CONFIGURATION MANAGEMENT SYSTEM

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Department of Computer Applications

Bonafide Certificate

Certified that this project report titled **CONFIGURATION MANAGEMENT SYSTEM** is the bonafide work of **Mr. K.RAJASEKARAN (Reg No.71203621039)** 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.

PROJECT GUIDE

HEAD OF THE DEPARTMENT

Submitted for the University Examination Held on _____
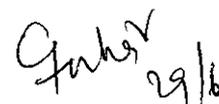
INTERNAL EXAMINER

EXTERNAL EXAMINER

06 June, 2006

To,
HOD
Kumaraguru College of Technology
Coimbatore.

This is to certify that   Mr. Rajasekaran K.   Roll_No : 03MCA41.   M.C.A student of
Kumaraguru College of Technology. has successfully completed his Academic Project titled
"Configuration Management System" from 18th Jan 06 to 6th Jun 06. He was found good and
attended all the working days in the above mentioned period.

For HCL Technologies   For HCL Technologies

Mukundhan K   Babu Sundaraj
Project Leader   Human Resource

ABSTRACT

The project titled **"Configuration Management System"** is codenamed as **CMS**. CMS is a tool which is used to integrate the developers in a one process forming a relationship among the team members. The project is developed for **HCL TECHNOLOGIES** which is situated in Chennai. The project is done with Windows 2000 Operating system using .NET technologies as front end and MS-Access as backend.

The tool helps you to manage your Projects regardless of the file type (text files, binary files) by saving them to a database. When you add a file to CMS, the file is backed up on the database, made available to other people, and changes that have been made to the file are saved so you can recover an old version at any time. Members of your team can see the latest version of any file, make changes, and save a new version in the database.

CMS project organization makes team coordination easy and intuitive. When a file (or set of files) is ready to deliver to another person, group or any other location, CMS makes it easy to share and secure different versions of the selected set of files. All developers are accessing CMS functions from within their development environment. This system is an integration of Client/Server architecture and Intranet based technology such that it makes easier for the developer to communicate easily through the system by maintaining all their day-to-day modification in the database.

ACKNOWLEDGEMENT

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CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Configuration Management System is developed according to the requirements of the concern to give rights to access the system. The main aim of the tool is to make authentication for the source code, each project is maintained in a separate table for easy access and to check whether the related files are access to the developers. If a valid user enters into the software means it displays all the related files, and then the user can select the files. If the user is having rights to access the files, then the user can get that files from the database.

The files will be taken from the database as a local copy to the local machine of the developer's environment, and then the developer can check-out the files for further modification, at the same time another user can't enter into the same file. When the developer finishes all the modification, the files should be check-in into the database else the files cannot accessible by other user. After it does the modified files are maintained as new version, here the versioning is maintained for all the files.

Administrator Rights:

- The person who have all rights to access the system.
- Admin can to the following process:

    ✓ Add, delete user
    ✓ Add project
    ✓ Giving access rights
    ✓ Upload /Download projects.

Project Leader

The person is responsible for all the projects. The PL has rights to do anything within the projects, like uploading the files into the database and allocating those files to the developer. The right decision is made when a file is to be checked-in, because the valid files should be updated for versioning.

Developer

The person who can access the files or projects, according to the rights given by the admin. They can do the modification independently while they are working in their own working folder in the local machine. After modification it should be sent to project leader for verification. Doing that the developer can check-in the files into database.

Objectives

- To plan, design, develop and test the proposed system in a faster and efficient manner.
- To overcome all the difficulties faced in the existing system.
- To control various versions of source code for a project and to maintain consistency between versions of source code.
- To recover older versions.
- The developed tool is a Graphical User Interface (GUI) which can be easy for accessing the files.
- To evaluate the hardware and software that is needed to implement the system.
- To establish an environment where the user can access their own working folder when they check out to the available files.
- To make the source code safe in the database.

- To give the user to access the files independently, while they are doing modifications.

Project Scope

- On the User side the boundary extends up to the Check Out, View, Edit and Check In operations.
- On the Project Leader side the boundary extends up to within the project all rights are available.
- On the Administrator side there is no boundary limit, all rights are available and the person can configure the tool also.
- The project's scope is to meet the boundaries to implement the operations involved in Configuration Management System.

Need for the Project

- To meet the requirements this is bounded within the scope of project.
- To reduce the workload of the user, because they should remember the commands and path of the project for accessing in their working folder.
- The system provides the CMS Database where all users can access their project from in it.
- The source code is been protected.
- The entire user cannot access all the files, admin have allotted rights to all user for each project.

Features to be met

- The system can work in Windows operating systems, which has a Java run time environment with RMI concept.
- Accept user input data such that the validation checking's made and the details are stored in the back end database MS-Access.

- Various information's are analyzed by the admin and project leader in a reported format viewed in the system.
- The system should be graphical user interface, so that the users can access the system easily.

Initial Modules in CMS

a) **Login**

b) **Project Information Maintenance**

c) **Change Control**

d) **Version Control**

Login

This module accepts User Id, Designation and password from the user and checks for the validation. If the user is a valid person then the module guides them to the next stage. Here the user type is checked before it gets logged. There are three types of users use the tool namely the Project Leader, Administrator and the Developer.

Project information maintenance (PIM)

A project is a collection of files that you store in the database. The existing projects are uploaded into the CMS database. Each project have separate table that maintains the entire details. You can add, delete and share files within and among projects. A project has much in common with an operating system folder, but has better support for version tracking.

Change control

Change control is vital for large organization. The human procedures and automated tool to provide a mechanism for the control of change. Flag like (CHECK–IN, CHECK–OUT) is maintained. CHECK–OUT is used to come out from the database and change is made. CHECK- IN is used to enter the database and make appropriate version control mechanisms are used to create the next version. Before that the files should be sent to project leader for approval, if the status is ok then the developer can CHECK-IN the files into database.

Version Control

This module gives the information like version number, project name, developer's name\ id, date\time. The old version will be maintained in the database which the developer can access for further modification. Here the team coordination is maintained like making sure that only one person is modifying a file at a time. If a developer needs to access the latest version, the developer menu gives the access to view the files.

1.2 ORGANIZATION PROFILE

HCL Technologies:

Overview

HCL Technologies is one of India's leading global IT Services companies, providing software-led IT solutions, BPO and remote infrastructure management services. Having made a foray into the services domain in 1997-98, HCL Technologies focuses on technology and R&D outsourcing, working with clients in areas at the core of their business. The company leverages an extensive offshore infrastructure and its global network of 26 offices in 15 countries to deliver solutions

across select verticals including Banking, Insurance, Retail & Consumer, Aerospace, Automotive, Semiconductors, Telecom and Life Sciences.

About Enterprise

HCL Enterprise is a leading global technology and IT enterprise, comprising two companies listed in India—HCL Technologies & HCL Info systems. The three-decade-old enterprise, founded in 1976, is one of India's original IT garage start-ups. Its range of offerings span product engineering, technology and application services, BPO, infrastructure services, IT hardware, systems integration, and distribution of technology and telecom products. The HCL team comprises of over 30,000 professionals of diverse nationalities, operating out of 15 countries, including 300 points of presence in India alone. HCL has global partnerships with several leading Fortune 1000 firms, including leading IT and Technology firms.

Working at HCL

HCL recognizes human resources as the backbone of its long-term Success and has consciously focused on increasing the value-add per employee. Its unique approach has made it an employer of choice both in India and abroad. Utmost importance is attached to attract the best talent into the organization, Continuously train, improve the skill set of these professionals, and help them Perform in the most challenging assignments, and finally retain our biggest asset-Our people. HCL boasts of its people and recognizes every mind as an engineering powerhouse. It offers a unique experience to people through technology and process innovation. It breeds leaders to work for leaders.

Services

HCL Technologies offers a unique bundle of integrated services around a triad of Software, BPO and Remote IT Infrastructure management. We are ranked amongst the top 5 Indian IT companies across all service lines. This is achieved through: Zero defect delivery for mission critical testing across domains Requisite rare skills in legacy applications Full service enterprise package management Strong mind share in enterprise content management in Asia Unique concept-to-manufacture capability across hardware, embedded and mechanical engineering Largest BPO centre in Northern Ireland and amongst the top 10 employers with multilingual capability Complex infra management for over 50,000 devices and 350,000 end users worldwide

CHAPTER 2

SYSTEM REQUIREMENTS AND SPECIFICATION

2.1 HARDWARE REQUIREMENTS SPECIFICATION

System Requirements

Processor	:	Intel Pentium IV
RAM	:	256 MB RAM
Hard Disk	:	40GB

Server Requirements

Platform	:	Windows 2000
Database	:	MS-Access

Client Requirements

Working Environment	:	Windows 2000
Runtime Environment	:	NET Technologies
Coding	:	VB

2.2 SOFTWARE REQUIREMENTS SPECIFICATION

Software

Operating System	Windows 2000
Language	.NET Technology
Database Server	MS-Access

2.3 SOFTWARE OVERVIEW

.NET

- It is a new platform for the developed and deployment of modern, object-oriented, "managed" applications.

