QUALITY MONITORING SYSTEM

PROJECT REPORT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF

M.Sc (APPLIED SCIENCE - COMPUTER TECHNOLOGY)

OF BHARATHIAR UNIVERSITY

Submitted by

M. Sasikumar
Reg. No – 0137Q0052

Guided by

Ms. C.S. Sowmya, M.E., M.I.S.T.E,

Department of Computer Science and Engineering

Kumaraguru College of Technology
(Affiliated to Bharathiar University)

Coimbatore – 641 006

APRIL 2003

KUMARAGURU COLLEGE OF TECHNOLOGY

(Affiliated to Bharathiar University)
Department of Computer Science and Engineering

Coimbatore – 641006

CERTIFICATE

This is to certify that the project work entitled

"QUALITY MONITORING SYSTEM"

Done by

M. Sasikumar
Reg. No – 0137Q0052

Submitted in partial fulfillment of the requirement for the award of the degree of M.Sc (Applied science - Computer Technology) of Bharathiar University.

Professor and HOD

Internal Guide

Submitted to University Examination held on 10/5/03

Internal Examiner (10-5-03)
ap/cse/kct

External Examiner

DECLARTION

I hereby declare that the project entitled "*QUALITY MONITORING SYSTEM*" is successfully done at ICON SOLUTIONS, Chennai and submitted to **Kumaraguru College of Technology**, Coimbatore afflicted to Bharathiar University as the project work of **M.Sc (APPLIED SCIENCE - COMPUTER TECHNOLGY)**, is a record of original work done by me during my period of study in Kumaraguru College of Technology, under the supervision and guidance of **Ms. C.S. Sowmya M.E., M.I.S.T.E,** Lecturer , **Kumaraguru College of Technology**, *Coimbatore*. And this project work has not formed the basis of award of any Degree / Diploma / Associate ship / Fellowship or similar title any candidate of any university

Name : M.Sasikumar

Reg. No : 0137Q0052

Signature:

icon Solutions

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Sasikumar.M,** currently pursuing his M.Sc (Applied Science – Computer Technology) at Kumaraguru College of Technology was involved in the project titled "Quality Monitoring System" from December 2002 to March 2003.

The student has shown keen interest in the project work. The sincerity and involvement shown by him during the period was excellent. The skill carried out by the student was noticeable.

April 7, 2003
Chennai

Naren Ranjith
(MD & CEO)

ORGANIZATIONAL PROFILE

ICON SOLUTIONS was established in Chennai in 2001 as a software development center to provide IT solutions in a good quality and reliability.

The company had software development in VB, VC++, JAVA, ASP, etc.,. Programs for recruitment and training are in place. An energized work environment is created with people hired from the best schools and leading IT companies.

Continuous training and development, both academic and role-based, create a resource pool of talent completely focused on delighting the customer. Direct vendor certifications from Microsoft, Cisco, Oracle, Lotus, IBM, and Sun Microsystems add to the technical depth. A hands-on leadership and metrics-based management give every individual a personal goal to pursue within the framework of the corporate. Quality is a key driving force and CMM levels are on target. A clear commitment to take people, processes, technology, and strategy to peak levels of performance on an ongoing basis.

Icon solutions are a customer – centric and future – driven. The effort is to maintain an independent think tank even as it supports the strategic goals of every customer.

STRENGTH OF THE COMPANY

Icon solutions are a strategy-led organization where the future is well thought out and mapped into an action program to achieve the desired objectives. In a people-based business where knowledge is the backbone, the company, powered by management, has built the infrastructure and the processes that spell success. Discover its many facets.

- World-class infrastructure to aid productivity
- Separate Program, Development, and People management functions
- Separate teams for Business Domain and Technology
- Tool-based approach (e.g., team work projects, digital library, and defects database)
- Emphasis on human factors engineering & Continuous training and development
- Hires from best schools and IT companies

INFRA STRUCTURE

The infrastructure mimics the world's best to deliver optimal solutions. A highly skilled workforce is constantly at work to go that extra mile in ensuring customers get only the best.

DATA CENTER ENGINEERING

- Secure physical hosting environment
- State-of-the-art data centers with redundant power, including UPS and generator facilities
- State-of-the-art network to provide fully redundant infrastructure and access
- Fully redundant routers/core switches
- Internal traffic to Internet isolated to physically separate infrastructure and bandwidth

HOSTING

- Over 60 unique websites hosted and maintained
- Windows®-based software solutions developed
- All products exist in both data centers and are load balanced
- Wireless solutions available

MONITORING

- Quick deployment of sites
- MONA - Monitoring of all applications and infrastructure
- 24X7 operations and engineering support for all sites
- Overall capacity planning across all products

PRODUCTS AND SERVICES:

Domain-driven expertise helps it offer every customer flexible solutions with a host of products and services across web, wireless, telephony, and software products. The company believes in creating touch points across the spectrum of interfaces to give institutions and individuals ease of use and to drive businesses to higher levels of efficiency. The effort to create innovative products and services is constant and consistent.

CLIENTS:

Icon solutions are an organization that has built a portfolio of clients that does the company proud. Building relationships with world -class companies that have stood the test of time.

Our Retail and Institutional offerings today service leading players in the banking and financial services sector for Banks, Mutual Funds, RIA, Money Manager, Full Service Brokerage and Discount Brokerage customer segments

The company is committed to interacting with the world's best creating a body of knowledge that will create differentiators in a world where parity is a constant threat.

Icon solutions – every client is a testimony to our total commitment to deliver solutions that work smarter in the market place.

ACKNOWLEDGEMENT

The austerity and satisfaction that gets on the completing a project cannot be fulfilled with out mentioning the people who made it possible, with gratitude

I wish to express my sincere thanks to our beloved Principal **Dr.K.K.Padmanabhan, Ph.D.,** Kumaraguru College of Technology, Coimbatore, for his Constant encouragement throughout my course.

I would like to express my deep sense of gratitude and thanks to **Dr.S.Thangasamy, Ph.D.,** Head, Department of Computer Science & Engineering, Kumaraguru College of Technology, Coimbatore, for his invaluable guidance and suggestions that encouraged me to complete this project successfully.

I admit my heart full thanks to my project guide **Ms. C.S.Sowmya M.E., M.I.S.T.E** Lecturer, and our course coordinator **Mr. R.Dinesh, M.S,** Assistant Professor, Department of Computer Science & Engineering, Kumaraguru College of Technology, Coimbatore, for being supportive throughout the tenure of my project

I express my profound gratitude to **Mr. M.Naren Ranjith,** MD & CEO, ICON SOLUTIONS, Chennai, for providing me a key project in their firm and for his complete co-operation. I am especially thankful to **Mr. N.Sanjith,** Project Leader, ICON SOLUTIONS for providing me guidance and suggestions throughout my Project.

I also take this opportunity to extend my sense of gratitude to all the faculty members, non-teaching staffs of the Computer science Department, K.C.T, Coimbatore, for their guidance and co-operation rendered throughout my course.

SYNOPSIS

Quality Monitoring System is an application software developed for Quality Engineering Department of Royal Enfield, which is a client to ICON SOLUTIONS.

The objective of the project is to generate information reports to the top management in taking decision in right time in a right manner in a close information carrying system.

To response faster in solving quality issues related to vendor and his process and quality issues for improvement with respect to in-house process for product audits.

Manufacturing cycle starts from the vendor and his process, approval, receipt inspection, in-house process, product assembly, design/process, process improvements and action on field failure. So it is become necessary to gather and collect information related to manufacturing cycle parameters.

It analyzes the data and converts them into information (reports) which top management can understand easily and necessary action can taken.

The benefits to the department through this project are

- Faster decision making in supplier survey and approval.
- Reduction of time in judging the supplier.
- Faster response to the vendors.
- Information system to the department.
- Vendor improvement.
- Better integrity with vendor facilities.

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1. INTRODUCTION

.1 Purpose:

To generate information reports to the top management in taking decision in right time in a ight manner in a close information carrying system.

To response faster in solving Quality issues related to vendor and his process and quality issues or improvement with respect to in-house process for product audits

1.2 Scope:

- To ensure the quality of the bought out materials from the vendor which is rough, semi-finished and finished
- Ensuring controls on the process during manufacture and assembly and thereby ensuring the quality of the in house made items
- Ensuring the quality of the finished products prior to dispatch to the customer
- To provide support to the vendors to meet the quality requirements and also guidelines for continuous improvement
- Analysis of customer feedback and corrective / preventive action
- Identify the quality level to meet drawing and specification requirements

1.3 Overview:

Manufacturing cycle starts from the vendor and his process, approval, receipt inspection, in-house process, product assembly, design/process change, process improvements and action on field failures. So it become necessary to gather and collect information's related to above manufacturing cycle parameters.

Analyze the data and convert them into information (Reports) which top management can understand easily and necessary action can take.

The manufacturing cycle parameters are given below, each parameter will perform their own sk to better the quality of the product

Vendor Registration

Supplier Details

Supplier Quality Assurance

Engineering Design Modification

Quality Auditing

Daily Report

2. GENERAL DESCRIPTION

.1 PRODUCT PRESPECTIVE:

In the existing system, all the information about the suppliers and quality auditing are maintained manually, so it is difficult for the engineers to retrieve the information about the suppliers and to perform quality auditing

Limitations of Existing System:

- Retrieval of the information about the suppliers are very difficult
- Time taken to perform the quality auditing is very high
- Rate of error is high
- Requires lot of manual interaction and paper work

To overcome these difficulties, a new system is required. This must be user friendly and useful to the organization.

Objectives of Proposed System:

- To reduce manual as well as paper work
- Ensure fast and efficient service
- To be error free
- Retrieval of information in a faster way
- Provision for validation

.2 PRODUCT FUNCTION:

Each manufacturing parameters have their own task to full fill the above objective and the nitations. The description and the functions of the various modules are given below

.2.1VENDOR REGISTRATION:

Objectives:

To store information for registering new vendors who approach for tie up for long term usiness relationship in existing vendor list.

Description:

A new vendor will be registered under two occasions,

- During a product being developed
- During existing source unable to meet quantity requirement of the production plan. That means a vendor is being developed for new product and for quantity requirements.

Information collected will be in around about vendors like Commercial, personnel, financial, general, technical, quality, production, inspection

General:

This form is used to know about company name, address, phone No, factory premises, captive power and Total space of the company

Commercial:

To judge the financial strength of the supplier for long term relationship. Commercial viable supplier will insure expansion of production facilities to match our quality requirements. His balance sheet will provide information on his current financial position.

inancial:

This form is used to know about the total capital investment, operating profit and turnover of ie company.

It also used to identify the name of the banker who provides loans. Balance sheet is used to now about current financial position.

'ersonnel Information:

This form provides information about manpower, administrative details and shifting details of ne company.

Technical Information:

This form provides information about various facilities of the company i.e. Production, nspection, major supplier, major customer, testing and tool room facilities

2.2.2 SUPPLIER DETAILS

Objectives:

To store personal information about the suppliers and to identify the type of suppliers.

Description:

After entering details into Vendor Registration form, the next step is to enter the personal details of supplier's i.e.

- Name and address
- Phone No or Fax No or E-mail ID
- Supplier type

Into supplier details form so that quality engineers can identify the supplier type

2.3 SUPPLIER QUALITY ASSURANCE

bjectives:

To assure the desired quality, reliability, service and other aspects in the manufactured product vendors through scientific techniques.

escription:

Initially, Quality Engineers ordered for 10 to 20 products (sample order). After ensuring the uality of product through

Quality of Design and Quality of manufacturing conforming to design and Quality of erformance

Then Quality Engineers ordered for 300 to 500 products (pilot order). Again they ensure uality of vendor product through quality formula. Finally Quality engineers ordered bulk products.

.2.4 ENGINEERING DESIGN MODIFICATION

Objectives:

To check whether the changes made in the product or assembly or components have taken lace as per the engineering recommendation.

Description:

Engineer issues a change in the drawing in view of the following:

- Product Improvement
- Govt. Regulation
- Assembly Complaint
- Field Complaint
- Customer Requirement

hen there is a change in the drawing, it should be implemented very fast. Quality Engineering dept ould ensure it is getting implemented with a cut off no i.e. Product send no to monitor.

Each EDM is released with a grade number. This number indicates at what stage it has to be troduced. There are 5 grades totally, each with different incoming as follows.

Grade No 1: To be introduced after consuming existing stock

Grade No 2: To be introduced after sending the stock to spares

Grade No 3: To be introduced by converting the existing stock

Grade No 4: To be introduced immediately for the vehicle inside the factory scrapping the existing stock.

Grade No 5: To be introduced in the field, apart from the factory vehicle.

Quality Engineers should monitor the vehicle in the field after giving the product serial no to eld service to validate the design change.

Quality Engineers should provide age wise analysis of different grades of EDMs for the nanagement to prioritize the actions on introducing EDMs.

Quality Engineers should be able to categorize EDMs based on models, Grades & dates

All these reports need to be bi-monthly to the top management.

2.2.5 QUALITY AUDIT

Objectives:

- To evaluates the product, the inspector and the system for achieving product quality.
- To inquire about the adequacy of all the entire system of handling quality function.

scription:

Quality auditing examines whether the design meets the functional requirements completely, ign specifications are clear-cut without ambiguity, and the design fulfils the customer's uirements.

Quality auditing also examines customer quality complaints, adequacy of corrective action ken by the company and the various phases of quality performance such as control charts, check spection data.

Quality auditing also examines activities in shops such as the adequacy of gauges and test quipments used and completeness and sequence of performance of inspection procedure, data ollection system and action.

There are 2 types of auditing

- Process Audit
- Product Audit

Process Audit:

To verify the correctness of assembly and machine shop production process activities. It is used to evaluate the adequacy of the production – process with regard to assuring the qualitative characteristic of the product and express the result in numerical indices.

Product Audit:

There are two types of product auditing

- Product Audit Of Gearbox
- Product Audit Of Engine

roduct Audit of Gearbox:

- To quantify the quality of the gearboxes by means of a numerical index.
- To permit comparison of the quality of gear box with an objective index over the time scale and different manufacturing units.
- To set definite goals in improving the quality of the product by means of bench marking the numerical index.

roduct Audit of Engine:

To carryout audit covering the following checks and express the quality level as a demerit ating. The checks to be carried out and the demerit points to be assigned are predetermined.

udit Plan

The audit programme should be approved and communicated to the auditors and auditees. It hould include

- The scope of audit and objectives.
- The identification of person responsible for the audited activity.
- Confidentiality requirements.
- Date and place of audit.
- The audit reports distribution.

Audit Reports

The report covers the events of the auditing

- Measures of customer satisfaction or dissatisfaction with the product, i.e., complaint rate, return rate, gain or loss of customers due to quality etc.

- Summary of defects on purchased materials.
- Damage due to predominant defects.
- Report on action to correct factory troubles.

2.6 DAILY REPORT

Objectives:

To record day to day activities of Quality Engineers, work done by each and every employee an be analyzed

Description:

Daily Report form contains time, activity and Quality cost for corresponding activity columns. Charts are drawn based on hours of working and quality cost.

2.3 USER CHARACTERISTICS:

Since the system is user-friendly the user doesn't need much knowledge about the software on which the project is being developed, a basic knowledge in operating the computer system will be sufficient enough for running this project as all the details which are to be entered had been asked clearly with suitable check boxes, radio buttons, label box etc for all the manufacturing cycle parameters

3. SPECIFICATION REQUIRMENTS

1 DESIGN CONSTRAINTS

1.1 ABOUT THE FRONT END

ISUAL BASIC6.0

Microsoft Visual Basic, the fastest and easiest way to create applications for Microsoft indows.

The "visual" part refers to the method used to create the graphical user interface (GUI).

The "basic" part refers to the BAIC (beginners all purpose symbolic instruction code) language sed by more programmers than any other language in the history of computing.

Visual basic is different from conventional programming languages. The core is a set of ndependent codes that are activated by and respond to specific events. Features that increase usability nclude the use of modular programming language with easy-to-use and sophisticated string handling apabilities.

As an object oriented programming tool, it allows programmers to define functional classes nd allow the generation of class modules for use by other application as in-process OLE servers.

Visual basic is the most widely used Front-end tool. Being independent of the back-end latabase gives its universal applicability. from the database application to multimedia, visual basic ddress the needs of almost every computer user.

FEATURES OF VISUAL BASIC:

Forms, which can be designed to suit any GUI requirements concludes on drawn on a form o enhance the user interaction .it allows putting of controls like text boxes, command buttons, list, scroll bar grids ,check boxes, pictures, etc., in built facilities to design the menus.

- Database creation and database connectivity tools.
- An OLE control allows the user to display data from other applications and edit that data from with in the application.
- Tools that enable the creation of grids and gadgets very easily.
- Collection of commonly used dialogue boxes.

.1.2 ABOUT THE BACK END

RACLE 8i:

OOLS OF ORACLE:

In oracle the following tools are found and they are used.

- SQL PLUS
- PL / SQL

QL PLUS

SQL PLUS is a structured query language supported by ORACLE. Through SQL * PLUS we an store retrieve edit, enter & run SQL commands and PL/SQL blocks. Using SQL * PLUS we can erform calculations, list column definitions for any table and can also formal Query results in the orm of a report.

