SYSTEMATIC WAY OF AUTOMOBILE SIMULATION V1.0

FOR   P-1255

DIGITAL TECHNOLOGIES., BANGALORE.

PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award of the degree

of

M.Sc Applied Science Software Engineering,

Of Bharathiar University,

Coimbatore.

Submitted By

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COIMBATORE – 641 006

SEPTEMBER - 2004

Certificates

KUMARAGURU COLLEGE OF TECHNOLOGY

(Affiliated to Bharathiar University)

Department of Computer science and Engineering

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CERTIFICATE

This is to certify that the project work entitled

SYSTEMATIC WAY OF AUTOMOBILE SIMULATION V1.0

Done By

VENKATESH.M

Reg. No. 0137S0059

Submitted in partial fulfillment of the requirements for the award of the degree M.Sc Applied Science Software Engineering of Bharathiar University.

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. M.VENKATESH** (Reg No. **0137S0059**) of 4th year **M.Sc.(Software Engineering)**, Kumaraguru College of Technology, Coimbatore has successfully completed the project work titled **"SYSTEMATIC WAY OF AUTOMOBILE SIMULATION (SWAS V1.0)"**. He has done the project from June 2004 to September 2004. During the period of the project, he was found to be hard working and sincere in his assignments.
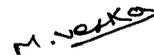
With Regards,

Manager – Human Resource

Declaration

DECLARATION

I hereby declare that the project entitled "**Systematic Way of Automobile Simulatiom v1.0** ", for **Digital Technologies,** Bangalore submitted to **Kumaraguru College of Technology,** Coimbatore, affiliated to **Bharathiar University** as the project work of **M.Sc Applied Science Software Engineering,** is a record of original work done by me under the supervision and guidance of Ms. V.Latha ,B.E and Mr. K.R.Baskaran, B.E, M.S and this project work has not found the basis for the award of any Degree/Diploma/Associate ship/Fellowship or similar title to any candidate of any university.
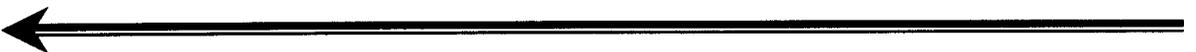
Place: Coimbatore

Date: 24. 9 .04

Signature of the Student

Acknowledgement

ACKNOWLEDGEMENT

Synopsis

SYNOPSIS

The project deals with Computerized System of Automobile servicing and spares. It is a real time project for a client showroom. In that computerized system it is easy to make process the details of customer vehicle, mechanics, job work (both inside job work and outside job work), spares(inward and outward) and also it includes an automated phone system which helps customer to ensure his vehicle is ready or not. It ensures the current status of the project.

It also produces varies types of report like daily sales report, monthly sales report, and daily stock report. Spares maintenance also implements both the purchase and sales order systems. We have used the system of alternative allocation which helps in allocating choice of the customer ,likewise it holds lots of advantages in making it much more effective then the existing system .Its special features are been highlighted in the topic need for proposed system.

In order to provide faster and easy access for the storage, retrieval of huge volume of data and to generate various kinds of reports to meet their requirements is the need to computerize the system. The reports generated are supplied to various departments to know their status. With the reports generated, it is possible to understand the financial status. The company can also make future plans with the help of reports.

The system is implemented in .NET platform. The language used to develop is VB.NET and ADO.NET. SQL SERVER 2000 is used for the backend.

This complete system has been implemented in a user-friendly manner, thus keeping the need of the user in mind. Data validation procedures have been included to void the user entering irrelevant data. This project provides a more reliable, flexible and accurate and fast solution for various activities.

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1. INTRODUCTION

1.1   PROJECT OVERVIEW

The project Systematic Way of Automobile Simulation is developed in RGS, Bangalore in favor of a client showroom. It helps the user to maintain the large data in a efficient way. It also reduces the some human works. The project is classified into following modules.

Login, Customer and employee details maintenance:

A simple login form was designed to enter in to the system developed in order to prevent from unauthorized user work. The password can be changeable by only the administrator.

In this module the customer details are gathered and stored. The customer has been classified into three categories. (General, Golden and Platinum customer) They are classified by number of times they are servicing the vehicle. Based on the category they are given discounts on their bills. Each customer is given a separate id. The customer details are editable.

Employee details of their personnel and payroll details are gathered and stored in the database. Each employee is given a separate id. It is unique from other employees. Based on the departments of their work, the id was generated. For example if an employee is belongs to mechanical department his id will be generated as Mec100. Like the same other departments also implemented. The employee details are also be editable except some data like name, date of join. The employee can be changed to other departments by their higher officials. This is implemented if an employee is has any promotion from his current job. This is made possible. It is also possible to view the employee details one by one of entire company and also by departments or a particular employee can be searched

out. When that employee leaves the job his id will be given to new coming employee.

Vehicle work

Vehicle work deals with making the vehicle entry to the workstation and how the work carried out there. Modules involved are as follows

- Vehicle survey
- Job code
- Mechanic Allotment
- Survey update
- Status
- Out job

Vehicle survey:

The supervisor can only survey the vehicle. The vehicle owner should register his details before surveying. Basic all type of services are listed in the form. The can specify from that and also some specific problems. Here supervisor id is listed in the combo box, from which it should be selected and stored who surveys the vehicle. Then customer id is selected from the listed. The vehicle details like vehicle name, number, number of kilometers traveled, amount of fuel in the vehicle while leaving the vehicle and engine number. They are validated to ensure that the data are acceptable. The date of delivery should be a valid one, so it is made easy to get from the calendar control.

Job code:

As soon as a vehicle enter for a work inside the station for each vehicle a job code will be assigned. With that code only it is accessed throughout the system. Though the customer leaves the same vehicle for next time the job code differs from the before. It is unique and not null (Primary key). A simple formal receipt was provided to customer, which contains vehicle number, vehicle name,

customer name and id, date of leaving, services types, any specific problems and delivery date.

Mechanic Allotment:

After the vehicle survey and job code was assigning, the next step is the mechanic allotment to the job. Here all department employees are displayed in list check boxes. Each list check box is differentiated by departments like mechanical, tinger, body shop and so on. Here all employees listed are the employee who doesn't has work at present. Here the supervisor employs the employee to the job. As soon as job allotted the allotted employees of first department alone are set that they are in work. Remaining department allotted employees are not set as in work. They remains the same no work. Here all allotted employees id are stored which helps for future like who are all the persons carried out the work of particular vehicle. These works were carried out by supervisor.

Survey Update:

The customer can also make changes updatable later. The customer may forget some of the problems when leaving vehicle for service. And some of the problems may not known the customer and also to the employees but they are known when they are under servicing. These changes makes the mechanic allotment again, because the changes made can also be the work of already done department and also some changes may also include some work to the department which has no work to that particular vehicle.

Status:

This form helps to know the current status of vehicle. The current status ensures in which department currently the work is going on for that particular vehicle. When the work is finished in the particular department the work should be carried to the other department which the supervisor had allotted based on the survey. It is not essential to be allotting work for all departments. Some of the work may not belong to be carried out in some department. From this form it is possible to carry out the work from one department to next department. The departments are loaded in a combo box. While transferring work from one department to another department, the employees who had done the work for the old department are set to be free and also to set work for the new employees belongs to new department. These employees are allotted by the supervisor before. Some of the employees who allotted for the work also been allotted for the work. In such situation the work is carried automatically. After freeing the employees of old department, the system checks for the next department allotted employees status whether they are free or not. If they are free there is no problem. The work goes on. Else the system has to allot work to some other employees of that department who are free. In such way the system is automated. In some case there will not enough employees to carryout the work. At that time the system frees the old employees and keeps the job hold in the same department. When there are sufficient employees free, the work will be continued.

Out Job:

Some of the work will not be carried out in the same department. In such case that particular work is carried out separately to some outside jobbers. There was a separate job code maintained for this out jobs. These job also allotted by the employees who carry work of some particular department. The invoice of the outwork will be added to the vehicle's invoice. The company is responsible for the out jobs.

Spares:

A separate database was maintained to handle the spares purchase and retail sales system. It incorporates order sending and receiving, stock. Spares supervisor checks for spares availability and produce an order report to the manager. The orders are sanctioned by the manager. Then the entry is made into the system. The order number is generated automatically. Already existing accessories will be only ordered. For new accessories the accessories details should be entered. After receiving order delivery from the company, accessories will be updated. All the details like price per item, amount of stock received, date of receiving are maintained. When ever it is necessary for an employee for an accessory he can get in favor of his job code. The amount of that accessory will be added to the invoice. After receiving order, the amount can settled

Billing:

When the vehicle is ready for delivery, the delivery order is generated delivery order consists of two forms called billing advice and dispatch advice. The job code is selected from the displayed. The selected job code displays all the details of the particular vehicle. Each department bill is displayed. The spares are included in the department bill. Labor charges will be calculated based on the number of employees worked for the each department.