- Fully functional .NET applications can be developed using any programming language that targets the .NET runtime.

- It gives a comprehensive framework of language-neutral class libraries.

- It supports the creation of self-describing software components.

- It supports Multilanguage integration, cross-language components reuse, and cross-language inheritance.

- It introduces a new way to develop Windows desktop applications using the Windows Forms classes.

- It provides a new architecture for the development and deployment of remote objects.

- .NET makes many windows technologies and techniques obsolete.

- IL- Intermediate Language is used to compile before execution. It is not designed for particular language rather the IL statements manipulate common types shared by all .NET language is also known as COMMON TYPE SYSTEM (CTS).
- CLR – COMMON LANGUAGE RUNTIME is responsible for loading and executing a .NET Application.
- To do the above operation, a technique known as JUST-IN-TIME (JIT) compilation to translate the IL to native machine code.
- To facilitate cross language interoperability, .NET includes a COMMON LANGUAGE SPECIFICATION (CLS).
- The user can create a base class using VB.NET derive a C# class from it and seamlessly step through both with a source level debugger, this level of language interoperability is probably one of .Net's greatest strength.

VB.NET

Visual Basic .NET, an object-oriented programming language. After creating the interface for your application using forms and controls, you will need to write the code that defines the application's behavior. As with any modern programming language, Visual Basic supports a number of common programming constructs and language elements. While most of the constructs are similar to other languages, the event-driven nature of Visual Basic introduces some subtle differences. Once you understand the basics, you can create powerful applications using Visual Basic.

.Net Framework

Visual Basic .NET is designed around the .NET Framework, which provides enhanced security, memory management, versioning, and deployment support. The .NET Framework also enables interoperability between objects you

Create with any .NET programming language. This means you can create objects with Visual Basic .NET that are easy to use from other .NET languages, and you can use objects from other .NET languages just like you use objects created with Visual Basic .NET.

Language Changes in Visual Basic

While earlier versions of Visual Basic are targeted for Microsoft Windows client applications, Visual Basic .NET is intended for creating XML Web service applications as well. For this purpose, Visual Basic .NET generates managed code for the common language runtime. This entails changes to the language itself.

The changes in Visual Basic .NET are intended to:

- ⇒ Simplify the language and make it more consistent.
- ⇒ Add new features requested by users.
- ⇒ Make code easy to read and maintain.
- ⇒ Help programmers avoid introducing coding errors.
- ⇒ Make applications more robust and easier to debug.

SDI – SINGLE DOCUMENT INTERFACE

SDI creates an application with a single form with a toolbar, menus and other features you choose.

MDI – MULTIPLE DOCUMENT INTERFACE

MDI is used for opening many windows simultaneously. All the document windows are contained in parent window, which provide a workspace in the application. Visual basic applications can have only one MDI form, which contain all the child forms. A child form is an ordinary form that its child property set true. Child forms are displayed within the internal area of an MDI form at run time.

MS-ACCESS

Introduction

Microsoft Access is a relational database management system (DBMS). At The most basic level, a DBMS is a program that facilitates the storage and Retrieval of structured information on a computer's hard drive.

Many Faces

Microsoft generally likes to incorporate as many features as possible into its Products. For example, the Access package contains the following elements:

- a **relational database system** that supports two industry standard query
- Languages: Structured Query Language (SQL), Query By Example (QBE);
- A full-featured **procedural programming language** —essentially a subset of Visual Basic, a simplified procedural **macro language** unique to Access;
- A **rapid application development environment** complete with visual form and Report development tools;
- A sprinkling of **objected-oriented extensions**; and, various **wizards and builders** to make development easier. For new users, these "multiple personalities" can be a source of enormous frustration. The problem is that each personality is based on a different set of assumptions and a different view of computing. For instance, The relational database personality expects you to view your application as sets of data;
- The procedural programming personality expects you to view your application as Commands to be executed sequentially;
- The object-oriented personality expects you to view your application as objects which encapsulate state and behavior information? Microsoft makes no effort to provide an overall logical integration of these personalities (indeed, it is unlikely that such integration is possible). Instead, it is up to you

as a developer to pick and choose the best approach to implementing your application.

The advantage of these multiple personalities is that it is possible to use Access to learn about an enormous range of information systems concepts without having to interact with a large number of "single-personality" tools, for example:
• Oracle for relational databases
• PowerBuilder for rapid applications development
• Smalltalk for object-oriented programming.

Keep this advantage in mind as we switch back and forth between personalities and different computing paradigms. Access is the database management program that gives you an improved user experience and an expanded ability to import, export, and work with XML data files. Working in Access is easier because common errors are identified and flagged for you with options to correct them. Additionally, a new feature to Access also helps database developers view information on dependencies between database objects.

Extending databases

View information on dependencies between database objects. Viewing a list of objects that use a specific object helps maintain a database over time and avoid errors related to missing record sources.

Importing, exporting, and linking data

Export the contents of a table or a query to a Windows Share Point Services list, import the contents of a Windows Share Point Services list into a Table, and link a table to a Windows Share Point Services list.

Protecting information

Help protect against potentially unsafe Visual Basic for Applications (VBA) code by setting the macro security level. You can set the security level so That you are prompted every time that you open a database containing VBA code, or you can automatically block databases that are from unknown sources.

Platform Specification

Operating System

An Operating System is a collection of computer programs that control, how the computer works. It can also be defined as the software, which acts as a traffic cop, directing requests and information to add from the various devices within a single PC. The OS handles disk requests (read and write) keyboard translations, memory accesses, peripheral accesses and many other functions.

Windows 2000

Windows 2000 Server includes improved network, application, and Web services. It provides increased reliability and scalability, lowers your cost of computing with powerful, flexible management services, and provides the best foundation for running business applications.

Windows 2000 Administration Tools, included on the Windows 2000 Server and Windows 2000 Advanced Server compact disc sets, you can manage a server remotely from any computer that is running Windows 2000.Windows 2000 Administration Tolls contains Microsoft Management Console snap-ins and other administration tools that are used to manage computers running Windows 2000 Server, and which are not provided on Windows 2000 Professional.

This is based on the client-Server architecture. Benefits of this Operating

System is as follows

- More intuitive interface.
- Better multitasking and multithreading.
- Clients can be attached to workstations.
- Plug-and-Play technology.
- Higher level of security.
- NTFS-a powerful NT File System.

CHAPTER 3

SYSTEM ANALYSIS

INTRODUCTION

System analysis is concerned with investigating and analyzing which is used to gain an understanding of the existing system and what is required. It is a general form refers to orderly structured process for identifying and problem solving.

System analysis is the application of the systems approach to problem solving using computers. The ingredients are systems elements, processes, and technology. This means that to do systems work, one needs to understand the systems concept and how organizations operate as a system.

System analysis is a process related to four significant phases namely study phase, design phase, development phase and operation phase. The definition of the system analysis is not only the process of analysis but also that of synthesis. System analysis is actually a customized approach to the use of the computer for solving problem.

3.1 EXISTING SYSTEM

- The company is using the third party tool.
- The tool is fully command based one.
- The user has to remember all the commands and path name of the files for entering into the database.
- It is not a user friendly system.

- Each and every move should be carefully handled else the user gets confused while they are entering the system.
- Command line interface to check in/ check out files which has difficulties.

Disadvantages in Existing System

- There is more chance for human errors to happen.
- The tool contains limited period only, which gets expiry quickly.
- Often the company cannot buy the tool.
- Developers should remember the commands then only they can access the tool.
- Less secured
- Inconsistent data
- Command oriented file retrieval
- Involves more time in version control process
- No graphical user interface screens
- Developers should know the correct path for accessing the projects.

3.2 PROPOSED SYSTEM

The proposed system is developed to overcome the common difficulties that are found in the third party tool maintained in the existing system. The system is developed in order to meet the demand requirements in the existing system.

Modules

The Four modules involved in the proposed system are as follows

      a) **Login**

      b) **Project Information Maintenance**

      c) **Change Control**

      d) **Version Control**

Login

User details should be entered into the database, and then only further process can be done. It accepts User Id, Designation and password from the user and checks for the validation. If the user is a valid person then the module guides them to the next stage. Here the user type is checked before it gets logged. There are three types of users use the tool namely the Project Leader, Administrator and the Developer.

Project information maintenance

A project is a collection of files that you store in the database. The existing projects are uploaded into the CMS database. Each project has separate table that maintains the entire details. You can add, delete, edit, and share files within and among projects. A project has much in common with an operating system folder, but has better support for version tracking.

Change control

The human procedures and automated tool to provide a mechanism for the control of change. Flag like (CHECK–IN, CHECK–OUT) is maintained. CHECK–

OUT is used to come out from the database and change is made. CHECK- IN is used to enter the database and make appropriate version control mechanisms are used to create the next version. Before that the files should be sent to project leader for approval, if the status is ok then the developer can CHECK-IN the files into database.

Version Control

This module gives the information like version number, project name, developer's name\ id, date\time. The old version will be maintained in the database which the developer can access for further modification. Here the team coordination is maintained like making sure that only one person is modifying a file at a time.