A Database Manager is a Software system that lets you query, Manipulate and control data hough the database language SQL. Real data base manager provides data protection against the icissitudes of life (Recovery). Support multiple users (Concurrency), multiple applications, and eferential integrity protect us from unauthorized use of our data (Security), and isolate us from the etails of managing data on a particular platform (Portability).

ECOVERY

Recovery is the ability of the database manager to recover your database after transaction, plication system and media failures.

OMMITTING OR ROLLING BACK

The one of thing our application does need to worry about is signaling to the database manager hen our transaction ends. This is usually with the SQL committing work statement or the rollback atement.

ONCURRENCY

Concurrency is the ability for multiple processes to access the database at the same time. hese can be clients on different machines or separate processes on the same machine.

ECURITY

Security is the protection of the database against unauthorized access or change. Two evels of security are as follows.

- Password
- Privileges (Grant, Revoke)

PORTABILITY

It's the capability of running on different systems. It applies to operating systems.

REFERENTIAL INTEGRITY

A master – detail relationship specified the relationship between two base blocks. These blocks are known as Master and Detail blocks. These blocks reflect the primary – foreign key relationship between base tables.

When a master - detail relationship is established it ensured that the detail block displays only records that are associated to its master block. The master and detail blocks are related by the join condition.

L / SQL

PL / SQL is an extension of SQL, PL / SQL block can contain any Number of SQL statements egrated with flow of control statements. Thus, PL/SQL combines the data manipulating power of QL with data processing Power of procedural language.

RCHITECTURE OF PL / SQL

PL / SQL blocks are executed by the PL / SQL engine. The PL/SQL engine executes only the rocedural statements and sends the SQL Statements to the SQL statement executor in the Oracle erver. The PL/SQL Engine can either reside in the Oracle Server or on Oracle tools such as SQL * ORMS 3.1. Oracle Forms 4.5 REPORTS 2.5. The nub features of PL/SQL are # Support for SQL. L/SQL allows us to use all SQL data manipulation commands, transaction control commands. SQL nctions (except group functions) operators and pseudo columns thus allowing us to manipulate data alues in a table more flexibly and effectively.

IGHER PRODUCTIVITY

PL / SQL can be used to include procedural construction in non – procedural tools like SQL ORMS 4.5 to built applications. For example, we can use the entire PL / SQL block in an SQL * ORMS trigger. Further PL/SQL remains the same in all environments.

ETTER PERFORMANCE

Without PL / SQL Oracle must process SQL statements one at a Time. With PL / SQL, an ntire block of statements can be processed in a Single command line statement. This reduces the time aken to communicate between the application and the oracle server. Thus it helps in improving erformance.

ORTABILITY

Application written in PL / SQL is portable to any operating system or platform on which Oracle Version 6.0 or higher runs.

NTEGRATING WITH ORACLE

PL / SQL and Oracle have their foundations in SQL, PL / SQL supports all the SQL data types nd its integrates PL / SQL with the Oracle data dictionary.

3.2 SYSTEM ENVIRONMENT

2.1 HARDWARE SPECIFICATION

Processor : Intel Pentium Processor III

Mother Board : Intel 815 Chipset

RAM : 128 MB

Hard Disk : 20 GB Hard Drive

Floppy Drive : 1.44 MB

Keyboard : Logitech

Mouse : 2 Button Mouse

Monitor : 14 inch color Monitor

3.2.2 SOFTWARE SPECIFICATION

Front End : Visual Basic 6.0

Back End : Oracle 8i

Platform : Windows NT

PHYSICAL DESIGN

1 INPUT DESIGN

Input design is the process of converting user-oriented input to a computer-based format.

The goal of designing input data is to make data entry easier and free of errors. Input design termines the format and validation criteria for data entering the system. Personal computers and minal can place data at user finger tips allowing them to call up scientific data and make timely cision based on that data.

This system contains data collection screen which display heading that define their purpose. By nploying flash error messages and providing necessary validation on the screen. Miss entering of ata in the system is avoided.

The system starts with the username & password. The employees who have the user-id can hange the password by entering the old password. For the vendor registration each vendor is given a articular serial no, supplier code, supplier name, and all other respective details are entered in eneral, financial, technical and personal. In technical the details of facilities and the quality system hould also be entered.

In engineering design modification engineering design modification, date of modification and he type of grade no and how much unit affected are required. The details of the modification and eason should be specified

In quality audit the appropriate details should be specified for process checklist query, check st report, process report, process report entry and summery report.

.2 OUTPUT DESIGN

Computer output is the most important and direct source of information to the user.

Output design is a process that involves designing necessary outputs. Outputs that have to be given to various users according to the requirements, efficient, intelligible output design should mprove the system's relationship with the user and help in decision making.

Since the reports are directly referred by the management for taking decision and to draw nclusion, they must be designed with at most care and details in the reports must be simple. scriptive and clear to the user. The option for the outputs and the reports are given in the system's enu.

In vendor registration you can get the personal and commercial details of the vendor. In pplier quality assurance the ordering form can be got through serial no and code. Here the ordering port is generated where you can filter the filter (or) sort various types of orders. In the engineering odification view you can sort the engineering design modification details through grade wise count, e analysis, model wise count.

The audit plan gives the period wise summery and it shows the pending chart which gives the etails of how much it is raised, resolved and pending. You can get the chart through the options as ne chart, bar chart, area chart and step chart. The daily report also contains chart which is plotted rough quality of cost and hours.

.3 CODE DESIGN

A Group of characters used to identify an item of data is a code. A major problem encountered n working with a large amount of data is the retrieval of specific data when it is required. Codes are sed to aid the user in information identification or retrieval.

Large volume of data handling makes difficulty in individual identification. Code facilitates easier identification, simplification in handling and retrieval of items. By consuming less storage space he codes are designed in such a manner that the user will easily understand it.

4.4 DATABASE DESIGN

Database design is the heart of any information system. It is the centralized master file of as key information that is available to any authorized person with in the organization. A database should provide rapid retrieval of accurate and relevant information. The key element in this concept of an information system is that each stage transaction process utilizes the same database in the day-to-day information needs.

A database is a collection of interrelated data stored with controlled redundancy, to serve one or more applications. The most basic piece of data that can not be broken into more detailed unit is

lled data item or data element or field .several data are groped in a predefined forma: tha: may be ferred to either as a record or data structure.

Main objective of database concept is forming data integration. so as to allow several users are the common data for different applications. It facilitates easy and quick access for all the users. ne primary activity during the database design is to select logical representation of data objects entified during the requirements definition and specification phase.

The selection process may involved algorithmic analyses of alternative structure in order to etermine the most efficient design or may simply involve the ser to set of modules that provide the esign operations upon some representation of objects.

ABLE

A table is a logical structure used to group a set of relevant information. The proposed system ontains several tables such as engineering design modification, sort, process etc.

ECORD

A record is a grouping of a set if attributes describing each person, place or item in a database. or example, in the engineering design modification table for each entry there is one and only one ecord.

IELD

A field is a attribute of a record. For example, attributes of the engineering design nodification, fields are edmno , models , reason , grade no, etc. for each field there is one and only ne entry.

RIMARY KEY

Primary key is a key that uniquely identifies a record. This is accomplished by assigning a nique id or number to each record, which is called the primary key. Records are stored based on the rimary key.

OREIGN KEY

Foreign keys are fields in common between tables.

DEXES

Access to a database record is often made faster through the use of an index assign to fields her than the primary key field.

UERIES:-

Queries are questions asked to a database. In visual basic, English like language named ructured query language (SQL) is used to retrieve data from a database.

.4.1 SAMPLE DATABASE

ABLE NAME - MAJSUP

FIELD NAME	DATA TYPE	SIZE	NULL?
NO	NUMBER	2	
CODE	LONG	4	NOT NULL
UPPLIER	VARCHAR	30	
OLUME	DOUBLE	8	
ENDORRATING	DOUBLE	8	

TABLE NAME - MAJCUS

FIELD NAME	DATA TYPE	SIZE	NULL?
SNO	NUMBER	2	
SCODE	LONG	4	NOT NULL
CUSTOMER	VARCHAR	30	
VOLUME	DOUBLE	8	
PERCENTAGE	DOUBLE	8	

ABLE NAME - TESTING

FIELD NAME	DATA TYPE	SIZE	NULL?
NO	NUMBER	2	
CODE	LONG	4	NOT NULL
ANGE	VARCHAR	30	
EAST	DOUBLE	8	
UANTITY	DOUBLE	8	

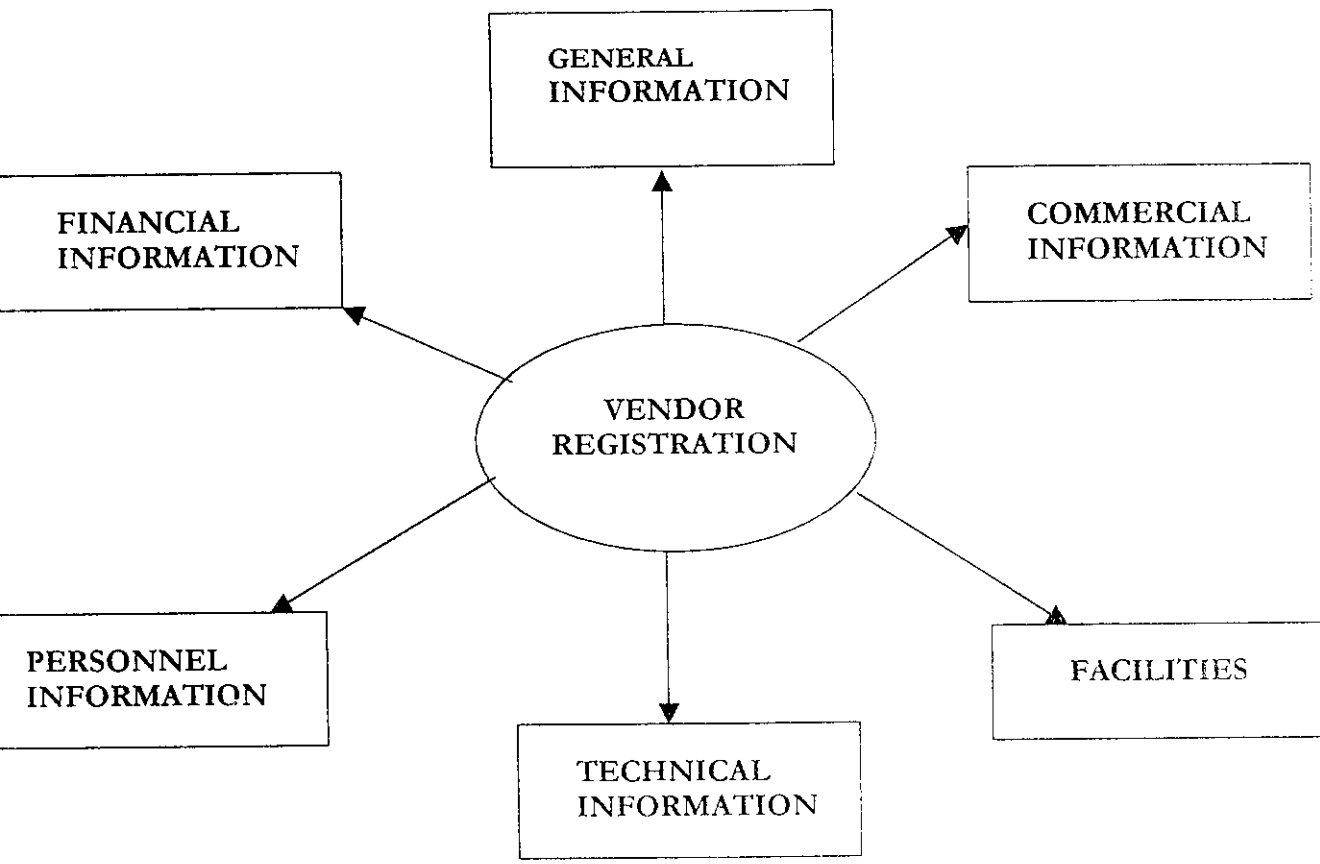
ABLE NAME - TOOLROOM

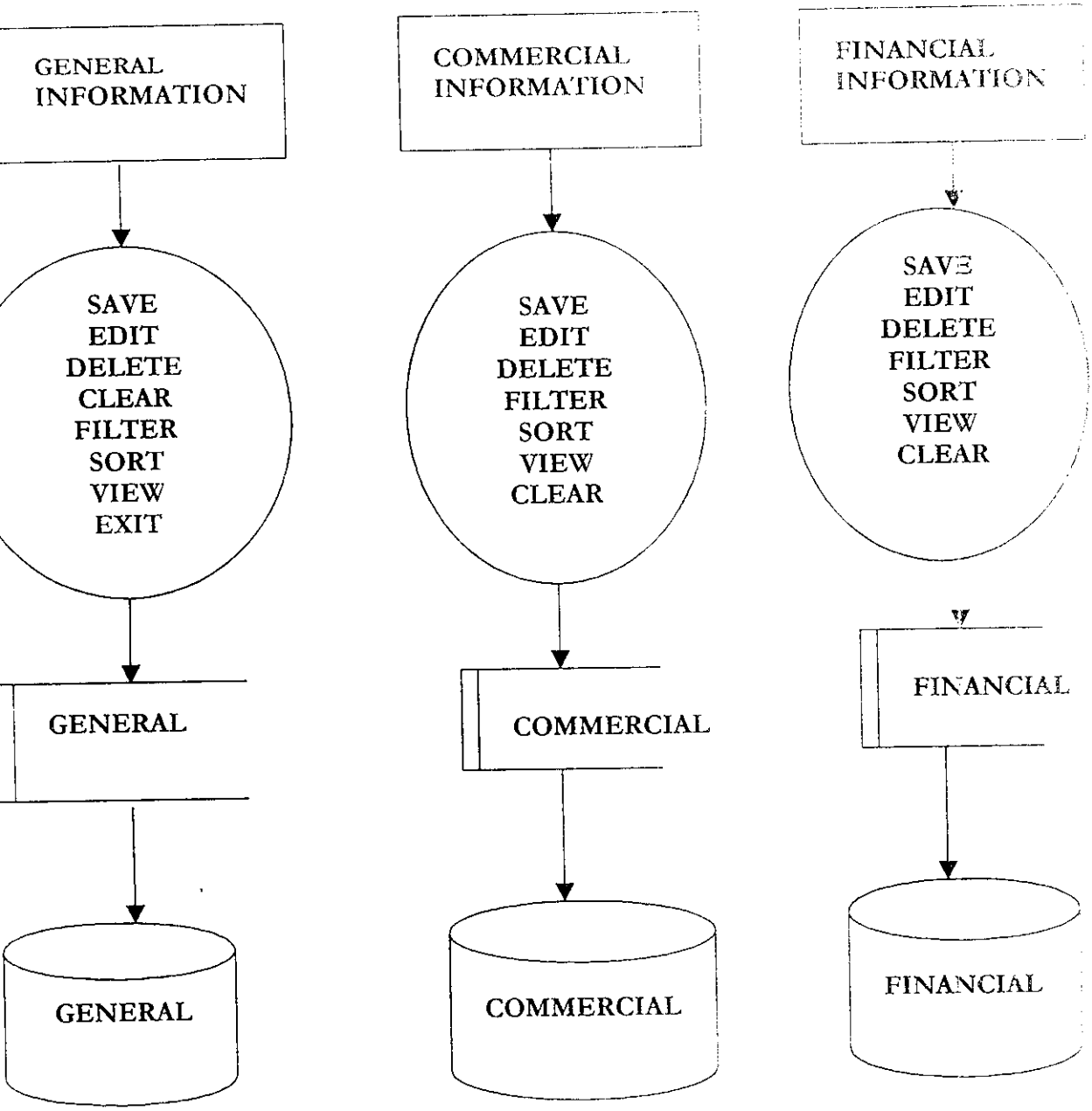
FIELD NAME	DATA TYPE	SIZE	NULL?
NO	NUMBER	2	
CODE	LONG	4	NOT NULL
EAR	VARCHAR	30	
APACITY	DOUBLE	8	
UANTITY	DOUBLE	8	

