, we held your needs firmly in mind as our primary design goals. These needs, as we envisioned them, are:

1. *Allows you to write once, run anywhere.*

   The JavaServer Pages technology is entirely platform-independent, both in its dynamic Web pages and its underlying server components. You can write the

dynamic Web pages on any platform, run them on any Web server, and access them from any Web browser. You can also build and run the server components, which are JavaBeans or Java Servlets, on any server platform.

2. *Emphasizes components.*

   JavaServer Pages emphasizes the use of reusable, cross-platform server components written in Java. This saves you considerable development time while giving you the power and flexibility of JavaBeans and Java Servlets. And because components do much of the processing work, component development is more cleanly separated from Web design, improving the productivity of cross-functional teams.

3. *Acts as the front door to the Java Platform for the Enterprise.*

   JavaServer Pages is an integral part of the Java Platform for the Enterprise, which brings Java technology to enterprise computing. You can now develop powerful enterprise-wide or middle-tier server applications, using a JavaServer Pages Web site as a front end. When you want to update your application, you can update the components and dynamic Web pages that reside on the server, and all of your users are updated at once.

4. *Makes dynamic Web sites easy to build.*

   JavaServer Pages are HTML files written in a combination of industry-standard HTML, JavaServer Pages HTML tags, and -- if you like -- Java as a scripting

language. A JavaServer Pages file has the extension *.jsp* and calls reusable components that reside on the server. It's as simple as that.

In this release, the components are JavaBeans or Java Servlets, with support for Enterprise JavaBeans anticipated in a future release.

ORACLE 8i

Oracle 8i is an *Object Relational Database Management Systems* (ORDBMS).Oracle 8i database that offers capabilities of both relational and object-oriented database systems. Oracle 8 supports very large databases that could contain hundreds of terabytes of information. It also provides accesses to many concurrent users to the order of thousands or ten thousand users. Managing large amounts of data could present administrative and performance challenges. Oracle 8's data partitioning features help to minimize the problem. A large table that is partitioned can enhance performance because accessing can done on multiple partitions are available to applications. Each of the partitions can be managed individually, thereby allowing more efficient management of the database.

Oracle supports MultiThreaded Server. The Multithreaded server and Net8 manage the concurrent users of the database. Oracle 8 has an advanced queuing feature. This feature allows more efficient use of database transaction. Application can use the application-programming interface (API) to queue transactions, prioritize their execution, set acceptable times for transaction.

OPERATING SYSTEM

Windows NT 4.0

MS Windows NT Server 4.0 provides the connectivity, reliability, base services and administrative tools necessary to deliver critical business information across a distributed network of computers. Its scale ranges from small network to the enterprise, providing basic file and prints services while also supporting mission-critical databases, electronic messaging, host connectivity and distributed systems management. Improvements in Windows NT Server 4.0 deliver better performance scalability on microprocessor systems. New Application Programming Interfaces (APIs) for server application developers and better server performance deliver improved throughput and scalability for server applications.

Windows '95 has emerged as the most popular window based operating environment. It executes both 16 and 32 bit applications. Many utilities are available for window programmers and application developers. Windows '95 can easily switch among different programs and exchange data between them. It can be used as an efficient client OS for connecting to the Windows NT Server.

Windows'95 is the latest member of the Microsoft Windows family of products and is the successor to Windows 3.x and Windows for Workgroups 3.x . Windows'95 represents a major step forward in functionality on desktop and portable PC platforms by providing a system that is even easier, faster and more powerful to use and which

maintains compatibility with the Windows and MS DOS operating system based applications and hardware peripheral in which customers have invested.

With Windows'95, the engine of Microsoft Windows is revamped to improve performance and provide smooth multitasking. Windows'95 is a complete, integrated 32 bit operating system that does not require MS DOS, although it can run MS-DOS applications. It implements the Win32 API and provides preemptive multitasking and multiple threads for execution of 32 bit applications. Windows'95 includes reliable and open networking support and high performance in addition to messaging and dialup Networking access services.

Windows'95 meets a number of key requirements. First, Windows'95 is compatible with application and device drivers for both MS-DOS and Windows 3.x. In most case a customer upgrade to Windows'95 performance will meet or exceed performance of Windows'3.x, as long as the customer has an 80386DX or higher system with atleast 4 MB of RAM for the same set of tasks . For systems with more than 4 MB of RAM performance is improved over Window 3.x. The transaction to the new user interface is easy for current user of Windows and companies that want to make the transaction at their own pace will still be able to run Program Manager during the transition period.

Windows'95 is neither processor independent nor does it support symmetric multitasking systems. Windows'95 is also not designed to meet C2-level security specifications. If this feature is important to the customer , Windows NT is the right operating system to use.

SYSTEM DESIGN & DEVELOPMENT

4.0. SYSTEM DESIGN AND DEVELOPMENT

System Design is a modeling process. It can be defined as a transition from a user's view to view of programmers (developers) and database personal. It concentrates on translating requirement specification to design specification. This system design phase acts as a bridge between the requirement specification and the implementation phase.

The major steps in the design phase are input design, output design, database design, and dealing with coding issues. The first step is to define the input and output screens according to the requirements specified by the clients. The next step is the database design that concentrates on absorbing the database which suits most to the application environment.

4.1. Input Design.

In the input design the user-oriented inputs are converted into computer recognizable format. The collection of input data is the most expensive part of the system in terms of the equipment used, time and number of clients involved. In the input design data is accepted and it can be readily used for data processing or can be stored in a database for further use. Input design is that part of design phase which requires the most attention. Data should be accurate because inaccurate data is the most common cause of errors in data processing. The input screens are very user friendly. Different names are associated with each data entry screen and each data item which makes data entry an easy job.

Each data entry screen contains separate buttons for getting do the appropriate functions, and to reset the form. The user can access the help file from any. To clear the details entered by the client, he should not go to each item and delete the content , instead press the button corresponding to reset the data entry form. While entering data, proper validation checking are carried out and necessary messages will be altered by the software to enter proper output data. Different maps are created during the interface design phase.

- Map for entering defects details.
- Map for entering customer details.
- Map for updating customer details.
- Map for updating defects details.
- Map for entering user.

4.2. Output Design

In the output Design emphasis on producing the hardcopy and softcopy of information requested. Outputs are the most important and direct source of information to the clients intelligent and friendly outputs will improve the relationships between the client and system and support the client and for decision making. Outputs are used to provide a permanent hardcopy of results if results for later consideration.

The major outputs include,

- Defects details with their severity and rework effort.
- Client details with name, address etc.

- Details of management contact.
- Details of technical contact.

4.3. Database Design

Database design is an important part of the system design phase. In a database environment, several users use the available data. Instead of each program managing its own data, authorized users with the database use data across application. The primary objective of database design include fast response time to inquiries, more information at low cost, control of redundancy, clarity and ease of use, data and program independence, accuracy and integrity of the system, fast recovery and availability of a powerful end use language. The theme behind a database is to handle information as an integrated whole things making access to information easy.

4.4. Process Design

These aims at translating the design of the system produced during the design phase into the code in a chosen programming language. For code design, we make use of HTML, Java Scripts, Java, JSP and Oracle

SYSTEM IMPLEMENTATION AND TESTING

5.0. SYSTEM IMPLIMENTATION AND TESTING

5.1. System Implementation.

System Implementation is the process of putting the system in to work. It is not consisting of a single step; instead it follows a series of steps like system testing, change over, refinement etc. In order to implement the new system successfully it should be tested with different test data and this also contains many steps, which is described in the next section.

5.2. System Testing

This forms another major part of any System Development process. Care should be given during the whole process of testing. The performance of the system is measured in this phase.

Code Testing and Debugging.

Testing is a process of executing a program with the interest of finding an error. A good test is one that has a high probability of finding the yet undiscovered error. Testing should systematically uncover different classes of errors in a minimum amount of time with minimum amount of effort. Two classes of inputs are provided to the test process. They are,

a) A software configuration that includes a Software Requirement Specification, a Design Specification and a Source Code.

b) A test configuration that includes a test plan and procedures, any testing tools that are to be used and test cases and their expected results.

Testing is divided into three distinct operations viz. Modular Testing, Integration Testing and System Testing. In the series of testing the following tests are implemented.

Integration Testing.

Through each program works individually, they should work after linking them together. This is also referred to as Interfacing. Data may be lost across interface and one module can have an adverse effect on another.

Subroutines, after linking, may not do the desired function expected by the main routine.

Integration testing is a systematic technique for constructing program structure while at same time, conducting test to uncover errors associated with the interface. In the testing, the programs are constructed and tested in small segments.

Password Testing

The Logon process is tested with some separate logon trials. Password is mainly meant for security. Passwords are stored in tables and changed via the administrator. Incorrect entries will be screened. After four consecutive trials provisions is made for the application to exit. Also already created passwords won't be allowed to use again. The use of alphanumeric will be advised

Data Validation Testing

Data validation is done to see whether the corresponding entries made in the tables are correct. Proper validation checks are done in case of insertion and updating of tables. Duplication of data has to be avoided to the maximum extent.

If any such cases arise, then proper error messages or warnings, if any, has to be displayed. A double confirmation is made before deleting any specific entries.

While Box testing is a test case design method that uses the control structure of other procedural designs to divide the test case. The different test cases are

1. Guarantee that all independent parts within a module have been exercised atleast once.
2. Exercise all logical decisions on their side.
3. Exercise all loops at their boundaries.
4. Exercise internal data structure to ensure their validity.

Each module was tested and the tested modules were linked and integration test was carried out

Test data

The system analyst will provide the test data, specially designed to show that the system will operate successfully in all its aspects and produce expected results under expected conditions. The test should take place at the same environment. Preparation of test data and the checking of results should be carried out in conjunction with the appropriate users and operational departments. The test objectives should be clear. Also the extent to which the system should be tested must be planned.

Debugging

The potential ability of Java to handle exceptions was used extensively during the debugging process. All type of exceptions were caught and explicitly handled. Java

language exceptions were caught generally whereas other exceptions like SQL exceptions were caught separately and various modes of their variations were found. Errors in case of back-end tables were used to display to the user in a number of ways. Exceptions occur at many of the stages like what happens during start of a program to any abnormal operations done or any missing threads. Various errors occurred in the cases of variables which carried same name and caused a lot of problems when all modules were linked.

5.3. Refinement Based On Feedback.

The system life cycle does not finish all on a sudden after implementation. In any system development process certain minor faults will remain unnoticed by the system development team. The user who works on the system regularly finds these problems later. The problems and possible suggestion are conveyed to the system development team and the team together decides corrective measures. These changes are incorporated into the system to make it more efficient and user friendly.

This process repeats itself for some more time because it will take some time to identify all the problems in the system. The system developer has to be in touch with the system even after implementation and changeover because of these refinements based on the feedback from the users.

CONCLUSSON

6.0. CONCLUSION

Finally the SEPG Project (Defects and Customer Information) has been successfully completed and the system has been presented in this dissertation.

The System developed is widely usable one.

This system is capable of providing necessary services to both the user and administrator. It helps them to record and update day to day activities during development procedures.

This sophisticated package provides ease to use and work at any platform.

This software supports both the intra and inter-network technology.

SCOPE FOR FUTURE DEVELOPMENT

7.0. SCOPE FOR FUTURE DEVELOPMENT

The system can be modified with any technology that supports both web technology like JSP and Oracle. This system does not use any complex mathematical calculations, but ordinary programming techniques.

As and when needed, it is possible to add more modules to the proposed system. And also it is possible to implement graphical reports in the proposed system to increase the format of output more user friendly. The system is designed in such a manner that it is very easy to make modification.

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8.0 BIBILIOGRAPHY.

