

PROJECT REPORT
ON
STOCK MANAGEMENT SYSTEM
IN
MICROSOFT .NET

**SUBMITTED FOR THE PARTIAL FULFILLMENT OF THE AWARD OF THE DEGREE OF
MASTER OF COMPUTER APPLICATION**

GUIDE

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CANDIDATE'S DECLARATION

I hereby declare that the work presented in the report entitled "**Stock Management System**" for the fulfillment of the requirement for the award of the degree of *Master of Computer Application*, submitted to the Department of Computer Science, Kanya Gurukul Campus, Dehradun (*second campus of Gurukul Kangri Vishwavidyalaya, Haridwar*), submitted by me in the department computer center, NIH ROORKEE is the original work conducted by me and all data and facts contained in this report are original to the best of my knowledge.

The matter embodied in this report has not been submitted by me for the award of any other degree/examination.



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ABSTRACT

The project STOCK MANAGEMENT SYSTEM is designed to handle the warehousing stocks and this software application maintain the records that include good stock going in and out and other related issues. The present system is based on manual technique and this project tends to automate the system so that maintaining the records of good stock, goods in and got out becomes easier than before. To maintain the stock records also this software is the most ideal. Transactions that are related to returns, goods out and goods in can be maintained manually and presently the mountain of customers and suppliers accounts are also done in the manual system.

All these processes should be done in an automated manner and for that we require an application so that all the data can be logically and relatively used for accurate outcomes. This system should able to replace the existing technique without any specific moderation and problems Plus. This application should able to provide quick readings of maintenance. The system must able to give reviews that are important and related to the business so than expansion can take place easily by comparing. Reports should also be provided that showcase the details of related issues which will facilitate to the important business decisions.

This company uses a huge data base so for security of database we give the facility of backup and also recovery as per when company need it takes backup on floppy or on hard disk.

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CHAPTER - 1

1 INTRODUCTION

1.1 PROFILES OF NIH

The National Institute of Hydrology, the premier Institute in the area of hydrology and water resources in India. The Institute was established in 1978 with the main objective of undertaking, aiding, promoting and coordinating systematic and scientific work in all aspects of hydrology. The Institute has its Headquarters at Roorkee (Uttarakhand), four regional centres at Belgaum, Jammu, Kakinada and Bhopal and two centres for Flood Management Studies at Guwahati and Patna. The Institute is well equipped to carry out computer, laboratory & field oriented studies.

1.1.1 THE ROLE AND FUNCTIONS OF NIH

- •To undertake, aid, promote and coordinate systematic and scientific work on all aspects of hydrology
- •To cooperate and collaborate with other national, foreign and international organizations in the field of hydrology
- •To establish and maintain a research and reference library in pursuance of the objectives of the Society and equip the same with books, reviews, magazines and other relevant publications.
- To do all other such things as the Society may consider necessary, incidental or conducive for the attainment of the objectives for which the Institute has been established.

1.1.2 AREAS OF SPECIALIZATION

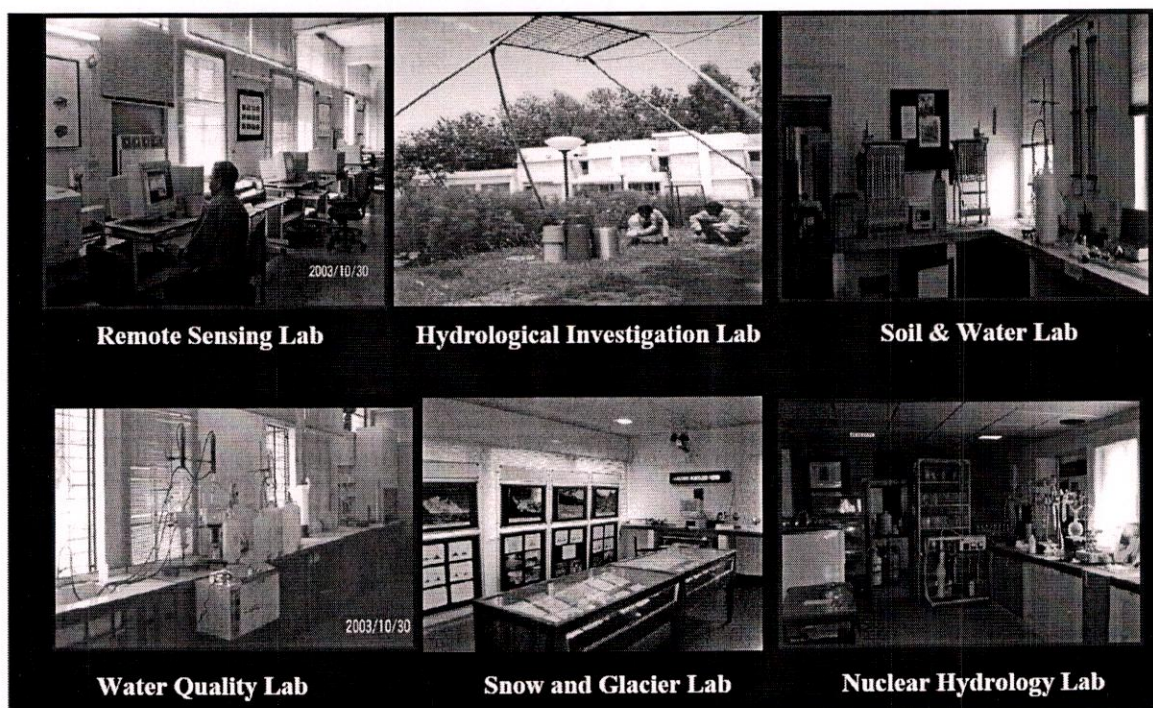
- Environmental Hydrology

- Ground Water Hydrology
- Surface Water Hydrology
- Water Resources Systems
- Hydrological Investigations

1.1.3 ACTIVITIES

- Basic, Applied And Strategic Research
- Software Development
- User Defined, Demand Driven Research Projects
- Consultancy
- Technology Transfer

1.1.4 INFRASTRUCTURE



1.1.5 ABOUT COMPUTER CENTRE:-

The Computer Centre is responsible for providing computing, networking, internet and email facilities to Scientists and Staff at the Institute. Computing has become an essential tool for almost all scientific research. Computers of

latest configuration are available in the Institute for conducting complex hydrological analyses and modeling studies. Internet and email facilities are routinely utilized for accessing scientific literature as well as for correspondence. The Institute also uses computers for processing of administrative and accounting data. The centre procures and provides maintenance to computers and related peripherals available with the Scientists and Staff.



