Computerized Purchase System

DISSERTATION SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF COMPUTER APPLICATIONS
OF BHARATHIAR UNIVERSITY

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By

V. SREEJITHBABU
Reg. No. 9338M0196

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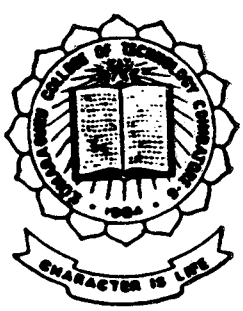

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Kumaraguru College of Technology

Coimbatore - 641 006

JUNE 1996

CERTIFICATE

This is to certify that this project work entitled

"COMPUTRIZED PURCHASE SYSTEM"

submitted to Kumaraguru College of Technology, Coimbatore (affiliated to Bharathiar University) in partial fulfillment of the requirements for the award of the Degree of Master of Computer Applications is record of original work done by Mr. V. SREEJITHBABU, Reg No. 9338M0196 during his period of study in the Department of Computer Science and Engineering, Kumaraguru College of Technology, Coimbatore under my supervision and guidance and this project work has not formed the basis for the award of any Degree/Diploma/Associateship/Fellowship or similar title to any candidate of any University.

Professor and Head

Staff in-charge

Submitted for University Examination held on 13/ /1996

Internal Examiner

External Examiner

DECLARATION

I here by declare that this project work entitiled

"COMPUTRIZED PURCHASE SYSTEM"

submitted to kumaraguru College of Technology, Coimbatore(affiliated to Bharathiar University) is a record of original work done by me under the supervision and guidance of Mr. K. MANIKANDAN B.E.,M.S.,M.I.S.T.E. *LECTURER, Department of Computer Science and Engg, Kumaraguru College of Technology, Coimbatore and that this project work has not formed the basis for the award of any Degree / Diploma / Associateship / Fellowship / or similiar titile to any candidate of any University.*

Place : Coimbatore.
Date :

Signature of the candidate

(V. SREEJITHBABU)

Countersigned by

Staff in-charge

Mr. K. MANIKANDAN
B.E.,M.S.,M.I.S.T.E.
LECTURER,
Dept. ofcomp.Science& Engg.,
Kumaraguru College Of Technology,
Coimbatore.

आईटीआई लिमिटेड
दूरवाणीनगर, बेंगलूरु 560 016, भारत
फोन (91) (80) 8511211
फैक्स (91) (80) 8511724
टेलेक्स (81) 845-2222,2573

ITI LIMITED
Dooravaninagar, Bangalore 560 016.
Phone (91)(80)8511211
Fax (91)(80)8511724
Telex (81)845-2222,2573

CERTIFICATE

This is to certify that the project work entitled **`Computerized Purchase System'** has been successfully carried out by **Mr. V. SREEJITHBABU** of Kumaraguru College of Technology, Coimbatore as a requirement for the partial fulfilment for the award of Master of Computer Applications (M.C.A) Degree of Bharathiyar University during the academic year 1995-96.

GUIDE :

(V.V. KRISHNA RAO)

Dy.Manager (DP-MIS)

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SYNOPSIS

The Computerized Purchase System has been designed at DP-MIS for handling essential purchase activities to provide on-line transaction Processing (OLTP) and to have better management control.

Purchase System has been implemented using Oracle RDBMS with frontend tools Forms 4.5 and Reports 2.5.

The data entry is done in an interactive mode through softforms (Created on the screen). The system is user friendly and guides the user throughout the operation, like entry, operations, etc., of purchase information.

Generation of various reports have been implemented using Reports 2.5.

The package has been developed keeping the need of the user in mind. It is completely menu driven and the data validation procedures have been included wherever necessary to avoid the user entering irrelevant data.

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INTRODUCTION

1.1 ORGANIZATION PROFILE

Indian Telephone Industries(ITI) Ltd., was started in the year 1954, with the aim to boost the Indian telecommunications. It is the sole leader in the Indian telecommunications industry and it has a worldwide reputation for standardness, quality and reliability of its products. The company's Research and Development departments are well equipped with modern facilities to improve and invent new products in the constantly changing telecommunications market.

ITI has four production centres situated in different regions of India, including one at Bangalore which is the biggest among them. There are more than 16000 employees employed in the ITI, Bangalore unit. There are various departments catering to the production, maintenance, and administration of the company. The important departments among them are as listed below;

Telephones
Microelectronics and Communication
Defence production
Chemical Technology
Central Electronic Data Processing
Methods(Mechanical)
Switching Division

All the divisions is having it's on independent Research and Development Departments attached to it. The company produces a wide range of products including telephones, EPBAXs, telephone exchanges, and microwave communication equipments etc.

One of the main customer of ITI is the Indian Defence. In order to provide high quality defence equipments, research and development of the defence communication equipments, and training for Defence personnel, ITI is provided with a separate Defence Production division, with the keen interest of the Defence ministry. In the previous year, the company made a jump in the defence communication era of defence by developing ASCON(Automatic Satellite Communication Network) which is an 100% computerized networking system that can withstand any possible disastrous situation.

Even though heavy competition from the multinational companies, due to the privitisation and liberalization of the telephone industries, ITI proudly stands at the top.

1.2 OVERVIEW OF THE PURCHASE SYSTEM

Information or data, is the most valuable resource of an organization. It is perhaps more valuable than money, machines or materials. It is of vital importance to ensure that this data is clean, accurate and upto-date. This can be ensured only by working in close co-operation with the management and user groups, so that one can successfully cater to everybody's information needs.

Information technology has become an increasingly important component of organizations. Technology facilitates the ongoing operations of a firm and contributes to its competitive strategy.

One of the key components of information technology is the design and development of information systems.

The scope an information system in an organization is limited by the data that can obtained, the cost of obtaining, processing, storing the data, the cost of retrieval and distribution, the value of the information to the user, and the capability of the humans to accept and act on the information. In fact the information system is designed to reduce teh cost as well as increase the capabilities of organizational information processing.

The Purchase System is developed to provide the Defence Purchase Department with the information needed to improve the purchase activities and to have better management control.

The Indian Telephone Industries follows a standard systematic procedure for purchasing items. The purchasing procedures are not same for various Purchase Departments. The Defence Production Purchase Department deals with both Foreign and Indigenous items. All the procedures are same till the ordering. They will vary after the Purchase Order has been released.

Different levels of authorization can be defined providing a sophisticated security system for transactions. Only authorized users (Transactors) are

allowed to do database updates. Rolling back and recovery on system crash are provided for transactions.

This document gives a glimpse of computerization of purchase procedures or transactions which provide an excellent environment for efficient management of the purchase activities which can't be achieved manually. Users can call appropriate programs on need basis thereby the time factor is drastically reduced. There will be an optimization of manual work, and the overall efficiency can be achieved.

2 - HARDWARE ENVIRONMENT

The Hardware Environment under which the system was Developed is as folows :

File server

Configuration Pentium 60MHz

32MB RAM

1.2 GB HDD.

(Novell Netware 3.11)

Back End :

Configuration: Pentium 60MHz,

32MB RAM,

1.2 GB HDD.

(ORACLE SERVER)

Front End :

Configuration: 486 SX 33MHz,

8MB RAM,

640MB HDD.

(Forms 4.5 & Reports 2.5 on Windows for WorkGroups 3.11)

3 - SOFWARE ENVIROMENT

3.1 THE RELATIONAL DATA MODEL

The major Data Models that have been proposed for database management are the Hierarchical, Network and the Relational models.

The relational model was first proposed by IBM'S Dr. E.F. Codd in 1970.But It has little practical significance until relational DBMS products became available in the 1980's. Codd in a 1985 paper laid out the 12 rules for relational database and in his 1990 book that defines version 2(RV/2) of the relational model through 333 rules that are subsets and expansions of the original twelve.

The Hierarchical Model was one of the earliest proposed data models. One of the most popular hierarchic data models has been IBM's information management system(IMS).A hierarchical database management system represents data as tree structures, composed of a hierarchy of data records.

The simple structure of the hierarchic database was not suitable when the data had a complex structure. In the early 1970's the hierarchical data model was modified by allowing records to havemultiple parent-child relationships. These relationships are known as sets in the network data model.

In the Relational Model, even the most complex hierarchical and network databases can be represented as a simple collection of two-dimensional tables, otherwise known as a Relational Database Management System (RDBMS).

In the relational model one type of data structure exists - tables. The uniformity of relational model gave rise to a new type of high-level database language.

Both the network and Hierarchical models require that relationships be pre-defined. adding new relationship to an already existing database is more difficult with these two model. Unlike the relational model, where the relationships are established by data values, the hierarchical and Network models represent relationships by means of separate data structures such as indexes and linked lists. There data structures must be established by the DBMS before the relationship can be presented.

The language of Hierarchical and Network database management systems are hence both procedural and record at a time. To retrieve data with these systems you must navigate or find path to the record you want and down that path by step by step. So hierarchical and Network Database management systems requires not only you make multiple requests of the data manager for each retrieval, but also that you have a detailed understanding of how the data is stored. In contrast a relational system provides automatic navigation to the data you want. It is automatic navigation that makes data readily accessible to end users.

The relational model was initially difficult to implement but now it is used in several commercially successful database management system products. There include SQL/DS and DB2 licensed by IBM for the main frame market.) .Oracle (licensed by Oracle corporation for the mini computer market) and R base system V (licensed by Microrim for the micro computer market).

The relational database management system packages that are commercially available are categorized as follows.

* Minimally Relational Systems support a structure and simple relational operators but special operators ,but special operators ,But special operators like select,project and join are not supported. File based DataBase Management systems like dbase IV and FoxPro are minimally relational systems.

* Relationally complete Data Base systems support a tabular data structure and all relational operators. Commercial relational database systems like Oracle Ingress and Unify are relationally complete systems.

Structure of Relational Databases

The relational model is based on concept that data is organized and stored in two-dimensional tables called relations one can think of a relation as a file, of each row in the relation as the record and each column as a filed. A row is called a tuple.

A column is called an attribute.

Domain is a pool of values from which the actual values appearing in a given column are drawn.

KEY

Key is a group of one or more attributes that uniquely identifies a row.

Entity Integrity [integrity Rule 1]

No component of a primary key value may be null

Referential Integrity [integrity Rule 2]

Let D be a primary domain and let R1 be a relation with an attribute A that is defined on D. Then, any given time, each value of A in R1 must be either (a) null or (b) equal to V, say, where V is the primary key value of some tuple in some relation R2(R1 and R2 not necessarily distinct) with primary key defined on D. (Note that R2 must exist, by definition or primary domain. We also note that the constraint is trivially satisfied if A is the Primary key of R1.)

Relational Algebra

Union

The Union of two relations is performed by combining the tuples from one relation with those from a second relation to produce a third relation. Duplicate tuples are eliminated.

Difference

The Difference(Minus) of two relations is a third relation containing tuples that occur in the first relation, but not in the second.

Intersection

The intersection of two relations is a third relation containing common tuples.

Product

The Product of two relations (sometimes called the Cartesian product) is the concatenation of every tuple of one relation with every tuple of a second relation.

Division

The division operator divides a dividend relation A of degree m + n by a divisor relation B of degree N, and produces a result relation of degree m.

Projection

Projection is an operation that selects specified attributes from a relation.

Selection

Whereas the projection operator takes a vertical subset(columns) of a relation, the selection operator takes a horizontal subset (rows).

Join

The Join operation is a combination of the product, selection and (possibly) projection operations.

3.2 FEATURES OF SQL

The features of SQL can be summarized as follows :-

* SQL is an interactive query language that allows users to use SQL statements to retrieve data and display it on the screen, providing a convenient easy to use tool for adhoc database queries.

* SQL is a database programming language that allows programmers to embed SQL statements in 3GL programs to access data in a database.

* SQL is a database administration language that defines that structure of the database, controls the user access to data.

* SQL is client/server language that allows application programs on PC's connected via a LAN to communicate with the database servers that store shared data. Applications using Client/Server architecture make optimum use of the PCs and servers and minimize network traffic.

* SQL is distributed database language. Distributed database management system (DDBMS) use SQL to help distribute data across many connected computer system. The DBMS software on each system uses SQL to communicate

* SQL is a database gateway language. In a computer network with a mix of different DBMS products, SQL is often used in a gateway that allows one brand of DBMS to communicate with another brand.

3.3 THE ORACLE RDBMS

The ORACLE RDBMS is a relational database management system for your computer. It is the central ORACLE product. It includes a database manager and several tools for organizing, storing, maintaining, calculating, combining and retrieving information that are intended to assist users and DBAs (Database Administrators) in the maintenance, monitoring and use of data. An Oracle database is a collection of data that is treated as a unit.

DATABASE STRUCTURE

An Oracle database has both a physical and a logical structure. By separating a physical and logical structure, the physical storage of data can be managed without affecting the access to logical storage structures.

PHYSICAL DATABASE STRUCTURE

This determined by the operating system files that constitute the database. Each ORACLE database is comprised of three types of files: one or more data files, two or more redo log files, and one or more control files. The files of a database provide the actual physical storage for database information.

DATA files :

Every Oracle database has one or more physical data files. A database's data files contain all the database data.

Characteristics of data files are:

* a data file can be associated with only one database
* once created, a data file cannot change in size

* one or more data files form a logical unit of database storage called a tablespace. The data in the data file is read as needed, during normal database operation and stored in the memory cache or Oracle.

REDO log files :

Every Oracle database has a set of two or more redo log files. The set of redo log files for a database is collectively known as the database's redo log, whose primary functions to record all changes made to data. Should a failure prevent modified data from being permanently written to the data files, the changes can be obtained from the redo log and work is never lost.

CONTROL files :

A control file records the Physical structure of the database. It gives the following types of information:

* database name
* names and locations of a database's data files and redo log files
* time stamp of database creation

Like the redo log, Oracle allows the control file to be mirrored for its protection. Every time an instance of an Oracle database is started, its control file is used to identify the database and redo log files that must be opened for database operation to proceed.

LOGICAL DATABASE STRUCTURE

An Oracle database's logical structure is determined by one or more tablespaces and the database's schema objects.

TABLESPACES :

A database is divided into logical storage units called tablespaces. A tablespace is used to group related logical structures together. Each database is

logically divided into one or more tablespaces. One or more data files are explicitly created for each tablespace to store the data of all logical structures in a tablespace.

Schema's and Schema Objects:

A Schema is a collection of objects. Schema objects are the logical structure that directly refer to the database's data. Schema objects include structures as tables, views, sequences, stored each of these objects will be dealt with in subsequent sessions.

3.4 FEATURES OF ORACLE 7.1.6

Oracle7's transparent data sharing ensures that all the new and old systems including mainframes, work together in a manageable, tightly integrated enterprise wide system. This is achieved with efficient operations, active applications, and transparent integration.

EFFICIENT OPERATIONS

* Right sizing

Oracle 7 is fully portable to more than 80 distinct hardware and operating systems platforms from desktop systems to main-frames and even super computers. This scalability ensures that the user never runs out of processing power as the system requirements increase.

* Multithreaded Server Architecture

Oracle 7 employs a self-tuning multithreaded server architecture where the number of database server processes dynamically adjusts to the current workload. This ensures excellent response time for all users with minimum system resources. The database application is a different process (a user process) from the one that executes the Oracle Server code (a dedicated server process). This configuration

splitting the processing between the client system and the database server. The speed of the DBMS is'nt tied to the speed of the workstastion, as the bulk of the database processing is done at the back end. This also has the effect of reducing the load on Network that connect the workstations.

ACTIVE APPLICATIONS

* Declarative Integrity Constraints

Oracle7 fully supports ANSI/ISO standard declarative integrity constraints, which enforces all the referential and entity integrity rules without programming.

* PL/SQL stored Procedures and Triggers

With PL/SQL stored Procedures and Triggered PL/SQL procedures, the user can enforce complex business rules at the server level, improving application reliability. These two features also reduce application development costs and improve performance.

* Role-base Security

Oracle7 delivers an advanced security architecture based on rules, which are named collections of privileges. Oracle7 roles allow organizations to have multiple DBA's and precisely control the special privileges each DBA is given.

* National Language Support (NLS)

Oracle provides extensive 8 and 16 bit National Language Support (NLS) for virtually all European and Asian Languages. Oracle7 automatically and transparently performs all necessary character set conversions.

TRANSPARENT INTEGRATION

* Transparent Distributed Database

With Oracle7, developers and end users can treat a physically distributed database as a single logical database. Production applications can also be distributed across multiple systems.

* Distributed Query Processing

With Oracle7 a single SQL statement can query data from multiple databases and even perform complex joins transparently.

* Distributed Transaction Management

Oracle automatically controls and monitors the commit or rollback of a distributed transaction and maintains the integrity of the global database using a mechanism known as tow-phase commit. The two-phase commit mechanism is completely transparent. This mechanism guarantees that the nodes participating in a distributed transaction either all commit or all rollback the transaction, thus maintaining the integrity of the global database.

