

1. INTRODUCTION

1.1.ABSTRACT

Transport or **transportation** is the movement of people, animals and goods from one location to another. Modes of transport include air, rail, road, water, cable, pipeline and space. The field can be divided into infrastructure, vehicles and operations. Transport is important because it enables trade between people, which is essential for the development of civilizations.

The first methods of road transport were horses, oxen or even humans carrying goods over dirt tracks that often followed game trails. As commerce increased, the tracks were often flattened or widened to accommodate the activities. Later, the travois, a frame used to drag loads, was developed. The wheel came still later, probably preceded by the use of logs as rollers. Early stone-paved roads were built in Mesopotamia and the Indus Valley Civilization.

Transport on roads can be roughly grouped into the transportation of goods and transportation of people. In many countries licensing requirements and safety regulations ensure a separation of the two industries.

The nature of road transportation of goods depends, apart from the degree of development of the local infrastructure, on the distance the goods are transported by road, the weight and volume of the individual load, and the type of goods transported. For short distances and light, small shipments a van or pickup truck may be used. For large loads of goods even if less than a full truckload a truck is more appropriate.

1.2 ORGANIZATION PROFILE

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The **“FREIGHT TRANSPORT MANAGEMENT SYSTEM”** has been developed for STAR TRANSPORT one of the main transport operators, which deals with very vast varieties of goods transportation.

The company has been in this field for several years. The agency is situated at Madurai, in one of the busiest market area in Madurai. It is dealing with all types of customers, from small company to big concerns.

In any organization, small or big, a major portion of the time goes in data collection, processing, documenting and communicating it to the people. Hence, a major portion of the overheads goes into this kind of unproductive work in the organization. Every individual in an organization is continuously looking for some information which is needed to perform his/her task/ Hence, the information is people-oriented and it varies with nature of the people in the organization.

Stock control, the processing of sales orders, forecasting and subsequent planning are additional areas in which the computer assists in business and commercial organizations. In all these cases the company can benefit from the immediate availability of information which the computer provides.

The difficulty in handling this multiple requirement, we wanted to develop a software product to satisfy their needs.

1.3 PROJECT OVERVIEW

This project is meant for maintaining goods transport organization administration, which deals with huge amount

This “**FREIGHT TRANSPORT MANAGEMENT SYSTEM** “ system has ten main modules. They are

- ❖ Employee
- ❖ Salary
- ❖ Vehicle
- ❖ Private Booking
- ❖ Regular Customer
- ❖ Regular Booking
- ❖ Report and
- ❖ Exit

In first module consists of a form for entering employees working in the concern. The following information are used to be given in this form, EMPLOYEE_ID, NAME, ADDRESS, DOB, QUALIFICATION, DESIGNATION, DATE_OF_JOIN, CONTACT_NO. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

Second module shows a form for salary information. The following information are used to be given in this form, EMPLOYEE_ID, NAME, DESIGNATION,

BASIC_SALARY, OVER_TIME_SALARY, NET_SALARY, MONTH. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

The third module depicts a form for vehicle details such as Vehicle_name, Registration_no which are available with the concern. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

Fourth module, Private Booking, gives booking of goods from private customer entry information. The following information are used to be given in this form, LLR_NO, SEND_NAME, SENDER_ADDRESS, RECEIVER_NAME, RECEIVER_ADDRESS, DATE_BOOK, WEIGHT, AMOUNT. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

The fifth module, Regular Customer, shows the data pertaining to regular customers' information of different companies in and around Madurai city. The following information are used to be given in this form, CUSTOMER_ID, COMPANY_NAME, CONTACT_NAME, ADDRESS, PHONE_NUMBER, EMAIL. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required

record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

The sixth module, Regular Booking, shows the information for goods booking by different regular customers. The following information are used to be given in this form, LLR_NO, SEND_NAME, SENDER_ADDRESS, RECEIVER_NAME, RECEIVER_ADDRESS, DATE_BOOK, WEIGHT, AMOUNT, AMOUNT_RECEIVED, AMOUNT_RECEIVED_DATE. This form has options for New, Edit, Update, Find and Delete record and Grid View option to view all records. The grid view form has options for Filter by which required record/records can be viewed and Sort option can be used to view all records in sorted manner for a particular column.

