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PROCUREMENT ANALYSIS AND SUPPLY CHAIN MANAGEMENT

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Bonafide Certificate

Certified that this project report titled **PROCUREMENT ANALYSIS AND SUPPLY CHAIN MANAGEMENT SYSTEM** is the bonafide work of **Mr. RAJEEVAN.A** who carried out the research under my supervision. Certified further that to the best of my knowledge the work reported here in 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.

GUIDE **HEAD OF DEPARTMENT**

Submitted for the University Examination held on 23/6/05

Internal Guide **External Guide**

ABSTRACT

The project work entitled "Procurement analysis and Supply Chain Management System" is developed for IndoShell Cast Pvt Ltd, coimbatore. The prime objective of the venture is to develop full fledged software that fulfills the requirements demand for supply chain management system.

The task behind the venture is to make the material & other purchases online, so that it will facilitate the work of the purchase department of the company as well as that of the suppliers.

Material purchase from the vendors is one of the main activity for a company. The proposed software assists the authorities concerned in dealing with the proceedings for material purchase, purchase order, quotation request, quotation receipt etc are all done through online.

The system is developed using JAVA as the front end, JSP in the designing, Javascript for validation and SQL-Server at the back end under Windows-XP platform.

Acknowledgement

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LIST OF SYMBOLS, ABBREVIATIONS AND NOMANCLATURE

SCM	: SUPPLY CHAIN MANAGEMET
DFD	: DATA FLOW DIAGRAM
JSP	: JAVA SERVER PAGES
SQL	: STRUCTURED QUERY LANGUAGE
PO	: PURCHASE ORDER

CHAPTER 1

INTRODUCTION

1.1OVERVIEW OF THE PROJECT

The project named "Procurement Analysis and Supply Chain Management System" is aimed for making the order processing and the material purchase for the company online. Raw material and other purchases is one of the most important day today transactions for a Manufacturing company.

Based on the order placed by the customer, the system first checks the stock and does the delivery as per the stock availability. Incase of inadequate stock level, the company places the order to the production department.

The production department in turn releases the material requirement plan which indicates the need of various materials for the production. It thus places the purchase request to the concerned purchase department.

Whenever a purchase request is arise from a concerned department to the purchase department, the stores office checks for the availability of materials. The stores office then approves for the material

request for the issue of materials. The material requests for the materials that are not in stock are moved to the purchase department for procurement.

Procurement analysis is the process of identifying the best supplier from a group of suppliers who supply the needed materials based on quote analysis etc. The purchase order is then placed to that particular supplier.

Purchase order is released by the purchase head to the approved supplier through online. The suppliers release the materials and the materials are checked for quality by the quality control department. The accepted materials are issued to the concerned department.

The transactions could be briefly classified into various categories such as customer order, purchase request, quote request, quote analysis, purchase order, material receipt etc. Reports such as pending bill, pending production, supplier performance, material inward receipt etc are also prepared.

1.2 OBJECTIVES OF THE PROJECT

- To develop an efficient system to manage the Customers, Suppliers and the purchase order process.
- To store and retrieve the data efficiently.
- To provide high security so that only authorized people can access.
- To ensure efficient management of the resources used by the system.
- To reduce manual effort.
- To provide easy interaction with the customers, suppliers through online.
- Minimum staff personnel requirement.
- To maintain accuracy.
- To avoid the data redundancy.
- To provide easy navigation.
- To handle multiple modules simultaneously by the system.
- To provide user friendly screens.

1.3 ORGANIZATION PROFILE

EASY DESIGN SYSTEMS

The project is done at Easy Design Systems situated at GandhiPuram, coimbatore. The company serves as a leading software development service provider in the district. With more than 20 leading companies belonging to various categories as its clients, this consultancy is growing at a rapid pace.

INDOSHELL CAST PRIVATE LMITED (ISC)

This application is being developed for IndoShell Cast Private Limited situated at SIDCO, Sundarapuram in coimbatore. It is one of the renowned and a leading engineering foundry specializing in automotive and precision industrial components that involve precise and quality metallurgy. They are one of the best Shell Molded SG Iron & Grey Iron manufacturers in India.

ISC is manufacturing S.G.Iron & Grey Iron castings using shel molding. The surface finish and dimensional accuracy of the shell molde castings is superior to the conventional green sand mould castings. The are one among the 100 odd foundries practicing ISO/TS-16949 qualit systems in India. They are operating on 3 shift basis.

They have good machining capacity such as the CNC lathes Vertical Milling Center. They extensively use CAD CAM to make patt and tools. The development CAD CAM Route of tool making & Patt

making shorten the prototype development period and first time acceptance is assured.

The company has a strong metallurgical base and experience. The metallurgical quality of S.G.Iron has been very much acclaimed by the customers. They have about 500 employees working in the plants.

ISC have leading automobile manufacturers and engineering industries in India and abroad as their clients.

CHAPTER 2

SYSTEM ANALYSIS

The life cycle of a software starts with the system analysis. It's a phase in which problems are identified, alternate solution systems are studied and recommendations are made about committing the resources required to design the system. A thorough initial investigation is performed on the existing system and the following details are drawn.

2.1. PROBLEM DEFINITION

Even though the existing system is computerized, the process is complex and it needs more man power.

Communication takes a longer time in this system. Though the system is computerized, it needs human intervention in every process so that only the system moves to next process. A material requirement plan should be prepared based on the bill of materials. The purchase request process is computerized and it is sent to the purchase department.

If the material is not scheduled material, then a quotation process is to be done. The quotation process is a manual one since a quotation request is to be sent and then the quotations are to be received from various suppliers. Alternatively, the purchase head finalizes the quote price and approves the purchase order on a particular vendor. All these processes are time consuming, and involve lot of manual work.

The purchase order is mostly sent through post and so the time involved in the process is more. When the material is needed in urgency, then it will not solve the problem. The amount spent on the postal and the telephone charges are on higher side. Data security is less in the system and the retrieval of information is not very fast.

2.1.1. DEVELOPING THE SOLUTION STRATEGIES

The tendency to adopt the first solution that occurs to us is a major problem in software engineering. A solution strategy is not a detailed solution plan but, rather a general statement concerning the nature of the possible solution strategy factors include consideration such as batch or time sharing database or file system, graphics or text and real time or offline processing.

The selected strategy provides framework for design and implementation of the software product. Idea generation is best done by a group of people who have been trained in the techniques of brainstorming.

Techniques for determining the feasibility of solution include case studies, worst case analysis, simulation, and construction of prototypes. A prototype implementation usually has limited functionality, low readability and poor performance characters.

A solution should include a priority list of product features. There are several implement reasons for starting product priorities. At that time it

is essential that has level guidance be available to indicate the priorities of essential features, less important features and nice features.

The proposed system should lower the difficulty in handling large amount of data. Data should be retrieved, displayed updated and proposed in a very short time.

Features of the proposed system:

- Reduce the time to perform the work
- Reduces the human effort
- Gives the final decision with accuracy
- Reduce the difficulty of the organization
- Easy to generate the report.