The local area network (LAN) provides interconnectivity between the computers in different building blocks of the campus. The network comprises of switches in various blocks and UTP connections to individual machines. The LAN is connected to Internet by a 200 Mbps leased line link from BSNL.

VSAT connectivity from ERNET India also exists for email communication. A centralized server receives and stores/forwards emails to respective users. A dedicated web server (www.nih.ernet.in) provides a platform for hosting institute information, research publications, important announcements, tender

notices etc. and some useful hydrology related information. To maintain the integrity and security of Institute's network, a firewall restricts access from outside to machines within the LAN. All the facilities existing at the Computer Centre are upgraded from time to time to meet the evolving standards of Information Technology.

1.2 BRIEF INTRODUCTION OF THE PROJECT

The *Stock Management System* is a real-time inventory database capable of connecting multiple stores. This can be used to track the inventory of a single store, or to manage the distribution of stock between several branches of a larger franchise. However, the system track the inventory, records sales and restocking data and provides notification of low stock at any location through email at a specified interval. The goal is to reduce the strain of tracking rather than to handle all store maintenance. The system also, provides solutions for confirming the store inventory and for correcting stock quantities.

1.2.1 PROBLEM DEFINITION

It is too hard to maintain the record about the daily intake of the raw material and view it in detail as a whole. The improvement in the production cannot be viewed easily when done manually. A record about the production when once created is too hard to delete. This is mainly designed for the manufacturing companies. It improves its business by facility of maintaining the record. Its password setting of the administrator helps to improve security. It helps the user to view the details of the stock of various categories and the sales of their requirement.

1.2.2 OBJECTIVE OF THE PROJECT

In today's changing life style computer has become the most essential part of life. Most of the works being performed by the humans is now done by the computer. The following objectives of the project are described below-

- The main goal of Stock Management System is to ensure consistent availability of supplies for consumers. Thus, Stock Management System is directed toward owners of small to large stores and stock managers who are responsible of maintaining raw materials, sufficient goods on hand in a retail or manufacturing business and end product.
- It can scale from a single computer running both client and server software up to multiple stores and warehouses.
- It helps in the stock management for maintaining database and generating report on the basis of as per requirement.
- So, we can say that it helps the management of stock and give exact database management of company according to rules and regulation.
- It also help in maintain stock data and also display how many products are present in the stock and also gives the details of these products .
- This s/w also gives or stores each and every information about orders.

1.3 HARDWARE AND SOFTWARE REQUIREMENTS

Following section discusses in brief the hardware and software that are used for the development of the software as well as required for running the software.

1.3.1 HARDWARE USED

- Processor: Core i3 or higher.
- Drive: 500GB or higher.
- RAM : 2GB or higher.

1.3.2 SOFTWARE USED

- Front-End Design: Visual Studio 10.0
- Back-End Database: Microsoft SQL Server
- Operating System: Windows 7 or higher.

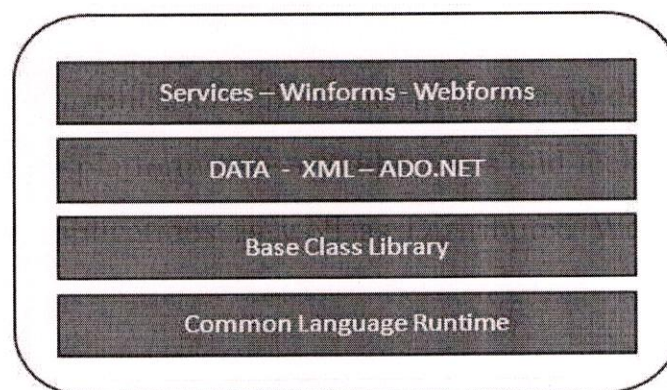
1.4 TECHNOLOGY USED

This section introduces various software package/tools and languages used for implementation of the software.

1.4.1 MICROSOFT .NET FRAMEWORK

The .NET Framework provides a comprehensive programming model for building all kinds of applications, from mobile to web to desktop. The Microsoft .Net Framework is a platform that provides tools and technologies you need to build Networked Applications as well as Distributed Web Services and Web Applications.

The .Net Framework provides the necessary compile time and run-time foundation to build and run any language that conforms to the Common Language Specification (CLS). The main two components of .Net Framework are Common Language Runtime (CLR) and .Net Framework Class Library (FCL).



The Common Language Runtime (CLR) is the runtime environment of the .Net Framework that executes and manages all running code like a Virtual Machine. The .Net Framework Class Library (FCL) is a huge collection of language-independent and type-safe reusable classes.

The development tools in the SDK use the .NET Framework to allow you to quickly build and deploy robust applications that take advantage of the new

common language runtime environment. Using the tools in the .NET Framework SDK provides the following four benefits:

- Fully managed and feature-rich application-execution environment.
- Application integration through ASP.NET.
- Improved isolation of application components.
- Simplified application deployment.