Here the invoice is done in dual manner where the job is classified into two cadres namely the inside job and outside job thus this holds an special feature in it. At the same time a copy of the outside job and the inside job is stored in the database and the final invoice copy is been issued which hides the classification of the job that is been carried in the servicing. Invoice is prepared with the special care that includes taxes that are been applicable in the processing of that particular entity. Likewise the entire process is carried in the computerized way, where the manual process is included only in the process of issuing the invoice, where the entire process is carried out with the help of the database.

Here in this invoice the entire details regarding the process such that the vehicle registration, color, make and all such related things are been added towards the preparation of the invoice, where the confidential details like engine number and the engine chase number is also been stored in order provide the maximum security .so that the mislead process is completely avoided .Likewise the mostly wanted things are been listed, where some of the related things are been stored in the database on reference to the invoice number, where the invoice number doesn't refer to the job code number , since that job code number assigning is done in special care so that it don't have any link with the data's and the details. Thus this holds its special features in providing the invoice in an efficient manner. The final invoice amount includes in job, out job and taxes too.

Dispatch: After receiving the amount from the customer, the system produced a dispatch voucher in order to take the vehicle from the station.

Reports:

As we all know that the reports are the only assuring process which results in leading the process , thus in this proposed one we have concentrated a lot in providing the reports. Even these reports are generated with the reference with the database entire and also by getting the proper status from the concern executives. Thus process helps in overcoming the mislead problem. Usually we find the report generation in the field new vehicle related process but we have added this function in order provide the same flexibility even in this servicing process, so that we can migrate or renovate this process as per the changes in the computerized process. The reports generated are employee performance report, vehicle job report, supervisor report, spares order report, spares receive report and spares stock report.

Employee Performance Report: This report provides an employee report which ensures for which job he had handled in a period.

Vehicle Job Report: This ensures the entire details of a particular job.

Supervisor Report: It provides an individual report of supervisor, which ensures the report of jobs he had handled and which are completed and pending.

Spares Order & receive Report: It provides the details of products which are ordered and the products yet to receive and received.

Spares Stock report: It provides the details of the products in stock.

Thus these report generation holds much advantages, while comparing it with existing system. Where these are the major drawbacks we faced in the current processing .which is been rectified in this proposed system

1.2. ORGANIZATIONAL PROFILE

RGS in Brief:

Rajesh Global Solutions Ltd is a 100% EOU, STPI registered organization in the field of Information Technology. Rajesh Global Solutions started its operations in early 1999 as Private Limited Company and became a listed Public limited company in Feb. 2000.

Our staffs are well-trained in embedded systems, Web Applications and .NET technologies. The company is involved in software development using cutting edge technologies. The software development unit of RGS Ltd. has structured and unique methodology for the production of variety of software development tools that is turned to the requirements of every client.

Promoters:

Rajesh Global Solutions (RGS) is promoted by Rajesh Group, Which is well known in the business world by its flagship Company Rajesh Exports Limited (REL). REL is a Rupees 2000 crore plus company. REL is the world's largest producer of 22carot gold ornaments and has a market capturing of 65%. REL has grown by 10,000% since its inception in the 90's. REL's track record is the best when compared to any market standards and is producing the same track record in Software industry with Rajesh Global Solutions.

Infrastructure:

RGS development facility is located at the software capital of India Bangalore. RGS development facility in Bangalore, India extends to 50,000 Sq. Ft. that are designed to meet client's long-term requirements. The entire

infrastructure compares with the best in the international IT industry with focus on productive office environment, Voice/data communication facilities, and site security.

The facility is equipped with state of the art technologies that will facilitate execution of projects for global clients in line with its long-term strategy of offshore software development. The facility is extensible in space, with complete networked environment.

Man Power:

The company consists of nearly 150+ consulting technical professional's world wide. Employees with abilities and skills in a range of Methodologies, metrics, processes, Procedures and tools in addition to their technology and domain Know-how. RGS has regular interactive sessions among its employees. We invite distinguished Personals and organize Seminars/Workshops in technology areas on a continuous basis. RGS believes its people are its core strength who makes the difference.

Our Software professionals are expertise in e-commerce, ERP, DSP, Telecom and the embedded systems. We have various software tools such as front-end GUI tools (VB 6.0, VC++ 6.0, Developer 2000 and Crystal Reports), Back-end tools (Oracle 8i, SQL Server and DB2), Languages(C,C++,ASP, HTML and Scripting Languages), web platforms and operating systems.

SYSTEM AND STUDY ANALYSIS

2. SYSTEM STUDY AND ANALYSIS

2.1 EXISTING SYSTEM

The Existing system mainly depend on the manual work, which leads to lot of disadvantages which are all been shown below .The existing system is not that much apt for this systematic world. Here the management is unable to get hold to the various report and other documents on time. All this things leads to the tiresome in processing. In the existing system job allocation and mechanic allocation is not that much considered, due to that improper allocation we tends to find a lot of loss in concurrency and so on. But all these things are been rectified in the proposed system. In this existing one we can find drop in efficiency which leads to the drop in the entire system .All these drawbacks have been rectified in the proposed system. In this existing one job code is not much considered, but here in this case its entirely different where job code is given much more importance .Some of the major drawbacks of the existing system is given below and they are

- The management is unable to get hold of the various reports and other documents on time
- The minimum importance is given over the job code assigning and the security provided for it
- The allocation of job is not that much considered ,which leads to the drop in the entire system
- Most of the processing is made manually rather than the computerizing
- Data's are not that much considered ,therefore the database usage is minimum while considering the existing one

2.2 PROPOSED SYSTEM

In our proposed system we have given our concentration mainly over the database development, since only by giving the massive concentration on the details only we attain the maximum security in attaining the concurrency on the system. Here the each every details relating to the process is been is given more importance, such that even the mechanic allocation is been done only after getting the conformation from the database .At the same time the same mechanic is been allotted for two different customers since here the mechanic allotment is done only at the time of his work where as if the work is delayed in some department means that will not affect the mechanic allocation so that the no one can be wasted like. Here the manual work is been totally reduced so that the renovation is very much possible here.

At the same time it enables the user with more security features to handle the data. where as the protection of the data from disastrous is very much considered .In our proposed system the customers are been classified into three main kind cadre based upon the customers involvement and the three main cadre are platinum, gold, normal, according to this classification the customers are given preference at the same time the reduction in the bill amount is also been applicable. These helps in providing the maximum flexibility in our work. Here the final allocation of the mechanic is done by the concern executives, so that the chance of problem occurring at the last time can be stopped by this the process. This process helps in attaining the maximum flexibility and user friendly .the job code allocation is done automatically where as not manual done this helps in attaining the maximum security ,so that the process can be maximum efficient at the same time data are also given more consideration in providing the security in all aspects thus. Therefore this can be renovated in all aspects since the process is very much flexible .Thus this helps a lot in providing the maximum flexibility .Where it covers the all disadvantage, what we faced in the existing system.

PROGRAMMING ENVIRONMENT
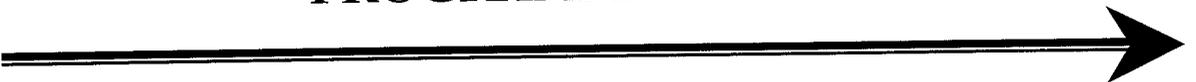
3. PROGRAMMING ENVIRONMENT

3.1. HARDWARE CONFIGURATION

SYSTEM	: Pentium III
PROCESSOR	: 500 Mhz
MONITOR	: 14" VGA Color Monitor
RAM	: 128MB (minimum)
HARDDISK CAPACITY	: 8.4 GB Seagate IDE Hard disk

SOFTWARE CONFIGURATION

Platform	: WINDOWS 2000 PROFESSIONAL
Server	: IIS (Internet Information Server)
Platform	: .Net Platform
Language	: VB.Net & ADO.Net
Database	: SQL Server 2000.

3.2 DESCRIPTION OF SOFTWARE AND TOOLS USED

Platform Selection:

.NET

.NET is the Microsoft solution for Web services, the next generation of software that connects our world of information, devices, and people in a unified, personalized way. .NET technology enables the creation and use of XML-based applications, processes, and websites as services that share and combine information and functionality with each other by design, on any platform or smart device, to provide tailored solutions for organizations and individual people. .NET is a comprehensive family of products, built on industry and Internet standards, that provide for each aspect of developing (tools), managing (servers), using (building block services and smart clients) and experiencing (rich user experiences) Web services. .NET will become part of the Microsoft applications, tools, and servers we already use today—as well as new products that extend Web service capabilities to all of our business needs.