2.2 FEASIBILITY ANALYSIS

Feasibility is the measure of how beneficial or practical the development of information system will be to an organization. Once the problem is explained the feasibility study is to be done to test whether the product is achievable. The feasibility study describes the degree of the usefulness of the product to the organization. The feasibility study can be divided into four phases. They are as follows:

2.2.1 STUDY OF THE EXISTING SYSTEM

The existing system the IndoShell Cast Pvt Ltd is computerized, so that the purchase request, purchase order reports could be generated and sent to the suppliers. There are certain procedures followed in the existing system to generate a purchase order.

The company receives the orders to make the products and so a production schedule is released by the planning department. Based on the bill of materials a material requirement plan is given. A purchase request is given by the concerned department and is approved by the head of the respective department, then passed on to the stores.

In the company, the purchase request and the purchase order process is computerized and so the concerned staff can take the soft copy and send to the respective departments. The stores office checks the stock and the other pending requests of the same item required and approves the material request, the purchase head approves the purchase of the material and the quantity of purchase.

The purchase order are prepared for the materials that have the previous rate contracts, otherwise request for quotation is sent t suppliers for respective material. The process of quotation request and the quotation analysis and finalization is done through the manual process. The purchase head analyze and finalize the vendor to whom the order is given. After finalization, the purchase order is sent in this case mostly through post. Then the suppliers send the materials. The materials are received and the quality is checked and the accepted materials are accounted in the stock.

The material is then issued to the concerned by means of the issue note. The material request for small value items are directly procured without purchase order and then accounted in material request.

2.2.2 PROPOSED SYSTEM

The proposed system,"supply chain management system" is being developed to overcome all the limitations in the old or the existing system. This system helps in ordering for the materials fastly. It also allows to take quick decisions in selecting a vendor for the new material, since the quotes could be got from different vendors on online itself.

2.2.2.1ADVANTAGES OF THE PROPOSED SYSTEM

The proposed system reduces the draw back of the existing system. The advantages of the proposed system are

- Computation is done at a higher speed.
- Faster retrieval of stored data.
- Reduces the postal and telephone charges of the company.
- It has a continuous flow of information
- The status of the suppliers could be known easily.
- Communication between the company and the suppliers is easier.

2.2.3 TECHNICAL FEASIBILITY

Technical Feasibility is a measure of practicality of a specific technical solution and the availability of technical resource and expertise. This deals with the study of building within the pre-established cost and schedule bounds, the technology that exist to develop all elements of the system, systems reliability on proven technologies, the possibility of defining the interfaces, performance and functional aspects, analysis of technical resources, risk associated with the technologies. Feasibility study on quality of the elements of the system, system's external environment, and system communications is performed.

The tool can be developed with the existing technology. The individual modules are to be developed as JSP pages. SQL SERVER 2000 was chosen as the backend engine, because of the huge data volume to be handled. The Tool works effectively even for huge amount of data.

2.2.4 ECONOMIC FEASIBILITY

Economic Feasibility is a measure of the cost-effectiveness of a project or solution. The System has been designed to work for any type of flat file(fixed width or delimited) and it manages voluminous data. Since the effort to develop the product was found to be feasible, the development presents a good investment for the organization. Hence the above system is economically feasible.

2.3 PURPOSE OF THE PROJECT

- ▶Fast retrieval of any stored data.
- ▶It is user friendly, interactive and it is very useful for the Organization.
- ▶Workload for the employees is reduced.
- ▶Records can easily be converted into hard copies.
- ▶Required reports can easily be generated.
- ▶Updating any records can be handled quickly.

CHAPTER 3

PROGRAMMING ENVIRONMENT

3.1 HARDWARE SPECIFICATION

CPU	: PENTIUM III
RAM	: 28MB
POWER SUPPLY	: 300V
ADAPTER TYPE	: VGA
HARD DISK DRIVE	: 40GB
KEYBOARD	: 108 KEYS
OPERATING SYSTEM	: WINDOWS 2000
DRIVER ADAPTER	: IDE TYPE 47

3.2 SOFTWARE SPECIFICATION

TOOL	: NETBEANS IDE 3.6
LANGUAGE	: JSP, JAVA , SERVLETS
DATABASE	: SQL SERVER 2000

3.3 ABOUT THE SOFTWARE

JAVA

Java is a powerful but lean object oriented programming language. Java builds on the strength of C++. It has taken the best features of C++ and has discarded the more problematic and error prone areas. To this lean core, it has added garbage collection (Automatic memory management), multithreading and security capabilities. The result is that java is simple, elegant, powerful and easy to use.

SERVLETS

Servlets are programs that executes on the server side of a web connection. The Java Servlet Development Kit(JSDK) contains the class libraries that you will need to create servlets .

A servlet is a dynamically loaded module that services the request from a web server. It runs entirely inside the Java Virtual Machine. Because the servlet is running on the server side, it does not depend upon the browser compatibility.

REASONS TO USE JAVA SERVLET

There are several advantages in using servlets .They are as follows

- EFFICIENT

A servlet's initialization code is executed only the first time the web server loads it. After the servlet is loaded, handling new requests is only a matter of calling a service method. This proves it to be more efficient.

♦PERSISTENT

Servlets can maintain state between requests. When a servlet loaded, it stays resident in memory while serving incoming request .Taking advantage of the persistent characteristics of servlets can improve your applications performance drastically.

♦PORTABLE

Servlets are developed using java, therefore they are portable. This enables servlets to be moved to a new OS without changing the source. You can take code that code as compiled on a Windows platform and move to a Solaris without making any changes.

♦ROBUST

Java provides a very well-defined exception hierarchy for error handling. It has garbage collector to prevent problems with memory leaks. It also include very large class library that includes network support, file support, database access, distributed object components, security and many other classes.

♦EXTENSIBLE

Another advantage of servlets gain by being developed in an object oriented language like java is that they can be extended and polymorphic into new objects that better suit for your needs.

♦SECURE

Servlets run on the server side, inheriting the security provided by the webserver. Servlets can also take advantage of the Java Security Manager.

JAVASCRIPT

JavaScript is an easy-to-use programming language that can be embedded in the header of your web pages. It can enhance the dynamics and interactive features of your page by allowing you to perform calculations, check forms, write interactive games, add special effects and more. JavaScript is integrated with HTML and Internet Explorer It include built-in objects related to the current windows and documents as well as object such as Math , String and Date that contain Mathematical functions, String functions respectively . Since javaScript is an object-based language, its supports instances, methods and properties.

JSP

Java Server Pages(JSP) Technology allows you to easily create web component that has both static and dynamic components . JSP Technology makes available all the dynamic capabilities of Java Servlet technology but provides a more natural approach to creating static content.

A JSP page is a text document that contains two types of text. The static data, which can be expressed in any text-based format and JSP elements construct dynamic content. The JSP code contains the following types of JSP constructs.

- A page directive sets the content type returned by the page.
- Tag library directives import custom tag libraries.
- jsp:useBean creates an object containing a collection of locales and initializes an identifier that points to that object .
- Custom tags set a variable (c:set) , iterate over a collection of locale names.
- Jsp:setProperty sets the value of an object property .