1.4.2 C#.NET

C# (pronounced "C sharp") is a simple, modern, object-oriented, and type-safe programming language. It will immediately be familiar to C and C++ programmers. C# combines the high productivity of Rapid Application Development (RAD) languages and the raw power of C++.

Visual C# .NET is Microsoft's C# development tool. It includes an interactive development environment, visual designers for building Windows and Web applications, a compiler, and a debugger. Visual C# .NET is part of a suite of products, called Visual Studio.NET, that also includes Visual Basic.NET, Visual C++ .NET, and the JScript scripting language. All of these languages provide access to the Microsoft .NET Framework, which includes a common execution engine and a rich class library. The .NET Framework defines a "Common Language Specification" (CLS), a sort of lingua franca that ensures seamless interoperability between CLS-compliant languages and class libraries. For C# developers, this means that even though C# is a new language, it has complete access to the same rich class libraries that are used by seasoned tools such as Visual Basic .NET and Visual C++ .NET. C# itself does not include a class library.

As an object-oriented language, C# supports the concepts of encapsulation, inheritance, and polymorphism. All variables and methods, including the Main

method, the application's entry point, are encapsulated within class definitions. A class may inherit directly from one parent class, but it may implement any number of interfaces. Methods that override virtual methods in a parent class require the **override** keyword as a way to avoid accidental redefinition. In C#, a struct is like a lightweight class; it is a stack-allocated type that can implement interfaces but does not support inheritance.

In addition to these basic object-oriented principles, C# makes it easy to develop software components through several innovative language constructs, including the following:

- Encapsulated method signatures called *delegates*, which enable type-safe event notifications.
- Properties, which serve as accessors for private member variables.
- Attributes, which provide declarative metadata about types at run time.
- Inline XML documentation comments.
- Language-Integrated Query (LINQ) which provides built-in query capabilities across a variety of data sources.

If you have to interact with other Windows software such as COM objects or native Win32 DLLs, you can do this in C# through a process called "Interop." Interop enables C# programs to do almost anything that a native C++ application can do. C# even supports pointers and the concept of "unsafe" code for those cases in which direct memory access is absolutely critical.

The C# build process is simple compared to C and C++ and more flexible than in Java. There are no separate header files, and no requirement that methods and types be declared in a particular order. A C# source file may define any number of classes, structs, interfaces, and events.

ADO.NET Overview

- ADO.NET is an evolution of the ADO data access model that directly addresses user requirements for developing scalable applications. It was designed specifically for the web with scalability, statelessness, and XML in mind. ADO.NET uses some ADO objects, such as the **Connection** and **Command** objects, and also introduces new objects. Key new ADO.NET objects include the **Dataset**, **Data Reader**, and **Data Adapter**. The following sections will introduce you to some objects that have evolved, and some that are new. These objects are:
- **Connections**- For connection to and managing transactions against a database.
- **Commands**- For issuing SQL commands against a database.
- **Data Readers**- For reading a forward-only stream of data records from a SQL Server data source.
- **Datasets**-For storing, remoting and programming against flat data, XML data and relational data.
- **Data Adapters**- For pushing data into a **Dataset**, and reconciling data against a database.
- **Connections**- Connections are used to 'talk to' databases, and are represented by provider-specific classes such as **SQL Connection**. Commands travel over connections and result sets are returned in the form of streams which can be read by a **Data Reader** object, or pushed into a **Dataset** object.

1.4.3 SQL SERVER

A. DATABASE

A database management, or DBMS, gives the user access to their data and helps them transform the data into information. Such database management systems

include dBase, paradox, IMS, and SQL Server. These systems allow users to create, update and extract information from their database. A database is a structured collection of data. Data refers to the characteristics of people, things and events. SQL Server stores each data item in its own fields. In SQL Server, the fields relating to a particular person, thing or event are bundled together to form a single complete unit of data, called a record (it can also be referred to as raw or an occurrence). Each record is made up of a number of fields. No two fields in a record can have the same field name.

During an SQL Server Database design project, the analysis of your business needs identifies all the fields or attributes of interest. If your business needs change over time, you define any additional fields or change the definition of existing fields.

B. SQL Server Tables

SQL Server stores records relating to each other in a table. Different tables are created for the various groups of information. Related tables are grouped together to form a database.

Primary Key-Every table in SQL Server has a field or a combination of fields that uniquely identifies each record in the table. The Unique identifier is called the Primary Key, or simply the Key. The primary key provides the means to distinguish one record from all other in a table. It allows the user and the database system to identify, locate and refer to one particular record in the database.

Relational Database-Sometimes all the information of interest to a business operation can be stored in one table. SQL Server makes it very easy to link the data in multiple tables. Matching an employee to the department in which they work is one example. It stores data in two or more tables and enables you to

define relationships between the table and enables you to define relationships between the tables.

Foreign Key-When a field in one table matches the primary key of another field is referred to as a foreign key. A foreign key is a field or a group of fields in one table whose values match those of the primary key of another table.

Referential Integrity-Not only does SQL Server allow you to link multiple tables, it also maintains consistency between them. Ensuring that the data among related tables is correctly matched is referred to as maintaining referential integrity.

2 SYSTEM ANALYSIS

System Analysis refers into the process of examining a situation with the intent of improving it through better procedures and methods. System Analysis is the process of planning a new System to either replace or complement an existing system. But before any planning is done the old system must be thoroughly understood and the requirements determined. System Analysis, is therefore, the process of gathering and interpreting facts, diagnosing problems and using the information to re-comment improvements in the System. Or in other words, System Analysis means a detailed explanation or description. Before computerized a system under consideration, it has to be analyzed. We need to study how it functions currently, what are the problems, and what are the requirements that the proposed system should meet.

2.1 PLANNING AND REQUIREMENT

When we receive a request for a new software project from the customer, first of all, we would like to understand the project. The new project may replace the existing system such as preparation of student's semester results electronically rather than manually. Sometimes, the new project is an enhancement or extension of a current (manual or automated) system. For example, a web enabled student result declaration system that would enhance the capabilities of the current result declaration system.