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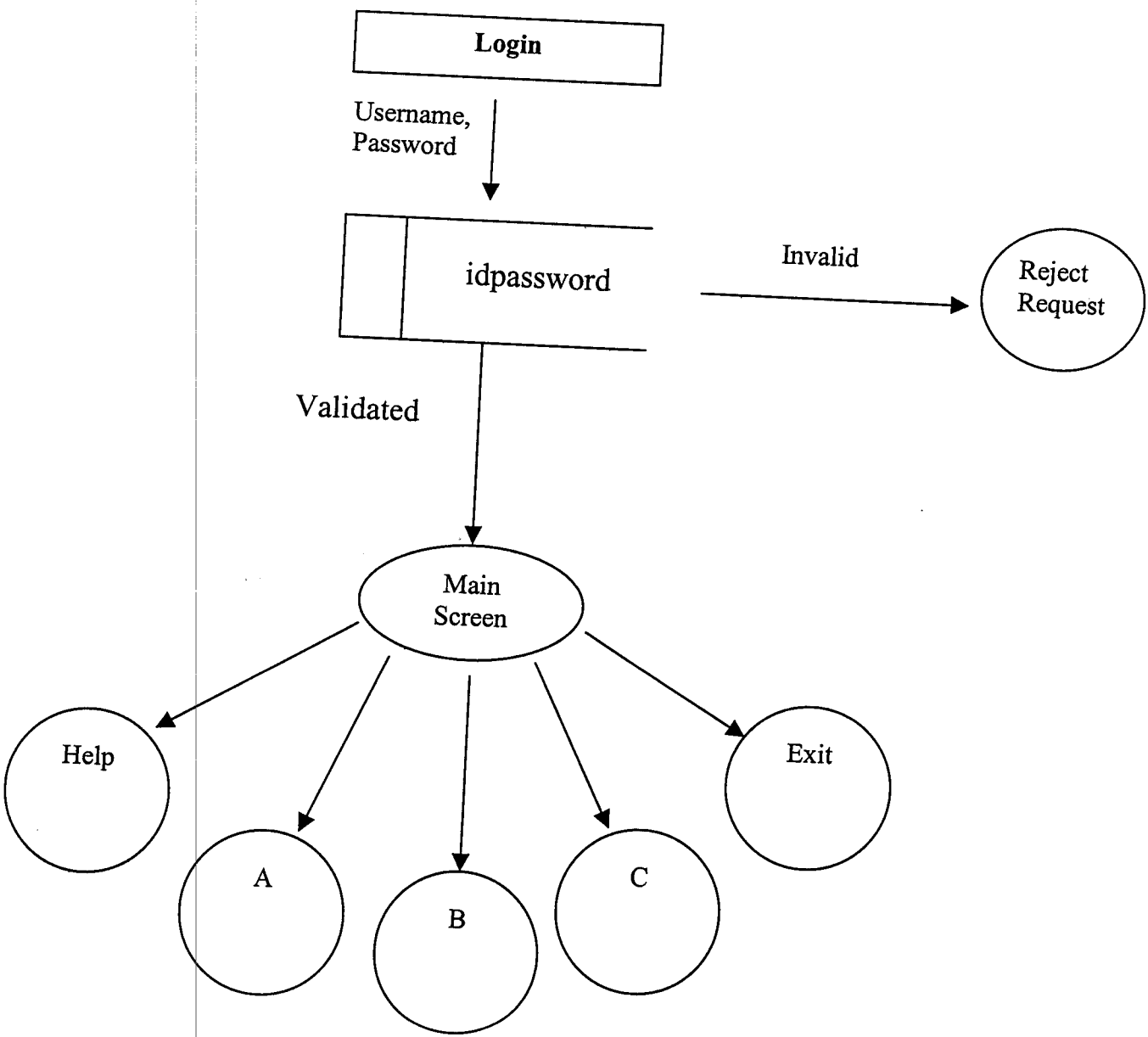
2. "The Complete Reference" Java 2 Third edition Tata McGraw-Hill Publishing Company Limited by Patrick Naughton and Herbert Schildit.
3. "Oracle HandBook" of Software Solution Integrated Limited
4. "Instant Java Server Pages" Tata McGraw-Hill Publishing Company Limited 2000 by Paul Tremblett.
5. "Java Servlet Programming" Shoroff Publishers and Distributors Private Limited 1998 by Jason Hunter and William Crawford.

APPENDICES

DATA FLOW DIAGRAMS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Request
Validated
Main
Screen
Help
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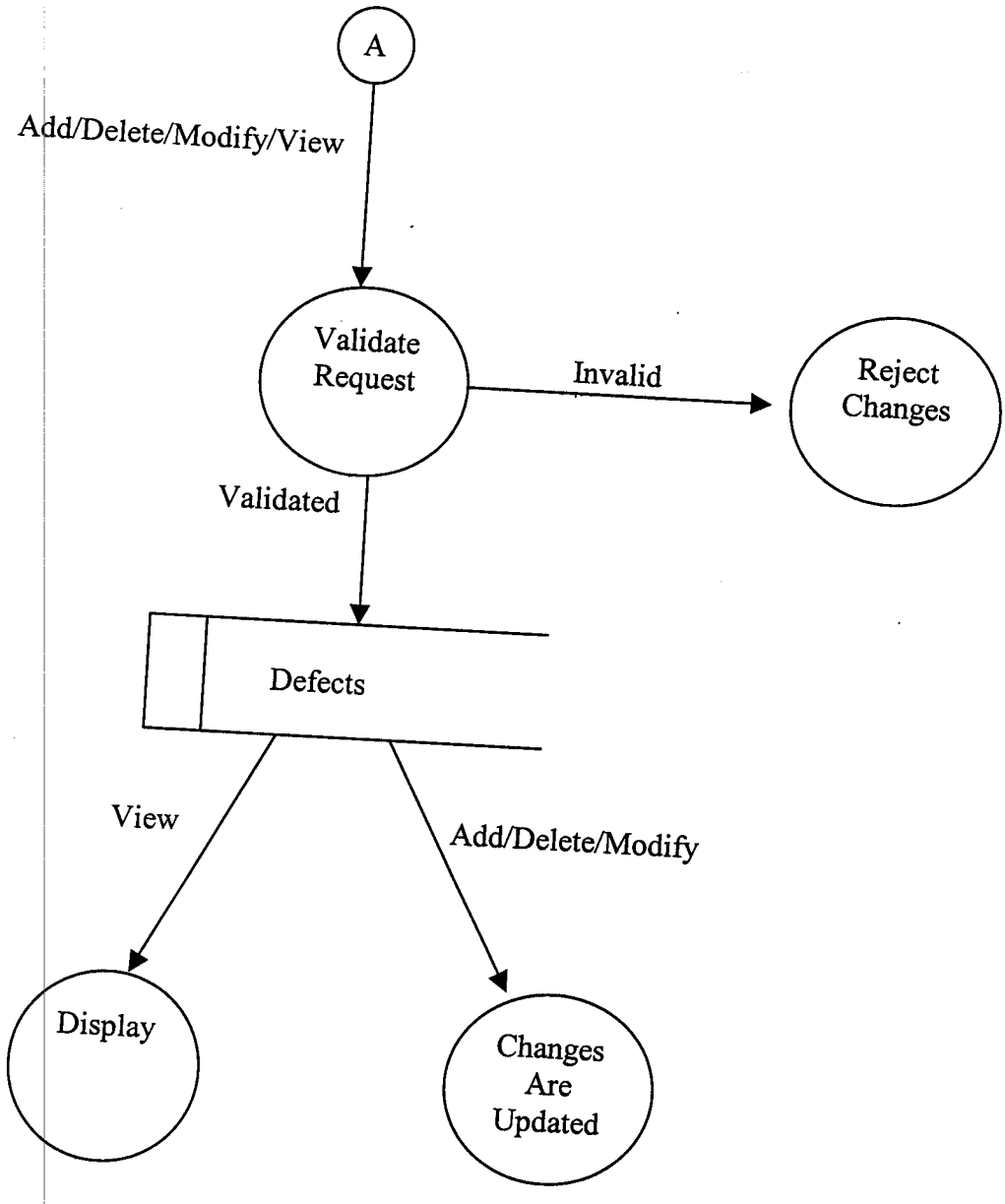
B
C
Exit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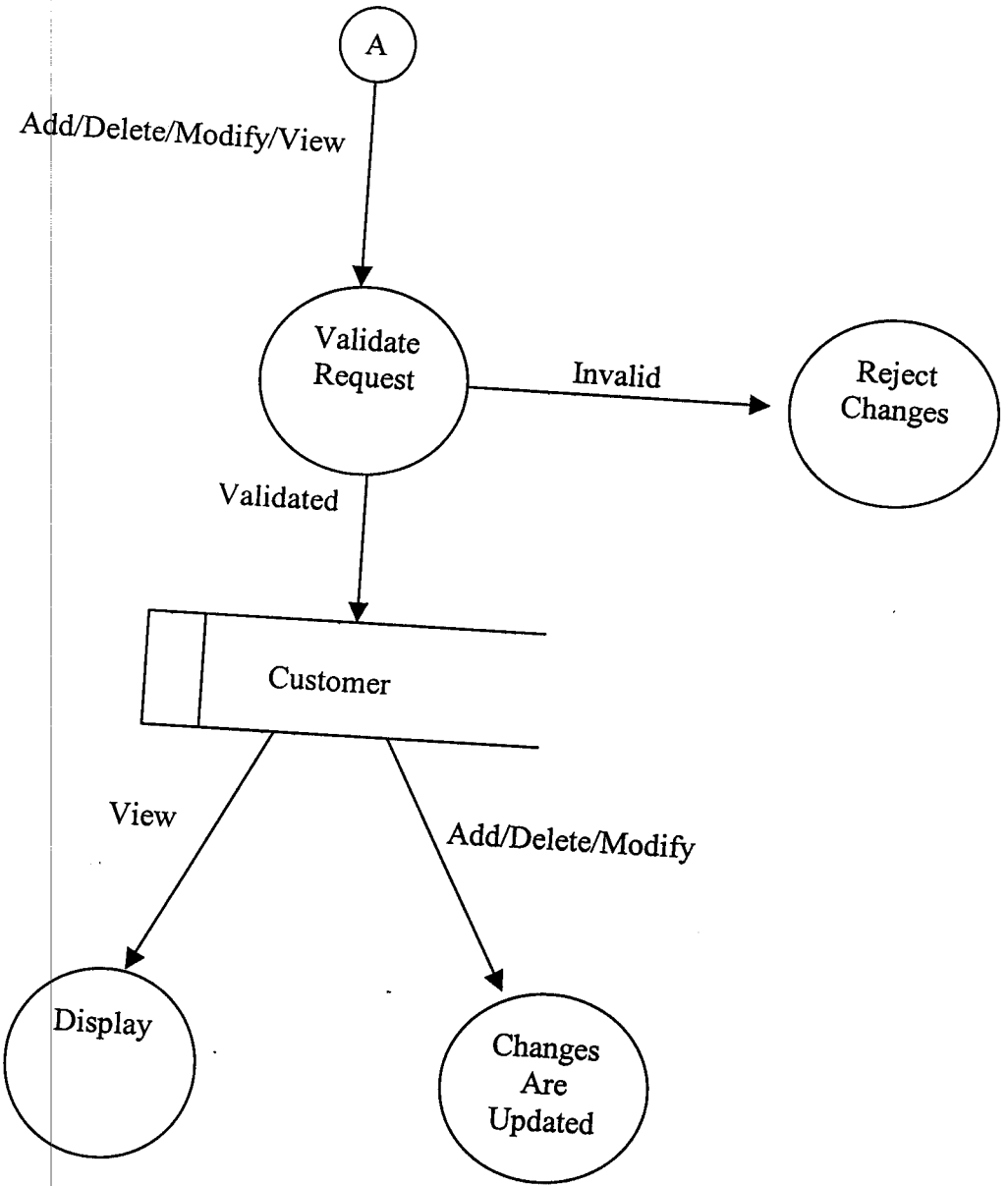
Invalid
Reject Changes
Validated
Defects
View
Add/Delete/Modify
Display
Changes Are Updated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Validate Request
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Reject Changes
Validated
Customer
View
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Display
Changes Are Updated