LIFE CYCLE OF A JSP PAGE

The jsp page services request a servlet whenever a page created newly or modified. When a request is map to a JSP page, the web container first checks whether the JSP page is older than the current servlet . If it finds older the page compiled to a new servlet class. The following things happen during the session:

- The directives are translated into servlet commands.
- Scriplets are translated into servlet codes.
- Expressions are evaluated.
- Custom tags are converted into calls.

JDBC

You can run a java program on any java enabled platform without even recompiling that program. The java language is completely specified and by definition a java enabled platform must support a known core of libraries . One such library is JDBC.

Database vendors are already busy creating bridges from the JDBC API to their particular systems. Java has also provided a bridge drive that translates JDBC to ODBC allowing you to communicate with the legacy database that have no idea that java exists. Using Java in conjunction with JDBC provides a truly portable solution to writing database applications.

SQLSERVER

Structured Query Language is a set of commands that allows you to modify or retrieve information from a database.

RELATIONAL FEATURES:

1. INFORMATION REPRESENTATION

In SQL Server data is represented in terms of rows and columns of a table Data stored as a table can be easily visualized.

2. UNIQUE DEFINITION OF ROWS

The unique row requirement ensures that each row in the table can be accessed and changed independently from other rows of the table. In SQL Server we can make each row of a table unique by using a feature called as constraint.

3. SYSTEMATIC TREATMENT OF NULL VALUES

SQL Server like most RDBMS treats Null values , zeros and blanks differently .While creating a table one can specify whether a field allows Null values or not .

4. GUARANTEED ACCESS

In SQL Server, data that is stored across tables in one or more databases can be combined using query.

5. HIGH LEVEL UPDATE, INSERT AND DELETE

In SQL Server, if a record is updated or deleted in master table, the corresponding record in the referencing table is also updated or dropped. This process of ensuring that corresponding records of related tables are maintained to keep relationship intact is called referential integrity.

CHAPTER 4

SYSTEM DESIGN AND DEVELOPMENT

4.1 ELEMENTS OF DESIGN

System Design is the most creative and challenging phase in the life cycle of a software development. Design implies to a description of the final system and the process by which it is developed. The first step to determine what input data is needed from the system and the database that has to be designed to meet the requirements of the proposed system .The next step is to determine how the required output is produced and in what format .

During the design of the proposed system some thoughts that come to mind are:

- ▶what are the inputs required and the outputs produced?
- ▶How the data can be organized?
- ▶What should be the screen format?
- ▶What are the processes involved in the system?

During the design phase, the following steps are carried out :

- ▶Input Design
- ▶Output Design
- ▶Modular Design
- ▶Database Design

4.1.1 INPUT DESIGN

The input design is one of the important tasks in the software development, since it helps to reduce the user work and select the correct data entry. Any system needs data for its working. How the data is fed into the system has to be determined so that the data is error free and is system specific. The ways in which the data is to be fed into the system is decided during the input design stage.

The error raising method is also included in the software which helps to raise error message while wrong entry of input is done.

4.1.2 OUTPUT DESIGN

Computer output is the most important and direct information source to the user. Output design is a process that involves designing necessary outputs in the form of reports that should be given to the users according to the requirements. Efficient, intelligible output design should improve the system's relationship with the user and help in decision making. Since the management for taking decisions directly refers the reports and to draw conclusions they must be designed with almost care and the details in the reports must be simple, descriptive and clear to the user.

4.1.3 MODULAR DESIGN

It is always difficult for any developer to grasp a system without breaking it up into several smaller systems. These smaller segments will all be part of the original system yet they will be independent in the sense that they will incorporate within them a major function in the system .

A software system is always divided into several sub systems that makes it easier for the development. A software system that is structured into several subsystems makes it easy for the development and testing. The different subsystems are known as the modules and the process of dividing an entire system into subsystems is known as Decomposition.

A system cannot be decomposed into several subsystems in any way. There must some logical barrier, which facilitates the separation of each module. The separation must be simple but yet must be effective so that the development is not effected.

4.1.4 DATABASE DESIGN

A database is a collection of interrelated data stored with minimum redundancy. Database design is one of the most important parts of the system design phase. In a database environment common data are available and are used by several users. Instead of each program managing its own data, authorized users share data across application with the database software managing the data as an entity. The primary objective of a database design are fast response time to enquiries, more information at low cost, control of redundancy ,clarity and ease of use ,date and program independence , accuracy and integrity of the system ,fast recovery and availability of powerful end-user languages .

An important aspect of database design is normalization.

4.1.4.1 NORMALIZATION

The term normalization of data refers to the way data items are grouped together into record structures. Normalization is used to overcome the drawbacks

like repetition of data, loss of information and inconsistency. Various normal forms that are followed commonly are:

FIRST NORMAL FORM (1NF)

A relation is said to be in first normal form (1NF) if and only if all underlying domains contains atomic values only i.e. only one value is associated with each attribute and the value is not a set or a list of values. Here all tables are in 1NF.

SECOND NORMAL FORM (2NF)

A relation scheme is in second normal form (2NF) if and only if it is in 1NF and all non- key attributes are fully functionally dependant on the primary key. All tables are in 2NF.

THIRD NORMAL FORM (3NF)

A relation scheme is in third normal form (3NF) if and only if it is in 2NF and all non-key attributes are non-transitively dependant on the primary key. Here all tables are kept in 3NF to avoid redundancy to a maximal level.

4.2 TABLE STRUCTURE

4.2.1 CustomerMaster table

FIELD NAME	DATA TYPE	DESCRIPTION
CustomerID	Varchar	Unique id of the customer, primary key
CustomerName	Varchar	Name of the customer
Address	Varchar	Customer address
City	Varchar	City
State	Varchar	State
Pin	Varchar	Pin
TelephoneNumber	Varchar	Personal phone
MobileNumber	Varchar	Mobile
OtherDetails	Varchar	Additional information

4.2.2 SupplierMaster table

FIELD NAME	DATA TYPE	DESCRIPTION
SupplierID	Varchar	Unique id of the supplier, primary key
SupplierName	Varchar	Name of the supplier
Address	Varchar	Supplier address
City	Varchar	City
State	Varchar	State
Pin	Varchar	Pin
TelephoneNumber	Varchar	Personal phone
MobileNumber	Varchar	Mobile
OtherDetails	Varchar	Additional information

4.2.3 CustomerOrder table

Field	Type	Description
OrderNo	Varchar	The order number,primary key
Yr	Int	Year of order,primary key
CustomerID	Varchar	Customer id
ItemId	Varchar	Id of the item
TotalOrder	Int	Total order quantity placed
Payment	Varchar	Mode of payment-cheque,ready cash etc
Delivery	Varchar	Made of delivery-courier etc
SpecialInstruction	Varchar	Special instruction that can be added.