2.1.1 MANUAL SYSTEM/EXISTING SYSTEM

- Structured system analysis techniques had been adopted for the analysis of the algorithm and software development.

- Structured system design techniques had been adopted for the design of the algorithm and software development.
- Prototyping model for initial implementation had been used for early testing and module development.
- Prototyping model had been used for the development of the graphical user interface.
- Structured development life cycle had been used for this project.
- PERT chart is the primary tool used for system planning.
- Test plan was created to form the strategy of testing. This includes the decision of testing techniques, decision of testing tools, and decision of milestones when the testing will commence.

2.1.2 PROPOSED SYSTEM

The following goals describe all the framework that can be carried out in this proposed system.

- Understand your customer requirement and carefully plan the help desk structure.
- Establish and implement secure, practical and cost effective policies.
- Provide ongoing comprehensive training to all levels of management and staff.
- Automation of the help desk operations should be maximized but care must be taken to ensure that this is on a cost effective basis.
- Ensure adequate staffing levels.
- Communication skills must be developed to a very high degree together with an understanding of the technical issues involved with the delivery of the organization's products and services.

- Control potential problem areas through effective change management procedures.
- The main goal of problem management is in the detection of the underlying reasons for a particular incident and the resolution and prevention of future reoccurrence of that incident through problem elimination.
- Hold regular service review meetings.

2.2 FEASIBILITY ANALYSIS

Feasibility study is defined as an evaluation or analysis of the potential impact of a proposed project or program. It is conducted to assist decision makers in determining whether or not to implement a project/program. It is based on extensive research on both the current practices and the proposed project or program and its impact on the system as a whole. It should also contain extensive data analysis related to financial and operational impact and should include advantages and disadvantages of both the current situation and the proposed project.

CHAPTER - 3

3 SYSTEM DESIGN

Designing is the most important phase of software development. It requires a careful planning and thinking on the part of the system designer. Designing software means to plan how the various parts of the software are going to achieve the desired goal. It should be done with utmost care because if the phase contains any error then that will effect the performance of the system, as a result it may take more processing time, more response time, extra coding workload etc.

Software design sits at the technical kernel of the software engineering process and is applied regardless of the software process model that is used. After the software requirements have been analyzed and specified, software design is the first of the three technical activities Designing, Coding and Testing that are required to build and verify the software. Each activity transforms information in such a manner that ultimately results in validated computer software.

3.1 ER DIAGRAMS

An entity-relationship(ER) diagram is a specialized graphic that illustrate the interrelationship between entities in a database. ER diagrams often use symbols to represent three different types of information. Boxes are commonly used to represent entities. Diamonds are normally used to represent relationships and ovals are used to represent attributes. An entity relationship model (ERM) in software engineering is an abstract and conceptual representation of data. Entity-relationship modeling is a relational schema database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion

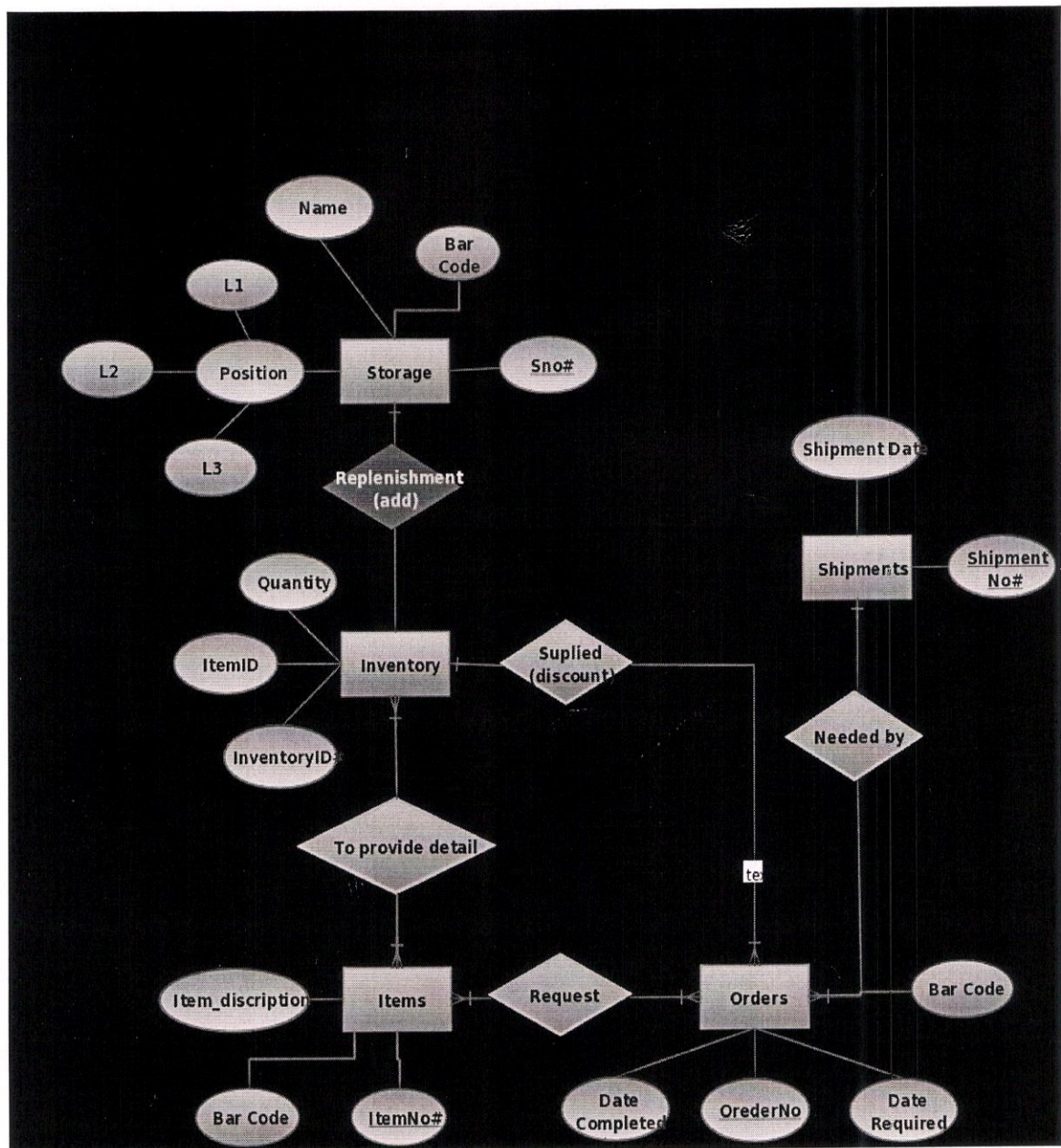


Figure 1: E-R Diagram

3.2 DATA TABLES

Usually, a collection of interrelated data is referring to as database. The database contains information about one particular enterprise. Database system is designed to shear and manage large volume of information .The management of data involves both the manipulation of information .In addition ,the database system must provide for safety information storage in the database ,despite system crashes or unauthorized access.

Login Table- In every window based system for login we required username and password so that only authorized user can access the data. Here also we have the same approach ,to login or to interact with the system we have to put login name and password.

Field Name	Field Type	Field Length
User Name	Varchar	20
Password	Varchar	45

Issue Table-By issue table we issued the product that takes place in database which we have used user id, Qty , Date of issues all fields are there.

Field Name	Field Type	Field Length
User_id	Varchar	45
Qty	Varchar	200
Date_issue	Varchar	45
Product_id	Varchar	45

Return Table- Then by return table, we will return data in this process I have used such operations like user id , date of return etc.

Field Name	Field Type	Field Length
User_id	Varchar	45
Qty	Varchar	200
Date_of_return	Varchar	45
Condition	Varchar	45
Product_id	Varchar	45

Product Table- We introduce all the information about the product in this table . And also about this what the products are available.

Field Name	Field Type	Field Length
Product_id	Varchar	45
Description_of_Product	Varchar	200
Model_no	Varchar	45

Employee Table- The main part of this project is employee table. There is a unique user id only the authorized person can access and we used such things.

Field Name	Field Type	Field Length
User_id	Varchar	45
User_name	Varchar	45
Deginsnation	Varchar	45
Division	Varchar	45
Email_id	Varchar	45

3.3 DATA FLOW DIAGRAM

A data flow diagram (DFD) is a graphical representation of the 'flow' of data through an information system. A data flow diagram can also be used for the virtualization of data processing. It is common practice for a designer to draw a context-level first which show the interaction between the system and the outside entities. This context-level DFD is then 'exploded' to show more detail of the system being modeled. A DFD represents flow of data through a system. Data flow diagrams are commonly used during problem analysis. It views a system as a function that transforms the input into desired output. A DFD shows movement of data through different transformation or processes in the system. Data flow diagrams can be used to provide the end user with a physical idea of where the data they input ultimately has an effect upon the structure of the whole system from order to dispatch to restock how any system is developed can be determined through a data flow diagram.