The seventh module, Report, has reports for Employee, Salary, Customer, and booking.

And the final module is for exiting from the software.

2. SYSTEM ANALYSIS

2.1 SYSTEM ANALYSIS FUNDAMENTALS

The term system is derived from the Greek work *systema*, which means an organized relationship among functioning units or components. A system is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective. The word component may refer to physical parts, managerial steps or a subsystem in a multilevel structure. The components may be simple or complex, basic or advanced.

Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate system should consider other related systems. During analysis, data are collected on the available files, decision points, and transactions handled by the system.

Initial Investigation

This is a user's request to change, improve to enhance an existing system. The initial investigation is likely to be a stream of such requests, standard procedures must be established to deal with them. The objective of the initial investigation is to determine whether the request is valid and feasible before a recommendation is reached to do nothing, improve or modify the existing system or build a new one.

2.2 PROBLEM DEFINITION

Problem

In any organization, small or big, a major portion of the time goes in data collection, processing, documenting and communicating it to the people. Hence, a major portion of the overheads goes into this kind of unproductive work in the organization. Every individual in an organization is continuously looking for some information which is needed to perform his/her task. Hence, the information is people-oriented and it varies with nature of the people in the organization.

The difficulty in handling this multiple requirement of the people is due to a couple of reasons. The information is a processed product to fulfill an imprecise need of the people. It takes time to search the data and may require a difficult processing path. It has a time value and unless processed on time and communicated, it has no value. The scope and the quantum of information is individual-dependent and it is difficult to conceive the information as a well defined product for the entire organization. Since the people are instrumental in any business transaction, a human error is possible in conducting the same.

Since a human error is difficult to control, the difficulty arises in ensuring a hundred per cent quality assurance of information in terms of completeness, accuracy, validity, timeliness and meeting the decision making needs.

2.3 EXISTING SYSTEM

The existing system has certain drawbacks that led to the proposal of the new package. Some of the drawbacks of the existing system are as follows:

- The present system is mainly paper oriented and staff intensive.
- It is tedious to keep track of the transactions efficiently.
- It needs more man power to record and retrieve information.
- It is hard to prepare any report immediately.
- There is no security for information.
- There is a delay in information retrieval.
- There is redundancy of data.
- Reliability & Maintainability of data is difficult.
- High risk of taking stock at the end of each month for different varieties of dressing materials.
- The existing system is not very user friendly. It does not support the graphical user interface, so the usage of mouse is not possible.
- It does not support the relational data base management system concept.
- Also if the package is to be modified depending on the demands of the client then the whole package is to be reinstalling each time the modification is made.

2.4 PROPOSED SYSTEM

Proposed System is being developed in Visual Basic 6.0 as front end and Ms-Access as back end. It provides the following features.

- It is user friendly.
- Accuracy of data is provided by proper validation of inputs.
- Security of data is provided.
- Retrieval of necessary information is very easy and fast.
- Reports can be easily generated.
- Manual options are reduced to maximum possible extent.
- Maintenance of data is effective.
- Backups of data are maintained.
- On-line access is possible.
- Latest tools & techniques are used.
- Error & exceptional situations are handled carefully.
- Better user – interface and data validation.
- Faster data processing.
- Accuracy in updating.
- Transactions made easy.
- To make the fast and reliable connection between the database system and the administrator in an efficient way.
- The delivery of the product has been made to the Organization within the specified date.

Benefits of the proposed system

It enhances time saving and privacy through increasing accuracy, consistency and better security.

- ❖ Easy to use and handle
- ❖ Low cost and also inherent robustness
- ❖ Expandability to the network is simple
- ❖ Developed system is effective for functioning.