Features of proposed system

- Easy to work
- Centralized Database System
- Compatible for processing simultaneous changes made by the developer.
- Users are granted rights for use of the centralized database as per their usage
- User can access the version control detail to get the old version of the needed files.

Advantages

- Developer work is reduced
- Analyzing of reports are done easily
- User friendly because it a GUI (Graphical User Interface) based.
- Less chance for human errors to happen
- Time consumption is reduced
- Decreases processing overheads
- Admin work is reduced, it can be easily managed.

3.3 MODULE FUNCTIONALITIES

Login Module

This module consists of following functionalities:

> Allows only registered user to use the system.

> The whole system is managed by the administrator.

> Very user interactive one.

> Gets the User Type and Password and based on the type of user accessing rights are obtained.

> Accepts user request if the above is valid.

> Allows the user to access all the services if he is an administrator.

> Displays related screens for type of users involved in the system.

Project Information Maintenance Module

This module consists of following functionalities:

- Uploading the existing project into the database.
- Creating table for each project which is saved in the database.
- Each project contains number of files which is depending on their size.

Process:

□ Administrator Rights

- Add, delete user in the system.
- Have rights to change the password.
- Giving rights to the user for accessing the files
- Entire work is done by the admin.

□ Project Leader Rights

- All the files in the database are accessible.

- Within the project the PL have all rights.
- Giving rights to the user for accessing the files

❏ Developer Rights

- Can only access the files which are allotted to the appropriate person.
- The operations like check –in, check-out, edit, view can be done.

Change Control Module

This module consists of following functionalities:

- When a user get the files from the database it checks whether the related things are accessible to the user, if it satisfied then a working folder is created under the local machine of the users development environment .
- Working folder consist of the files which is selected by the user.
- The files check -out into a environment for modification, after the work is finished the selected files should be check -in into the database.
- If the files didn't check – in into the database means other persons cannot access the files.
- In case a person is check-out into a file means another person cannot access the same file.

Version Control Module

This module consists of following functionalities:

- **Team Coordination** - making sure, by default, that only one person at a time is modifying a file. This prevents files from accidentally being replaced by another user's changes.

- **Version Tracking** - tracking old versions of source code and other files, which can be retrieved for bug tracking and other purposes.

- **Reusable** - tracking which programs use which modules so that code can be reused.

- **Version Number** - These are internal numbers maintained by the system. The user has control over these numbers. If it is not mentioned, by default it is assumed by the system. Every version of every file and project in CMS has a version number.

3.4 FEASIBILITY STUDY

The main purpose of feasibility study is to determine whether the problem is worth solving. Feasibility study is high-level capsule version of the extra system analysis and design process. The success of a system also lies in the amount of feasibility study done on it. There are three main feasibility tests performed. They are

Operational Feasibility

During feasibility analysis, operational feasibility study is necessary as it ensures that the project developed is successfully implemented in the

organization. According to software engineering principles, operational feasibility or in other words usability should be high. A thorough analysis is done and found that the system is operational.

Technical Feasibility

Technical feasibility takes care of the technical issues that are to be tested to see whether the system is feasible. Technical feasibility analysis makes a comparison between the level of technology available and the technology that is needed for the project. The level of technology is determined by factors such as the software tools available, the machine environment, platform etc since, the resource required for the development of the project is already available in the organization, and this project is technically feasible.

Economical Feasibility

This is the most important aspect that has to be critically evaluated. The costs and benefits have to be estimated. Considering the cost factor, since the client is ready to pay a reasonable amount, which will be more than the cost of developing the system, the system will be economically feasible.

CHAPTER 4

SYSTEM DESIGN

INTRODUCTION

The most important and challenging phase of the system life cycle is system design. The design focuses on the detailed implementation of the system. The first step in system design phase is to determine how the outputs are produced and in what format. Secondly, input data and the tables have to be designed to meet the requirements of proposed system.

System Design is the process of developing specifications for a system that meet the criteria established in system analysis. The major step in design is the preparation of input design and design of output reports in a form acceptable by the user. System Design includes input to the system and the speed of retrieval of data.

Design is the first step of the development of the system. Design will be perfect only if the data collection is done properly with out errors. Design is the base of the development of the system. Once the design phase is over then coding for this design can be done. While designing all possibilities of the system is taken into consideration.

4.1 DATA FLOW DIAGRAM

Data flow diagrams are commonly used during problem analysis and design. A DFD shows the flow of data through a system. It views the system as a function that transforms the inputs into desirable outputs. A DFD aims to capture the transformation that takes place within a system into output data so that eventually

the output data is produced. The agent that performs the transformation of data from one state to another is called a process (Bubble). The processes are shown by named circles and dataflow are represented by named arrows. A square defines a source or destination of system data. An open rectangle is a data source.
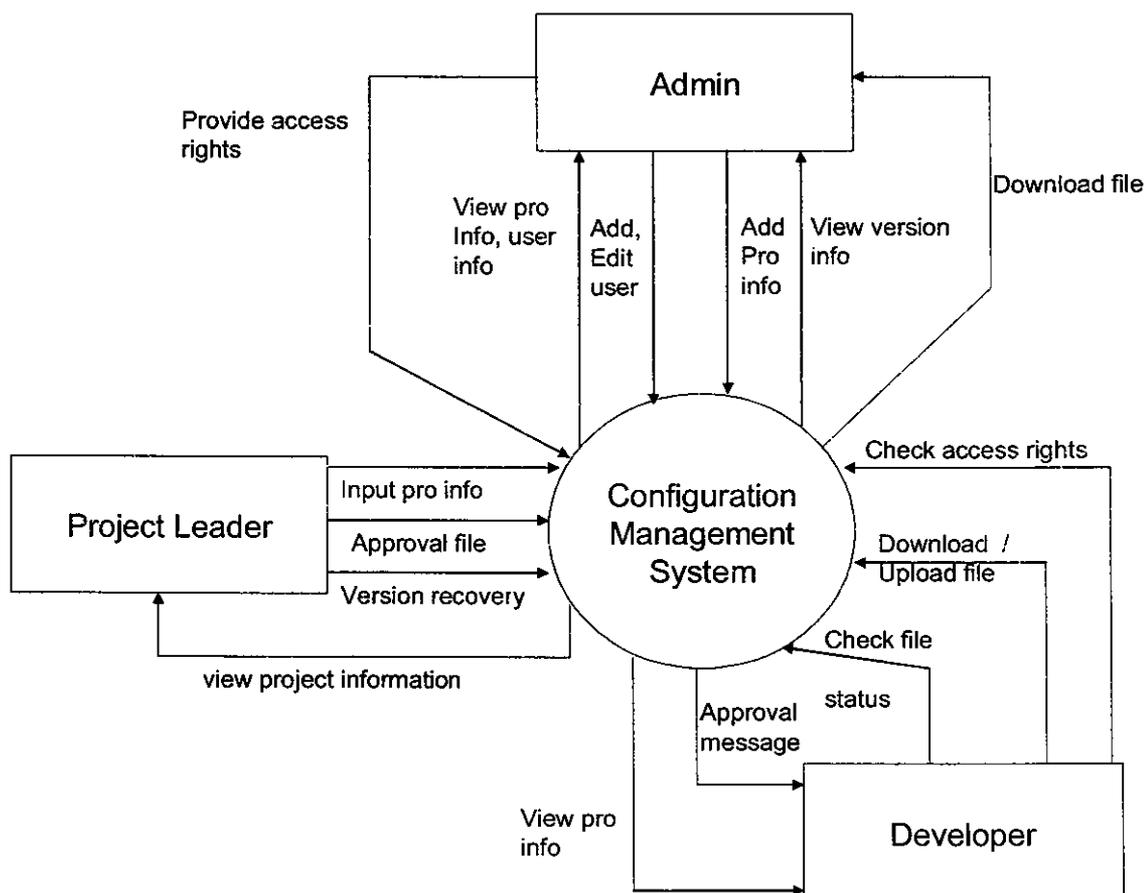
CONTEXT FLOW DIAGRAM