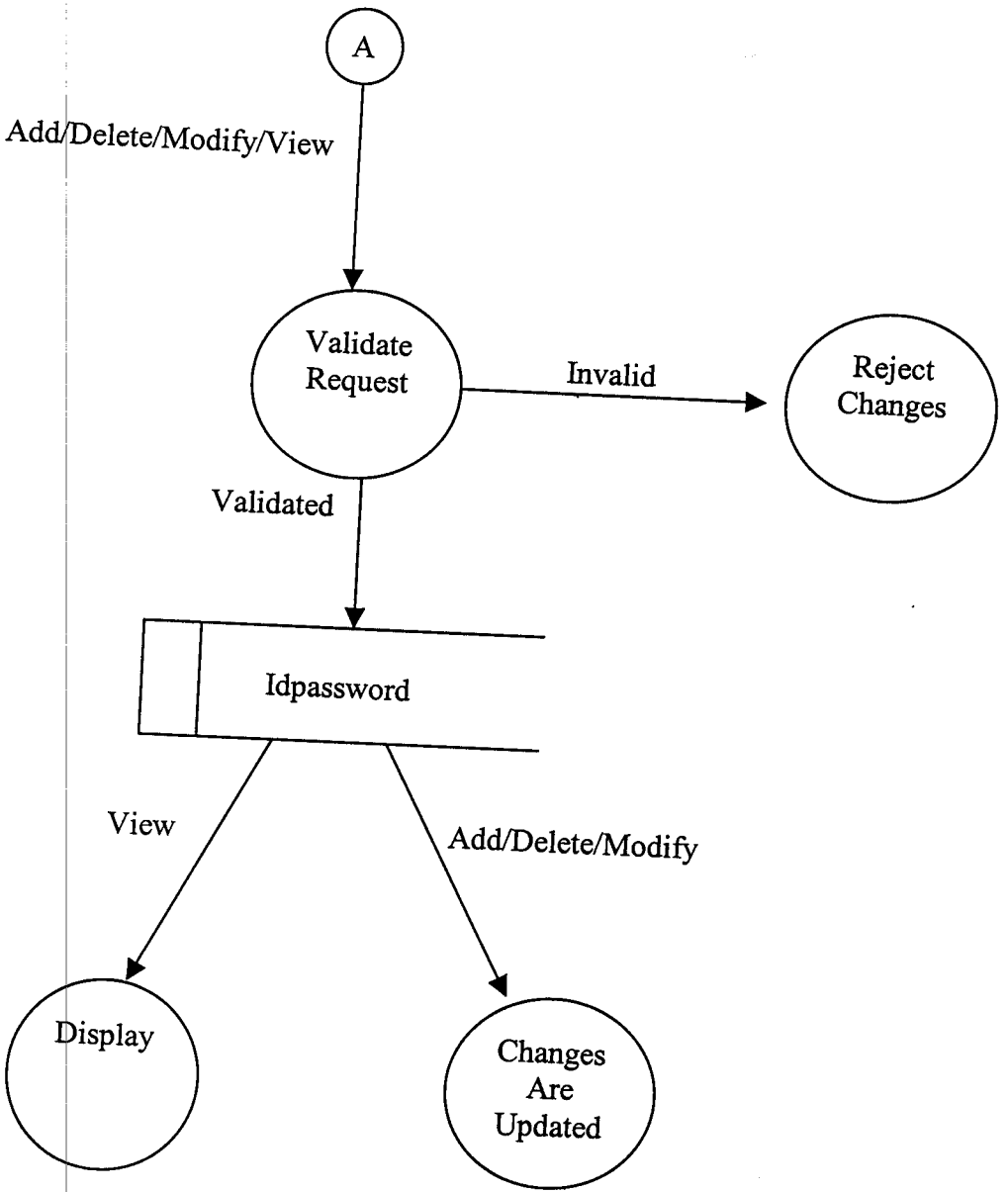

A
Add/Delete/Modify/View
Validate Request
Invalid
Reject Changes
Validated
Idpassword
View
Add/Delete/Modify
Display
Changes Are Updated

TABLE STRUCTURE

Table Name: idpassword

Description: Used to store user details of.

Field	Type Size	Description
userid	Varchar2(20)	User name
pwd	Varchar2(20)	Password
Category	Varchar2(20)	Category of user(Admin/user)

Table Name: defects

Description: Used to store defect details of each project.

Field	Type/Size	Description
Pcode	Varchar2(7)	Project code
Pname	Varchar2(20)	Project Name
OriginOfDef	Varchar2(20)	Origin of defect found
Stage	Varchar2(20)	Stage at which defect found
Module	Varchar2(20)	Module where defect found
Severity	Varchar2(10)	Severity of defect (High,Medium,Low)
NumOfDef	Number(10)	Number of defects
ReEffort	Number(10)	Rework Effort (in man hrs)
Remarks	Varchar2(60)	Remarks

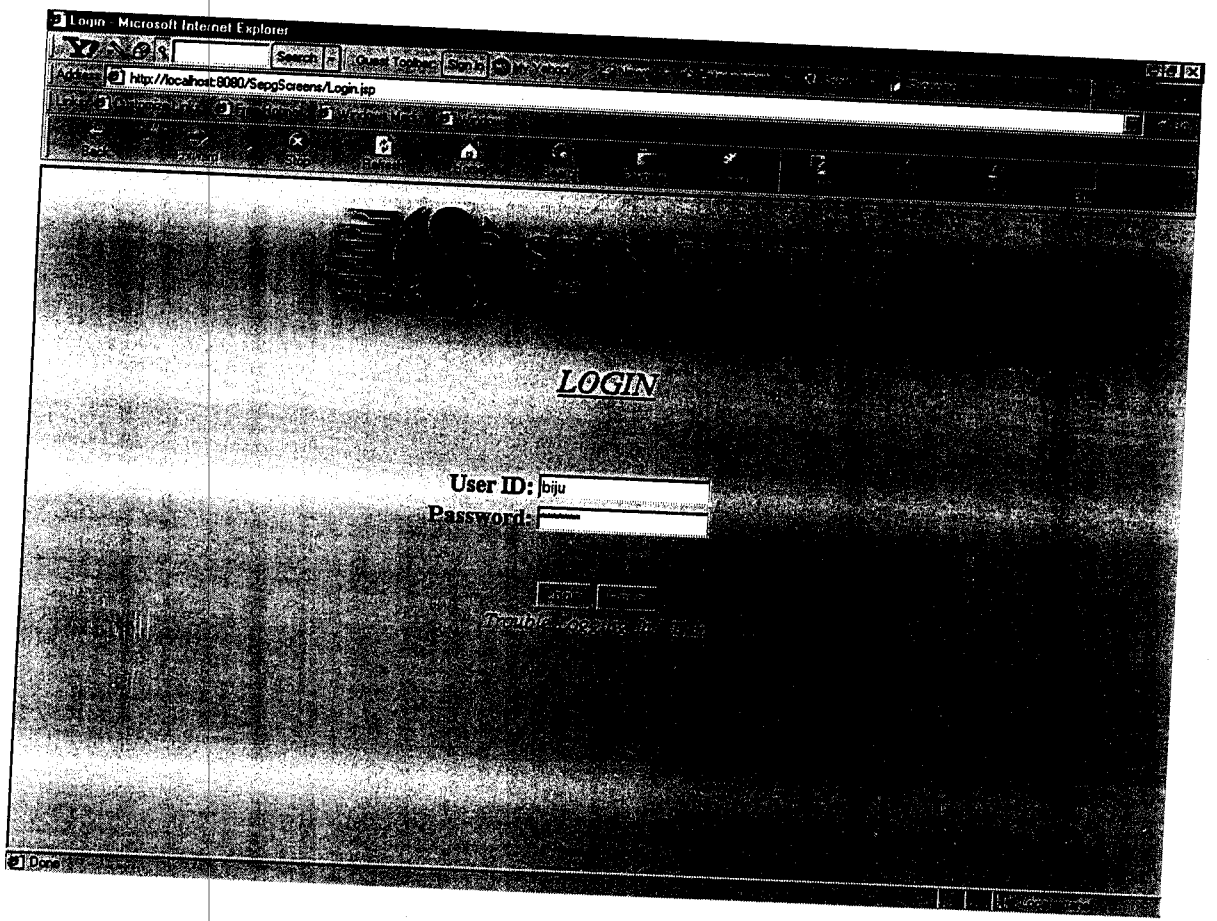
Table Name: customer

Description: Used to store client details with contacts.

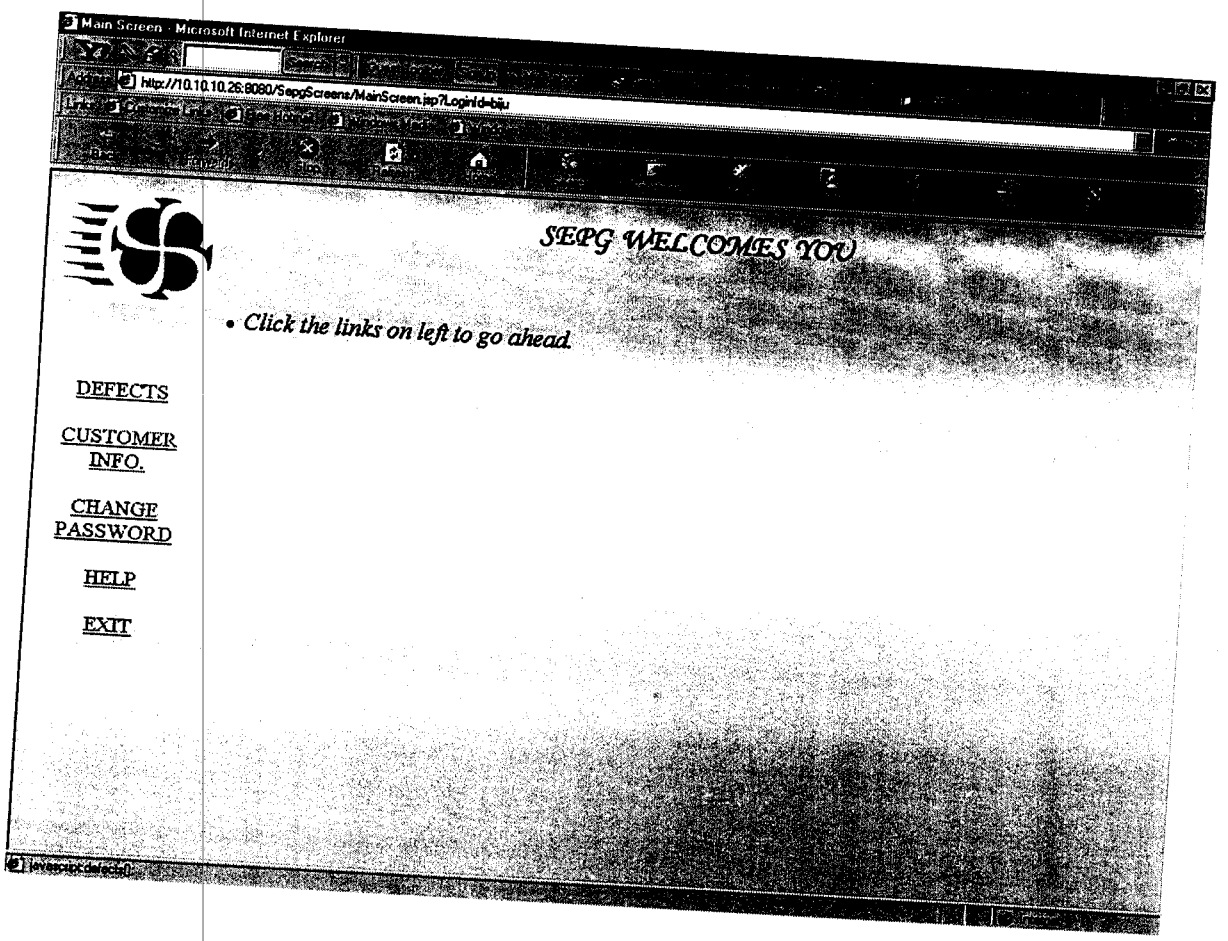
Field	Type/Size	
Pcode	Varchar2(7)	Project Code
Pname	Varchar2(20)	Project Name
Ccode	Varchar2(15)	Customer Code
Cname	Varchar2(15)	Customer Name
Caddress	Varchar2(60)	Customer Address
Cphone	Number(10)	Phone Number of Customer
Cfax	Number(10)	Fax Number of Customer
Mpname	Varchar2(20)	Marketing Persons Name
Mconperson	Varchar2(20)	Management Contact Person's Name
Mdesig	Varchar2(20)	Designation of Mgt. Contact Person
Meid	Varchar2(20)	E-mail ID of mgt. Contact Person
Tconperson	Varchar2(20)	Technical Contact Person's Name
Tdesig	Varchar2(20)	Designation of tech. Contact Person
Teid	Varchar2(20)	E-mail ID of tech. Contact Person