* Table replication

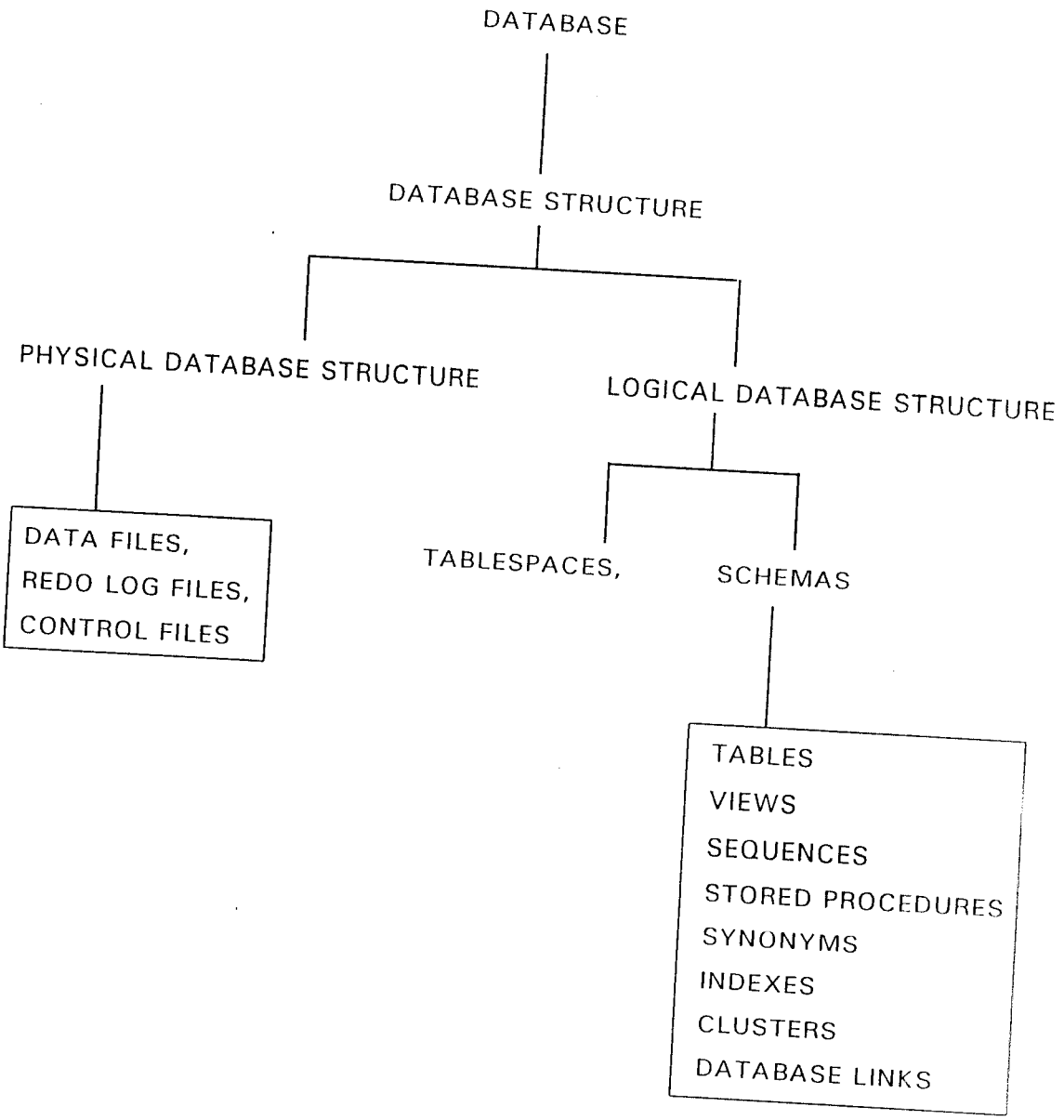
Oracle7 allows the user to transparently replicate commonly used data to multiple nodes. Table replication gives application designers a high degree of flexibility in providing end users with the performance and availability they require, while minimizing the database administration burden.

* Global naming

oracle7 supports global database names so that SQL*Plus can uniquely identify and locate all of the date in the distributed environment.

* Integration Of Non-Oracle systems

Oracle7's open architecture integrates Oracle7 and non-Oracle DBMSs and the industry's most comprehensive collection of tools, applications, and third-party software products into an industry-standard environment.



3.5 OVERVIEW OF FORMS 4.5

The World of Oracle Forms :

When you work with Oracle Forms you work in an environment that includes

* Data-entry application
* Data Base Tables containing the data that is manipulated by the application
* the operating system
* PL/SQL and SQL*Plus

PL/SQL extends the SQL language by adding block-structured procedural constructs combined with SQL's non-procedural capabilities. You will use PL/SQL to add custom processing to your forms applications in triggers and procedures. SQL*Plus lets you issue SQL or PL/SQL commands directly to the database.

*** Oracle Forms**

Oracle Forms is a tool for designing, developing and deploying forms-based client/server applications that interface with the Oracle 7 Server and other relational databases.

*** Other CDE2 tools**

An Oracle Forms application can also incorporate modules from other Co-operative Development Environment (CDE) tools, such as Oracle Reports and Oracle Graphics.

All the Oracle CDE2 application development tools use the same development environment, so once you have used one tool, you will find the others quite familiar.

Oracle Forms Components

* Oracle forms designer
* Oracle forms generate
* Oracle forms runform

How Forms Relate to Tables

Oracle forms applications are composed of the following objects:

* Form
* Block
* Record
* Item

Form

A form is group of related blocks. Blocks are the link between the form and the database, each block can relate to one table in the database.

Block

A block is a container that holds a related group of objects, such as text items, lists and buttons. Blocks contain items and have properties, just as items do.

Record

A record in a block displays a row from the database. When an operator creates, modifies or deletes a record that action causes a corresponding row in the database to be automatically created, modified, or deleted when the transaction is saved.

Items

Items are the interface objects that display information to operators and allow them to interact with your application. Oracle Forms supports nine types of interface items that you can use to build your application's interface.
Nine types of interface items are Button, Chart Item, Check Box, Display Item, Image Item, List Item, Radio group, Text Item, Custom Item.

FEATURES OF FORMS 4.5

Oracle forms is powerful application development tool for building client-server database applications that are portable to a variety of GUI character mode platforms.

Oracle forms is a part of Oracle's Cooperative Development Environment (CDE), a comprehensive set of application development tools that supports the complete application development life cycle.

Applications built with Oracle forms and Other CDE Tools are completely scalable for deployment at every level of your enterprise, for decision support applications for small work groups to mission critical ,transaction intensive projects that must support hundreds of users.

Object Navigator

The Object Navigator presents a hierarchical view of an entire Oracle Forms Design session , showing all form, menu, and library modules in an easy to manipulate list.

Properties Window

The properties window displays an object's properties in a list format.

Graphical Lay out Editor

The graphical lay out Editor lets you size ,position and edit stacked canvas views the same lay out editor window with the content view.

Graphical Menu Editor

The Graphical Menu Editor allows to create pull down menues quickly, working with a visual display of your menu.

PL/SQL Editor

The PL/SQL Editor provides a common editing Environment for both Triggers and PL/SQL subprograms.

OBJECT AND CODE REUSABILITY

Copy /Paste Properties

The copy properties command lets you copy a list of properties from one object or a group of selected objects.

Properties Classes

You can save a collection of current property settings as a named property class ,then base objects on the class, making local overrides as necessary.

Object Groups

Object Groups allow you to share common objects among many modules. You define a object group by naming a group of functionally related objects.

Copy/Reference modules

The drag and drop copy/reference function now allows referencing modules in the file system as well as in the database.

GUI CONTROLS

Responding to mouse events you may want to write code that responds to mouse events, such as single or double click.

Dynamic list elements

Dynamic list items which combine the functionality ,of a text item elements, including driving values and labels from the database at runtime.

Combo Box Style list items

Combo box list items ,which combine the functionality of a text item and a Populist are supported in Version 4.5

Toolbar Support

You can create a horizontal ,vertical,or MDI Window toolbar as a canvas and assign it to a window.

Set Cursor Style

In Oracle Forms 4.5, You can programmatically control shape using the new Cursor_style _property.

Dynamic Format Mask Support

In Oracle Forms 4.5 ,You can dynamically change format masks using the format _mask_property and Get_item _property built-in

Alter Default Navigation

You can alter the default navigation sequence at the item level using the new Next navigation item and Previous navigation item properties.

Display console

You can specify for each form which window should display the console (message and status line),using the form level property Console window.

No Root Window Required

A Form is not required to have a root window in Oracle Forms 4.5.

Display Single and Multiple item instances in a block

You can now independently control the number of instances of each item displayed in a multi record block using the new item displayed property.

Base Multiple Items on the same on column

You can now have more than one item corresponding to the same base table column, using the new item property, mirror item.

Alter Default Navigation

You can alter the default navigation sequence at the item level using the new next navigation item and previous navigation item property.

Display Current Record

You can create a named visual attribute and apply it to the current row using the current record attribute in color property.

PL SQL INTERFACE

Source-Level Debugger

The source-level debugger allows you to debug PL/SQL code at run time including setting break points, single stepping, examining and depositing values and examining the call stack.

Editing Environment for stored procedures

Through Oracle Forms 4.5 the Generate utility will recompile only code which has been changed.

Trigger Execution Style

Using a new execution style trigger property you will be able to specify whether you want the lowest-level trigger to override any like-named triggers at higher levels or if you want the lower level trigger to fire before or after higher level triggers fire.

Calling Foreign Functions

In Oracle Forms 4.5 you can call foreign functions (functions written in any 3GL programming language, such as C) from a PL/SQL interface.

DATABASE INTEGRATION

Multiple Open Forms

Oracle Forms applications can now opened multiple forms simultaneously. Complex applications can be developed as a collection of modular forms, which may co-operate at runtime.

Multiple Sessions per Connect

In Oracle Forms 4.5 you can establish a separate transaction environment for which each Form in a multiple Form applications, so an independent form can issue commits even if other forms have pending transactions.

Applications Security

Oracle Forms 4.5 allows you to implement menu security using the Oracle 7 Server application security roles stored in the Oracle 7 data dictionary.

Insert Update Only Changed

You can use the new Update Changed Columns property to save on network traffic by specifying that only changed columns should be included in update column statement.

MS WINDOWS EXTENSIBILITY

VBX (Visual Basic Executables) controls

VBX controls, such as knobs and sliders, are available from several third party sources (Visual Basics, Visual C + + etc.) and can now be included in Oracle Forms applications as custom items.

OLE2 Container Support

Object Linking and Embedding (OLE) allows MS Windows applications to create compound documents, documents that includes objects from other windows applications.

OLE2 Automation

PL/SQL built-ins can interrogate and call the methods of any registered OLE2 server that supports automation.

SDK Support

If you use the MS Windows Software Developer's Kit (SDK), you can use new window-handle property to programmatically obtain the Windows handle for any Oracle Forms object so you can refer to it in user exit code.

3.6 ORACLE REPORTS

Oracle reports is a tool for developing, displaying, and printing production-quality reports.

FEATURE-RICH

Oracle Reports enables to create a wide variety of reports, including master/detail reports, nested matrix, reports, form letters, and mailing labels. Major features include:

* data model and layout editors in which you can create the structure and format of your report.

* object navigator to help you navigate among the data and layout objects in your reports.

* packaged functions for crating computations.

* support for fonts, colors, and graphics.

* conditional printing capabilities.

* fully-integrated Previewer for viewing your report output.

* context-sensitive on-line help system.

NON-PROCEDURAL APPROACH

The Unique non-procedural approach of Oracle Reports lets you concentrate on designing improvements instead of programming. Oracle Reports easy-to-use, fill-in-the-form interface and powerful defaults make developing and maintaining even the most complex reports fast and simple.

PORTABILITY WITH GUI CONFORMANCE

Oracle Reports adheres to the native look-and-feel of your host environment. You can create reports on bit-mapped platforms and run them on character-mode, bit-mapped, and block-mode platforms with the guarantee of identical functionality and complete compatibility across all systems.

INTEGRATED WITH OTHER ORACLE PRODUCTS

You can integrate Oracle Report with other Oracle products such as Oracle Forms, Oracle Graphics and Oracle Office. For example, you run a report using Oracle Forms triggers, include graphics and charts in a report and send output to other users via Oracle Office.

OPEN ARCHITECTURE

Oracle Report's open architecture enables you to incorporate user-defined routines written in COBOL, C and most other programming languages, as well as the powerful PL/SQL language. You can always present information exactly the way you want.

4 - SYSTEM STUDY AND DESIGN

4.1 SYSTEM STUDY

An information system is an integrated, user-machine system for providing information to support the operations, management, and decision making functions in an organization.

PURCHASE REQUISITION

The purchase procedure starts usually with the user who is called the Originator, who needs the material. The Originator makes a Purchase Requisition by filling up a Purchase Requisition form meant for it. After the approval of the departmental head, the Purchase Requisition form is sent to the Purchase Department. The Purchase Requisition form is meant for a single item. If the Originator needs more than one item, he has to attach an enclosure along with the PR form, which contains the description and quantity of the item required by him.

The Purchase Department will scrutinize all the information present in the PR and also check for the presence of technical write-up in the case of Foreign items, proprietary justification letter, if the item is proprietary and also enclosure to the PR in the case of multiple items.

If the quotation from the supplier is enclosed along with PR's, by the Originator, order can be released by the approval of Material Manager (Defence Purchase) on urgent cases only. On approval, an enquiry has to be sent to the concerned supplier.

In case of capital items, the Capital Sanction letter should accompany the PR. If there is any ambiguity, purchase officer and then registered. On being registered, the Purchase Officer allots a number called Purchase Registration Number (PR No.) which gives the certain amount of information regarding the PR.

All the Purchase Requisition will be scrutinized in the Purchase Department for validity of word-order, source of supply, proprietary justification, technical write-up, etc. and Purchase Requisition will be registered. Approval of Purchase Requisition for their value will be as per the management instruction given from time to time.

RELEASE OF ENQUIRIES

Based on the value and the type of the item approval has to be obtained from different committees. The following table shows the composition of various committees which are vested with powers to release enquiries.

SPC - I

Chairman	GM-S/GM-R/GM-N
Member	Head of the concerned project group
Member	Financial Controller
Member	Head of the purchase section

SPC - II

Chairman	Head of the Purchase Section
Member	Head of the concerned project group
Member	Finance representative
Member	Engineer Executive(Purchase)

Enquiries will be released to the suppliers in the case of proprietary items and to limited number of suppliers for limited tender and as an advertisement in newspapers calling for quotations and technical details within a specified time. This is done only on the approval of the concerned committee. Usually the enquiries will be released in the purchase enquiry form excepting the open tender.

TENDERS

The tenders received within the stipulated time are opened in the presence of an authorized person from the Audit and Accounts Departments and/or the representative of the supplier.

A tabulation sheet is prepared indicating the details of each tender. This tabulation sheet along with the relevant information brochures are sent to the originator for technical scrutiny and recommendation. On the receipt of recommendation of the originator, a work sheet for the items selected, will be prepared.

APPROVAL OF ORDER AND RELEASE

Depending on the cost of the materials, the approval to release the Purchase Order has to be obtained from the respective committee/authority.

The constitution of various committees to approve the orders is shown in the following table.

1.	For purchase upto Rs.50,000/- accompany the PR.	Approval from Materials Manager. Proprietary certificate should
2.	For purchase between Rs.50,000/- and Rs.5,00,000/-	Approval from GM-S/GM-R/GM-N based on the opinion of DCEC -Q/CE(SQ)
3.	For purchase above Rs.5,00,000/-	Approval from proprietary committee consisting of.
a)	Chairman	GM-S/GM-R/GM-N
b)	Member	CE(SQ)
c)	Member	DCEC(Q)
d)	Member Secretary	Materials Manager

The recommendations of the committee is to be approved by EDR(DP).

The following limits will be exercised in the issue of Capital Sanction subjects to financial concurrence.

1.	GM-S/GM-R/GM-N	Purchase value upto 2 lakhs
2.	EDR(DP)	Upto 5 lakhs
3.	Chairman	Above 5 lakhs

For capital items, the following purchase procedure will be followed.

1. Upto 1 Lakhs will be treated as Non-SPC cases and dealt by MMR. Between 1 Lakhs and 3 Lakhs will be dealt by SPC-II and purchase above 3 lakhs by SPC-I.

2. Purchase above Rs.5 lakhs and upto 10 lakhs will be approved by EDR(DP) and SPC recommendation.

3. Purchase above Rs.10 lakhs need the approval to CMD after SPC-I recommendation.

After these committee meetings the Secretary will prepare Minutes of the meetings and circulates a copy of to the members for their concurrence. The purchase Order will be released after the selection of the vendor by the SPC and after the financial concurrence of the accounts member of the committee.

If the cost of the item exceeds Rs.1 lake, it has to be preaudited before releasing the Purchase Order. Once the Purchase Order is released it will be entered in a monthly commitment register. The forms for Indian Purchase Order are different from Foreign ones. The Purchase Order is given a number which is usually the Purchase Requisition number with a suffix added to it. If there is more than one order to be released on a single PR the suffixes A,B,C.... are added to the PR number.

Normally the originators' recommendations on the suppliers will be upheld, eventhough the SPC (Stores Purchase Committee) selects a order other than the one recommend by him. The procedures for the procurement of Indian and Foreign items are quite different from one another. The originator has to justify in case he goes for a costlier offer. The SPC may consider his offer if it is technically justified.

INSPECTION AND ACCEPTANCE

Once the materials are cleared from the Airport/supplier godowns, they are checked in the Inward Goods Section for the quantity and items. Then Inward Goods Advice (IGA) note will be prepared for the delivered quantity.

After the delivery of the materials, the Inward Goods Inspection will check for any damage during transit. If there is any damage or shortage the purchase cell will be informed about it and a claim for insurance is made. Otherwise six IGA notes are prepared by the Inward Goods office along with the material and are sent to the originator for inspection.

In case of acceptance of materials, 2 copies of IGA notes are retained by the originator, 2 copies are sent to accounts, 1 copy to the IGA office and 1 copy to the purchase cell.

If rejected, the IGA note will be sent to purchase cell for taking suitable follow-up actions and the materials will be retained in the Rejected Materials Stores. The supplier will be asked to repair or replace the material or equipment and further inspection and testing will be conducted. Once the materials are accepted, the same will be put again to the IGA cell for preparation of a fresh IGA note. On the acceptance of the material, payment will be made as per terms of the contract.

TERMS OF PAYMENT

Indian Items

Usually, the terms of payment of Indigenous items are as follows.

Indian Advance Payment

Normally, advance payment to the extent of 50% of the order value will be paid to the supplier along with the order under the following conditions. However, a suitable Bank Guarantee will have to given by the Supplier for the advance amount.

1. Where the turn-key projects are carried out by Supplier (Manufacturing, Inspection, Commissioning, Testing and Warranty).

2. Small scale industries and Company ancillaries are eligible for advance payment subject to the approval of the management.

Indian Against Delivery

Under this terms of payment the payment will be made against receipt of material at the works an advance profoma invoice for each delivery will be sent by the Supplier in advance and the check will be kept ready to enable the supplier the collect the payment immediately after delivery. Normally, this payment will be made only for 90% of the value and the balance of 10% will be paid only on acceptance of the material.

Indian Through Bank

Some reputed firm will insist for payment through Banks. They will despatch the materials and documents like Railway Receipt(RR), Lorry Receipt(LR) and Goods Carrier(GC) notes to the Bankers. The Bank releases GC notes/LRs etc., only on receipt of payment and the Bank will take responsibility to give the money

to the supplier. In the case of Registered Post Parcels, the parcels will be consigned to Banks, the Bank will intimate the purchase office to pay the money to the Bank and take delivery of the material.

Indian After Acceptance

For all the not established sources/new suppliers, the payment will be first and they have to despatch the materials and only after complete inspection and acceptance, the payment will be made for accepted quantities within 30 days from teh date of supply.

FOREIGN ITEMS

In the imported items, teh exchange prevailing on teh tender opening day will adopted. The terms of payment for the Foreign items are as follows.

Foreign Advance

Normally for books, journals the payment is made in advance by Demand Drafts for teh reputed publishers for a maximum amount of 2000 Dollars. Certain reputed manufacturers for small value orders also insist for advance payment. The maximum allowed amount is 1000 Dollars.