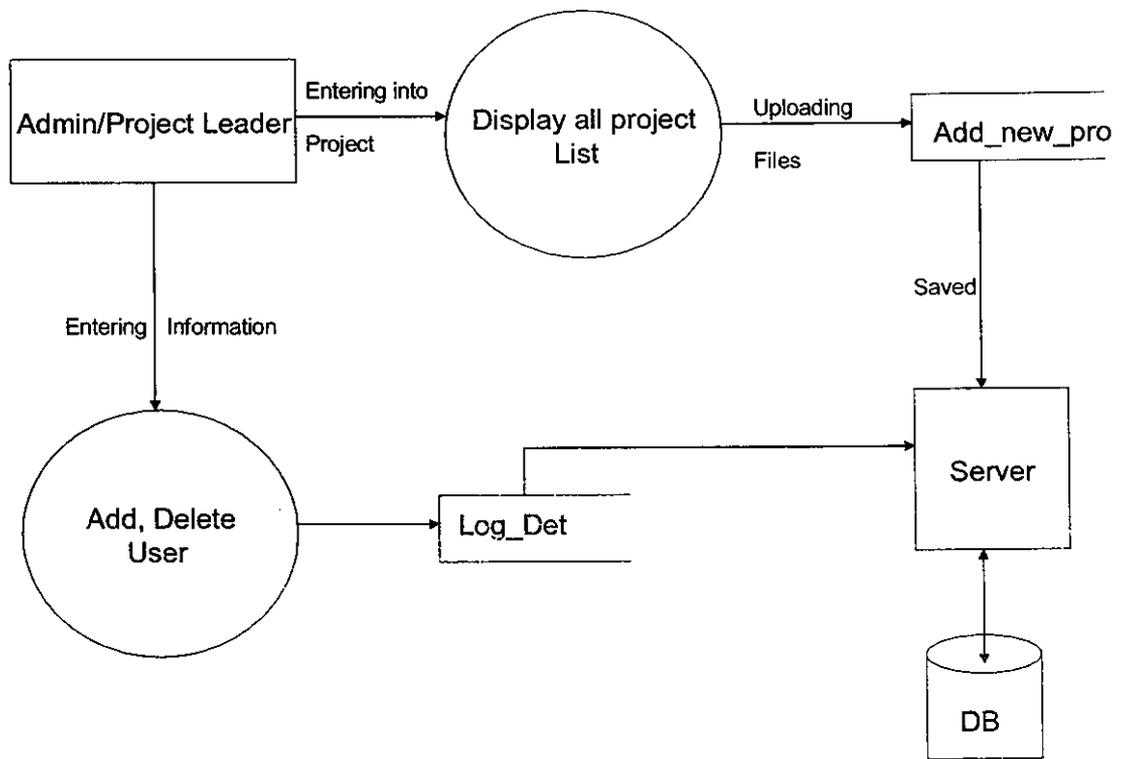

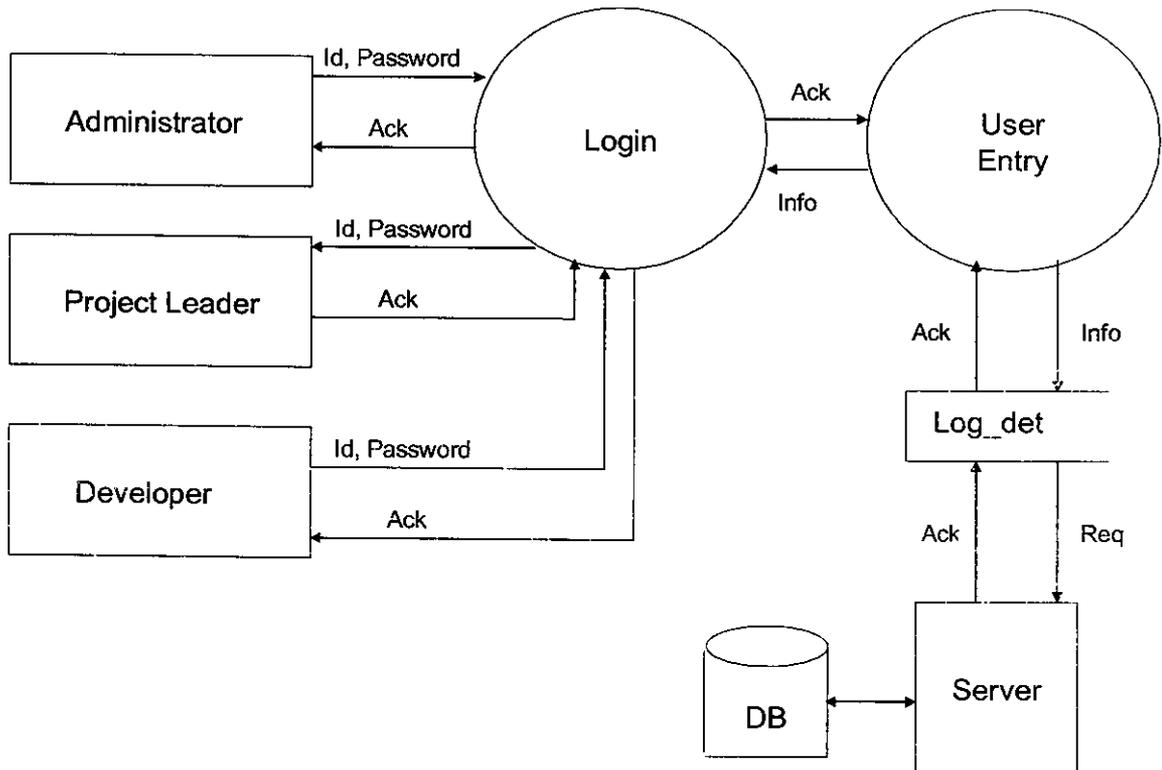**Figure 4.1.1 DFD Context Flow Diagram**
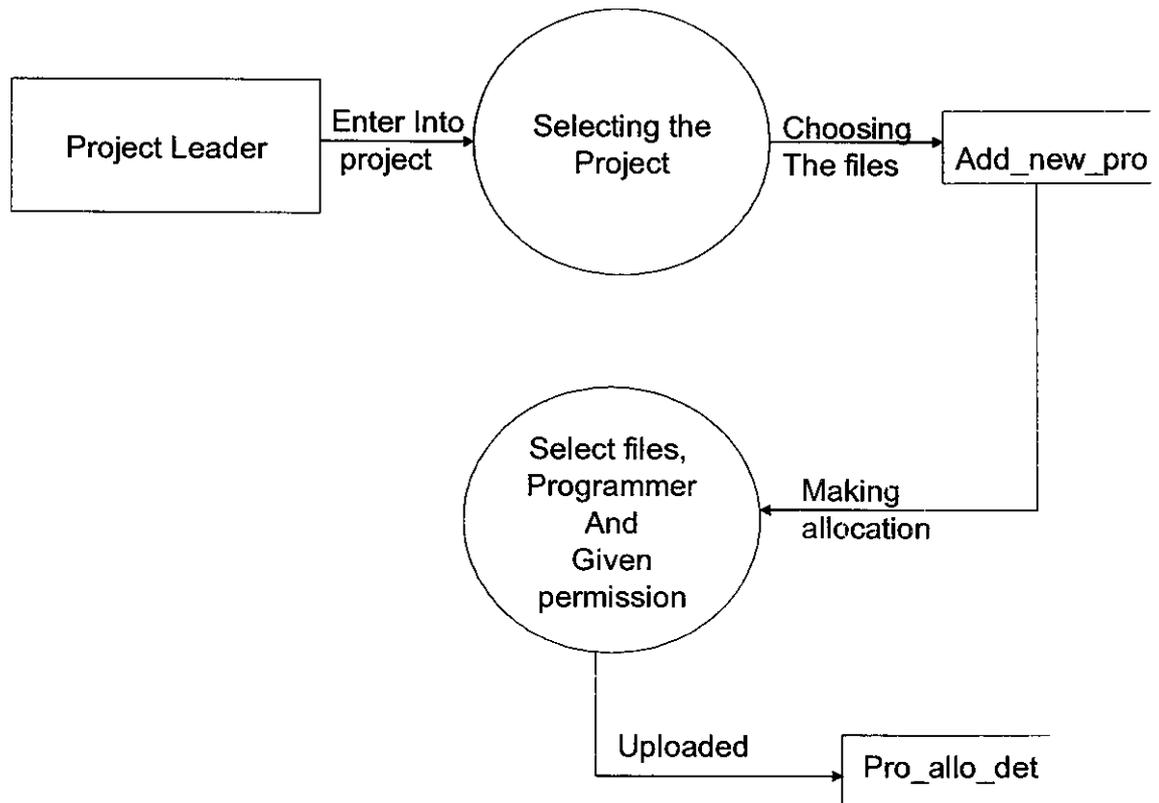
ADDING PROCESS