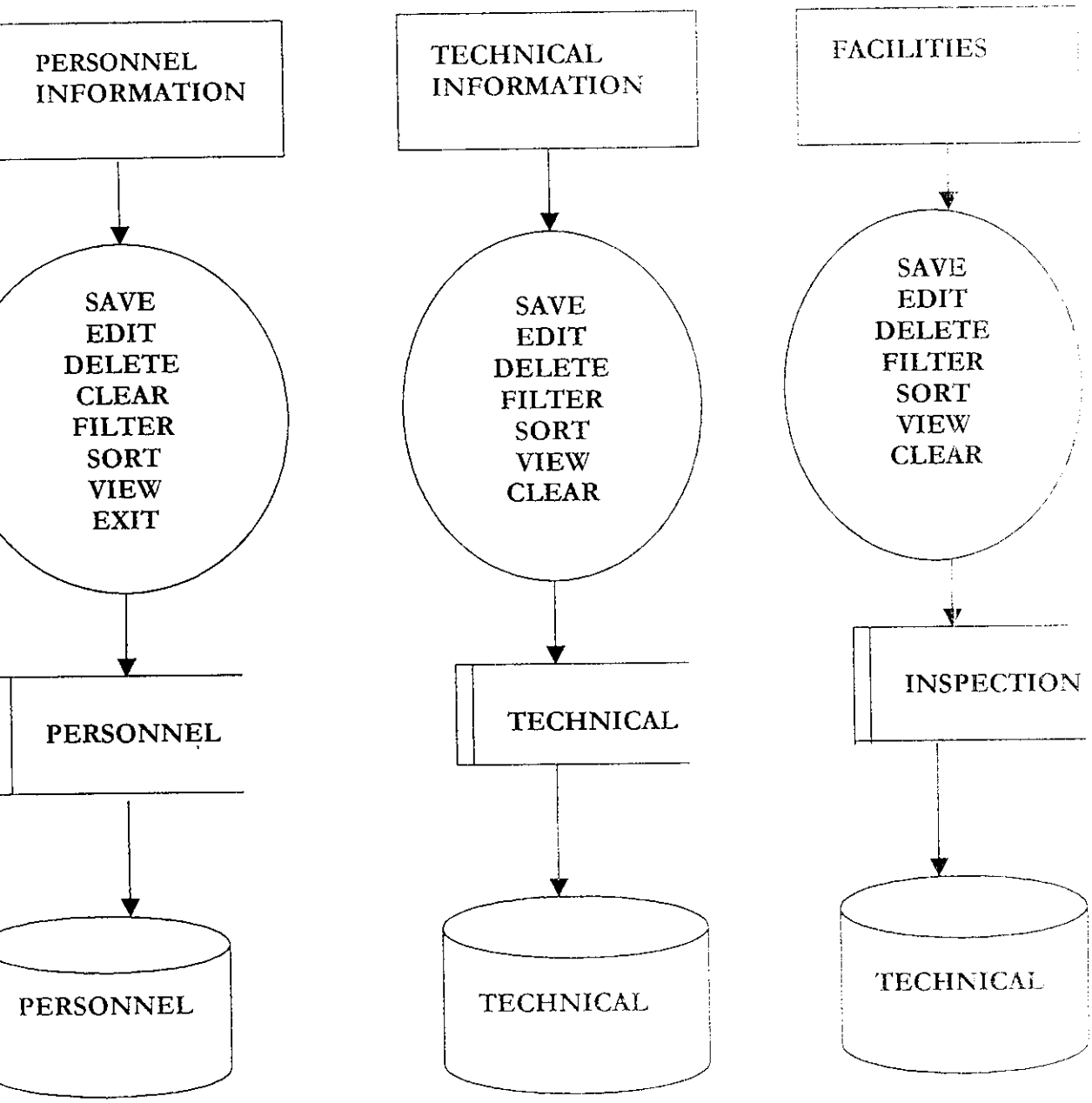
5. SYSTEM DESIGN

5.1 DATA FLOW DIAGRAM

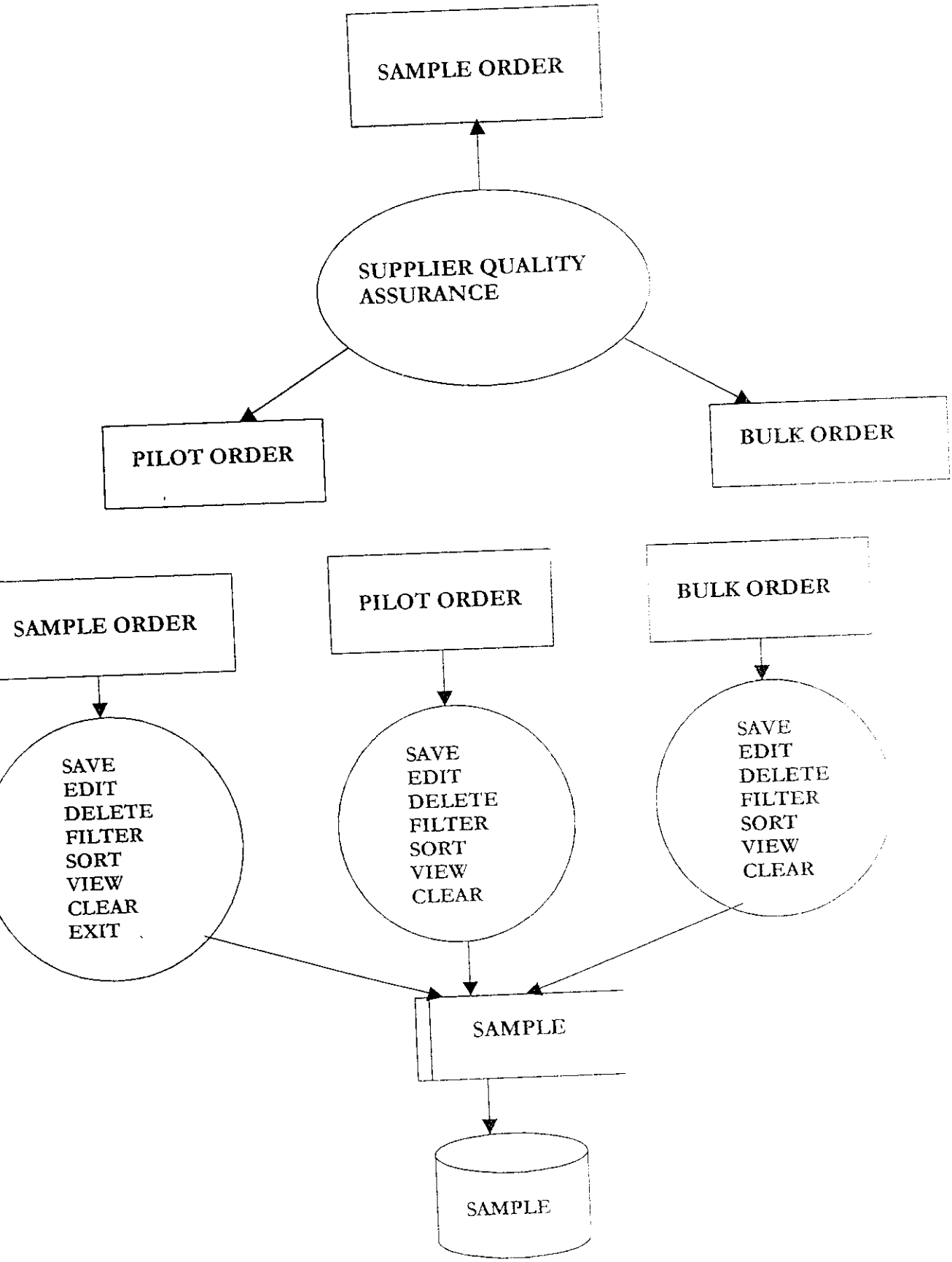
Vendor Registration



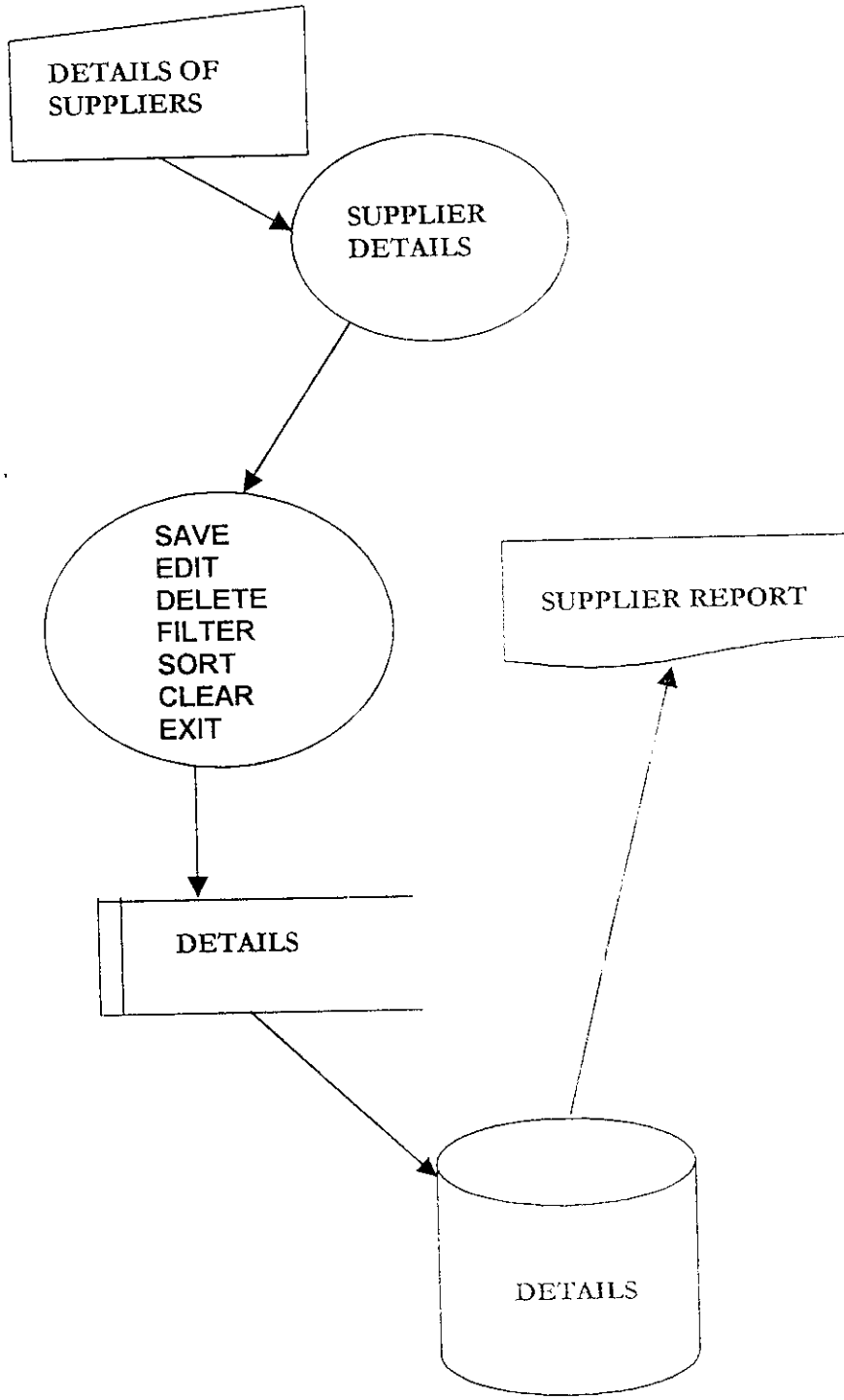

GENERAL INFORMATION
SAVE
EDIT
DELETE
CLEAR
FILTER
SORT
VIEW
EXIT
GENERAL
GENERAL
COMMERCIAL INFORMATION
SAVE
EDIT
DELETE
FILTER
SORT
VIEW
CLEAR
COMMERCIAL
COMMERCIAL
FINANCIAL INFORMATION
SAVE
EDIT
DELETE
FILTER
SORT
VIEW
CLEAR
FINANCIAL
FINANCIAL


PERSONNEL INFORMATION
SAVE
EDIT
DELETE
CLEAR
FILTER
SORT
VIEW
EXIT
PERSONNEL
PERSONNEL
TECHNICAL INFORMATION
SAVE
EDIT
DELETE
FILTER
SORT
VIEW
CLEAR
TECHNICAL
TECHNICAL
FACILITIES
SAVE
EDIT
DELETE
FILTER
SORT
VIEW
CLEAR
INSPECTION
TECHNICAL