4.2.4 CustomerOrderDetails Table

Field	Type	Description
OrderNo	Varchar	The order number.
Yr	Int	Year of order
ProductID	Varchar	Id of the item
Price	Int	Price of the item
OrderQty	Int	Quantity of item ordered
TotalOrderValue	Int	Total order quantity placed
ExciseDutyPer	Int	Excise duty per item
SalesTaxPer	Int	Sales tax per item
SurchargePer	Int	Surcharge per item
NetOrderValue	Int	Net Order value of item ordered
NeedByDate	Date/Time	Delivery date
SpecialInfo	Varchar	Special information added

4.2.5 DepartmentMaster table

Field	Type	Description
DepartmentID	Varchar	The unique department id, primary key.
DepartmentName	Varchar	Name of the department
Prefix	Varchar	Prefix that can be added
Details	Varchar	Details regarding the department
ContactPhone	Varchar	Phone number to contact.

4.2.6 ItemsMaster table

Field	Type	Description
ItemID	Varchar	Id of the item, primary key
ItemName	Varchar	Name of the item
Category	Varchar	Used to Categorise Materials -Raw Materials,Machine,Tools,Consumables,Asset, Finished
Unit	Varchar	Use to Mention Units - Nos,Kgs,Litres & Metres
BuyingPrice	Int	Buying price of the item
SellingPrice	Int	Selling price of the item
MinimumOrderLevel	Int	Minimum stock level where new order is to be placed.
MaximumOrderQty	Int	Maximum quantity that can be added.

4.2.7 CustomerItemsPriceMaster table

FieldName	Type	Description
CustomerID	Varchar	Id of the customer, primary key
ItemID	Varchar	Item id, primary key
Price	Int	Price of the item
PackingChargesPer	Int	Packing charges per item
InsurancePer	Int	Insurance per item
ExciseDutyPer	Int	ExciseDutyPer item
SalesTaxPer	Int	Sales tax per item
SurchargePer	Int	Surcharge per item
FrieghtPer	Int	Transportation charge
HandlingPer	Int	Handling charges

4.2.8 MaterialIssue register table

Field	Type	Description
IssueNo	Int	Issue number, primary key
Yr	Int	Year, primary key
IssuedTo	Varchar	Id of the department to which the item is issued
DepartmentID	Varchar	Id of the department to which the item is issued
DateOfIssue	Date/Time	Date of issue
AddlInfo	Varchar	Additional information that can be added.
IssuedBy	Int	Issued by which personnel.

4.2.9 MaterialIssueRegisterDetails table

Field	Type	Description
IssueRegisterNo	Varchar	Register number of the issue, primary key
Yr	Int	Year, primary key
ItemId	Varchar	Id of the item
RegisterID	Varchar	The register id
RegisterYr	Int	Year of register
QtyIssued	Int	Quantity issued
Instruction	Varchar	Instructions added

4.2.10 MaterialRequest table

Field	Type	Description
RequestNo	Varchar	The request number, primary key
Yr	Int	Year of request, primary key
DepartmentID	Varchar	Id of the department whish placed the request
RequestDate	Date/Time	Date of request
UserRef	Varchar	User reference
UserRefDate	Date/Time	User reference date
AddlInfo	Varchar	Additional information to be added

4.2.11. ProductionSchedule table

Field	Type	Description
ScheduleNo	Varchar	The schedule number, primary key
OrderNo	Varchar	The order number.
Yr	Int	Year of production
ItemID	Varchar	The id of the item under production
QtyOrdered	Int	The quantity that have been ordered
QtyInStock	Int	Quantity in stock
QtyPlanned	Int	Quantity planned to produce- QtyOrdered-QtyInStock
QtyCompleted	Int	Quantity whose production is completed
Finished	Varchar	IF QtyOrdered=QtyCompleted then Finished=Yes

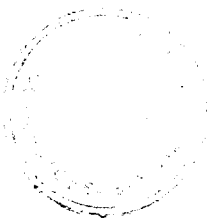
4.2.12 Purchase Order table

Field	Type	Description
OrderNo	Varchar	The order number, primary key
Yr	Int	Year, primary key
SupplierID	Varchar	The supplier id
OrderDate	Date/Time	Date of order
TotalOrderValue	Int	Total value of order
PackingCharges	Int	Packing charges
Insurance	Int	Insurance amount
ExciseDuty	Int	Excise duty to be paid
SalesTax	Int	Sales tax

Surcharge	Int	Surcharge
Frieght	Int	Transportation charges
Handling	Int	Handling charges
NettOrderValue	Int	Total order value adding all the charges.
AddlInfo	Varchar	Additional information to be added
Payment	Varchar	Mode of payment
Delivery	Varchar	Mode of delivery.
SpecialInstruction	Varchar	Special instruction to be added.

4.2.13. PurchaseOrderDetails Table

Field	Type	Description
OrderNo	Varchar	The order number, primary key
Yr	Int	Year, primary key
ItemID	Varchar	The item id, primary key
QuoteNo	Varchar	The quote number.
QuoteYr	Int	Quote year
Price	Int	Price of item ordered
OrderQty	Int	Quantity of order.
ExciseDutyPer	Int	Excise duty per
SalesTaxPer	Int	Sales tax per.
SurchargePer	Int	Surcharge per
ItemOrderValue	Int	Order value of items.
NeedByDate	Int	Delivery date.
SpecialInfo	Varchar	Special information to be added.



4.2.14 Quotation table

Field	Type	Description
QuoteNo	Varchar	The quote number, primary key
Yr	Int	Year, primary key
SupplierID	Varchar	Id of the supplier
QuoteDate	Date/Time	Date of quote
SupplierRef	Varchar	Reference made by the supplier
SupplierRefDate	Date/Time	Date of supplier reference
TotalQuoteValue	Int	Total value of quote
PackingCharges	Int	Packing charges
Insurance	Int	Insurance amount
ExciseDuty	Int	Excise duty
SalesTax	Int	Sales tax
Surcharge	Int	Surcharge to be included
Frieght	Int	Transportation charge
Handling	Int	Handling charges
NettOrderValue	Int	Net charge or total charge to be paid.
AddlInfo	Varchar	Additional information to be added
Payment	Varchar	Payment type
Delivery	Varchar	Mode of delivery
SpecialInstruction	Varchar	Special instruction to be added.

4.2.15 CustomerPaymentReciepts table

Field	Type	Description
VoucherNo	Varchar	The voucher number, primary key
Yr	Int	Year, primary key

VoucherDate	Date/Time	Voucher date, primary key
CustomerID	Varchar	Customer id
ChequeNo	Varchar	The cheque number
ChequeDate	Date/Time	The cheque date
Amount	Int	Amount specified in the cheque
Adjusted	Varchar	Whether the bill is adjusted or not.
PostedBank	Int	Posted bank
Realised	Varchar	Whether the cheque is realised or not
ReasonForFailure	Varchar	If not, the reason for failure

4.2.16 Security table

FIELDNAME	DATATYPE	DESCRIPTION
CustomerID	Varchar	Id of the customer
Password	Varchar	Password for the customer

4.2.17 MaterialInwardregister table

Field	Type	Description
RegisterNo	Varchar	The register number, primary key
Yr	Int	Year , primary key
SupplierID	Varchar	Id of the supplier who supplied the item
ReceivedDate	Date/Time	Date of receival of the item
TotalReceiptValue	Int	Total receipt value of items supplied
PackingCharges	Int	Packing charges.
Insurance	Int	Insurance amount
ExciseDuty	Int	Excise duty to be paid.
SalesTax	Int	Sales tax

Surcharge	Int	Surcharge
Frieght	Int	Transportation charges.
Handling	Int	Handling charges.
NetReceiptValue	Int	Total receipt value after acceptance.
AddlInfo	Varchar	Any additional information to be added.
SpecialInstruction	Varchar	Any special instruction to be added.