Figure 4.1.2 ADDING PROCESS

LOGIN PROCESS

Figure 4.1.3 LOGIN PROCESS

ALLOCATION PROCESS

Figure 4.1.4 ALLOCATION PROCESS
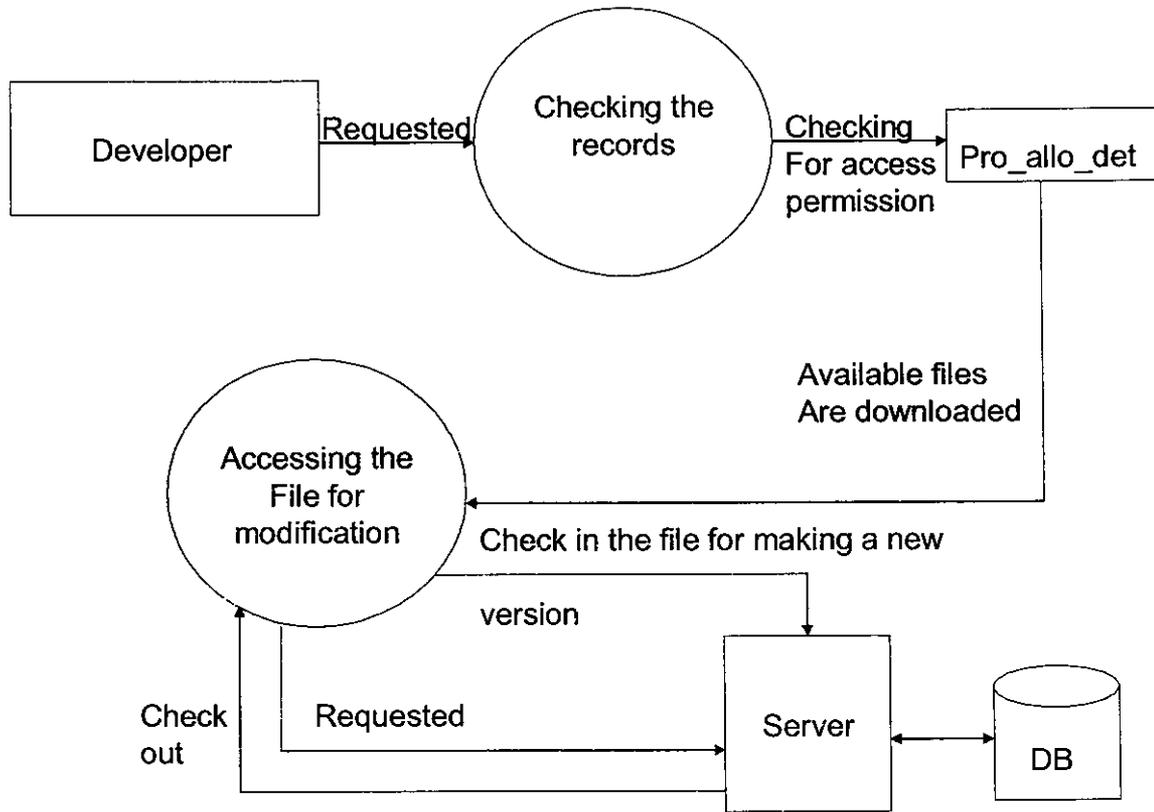
CHECK-IN AND CHECK-OUT PROCESS

Figure 4.1.5 CHECK-IN AND CHECK-OUT PROCESS

4.2 DATABASE DESIGN

TABLE NAME: LOG_DET (Login Detail)

#	Field Name	Field Type	Constraint	Max Len
1	User_Id	Text	Primary	6
2	Password	Text	-	10
3	Designation	Text	-	15

TABLE NAME: PRO_ALLO_DET (Project Allocation Detail)

#	Field Name	Field Type	Constraint	Max Len
1	Project _Id	Text	Foreign	10
2	Project Name	Text	-	20
3	Allotted By	Text	-	15
4	Allotted To	Text	-	15
5	Files	Text	-	3
6	Date Allotted	Date/Time	-	8
7	Status	Text	-	10
8	Version	Number	-	3
9	Comments	Text	-	50
10	Date_ Check In	Date/Time	-	8
11	Date_ Check Out	Date/Time	-	8

TABLE NAME: ADD_PRO_DET (Add Project Details)

#	Field Name	Field Type	Constraint	Max Len
1	Project _Id	Text	Primary	10
2	Project Name	Text	-	20
3	File Name	Text	-	15
4	Hosted By	Text	-	15
5	Created Date	Date/Time	-	8
6	Version	Number	-	3
7	Path	Text	-	1
8	File Content	Memo	-	Maximum

TABLENAME: PRO_LIST_DET (Project List Detail)

#	Field Name	Field Type	Constraint	Max Len
1	Project Name	Text	-	20
2	Project Id	Number	-	3

4.3 INPUT AND OUTPUT DESIGN

INPUT DESIGN

Input design is the process of correcting a user-oriented description of the inputs to a computer based one. Inaccurate data is one of the most common causes of data processing errors. If poor input design, particularly where operators enter data from source documents permit wrong data to enter into a computer system, then it will change the entire process in an unpleasant way consists of

- The field length is well documented. The field length is specified correctly such that the data entered will not exceed the allocated space and or numeric data is right justified.
- The sequence of field matches the sequence of data or type of data which is going to be entered.
- The data format is well identified for entering or specifying the data's

In this system, the screen includes appropriate labels or prompts for data entry. The system also includes some screen design rules that are important for user satisfaction. They are given below.

1) The same format is used with related screens; users can identify easily where the selections are made while entering the needed things.
2) The screen is not over crowded. Often too neat, and eye pleasing. It facilitates the user to identify the labels easily and enter the data's.
3) Provides validation instructions if the user enters a numeric field in a character field.
4) The consistent terminology is used which coordinate forms and screen designs.

5) Hence the input design will be easy to follow and does not induce errors. The screen designs are viewed in appendix.

OUTPUT DESIGN

Outputs from a system can be defined as the information being processed and then generated by the system in a specified format. Output design serves the best information source of any system. Once the output is designed it would serve for present and future references. Outputs are carefully designed such that it gives an error free output format.

All reports are generated. Some reports are separate for each user which is only generated upon requests. The following reports and forms are expected to be generated:

- Project adding detail
- Check out status report
- Check in status report
- Uploading/Downloading file
- File status
- Project summary report
- Latest/Old version details
- Project allocation details.

The above outputs can be got using the computerized system and layouts are specified clearly. All system users will access the system to get the various reports available. Some reports are only available to the Administrator. Others are available to the Project Leader and their Developer. Within these reports mentioned several other reports are also been generated.

CHAPTER 5

IMPLEMENTATION

INTRODUCTION

System implementation is considered to be the most crucial stage in objective to find how the successful new system will work and be effective. A crucial phase in any system is the System Implementation, which means that a new system design is converted in to operations. Conversion of Command Line Based system in to a new Graphical User Interface based system is known as System implementation.

The implementation is made such that to create accurate information and reports that helps the company to communicate easily through the system without finding any difficulties. The system should be implemented with the technique of planning and Control. A detailed correct plan should be defined over the system and the flow of control is implemented in such a way that meets the requirements.

The following are the different phases involved in system implementation such as verification, validation, system testing, and maintenance.

5.1 VERIFICATION

The verification is used to run the system in the stimulated environment using stimulated data. The stimulated test is to primarily looking for error and omission regarding end user and design specification. The verification procedure is to check each record, data item or field against certain criteria. The system should be verified

and validated at each of the software process using documents produced during the previous stage.

Verification is rebuilding the product right. Verification involves the checking program confirms to each specification. Verification starts with requirement review and continuous through design and code review to product testing. To satisfy the objectives static and dynamic techniques of system checking and analysis should be used. The system has been verified using sample data for all the modules.

There are two techniques known as **Static** and **Dynamic** technique.

Static technique is concerned with analysis and checking of system representations such as design diagram, requirements document. **Dynamic technique** or test involves an effective implementation of the system. However static technique was not used in the project and only dynamic technique was used successfully.

5.2 VALIDATION

Validation checking is the quality of software in both simulated and live environments. The may ordered as follows

Consistency check

Consistency check refers to the relevance of one type of data to another. For example when the user enters project name, then all relevant information about the project will be immediately placed in form.

Reasonableness check

Reasonableness check evaluates a transaction against a standard to determine it meets the test. For example, when a user enters field size that more than the limit, then immediate alert will be shown.

Sequence check

Sequence check verifies that data records are in sequence prior to processing. A check of duplicate records may also be incorporated in the routine.

5.3 SYSTEM TESTING

System testing makes a logical assumption that if all the part of the system is correct and the goal will be successfully achieved. System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live commences.

There should be careful planning how the system will be proved and the test data designed. During system testing, the system is used experimentally to ensure that the software does not fail. In other words, we can say that it will run according to its specifications and in the way users expect.

It is desirable to discover any surprises before the organization implements the system and depends on it. Software testing accounts for the largest percentage of technical effort in the software process. Yet we are beginning to understand the subtleties of systematic test planning, execution and control. The objective of system testing is to uncover errors. To fulfill the objective the system testing is done in the following three phases.

Unit Testing

Unit testing focuses verification effort on the smallest unit of the software design the module. The local data structure is examined to ensure that data stored temporarily maintains its integrity. Boundary conditions are tested to uncover the errors of the module within the boundary.

Integration Testing

After the complete testing of all modules, they are put together and integrated. The primary concern is the compatibility of individual modules. The specification for data type, length and name in each module is also tested for compatibility.

Stress Testing

Once all the modules are subjected to stress test, to confront programs with abnormal situations. The various stress tests may be based on choosing large tables with large number of fields. Several users were allowed to access the database simultaneously and the system survived this test successfully.

All the modules of this system were successfully tested using test data as well as real data collected. All the reports and the screens are tested for their validity and values in the database tables are checked for their correctness and consistency. After successful testing of the system, it was ready for implementation.

5.4 MAINTENANCE

The process of making changes and modifications to the system after it has been delivered implemented and is in use called software maintenance.

Corrective Maintenance

It is concerned with fixing reported errors in software. They are coding errors and design errors.