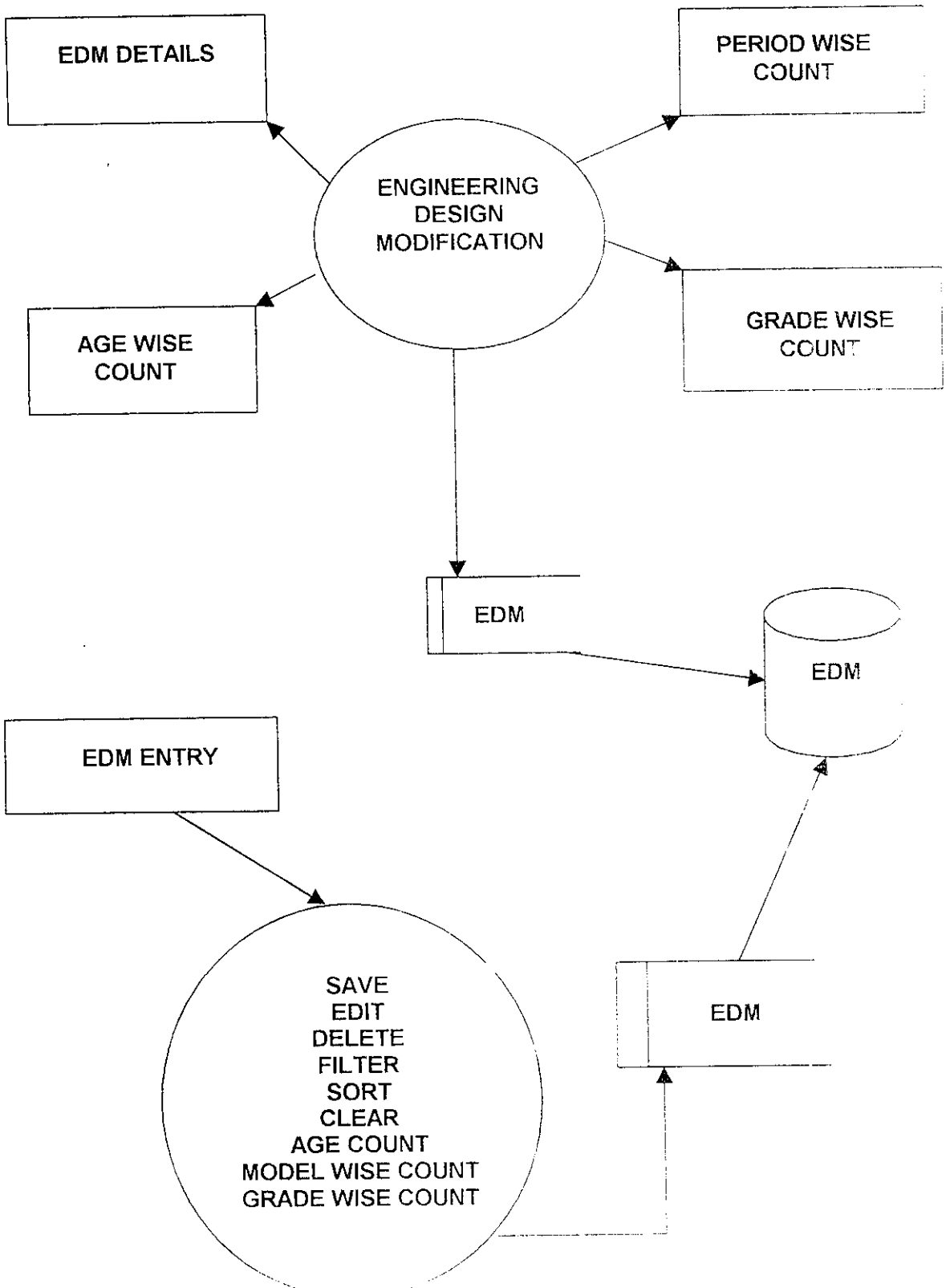
Supplier Quality Assurance



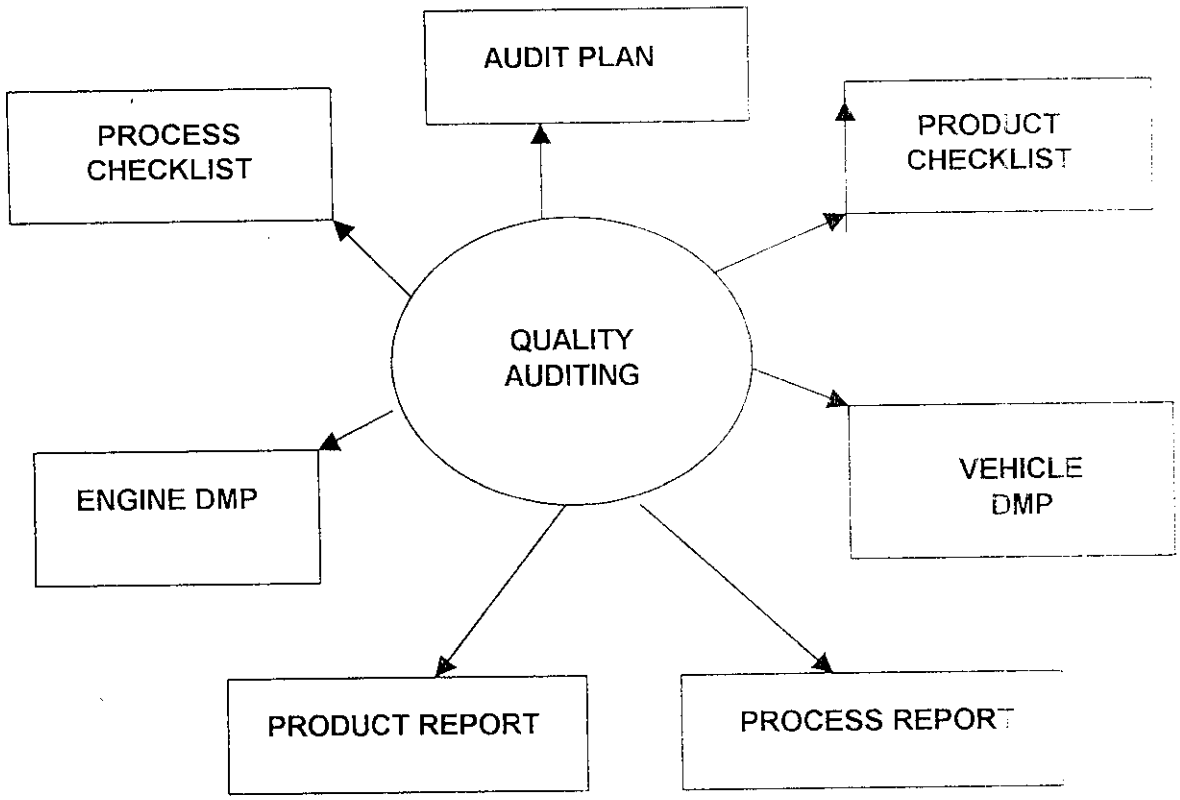
Supplier Details

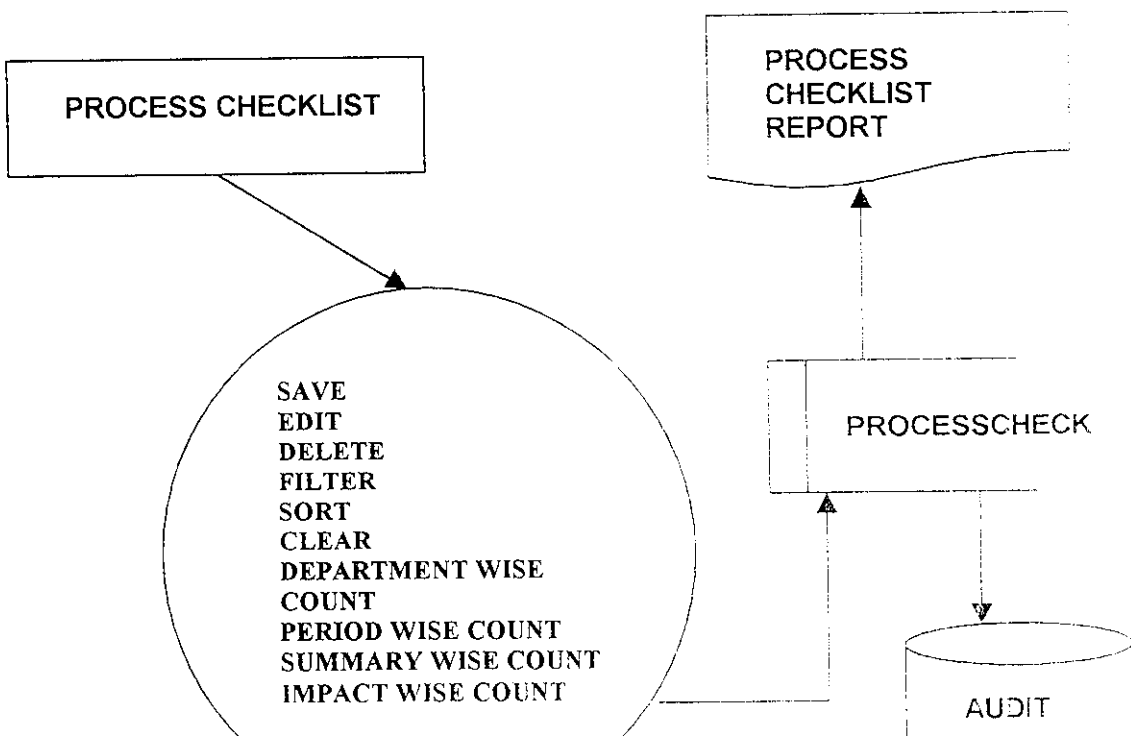


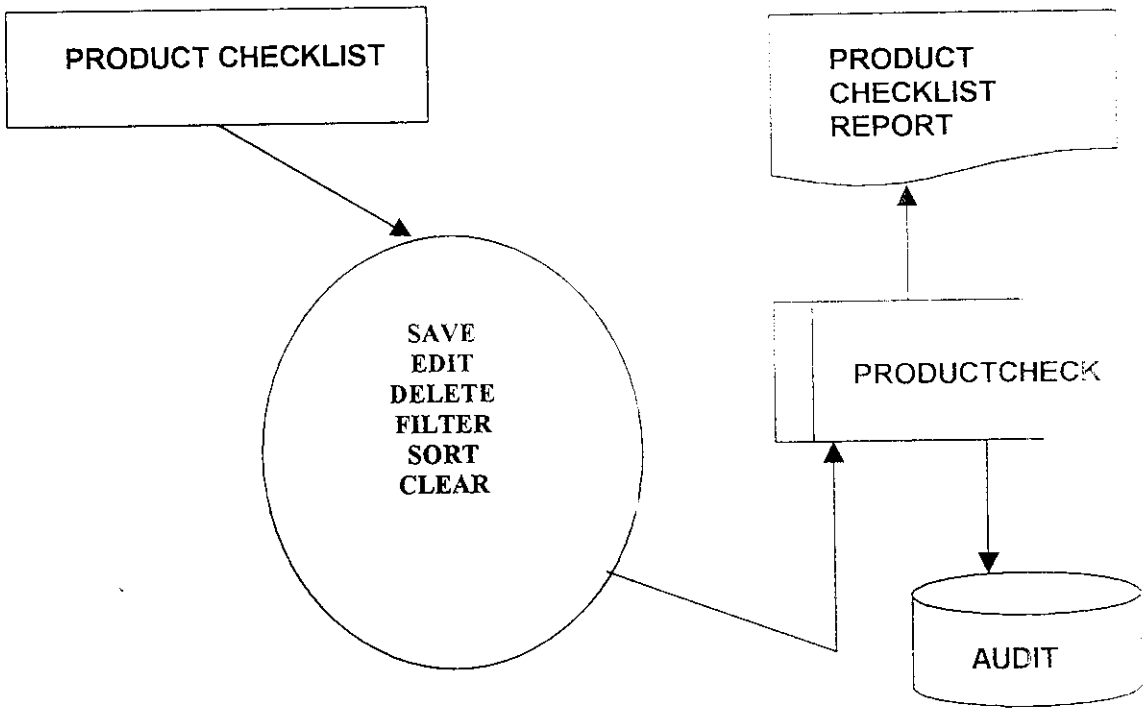
Engineering Design Modification

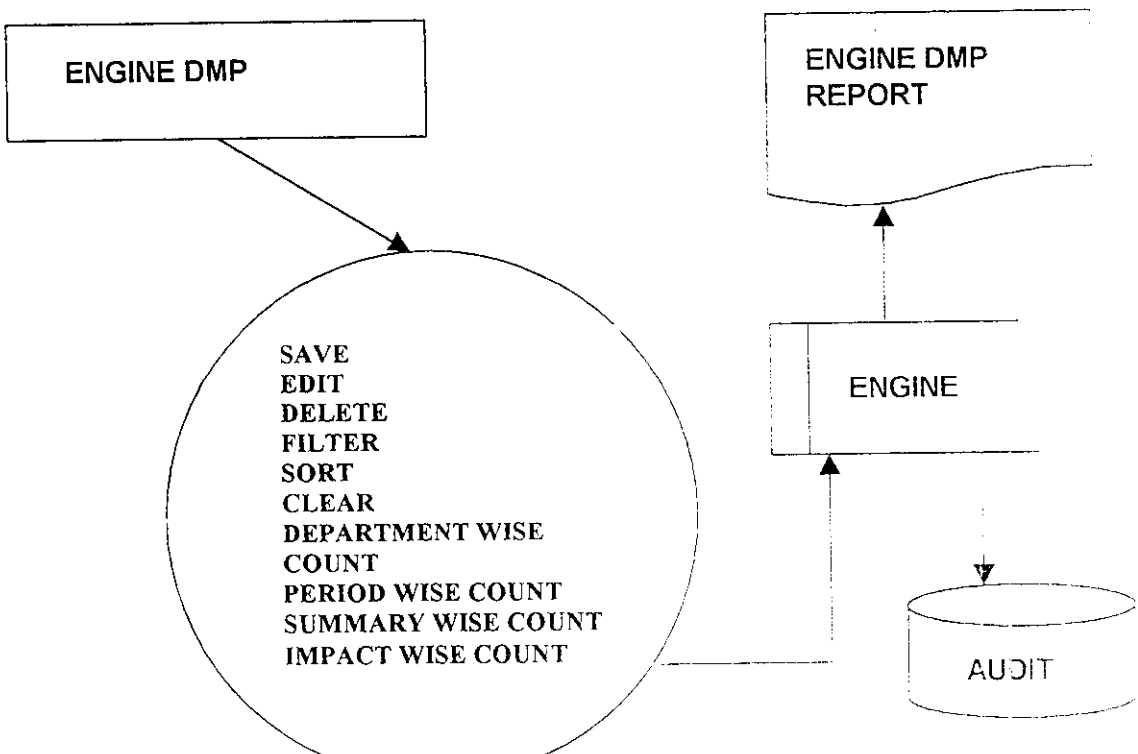


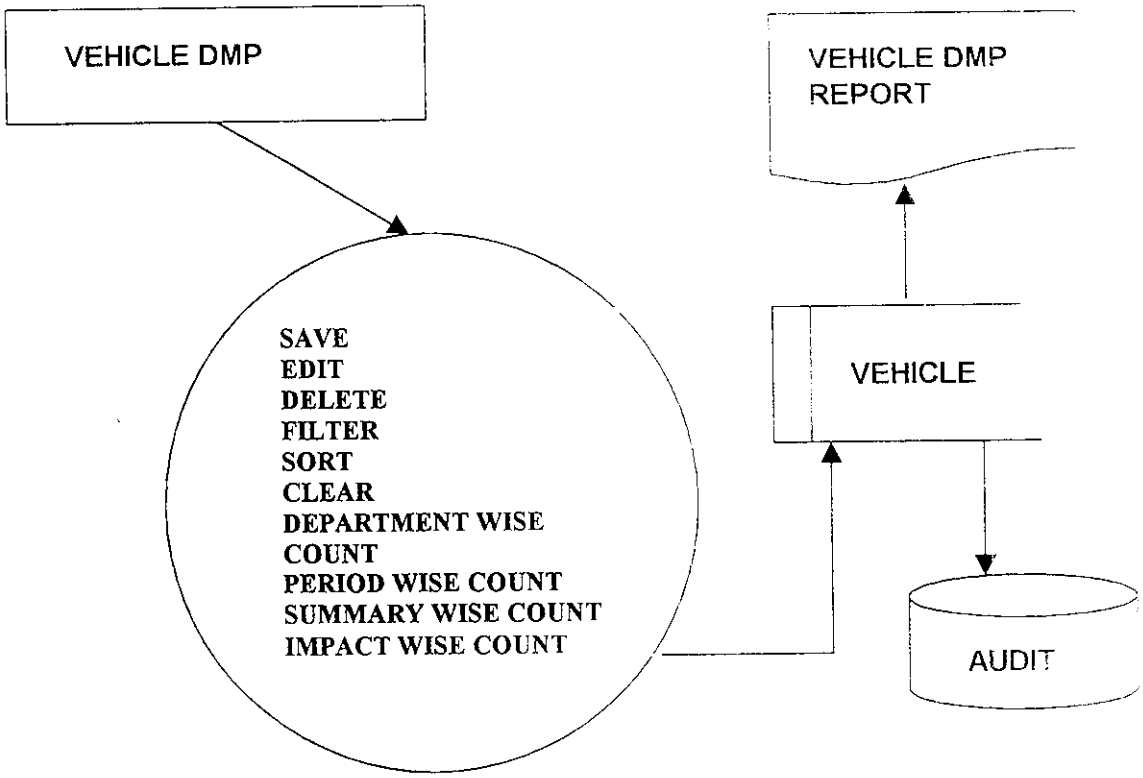
Quality Auditing



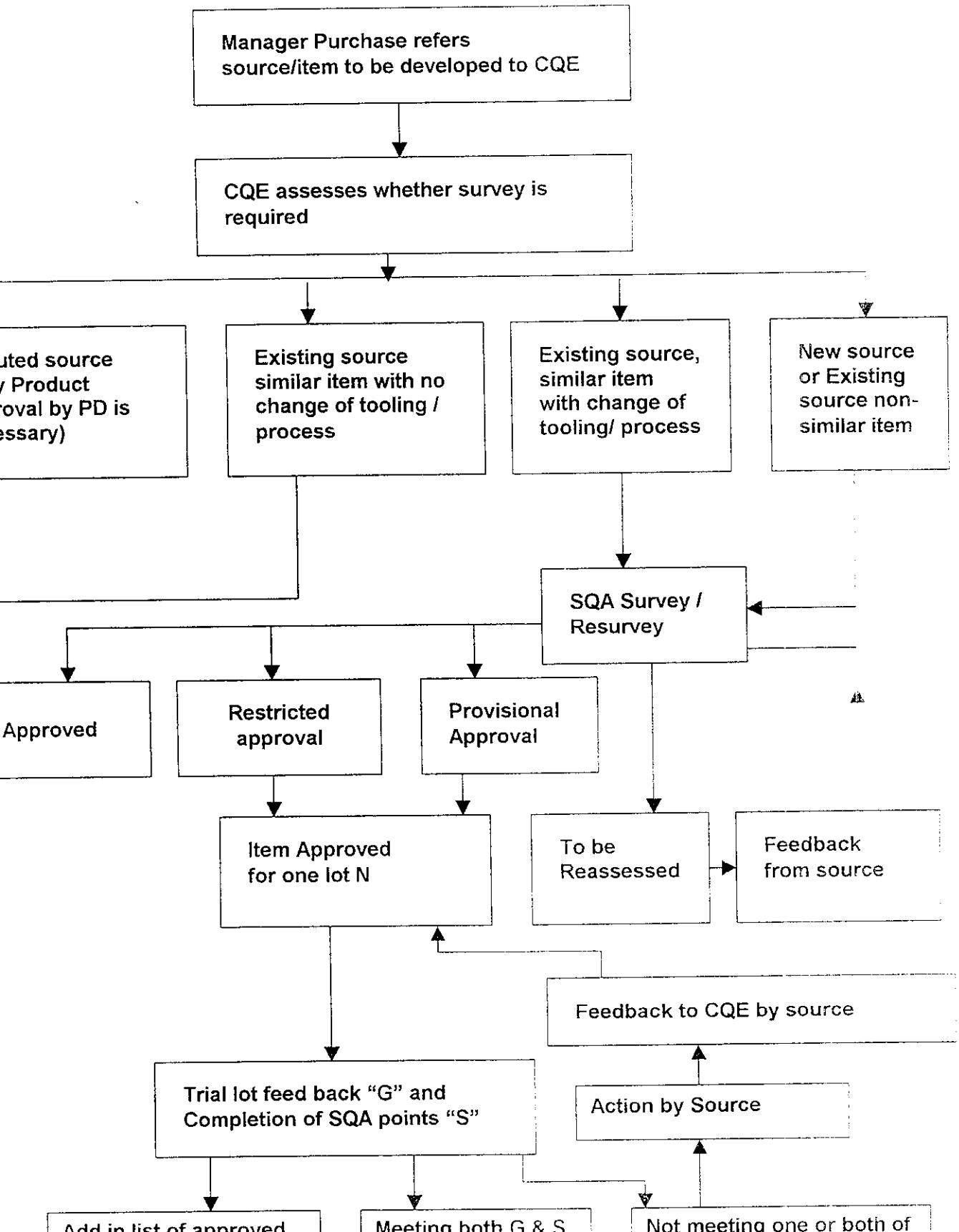



PRODUCT CHECKLIST
SAVE
EDIT
DELETE
FILTER
SORT
CLEAR
PRODUCT CHECKLIST REPORT
PRODUCTCHECK
AUDIT


ENGINE DMP
SAVE
EDIT
DELETE
FILTER
SORT
CLEAR
DEPARTMENT WISE COUNT
PERIOD WISE COUNT
SUMMARY WISE COUNT
IMPACT WISE COUNT
ENGINE DMP REPORT
ENGINE
AUDIT


VEHICLE DMP
VEHICLE DMP REPORT
SAVE
EDIT
DELETE
FILTER
SORT
CLEAR
DEPARTMENT WISE COUNT
PERIOD WISE COUNT
SUMMARY WISE COUNT
IMPACT WISE COUNT
VEHICLE
AUDIT

5.2 STRUCTERED CHART



6. TESTING AND VALIDATION

System testing is a critical aspect of software quality assurance and represents the ultimate view of specification, design and coding. Testing is a process of executing a program with the intent finding an error. A good test is one that has a probability of finding an as yet and discovered error. ne purpose of testing is to identify and correct bugs in the developed system. Nothing is complete ithout testing. Testing is vital to the success of the system.