.NET Framework

.NET is the framework for which we develop applications. It sits in between our application programs and operating system. Applications developed for .NET run inside .NET and are controlled by .NET. It supports both Windows and web applications The Microsoft® .NET Framework is an important new component of the Microsoft Windows® family of operating systems. It is the foundation of the next generation of Windows-based applications that are easier to build, deploy, and integrate with other networked systems. Most consumers will never notice that the .NET Framework is running on their Pocket PC, smart phone, or desktop computer. But they may appreciate the reliability, ease of use,

and ability to connect to other systems that the .NET Framework helps bring to computers. The .NET Framework helps software developers and systems administrators more easily build and maintain systems with improvements toward performance, security, and reliability.

.NET Framework offer the following benefits to developers:

- Making it easier for them to reuse existing code.
- Enabling them to more easily integrate components written in any of the more than 20 supported programming languages.
- Helping them more easily build software for a wide range of devices using same skills and tools.
- Best, fastest, and least expensive way to build Web services
- Programming model designed from the ground up for Web services
- High productivity, multi-language environment for building and running Web services
- Scalable, high-performance execution, with the protection of industry-leading technologies
- Multi-device support. Through Visual Studio .NET and the .NET Compact Framework, developers can use existing skills to create solutions for a wide range of devices.
- When will Web services be available for .NET-connected software?
- Thousands of developers have already begun building Web services using the .NET Framework and Visual Studio .NET Technology Previews, and Web services using SOAP and XML are being created every day. The first of these, Microsoft Passport, is already available and will continue to be enhanced as .NET evolves.

.NET provides an *object oriented environment*. It ensures safe execution of the code by performing required runtime validations. For example, it is never possible to access an element of an array outside the boundary. Similarly, it is not

possible to a program to write into another programs area, etc. The runtime validations performed by .NET makes the entire environment robust.

Components of .NET

.NET framework has two main components. They are:

- Common Language Runtime
- .NET class library

Common Language Runtime

The Common Language Runtime (CLR) is the environment where all programs in .NET are run. It provides various services, like memory management and thread management. Programs that run in the CLR need not manage memory, as it is completely taken care of by the CLR. For example, when a program needs a block of memory, CLR provides the block and releases the block when program is done with the block. All programs targeted to .NET are converted to MSIL (Microsoft Intermediate Language). MSIL is the output of language compilers in .NET . MSIL is then converted to native code by JIT (Just-in Time Compiler) of the CLR and then native code is run by CLR.

As every program is ultimately converted to MSIL in .NET, the choice of language is pure personal. A program written in VB.NET and a program written in C# are both converted to MSIL. Then MSIL is converted to native code and run. So, whether we write program in C# or VB.NET at the end it is MSIL all that we get. It is believed VB6.0 programmers will migrate to VB.NET and C++ and Java programmers switching to .NET will prefer to use C# as it more resembles those languages. For Java programmers, MSIL in .NET is same as Bytecode in concept. CLR is same as JVM (Java virtual machine). So the inevitable question is "Is .NET platform independent like Java?" The answer is technically YES. A

program written for .NET can run on any platform as long as .NET is made available on that platform. As of now, .NET runs only on Windows. So, .NET is technically platform independent but not real, at least not now. Efforts are on to make .NET run on Linux. The project is called as Mono and is currently being developed. Though some people doubt the seriousness of Microsoft, it will not be surprised if Microsoft comes out with .NET on Linux in future. If that happens, all VB.NET, and C# programs can run as they are on both Windows and Linux. The code that is run under CLR is called Managed code.

.NET Class Library

.NET comes with thousands of classes to perform all important and not-so-important operations. Its library is completely object oriented, providing around 5000 classes to perform just about everything. The following are the main areas that are covered by Class library.

- Data Structures
- IO management
- Windows and Web Controls
- Database access
- Multithreading
- Remounting
- Reflections

The library is common for all types of applications. The following are different types of applications that can make use of .NET class library.

- Console applications.
- Windows GUI applications.
- ASP.NET applications – web applications.
- XML Web services.
- Windows services.

So, we can leverage our knowledge of library irrespective of language and type of application we are developing. I think it is the best thing that can happen to programmers. Imagine moving from COBOL to C and then from C to VB. We learned how to perform common operations three times because those three languages didn't have any function in common

Features of .NET

The following are major features of .NET. We will use these features throughout out journey. Here is just a brief introduction to all key features of .NET.

Assemblies:

An assembly is either a .DLL or .EXE that forms a part of an application. It contains MSIL code that is executed by CLR. The following are other important points related to an assembly: Assemblies contain interfaces and classes. They may also contain other resources such as bitmaps, file etc. Every assembly contains assembly metadata, which contains information about assembly. CLR uses this information at the time of executing assembly. Assemblies may be either private, which are used only by the application to which they belong or Global assemblies, which are used by any application in the system. Two assemblies of the same name but with different versions can run side-by-side allowing applications that depend on a specific version to use assembly of that version.

The four parts of an assembly are:

- Assembly Manifest - Contains name, version, culture, and information about referenced assemblies.
- Type metadata - Contains information about types defined in the assembly.
- MSIL – MSIL code.
- Resources - Files such as BMP or JPG file or any other files required by application.

Common Type System: CTS specifies the rules related to data types that languages must follow. As programs written in all languages are ultimately converted to MSIL, data types in all languages must be convertible to certain standard data types. CTS is a part of cross-language integration, which allows classes written in one language to be used and extended by another language.

Cross-language Interoperability: .NET provides support for language interoperability. However, it doesn't mean every program written in a language can be used by another language. To enable a program to be used with other languages, it must be created by following a set of rules called Cross Language Specifications (CLS).

Cross-language inheritance is the ability to create a class in C# from a class created in VB.NET.

When an *Exception* is raised by a program written in C#, the exception can be handled by VB.NET. This kind of exception handling is called cross-language exception handling.

The following are *different types of applications* that can be developed in .NET:

- Windows applications – typical Client/Server applications.
- Web applications – Web sites and Intranet applications.
- Web services – Programs that are accessible from anywhere using universal protocols like HTTP and SOAP.
- Console Applications – Simple console based applications without any GUI. Run from command prompt. Best suited to learn fundamentals and also for applications such as server sockets.
- Mobile Applications – Contain web pages that run in mobile devices such as PDAs (Personal Digital Assistant) and Cell phones.

- Though .NET supports many languages, I believe only two languages will dominate programming in .NET: VB.NET and C#.

- VB.NET is the successor to VB 6.0, but language wise, it was modified substantially as it became complete OOPL – no more "object-based language."

- C# resembles Java. Though Microsoft claims, C# resembles C++, but let's face it: it resembles Java more than C++.

Language Selection:

Visual Basic .NET

Visual Basic .NET is the most widely used programming language for creating Windows applications. From Visual Basic 1.0, which radically simplified writing Windows applications, to Visual Basic 4.0, which helped establish COM2 as the standard Windows object architecture, the Visual Basic language has been a cornerstone of the Windows platform for nearly a decade.

Now, as applications are evolving from a standalone executable sitting on a user's hard drive to a distributed application delivered by a Web server across the Internet, Microsoft is expanding away from simply providing an operating system: Microsoft is providing XML Web services as well. A key part of Microsoft's thrust into this new XML Web services space is the .NET Framework, designed from the ground up to allow developers to write and deploy complex Web applications easily.

Visual Basic .NET is a pillar of the .NET Framework, and yet another step forward in evolution of the language. It is a high-level programming language for the .NET Framework, and provides the easiest point of entry to the Microsoft .NET platform.

It is able to get a good grounding in the fundamentals of programming, including using variables, control structures and loops. Then, also to learn tricks programming pros rely on to save time. It is able to take advantage of the large

function library included with all copies of Visual Basic .NET, and we have even learned how to write our own functions. It is also be able to use the large and varied library of buttons, menus, fields, and other Windows controls, and we'll be able to write programs that access files and handle errors. Event-driven and object-oriented programming concepts that will helps to master both Visual Basic .NET and other programming languages

ADO.NET:

What is ADO.NET?

ADO.NET is the data access component for the .NET Framework. ADO.NET leverages the power of XML to provide disconnected access to data. ADO.NET is made of a set of classes that are used for connecting to a database, providing access to relational data, XML, and application data, and retrieving results. ADO.NET data providers contain classes that represent the provider's Connection, Command, DataAdapter, and DataReader objects (among others).