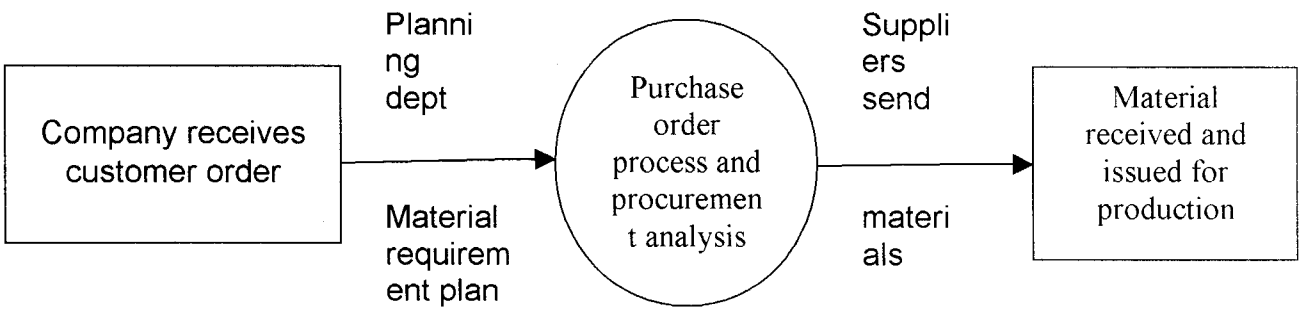
4.2.18 MaterialInwardregisterDetails table

Field	Type	Description
RegisterNo	Varchar	The register number, pimary key
Yr	Int	Year, primary key
ItemID	Varchar	Id of the item supplied.
OrderNo	Varchar	Order number.
OrderYr	Int	Year
Price	Int	Price of the item
ReceivedQty	Int	Quantity received
AcceptedQty	Int	Quantity accepted
RejectedQty	Int	Quantity of item rejected.
ExciseDutyPer	Int	Excise duty to be paid
SalesTaxPer	Int	Sales tax per item
SurchargePer	Int	Surcharge per item
ItemOrderValue	Int	Order value of the item
NeedByDate	Date/Time	Delivery date.
SpecialInfo	Varchar	Special information to be added.
IssuedQty	Int	Quantity issued
CompletedIssue	Varchar	Whether the issue have been completed or not.