In the code testing we have to check the logic of the developed system. To do this we have to xecute every module.

To perform specification testing, we have to examine the specifications starting what the rogram should do and how it should perform under various conditions. The software must be executed several times in order to find out the errors in the different modules of the system. The eliability of the new system is ensured through testing of the system.

The validation phase reveals the failure and the bugs in the developed system. We come to now about the practical difficulties, the system faces when operated in the true environment. By esting the code of the implemented software, we can examine the logic of the problem. This project is lso tested at various stages for verifications and validations.

6.1 UNIT TESTING:

Unit testing focuses on the modules independent of one another to locate errors in coding and ogic. The test cases for unit testing should exercise each condition and option. This involves the ottom-up approach and leads on the top-down integration testing program, as the next stage the unit testing of each module of this system is carried out as and when they are developed. This helped early identification of errors, which are therefore not carried and avoided in later development modules.

6.2 INTEGERATION TESTING:

Strategies for integrating software components into a functioning product include the bottom-up strategy, the top-down strategy, and the sandwich strategy. Careful planning and scheduling are required to ensure that modules will be available for integration into the evolving software product when needed.

The integration of every module in the system into a cohesive whole is tested in this stage. It is made sure that the outputs from the one module form and another module form to give right interfaces.

Testing is done in registration, input/update and search modules individually and also after egration. The project is tested satisfactorily.

3 SYSTEM TESTING:

During the development of a software project, errors of various types can occur at any stage. t each phase, different techniques are used to detect the errors. However, some errors such as those ccur while collecting requirements and some design errors have also to be removed and the system sted for the successfully working of any project.

System and acceptance testing is to verify that the implemented system satisfies its equirements. Acceptance testing is typically performed by the quality assurance and/or customer rganizations. Depending on local circumstances, the development group may or may not be involved acceptance testing.

7. SYSTEM IMPLEMENTATION

Implementation includes all those activities that take place to convert from the old system to e new one. The old system consists of manual operations, which is operated in a very different anner from the proposed new system. A proper implementation is essential to provide a reliable ystem to meet the requirements of the organization. An improper installation may affect the success f the new computerized system.

.1 IMPLEMENTATION PLANS

The implementation plan includes a description of all the activities that must occur to mplement the new system and to put it operation. It identifies the personnel responsible for the ctivities and prepares a time chart for the system.

The implementation plan consists of the following steps:

- List of files required for implementation.
- Identify all the data required to build new files during the implementation.
- List all the new documents and procedures that go into a new system.

The following are the issues to be considered in the evaluation of a system:

- The change in the cost of operation after the installation of the computerized system.
- The basic change that has been effected after the introduction of the system.
- The improvement in the accuracy of the computations
- The acceptance of the new system by the staff and the convenience it brought to them.
- The change in the effectiveness caused by the implementation of the new system

A study of the revealed that the employees due to that user friendliness have accepted the system, reduced the number of errors, increased accuracy and decreased cost of operations. The system also pays for efficient and speed execution of operations compared to the earlier system.

.2 IMPLEMENTATION METHODS

There are several methods for handling the implementation and consequent conversion from e old to the new computerized system.

The most secure method for converting from the old the new system in parallel.

In this approach, a person n may operate in the manual older processing system as well as start perating the new computerized system. This method offers high security, because even if there is a aw in the computerized system, we can depend upon the manual system. However the cost for aintaining two systems in parallel is very high. This overweight its benefit.

Another commonly used method is direct cut from the existing manual system to the omputerized system. The change may be with in a week or with in a day. These are no parallel ctivities. However there is no remedy in case of a problem. This strategy requires careful planning.

We can also implement a working version of the system, in one part of the organization and the ersonnel will be piloting the system and changes can be made as and when required. But this method s less preferable to the loss of entirety of the system.

8. CONCLUSION

The system is especially developed for making the process of the company quick and without error occurrence. The new system rectifies all the demerits that are accorded on the existing tems. The new system is very useful to any concern that performs similar operations. This system es not require much number of employees to do the particular work as in the conventional method. e system consumes less amount of time and the cost also will be less when compared to human rk. Since the system is user-friendly and the way of expressing the message will be good to derstand, it is more useful than the existing system.

9. FUTURE ENHANCEMENT

As the time passes, the technology changes. The system is feasible to accommodate chnological changes which are very important. This is one of the issues, which can be considered in ıe future. This quality analysis provides solution for the exact needs of the customer now. If any ıodification or change in the future, the system can be modified easily for updating. The possible way ı which modifications can be made

- Few more security control can be added to the system if needed in the future
- More analysis Reports can be added to the system

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1. Eric A. Smith, Hank Marquis, Valor Whisler, "Visual Basic 6 Bible", IDG Books Worldwide Publications, 1998.

2. John W. Franckowiak, "Visual Basic 6 Database Programming", Hungry Minds, Incorporated Publications, 1998.

3. Rob Thayer, "Visual Basic 6 Unleashed", Sams Publisher, 1998.

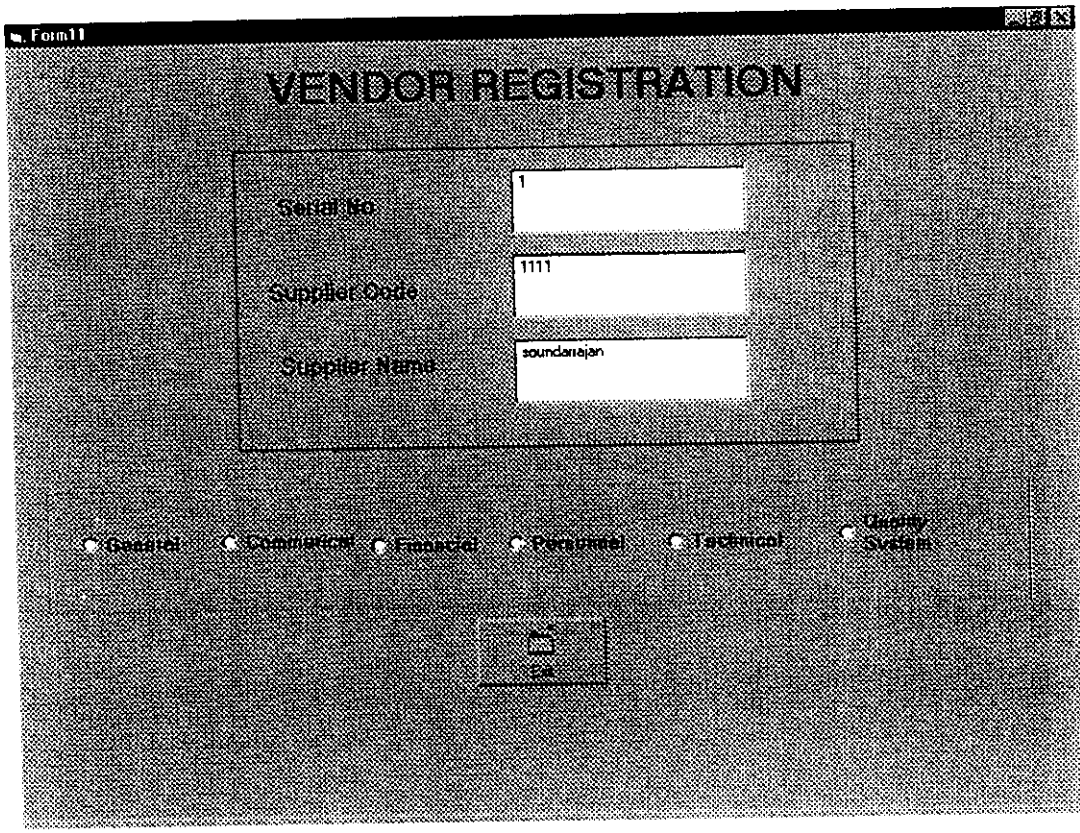
4. Kevin Loney, George Koch, "Oracle 8i ; Complete Reference", Osbare Mc Graw Hill Publisher, 2000.

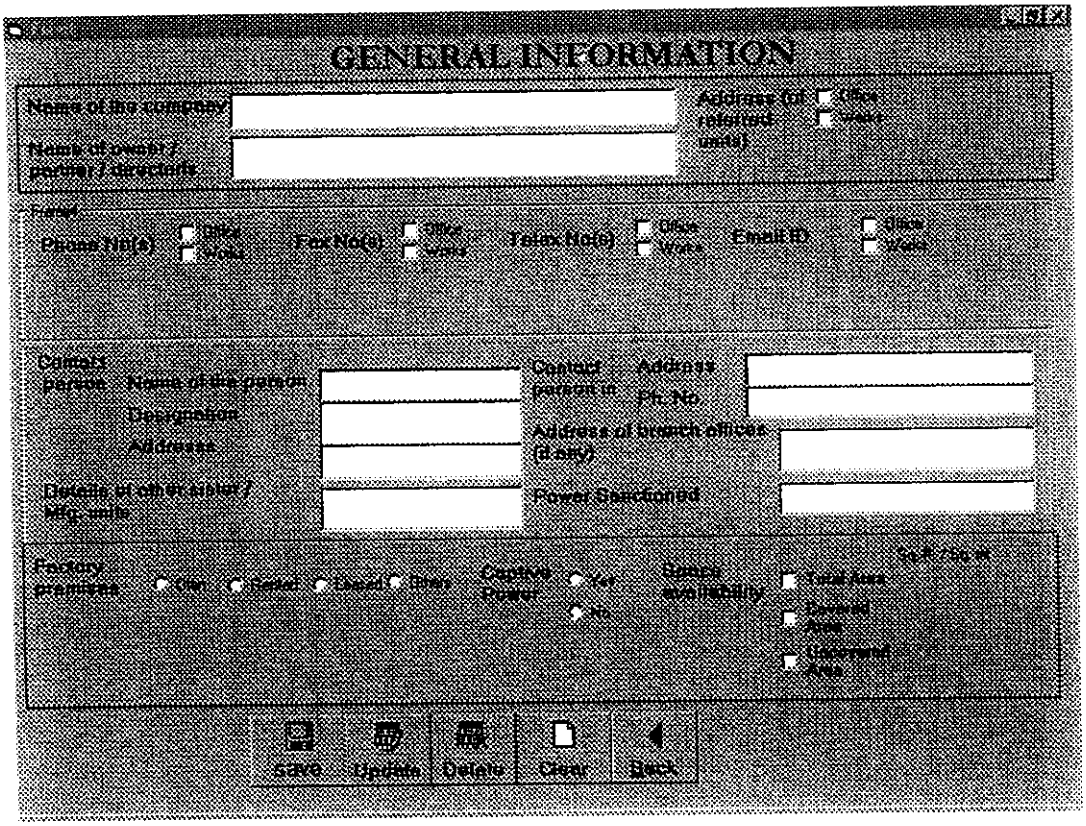
5. McCullough-Dieter, "Oracle8i Bible", IDG Books Worldwide Publications, 1998.