INPUT AND OUTPUTS SCREENS

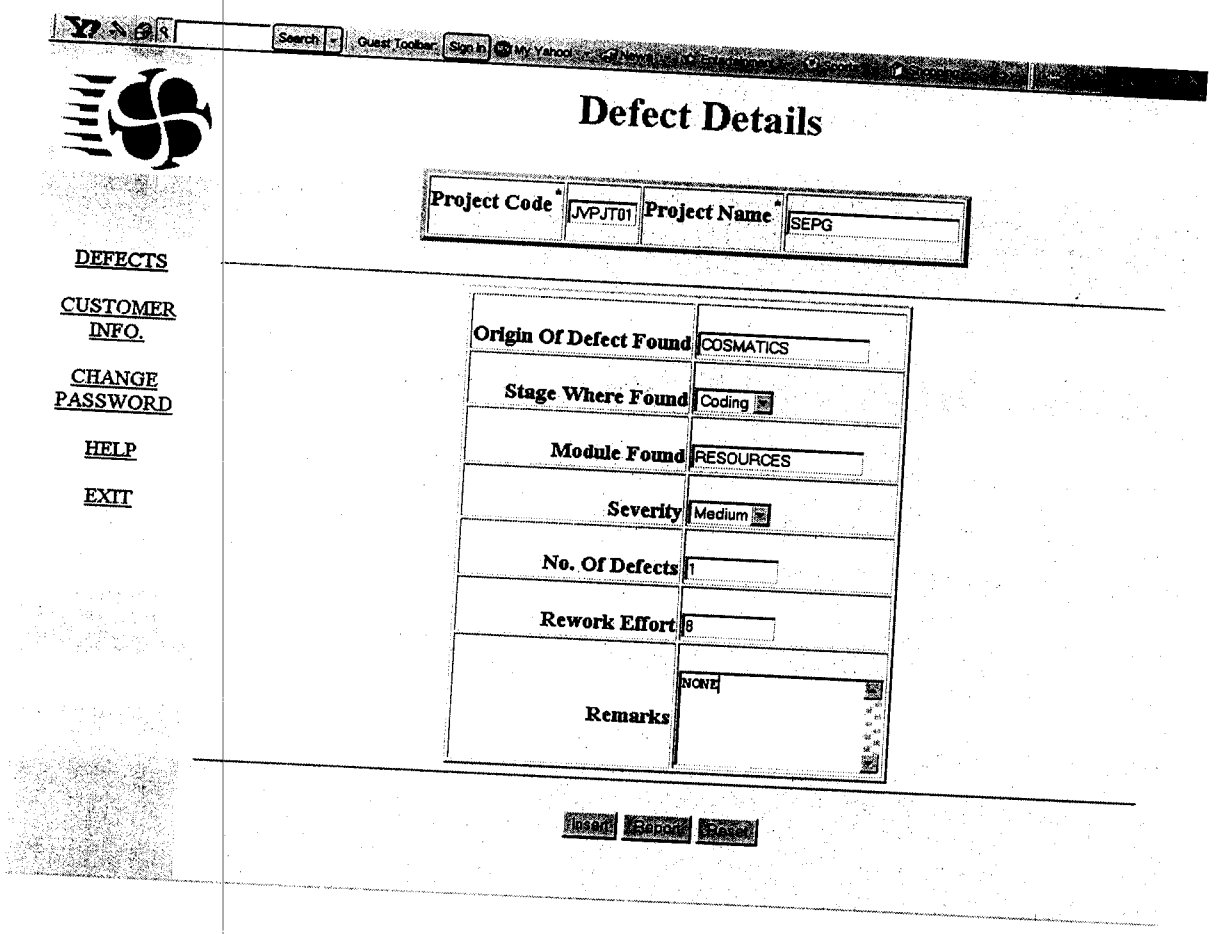
Login Screen



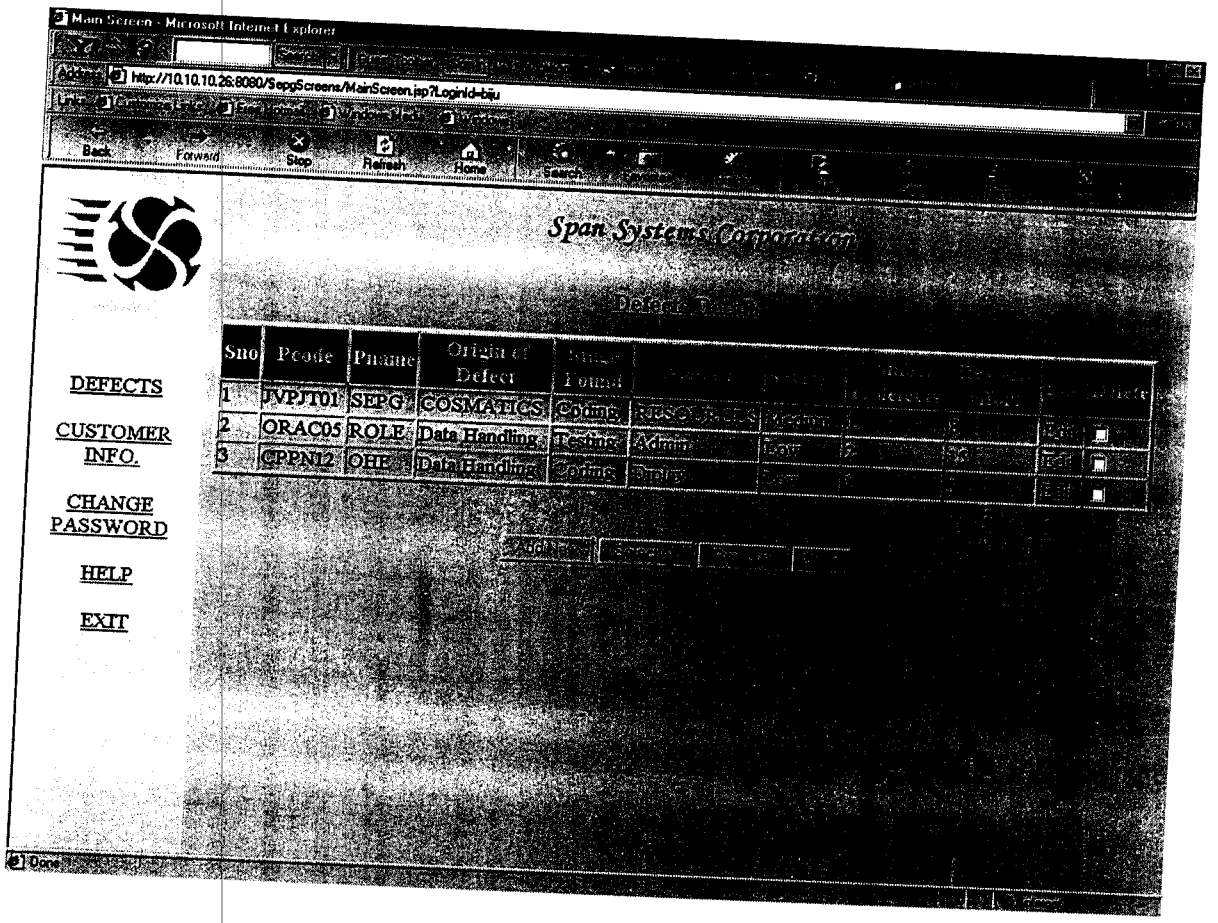
Main Screen


Main Screen - Microsoft Internet Explorer
SEPG WELCOMES YOU
• Click the links on left to go ahead
DEFECTS
CUSTOMER INFO.
CHANGE PASSWORD
HELP
EXIT