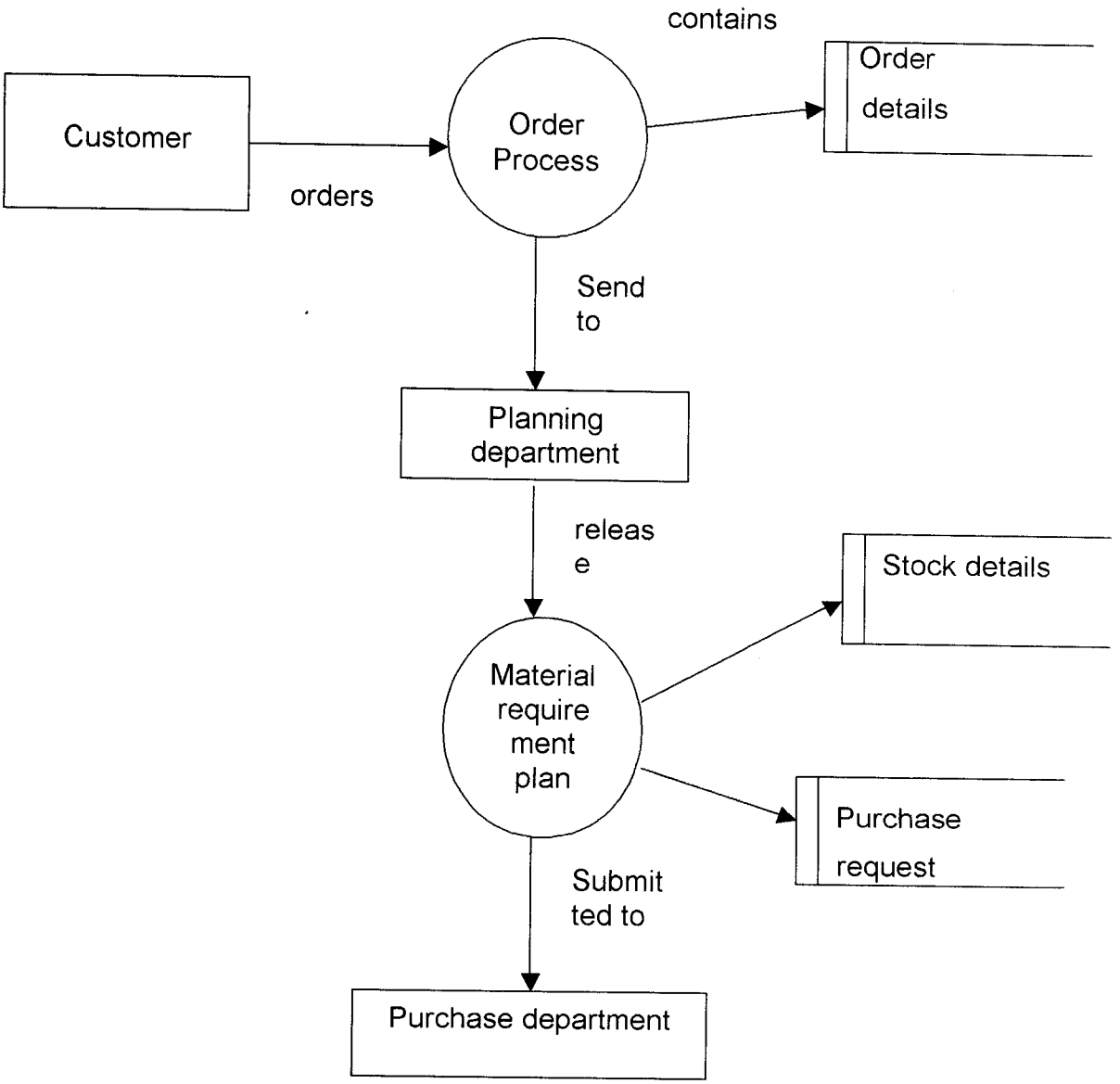
CHAPTER 5

DATA FLOW DIAGRAM

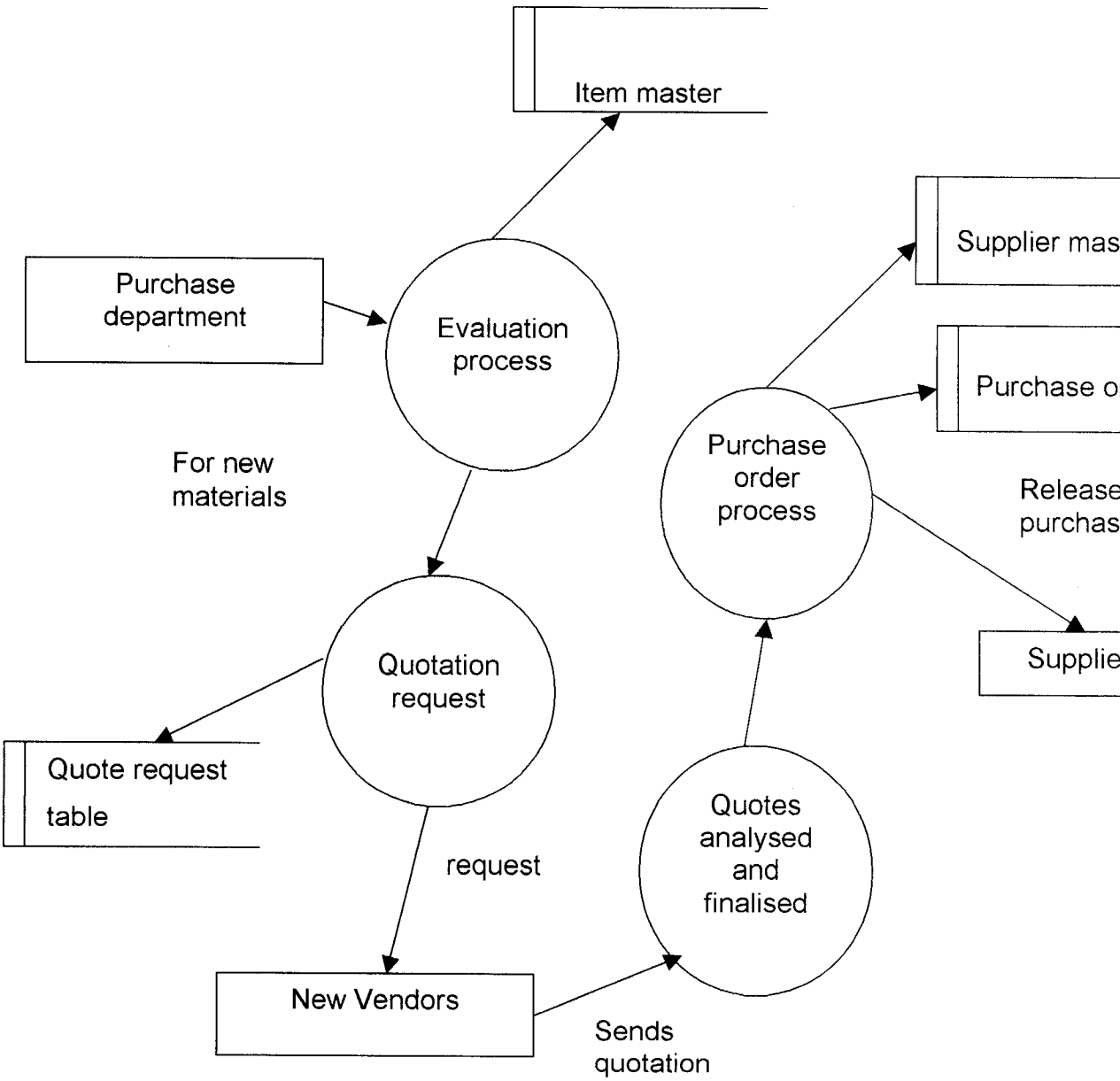
LEVEL 0:



LEVEL 1:


contains
Order details
Customer
Order Process
orders
Send to
Planning department
releas e
Stock details
Material require ment plan
Purchase request
Submit ted to
Purchase department

LEVEL 2


Item master
Purchase department
Evaluation process
Supplier mas
Purchase o
Purchase order process
Release purchas
For new materials
Quotation request
Supplie
Quote request table
request
Quotes analysed and finalised
New Vendors
Sends quotation

CHAPTER 6

SYSTEM TESTING AND IMPLEMENTATION

6.1 SYSTEM TESTING

System testing is most vital activity that has to be enforced in any system development. This could be done parallel during the development phase and after implementation. The feedback received from this testing was carefully examined for further enhancements. It is the part of testing where the entire website is tested. This testing is performed with the requirements document as the reference and the goal is to see whether the application meets the requirements.

6.1.1 WHITE BOX TESTING

White box testing also referred to as glass-box software testing. It is a test case design that would use the 'program control flow' structures to derive software test cases. The software engineer can derive white box software testing using following guidelines.

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

6.1.2 BLACK BOX TESTING

Black box testing enables the software engineer to derive set of conditions that will fully exercise all requirements for a web design code. Also note that black box testing "is not an alternative" to white box testing. Rather it is a compulsory approach that it is likely to uncover a different CLASS OF ERRORS than what white box testing methods reveal.

Black box testing reveal attempts to reveal errors in the following software work areas:

- Interface of inputs
- Database access
- Initialization and termination

6.1.3 ACCEPTANCE TESTING

Acceptance testing involves planning and execution of the functional tests, performance tests and stress tests in order to demonstrate that the implemented system satisfies its requirements. It is not unusual for two sets of acceptance tests to be run those developed by the Quality Assurance group and those developed by the customer.

6.1.4 ALPHA TESTING

A third person who just has the knowledge and the working capacity of the system conducts the alpha test at the developer's site. The developer 'looks over the shoulder' of the user and records the errors and usage problems. The user in turn gives general discomforts, which may be mended to make the system little better in a way of efficiency and user-friendly.

6.1.5 BETA TESTING

After alpha testing is done the developed website is given to other solution partners to check for errors. After this testing has been done then the website wiil be published.

6.2 IMPLEMENTATION

The implementation is one phase of software development. It is concerned with translating design specifications with source code. The primary goal of implementation is to write source code to its specification can be easily verified and so that debugging, testing and modifications and be eased. The goal can be achieved by making the source code as clear and straight forward as possible.

The implementation is the process of converting a new or revised system into operational one. It is the key stage in achieving a successful new system because; usually it involves a lot of upheaval in the user department. System testing is an expensive but critical process that can take as much as 50% of the budget for program development. Testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. It is the process of executing a program with the explicit intention of finding errors. The logical design and physical design are thoroughly examined to ensure that it will work when implemented.

Tests data are designed to show that the system will operate successfully in all aspects and produce expected result as specified. Thus the presentation of test date and the checking of results are carried out in conjunction with the appropriate user. Implementation includes all those activities that take place to convert from the old system to the new.