Context diagram

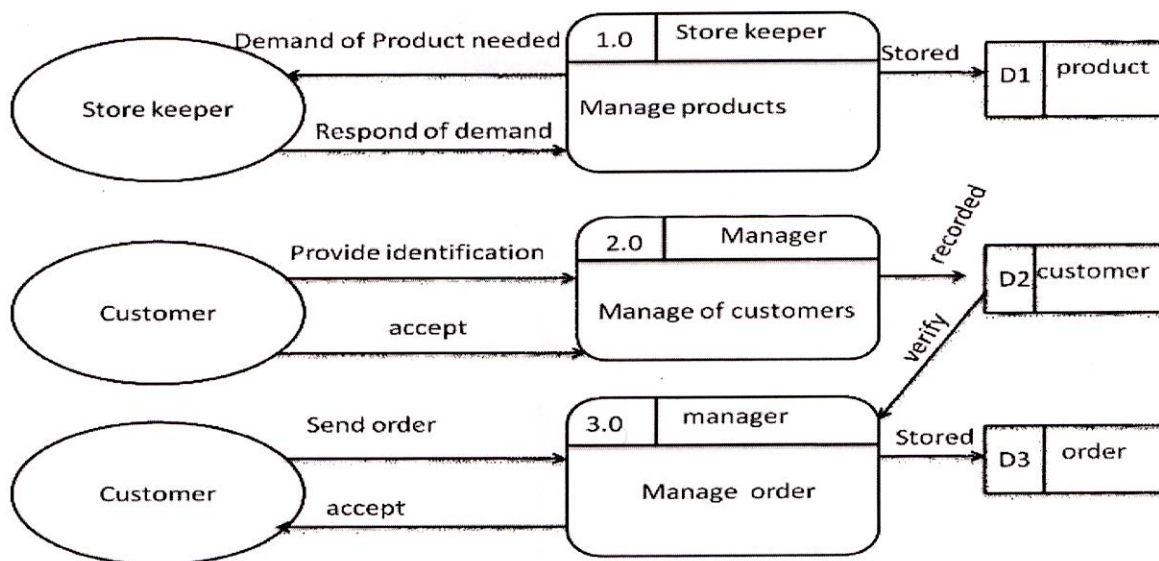


Figure 2: DFD level 0

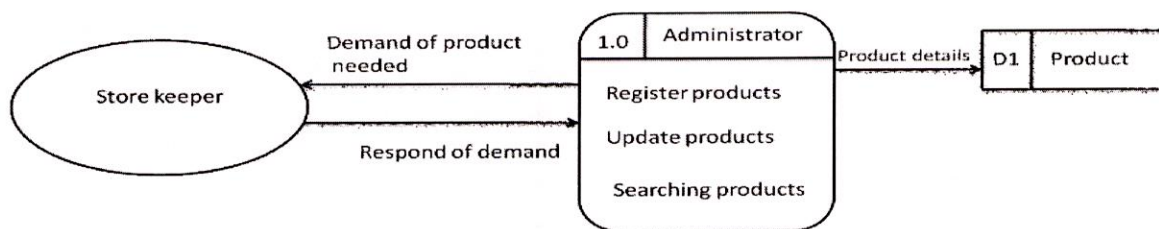
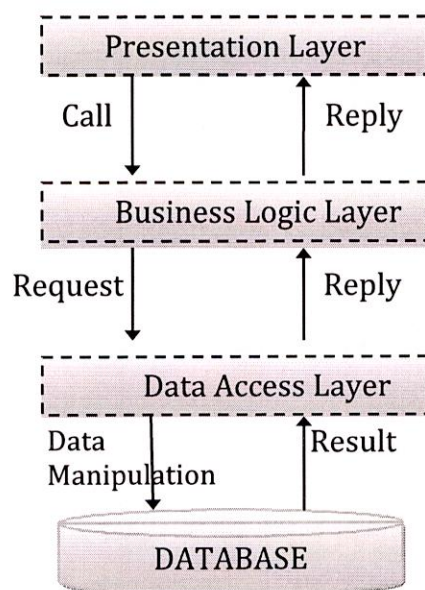


Figure 3: DFD level 1

3.4 SYSTEM FLOW CHART

Since the application will have client server architecture, it will have three- tier architecture.



User Interface – GUI Component, where data is entered and displayed

Concentration of processing modules of the program

Access to the database and retrieves information upon request

Figure 4: system flow chart

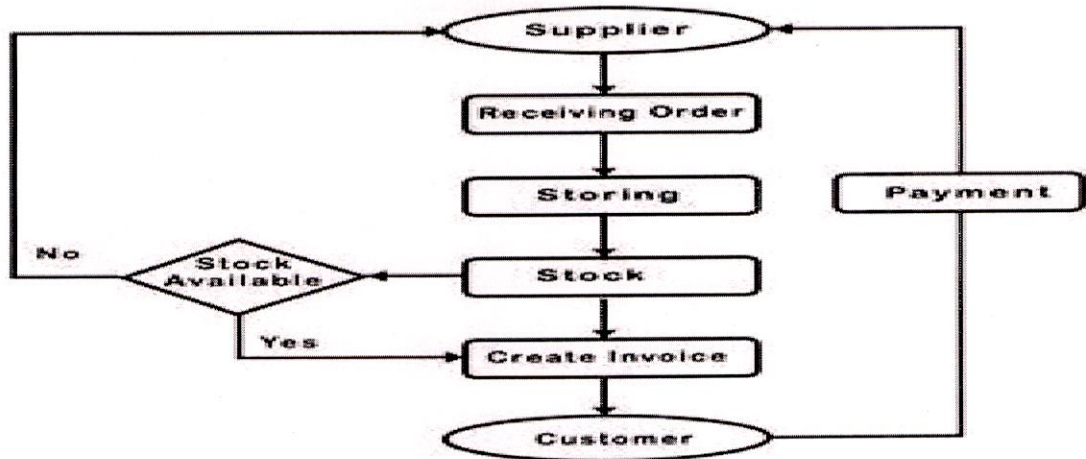


Figure 5: Stock Control Flow Chart

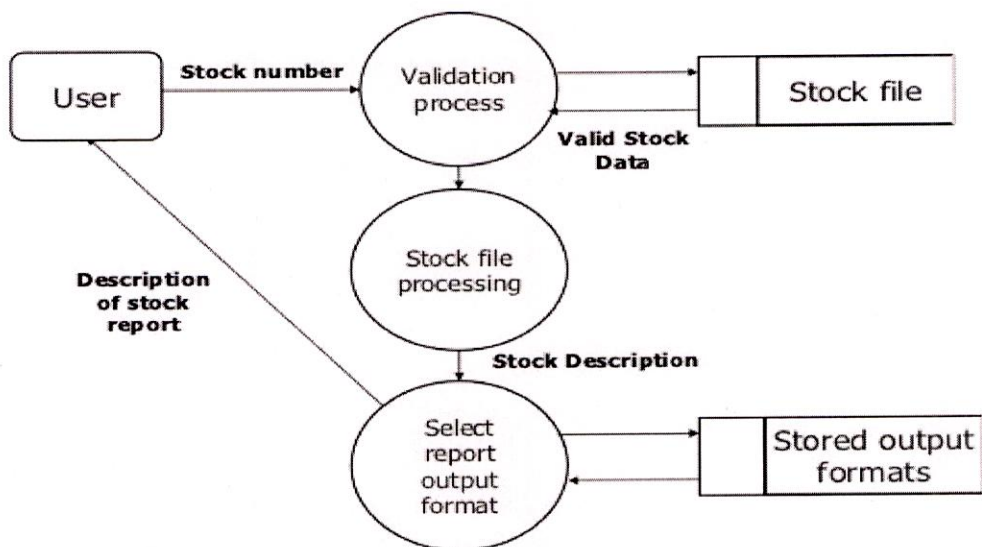


Figure 6: DFD level 2



Figure 7: System Flow Chart

4 IMPLEMENTATION

Implementation uses the design document to produce code. Demonstration that the program satisfies its specifications validates the code. Typically, sample runs of the program demonstrating the behavior for expected data values and boundary values are required. Small programs are written using the model: -

Write/Compile/ Test

It may take several iterations of the model to produce a working program. As programs get more complicated, testing and debugging alone may not be enough to produce reliable code. Instead, we have to write programs in a manner that will help insure that errors are caught or avoided.