Foreign Letter of Credit

The Letter of Credit will be established in teh Foreign Bank which is accessible to the supplier (wherever State Bank of India branches are located, if not the bankers suggested by the supplier). This almost is a guarantee to pay this supplier immediately after teh submission of despatch documents. It involves lot of documentation works, so normally it is not preferred to smaller value of orders.

Foreign Sight Draft

Under this clause the supplier will despatch the consignment and submit teh documents to the Bankers through their Bankers on collection basis only after ascertaining teh receipt of materials at the Airport/Dock. The payment will be mode to the supplier through the Bankers.

The material imported for Defence Research purposes are exempted from Customs Duty, if such items are not manufactured in India. Immediately after releasing the Purchase Order, teh purchase office will apply for Customs Duty Exemption Certificate. In come cases where the projects are registered, a separate license will be obtained and a DOT certificate to avail concessional duty of 25%.

LETTER OF CREDIT ESTABLISHMENT

Order acknowledgment/profoma invoice will be sent by the supplier to the purchase office within the specified time. On receiving it, the purchase section will arrange to establish the LC through the Bankers with teh Foreign Bankers mentioned prescribed form and sent to the Indian Agent. The LC will be established for the amount excluding the commission payable to teh supplier's Indian Agent. The validity date depends on teh delivery date given by the supplier.

After the LC establishes, the details are sent to the supplier asking him to despatch the material before expire date of the LC. If the delivery is not effected within the delivery date or date of the LC, the LC will be extended for a further period of 1/2 quarter on a specific request from the supplier. However the charge incurred to effect the amendment will be deducted from the agency commission bill of the Indian Agent.

INSURANCE

As per the terms of conditions of the orders, the insurance will be made. All suppliers are instructed to send one set of documents immediately, when teh consignment is booked for Indian Telephone Industries. If the value is more than 10 lakhs a telex/cable has to be sent by giving full details for insurance purpose.

As soon as the documents are received the same will be sent to the insurance section and will entered in registers kept separately for India/items. The insurance will cover teh value of teh invoice and Freight charges. Generally this insurance will cover period of 6 months. By any chance, if the materials are not cleared within 6 months, they have to extend the insurance claims till teh material cleared. Teh liability of insurance is to make good invoice value plus freight charges where the material are lost in transits/damaged/broken etc. This will be claimed through a separate claim form. In case the value is less than Rs.500 the amount will be reimbursed on the monthly statements sent to insurance company.

PURCHASE REQUISITION AMENDMENTS AND ORDER AMENDMENTS

Sometimes the Originator may need to change his Purchase Requisition for the quantity of item, the desired delivery date or changing technical specification etc. These changes can be made through a PR amendment slip.

If Purchase Order has already been released the changes will be made through an order amendment form and sent to teh supplier. If not, teh changes will included in teh Purchase Order after getting the approval from the concerned authorities.

4.2 FEASIBILITY STUDY

During the feasibility study it was found out that in the existing system lot of drawbacks exists.

The problems faced by the Purchase management are listed below.

1. Software are developed on different platforms and hence they can't talk to each other.

2. Various function of the organization are computerized in bits and pieces which can't be integrated.

3. Many existing software pieces are not documented and also can't guarantee operation.

4. The Purchase Requisition and Purchase Orcer pass through many stages and normally it is difficult to ascertain the current status of the same.

5. It is difficult to know whether all Purchase Requisitions are covnereted into Orders or not.

6. It is difficult to prepare all the reports needed by the corporate management and submit them in time.

Due to these problems the personnel at the Defence Purchase Department suggested to develop an information system through the DP-MIS department which would provide them with necessary information to take corrective measures to improve purchasing efficiency.

Today, ITI Ltd. is entering into competitive market. To respond to market needs, we have to have strategic decisions. These decisions have to be taken in right time. For this the information system has to be geared up to respond to the needs. This in turn requires that the information should be readily accessible

without elaborate effort to retrieve the same. Without a well defined and established software, management can not relay on teh computers for information and this will defeat the whole purpose of having these machines.

On the other hand, the internal processing of information also should be computerized on line to speed up the communication between functional units. Such systems not only help the user to carry out the activities, but also builds up the vital and reliable database.

To summarize, software development should adopt following strategy :

1. Common generalized software
2. Do-ordination by a central agency.
3. Development through continuous user interaction.
4. Software which can grow with requirement.
5. Software should run on available hardware(PCs).

The effort and time spent in developing a new system is less when compared to the operating of the existing system.

The results from the feasibility study has shown that a new improved system was in the wanting.

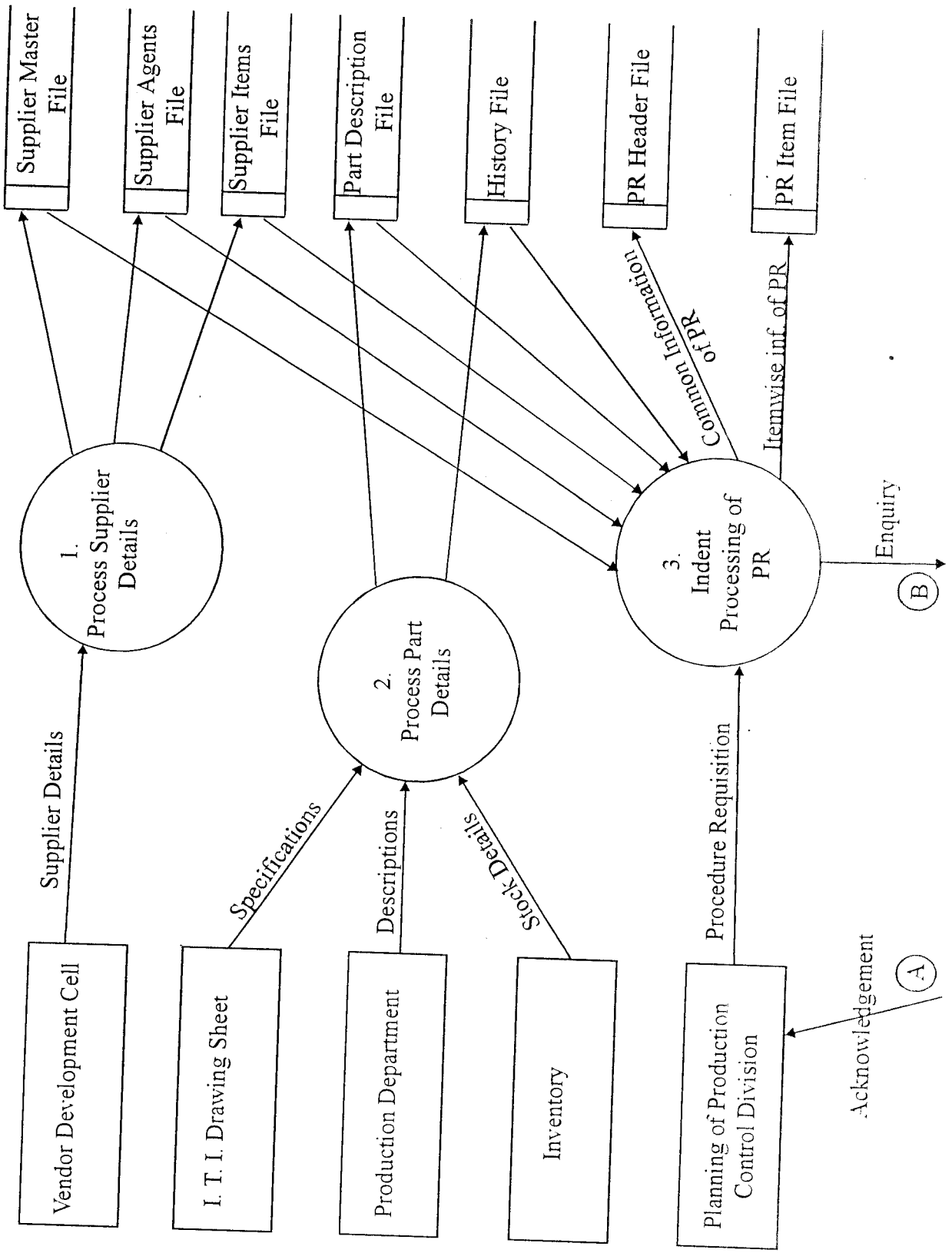
4.3 SYSTEM DESIGN

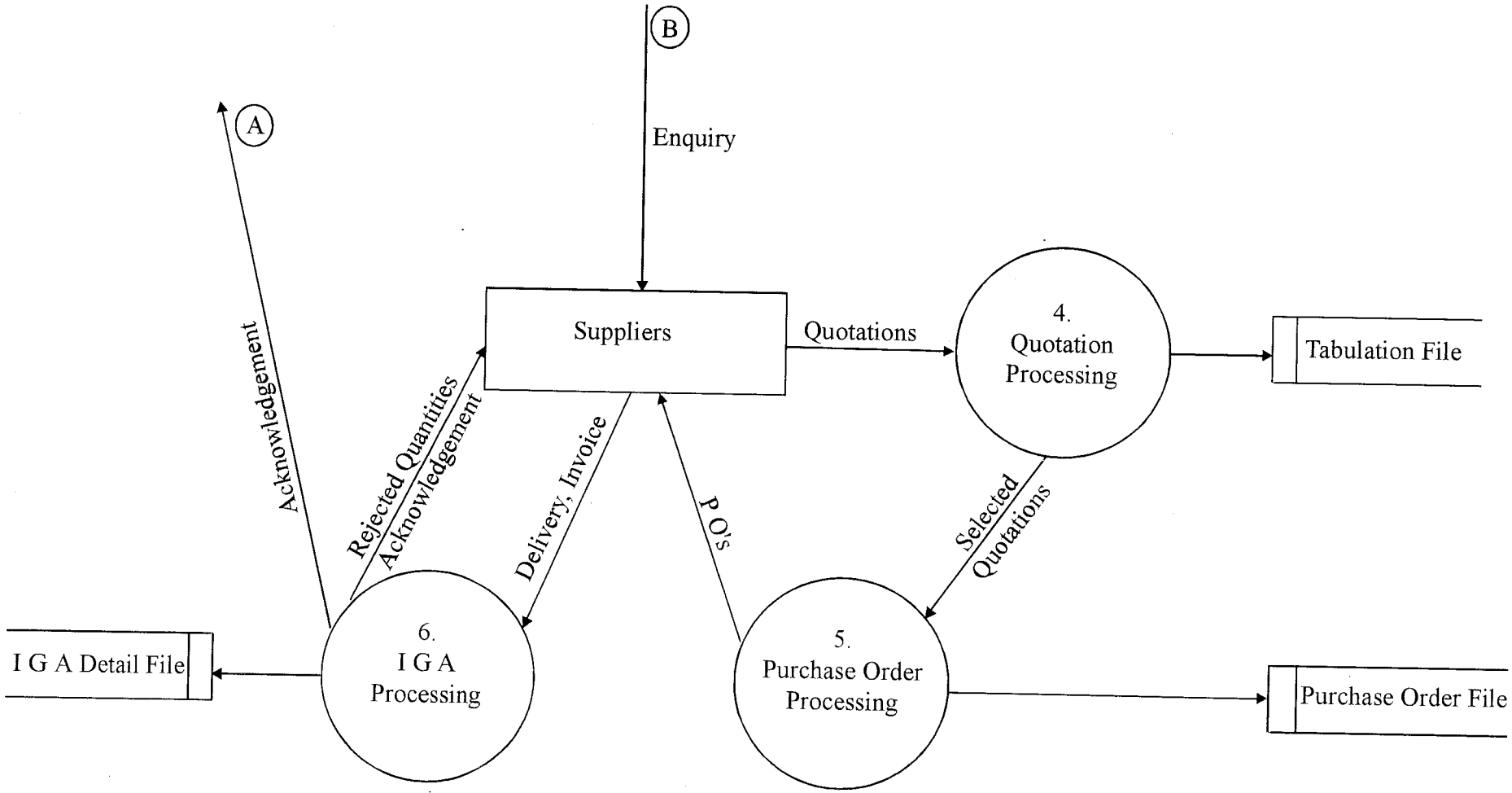
Once the system study is over, the detailed design of the physical system can commence. This part deals with the input design, file design, and output design phases. Since all these aspects are interrelated they will not be designed in isolation but in an integrated way.

The Design of the system is completely based on the requirements of the user. The software is menu oriented and helps the user to select the process he/she wants.

4.3.1 DATA FLOW DIAGRAM

(DP-PURCHASE SYSTEM, ITI Ltd.)




B
Enquiry
A
Acknowledgement
Suppliers
Quotations
4.
Quotation
Processing
Tabulation File
Rejected Quantities
Acknowledgement
Delivery, Invoice
P O's
Selected
Quotations
I G A Detail File
6.
I G A
Processing
5.
Purchase Order
Processing
Purchase Order File

4.3.2 INPUT DESIGN

The screens are well laid out without any cramping of input fields. Prompts are available wherever possible, so that the user can select input values from LOV(List of Values). Thus, the screens are designed to be very user-friendly.

Validation at the screen design level helps in solving a lot of difficult problems in the later stage of programing. Keeping this fact in mind the screens have been designed to avoid any erroneous data, and any fraud from entering into the system.

Screens wherever needed, are designed to handle multiple record manipulation, such as addition, deletion etc.

The various screens and their functions are as listed below;

Supplier Code & Address Screen : This screen is used to get the details of a particular supplier and his address.or change the same.or view the existing ones.

Part Description Screen : In this screen Description of a particular item is received or changed or can browse through the existing ones or delete the same.

History Item Screen : In this screen History of a particular item is resolved or changed or can browse through the existing ones or delete the same.

PR Screens : In these screens various details regarding the PR are received. It can be used to modify or delete PR's which are not gone to Enquiry.

PR Registration : in this screen is used to make ready the PR for Enquiry stage.

PR cancellation : PR details for cancelling are received.

Enquiry screen : In this screen Details of a new enquiry is resolved or changed or can browse through the existing ones or delete the same (if not released).

Release Enquiry : In this screen Enquiry is made ready for release to suppliers.

Cancel Enquiry : In this screen Enquiry is canceled if it is not yet released.

Tabulation screen : In this screen various item related informations for calculating the unit price of an item are received from the quotations sent by the suppliers.

PO Screen : In this screen all the details for the purchase Order are added including the supplier details.unit,rate,delivery schedule..etc.

IGA screen : Here the details of items delivered by the customer are entered.

The screen layouts are available in **Appendix A.**

4.3.3 FILE DESIGN

It is very important that the files designed are capable of storing all the information needed. Repetition of fields, that is, storing the same information repetitively, should be kept to the minimum. This ensures us that the database is consistent.

The table names and their functions are as listed below;

Supplier Master : This table stores supplier codes and their addresses.
Supplier Agents : This table stores supplier Agents Details.

Supplier Items : This table stores various items supplied by suppliers.

Part description : this table stores the part details of a particular item.

History : In this table various History details such as previous year consumptiion,rate etc are stored.

PR details : In this table Purchase Requisition Details are stored.

Enquiry table : In this table various details of enquiries made in to customers are made.

Tabulation Table : In this table various information needed for tabulation of quotations are made.

IGA table : In this table various item details delivered by the customers such as delivery challan no.,noof items accepted after testing, etc are made.

The table formats are available in **Appendix B.**

4.3.4 OUTPUT DESIGN

Output designing is a very important phase in the designing of a system. The important objective of any system is in its capability of producing high quality outputs or reports.

Some of the outputs or reports produced by the system are listed below:

Valid customers list for an Item:

This report shows the available valid customers for a particular item.

Enquiry:

This is the document sent to the suppliers requesting the supply of a particular item.

Comparative list of suppliers for a particular Item :

This list contains list of suppliers in ascending order of unit prize calculated in this tabulation module.

Purchase Order

This is the official document for purchase of an item in agreement with the supplier.

IGA Report :

This report contains details of delivery of a particular item such as No. of items recieved,No of items accepted,supplier details,Del. challan No.etc.

Sample Reports are available in **Appendix C.**

SYSTEM IMPLEMENTATION AND TESTING

5 - SYSTEM IMPLEMENTATION & TESTING

5.1 SYTEM IMPLEMENTATION

Why choose Oracle ?

Oracle has had many years in the relational market to fine tune their offering on large, complex applications. Although the functionality and interface of micro computer based systems like dBase 4, Foxpro etc., are appealing., their multiuser capabilities access controls and SQL compatibilities have been very limited.Although Oracle demands greater expertise on the part of the application development, Oracle will be able to keep pace with growth and change in the establishment.

Oracle Gives You Security & Control

Disaster recovery can be extremely problematic . Oracle has several features that ensures the integrity of the database. If an interruption occurs in processing a roll back can reset the database to a point before the disaster. Oracle has a roll forward command for recreating the database to its most recent safe point. Oracle provides users with several functions for securing data. GRANT and REVOKE commands limits access to information down to the row and column levels. Views are a voluble feature for limiting access to the primary tables in the database.

Oracle Performs Competitively

Oracle has been constantly improved to perform competitive on largest databases . Since a relational database systems have been hampered by reputation for slow access times. Oracle have had to prove itself continually. The result is that quickly and automatically calculate the best path to the data and sophisticated fast indexing routines.Oracle's unique clustering forms for accessing the database.

CODING

Once the problem has been recognized, the actual system design starts.

The complexity of a problem can be reduced by dividing the problem into various modules. Keeping this in mind, the present system has been divided into six modules namely

1. Source of Supply Module
2. Part Description and History Module
3. Purchase Requisition Module
4. Enquiry Module
5. Purchase Order Module
6. Inwards Goods Advice Module

1. Source of Supply

This module maintains supplier details, which is required for Enquiry, Purchase Order and Inward Goods Advice modules. For every supplier, his name, place, address, items supplied, agents etc. is maintained. Through this module user can add, update or remove above information.

This module is further divided into sub module as below:

1. Supplier name and address.
2. Supplier items.
3. Supplier agents.

For each of the above modules the user can do the following transactions :

1. Add new

Entering information about new suppliers.

2. **Modify**

Modifying existing information.

3. **View**

To browse through existing information.

4. **Delete**

Canceling information about existing suppliers.

5. **Reports**

This option enables user to make various reports regarding the suppliers and items they supply.

PART DESCRIPTION AND HISTORY MODULE

Any item, which participates in purchase activity, is required to have information like item code, description, specification, consumption history, stock, unit etc. Once this information is defined, the system will refer this information for all future PRs and POs on this item.