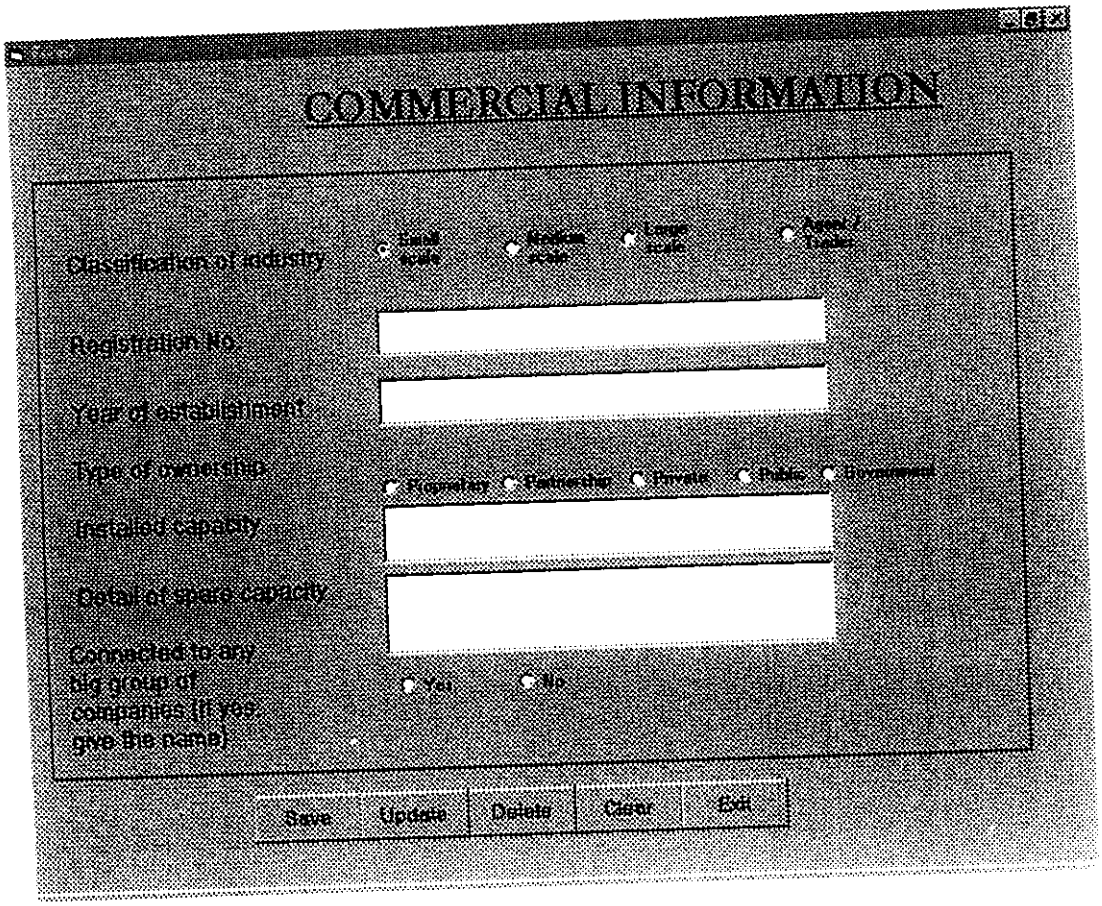
12. SAMPLE SCREENS

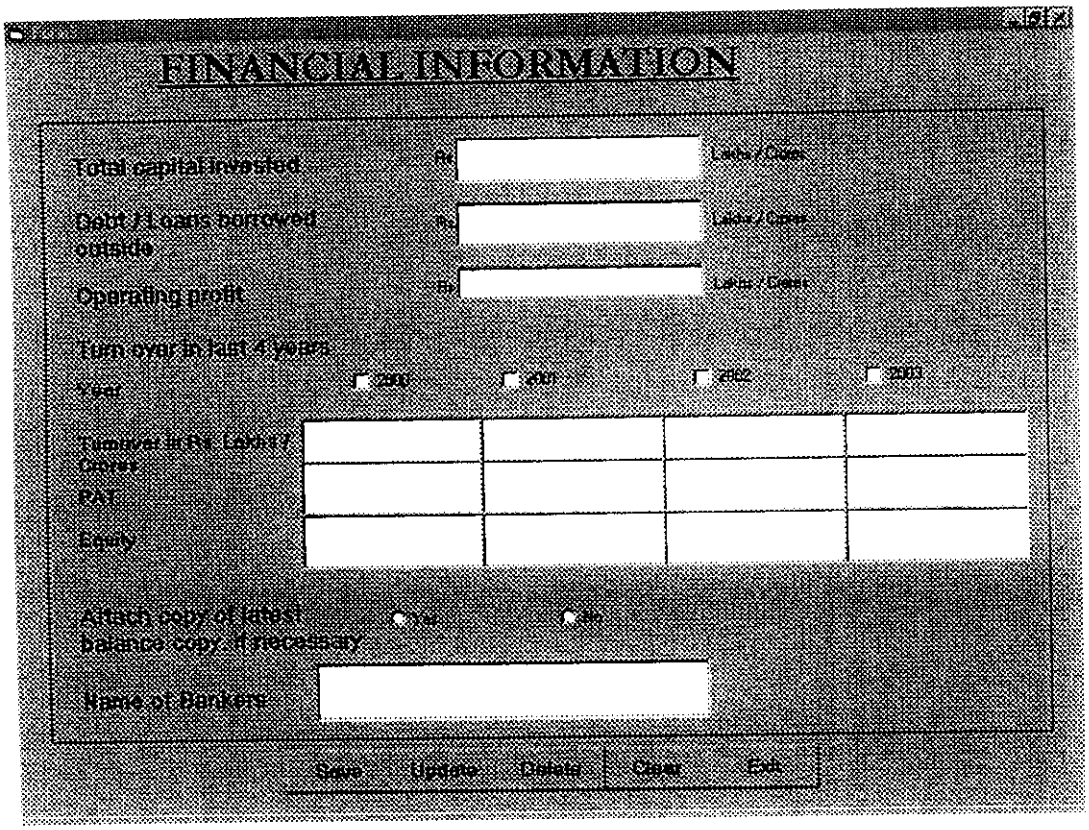
12.1 SAMPLE SCREENS

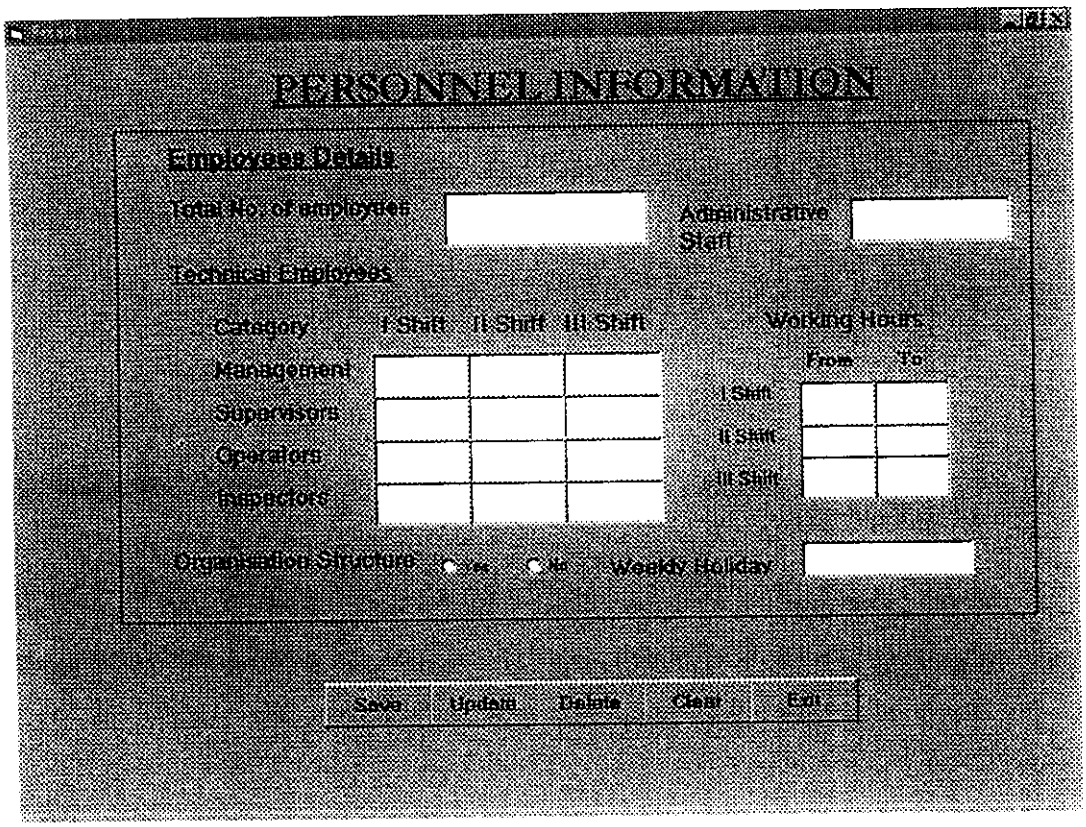
Main screen for vendor registration

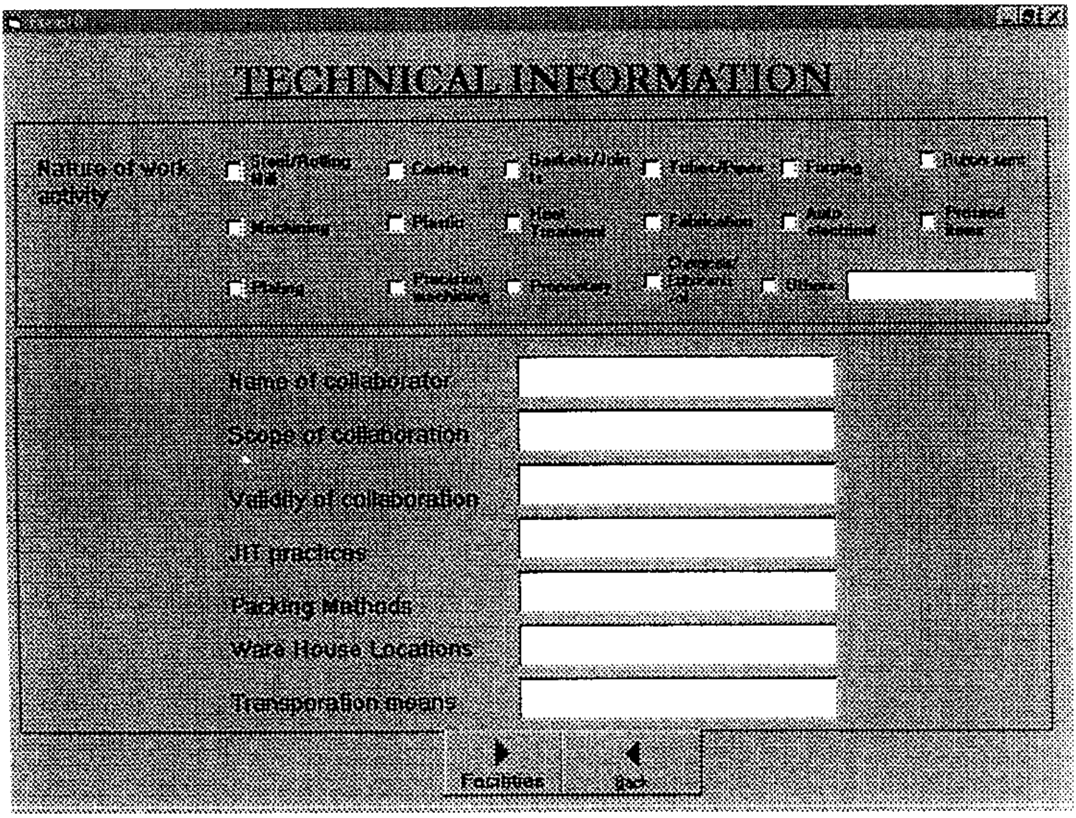


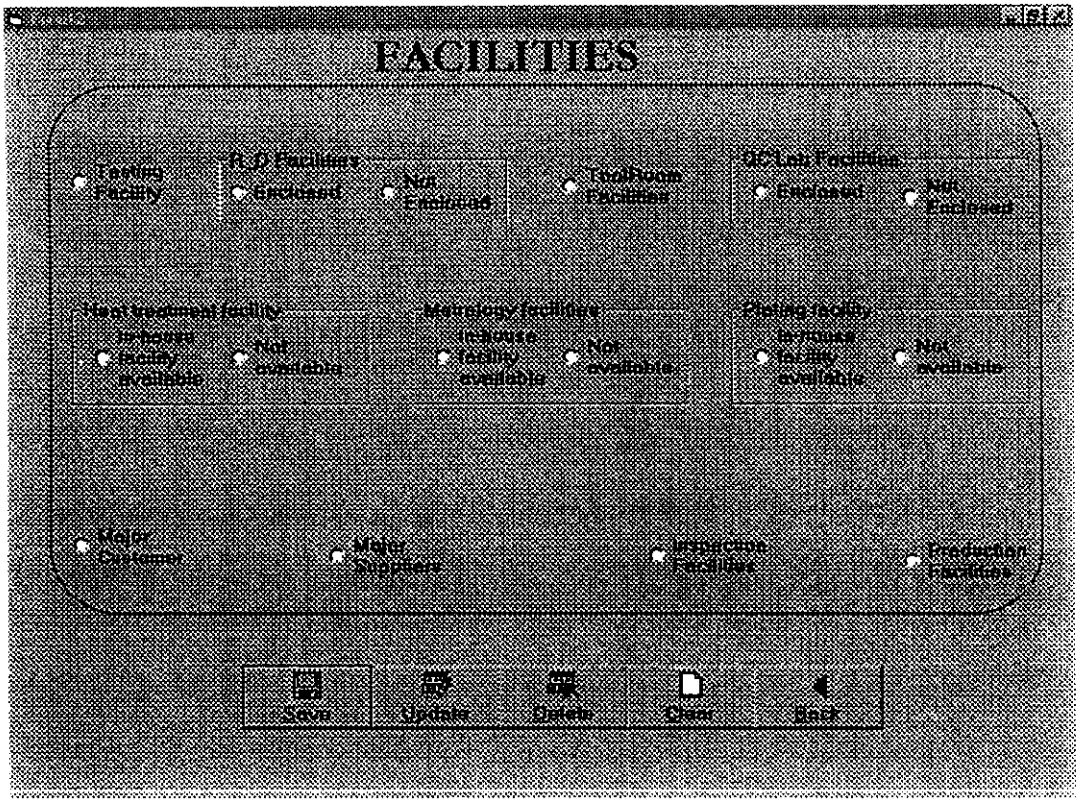

GENERAL INFORMATION
Name of the company
Name of owner / partner / directors
Address (of related units)
Office
Works
Phone No(s)
Office
Works
Fax No(s)
Office
Works
Telex No(s)
Office
Works
Email ID
Office
Works
Contact person
Name of the person
Designation
Address
Details of other sister / Mfg. units
Contact person in
Address
Pin. No.
Address of branch offices (if any)
Power Sanctioned
Factory premises
Own
Rented
Leased
Proposed
Captive Power
Yes
No
Space availability
Total Area
Covered Area
Undervalued Area
Save
Update
Delete
Clear
Back

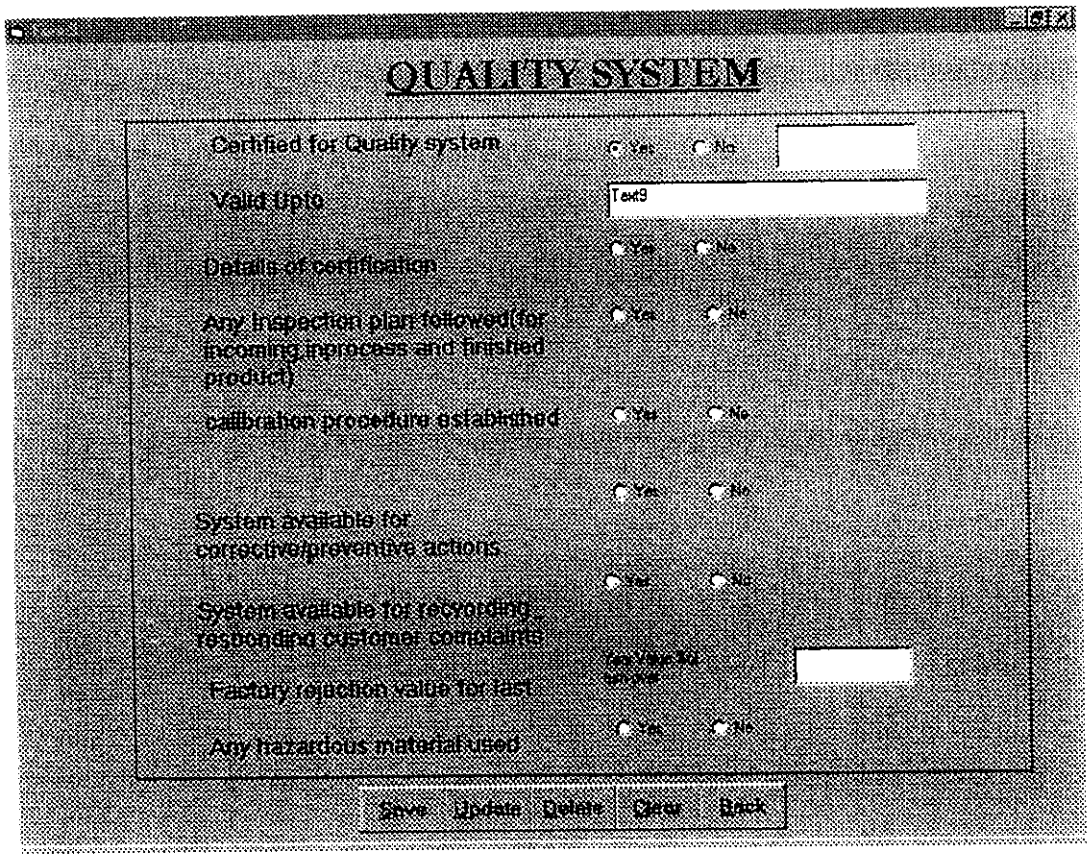

COMMERCIAL INFORMATION
Classification of industry
Small scale
Medium scale
Large scale
Agent / Trader
Registration No
Year of establishment
Type of ownership
Proprietary
Partnership
Private
Public
Government
Installed capacity
Detail of spare capacity
Connected to any big group of companies (If yes, give the name)
Yes
No
Save
Update
Delete
Clear
Exit


FINANCIAL INFORMATION
Total capital invested
Rs
Lacks / Crore
Debt / Loans borrowed outside
Rs
Lacks / Crore
Operating profit
Rs
Lacks / Crore
Turn over in last 4 years
Year
2000
2001
2002
2003
Turnover in Rs Lacks / Crores
PAT
Equity
Attach copy of latest balance copy, if necessary
Yes
No
Name of Bankers
Save
Update
Delete
Clear
Exit

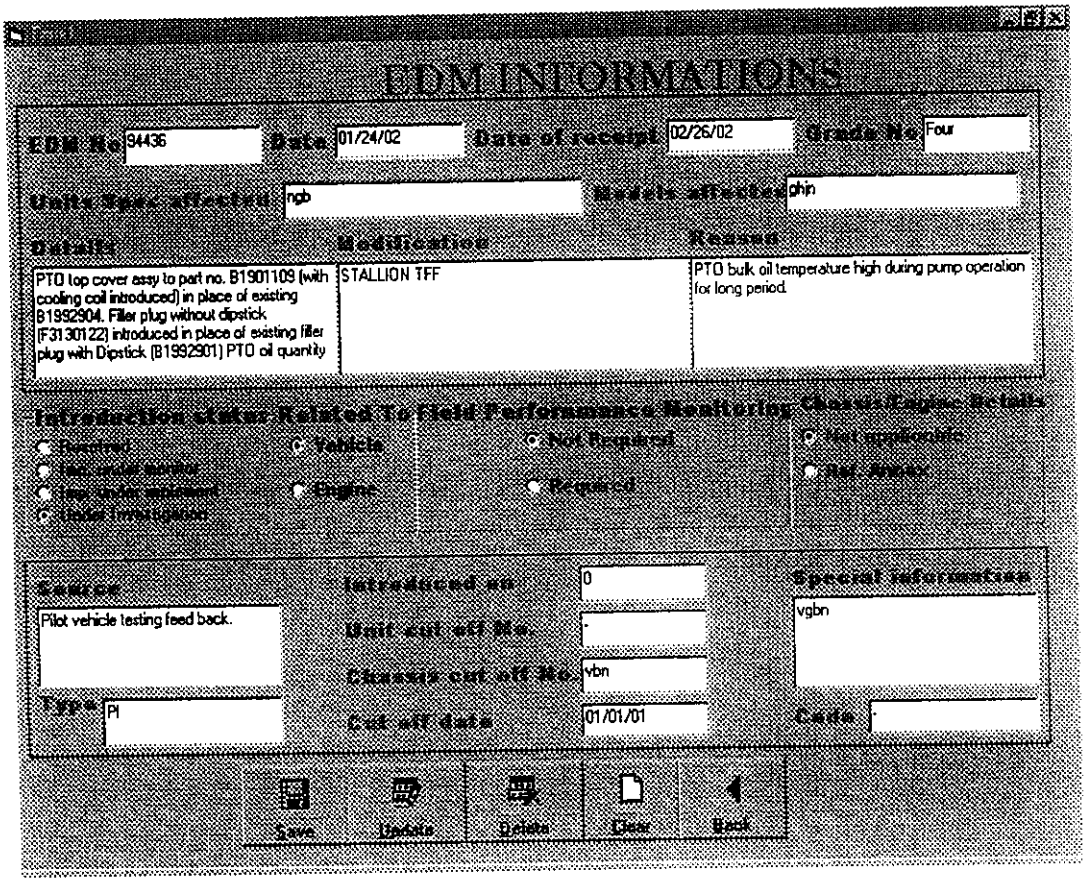

PERSONNEL INFORMATION
Employees Details
Total No. of employees
Administrative Staff
Technical Employees
Category
I Shift
II Shift
III Shift
Management
Supervisors
Operators
Inspectors
Working Hours
From
To
I Shift
II Shift
III Shift
Organisation Structure
Yes
No
Weekly Holiday
Save
Update
Delete
Clear
Exit


TECHNICAL INFORMATION
Nature of work activity
Steel/Rolling Mill
Casting
Tubes/Pipes
Forging
Machining
Plastic
Heat Treatment
Fabrication
Auto electrical
Pressed items
Plating
Precision machining
Proprietary
Others
Name of collaborator
Scope of collaboration
Validity of collaboration
JIT practices
Packing Methods
Ware House Locations
Transporation means
Facilities
Back