Adaptive Maintenance

It is concerned with changing the software to source and to adapt to the new and changing environment.

Defective Maintenance

It involves implementing new functioned or non-functional system requirements to ensure more effective execution of the system.

Perceptive Maintenance

It mainly deals with accommodating new or changed users requirements. It also includes activities to increase the system performance or to enhance its user interface. The objective of perceptive maintenance should be to prevent failures and optimize the software.

Preventive Maintenance

It concerns activities aimed at increasing the system's maintainability such as updating documentation adding comments, improving modular structure of the system.

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENT

CONCLUSION

An attempt has been made to change the Configuration Management System into Graphical User Interface and is implemented at HCL Technologies, Chennai, up to the satisfactions of the company. The necessary reports are generated for the view of Developers and Other users over Intranet. Before the introduction of proposed systems the works were done through the command line based system. The Graphical User Interface system have the screens to ease the work of the developers like the path name and commands are as GUI type, all relevant information's and it is found that it has successfully overcome the pitfalls in the existing system.

Comparative analysis is carried out and it is viewed that the new system is successfully working for the test data provided by the users and they hope that the software will be extremely helpful to the company. Finally I thank the Department of Computer Science and Engineering for providing me a good opportunity to carry out this project work with the guidance of staff.

FUTURE ENHANCEMENT

The company requirements can be change, due to that they can update the system for further development.
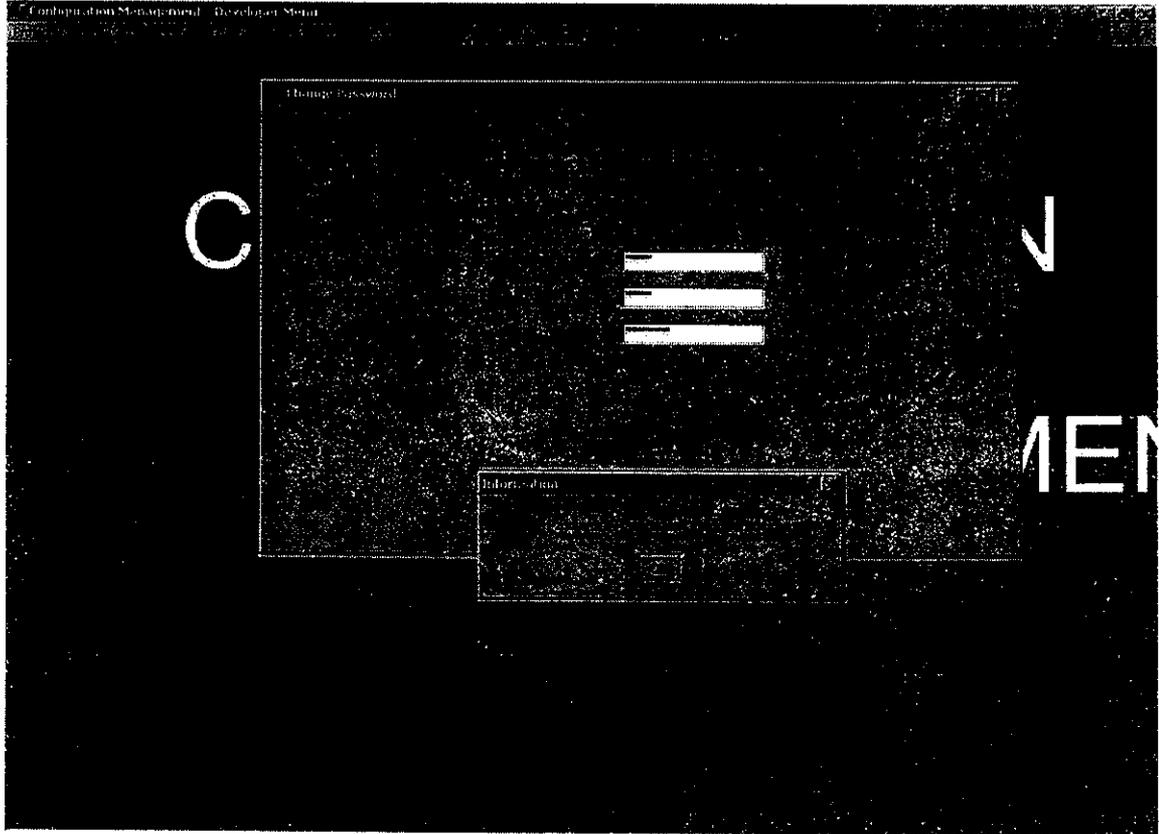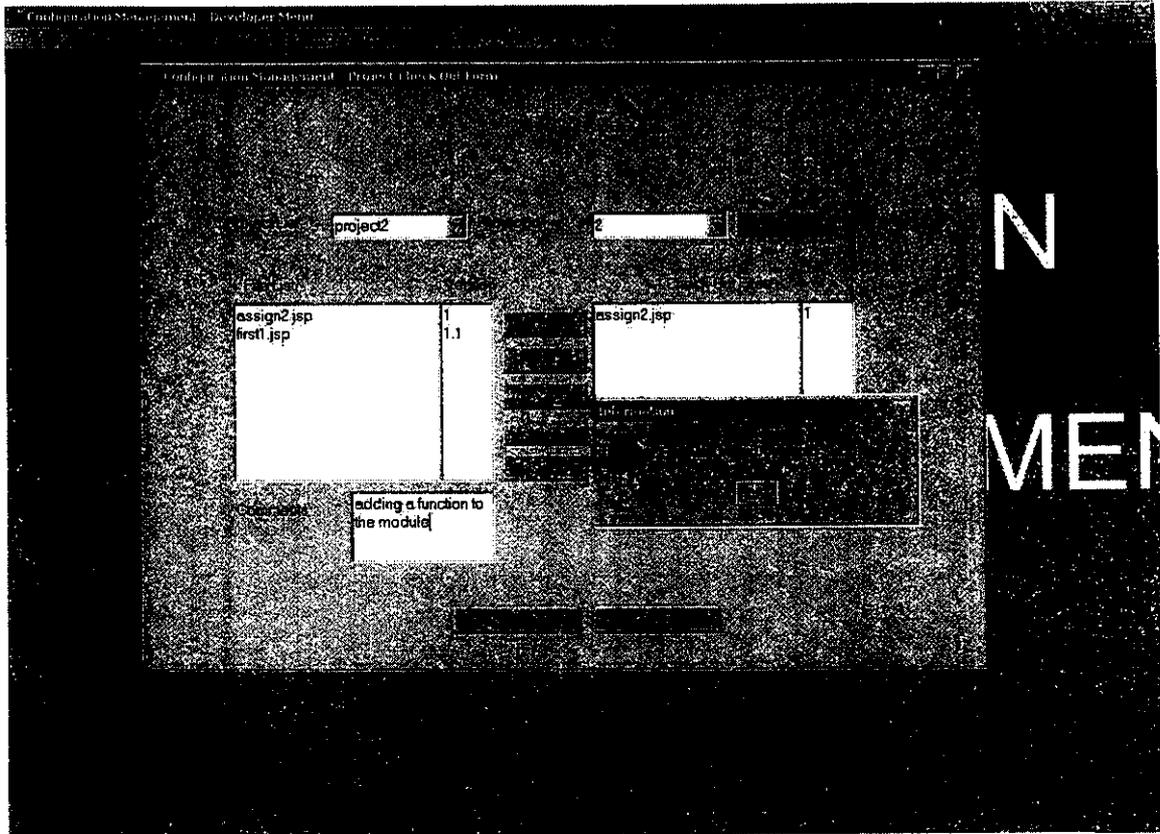