3. SYSTEM SPECIFICATION

3.1 HARDWARE SPECIFICATION

CPU type	:	Core 2 Duo
RAM	:	2 GB
Hard Disk	:	500 GB
Display type	:	VGA
Keyboard	:	107 Keys
Mouse	:	Logitech

3.2 SOFTWARE SPECIFICATION

Operating System	:	Windows
Front-end Tool	:	Visual Basic 6.0
Back-end Tool	:	Ms-Access

3.2.1 ABOUT WINDOWS

Windows makes your computer easier to use, with new and enhanced features. Windows is easier to use with true Web Integration and workflow enhancements such as, icon highlighting, forward and backward buttons, and an easy-to-customize **Start** menu.

Multiple display support

Multiple display support makes it possible for you to use several monitors simultaneously to increase the size of your desktop, run different programs on separate monitors, and run programs or play games with multiple views. For example, students can conduct research with Microsoft Encarta displayed on one monitor and type their report in Microsoft Word on a second monitor. To learn more about multiple display support

Windows' makes your computer more responsive by improving startup time. Using power management techniques, you can start your computer in just a few seconds and restore all your programs where you left them. In addition, it allows your computer to continue working even though it appears to be turned off. You can leave all of your programs running, download your favorite Web pages, send and receive e-mail, back up your hard disk, or tune-up your operating system without being at your computer.

Power Management

Power Management works on computers that have Advanced Power Management (APM), and it works even better on newer computers that use the Advanced Configuration and Power Interface (ACPI). Power Management also makes it possible for you to put your computer on standby or hibernate to save power resources

Accessibility wizard

The Accessibility wizard makes it easier for people with disabilities to operate a computer without installing special software. Accessibility options—such as StickyKeys, Show Sounds, and MouseKeys—are designed to help users with specific disabilities make full use of the computer.

Universal Serial Bus

The Universal Serial Bus (USB) makes your computer easier to use with advanced plug-and-play capabilities. Using a new, universally standard connector, you can add devices to your computer easily without having to restart.

Windows improves computer reliability by introducing new wizards, utilities, and resources that help keep your system running smoothly.

System File Checker

System File Checker keeps track of critical files that make your computer run. If these are moved or changed, System File Checker restores them

ScanDisk

Scandisk runs automatically in the event the operating system is shut down improperly. Scandisk detects corruptions when they are most likely to occur and then corrects them. You can also run Scandisk at any time to evaluate your computer.

Windows includes tools that help your computer run faster than Windows 95 without adding new hardware. Windows includes a suite of programs designed to optimize your computer's efficiency, especially when used together.

Maintenance wizard

Maintenance wizard helps you get the best performance from your system. You can run Maintenance wizard to make your programs run faster, check your hard disk for problems, and free hard disk space. By scheduling these utilities to run on a regular basis, you can make sure that your computer is performing at its best.

Disk Defragmenter

Disk Defragmenter optimizes the speed with which your programs load and run. With quick startup and shutdown, you can work, play games, and explore the Internet faster and more efficiently.

Windows makes your computer more entertaining by introducing new features such as enhanced television, video playback, and support for new hardware. These enhancements provide you with hours of fun.

Windows supports a variety of new hardware devices, such as DVD, force-feedback joysticks, digital audio speakers, and recording devices. Improved plug and play capabilities make installing new hardware even easier. You will also enjoy improved graphics, especially 3-D graphics, and video playback

3.2.2 ABOUT VISUAL BASIC

Visual Basic is an ideal programming language for developing sophisticated professional applications for Microsoft Windows. It make use of Graphical User Interface for creating robust and powerful applications. The Graphical User Interface as the name suggests, uses illustrations for text, which enable users to interact with an application. This features makes it easier to comprehend things in a quicker and easier way.