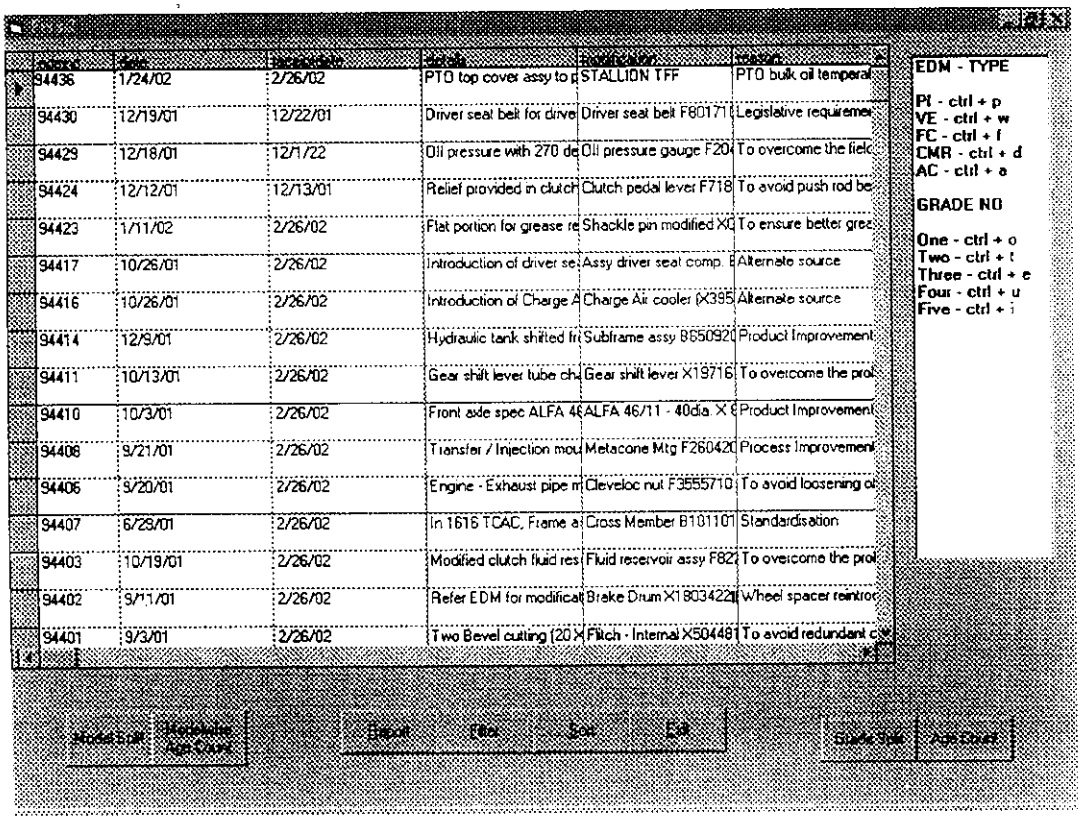

FACILITIES
Testing Facility
R & D Facilities
Enclosed
Not Enclosed
Tool Room Facilities
QC Lab Facilities
Enclosed
Not Enclosed
Heat treatment facility
In-house facility available
Not available
Metrology facilities
In-house facility available
Not available
Plating facility
In-house facility available
Not available
Major Customer
Major Suppliers
Inspection Facilities
Production Facilities
Save
Update
Delete
Clear
Back


QUALITY SYSTEM
Certified for Quality system
Yes
No
Valid Upto
Text9
Details of certification
Any Inspection plan followed(for incoming inprocess and finished product)
calibration procedure established
System available for corrective/preventive actions
System available for recording responding customer complaints
Factory rejection value for last
Any hazardous material used
Save
Update
Delete
Clear
Back

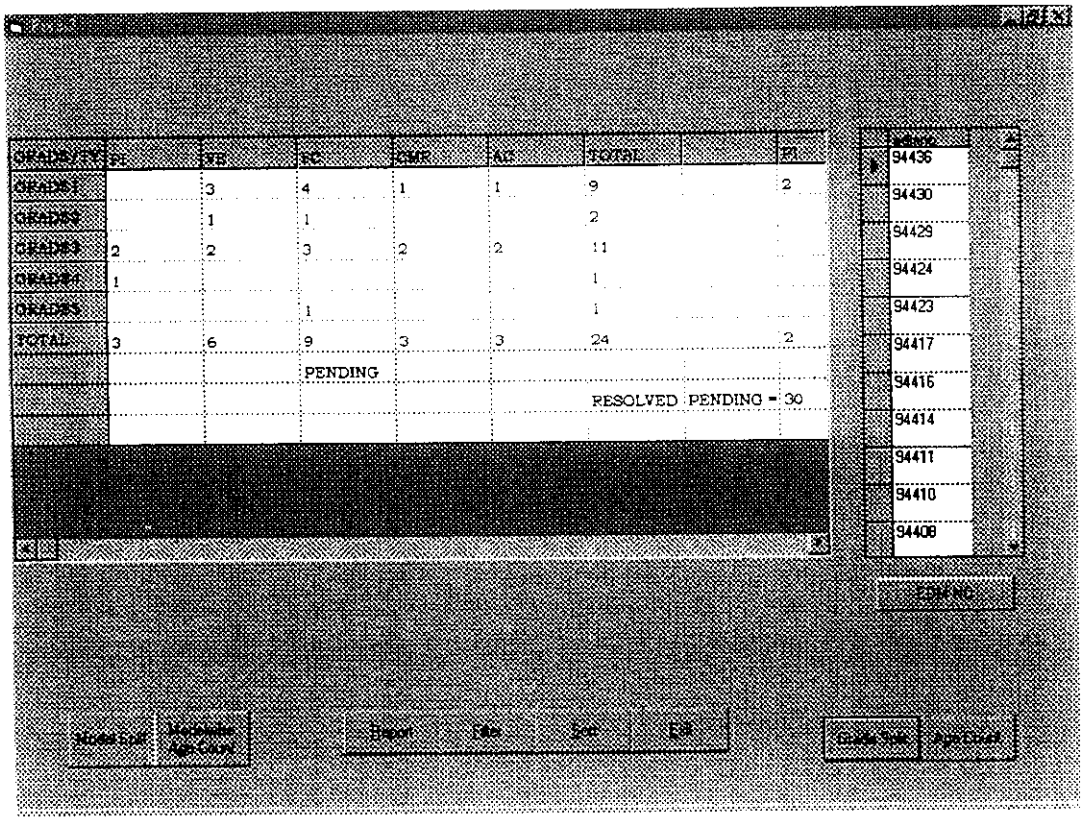
This screen is used to enter EDM details.



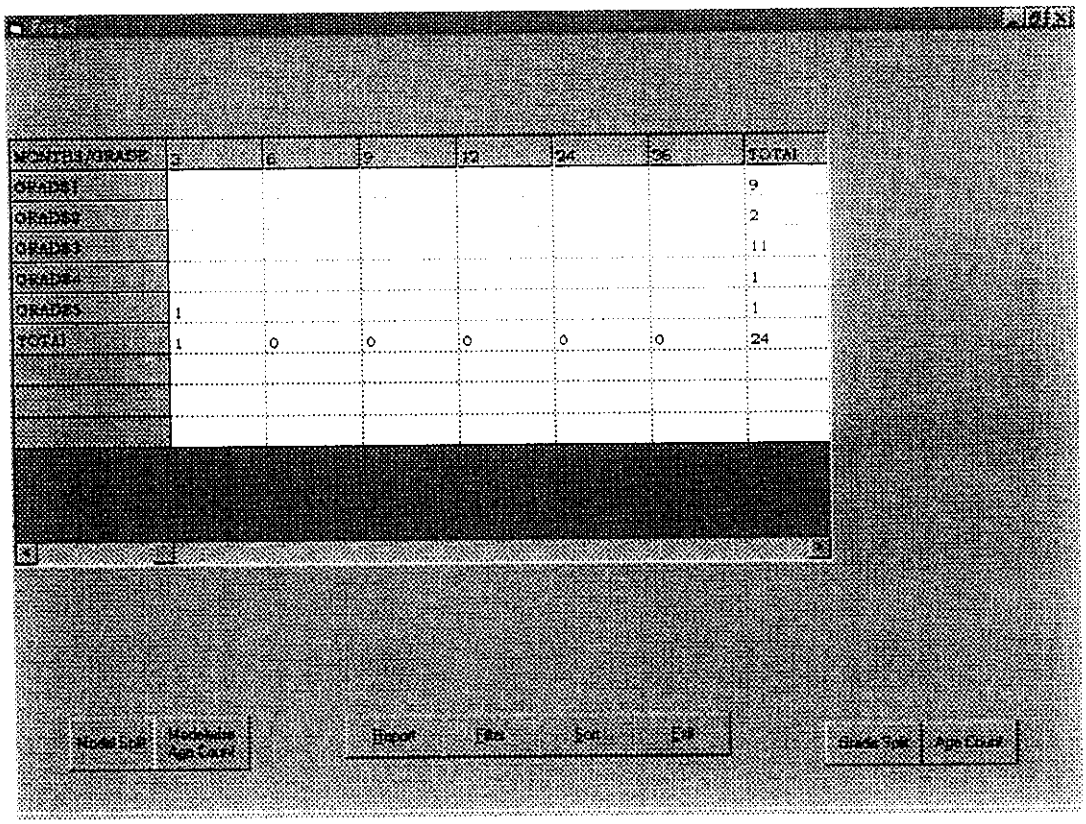
This screen is used to filter or sort EDM details based on various criteria and it is used to get grade wise count, age analysis, model wise count.

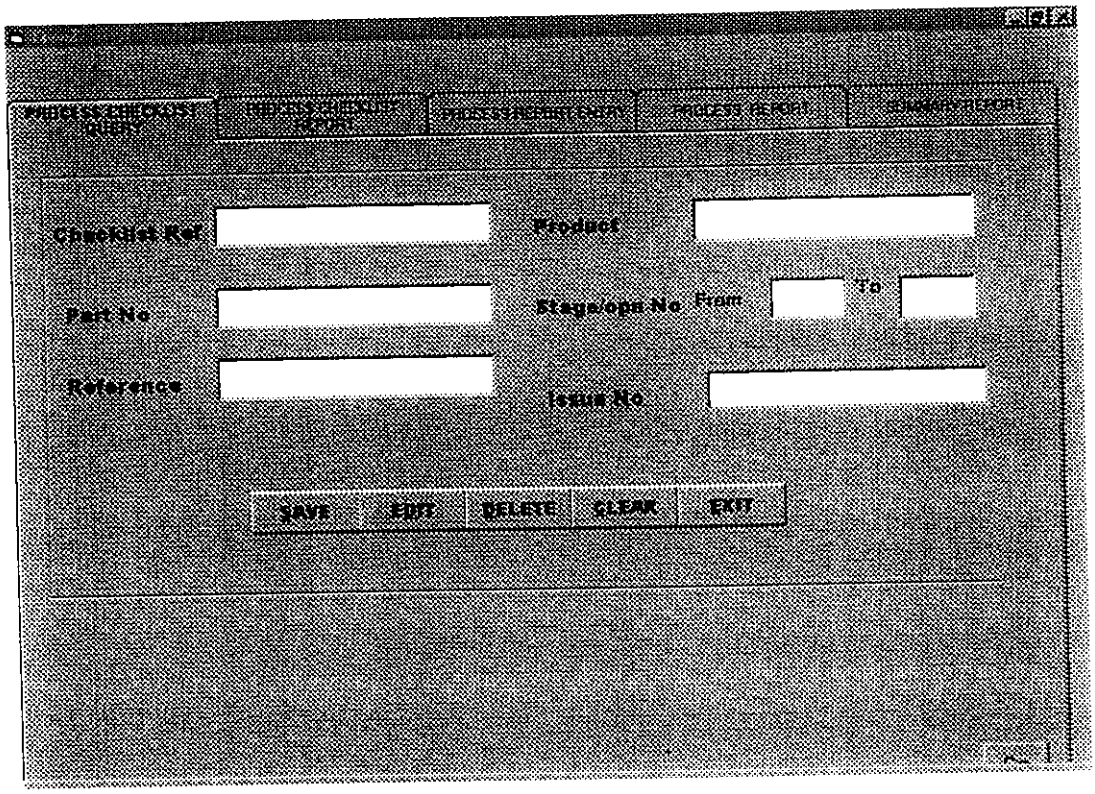


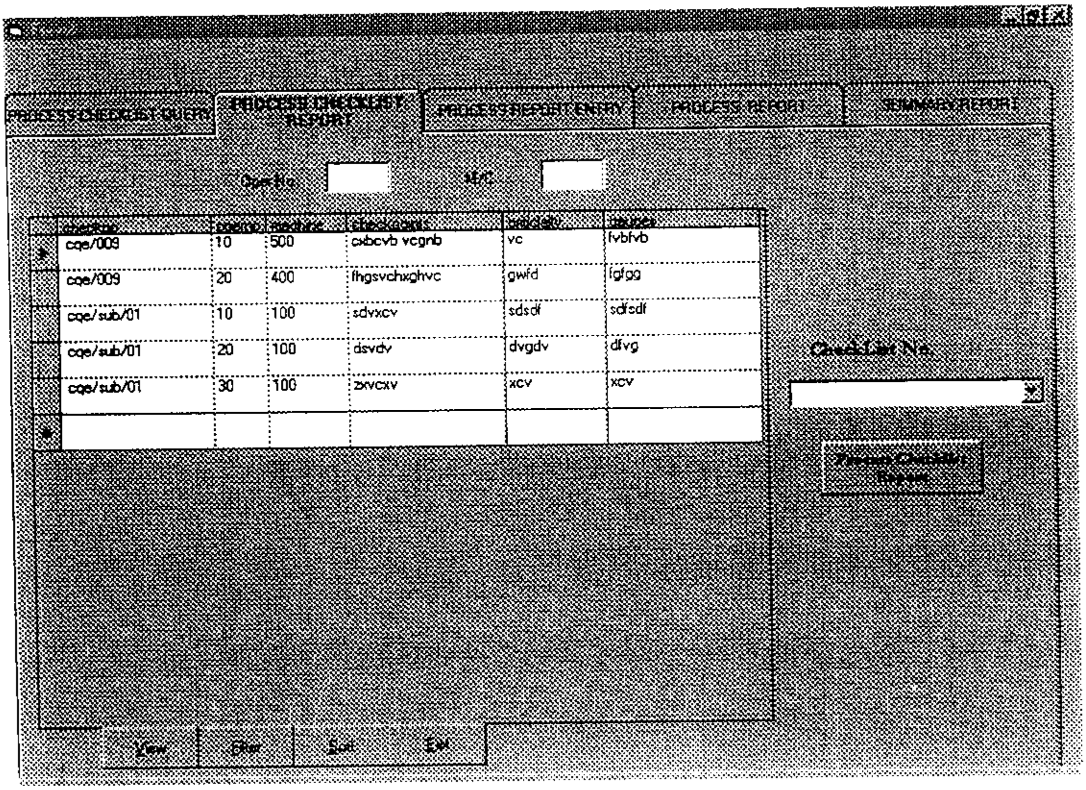
EDM grade wise count.



EDM Grade wise Age Analysis.