The new system may be totally new, replacing an existing manual or automated system or it may be a major modification to an existing system. Proper implementation is essential to provide a reliable system to meet the organization requirements if the organization using the system, but improper installation will prevent it.

CHAPTER 7

CONCLUSION

The system is made online and hence it will help the organization in avoiding a lot of manual work, make the work more efficient and error free. This package can be implemented for the same purpose.

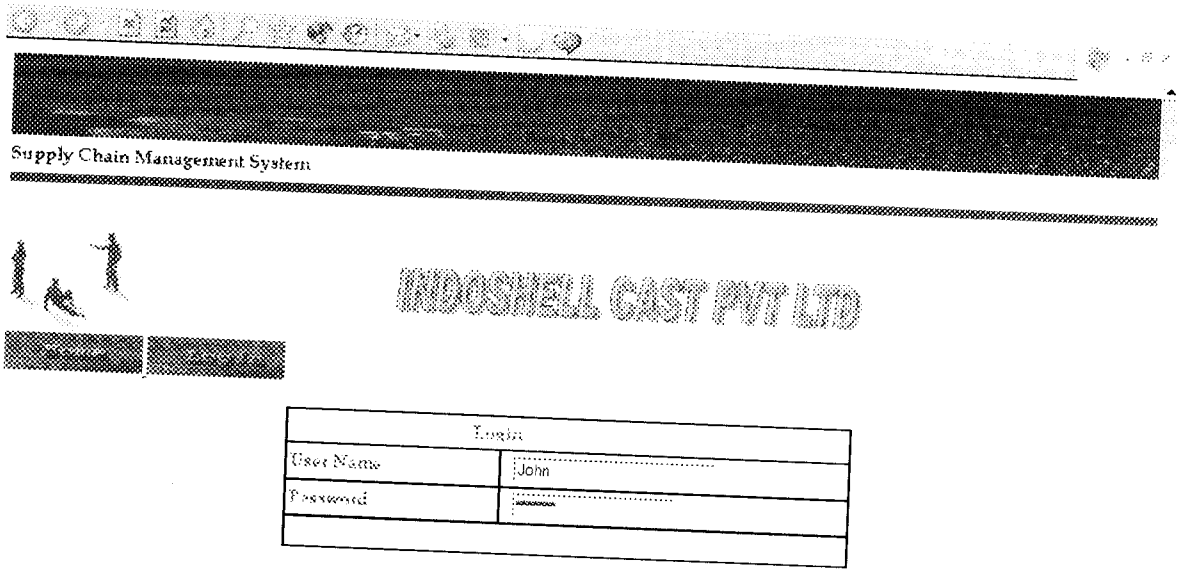
Supply chain management system is completely a web based application and is user friendly. The user will not find any difficulties to overcome problems in data entry, validation etc. The programs are written in a user friendly manner by providing message and captions wherever necessary.

The screens are constructed in such a manner that the user will find it very easy to navigate the whole system. Names are chosen such that they provide sufficient information about each page.

Providing secure user name and password scheme ensures the security of the system. Different security levels are provided depending on the security required for each process.

APPENDICES

LOGIN PAGE



CUSTOMER REGISTRATION FORM

INDOSHELL CAST PVT LTD

Customer Registration Form

Kindly fill the details below

CustomerID	:	011	MobileNumber	:	9894876456
CustomerName	:	John	Email	:	John@yahoo.com
Address	:	R.S puram,Coimbatore	AccountID	:	xx1200766
City	:	Coimbatore	OtherDetails	:	nil
State	:	Tamil Nadu			
Pin	:	646001			
TelephoneNumber	:	04222675543			

Add Cancel

Home Back

CUSTOMER ORDER FORM

INDOSHELL CAST PVT LTD

Customer Order

Kindly fill the details below

OrderNo	: O35	SpecialInstruction :	nil
Year	: 2005		
CustomerId	: 01		
ItemId	: I20		
TotalOrder	: 20		
Payment	: Cheque		
Delivery	: Home		

Add Cancel

Home Back

PRODUCTION SCHEDULE FORM

INDOSHELL CAST PVT LTD

Production Schedule

ScheduleNo	:	S21	QtyCompleted	:	25
OrderNo	:	O12	Finished	:	NO
Year	:	2005			
ItemId	:	I24			
QtyOrdered	:	100			
QtyInStock	:	50			
QtyPlanned	:	50			

Add Cancel

Home Back

SUPPLIER MASTER FORM

INDOSHELL CAST PVT LTD

Supplier Registration Form

Kindly fill the details below

SupplierID	:	S20	MobileNumber	:	09894356782
SupplierName	:	J & J ITD	Email	:	j&j@yahoo.com
Address	:	dhi Puram,Coimbatore.	AccountID	:	XXX00001222
City	:	Coimbatore	OtherDetails	:	nil
State	:	Tamil Nadu.			
Pin	:	646002			
TelephoneNumber	:	04222556677			

Add Cancel

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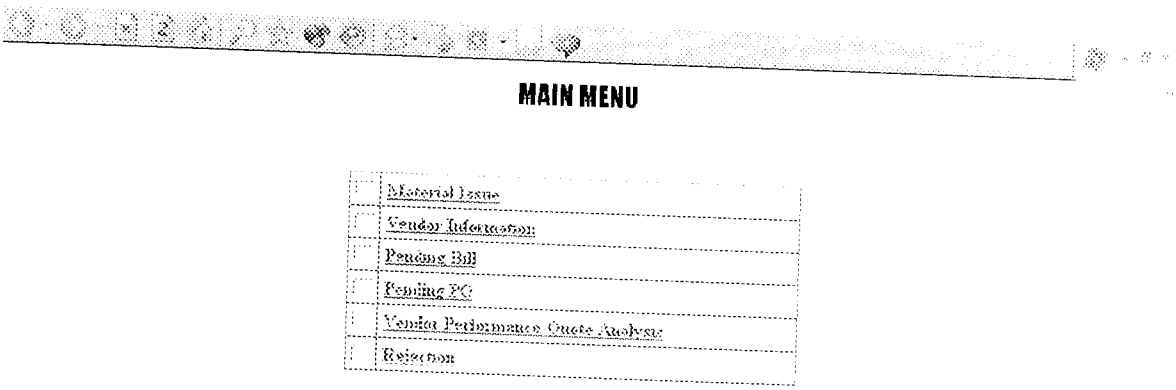
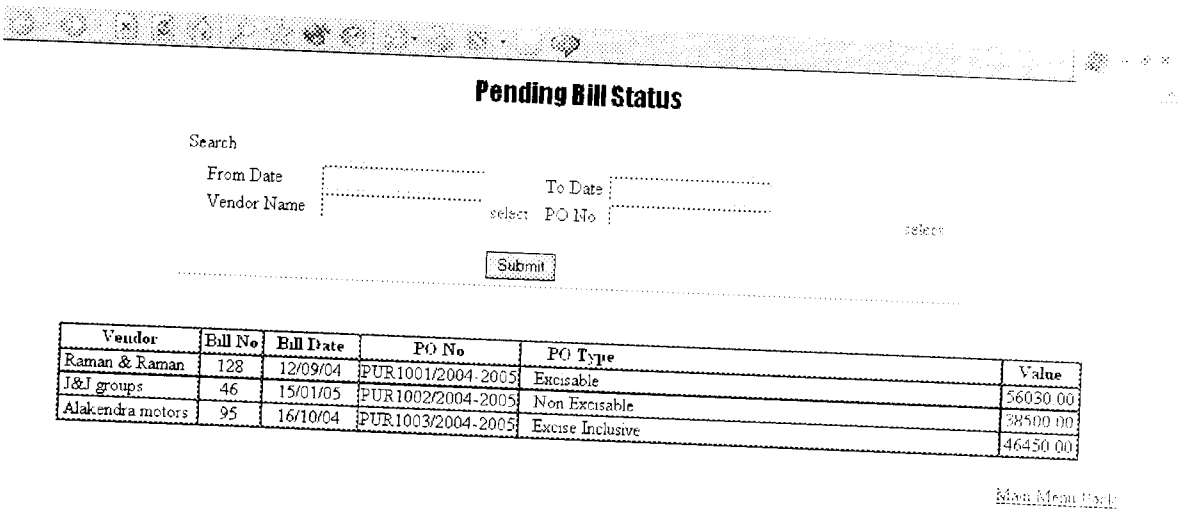
REPORT