Coding in GUI environment is quite a transition to traditional, linear programming methods where the user is guide through a linear path of execution and is limited to a small set of operations. In a GUI environment, the number of options open to the user is much greater, allowing more freedom to the user and developer. Feature such as easier comprehension, user-friendliness, faster application development and many other aspects such as introduction to ActiveX technology and Internet features make Visual Basic an interesting tool to work with.

Visual Basic was developed from the BASIC for the early microprocessor based computers. In 1982, Microsoft Quick Basic revolutionized Basic and was legitimized as a serious development language for MS-DOS environment. Later on, Microsoft corporation created the enhanced version of BASIC called Visual Basic for windows.

Whether our goal is to create a small utility for our self or our work group, a large enterprise-wide system, or even distributed applications spanning the globe via the Internet, Visual Basic has the tools we need.

- Data access features allow we to create databases, front-end applications, and scalable server-side components for most popular database formats, including Microsoft SQL Server and other enterprise-level databases.
- ActiveX™ technologies allow we to use the functionality provided by other applications, such as Microsoft Word processor, Microsoft Excel spreadsheet, and other Windows applications. We can even automate applications and objects created using the Professional or Enterprise editions of Visual Basic.
- Internet capabilities make it easy to provide access to documents and applications across the Internet or Intranet from within our application, or to create Internet server applications.
- Our finished application is a true .exe file that uses a Visual Basic Virtual Machine that we can freely distribute

A complete discussion of the inner workings of Windows would require an entire book. A deep understanding of all of the technical details isn't necessary. A simplified version of the workings of Windows involves three key concepts: windows, events and messages.

The Microsoft Windows operating system manages all of these many windows by assigning each one a unique id number. The system continually monitors each of these windows for signs of activity or events. Events can occur through user actions such as a mouse click or a key press, through programmatic control, or even as a result of another window's actions.

Each time an event occurs, it causes a message to be sent to the operating system. The system processes the message and broadcasts it to the other windows. Each window can then take the appropriate action based on its own instructions for dealing with that particular message (for example, repainting itself when it has been uncovered by another window).

As you might imagine, dealing with all of the possible combinations of windows, events and messages could be mind-boggling. Fortunately, Visual Basic insulates you from having to deal with all of the low-level message handling. Many of the messages are handled automatically by Visual Basic; others are exposed as Event procedures for our convenience. This allows you to quickly create powerful applications without having to deal with unnecessary details.

At design time you can use the Data Environment designer to create a DataEnvironment object. The DataEnvironment object can include Connection and Command objects, hierarchies (relationships between Command objects), groupings, and aggregates. Before designing your DataEnvironment object, you should determine what information you want to present, identify the databases that contain the information, and determine your run time objective

Data Report Designer Features

The Microsoft Data Report designer is a versatile data report generator that features the ability to create banded hierarchical reports. Used in conjunction with a data source such as the Data Environment designer, you can create reports from several

different relational tables. In addition to creating printable reports, you can also export the report to HTML or text files.

- Automatically create reports that are export in HTML format for instant distribution on the Internet.
- Create reports that show the sums of transactions occurring on a daily basis.

The Data Report designer has several features:

1. **Drag-and-Drop Functionality for Fields**—Drag fields from the Microsoft Data Environment designer to the Data Report designer. When you do this, Visual Basic automatically creates a text box control on the data report and sets the DataMember and DataField properties of the dropped field. You can also drag a Command object from the Data Environment designer to the Data Report designer. In that case, for each of the fields contained by the Command object, a text box control will be created on the data report; the DataMember and DataField property for each text box will be set to the appropriate values.
2. **Toolbox Controls**—The Data Report designer features its own set of controls. When a Data Report designer is added to a project, the controls are automatically created on a new Toolbox tab named DataReport. Most of the controls are functionally identical to Visual Basic intrinsic controls, and include a Label, Shape, Image, TextBox, and Line control. The sixth control, the Function control, automatically generates one of four kinds of information: Sum, Average, Minimum, or Maximum. For more information about the Function control, see "Adding a Function Control to the Data Report."