ADO.NET is an evolutionary improvement to Microsoft ActiveX Data Objects (ADO). It represents a standards-based programming model that facilitates the development of distributed applications, especially Web applications. ADO.NET uses standards-based XML as a medium for data transfer, making it particularly appropriate for exchanging data between components and applications, even on unlike platforms. ADO.NET is not "universal data access" - The ADO.NET data provider delivers a very flexible and fast set of "thin" interfaces to the application to enable vendors to expose a very wide variety of capabilities and features. While this brings new functional and performance possibilities, it also brings the reality that there is no leveled functionality or guaranteed "universal data access" standard interfaces. Vendors are free to implement what they want, and as can be seen already, there is no portability of code between the MS ADO.NET data provider for SQL Server and for Oracle. DataDirect Connect for .NET delivers a full suite of ADO.NET managed data

providers across multiple databases that ensure consistent behavior and reliability by implementing the same APIs, objects, SQL Grammar, cursors, data types, scalars, functions and transactions across all databases.

Need of ADO.NET:

ADO.NET provides a comprehensive caching data model for marshalling data between applications or services with facilities to optimistically update the original data sources. This enables developers to get started with XML while leveraging existing skills with SQL and the relational model. Although the ADO.NET model is different from the existing ADO model, the same basic concepts include provider, connection, and command objects. By combining the continued use of SQL with similar basic concepts, current ADO developers should be able to migrate to ADO.NET over a reasonable period of time.

ADO.NET Performance:

The CLR was designed from the start to provide good performance. By using 100% managed code, we can take advantage of the numerous built-in services of the CLR to enhance the performance of our managed application. Because of the runtime services and checks that the CLR performs, applications do not need to include separate versions of these services.

Performance and scalability can be impacted by many different factors, from application architecture to tuning options to the software itself. Using 100% managed code eliminates the need to call COM components. In managed code, all the data, logic and processing reside within the CLR. 100% managed code eliminates dependencies on native vendor code.

Applications built from managed code can call COM components and other unmanaged code. However, the cost can be very expensive because of the extra security checks.

Key components of ADO.NET:

In this part we'll look at the three key components of ADO.NET that impact application development: DataSet, DataReader, and Data Provider.

ADO.NET DataSet - Replacing the old ADO RecordSet is the new ADO.NET DataSet – which functions like a disconnected XML data cache. It is designed to run in the application space wherever the logic requires local data, functioning in some ways like a very small in-memory database. This helps increase scalability of systems by reducing load on the major database backends and enabling local processing of data across whatever tier the application requires. For flexibility, the DataSet provides XML and relational interfaces of the data to the developer.

ADO.NET DataReader – This second component was created to fulfill the key requirement to very quickly retrieve read-only data, such as to populate a catalog listing. The DataReader provides a direct, read-only SQL interface to the backend.

ADO.NET Data Provider – This is the new component technology for connecting an ADO.NET application to the backend data store – similar in concept (but not implementation) to the ODBC drivers and OLE DB providers of the past.

ADO.NET Diagnostics

The .NET Trace class provides a set of methods and properties that help us trace the execution of our code. We can use the properties and methods in the Trace class to instrument release builds. Instrumentation allows us to monitor the health of our application running in real-life settings. Tracing helps to isolate problems and fix them without disturbing a running system.

In Visual Studio .NET projects, the Trace class is enabled by default. This means that code is generated for all Trace methods in both release and debug builds. End users can turn on tracing to help identify the problem without the program having to be recompiled.

The DataDirect data providers deliver additional tracing capability. The data providers trace the input arguments to all of their public method calls, as well as the outputs and returns from those methods (anything that a user could potentially call). Each call contains trace entries for entering and exiting the method. Provider-specific methods allow the data providers to trace all their method calls to a user-specified trace file.

The DataDirect data providers contain Perfmon hooks that let to monitor the number of connections, connection pools, and the number of connections in connection pools.

Important *Features of DataDirect ADO.NET Data Providers*

General

DataDirect Technologies has a long-standing strategic technology relationship with Microsoft. Only suite of data providers built with 100% managed code. DataDirect Technologies continues to collaborate with Microsoft on the development of the ADO.NET specification, extending and improving the standard for all major databases.

Only suite of .NET data providers to offer SQL leveling functionality, delivering easier portability between databases, simplified testing, and fewer lines of code to maintain. Quality assured by rigorous product testing and use of both the Microsoft test suite and DataDirect's own large test suite.

Features of SQL Server 2000

➢ **Internet Integration:**

The SQL Server 2000 database engine includes integrated XML support. It also has the scalability, availability, and security features required to operate as the data storage component of the largest Web sites. The SQL Server 2000 programming model is integrated with the Windows DNA architecture for developing Web applications, and SQL Server 2000 supports features such as English Query and the Microsoft Search Service to incorporate user-friendly queries and powerful search capabilities in Web applications.

➢ **Scalability and Availability:**

The same database engine can be used across platforms ranging from laptop computers running Microsoft Windows® 98 through large, multiprocessor servers running Microsoft Windows 2000 Data Center Edition. SQL Server 2000 Enterprise Edition supports features such as federated servers, indexed views, and large memory support that allow it to scale to the performance levels required by the largest Web sites.

➢ **Enterprise-Level Database Features:**

The SQL Server 2000 relational database engine supports the features required to support demanding data processing environments. The database engine protects data integrity while minimizing the overhead of managing thousands of users concurrently modifying the database. SQL Server 2000 distributed queries allow we to reference data from multiple sources as if it were a part of a SQL Server 2000 database, while at the same time, the distributed transaction support protects the integrity of any updates of the distributed data. Replication allows us to also maintain multiple copies of data, while ensuring that the separate copies remain synchronized.

➢ **Ease of installation, deployment, and use:**

SQL Server 2000 includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites. SQL Server 2000 also supports a standards-based programming model integrated with the Windows DNA, making the use of SQL Server databases and data warehouses a seamless part of building powerful and scalable systems. These features allow us to rapidly deliver SQL Server applications that customers can implement with a minimum of installation and administrative overhead.

SYSTEM DESIGN

4. SYSTEM DESIGN AND DEVELOPMENT

4.1 INPUT DESIGN

Input design is the most integral part of any application ad this is accomplished with the help of user input screens. The input data has to be edited, validated, organized, and accepted by the system before being processed to produce the outputs.

The main objective of the input design are the following

- Produce cost effective method of input
- Achieve high level accuracy.
- To ensure that all the needed data is properly entered to the system.
- Ensure that the input is acceptable and understood by the user staff.

As mentioned above, the input design is accomplished through the input forms. For our application the input data is received through the forms which is designed using simple html form elements like textbox, checkbox, radio button, test area, list box.

The above architectural data's are entered in the above input format and these input design forms are designed in User-friendly manner.

4.2. DATABASE DESIGN

Before the database concepts become operational, users had programs that handled their own data independent of other users. It was a conventional file environment with on data integration or sharing of common data source applications. In a database environment, common data are available across several applications and are used by several users. Instead of each program managing its own data, authorized users share data across applications with a databases software managing the database as an entity.

Data structuring is refined through a process called normalization. Data are grouped in the simplest way possible, so that later changes can be made with a minimum of impart on the data structure.

Normalization is the process of simplifying the relation between data elements in a record. Through normalization, a collection of data in a record structure is replaced by successive record structures. They are simple and more predictable and therefore more manageable.

Various objectives are considered for designing the database such as,

- ❖ Control of data integrity
- ❖ Control of redundancy
- ❖ Control of data security
- ❖ Data independence
- ❖ System performance
- ❖ System compatibility

A database is a collection of information usually organized in a particular order. Database is backbone of any system. Hence success of the system depends of how good its database has been designed.

SQL Server 2000 is a *Relational Database Management System* (RDBMS). It offers capabilities of both relational and object-oriented database systems. In general, objects can be defined as reusable software codes which are location independent and perform specific task on any application environment with little or no change to the code. Database can store either interrelated or unrelated data from other databases.

The tables for the system are logically designed with proper normalization procedure. Normalization is the process of arranging attributes into tables to ensure that basic manipulation operations on such tables do not cause data redundancy and inconsistency problems.

The tables for the system are designed with master – detail relationship. Any records in the master table can have one or more corresponding records in detail table. The structures of the table used in the project are given as follows.