Through Part Description and History module, above information can be maintained. Only an item having above information is eligible for any transactions in the Purchase System. This module consist of two options:

1. **Part Details:**

Through this option program will bring a submenu with options to Add, View, Modify, Delete the various part information of a particular item. The part details are contains the following information about an item.

a) Specification of the item.
b) Issue No.
c) Material Class.
d) ABC Class in which the item belongs to.
e) Foreign or Indian.
f) Issue date.
g) Drawing position of the item in the I.T.I. drawing sheet

2. History Details:

For any item available in part details History details can be added. Following information is maintained in history details.

a) Previous year consumption.
b) Current year consumption upto-date.
c) Safety Stock.
d) Unit of measurement.
e) Quantity in stock.
f) Date of updation.

PURCHASE REQUISITION MODULE

Purchase Requisition module helps the user in raising, maintaining and following up of Purchase Requisition. This is the beginning of Purchase activity.

STRUCTURE OF PURCHASE REQUISITION

PR is essentially a note for Requisition of items for a specified quantity. One PR document is permitted to contain many items. Usually all the items under a particular PR will belong to same Group.

PR consists of two parts. One is the item related information of PR (termed as the PR item) and the other is common information of PR (termed as the PR

header). Hence for afresh PR, item information is accepted after taking PR Header information.

The PR header contains following information:

a) Date of raising the PR.
b) Project which requires this item.
c) Department Number.
d) Head of Account.
e) The Originator.

Under PR item the following datas are available:

a) General Source of supply.
b) Customer for the equipment for which this item is required.
c) Material type.
d) Category (Production, capital or revenue).
e) Method of Procurement (Proprietary, Fabrication etc.)
f) Despatch sight.
g) Foreign or Indian.
h) Despatch Schedule.

The PR module have following options:

Create New

When it required to raise a fresh PR for an item, this option should be chosen. PR can be raised for any item which is available in history file. Using this option user can create new PR header and add new items to the PR headers existing, if not released the PR.

The PR marked as ready will be registered with an enquiry number. This also indicates the PR module that the particular PR is under enquiry processing. This module consists of following options.

1. **Register PR.**

On choosing this option, user will be prompted to enter PR reference number and registered with a enquiry number.

2. **Release Enqiury.**

In this option enquiry is released to valid suppliers.

3. **Update Quotation.**

This option is to acknowledge the arrival of quotation.

4. **Cancel Enquiry.**

This option will help in canceling a wrongly registered enquiry. After enquiry is released corresponding PR will be treated as not touched by enquiry module. Hence fresh registration and release has to be done.

TABULATION MODULE

After the enquiry is released, supplier will respond to the enquiry through quotations. These Quotations has to be analyzed to find best alternative to place order. This module helps the user to tabulate the quotations to find effective unit rate of item and comparisons of various quotation for various items quoted.

Tabulation module has following options:

1. Addition of tabulation header

On choosing this option the following information about the quotation is entered.

a) The rate is applicable for delivery up to what point.
b) Medium of transport for despatch.
c) discount is on quantity or credit.
d) Where the inspection will be done
e) What percent will be paid in Advance/On delivery.
g) How the payment is maid
h) Currency -Rupees for Indian suppliers and the relevant currency for Foreign suppliers.
i) Duties - Here different duties for Both Foreign and Indian Items are entered.

2. Addition of tabulation Item.

In this option the following Informations are added.

a) Quantity Quoted.
b) No. of units for which rate is quoted.
c) Rate quoted for above no. Of units.
d) Discount.

Using these above information the unit cost of item is calculated and stored for further manipulations.

3 Printing comparison table.

Using this option , a table containing various suppliers quotations for enquiry can be generated. This will give effective unit rate of various items of various suppliers.

PURCHASE ORDER MODULE

This module takes care of pacing and maintaining the order to right supplier for an already chosen item. The options of this modules are listed as follows :

1. Add PO- Header Information

Here the following confirmed information regarding the particular purchase order are added.

a) Rate is applicable for delivery at what point.
b) Medium of transport for despatch.
c) Where the inspection will be done.
d) Discount is on Quantity or Credit.
e) What percent will be paid in advance/ on Delivery.
d) Payment mode.
e) Currency type .
f) Various duties applicable for both Indian and Foreign items.

2) Addition of PO-item information.

a) Quantity Quoted.
b) No. of units for which rate is quoted.
c) Rate quoted for above no. Of units.
d) Discount.

3) View or Edit PO Header/Item

This option the user can edit the PO-Header or PO-item Information if it is not released.

4) Cancel PO Header/Item

This option is used to cancel a PO - Header or PO item information. If PO Header is cancelled then all items belonging to that Header is also cancelled.

5) Release Order

This is to mark as the order is released. After this point no edition of particular purchase order is possible.

6) Print Order.

Using this option Order document can be printed.

INWARD GOODS ADVICE MODULE

When an order is placed to a supplier, he will start supplying the material., which will be despatched to the location specified by the order agreement. The items will be moved to the Inward Good Inspection (I.G.I). I.G.I will inspect the goods and classify the goods as

- Accepted as per specification.
- Accepted with deviation to Specification.
- Accepted after Rectification.
- Rejected.

This module will help user to generate and maintain IGA and item details. This module has following options.

Add new information

Whenever an item comes to the IGA Department the following details are entered.

a) Supplier Order Number
b) Item Code
c) Delivery Challan Number

d) Parcel Details

e) Quantity Received

f) Quantity Accepted after inspection

g) Quantity Rejected

Cancel IGA Details

In this option user can delete a wrongly entered information.

Modify IGA Details

Here user can edit IGA information for correction.

View IGA Details

Here user can browse through existing IGA records.

Printing IGA Details

Using this option user can print IGA details of a particular item supplied by particular supplier.

5.2 SYSTEM TESTING

The system is tested for all types of possible data input and output is checked for correctness.The database is accessed by only the authorized users and DBA can control various levels of user access. The system is reliable and the ORACLE RDBMS supports all types of system recovery procedures and security against data correction and system failures.

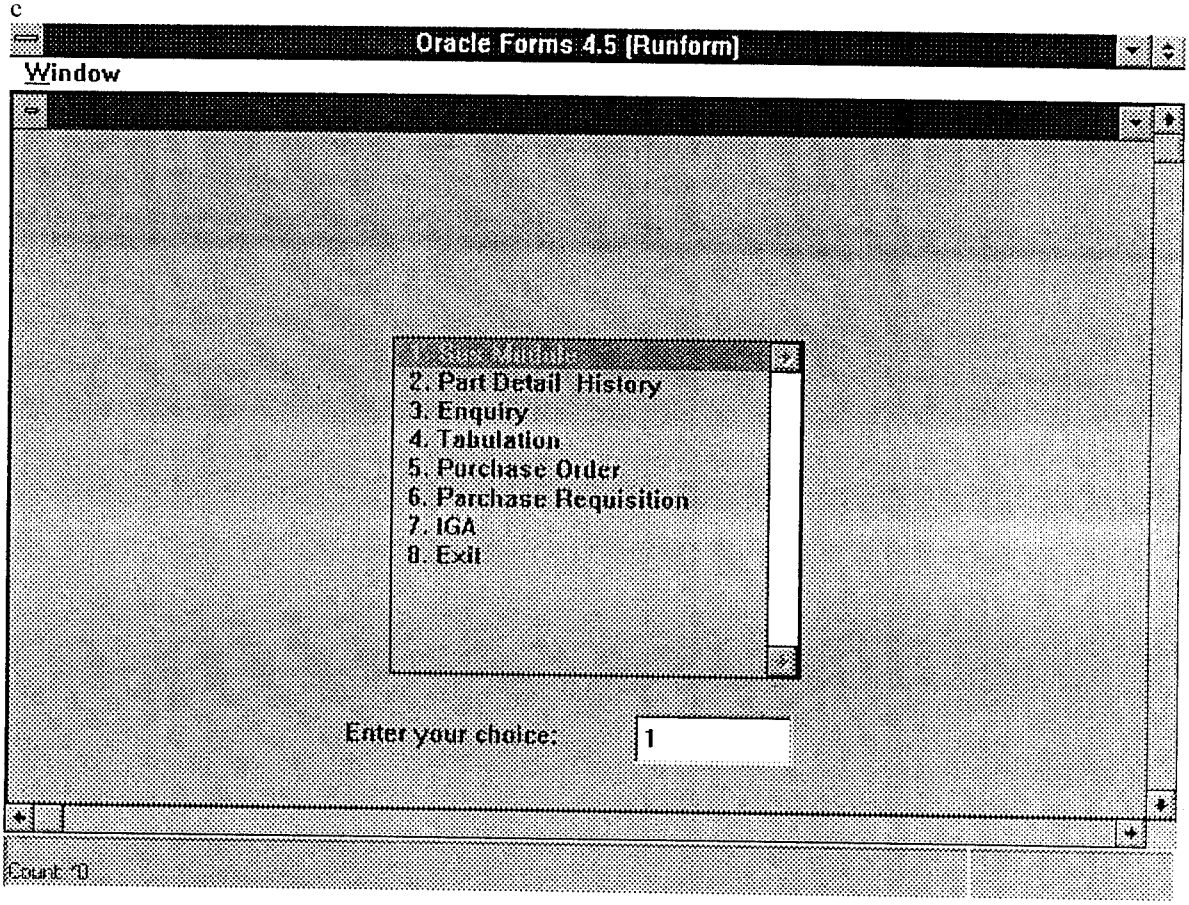
CONCLUSION AND SCOPE FOR FUTURE EXPANSION

6 - CONCLUSION AND SCOPE FOR FUTURE EXPANSION

The developed system has been found to function well under all load conditions and it satisfies all user requirements.

It is possible to change the system so that it can be made in to a general system which can be used by any purchase departments of I.T.I Ltd. or any other organization.

c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3. Enquiry
4. Tabulation
5. Purchase Order
6. Purchase Requisition
7. IGA
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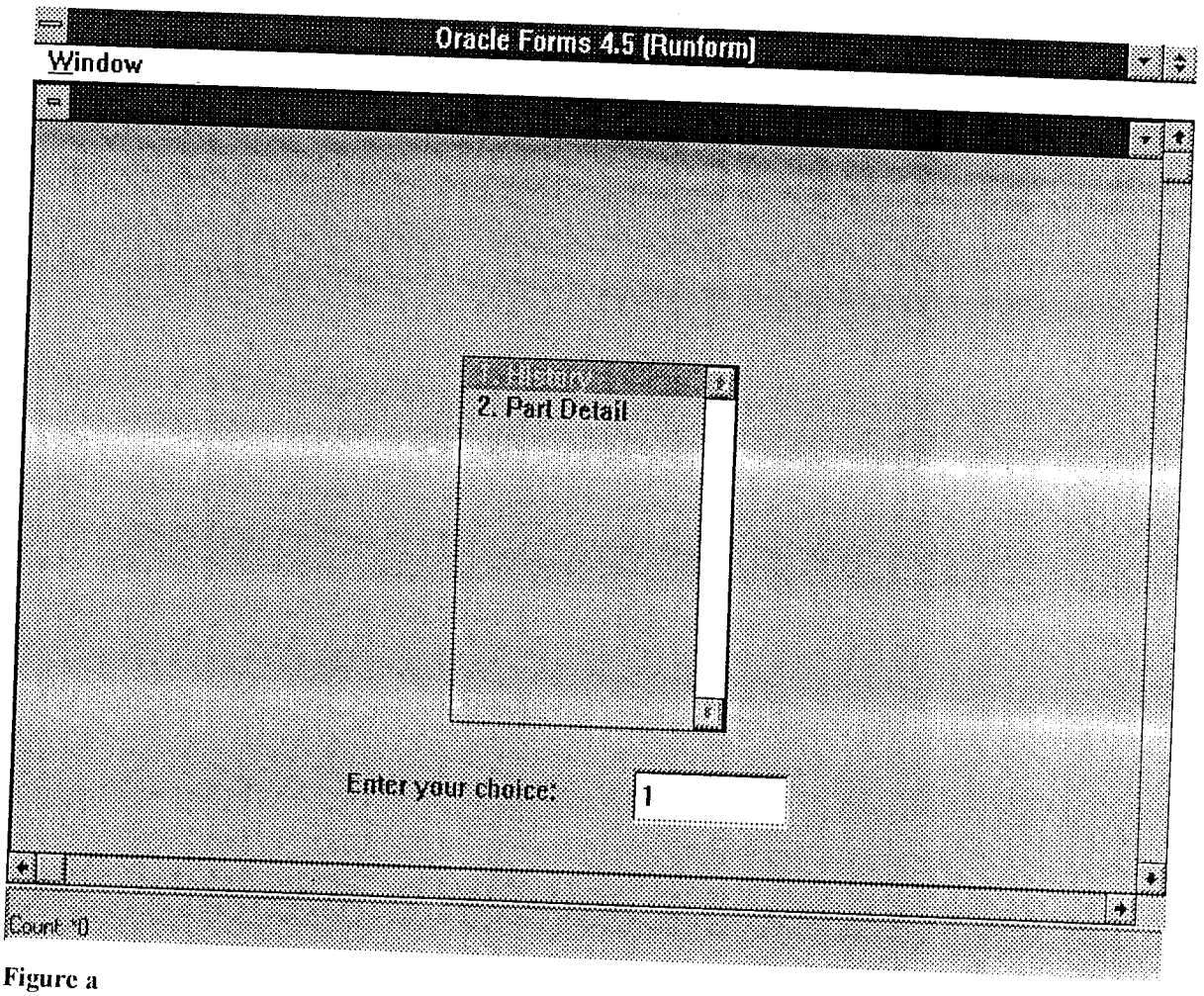
Figure a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2. Part Detail
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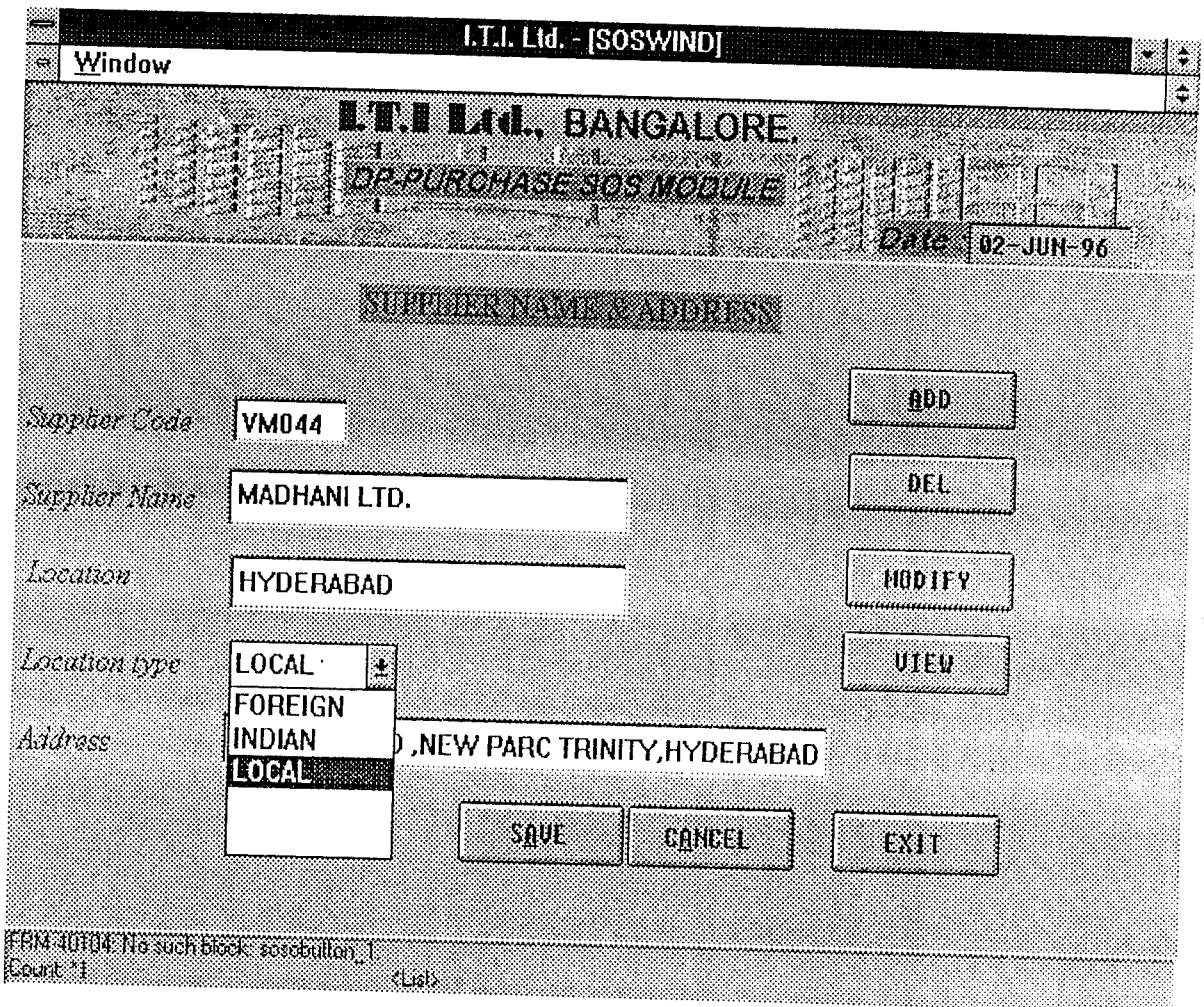
1
Count 0

Figure a


I.T.I. Ltd. - [SOSWIND]
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DP PURCHASE SOS MODULE
Date 02-JUN-96
SUPPLIER NAME & ADDRESS
Supplier Code
VM044
Supplier Name
MADHANI LTD.
Location
HYDERABAD
Location type
LOCAL
FOREIGN
INDIAN
LOCAL
Address
,NEW PARC TRINITY,HYDERABAD
ADD
DEL
MODIFY
VIEW
SAVE
CANCEL
EXIT
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<List>