3. **Print Preview**—Preview the report by using the Show method. The data report is then generated and displayed in its own window.

Note A printer must be installed on the computer to show the report in print preview mode.

4. **Print Reports**—Print a report programmatically by calling the PrintReport method. When the data report is in preview mode, users can also print by clicking the printer icon on the toolbar.

Note A printer must be installed on the computer to print a report.

5. **File Eort**—Eort the data report information using the EortReport method. Formats for eort include HTML and text.

6. **Eort Templates**—You can create a collection of file templates to be used with the EortReport method. This is useful for eorting reports in a variety of formats, each tailored to the report type.

7. **Asynchronous Operation**—The DataReport object's PrintReport and EortReport methods are asynchronous operations. Using the ProcessingTimeout event, you can monitor the state of these operations and cancel any that are taking too long.

3.2.3 ABOUT MS-ACCESS

Many data access applications created with earlier versions of Visual Basic store and manage data using the Microsoft Jet database engine, the engine used by Microsoft Access. These applications use Microsoft Data Access Objects (DAO) to access and manipulate data.

Now we can use Microsoft ActiveX Data Objects (ADO) to easily manipulate data in a variety of database formats, including Microsoft Jet format. We may still want to use DAO to work with your local Microsoft Jet databases, but for new applications you'll probably want to use ADO and the new data access features of Visual Basic.

Microsoft Access is a powerful Windows 95-based relational database management system (RDBMS), which we can use to create and modify database tables, data entry forms, reports, and queries (customized requests for information from one or more tables).

In Access, a database is a collection of information. Examples of databases include private telephone directories, lists of customers and suppliers, parts in a warehouse or store, and even private tape, book, and compact disk collections. The information in an Access database is retained in tables. Tables consist of rows and columns. Each row is called a record and pertains to a specific person or supplier, inventory item, or event. Each column contains a discrete element of information, called a field. A field might be a name, telephone number, stock-keeping unit number, unit cost, or any other piece of information.

People use a database to perform data management tasks, such as storing, retrieving, and analyzing data about orders and customers. A Microsoft Access application is made up of the same objects as a Microsoft Access database—tables, queries, forms, reports, macros, and modules. The objects are stored in one or more Microsoft Access database (.mdb) files. What makes an application different from a database is that the objects are tied together into a coherent system. An application organizes related tasks so that the user can focus on the job at hand, not on how the application works or on the program used to develop the application.

The keys to a Microsoft Access application are its objects, their properties, and the events that occur on forms. Here's how it works:

An application consists of objects Your application is made up of objects that users see and use directly (forms and reports) and supporting objects that control how the forms and reports work (tables, queries, macros, and modules). You build the forms and other objects in their respective Design views.

Objects have properties you can set you set objects' properties to make them look and behave the way you want. For example, all forms have a **DefaultView** property that specifies whether a form should appear in Form or Datasheet view. Once you set the property, the form opens automatically in the correct view. By setting properties, you make your objects behave more intelligently.

Forms respond automatically to events when people use the forms in your application, their actions—changing data in a field, clicking a command button, moving the mouse—are recognized by Microsoft Access as *events*. Microsoft Access responds to these events automatically. For example, when a user changes the data in a text box,

Microsoft Access checks to make sure that the data is the correct data type. When a user clicks a command button, Microsoft Access displays the button so it appears pressed in.

You can add your own, custom response to an event. You can use either a macro or an event procedure to add the response you want to an event. An *event procedure* is a Visual Basic procedure you write that's attached to a form, report, or control; Microsoft Access runs it when a specified event occurs. You specify in the event procedure or macro what you want to take place when the event occurs. For example, you can change object properties, open or close objects, or manipulate data. You use *event properties* to determine whether Microsoft Access runs a macro or an event procedure in response to an event. For example, to have a macro run in response to a command button's Click event, you set the button's **OnClick** event property to the name of the macro.