Table Structures:

Name of the Table: *Employee Table*

S.No	Field Name	Description	Data type	Width	Remarks
1.	Empno	Employee Number	Varchar	8	Primary-Key
2.	Ename	Employee Name	Varchar	20	
3.	Address	Employee Address	Varchar	30	
4.	City	Employee City	Varchar	15	
5.	Phone	Employee Phone	Numeric	15	
6.	Gender	Employee Gender	Numeric	1	
7.	Qual	Employee Qualification	Varchar	20	
8.	Hdate	Employee Hired Date	Datatime	8	
9.	Spec	Employee Specialization	Varchar	15	
10.	Descode	Employee Designation	Varchar	12	
11.	Salary	Employee Salary	Money	8	
12.	Status	Employee Status	Int	2	

Name of the Table: *Department*

S.No	Field Name	Description	Data type	Width	Remarks
1.	Dptname	Department Name	Varchar	12	
2.	Deptid	Department Id	Varchar	6	Primary Key

Name of the Table: *Customer*

S.No	Field Name	Description	Data type	Width	Remarks
1.	Custno	Customer Number	Int	6	Primary Key
2.	Custname	Customer Name	Varchar	20	
3.	Custype	Customer Type	Int	2	
4.	Address	Customer Address	Varchar	25	
5.	City	Customer City	Varchar	20	
6.	Phone	Customer phone	Numeric	12	

Name of the table: Job

S.No	Field Name	Description	Data type	Width	Remarks
1.	Jcode	Jobcode	Varchar	10	Primary Key
2.	Supervisor	Sup. Who handles	Varchar	10	
3.	Mec	Mec. Dept	Varchar	25	
4.	Tin	Tin Dept	Varchar	25	
5.	Bod	Body. Dept	Varchar	25	
6.	Pai	Paint.Dept	Varchar	25	
7.	Ele	Ele Dept	Varchar	25	
8.	Vstatus	Vehicle Status	Varchar	10	
9.	Dd	Delivery Date	DateTime	8	
10.	Amount	Amount	Money	8	

Name of the Table: Vehicle

S.No	Field Name	Description	Data type	Width	Remarks
1.	Vnumber	Vehicle Number	Varchar	10	
2.	Custno	Customer Number	Int	4	
3.	Jcode	Job Code	Varchar	10	Primary Key
4.	Vname	Vehicle Name	Varchar	20	
5.	Vegno	Veh. Engine No.	Varchar	20	
6.	Vkm	Veh. Kilometer	Int	4	
7.	Vfuel	Veh. Bal. Fuel	Int	4	
8.	Bodywash	Service Type	Int	4	
9.	Engine	Service Type	Int	4	
10.	Full	Service Type	Int	4	
11.	Problem	Veh. Problems	Varchar	50	

Name of the Table: Order

S.No	Field Name	Description	Data type	Width	Remarks
1.	Orderid	Order id	Int	4	Primary Key
2.	Productid	Product id	Int	4	
3.	Unitprice	Unit per Piece	Money	8	
4.	Quantity	No. of Items	Int	4	
5.	Orderdate	Date of Order	Datetime	8	
6.	Reqdate	Date of ord. Req.	Datetime	8	
7.	Supid	Supplier id	Int	4	

Name of the Table: Supplier

S.No	Field Name	Description	Data type	Width	Remarks
1.	Supid	Supplier id	Int	4	Primary Key
2.	Company	Name of company	Varchar	20	
3.	Address	Address of supplier	Varchar	50	
4.	City	City of supplier	Varchar	20	
5.	Phone	Supplier phone	Int	4	

Name of the Table: Product-received

S.No	Field Name	Description	Data type	Width	Remarks
1.	Rcptno	Receipt number	Int	4	Primary Key
2.	Ordered	Order id	Int	4	
3.	Quantity	No. of items received	Int	4	
4.	Bquantity	Balance Quantity	Int	4	
5.	Recdate	Received Date	Datetime	8	
6.	Amount	Amount	Money	8	
7.	Bamount	Balance amount	Money	8	

Name of the Table: Spares

S.No	Field Name	Description	Data type	Width	Remarks
1.	Productid	Product id	Int	4	Primary Key
2.	Pname	Varchar	Varchar	30	
3.	Supid	Supplier id	Int	4	
4.	Unitprice	Unit per Price	Money	8	
5.	Unitstock	Total stock units	Int	4	
6.	Unitorder	No. of unit under order	Int	4	

Name of the Table: JobSpares

S.No	Field Name	Description	Data type	Width	Remarks
1.	Transno	Transaction number	Int	4	Primary Key
2.	Empid	Supervisor id	Varchar	10	
3.	Productid	Product id	Int	4	
4.	Quantity	No. of items	Int	4	
5.	Jcode	Job code	Varchar	10	
6.	Dop	Date of Purchase	Datetime	8	

Name of the Table: OutJob Table

S.No	Field Name	Description	Data type	Width	Remarks
1.	Outjobid	Out Job Id	Varchar	10	Primary Key
2.	Jobcode	In Job Code	Varchar	10	
3.	Supervisor	Who allocates	Varchar	10	
4.	Jobberid	Who handles	Int	4	
5.	Problem	Problem	Varchar	50	
6.	Wgdate	Work given date	Datetime	8	
7.	Reqdate	Required Date	Datetime	8	
8.	Amount	Charge	Money	8	

Name of the table: OutJobber

S.No	Field Name	Description	Data type	Width	Remarks
1.	Outjobid	Out Job Id	Varchar	10	Primary Key
2.	Name	Name of the jobber	Varchar	10	
3.	Company	Name of the company	Varchar	25	
4.	City	City	Varchar	10	

Name of the table: Bill

S.No	Field Name	Description	Data type	Width	Remarks
1.	Billno	Bill Number	Int	10	Primary Key
2.	Jcode	Job Code	Varchar	10	
3.	Sparesno	Spares Trans. Number	Int	10	
4.	Ojcode	OutJob Code	Int	10	
5.	Amount	Total amount	Money	8	