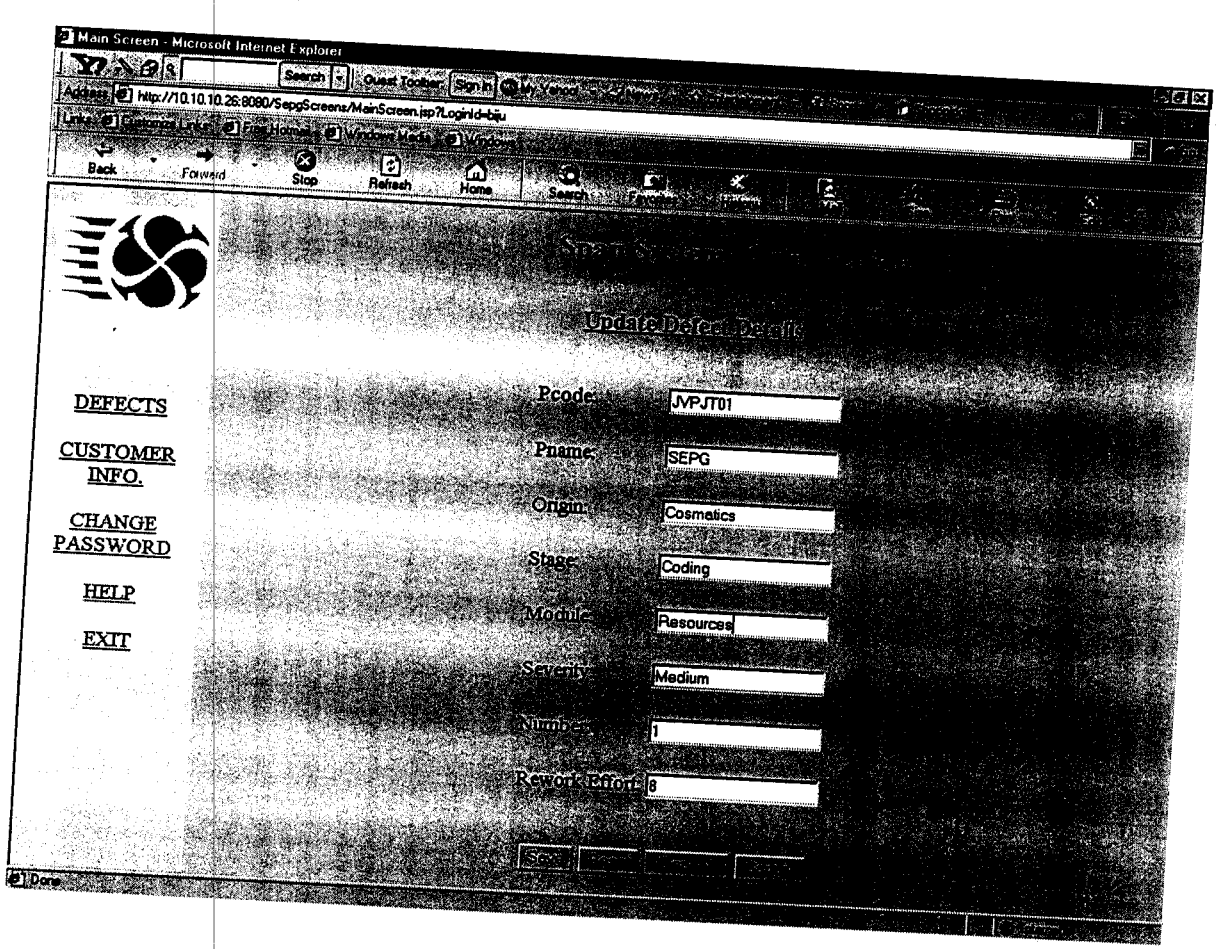
Defects Screen



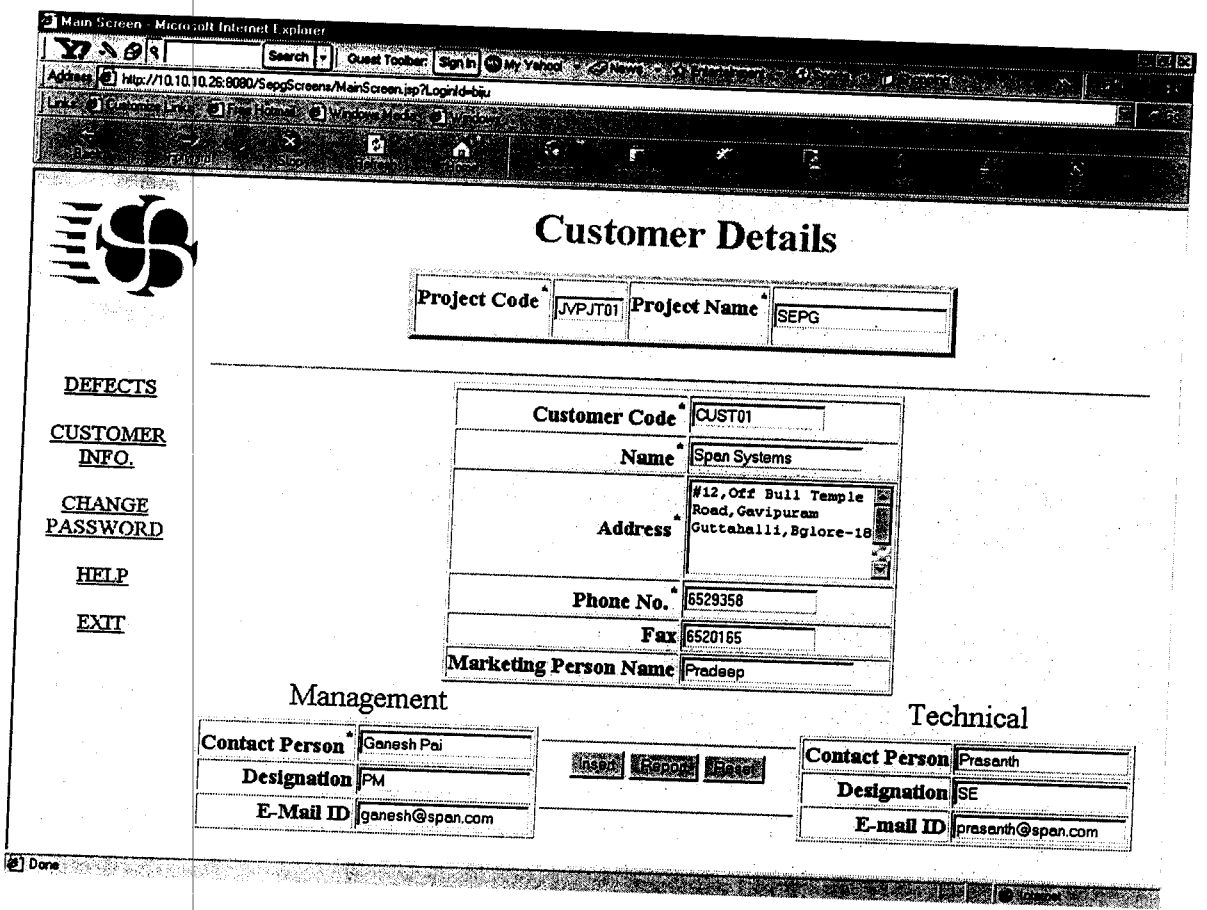
Report-Defects Screen



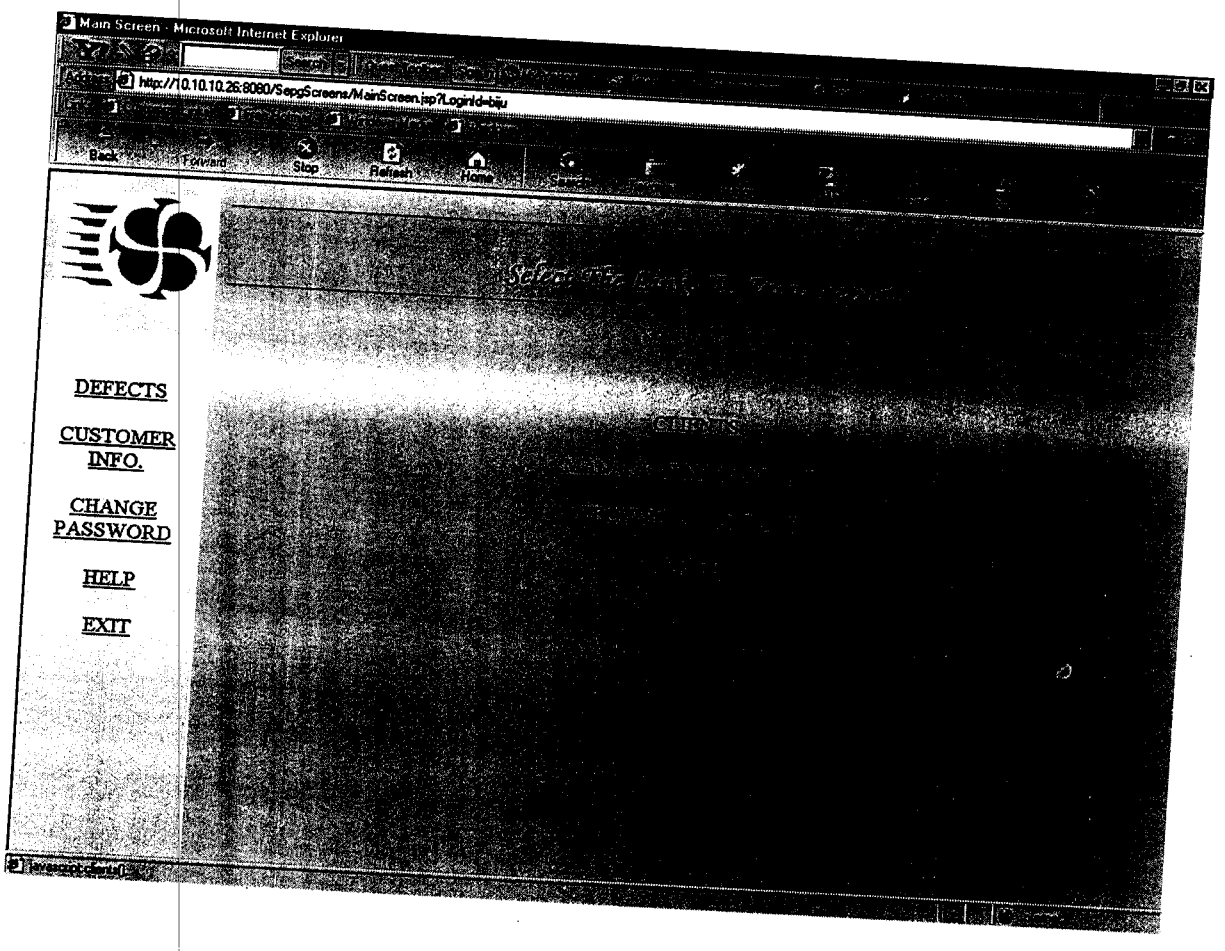
Edit-Defects Screen



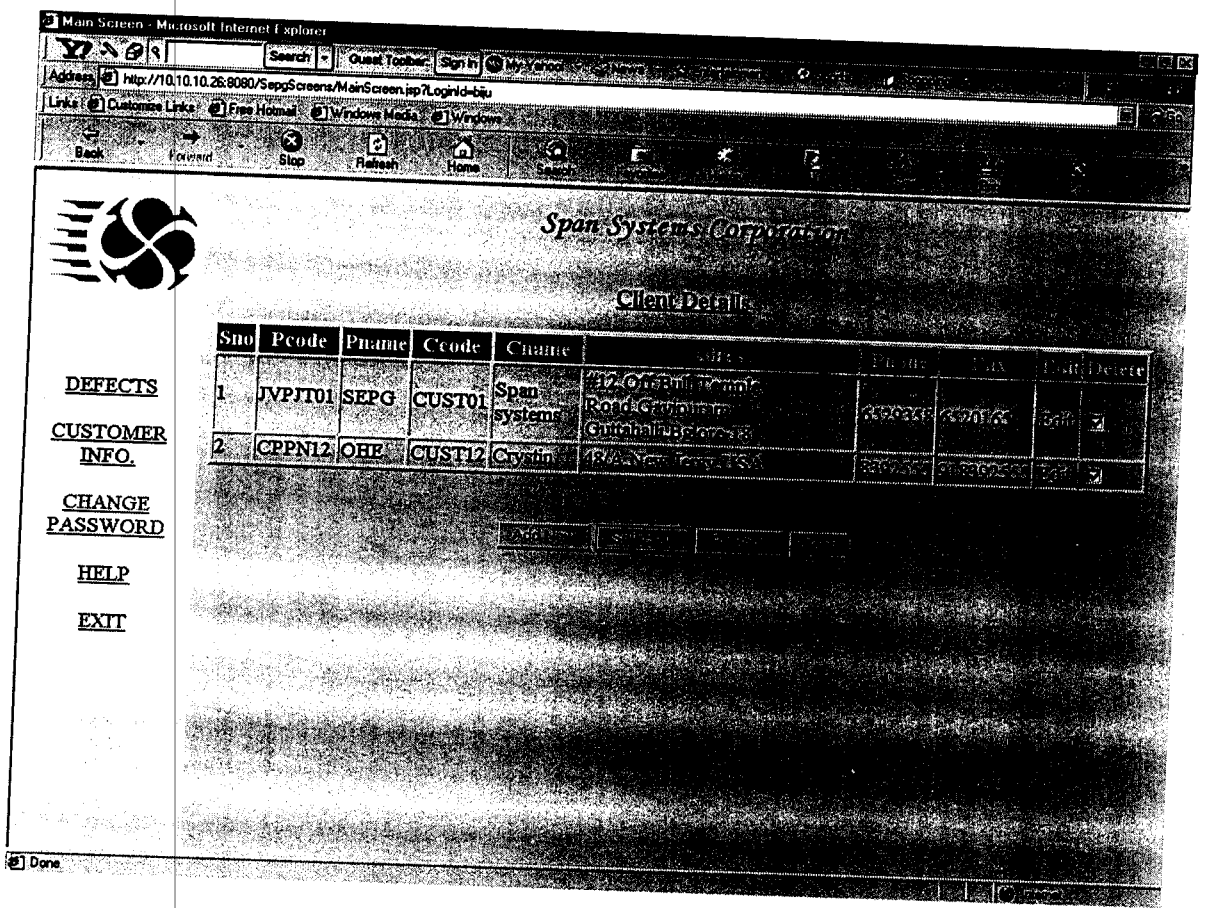
Customer-Info Screen



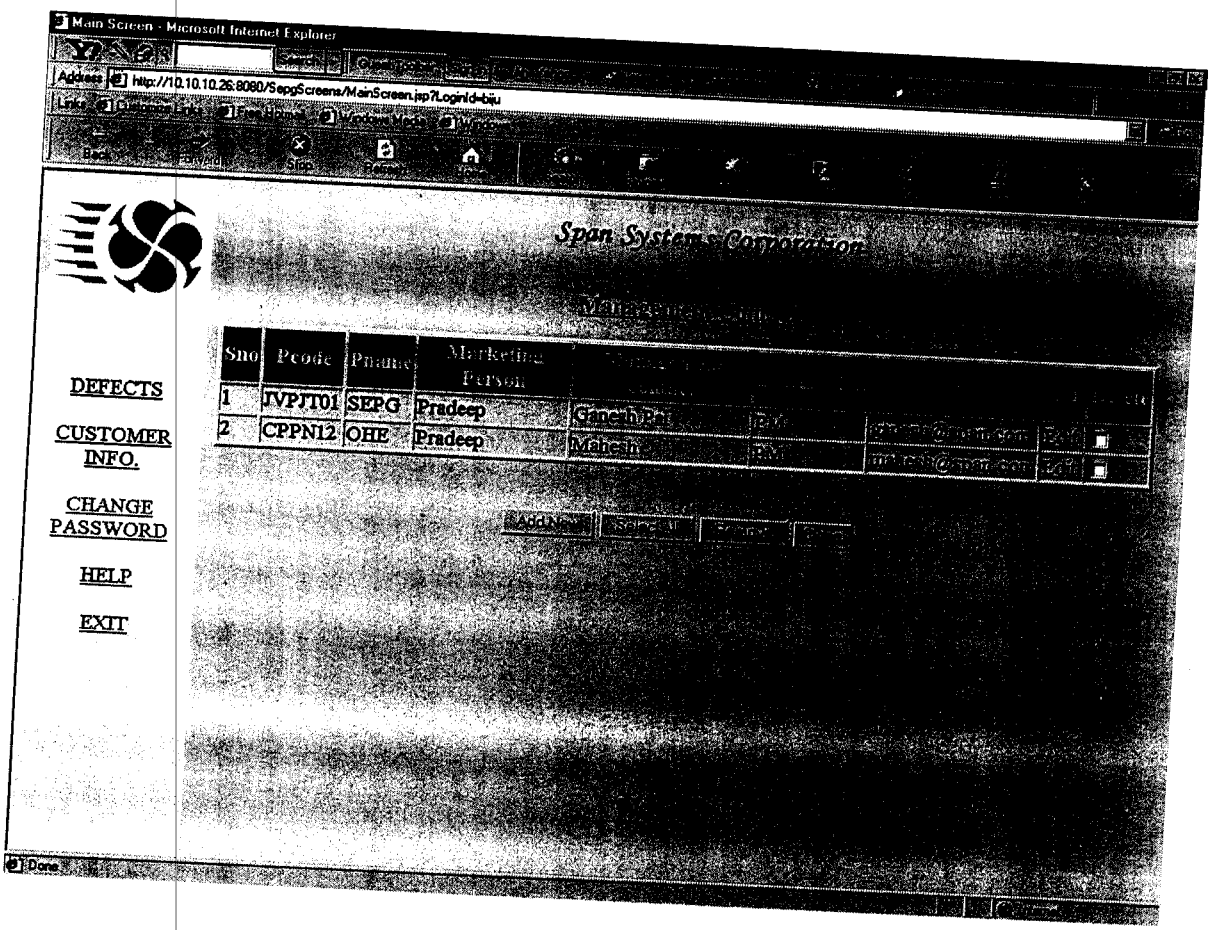
Customer-Info Report Screen1



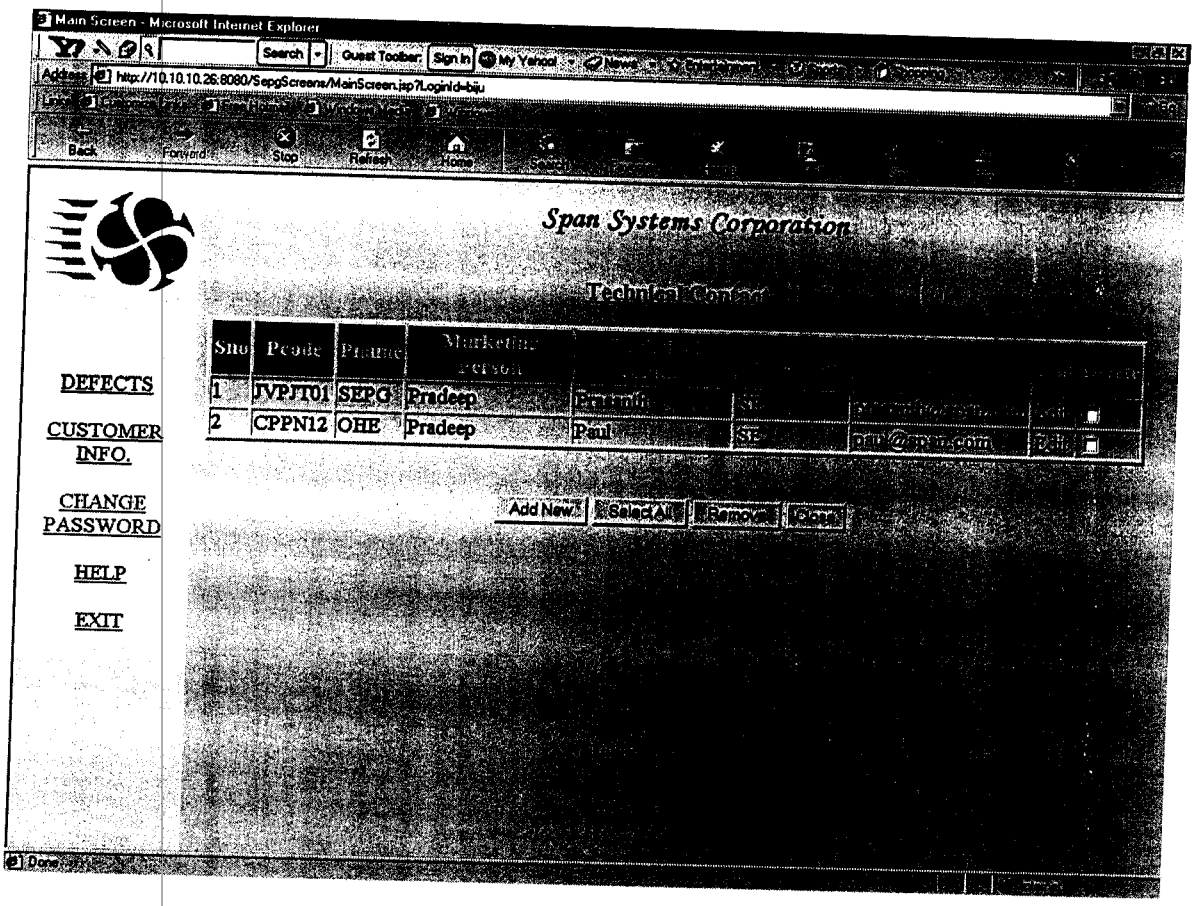
Customer-Info Report Screen2



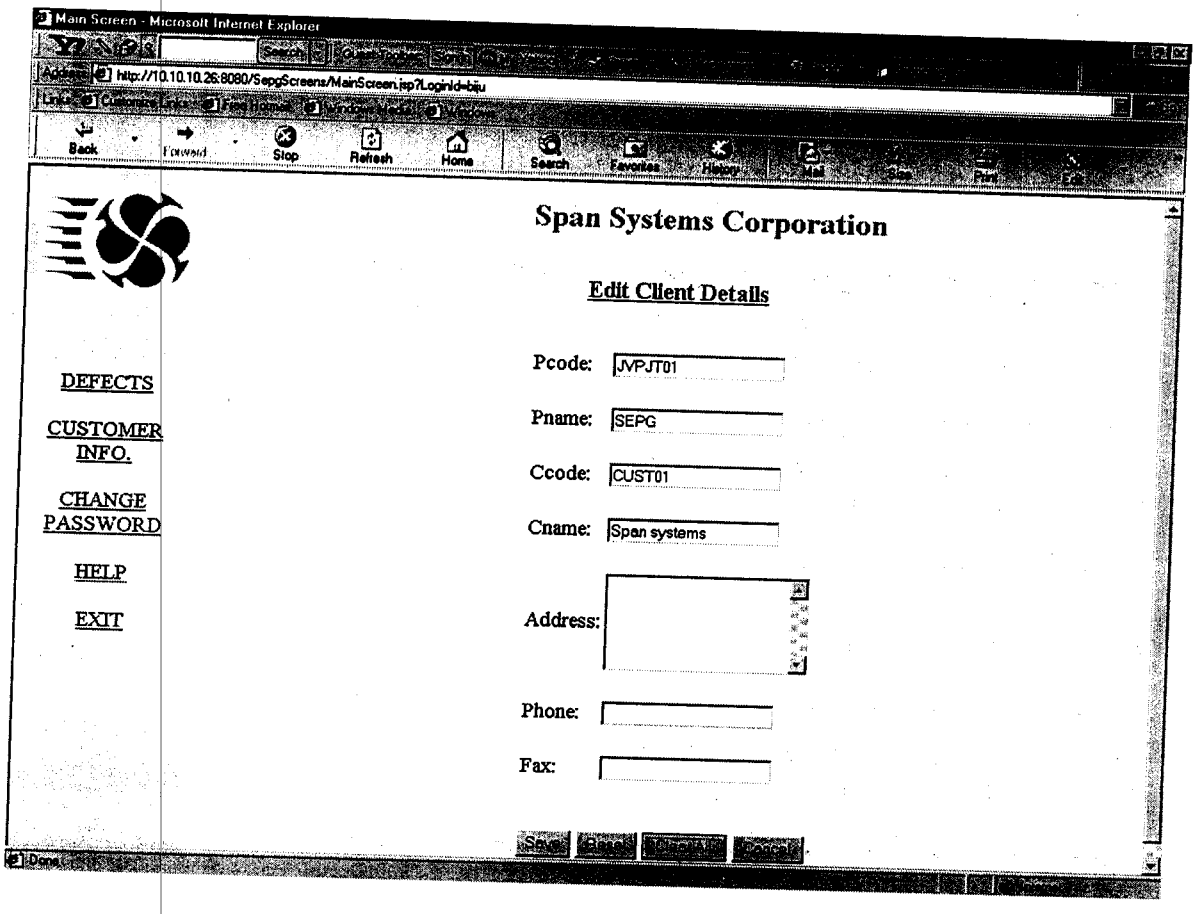
Customer-Info Report Screen3



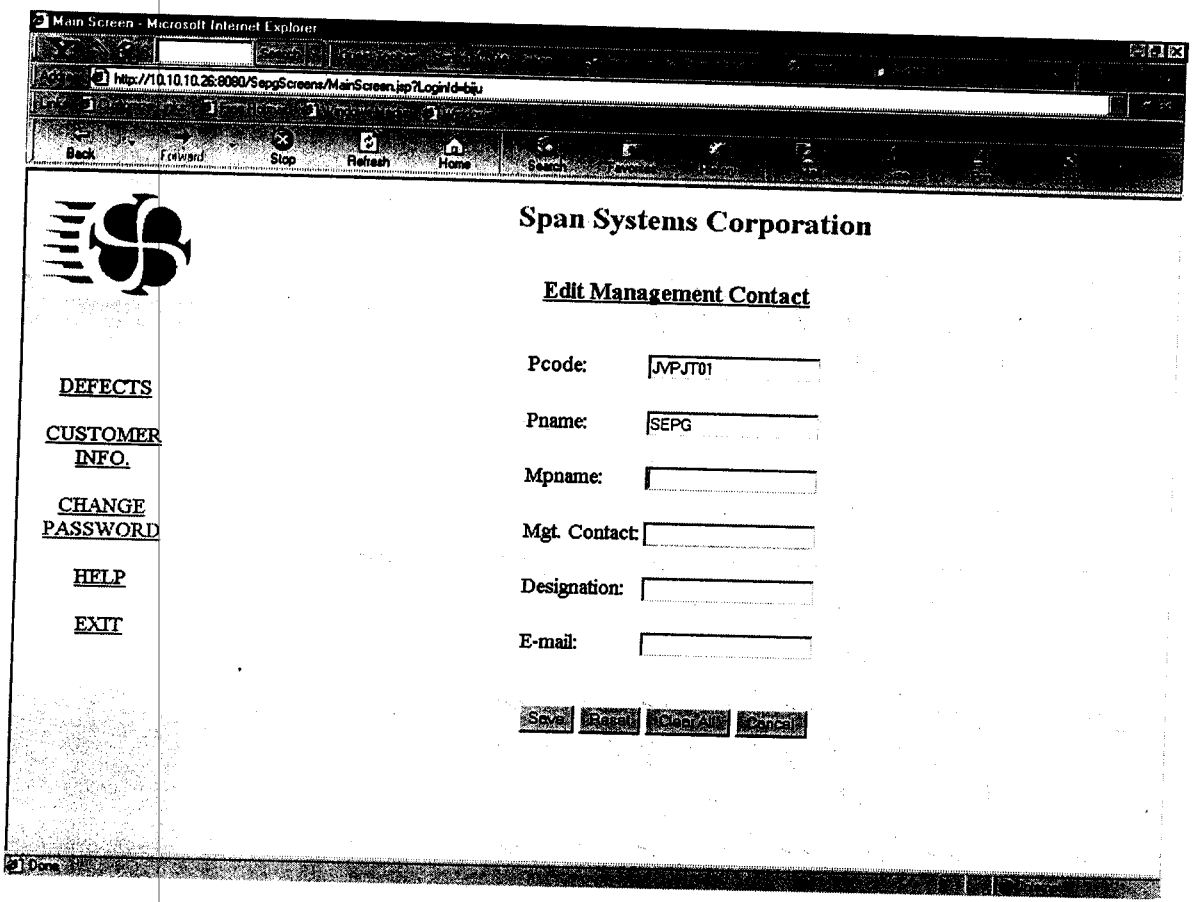
Customer-Info Report Screen4



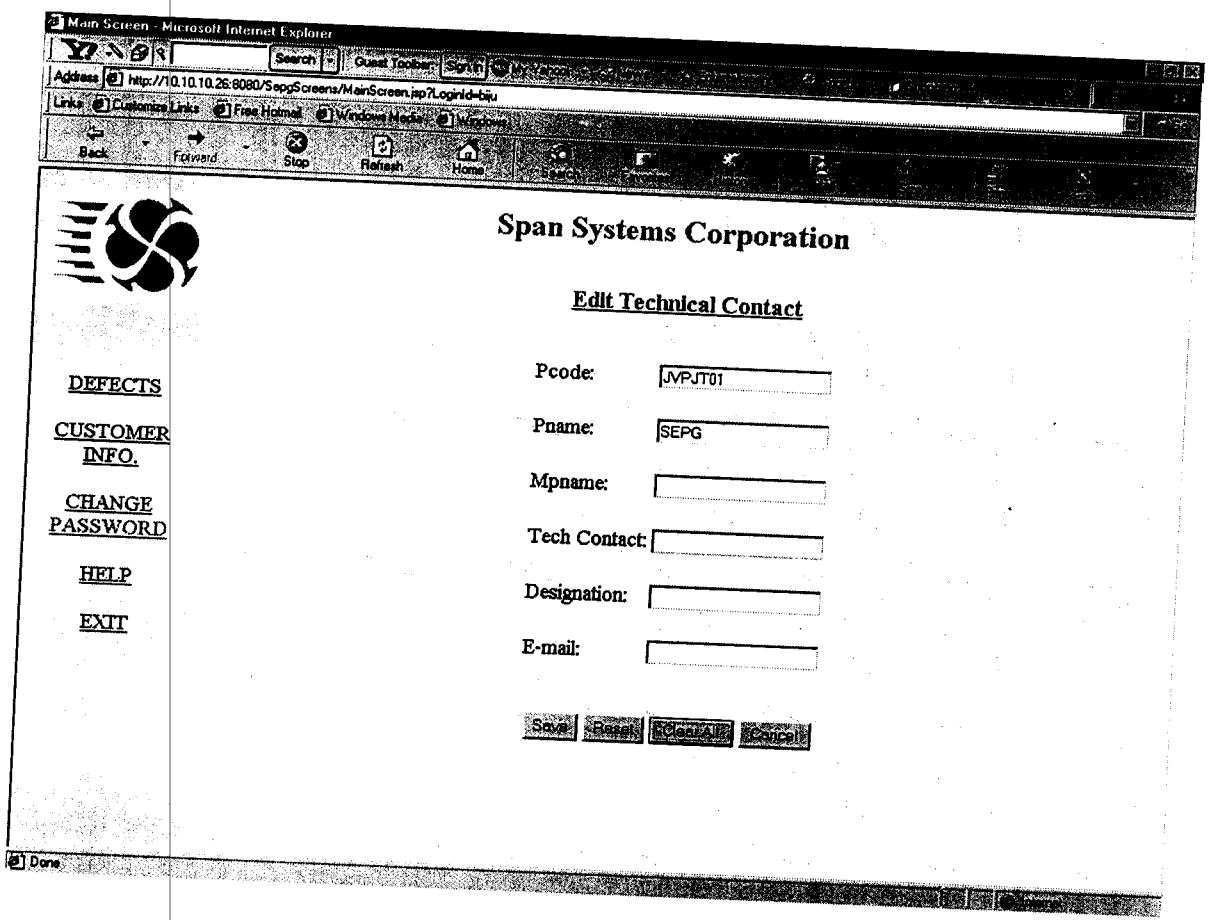
Edit Client Details Screen



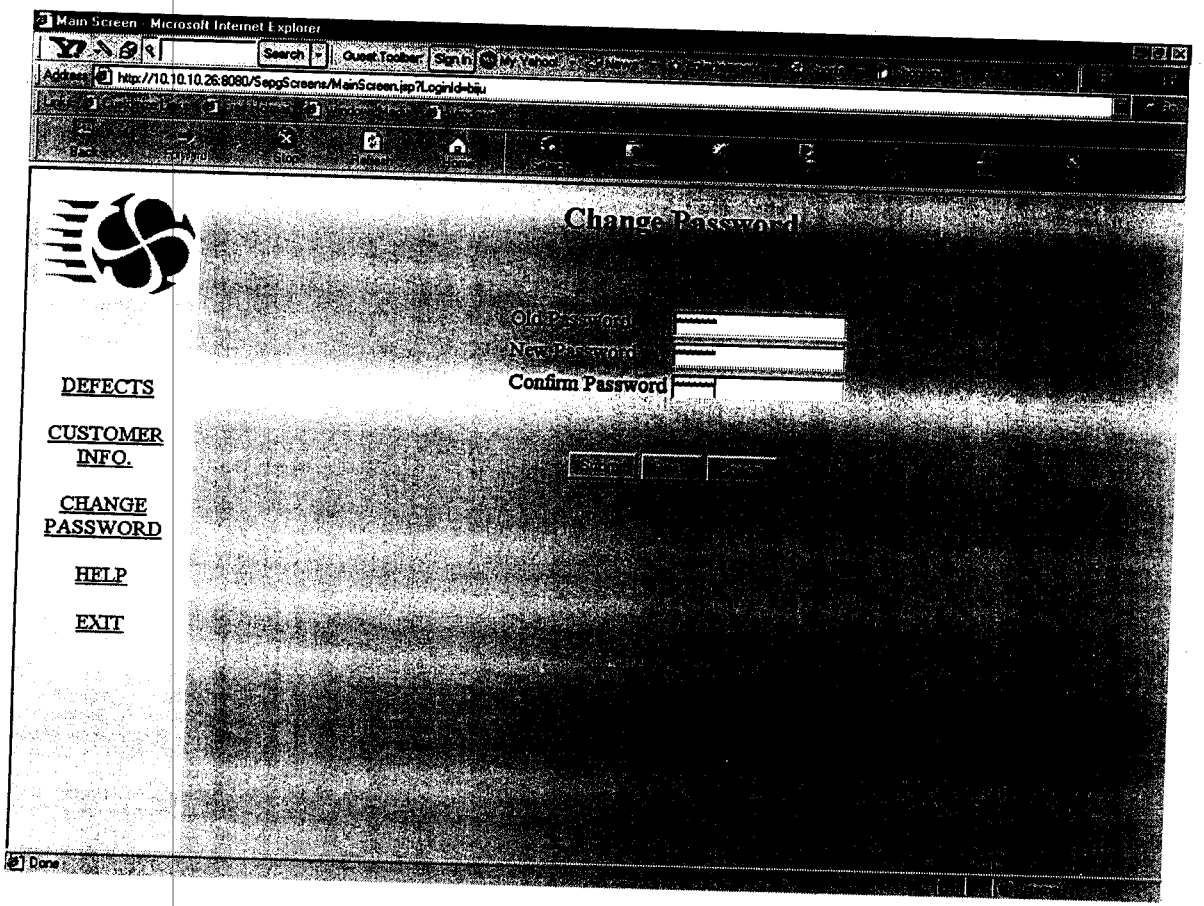
Edit Management Contact Screen



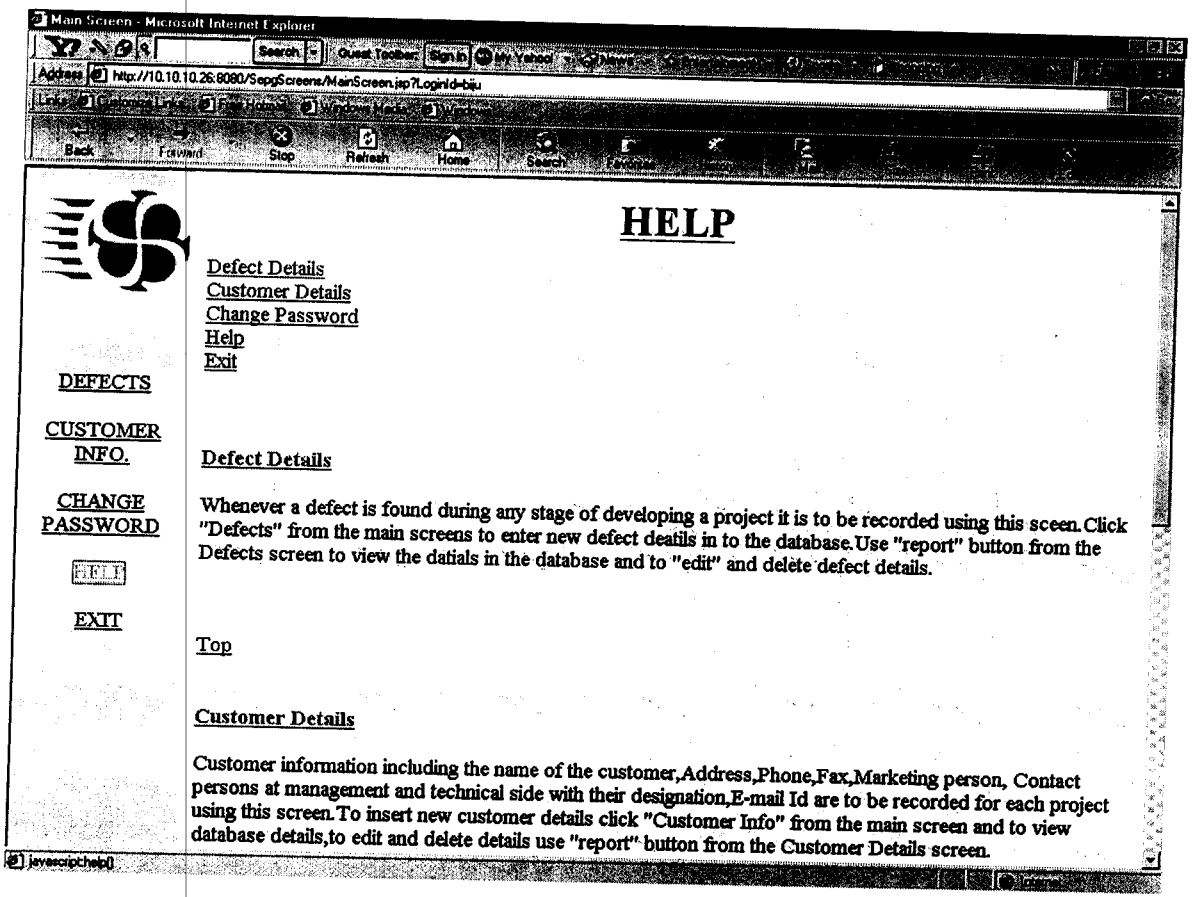
Edit Technical Contact Screen



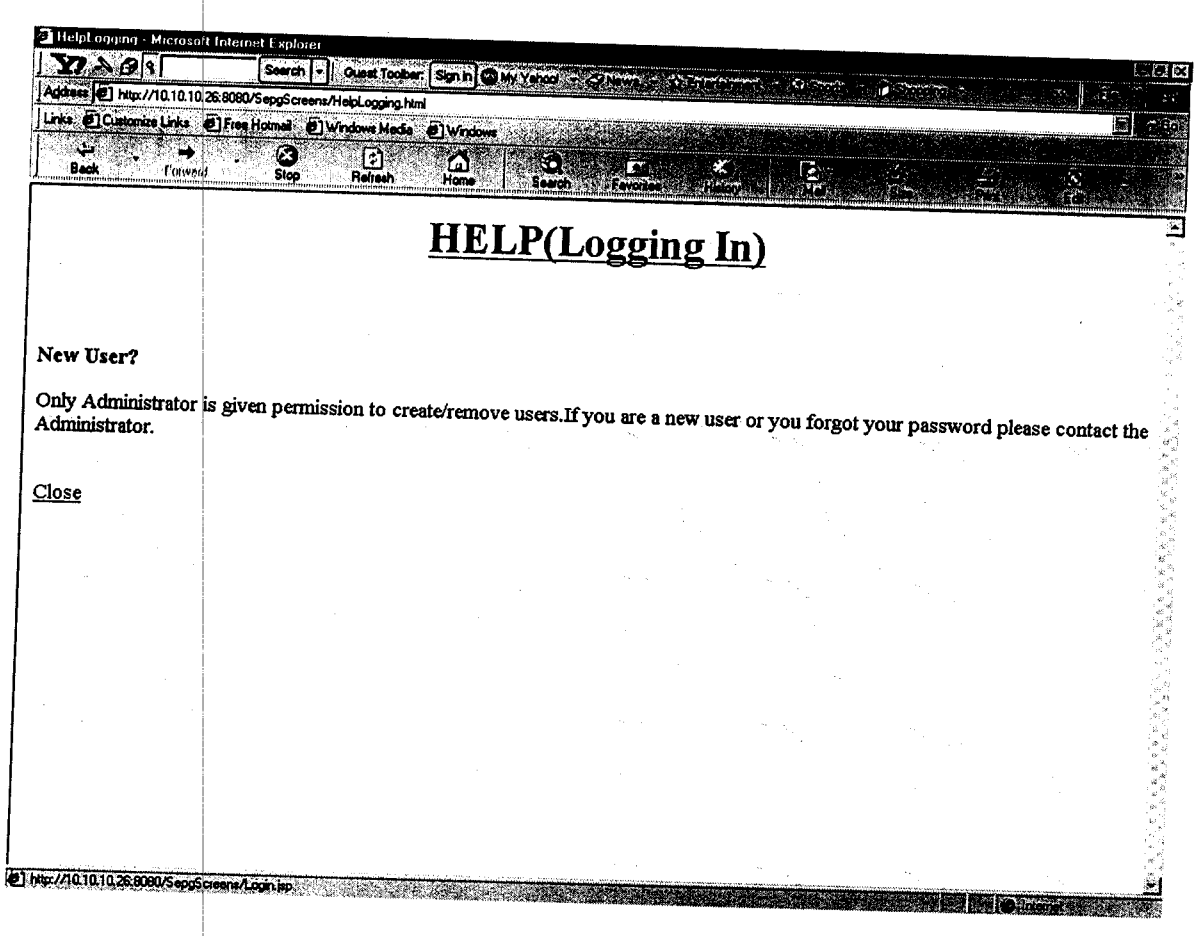
Change Password Screen



Help Screen


Main Screen - Microsoft Internet Explorer
Address http://10.10.10.26:8080/SepgScreens/MainScreen.jsp?LoginId=biju
Back
Forward
Stop
Refresh
Home
Search
HELP
Defect Details
Customer Details
Change Password
Help
Exit
DEFECTS
CUSTOMER INFO.
CHANGE PASSWORD
HELP
EXIT
Defect Details
Whenever a defect is found during any stage of developing a project it is to be recorded using this sceen. Click "Defects" from the main screens to enter new defect deatils in to the database. Use "report" button from the Defects screen to view the datials in the database and to "edit" and delete defect details.
Top
Customer Details
Customer information including the name of the customer,Address,Phone,Fax,Marketing person, Contact persons at management and technical side with their designation,E-mail Id are to be recorded for each project using this screen. To insert new customer details click "Customer Info" from the main screen and to view database details,to edit and delete details use "report" button from the Customer Details screen.
javascript:help()

Help Logging In Screen



I 333 STANDARD FOR SRS

SYSTEM REQUIREMENT SPECIFICATION

1) INTRODUCTION.

1.1 Purpose.

Requirement specification is focused specifically on functioning of the system. It allows the developer/analyst to understand the system, functions to be carried out, performance levels to be obtained and corresponding interfaces to be established. Some of the attributes of the SRS are Unambiguous, Complete, Verifiable, Consistent and Modifiable.