PROCESS CHECKLIST QUERY
PROCESS CHECKLIST ENTRY FORM
PROCESS REPORT QUERY
PROCESS REPORT
SUMMARY REPORT
CheckList Ref
Product
Part No
Stage/opn No
From
To
Reference
Issue No
SAVE
EDIT
DELETE
CLEAR
EXIT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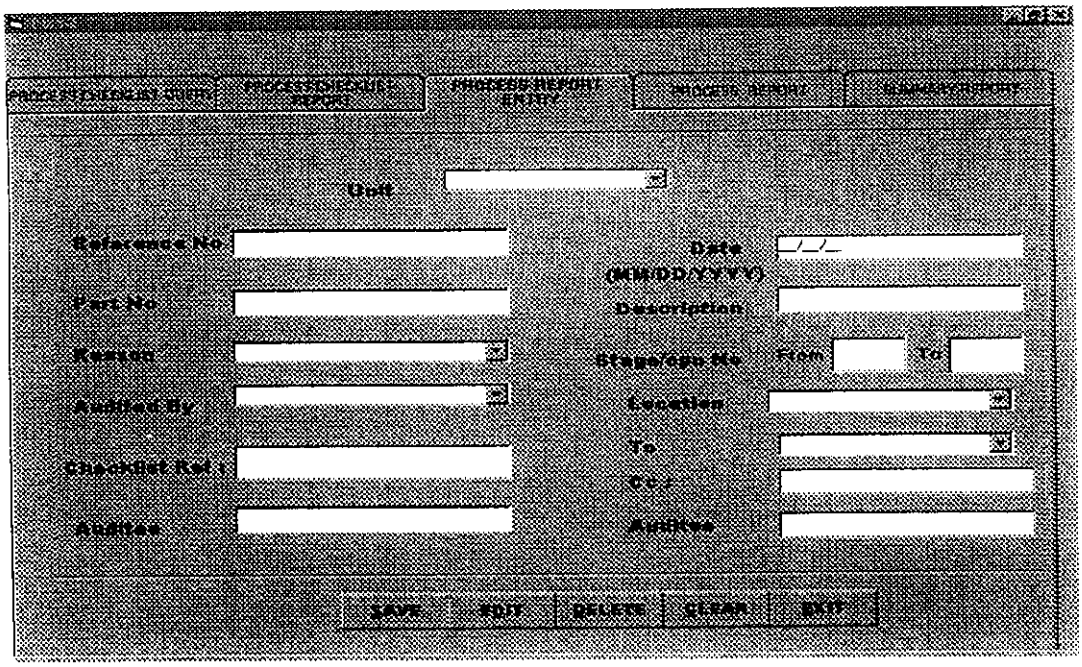
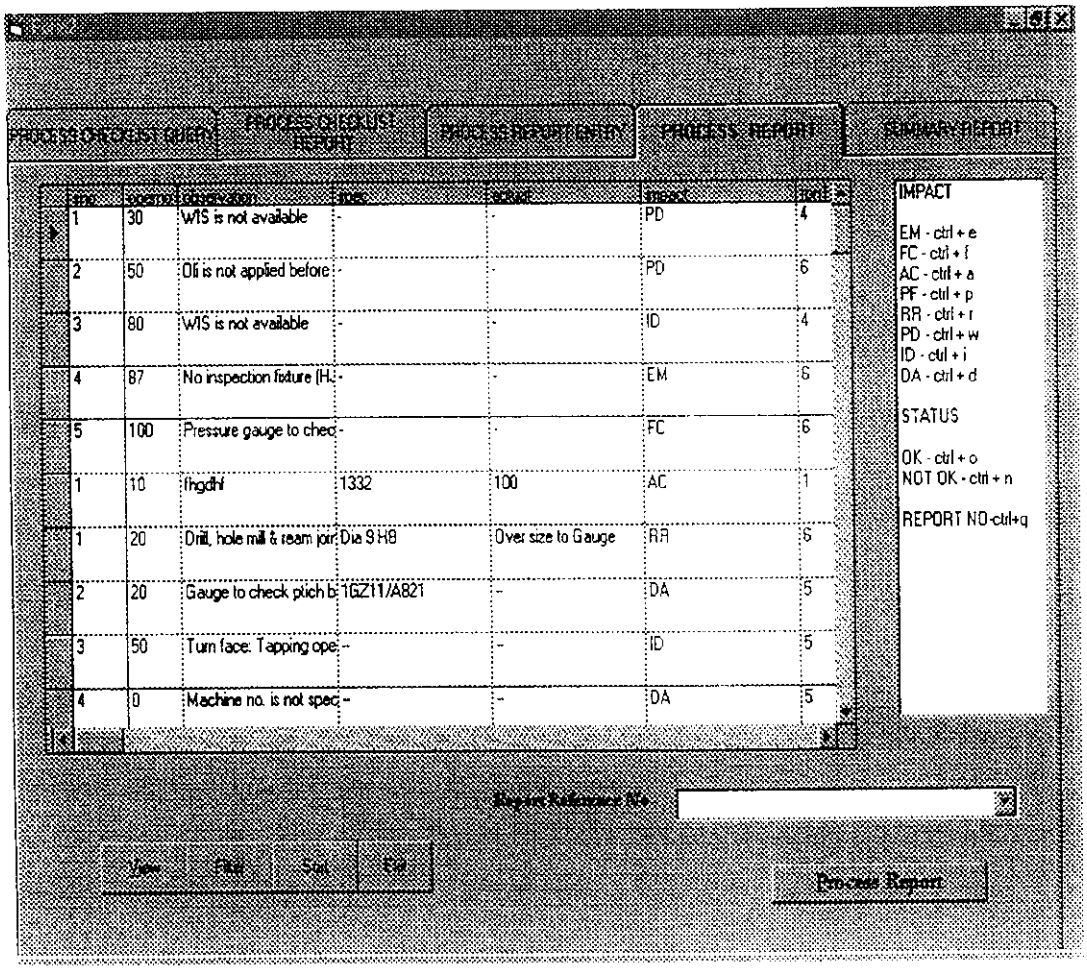
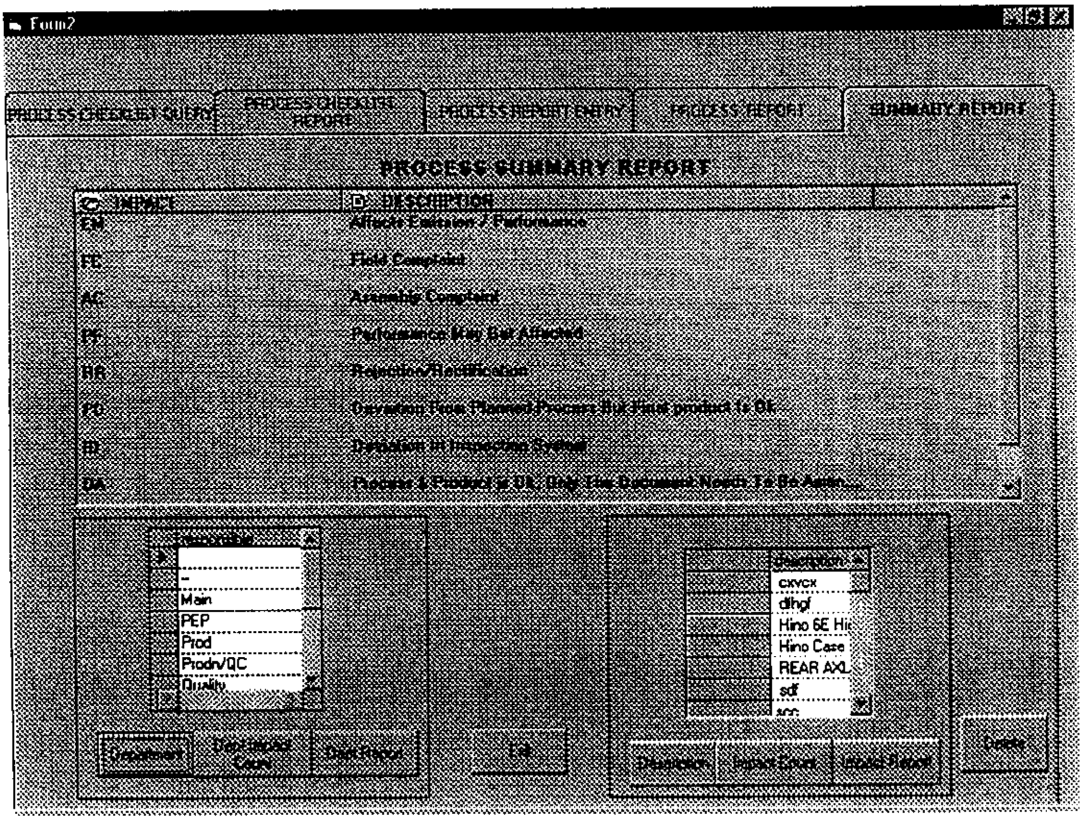
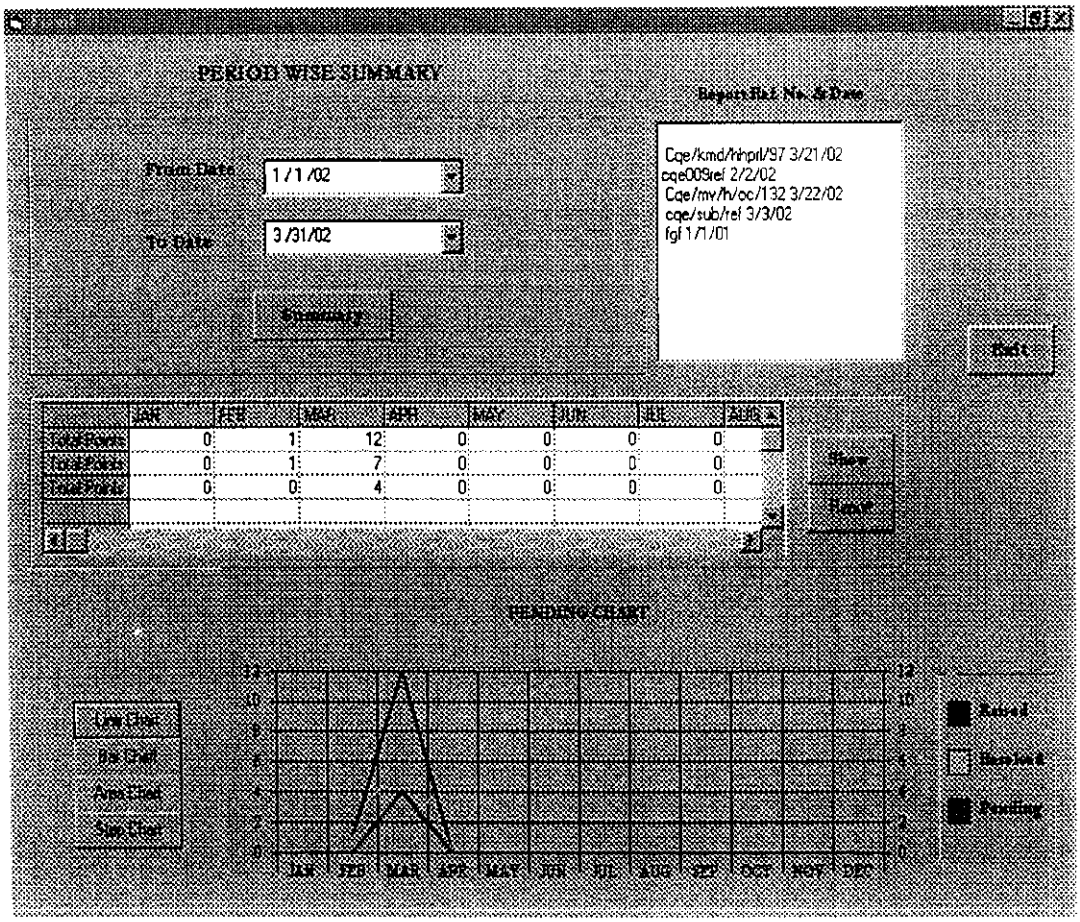
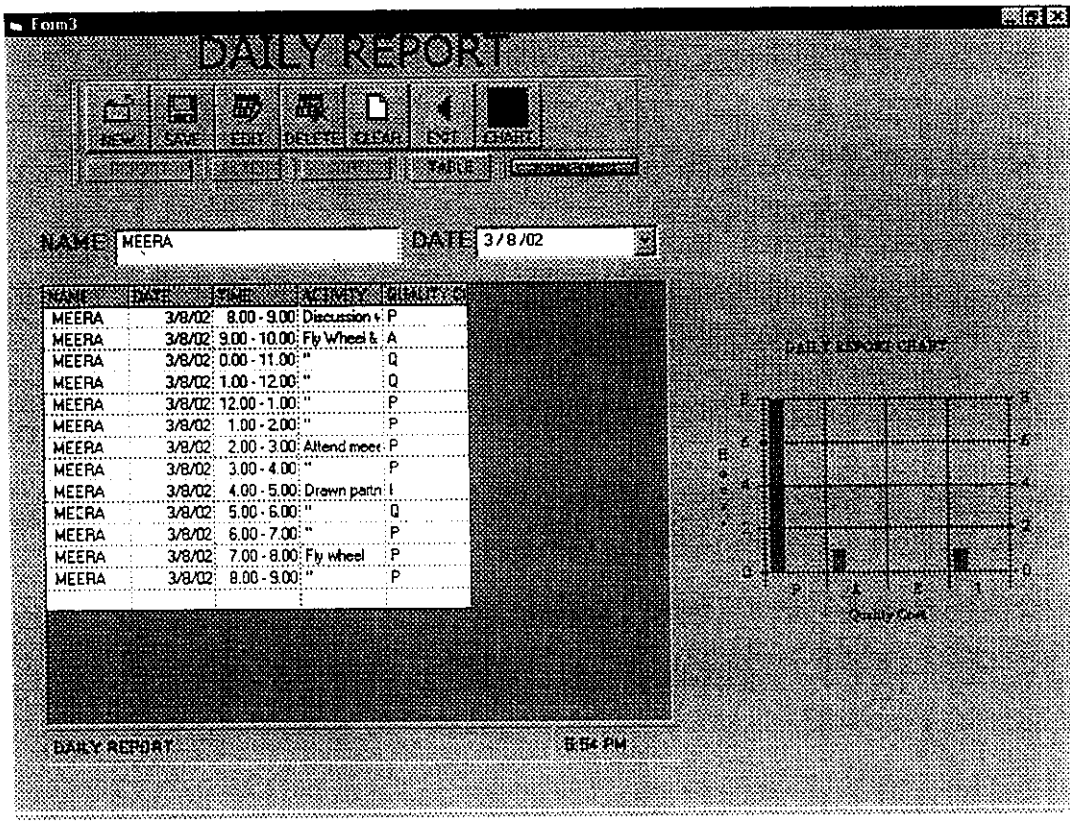
PROCESS CHECKLIST REPORT
PROCESS REPORT ENTRY
PROCESS REPORT
SUMMARY REPORT
Oper No
M/C
cqe/009 10 500 cxbcvb vcgnb vc fvbfvb
cqe/009 20 400 fhgsvchxghvc gwfd fgfgg
cqe/sub/01 10 100 sdvxcv sdsdf sdfsdf
cqe/sub/01 20 100 dsvdv dvgdv dfvg
cqe/sub/01 30 100 zxvcxv xcv xcv
Check List No.
View
Filter
Sort
Exit


PROCESS CHECKLIST ENTRY
PROCESS/PACKAGE REPORT
PROGRESS REPORT ENTRY
PROJECT REPORT
MANAGER REPORT
Unit
Reference No
Part No
Reason
Audited By
Checklist Ref :
Auditee
Date
(MM/DD/YYYY)
Description
Stage/Opn No
From
To
Location
To
Cc :
Auditee
SAVE
EDIT
DELETE
CLEAR
EXIT


PROCESS CHECKLIST QUERY
PROCESS CHECKLIST REPORT
PROCESS REPORT ENTRY
PROCESS REPORT
SUMMARY REPORT
sno
opsno
observation
spec
actual
impact
rate
1 30 WIS is not available PD 4
2 50 Oil is not applied before PD 6
3 80 WIS is not available ID 4
4 87 No inspection fixture (H EM 6
5 100 Pressure gauge to chec FC 6
1 10 fhgdhf 1332 100 AC 1
1 20 Drill, hole mill & ream join Dia 9 H8 Over size to Gauge RR 6
2 20 Gauge to check pitch b 1GZ11/A821 DA 5
3 50 Turn face: Tapping ope ID 5
4 0 Machine no. is not spec DA 5
IMPACT
EM - ctrl + e
FC - ctrl + f
AC - ctrl + a
PF - ctrl + p
RR - ctrl + r
PD - ctrl + w
ID - ctrl + i
DA - ctrl + d
STATUS
OK - ctrl + o
NOT OK - ctrl + n
REPORT NO-ctrl+q
Report Reference No
New
Edit
Save
Exit
Process Report


Form2
PROCESS CHECKLIST QUERY
PROCESS CHECKLIST REPORT
PROCESS REPORT ENTRY
PROCESS REPORT
SUMMARY REPORT
PROCESS SUMMARY REPORT
IMPACT
DESCRIPTION
EM Affects Emission / Performance
FC Field Complaint
AC Assembly Complaint
PF Performance May Get Affected
RR Rejection/Rectification
PD Deviation From Planned Process But Final product Is Ok
ID Deviation In Inspection System
DA Process & Product is OK. Only The Document Needs To Be Amm...
Main
PEP
Prod
Prodn/QC
Quality
Description
cxvcx
dfhgf
Hino 6E Hi
Hino Case
REAR AXL
sdf
Department
Dept Impact Count
Dept Report
Exit
Description
Impact Count
Impact Report
Delete


PERIOD WISE SUMMARY
From Date
1/1/02
To Date
3/31/02
Summary
Report Ref. No. & Date
Cqe/kmd/rhhpril/97 3/21/02
cqe009ref 2/2/02
Cqe/mv/h/oc/132 3/22/02
cqe/sub/ref 3/3/02
fgf 1/1/01
Exit
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
Total Cases
0
1
12
0
0
0
0
Total Cases
0
1
7
0
0
0
0
Total Parts
0
0
4
0
0
0
0
Show
Reset
PENDING CHART
Line Chart
Bar Chart
Area Chart
Step Chart
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Raised
Received
Pending


Form3
DAILY REPORT
NEW
SAVE
EDIT
DELETE
CLEAR
EXIT
CHARTS
NAME:
MEERA
DATE
3/8/02
NAME
DATE
TIME
ACTIVITY
QUALITY
MEERA 3/8/02 8.00 - 9.00 Discussion P
MEERA 3/8/02 9.00 - 10.00 Fly Wheel & A
MEERA 3/8/02 0.00 - 11.00 " Q
MEERA 3/8/02 1.00 - 12.00 " Q
MEERA 3/8/02 12.00 - 1.00 " P
MEERA 3/8/02 1.00 - 2.00 " P
MEERA 3/8/02 2.00 - 3.00 Attend meet P
MEERA 3/8/02 3.00 - 4.00 " P
MEERA 3/8/02 4.00 - 5.00 Drawn partn I
MEERA 3/8/02 5.00 - 6.00 " Q
MEERA 3/8/02 6.00 - 7.00 " P
MEERA 3/8/02 7.00 - 8.00 Fly wheel P
MEERA 3/8/02 8.00 - 9.00 " P
DAILY REPORT GRAPH
DAILY REPORT
8:54 PM