4.3 PROCESS DESIGN

System design involves translating information requirements and conceptual design into technical specification and general flow of processing.

```
                        ┌─────────────────────┐
                        │    Administrator    │
                        └──────────┬──────────┘
                                   │
                            Password security
                                   │
                                   ▼
   ┌──────────┬──────────┬──────────┬──────────┬──────────┐
   ▼          ▼          ▼          ▼          ▼
┌──────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐ ┌──────────┐
│ File │ │ Vehicle  │ │  Spares  │ │ Delivery │ │ Reports  │
└──┬───┘ └────┬─────┘ └────┬─────┘ └────┬─────┘ └──────────┘
   │          │            │            │
   ▼          │            ▼            │
┌──────────────┐    ┌──────────────┐    │
│ • Employee   │    │              │    │
│   Master     │    │ • New spares │    │
│ • Customer   │    │   List       │    │
│   Master     │    │ • Order      │    │
│ • Exit       │    │ • Receive    │    │
└──────────────┘    └──────────────┘    │
          │                             │
          ▼                             ▼
┌───────────────────────┐      ┌──────────────┐
│ • Supervisor          │      │ • Billing    │
│    a)Survey           │      │ • Delivery   │
│    b)Mechanic Allotment│     │   voucher    │
│    c)Survey update    │      └──────────────┘
│    d)Status           │
│ • Out job             │
│    a) Allocation      │
│    b) Status          │
└───────────────────────┘
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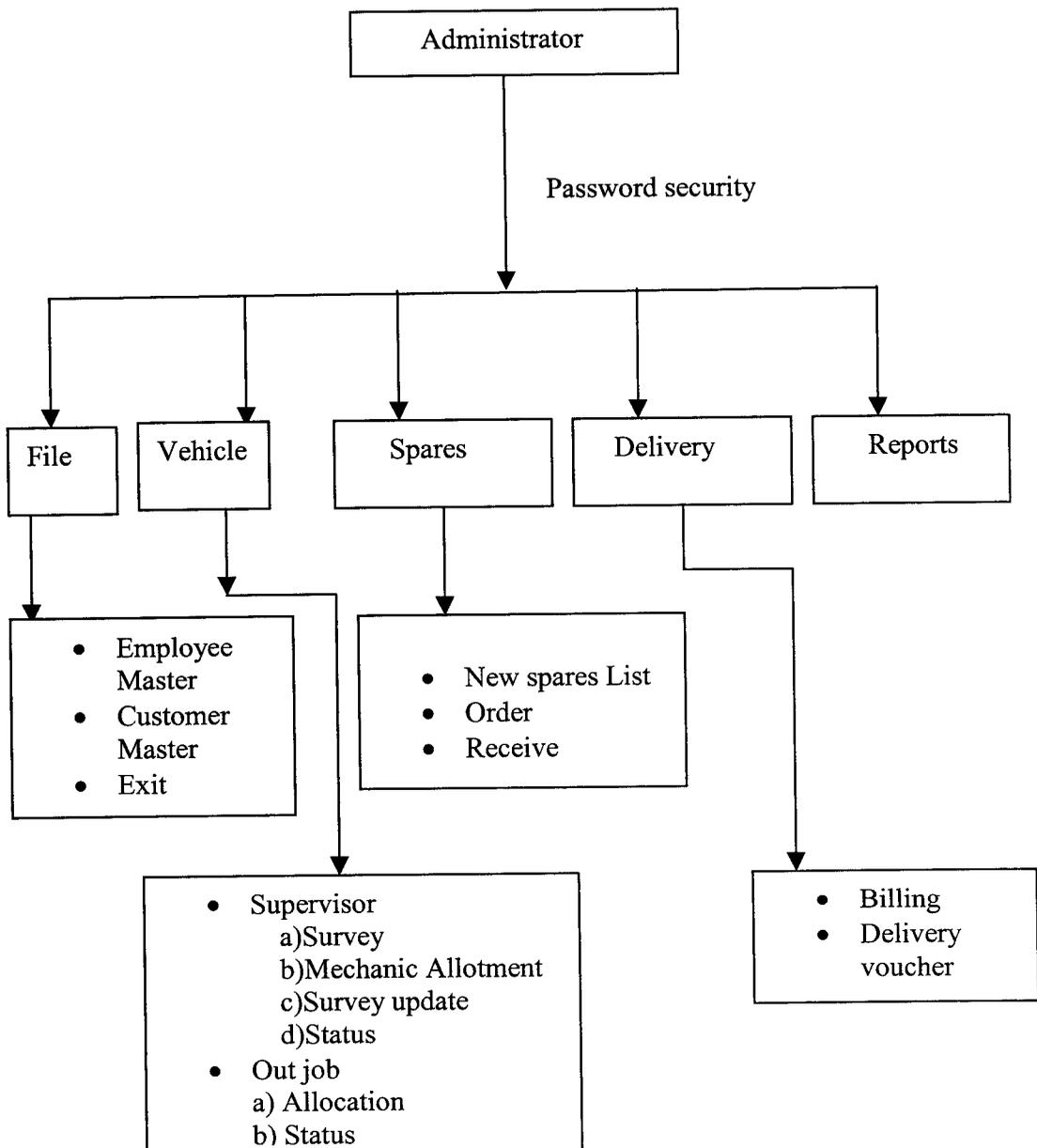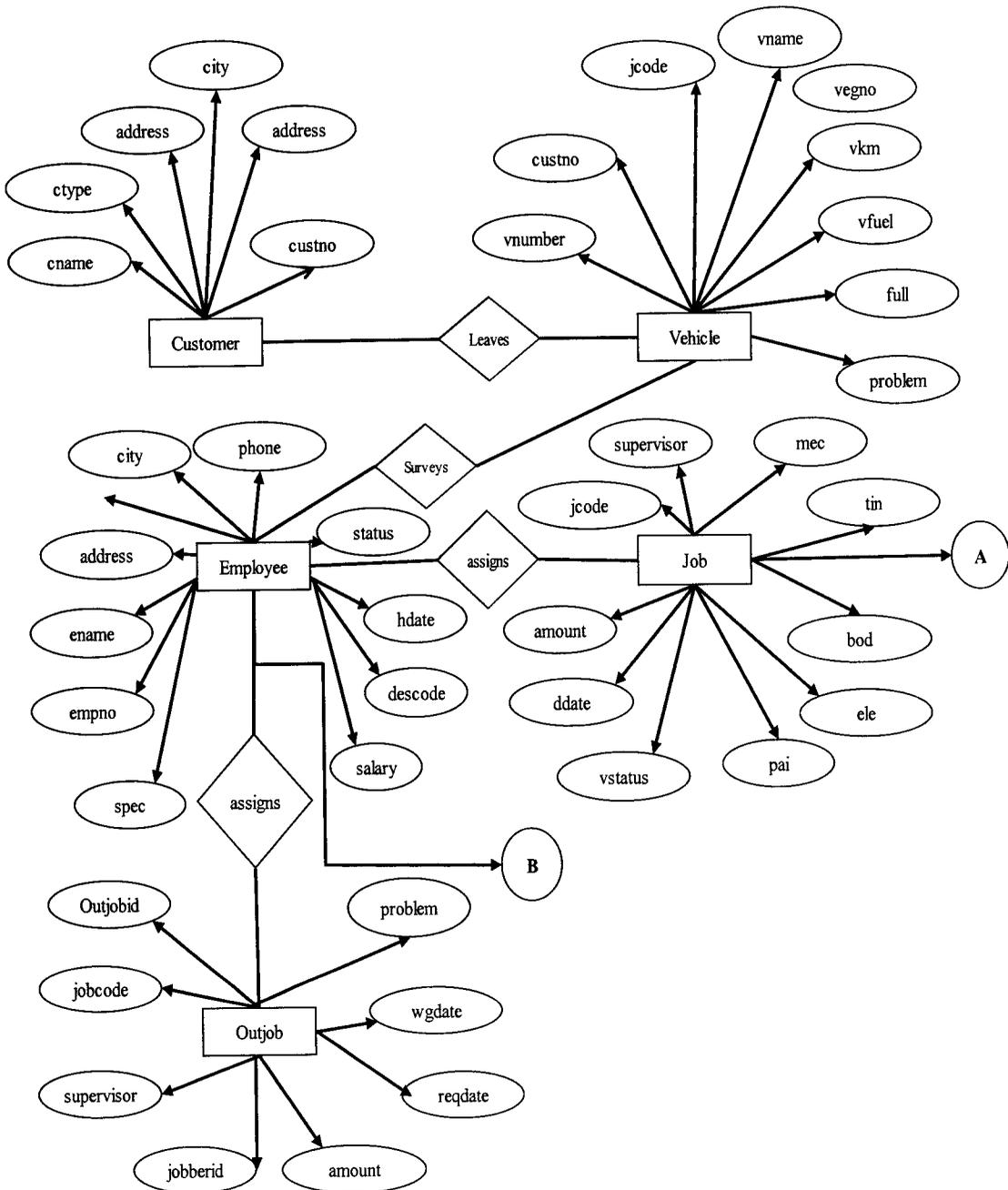
4.4 E-R DIAGRAM

ER Diagram Continuation…
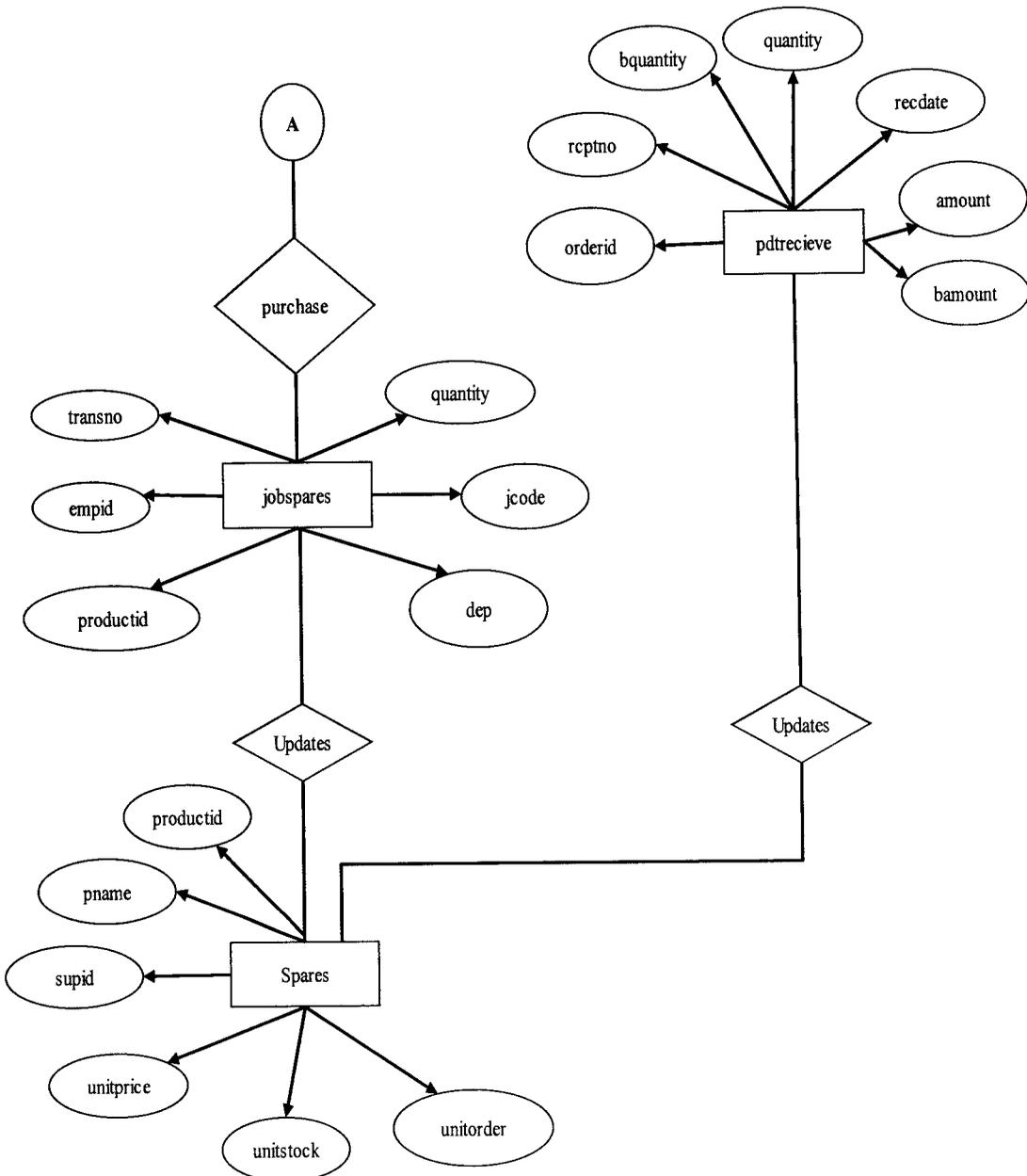
ER Diagram Continuation…

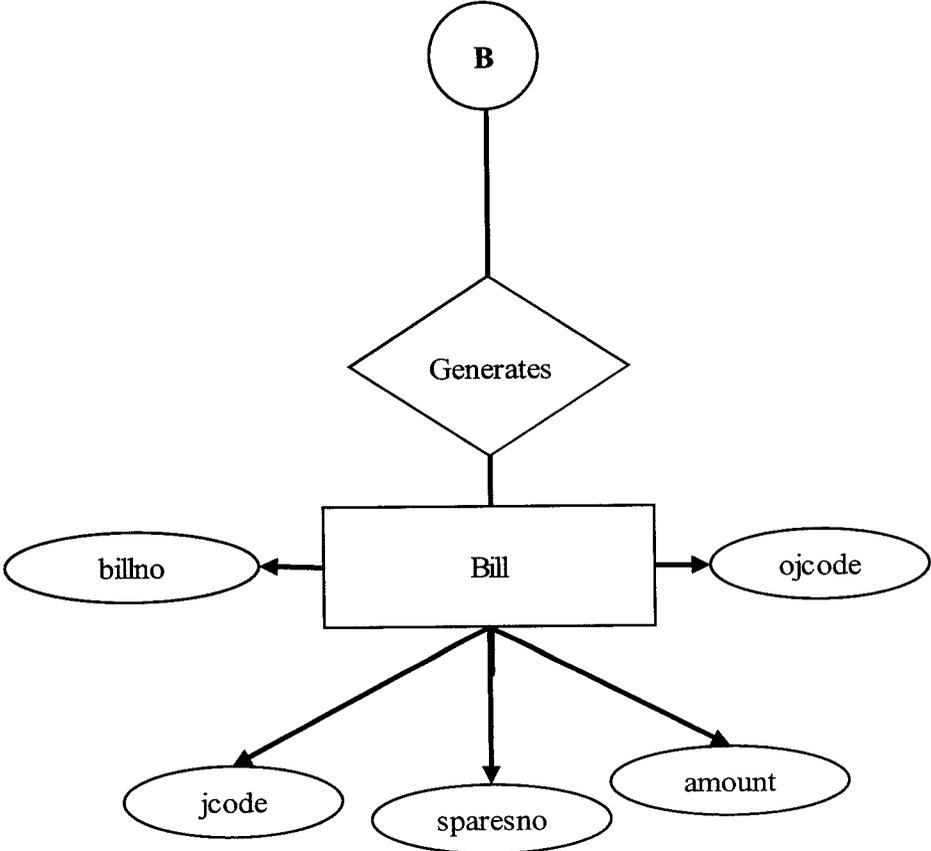# SYSTEM IMPLEMENTATION AND TESTING

5. SYSTEM TESTING AND IMPLEMENTATION

5.1 SYSTEM TESTING

Quality assurance is an important step in software engineering. This overlaps with all the phases of development right from the requirement analysis. This quality requirement of the software system must be clearly extracted during the requirement analysis and all the subsequent phases should be made biased to that, so that the final testing will become trivial and less expensive. There are a number of quality parameters like correctness, accuracy, reliability, robustness, efficiency, effectiveness, reusability, maintainability etc. The state of requirement of each of these parameters will vary depending upon the name and domain of the application.

The testing should be done at the end of all development steps. There are different testing approaches and methods like white box testing, Black box testing, etc. The major phases in testing are design of test plan, setting up test case and test candidate and test procedure, testing and correction. This is a cycle process and the software will circulate through all the steps till it attains the required quality.

Testing is conducted for the following purposes.

- ❖ Global variable definitions consistent across the modules
- ❖ I/O errors handled
- ❖ Any textual errors in the output information
- ❖ Inconsistent data types

❖ Incorrect variable names

SYSTEM HAS BEEN TESTED IN THE FOLLOWING WAYS.

First all the modules tested separately. So that it makes easy to find any errors if occurred. And also makes easy to correct in further modules. This may not enough for a system development. Further the entire system should be completely checked. Next, the system is tested with all variable combination of inputs. The system is tested with all the cases and it responded with appropriate error messages. Then the system is tested weather all independent paths with in a module have been exercised at least once, exercise all logical decisions on their true and false sides, execute all loops at their boundaries and within their operational bounds and exercise internal data structures to assure their validity.

Finally the output is tested to view whether that the screen is what which is desired. It is also checked whether it is to the satisfaction of the user. Changes that need to be done can be done after the result is seen.

At the same time the special importance is given over the package testing where it is been carried out to eliminate any bug, which may be present. The testing of package has been done in three phrases

❖ Unit testing.

❖ Code walkthrough.

❖ Integrated testing

Unit Testing:

Unit testing focuses verification effort on the smaller unit of software design of the module. Using detailed description as a guide, importance control paths are tested to uncover the error within the boundary of the module, The relative complexity of the tests and the errors detected results is limited by the constraints scope established for unit testing. Testing every module independent of the others carried out the testing. Unit test is always white box oriented; the steps can be conducted in parallel for multiple modules.

Code Testing:

In this phase of testing the code is thoroughly checked for discrepancies, which may occur in the code. These include any discrepancies and redundancy the code or any deviation in the naming conventions. Checking whether the appropriate comments are integrated in the entire classes and its methods was done. Such errors are rectified immediately after this phrase. After this phase the package as a whole is tested in the integrated testing.

Integrated Testing:

Integrated testing is done to verify if the package, after the integration of all the modules work properly. This phase o testing is mainly concentrated with finding out if the variable and data are sent correctly from one module to another. Testing is done to see if the linking with the server is working properly. The problems pertaining to this interface have to be eliminated. As integrated testing is conducted, the tester should identify critical modules. A critical module has one or more of the following characteristic.

- ❖ Address several software requirements.
- ❖ Has a high level of control.
- ❖ Is a complex or error prone?
- ❖ Have definite performance requirements

Critical modules should be tested as early as possible. In addition regression tests should focus on critical module function. Thus a detail study about the system testing in detailed manner, along with the importance to given to testing in this process.

5.2 SYSTEM IMPLEMENTATION

System Implementation is the process of having system personnel check out and put new equipment's in use, training users install the new application and construct any file or database needed to use it. Implementation is the stage in the project where the theoretical design is turned into a working system. The most critical stage in achieving a new successful system is to improve the performance of the existing system and to make the proposed system effective. The first step in implementing the system is in getting the approval from the system manager. The data entry, various menus and the most important reports are produced before the concerned members. It is done in view of the last minutes changes to the design formats. When the department's manager is satisfied, he is asked to give approval to the new system. Finally the system is handled to the data entry operator. Sometimes the existing and the proposed system are executed simultaneously and are compared and the merits of the proposed system are noted.

Implementation is the stage where the theoretical design is converted into a working system. This is a process of converting a new or revised system into an operational one.

Steps for implementation:

- Installation of hardware and software utilities.
- Testing the developed system with sampled data.
- Detection and correction of errors.
- Data updating
- Modification and enhancement

As we discussed before the important aspect of the system analyst's job is to make sure that the new design is implemented to the established standards. The term implementing has different meanings, ranging from the conversion of a basic application, to a complete replacement of a computer system. Implementation used here is a process of converting a new system design into an operational one.

There are three *types of implementation*:

1. Implementation of a computer system to replace a manual system.
2. Implementation of a new computer system to replace existing one.
3. Implementation of a modified application to replace an existing system using the same computer.

IMPLEMENTATION OF A COMPUTER SYSTEM TO REPLACE A MANUAL SYSTEM:

The problem encountered are converting files, training users, creating accurate files and verifying printouts for integrity.

IMPLEMENTATION OF A NEW COMPUTER SYSTEM TO REPLACE EXISTING ONE:

This is usually difficult conversion if not properly planned there can be many problems. Some large computers have taken as long a year to convert.

IMPLEMENTATION OF A MODIFIED APPLICATION TO REPLACE AN EXISTING SYSTEM USING THE SAME COMPUTER:

This type of conversion is relatively easy to handle, provided there are no major changes in this files. Implementation is the process of converting a new or

revised system design in to an operational one. It is the key stage in achieving a new successful system, because usually it involves a lot of up level in the user department.

Therefore it must be carefully planned and controlled. Apart from the planning the major tasks, of preparing for implementations are education, training of users and testing of he system. Education of users should really have taken place much earlier in the project when they involved in the investigating and design work. Training has to be given to the staffs reading the new system. Once the staff is trained the system can be tested.

Since the existing system is mostly manual and we are replacing that manual system with the computer system. So according to the implementation is called the first type of implementation.