The Purpose of this document is to describe the functionality of the project

Software Engineering Process Group

This SRS is directed to SPAN SYSTEMS CORPARATION, Bangalore.

1.2 Scope.

SEPG is a comprehensive and user friendly application for vendor information/data processing and maintenance application using the minimal mouse clicks .

1.3 Acronyms.

SEPG	: Software Engineering Process Group.
SRS	: Software Requirement Specification.
QSP	: Quality Systems Procedures.
JSP	: Java Server Pages.
MS IE	: Microsoft Internet Explorer.

1.4 References.

SRS Template from SPAN QSP.

ISO 9001:1994 Clause 4.3

RE010 -Requirements Process Procedure

DC020 - Documentation Format and Naming Guideline

1.5 Overview.

This document contains the general description of the project followed by specific functional requirements and the internal interface requirements.

2) GENERAL DESCRIPTION.

2.1 Product Perspective.

SEPG(Defects & Customer Information) is independent part of the intranet based application to be developed..The application is made browser independent which is important to provide flexibility for user to browse.

SEPG is able to provide or facilitate users to process their information. It also provides authorized user to obtain the necessary information of the Projects, Clients , Contact Persons , etc, .

All operations deal with either reading from or writing on to the database according to the transactions. The operation that is performed at a time may be any one or more of the procedures such as Data storage, Database maintenance and Information retrieval based on queries.

SEPG Provides:

- User friendly, menu-driven screens.
- Data Manipulation form for the Data Stored.
- Maintain database according to the changes made on them.
- Produce the required information whenever requested.
- Restrict the use of the system to authorized users only.

2.2 Product Functions.

The SEPG project has 4 screens—one for Project Characteristics, Resources, Defects, and Customer Information.

Defects screen deals with the various defects encountered during the development stages. It gives summary of defects mentioning,

1. Origin of defect,
2. Stage at which defects were found,
3. Module at which defects were found,