4.1 TOP-DOWN IMPLEMENTATION

Top down implementation begins with the user-invoked module and works toward the modules that do not call any other modules. The implementation may precede depth-first or breadth-first.

4.2 BOTTOM-UP IMPLEMENTATION

Implementation begins with modules that do not call any other modules and works toward the main program. Test harness (see below) is used to test individual modules. The main module constitutes the final test harness.

4.2.1 STUB PROGRAMMING: -

Stub programming is the implementation analogue of top-down and stepwise refinement. It supports incremental program development by allowing for error and improvement. A stub program is a stripped-down, skeleton version of a

final program. It doesn't implement details of the algorithm or fulfill all the job requirements. However, it does contain rough versions of all subprograms and their parameter lists. Furthermore, it can be compiled and run. Extensive use of procedures and parameter are the difference between stub programs and prototypes. Quick and dirty prototypes should be improved--they should be rewritten. A stub program helps demonstrate that a program's structure is plausible. Its procedures and functions are unsophisticated versions of their final forms, but they allow limited use of the entire program. In particular, it may work for a limited data set. Often the high-level procedures are ready to call lower-level code, even if the more detailed subprograms haven't even been written. Such sections of code are commented out. The comment brackets can be moved, call-by-call, as the underlying procedures are actually written.

4.3 INPUT AND OUTPUT SCREENSHOT

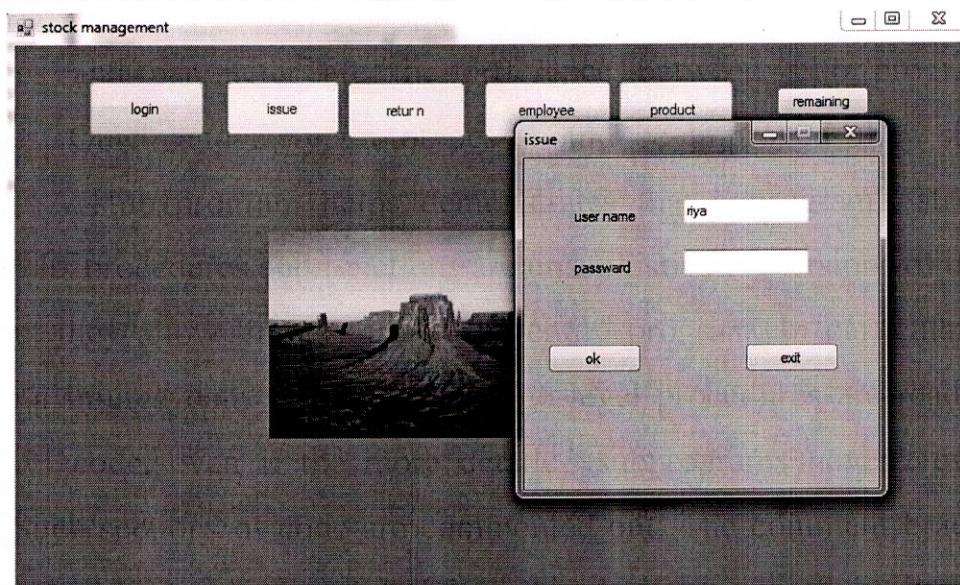


Figure 8: login process

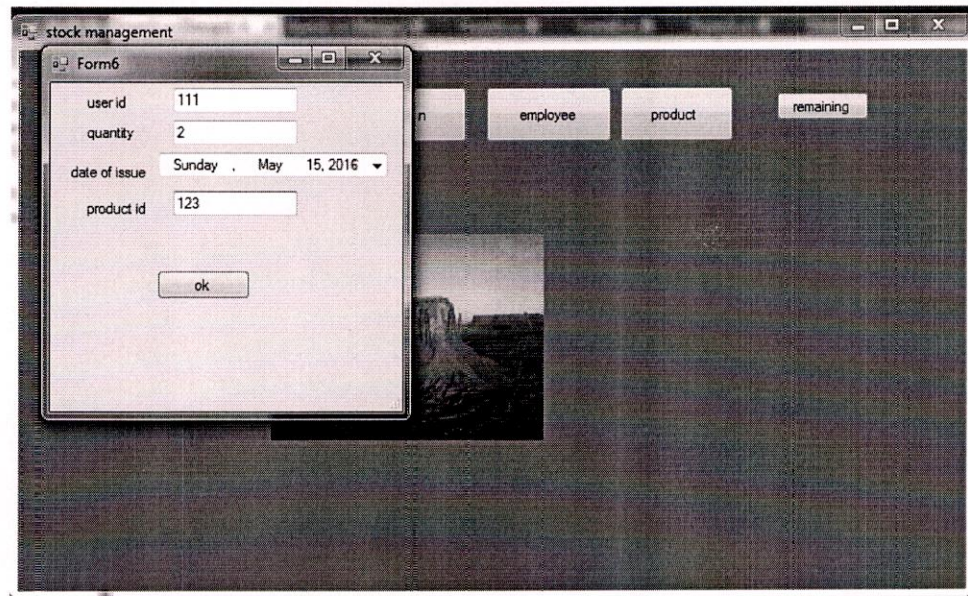


Figure 9: issue process

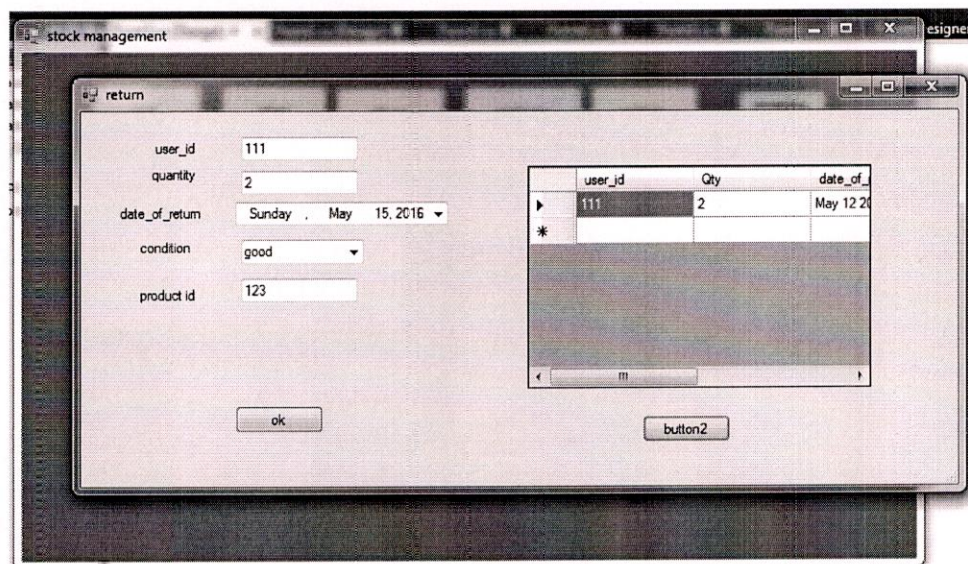


Figure 10: return process

A screenshot of a web application window titled "employee". It contains a form with the following fields and values:

Field	Value
user_id	111
user name	renu
designation	sk
division	2
email id	u.gupte@gmail.com

Below the form is an "ok" button.

Figure 11: employee process

A screenshot showing a "product" form window overlaid on a Microsoft Word document titled "stock management report". The form has the following fields and values:

Field	Value
product id	123
description of item	laptop
model no	123

Below the form is an "ok" button. The background shows the Word document's ribbon and a table with headers "return", "employee", "product", and "remaining".

Figure 12: product process

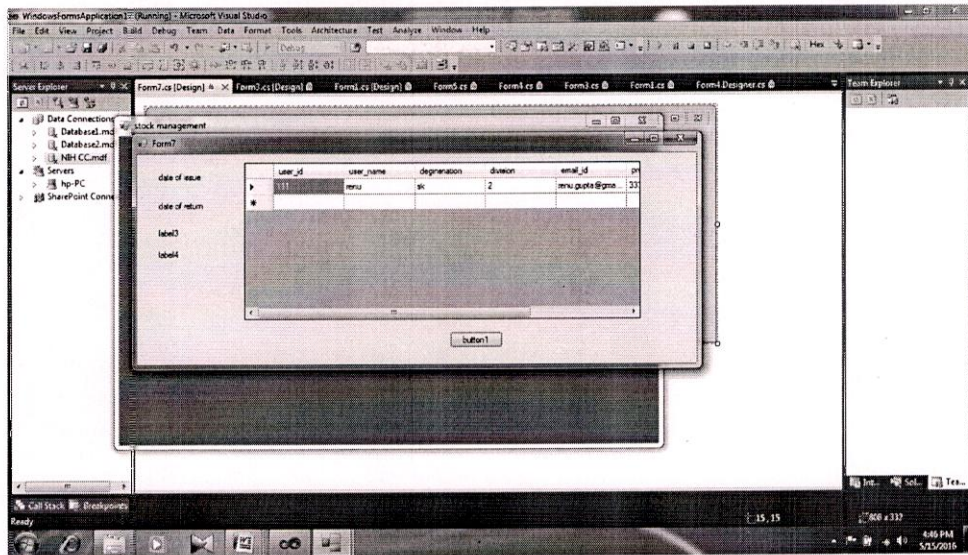


Figure 13: remaining process

5 TESTING

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

5.1 TESTING TECHNIQUES USED