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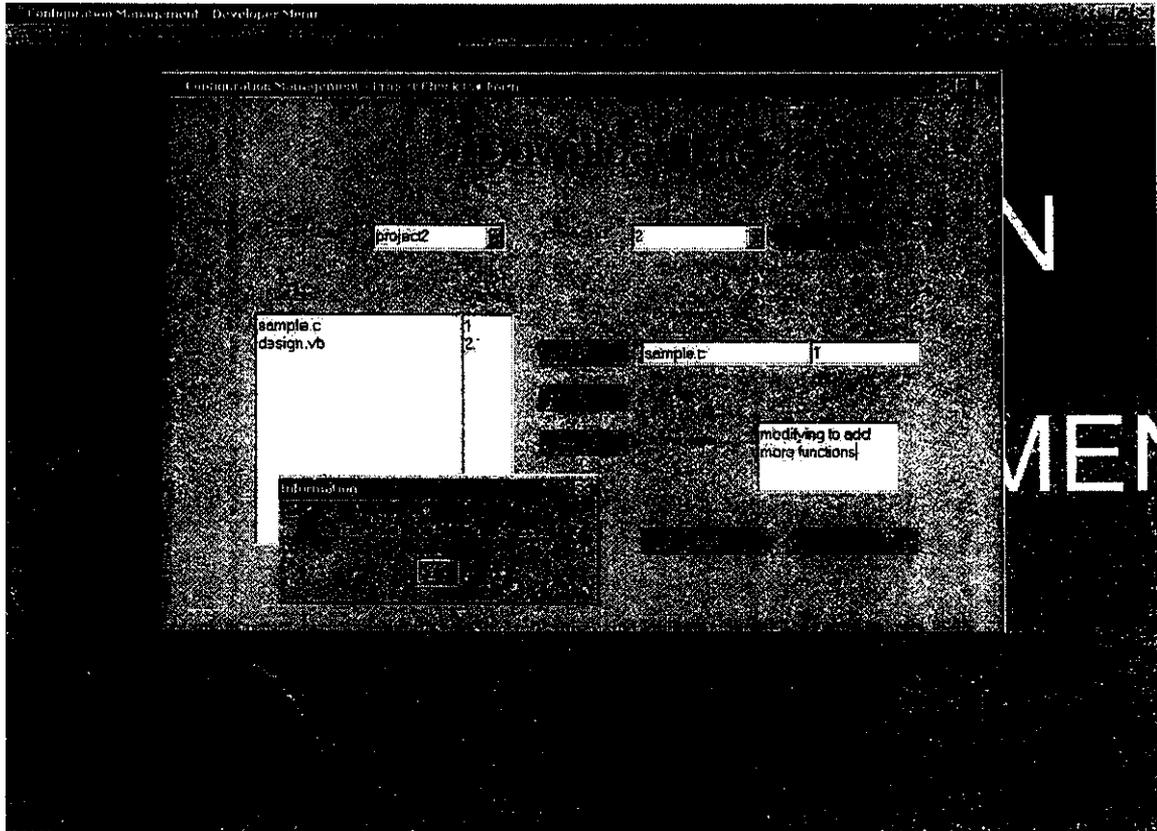
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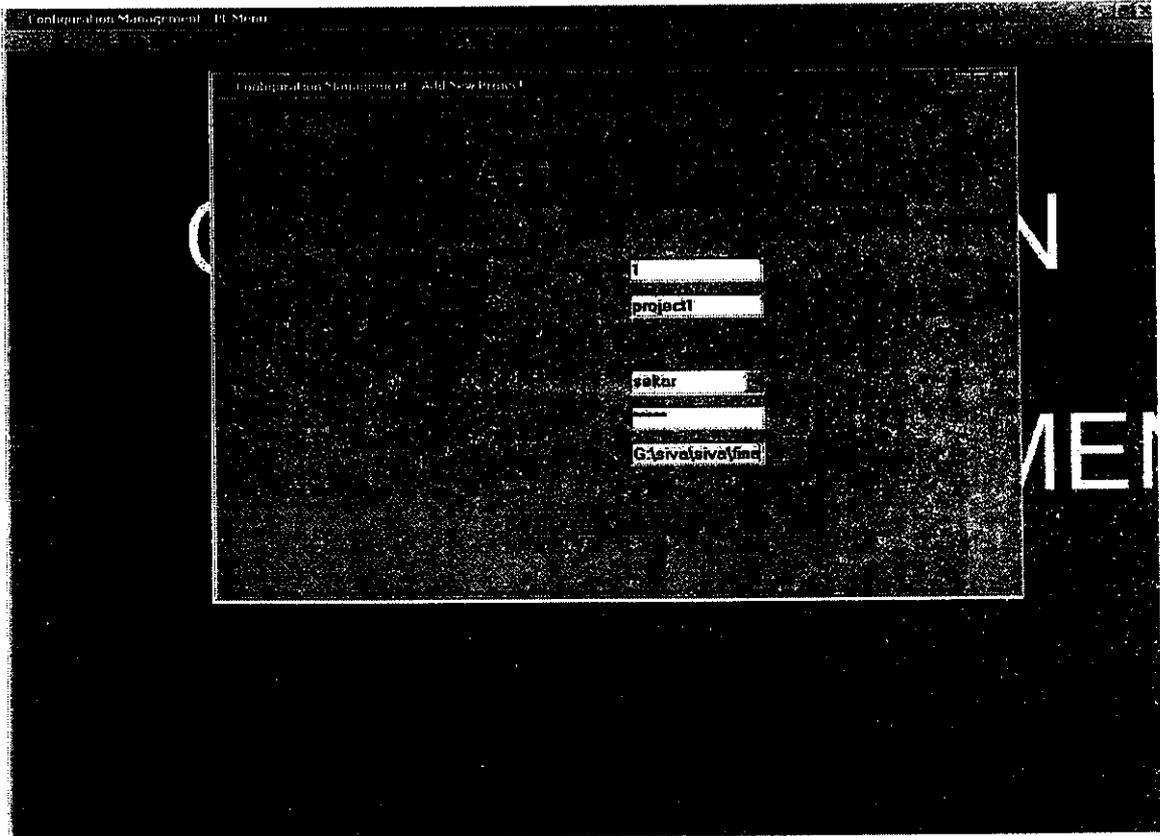
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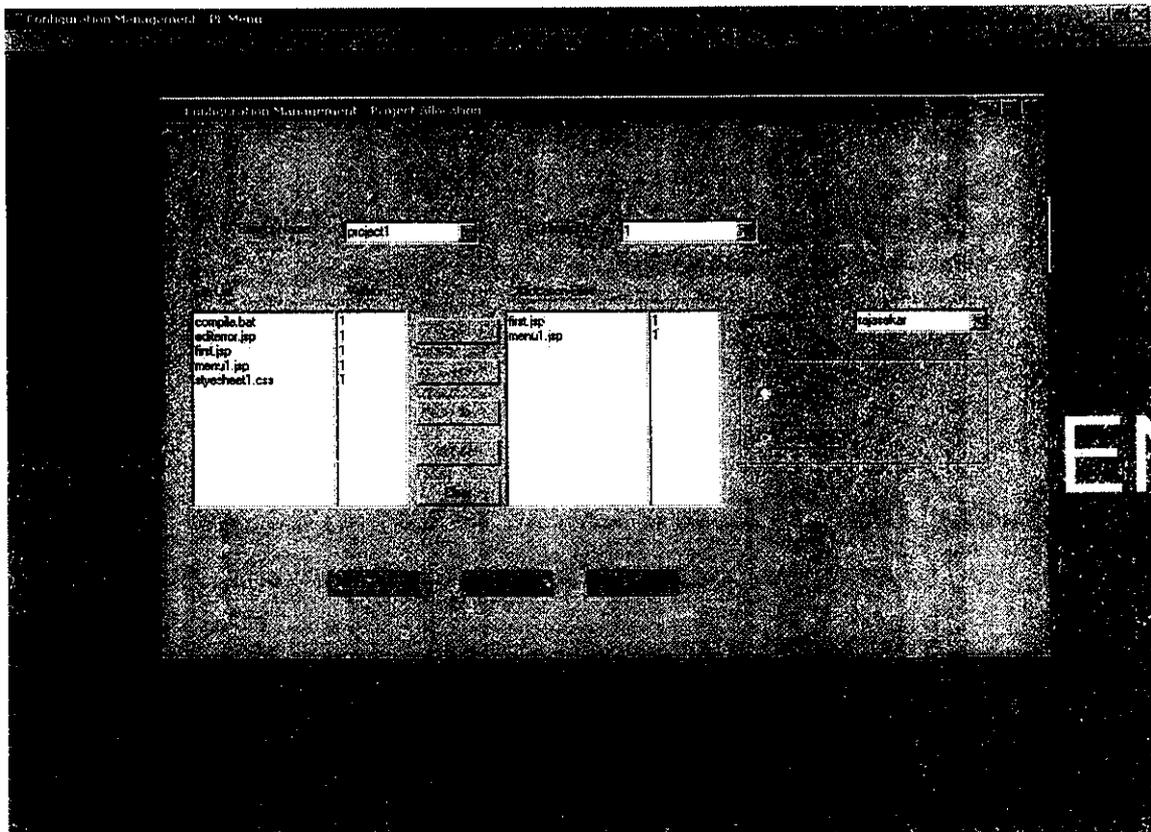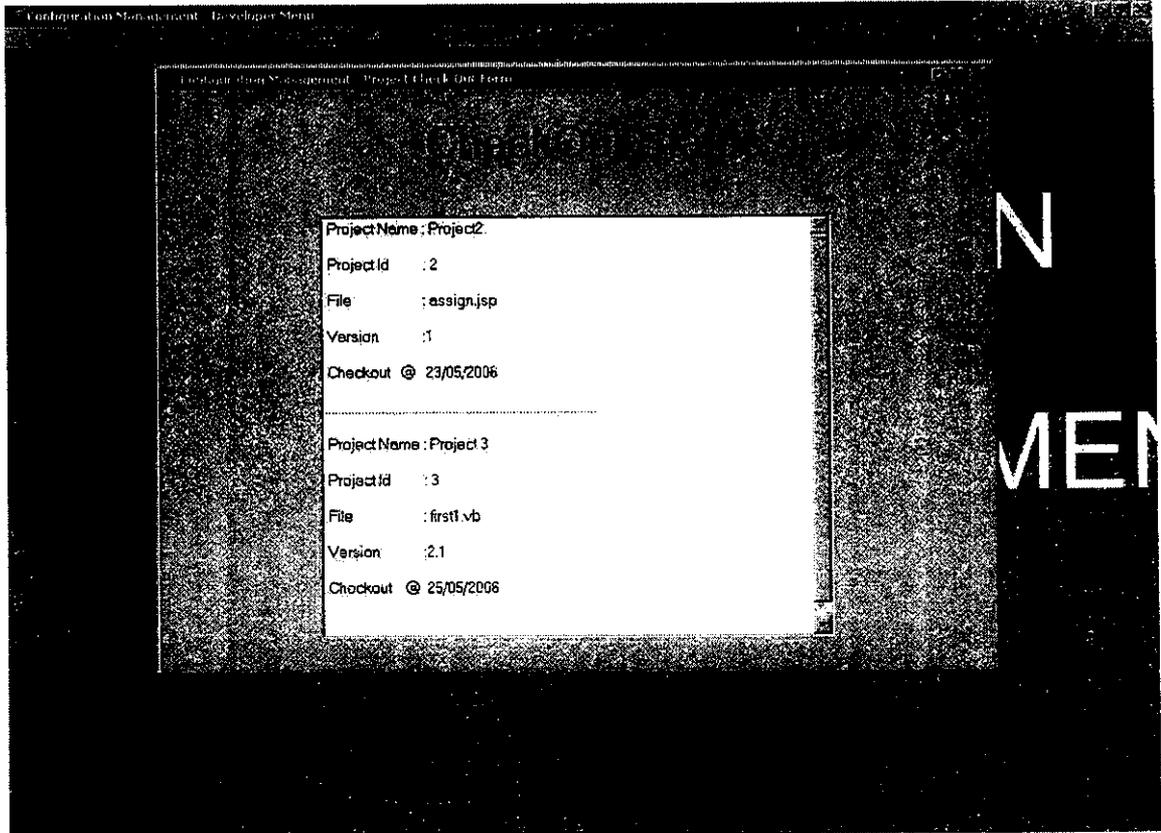
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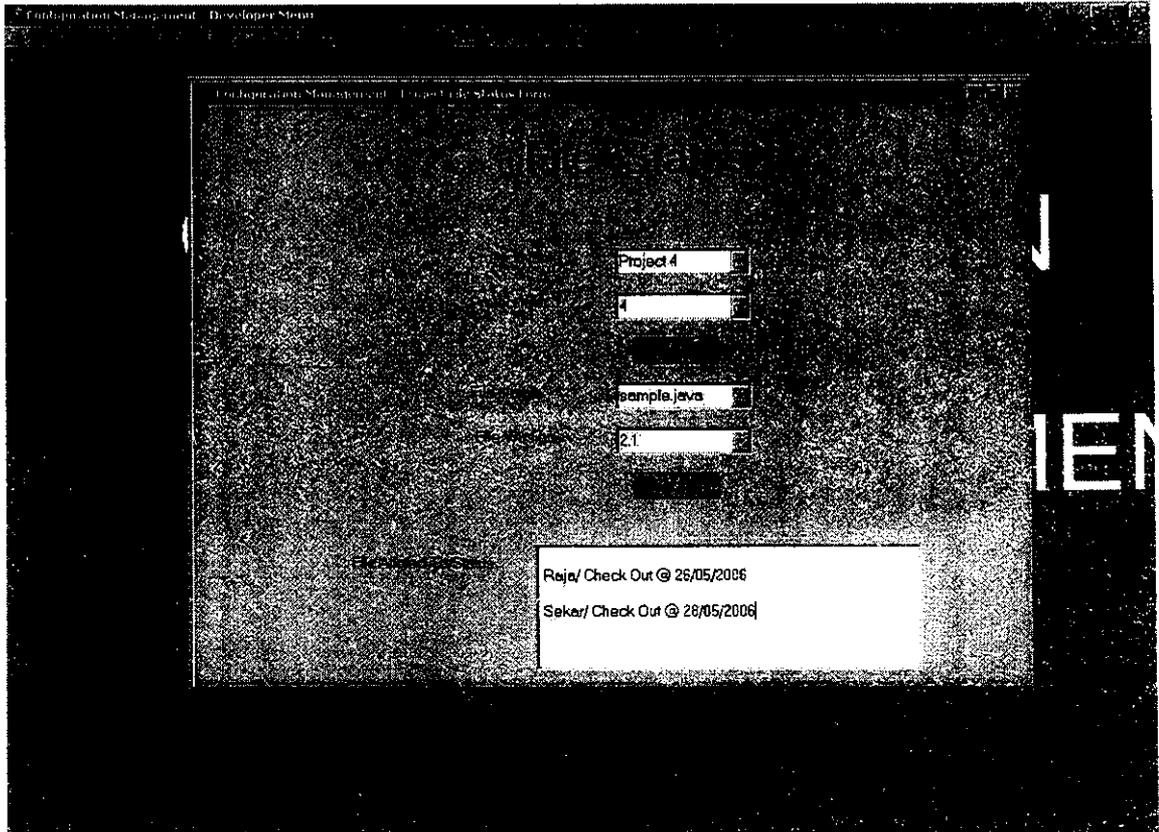
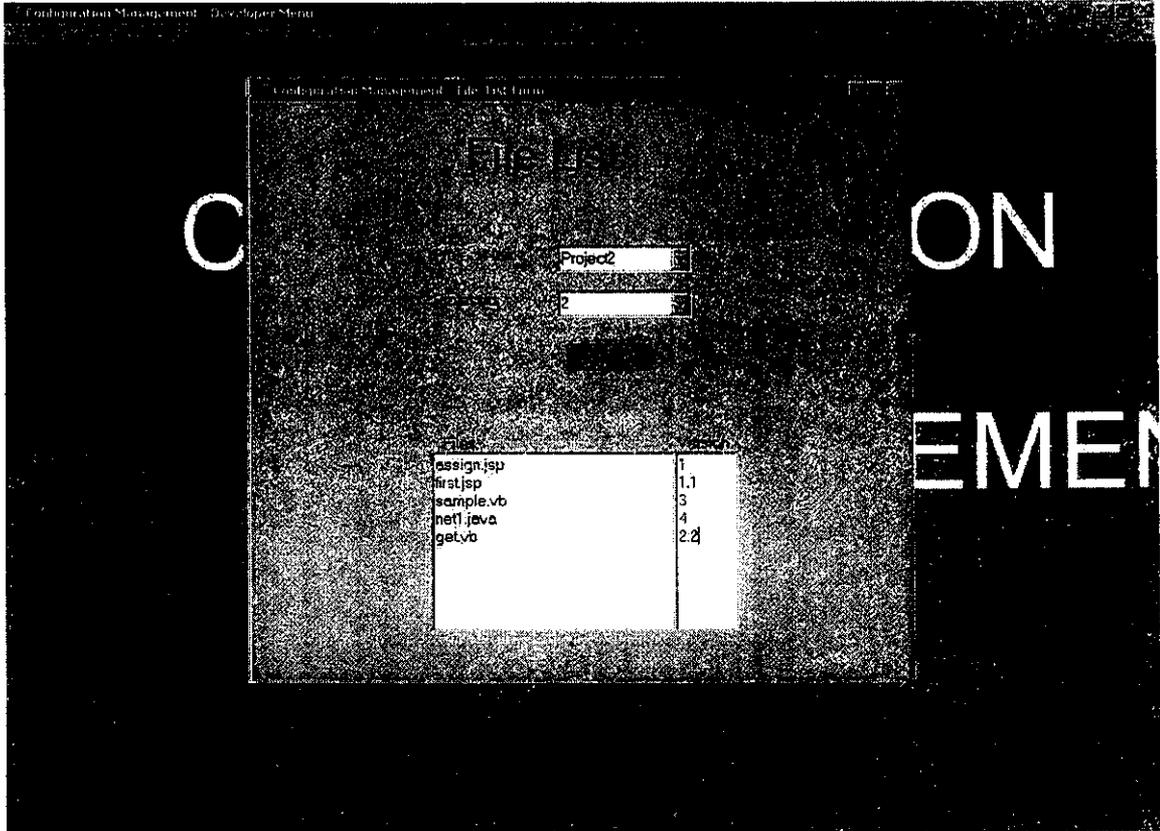Change Password Form

Developer Checkout Form

Download Form

Check Out Status Form

File Status Form

File List Status

REFERENCES

BOOKS

[1] Roger S.Pressman (1995), 'Software Engineering-A Practitioner's Approach', Tec media

[2] James A Senn (1986), 'Analysis and Design of Information Systems', Tata McGraw-Hill Book Co

[3] Fergal Grimes (2001), Microsoft .NET for Programmers

[4] Mathew McDonald (2002), "VB.NET Complete Reference", Tata McGraw-Hill

Websites

http://www.en911.com/ebook/1-1.htm

http://samples.gotdotnet.com/QuickStart/aspplus/default.aspx?url=/quickstart/aspplus/doc/default.aspx