4. Severity of defect(High,Medium,Low),

5. Number of defects,
6. Rework effort(in man hrs.), etc,.

All relevant customer information including the name, address, phone, fax, marketing person, contact persons at the management and technical level with their designation and E-mal Id are to be recorded in the Customer Information screen.

2.3 User Characteristics.

SEPG provide interactive data entry forms to the users for Manipulating the data, Query and to get Informations from the site.Also the users of this system are well known about the computers and computerized systems.So the online help itsef is enough for them to work with this system.

2.4 General Constraints.

- SEPG does not interface with other applications.
- SEPG cannot create any databases.
- User has to enter data as per the prompts for each of the data entry fields
- The modification of the data cannot be carried even if there is a single wrong entry fields.
- The User is restricted to enter data as per the validation rules.

3) SPECIFIC REQUIREMENTS.

3.1 Functional Requirements.

3.1.1 Introduction.

The s/w process database is a central collection of all files containing all critical information on the process and product aspects of s/w development and maintenance. It is maintained by,

The Software Engineering Process Group(SEPG), which,

- collects metrics for various measures
- works towards process improvement
- defects prevention.

As program becomes reflected in the measured results, people make modification to improve the outcome.

3.1.2. List Of Inputs.

The different input requirements are as follows:

- Defects screen.

  All defect details with summary of defects mentioning origin of the defect, defect severity, stage at which defects were found, module of a project where defect found, etc,.

- Customer Information screen.

  Customer details like Name,Address,Contact persons(Both Management & technical), E-mail, Phone, Fax, etc,.

3.1.3. Information Processing Required.

Various processing are also required to give the user the final results (or) information in the form of table reports (or) other visual reports. These processing include:

- Number of defects found at various stages with their severity.
- Total effort on rework (to fix bugs) for a project.