You can extend Visual Basic with external libraries. In addition to writing your own event procedures; you can use Visual Basic to call external procedures in Microsoft Access library databases (MDAs) and in dynamic-link libraries (DLLs). For example, you can enable or disable menu commands by calling functions in the DLLs that are part of Microsoft Windows.

If you've developed database applications using other products, you may elect to write a Main program in the Visual Basic language that makes your application work. The Main program would be the application's brain; you'd use it to tell the objects how to appear and react, and how to process the data, much as the manager of an office delegates different projects.

With Microsoft Access, the objects manage themselves by responding to events that occur within your application. There is no Main program. For example, suppose you

want something to happen when the user clicks a button. You don't need code that checks to see whether the user clicks the button. You attach the code to the button so it's run when the Click event occurs. When the event occurs, Microsoft Access runs your code automatically.

4. SYSTEM DESIGN

4.1 ARCHITECTURAL DESIGN

DESIGN FUNDAMENTAL

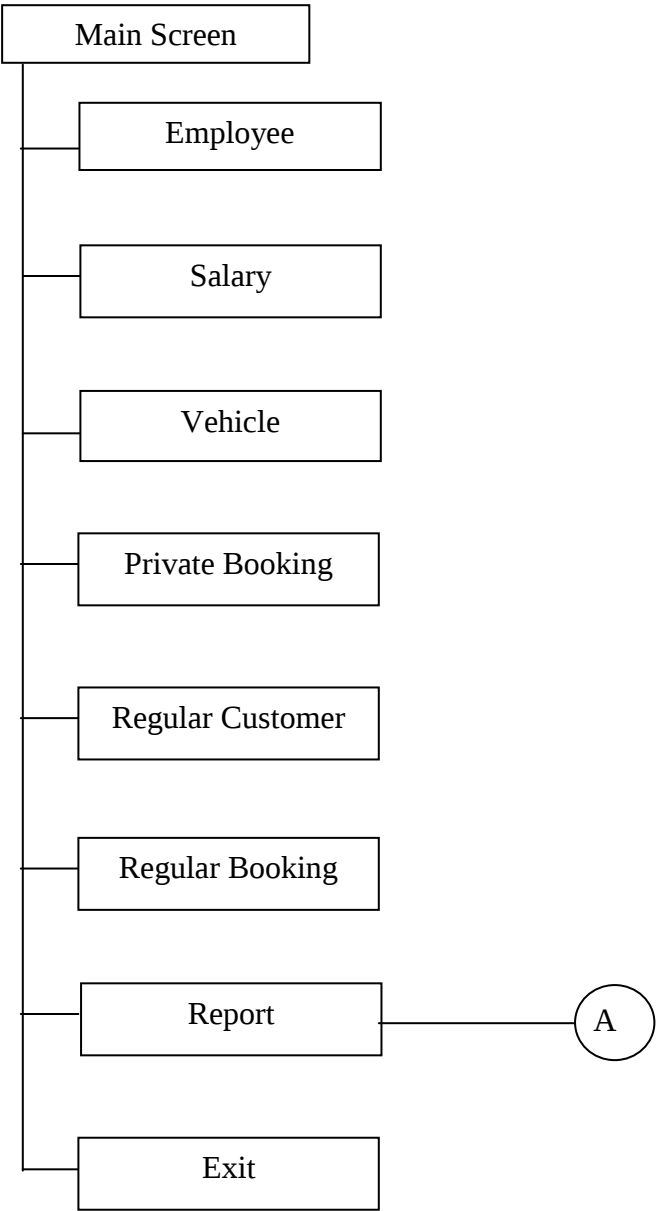
The word system is possibly the most overused and abused term in the technical lexicon. System can be defined as the “a set of fact, principles, rules etc., classified and arranged in an orderly form so as to show a logical plan linking the various parts” here the system design defines the computer based information system. The primary objective is to identify user requirements and to build a system that satisfies these requirements.