Figure a

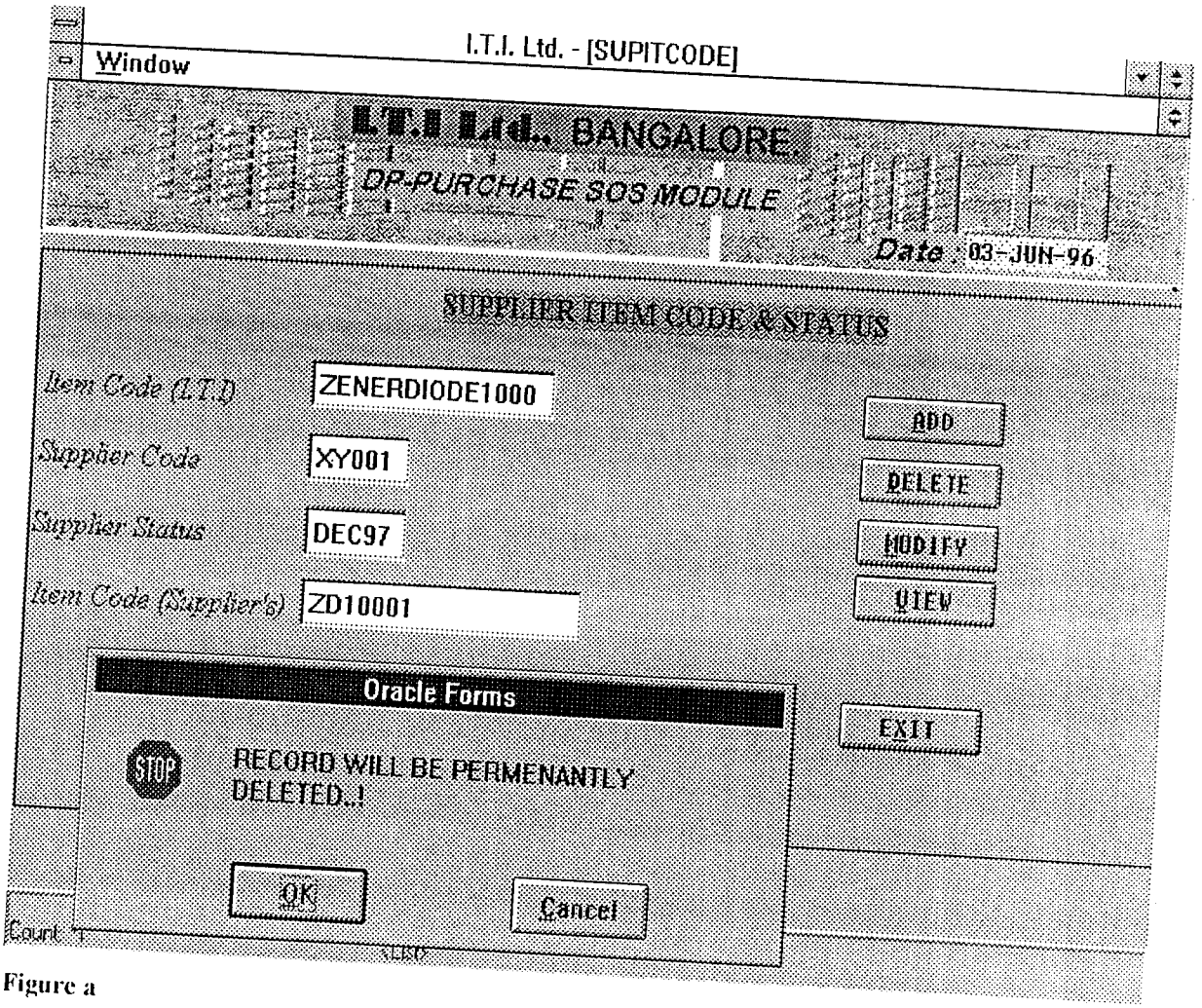

I.T.I. Ltd. - [SUPITCODE]
Window
I.T.I. Ltd., BANGALORE.
DP-PURCHASE SOS MODULE
Date : 03-JUN-96
SUPPLIER ITEM CODE & STATUS
Item Code (I.T.I)
ZENERDIODE1000
Supplier Code
XY001
Supplier Status
DEC97
Item Code (Supplier's)
ZD10001
ADD
DELETE
MODIFY
VIEW
EXIT
Oracle Forms
STOP
RECORD WILL BE PERMENANTLY DELETED..!
OK
Cancel
Count

Figure a

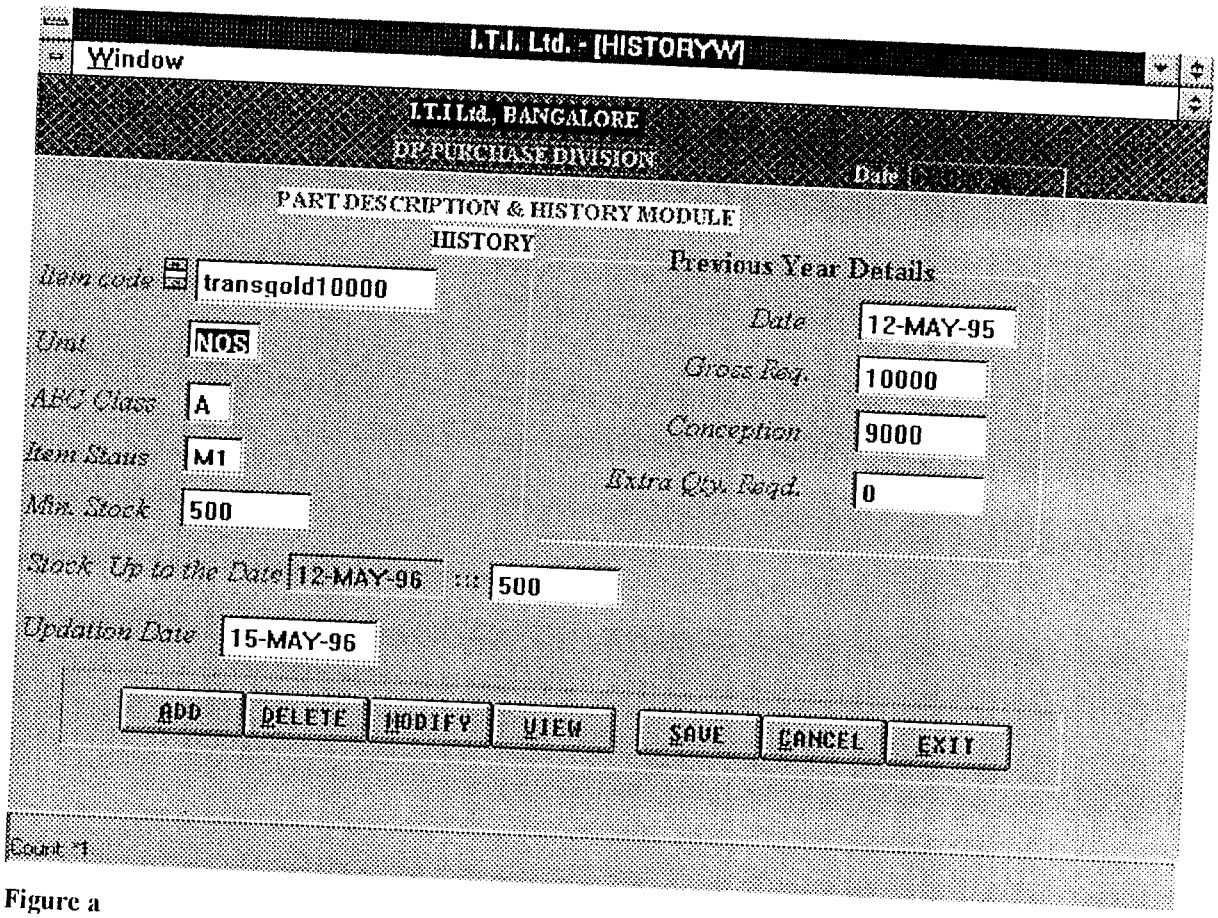

I.T.I. Ltd. - [HISTORYW]
Window
I.T.I Ltd, BANGALORE
DP PURCHASE DIVISION
Date
PART DESCRIPTION & HISTORY MODULE
HISTORY
Item code
transgold10000
Unit
NOS
ABC Class
A
Item Staus
M1
Min. Stock
500
Previous Year Details
Date
12-MAY-95
Gross Req.
10000
Conception
9000
Extra Qty. Reqd.
0
Stock Up to the Date
12-MAY-96
500
Updation Date
15-MAY-96
ADD
DELETE
MODIFY
VIEW
SAVE
CANCEL
EXIT
Count *1

Figure a

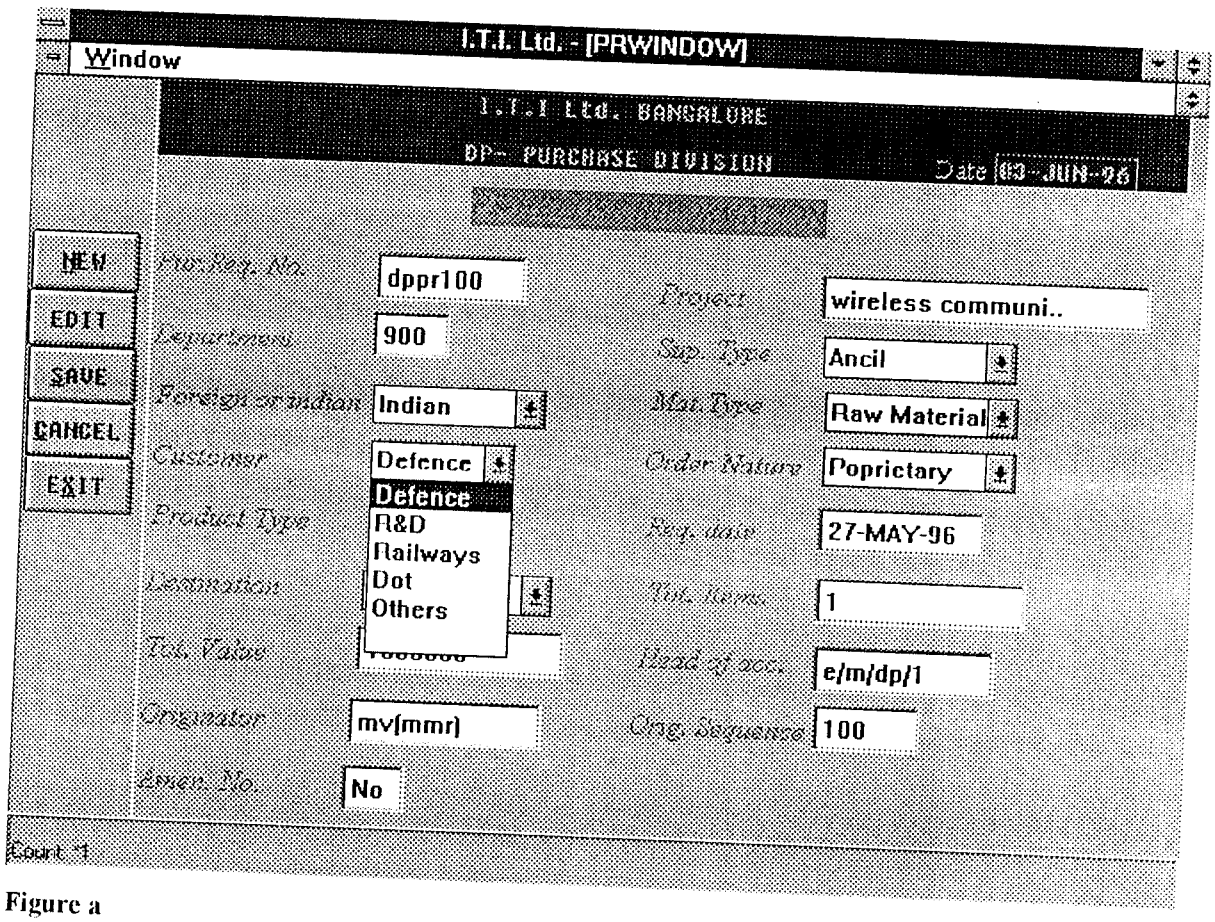

I.T.I. Ltd. - [PRWINDOW]
Window
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
NEW
EDIT
SAVE
CANCEL
EXIT
Pur.Req. No.
dppr100
Project
wireless communi..
Department
900
Sup. Type
Ancil
Foreign or Indian
Indian
Mat. Type
Raw Material
Customer
Defence
Order Nature
Poprietary
Product Type
Defence
R&D
Railways
Dot
Others
Req. date
27-MAY-96
Location
Pur. Name
1
Tot. Value
Head of acc.
e/m/dp/1
Originator
mv[mmr]
Orig. Sequence
100
Issue No.
No
Count *1

Figure a

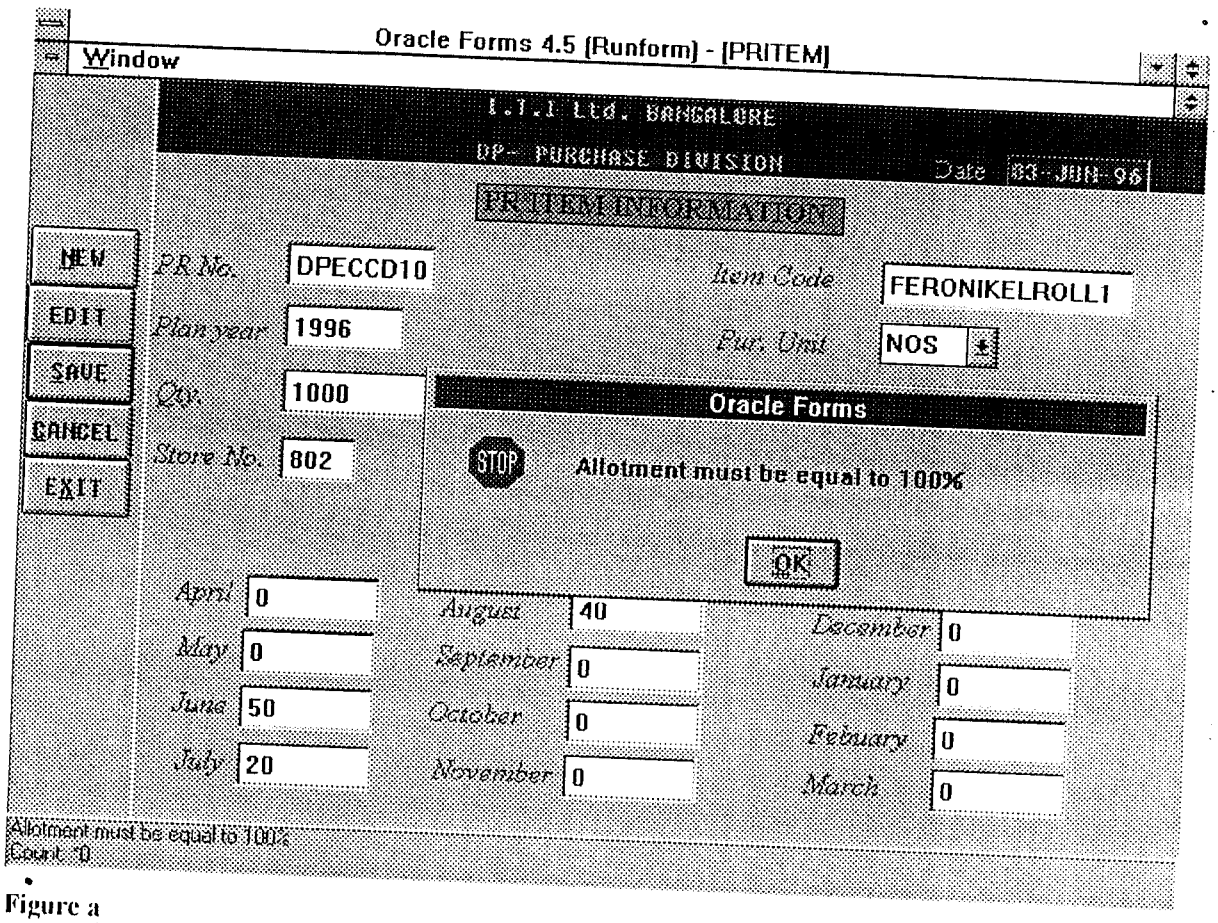

Oracle Forms 4.5 (Runform) - [PRITEM]
Window
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
PR ITEM INFORMATION
NEW
EDIT
SAVE
CANCEL
EXIT
PR No. DPECCD10
Item Code FERONIKELROLL1
Plan year 1996
Pur. Unit NOS
Qty. 1000
Store No. 802
Oracle Forms
STOP
Allotment must be equal to 100%
OK
April 0
May 0
June 50
July 20
August 40
September 0
October 0
November 0
December 0
January 0
February 0
March 0
Allotment must be equal to 100%
Count *0

Figure a

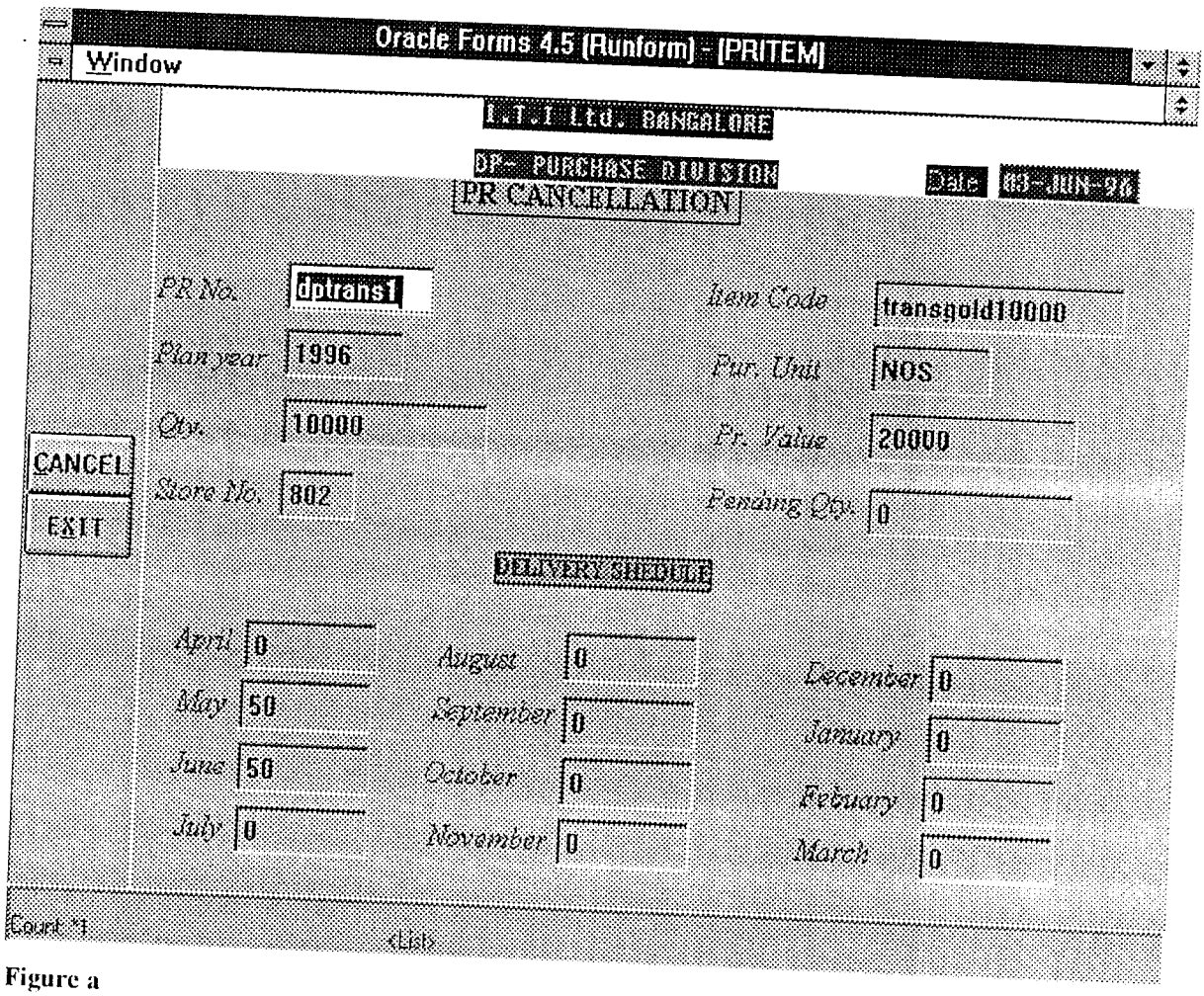

Oracle Forms 4.5 (Runform) - [PRITEM]
Window
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
PR CANCELLATION
PR No. dptrans1
Item Code transgold10000
Plan year 1996
Pur. Unit NOS
Qty. 10000
Pr. Value 20000
Store No. 802
Pending Qty. 0
CANCEL
EXIT
DELIVERY SHEDULE
April 0
August 0
December 0
May 50
September 0
January 0
June 50
October 0
February 0
July 0
November 0
March 0
Count *1
<List>