- Details about the customer about each project, etc,.

3.2. Performance Requirements.

3.2.1. Security.

The system is made available only to authorized users. In order to prevent severe data losses by system misuse (or) by hardware failure, backup is been taken every week and also data can stored to CD once in every month. Only the Administrator is given some special rights like add/remove users, etc,.

3.2.2. Availability.

This system is aimed for intranet use. So it can be installed in a Intranet server and made available for the authorized users at any time from every machine which is on the local n/w.

3.2.3. Capacity.

The system is capable of dealing with many requests at a time. There is no large amount of data transactions in and around the system.

3.2.4 Response Time.

Since the system doesn't involves major data processing activities and data transactions, its reponse time is fast.

3.3. Design Constraints.

3.3.1. Standards Compliance.

The system to be developed is following standard coding and development procedures by dividing the development into many modules.

3.3.2. Hardware Limitations.

Hardware is capable of transferring only a limited amount of data over the network. But this system does not need any large data to be transferred over the network.

3.3.3. External Interface Requirements.

The system does not require any external interfaces like E-mail, Fax, etc,.

3.3.4. User Interfaces, Screen Formats.

The screens are designed in such a way that all relevant information

can be given to and take from the system, which make the user interfaces very easy.

3.3.5. Hardware and Software Interfaces with Other Systems.

The proposed system is not required any other interfaces with other systems. The system itself is capable of giving necessary guidelines at appropriate places.

3.4. Other Requirements.

3.4.1. Operations Required by User.

The system is designed in such a way that, all the operations are handled user friendly manner. The user is need to take care, to enter the mandatory fields at relevant places and that too in a correct manner.

3..4.2. Site Adaptation Requirements.

The system need a computer which operates on windows NT or any other OS which supports intranet with a browser. It also need a Java Webserver to be running on the client machine.