Unit Testing-Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing is white box oriented and some modules the steps are conducted in parallel.

White Box Testing-This type of testing ensures that

- All independent paths have been exercised at least once.
- All logical decisions have been exercised on their true and false sides
- All loops are executed at their boundaries and within their operational bounds
- All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing we have tested each form .we have created independently to verify that Data flow is correct, All conditions are exercised to check their validity, All loops are executed on their boundaries.

Conditional Testing-In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested. So that each path that may be generate on particular condition is traced to uncover any possible errors.

Data Flow Testing-This type of testing selects the path of the program according to the location of definition and use of variables. This kind of testing was used only when some local variable were declared. The definition-use chain method was used in this type of testing. These were particularly useful in nested statements.

6 CONCLUSION

The project “**Stock Management System**” mainly as the name suggests deals with the calculation of the available and processed resources for an accurate stock control and process management. A system that accurately calculates the atomic ingredients used for making a recipe then automatically performs the back end operation pertaining to a database of many relational tables onto which the changes are being made with each and every operation performed on the front end and which also shows up if at the time of retrieval.

The most important part of stock controlling is its ability to check for threshold levels and alert the manager to replenish the stock before it reaches a danger zone. To be able to simplify the user friendliness even more the concept of ‘prediction’ is added which enables the manager to see the past years prediction of the ingredients usage and then based on the informational analysis done on the data a prediction is then generated which would suit the requirements of the current year and then accordingly an appropriate order form is generated and then passed on to the vendor as the requirements for replenishing the stock.

7 BIBLIOGRAPHY

Following websites are referring to create this project reports.

- <http://www.google.com>
- <http://www.programmer2programmer.net>
- <http://www.codeproject.com>
- <http://www.1000projects.com>

following Basham, and eBook are used to complete this project reports.

Bryan Basham, Kathy sierra, Bert bates head first .net/c# 2nd edition o' Reilly media, Inc, 2004.