Figure a

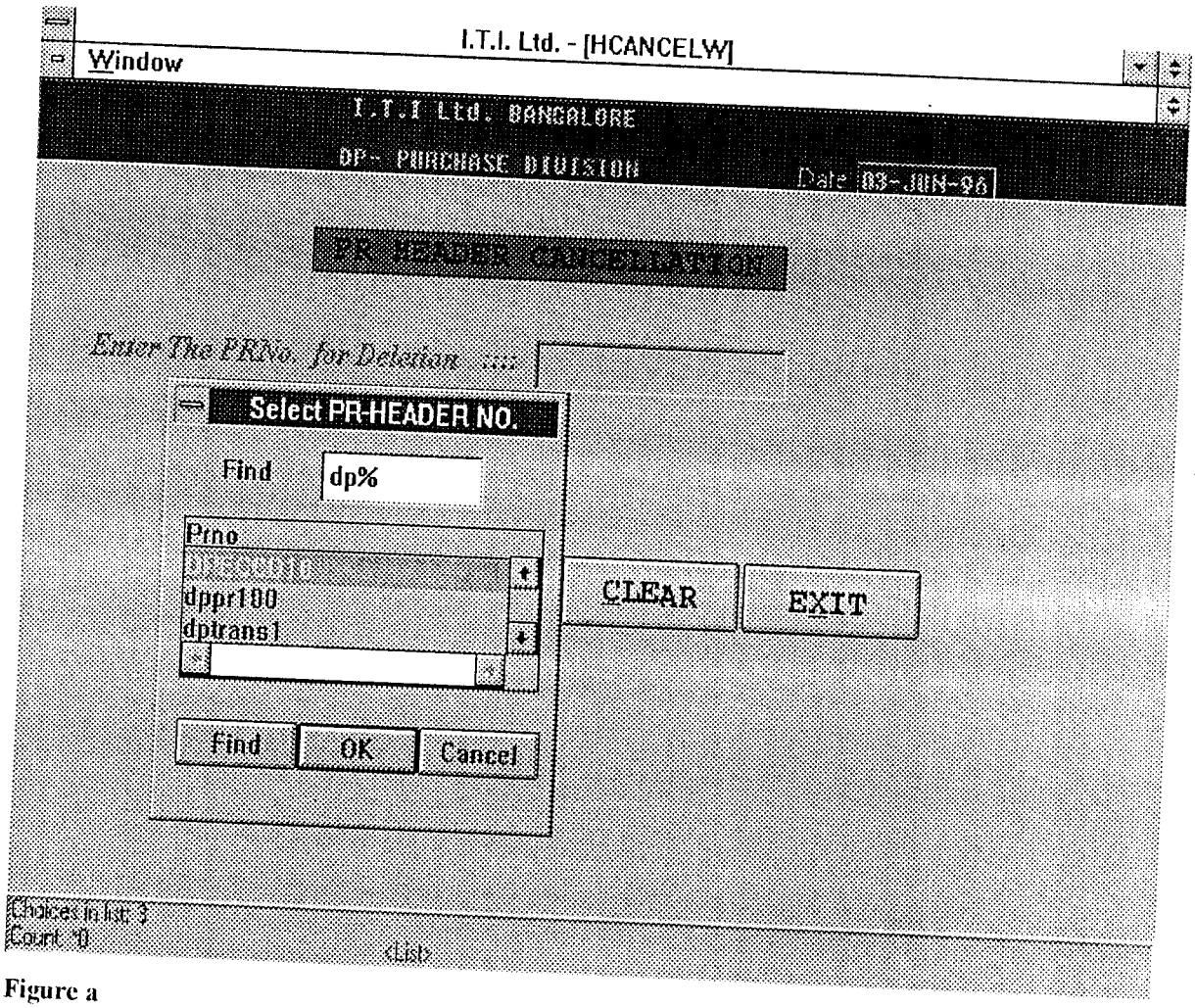

I.T.I. Ltd. - [HCANCELW]
Window
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
PR HEADER CANCELLATION
Enter The PRNo. for Deletion ....:
Select PR-HEADER NO.
Find
dp%
Prno
dppr100
dptrans1
CLEAR
EXIT
Find
OK
Cancel
Choices in list: 3
Count: 0
<List>

Figure a

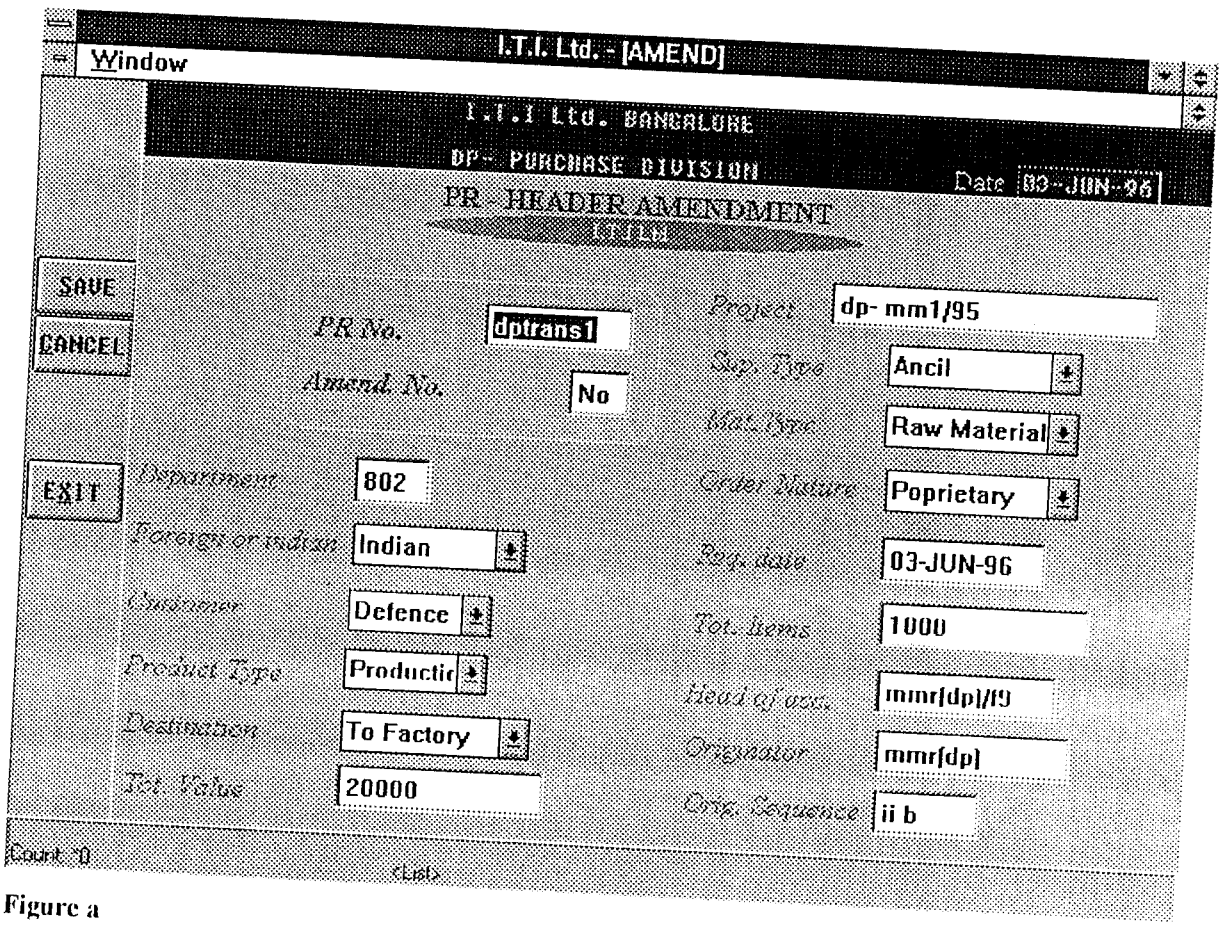
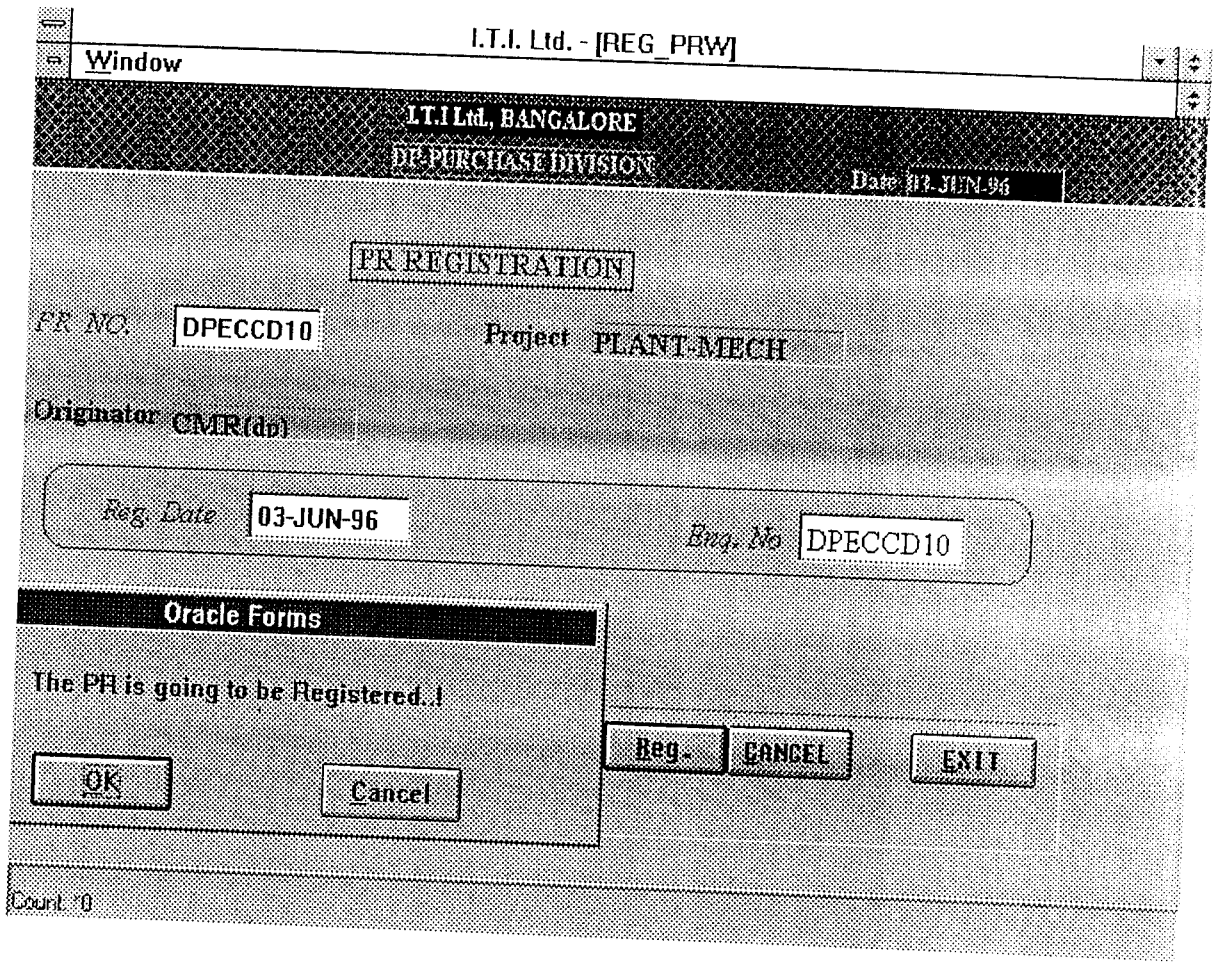

I.T.I. Ltd. - [AMEND]
Window
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
PR HEADER AMENDMENT
SAVE
CANCEL
EXIT
PR No.
dptrans1
Amend. No.
No
Project
dp- mm1/95
Sup. Type
Ancil
Mat. Type
Raw Material
Order Nature
Poprietary
Pay. mode
03-JUN-96
Tot. Items
1000
Head of acc.
mmr[dp]/f9
Organisor
mmr[dp]
Corr. Sequence
ii b
Department
802
Foreign or Indian
Indian
Purpose
Defence
Product Type
Productic
Destination
To Factory
Tot. Value
20000
Count 0
<List>

Figure a


I.T.I. Ltd. - [REG_PRW]
Window
I.T.I Ltd, BANGALORE
DE-PURCHASE DIVISION
Date 03-JUN-96
PR REGISTRATION
PR NO. DPECCD10
Project PLANT-MECH
Originator CMR(dp)
Reg. Date 03-JUN-96
Reg. No DPECCD10
Oracle Forms
The PR is going to be Registered. !
OK
Cancel
Reg.
CANCEL
EXIT
Count 0

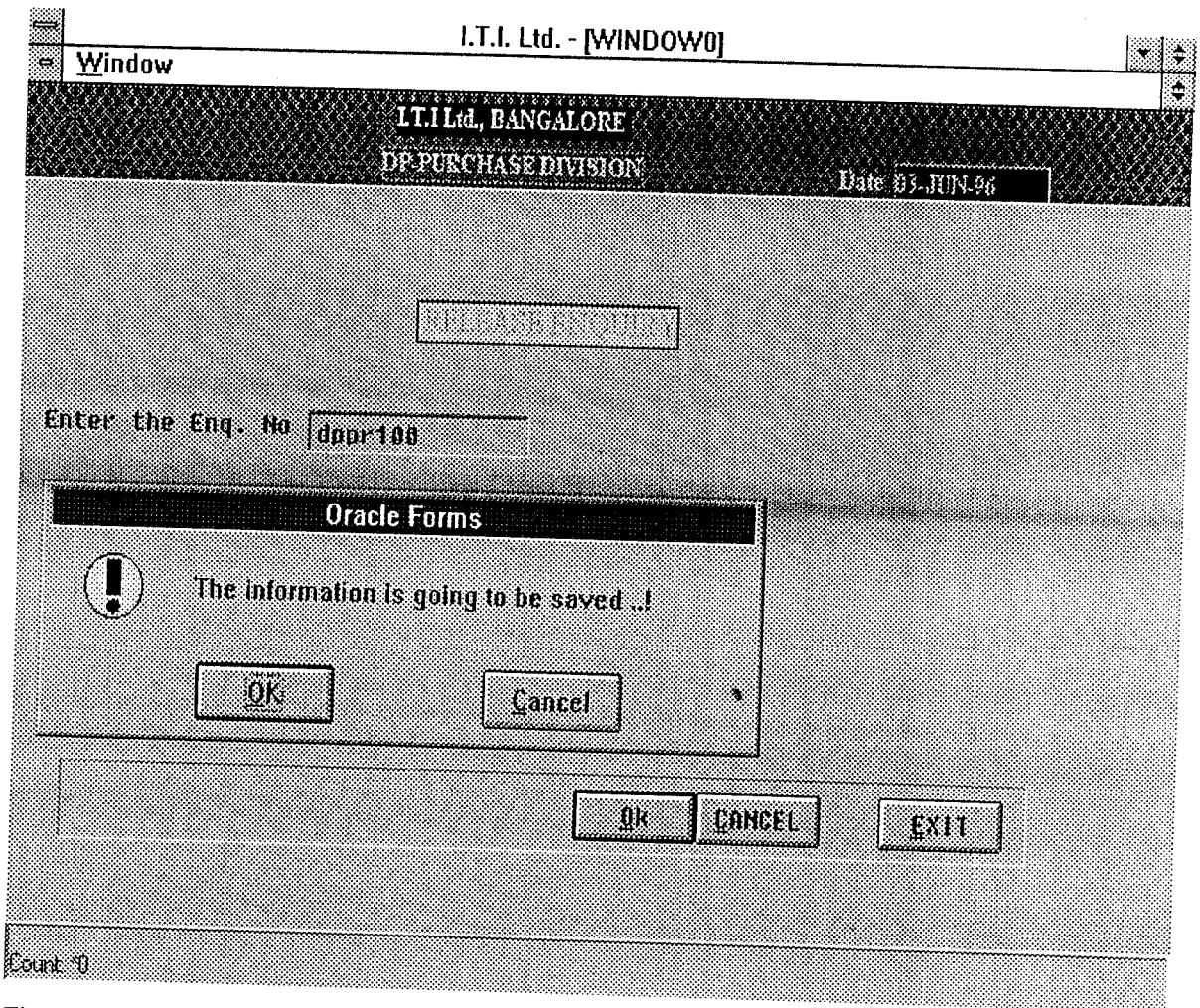

I.T.I. Ltd. - [WINDOW0]
Window
I.T.I Ltd, BANGALORE
DP-PURCHASE DIVISION
Date 03-JUN-96
Enter the Enq. No dppr100
Oracle Forms
The information is going to be saved ..!
OK
Cancel
Ok
CANCEL
EXIT
Count :0