Main menu



PENDING BILL STATUS



Pending Bill Status

Search

From Date ..... To Date .....

Vendor Name ..... select PO No ..... select

Submit

Vendor	Bill No	Bill Date	PO No	PO Type	Value
Raman & Raman	128	12/09/04	PUR1001/2004-2005	Excisable	56030.00
J&J groups	46	15/01/05	PUR1002/2004-2005	Non Excisable	38500.00
Alakendra motors	95	16/10/04	PUR1003/2004-2005	Excise Inclusive	46450.00

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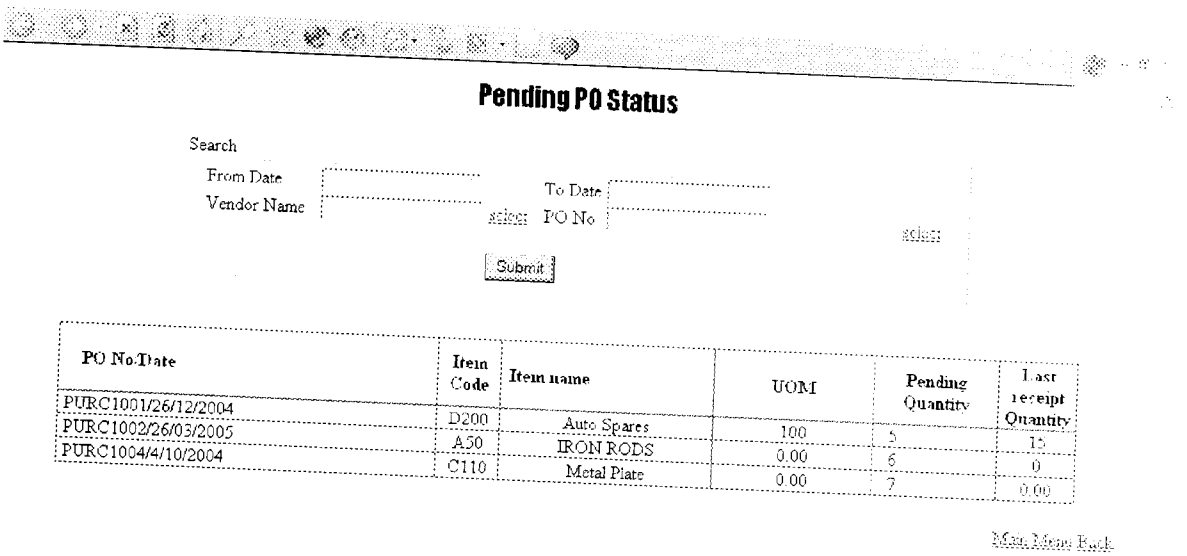
PENDING PO- PURCHASE ORDER



Pending PO Status

Search

From Date ..... To Date .....

Vendor Name ..... select PO No .....

select

Submit

PO No-Date	Item Code	Item name	UOM	Pending Quantity	Last receipt Quantity
PURC1001/26/12/2004	D200	Auto Spares	100	5	15
PURC1002/26/03/2005	A50	IRON RODS	0.00	6	0
PURC1004/4/10/2004	C110	Metal Plate	0.00	7	0.00

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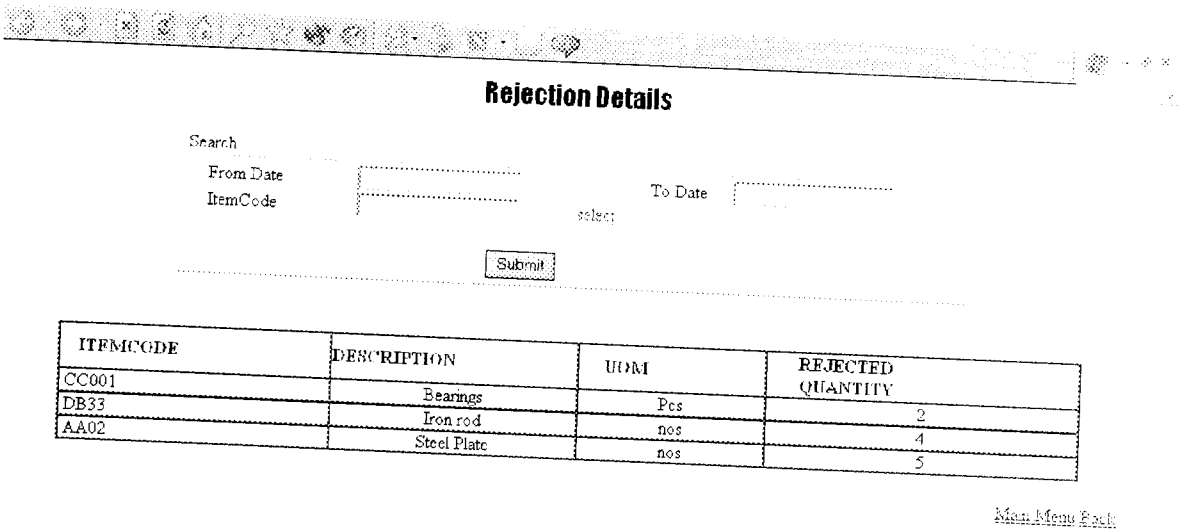
REJECTION DETAILS



Rejection Details

Search

From Date .....

ItemCode ..... select

To Date .....

Submit

ITEMCODE	DESCRIPTION	UOM	REJECTED QUANTITY
CC001	Bearings	Pcs	2
DB33	Iron rod	nos	4
AA02	Steel Plate	nos	5

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REFERENCES

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3. Herbert Schildt(1980) 'Java Server Page(jsp)'.

4. Dustin R. Callaway(2000)'Inside Servlets .Addison-Wesley., NewDelhi .