Thus the implementation is the process of converting a new or revised system design in to an operational one. It is the key stage in achieving a successful new system, because usually it involves a lot up level in the user department. Therefore it must be carefully planned and controlled. Thus the implementation holds an very much important role achieving the target. Hence about the detail study of the implementation process.

CONCLUSION

6. CONCLUSION

The list of beneficiaries of this modern technology is almost endless. Thus computer plays a vital role in every human's life and become part and parcel of everyone's life. Computers have driven with blazing speed, radical, upheavals every where. These machines have literally appended traditional practices. The efficiency of this system understanding conditions points to its attractiveness. The communication speed is the only thing that connects for higher efficiency. As the technology is fast changing we need to perform the task in a fast and efficient manner. Further, this project is real time one which is developed to minimize the difficulties what we face automobile servicing, where this system is mainly focused in renovating process so that future enhancement is much possible in our proposed system. Thus this reduce maximum problem what we faced in our existing system. Using this software, we can computerized the manual job, where as it performs the processing in an accurate way and get the formatted output. This saves the time and effort of the operator. Upgrading, if any the system can be done at ease without affecting the proper functioning of the system.

Even though the front-end can be designed using any other languages , but the VB.NET helps a lot in creating a user friendly environment and Oracle is used to handle a huge amount of data and maintain the same in a more customized manner with accurate and appropriate security. Thus about a brief conclusion of the proposed system along with the special features in selecting this language.

SCOPE FOR FUTURE DEVELOPMENT

7. SCOPE OF FUTURE WORK

The techniques applied in the design of the project provide a scope for extension and implementation of changes, which may be required in future.

Further more, the process of adding the TAPI concept which helps the customer to get the details via phone so that the process can be very much minimized. At the same time process including the credit transaction is also be considered which helps the customer to pay the bill online, so that the customer can ask for the door delivery. And we have planned to provide the menu options like Vehicle status, new complaints, Door delivery, booking for service, etc. By offering this menu function via TAPI concept that reduces the customers work in dropping and taking back of the vehicle. Which is very possible in over proposed system where all the things are been referred through the database. Thus these are the scope of future work in our proposed system. Credit cards and Debit Cards can also be implemented for the payment.

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8.0 BIBLIOGRAPHY

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APPENDIX

9.APPENDICES

A) Screen Layouts

6006
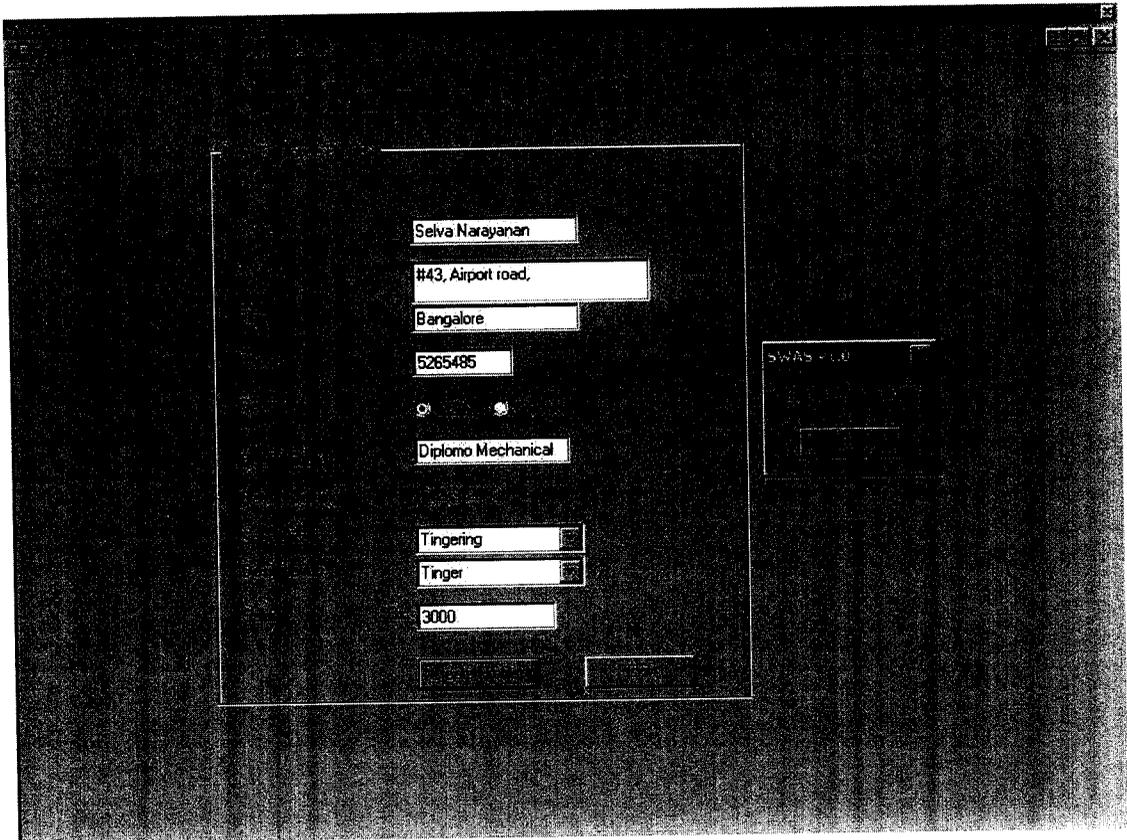
4

Alagu

#67, Jaya Nagar,

Bangalore

566556

Tin106

#43, Airport road,

Bangalore.

5265485

Diplomo Mechanical

Diplomo Mechanical

Tinger

3500

6007

Mec100
Mec103

Tin100
Tin101
Tin102
Tin103
Tin104
Tin105

Bod100
Bod101

SWAS v1.0

Mec104
Mec100

Tin101
Tin102
Tin103

Tin101
Tin102
Tin103

SWAS v1.0 - [Order Recieved]

1213

8

2

6006

RIGHT DOOR SCRATCH
SUSPENSION

SWAS v1.0

December, 2003						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Today: 12/9/2003

6006

December, 2003

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17		19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Today: 12/9/2003

Tin

4,000
4,001
4,002
4,003
4,004
4,005

SWAS v1.0

Spares Stock Report

Product Id	Product Name	Quantity	Price	Description
4,000	Steering	5	3,500	H.City
4,001	Steering	5	450	H.City-lxi
4,002	Pumber	5	2,599	H.City
4,003	Gear Box	5	450	H.Accord
4,004	Front Suspension	10	500	H.Accord-lxi
4,005	ClutchPlate-6v	30	3,500	6v-ClutchPlate(

SWAS v1.0

- Srl01
- Srl02

SWAS v1.0

Supervisor Report

Supervisor Id	Job Handling	Vehicle Status (Department)
Srl01	6003	Mec
Srl01	6006	Tin
Srl01	6005	Mec

Supervisor Id	Job Handling	Vehicle Status (Department)
Srl02	6000	Bill
Srl02	6001	Bill
Srl02	6002	Bill
Srl02	6004	Mec

6000
6001
6002
6003
6004
6005
6006

SWAS v1.0

Vehicle Job Report

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6000	TN-09-P-(	3	H.City 1.3 lxi	ERGTGJ23-YJG(	567,567	25	

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6001	TN-27-T-<	2	H.Accord-exi	ERTFDD3D-TYF	70,000	35	

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6002	TN-O7-Y-	1	H.Accord-Lxi	YTTRFHG-65GJI	60,030	22	

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6003	KA-09-K-	4	H.City 1.3-lxi	RFDGHRE-YT34	34,434	25	

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6004	TN-09-K-	5	H.accord-lxi	DBGFTH2-1GT3	54,327	22	

Jobcode	Vehicle No.	Cust.No.	Vehicle Name	Engine Number	Kilometer	Fuel Lts	Full S
6005	TN-39-P-£	4	H.City-exi	TGHW2Y-3YHK	8,000	28	