Figure a

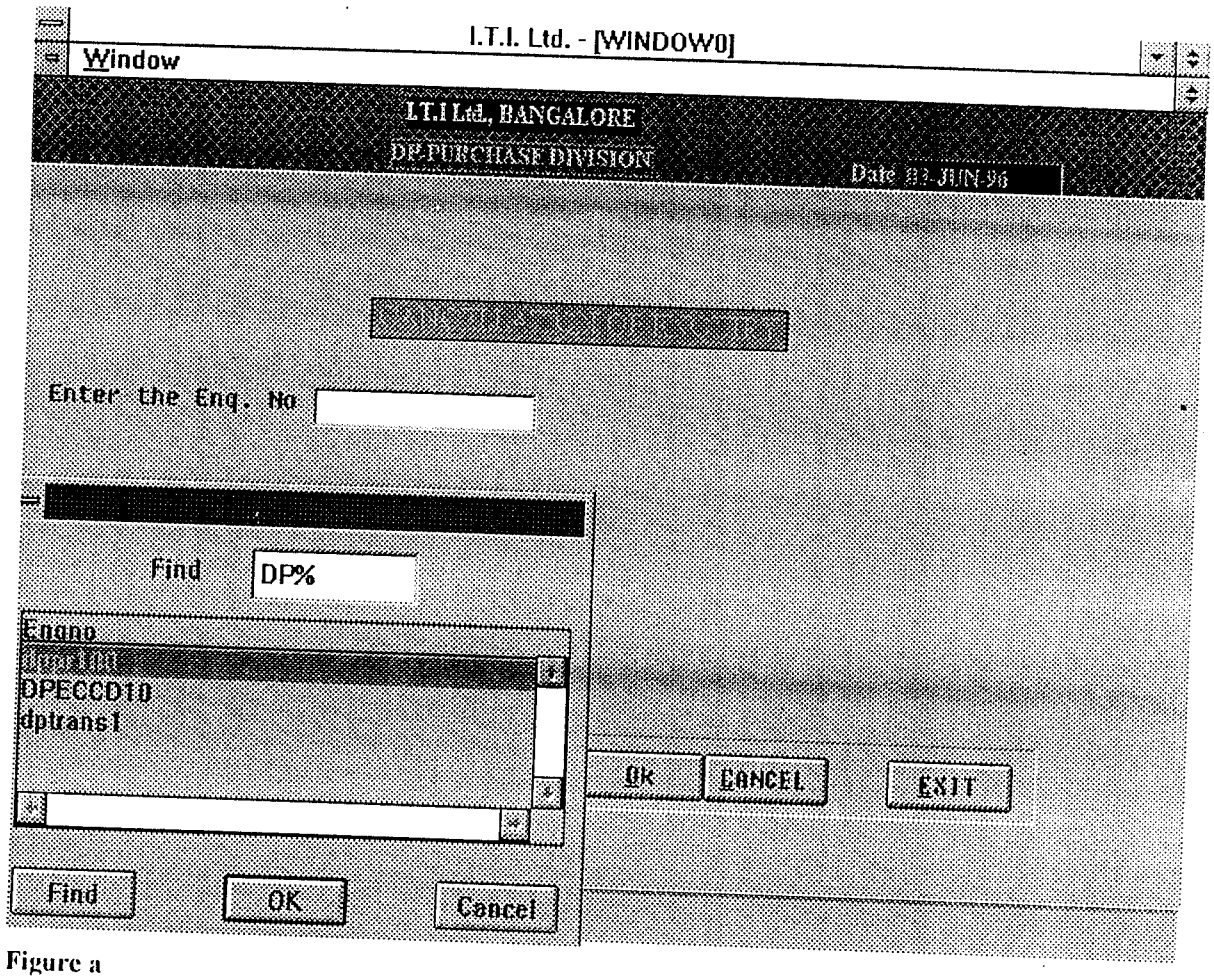

I.T.I. Ltd. - [WINDOW0]
Window
I.T.I Ltd, BANGALORE
DP PURCHASE DIVISION
Enter the Enq. No
Find
DP%
Engno
DPECCD10
dptrans1
OK
CANCEL
EXIT
Find
OK
Cancel

Figure a

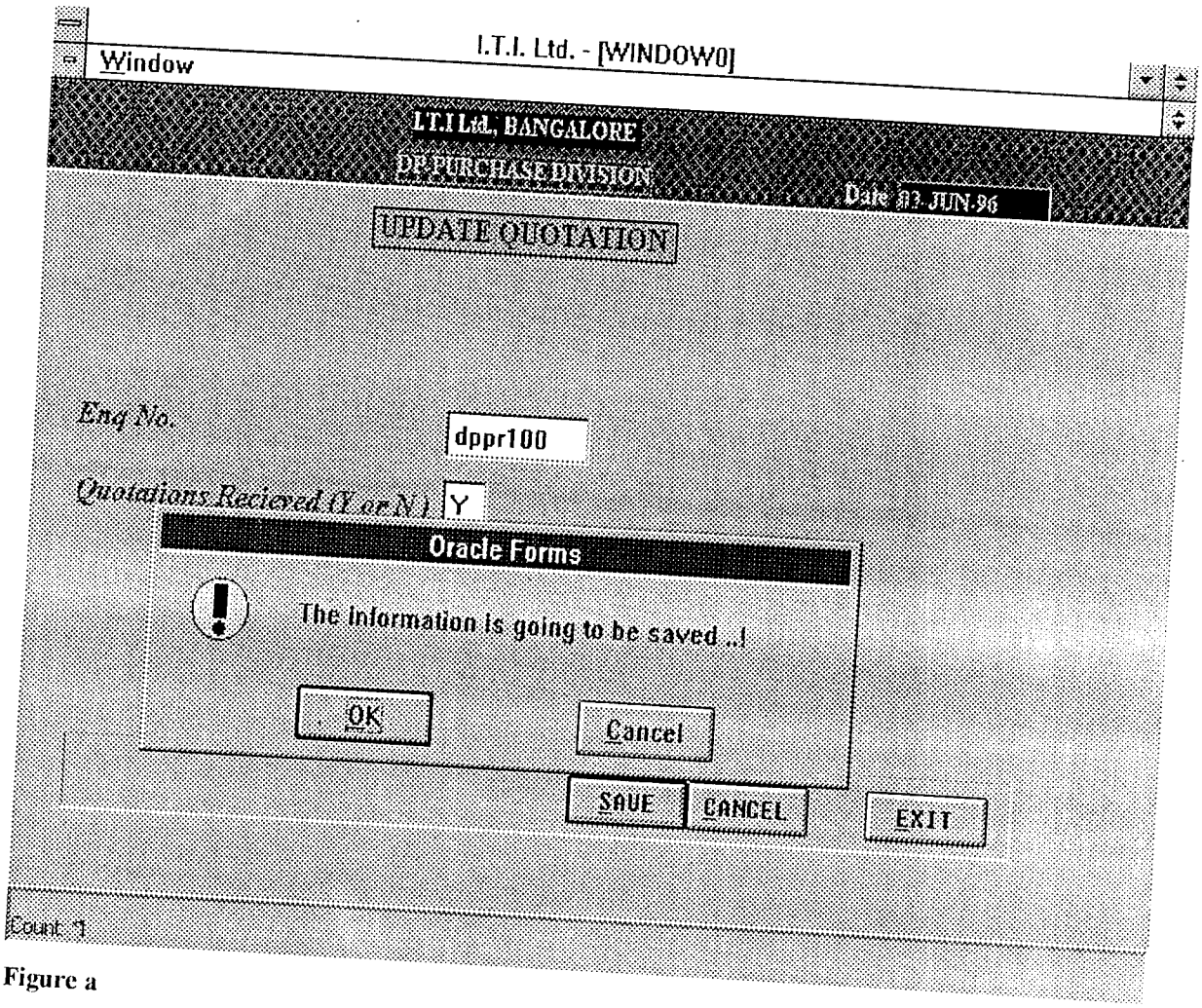

I.T.I. Ltd. - [WINDOW0]
Window
I.T.I Ltd, BANGALORE
DP PURCHASE DIVISION
Date 13-JUN-96
UPDATE QUOTATION
Enq No.
dppr100
Quotations Recieved (Y or N)
Y
Oracle Forms
The information is going to be saved ..!
OK
Cancel
SAVE
CANCEL
EXIT
Count 1

Figure a

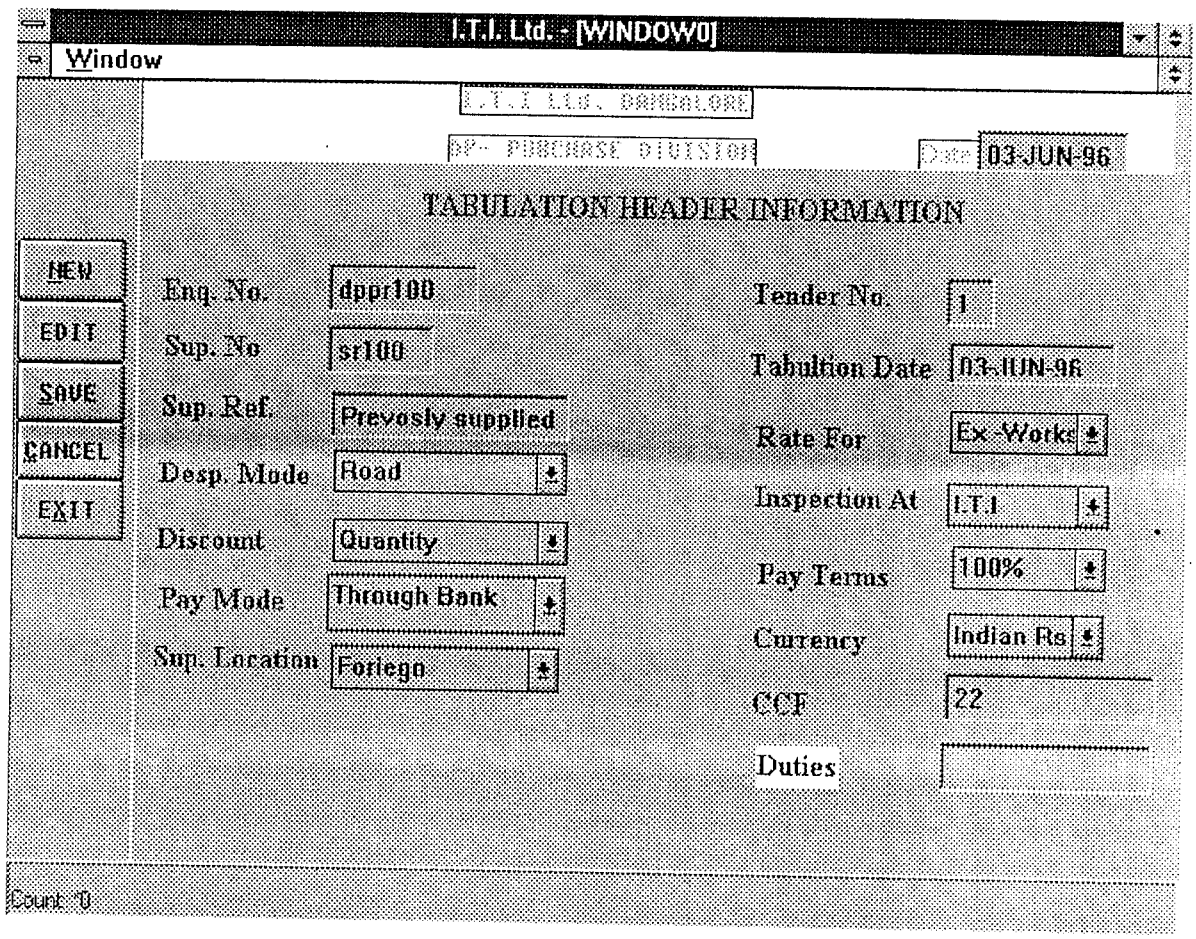

I.T.I. Ltd. - [WINDOW0]
Window
I.T.I LTD. BANGALORE
PURCHASE DIVISION
Date 03-JUN-96
TABULATION HEADER INFORMATION
NEW
EDIT
SAVE
CANCEL
EXIT
Enq. No. dppr100
Sup. No sr100
Sup. Ref. Prevosly supplied
Desp. Mode Road
Discount Quantity
Pay Mode Through Bank
Sup. Location Foriegn
Tender No. 1
Tabultion Date 03-JUN-96
Rate For Ex-Works
Inspection At I.T.I
Pay Terms 100%
Currency Indian Rs
CCF 22
Duties
Count: 0

Figure a

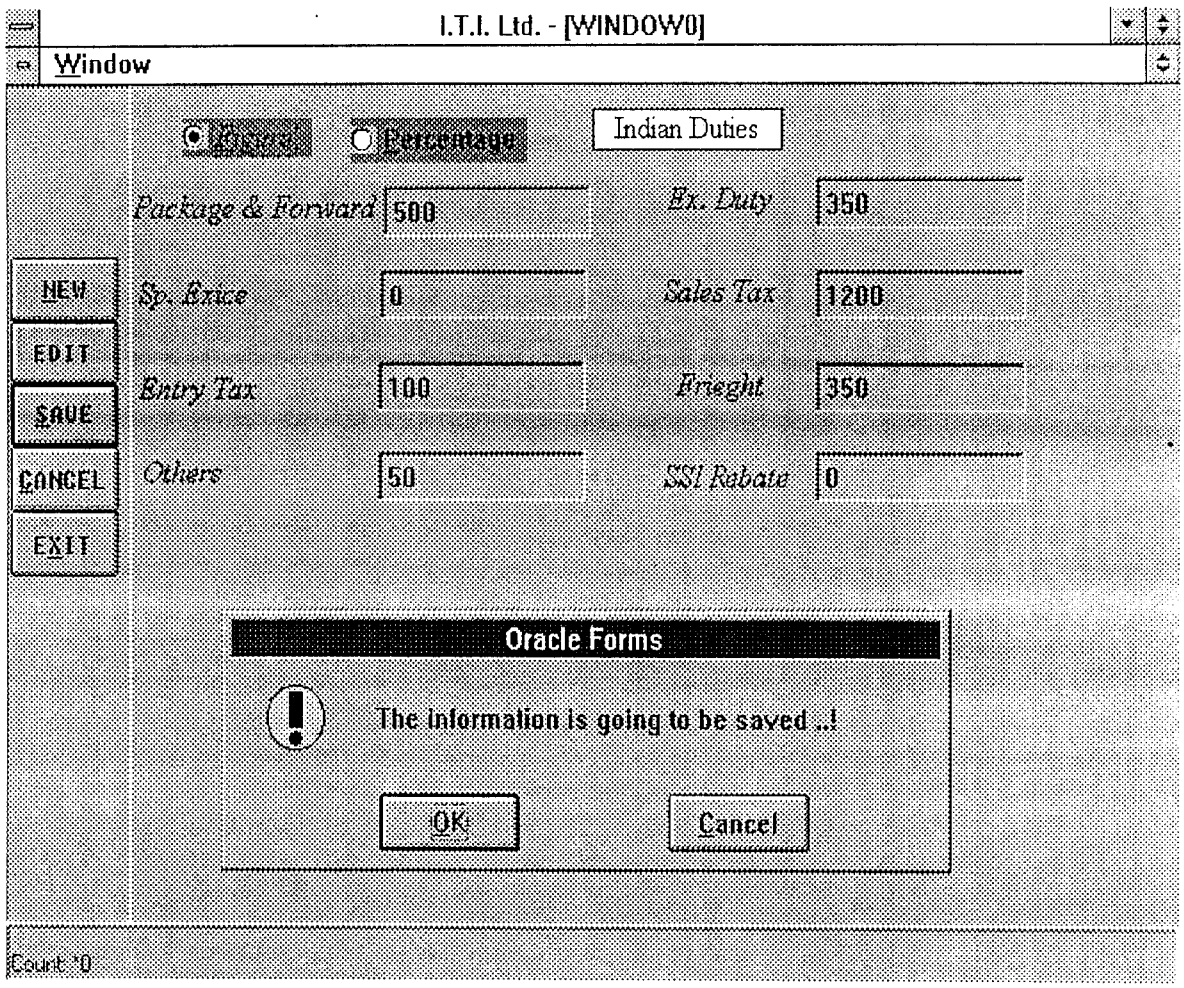

I.T.I. Ltd. - [WINDOW0]
Window
Fixed
Percentage
Indian Duties
Package & Forward
500
Ex. Duty
350
Sp. Price
0
Sales Tax
1200
Entry Tax
100
Freight
350
Others
50
SSI Rebate
0
NEW
EDIT
SAVE
CANCEL
EXIT
Oracle Forms
The information is going to be saved ..!
OK
Cancel
Count *0

Figure a

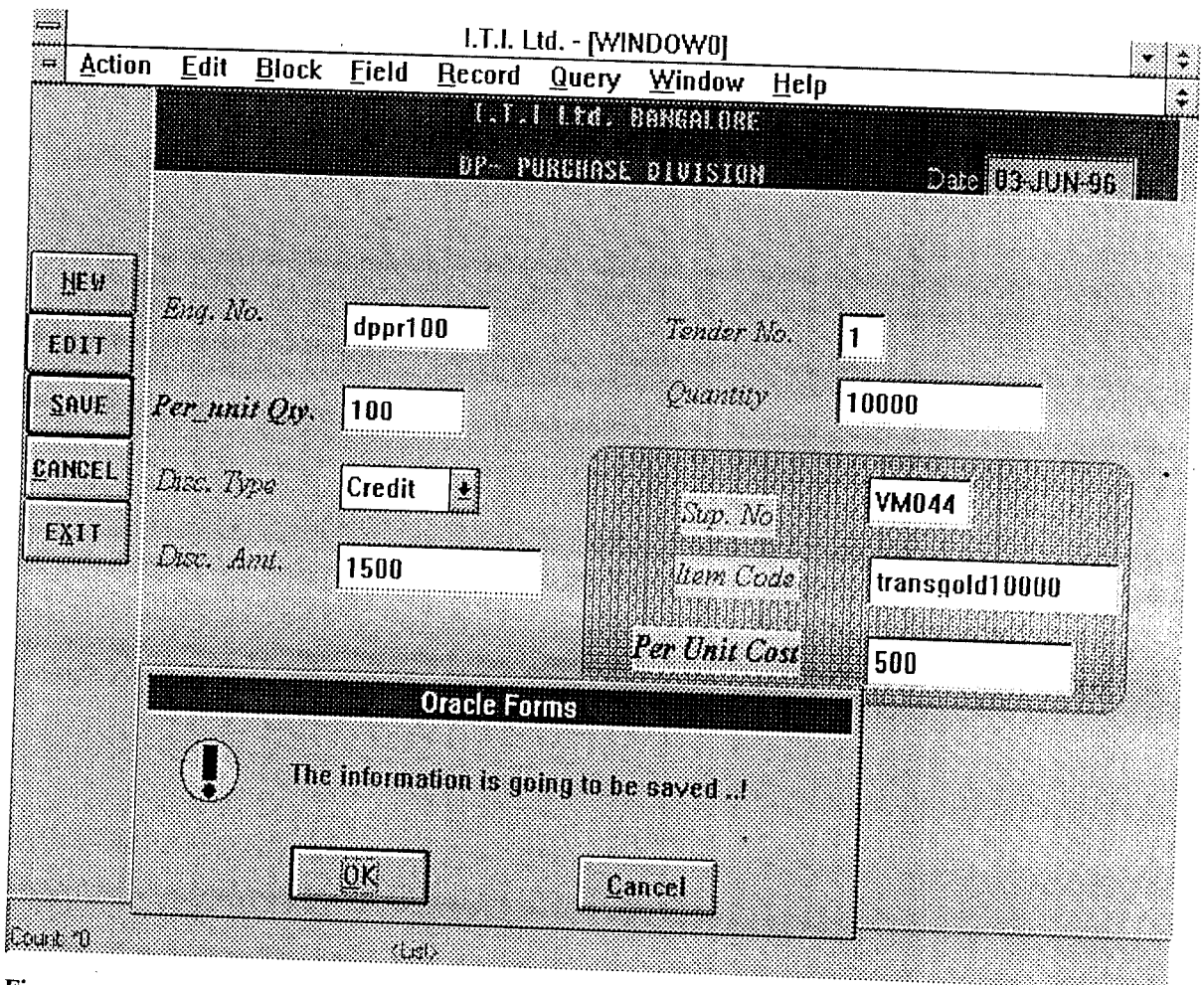

I.T.I. Ltd. - [WINDOW0]
Action Edit Block Field Record Query Window Help
I.T.I Ltd. BANGALORE
DP- PURCHASE DIVISION
Date 03-JUN-96
NEW
EDIT
SAVE
CANCEL
EXIT
Enq. No.
dppr100
Tender No.
1
Per_unit Qty.
100
Quantity
10000
Disc. Type
Credit
Disc. Amt.
1500
Sup. No
VM044
Item Code
transgold10000
Per Unit Cost
500
Oracle Forms
The information is going to be saved ..!
OK
Cancel
Count 0
<List>

Figure a

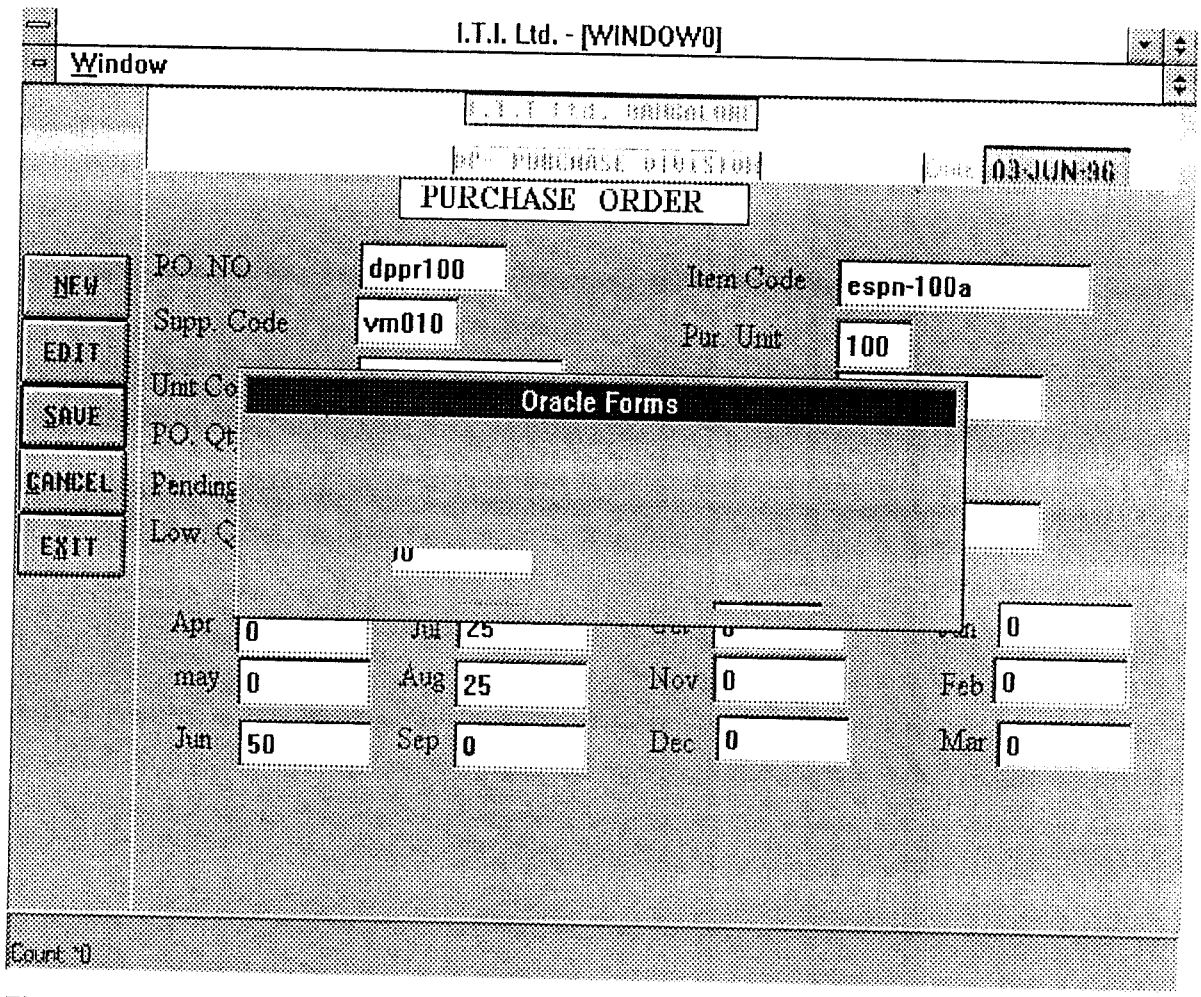

I.T.I. Ltd. - [WINDOW0]
Window
PURCHASE ORDER
03-JUN-96
NEW
EDIT
SAVE
CANCEL
EXIT
PO. NO
dppr100
Item Code
espn-100a
Supp. Code
vm010
Pur. Unit
100
Oracle Forms
Apr
0
Jul
25
Feb
0
may
0
Aug
25
Nov
0
Jun
50
Sep
0
Dec
0
Mar
0
Count 0

Figure a

APPENDIX - B
(TABLES)

Table Name : Fduty;

Name	Null?	Type
ENQNO		VARCHAR2(8)
SUPNO		VARCHAR2(5)
COMM		NUMBER(10,2)
PACK		NUMBER(10,2)
ITH_CHARGE		NUMBER(10,2)
AIR_SEA_FRIEGHT		NUMBER(10,2)
INSURE		NUMBER(10,2)
CUSTOMS		NUMBER(10,2)
CVD		NUMBER(10,2)
INL_FRGHT		NUMBER(10,2)
TNO		VARCHAR2(1)
P_F		VARCHAR2(1)

Table Name : iduty;

Name	Null?	Type
PKG_FWD		NUMBER(10,2)
ENQNO		NOT NULL VARCHAR2(8)
SUPNO		NOT NULL VARCHAR2(5)
EXICE		NUMBER(10,2)
SP_EXCISE		NUMBER(10,2)
ST		NUMBER(10,2)
ENTRY_TAX		NUMBER(10,2)
FREIGHT		NUMBER(10,2)
OTHERS		NUMBER(10,2)
SSI_REBATE		NUMBER(10,2)
TNO		VARCHAR2(1)
P_F		VARCHAR2(1)

Table Name : igamain;

Name	Null?	Type
PONO		NOT NULL VARCHAR2(8)
ITEMCODE		NOT NULL VARCHAR2(15)
IGANO		VARCHAR2(8)
REJ_QTY		NUMBER(10,2)
INP_QTY		NUMBER(10,2)
SPEC_QTY		NUMBER(10,2)
DEV_QRTY		NUMBER(10,2)
RECT_QTY		NUMBER(10,2)
REC_QTY		NUMBER(10,2)

DESP_MODE	VARCHAR2(1)
INSP_AT	VARCHAR2(1)
DISCOUNT	VARCHAR2(1)
PAY_TERMS	VARCHAR2(1)
PAY_MODE	VARCHAR2(1)
CUR_TYPE	VARCHAR2(1)
FI	VARCHAR2(1)
CCF	NUMBER(10,2)
DUTIES	NUMBER(10,2)
CUR_VALUE	NUMBER(10,2)

Table Name : tab_item;

Name	Null?	Type
ENQNO	NOT NULL	VARCHAR2(8)
TNO	NOT NULL	VARCHAR2(1)
SUPNO	NOT NULL	VARCHAR2(5)
ITEMCODE		VARCHAR2(15)
UNIT		NUMBER(10)
DFP		VARCHAR2(1)
DISAMT		NUMBER(10,2)
UNIT_COST		NUMBER(10,2)
QTY		NUMBER(10,2)
ITI_UNIT_COST		NUMBER(10,2)

Table Name : pr_item;

Name	Null?	Type
PRNO	NOT NULL	VARCHAR2(8)
ITEMCODE	NOT NULL	VARCHAR2(15)
PLAN_YEAR		NUMBER(4)
PUR_UNIT		VARCHAR2(3)
PUR_QTY		NUMBER(10,2)
PUR_VALUE		NUMBER(10,2)
STORE_NO		VARCHAR2(3)
PEND_QTY		NUMBER(10,2)
PRJAN		NUMBER(10,2)
PRFEB		NUMBER(10,2)
PRMAR		NUMBER(10,2)
PRAPR		NUMBER(10,2)
PRMAY		NUMBER(10,2)
PRJUN		NUMBER(10,2)
PRJUL		NUMBER(10,2)

MATL	VARCHAR2(1)
PRO_TYPE	VARCHAR2(1)
ORD_NATURE	VARCHAR2(1)
DEST	VARCHAR2(1)
PR_DATE	DATE
AMDNO	VARCHAR2(2)
TOT_ITEM	NUMBER(10,2)
TOT_VAL	NUMBER(10,2)
HEAD_ACC	VARCHAR2(10)
ORG	VARCHAR2(11)
ORGSEQ	VARCHAR2(5)

Table Name : sup_agents;

Name	Null?	Type
AGENTNO	NOT NULL	VARCHAR2(5)
SUPNO	NOT NULL	VARCHAR2(5)
AGENT_ADDRESS		VARCHAR2(40)

Table Name : sup_itcode;

Name	Null?	Type
ITCODE		VARCHAR2(15)
SUPNO	NOT NULL	VARCHAR2(5)
SUP_STATUS		VARCHAR2(5)
SUP_ITCODE	NOT NULL	VARCHAR2(15)

Table Name : sup_mas;

Name	Null?	Type
SUPNO	NOT NULL	VARCHAR2(5)
SUP_NAME		VARCHAR2(30)
SUP_LOC		VARCHAR2(15)
SUP_LOCTYPE		CHAR(1)
SUP_ADDRESS		VARCHAR2(50)

Table Name : tabmain;

Name	Null?	Type
ENQNO	NOT NULL	VARCHAR2(8)
TNO	NOT NULL	VARCHAR2(1)
SUPNO	NOT NULL	VARCHAR2(5)
TAB_DATE		DATE
SUP_REF		VARCHAR2(40)
RATE_FOR		VARCHAR2(1)

IGA_DATE		DATE
DEL_CHNO		NOT NULL VARCHAR2(15)
PARCEL_DET		VARCHAR2(50)
SUPNO		VARCHAR2(5)

Table Name : item_history;

Name	Null?	Type
ITEMCODE		NOT NULL VARCHAR2(15)
PGROSS		NUMBER(5)
PCONS		NUMBER(5)
TILDATE		DATE
ABOVE_NOR		NUMBER(5)
BUFFER		NUMBER(5)
STOCK		NUMBER(5)
UNIT		VARCHAR2(3)
STOCK_DATE		DATE
UP_DATE		DATE
STATUS		VARCHAR2(2)
ABC		CHAR(1)
UNIT_RATE		NUMBER(10,2)

Table Name : part_detail;

Name	Null?	Type
ITEMCODE		NOT NULL VARCHAR2(15)
DESCRPTION		VARCHAR2(20)
SPECIFIC		VARCHAR2(40)
ISSUE_NO		NUMBER
MCLASS		VARCHAR2(2)
MAT_ORIGIN		CHAR(1)
ISSUE_DATE		DATE
DRG_POS		VARCHAR2(10)

Table Name : pr_main;

Name	Null?	Type
PRNO		NOT NULL VARCHAR2(8)
PR_STATUS		VARCHAR2(1)
DEPT		VARCHAR2(3)
PROJ		VARCHAR2(20)
F_I		VARCHAR2(1)
SUP_TYPE		VARCHAR2(1)
CUST		VARCHAR2(1)

PRAUG	NUMBER(10,2)
PRSEP	NUMBER(10,2)
PROCT	NUMBER(10,2)
PRNOV	NUMBER(10,2)
PRDEC	NUMBER(10,2)

Table Name : pr_enq;

Name	Null?	Type
PRNO		VARCHAR2(8)
ENQNO		NOT NULL VARCHAR2(8)
REG_DATE		DATE
ENQ_STATUS		VARCHAR2(1)
TNO		VARCHAR2(1)
DUE_DATE		DATE
REL_DATE		DATE
ENQ_VAL		NUMBER(10,2)

Table Name : poitem;

Name	Null?	Type
PONO		NOT NULL VARCHAR2(8)
ITEMCODE		NOT NULL VARCHAR2(15)
SUPNO		VARCHAR2(5)
PUNIT		VARCHAR2(3)
UNIT_COST		NUMBER(10,2)
COST_FOR		NUMBER(10,2)
PO_QTY		NUMBER(10,2)
PALN_YEAR		NUMBER(4)
PEND_QTY		NUMBER(10,2)
QUOT_RATE		NUMBER(10,2)
LOW_QUOT		NUMBER(10,2)
POAPR		NUMBER(5,2)
POMAY		NUMBER(5,2)
POJUN		NUMBER(5,2)
POJUL		NUMBER(5,2)
POAUG		NUMBER(5,2)
POSEP		NUMBER(5,2)
POOCT		NUMBER(5,2)
PONOV		NUMBER(5,2)
PODEC		NUMBER(5,2)
POJAN		NUMBER(5,2)
POFEB		NUMBER(5,2)
POMAR		NUMBER(5,2)

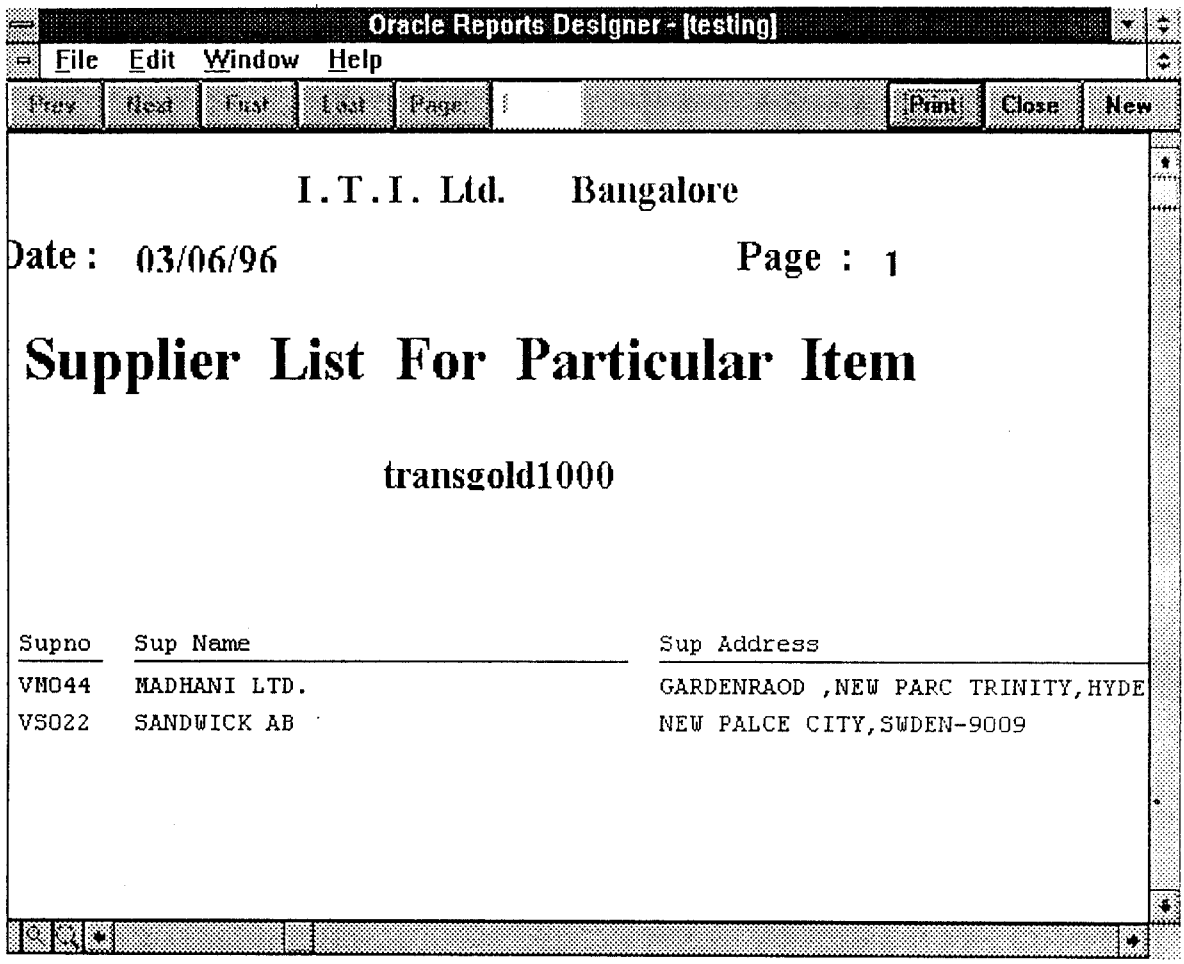

Oracle Reports Designer - [testing]
File Edit Window Help
Prev Next First Last Page: Print Close New
I.T.I. Ltd. Bangalore
Date : 03/06/96
Page : 1
Supplier List For Particular Item
transgold1000
Supno Sup Name Sup Address
VM044 MADHANI LTD. GARDENRAOD ,NEW PARC TRINITY,HYDE
VS022 SANDWICK AB NEW PALCE CITY,SWDEN-9009

Figure a

BIBLIOGRAPHY

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2. Mastering Oracle by Vijay Mukhi.

3. Client server Computing with Oracle Salemi.j

4. Oracle Complete Reference by Bay Rass.

5. Oracle Manuals (Oracle Corporation).

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