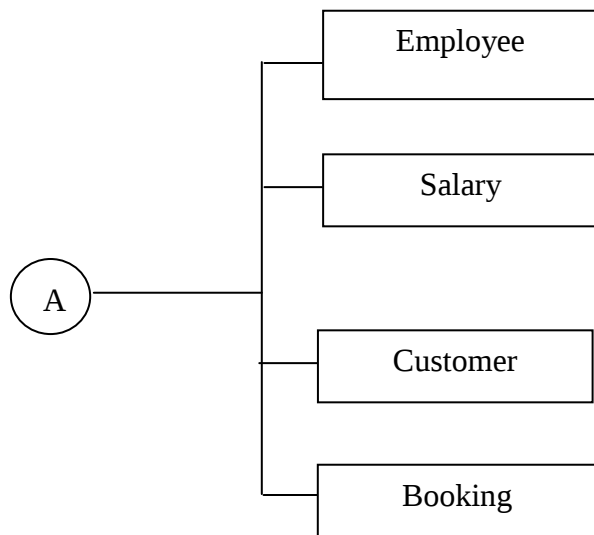
Design is much more creative process than analysis. Design is the first step in the development of any system or product. Design can be defined as “the process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization”.

Data Flow Diagram

This is a analysis tool to architect’s blueprint as for system design. The DFD presents a picture of what is being specified and is a conceptually easy-to-understand presentation of the application. The process is partitioned so that a clear picture of the progression from general to specific in the system flow.

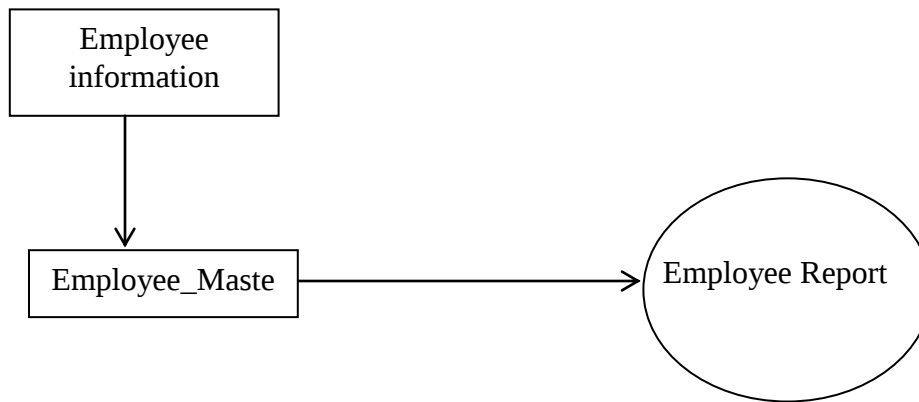
4.1.1 SYSTEM FLOW CHART



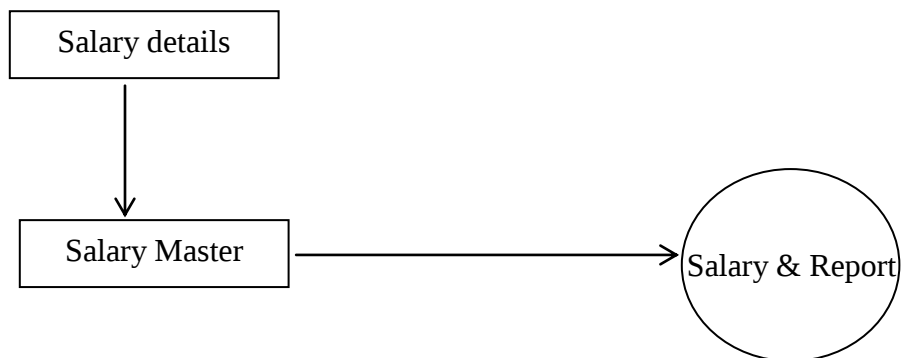


4.1.2 DATA FLOW DIAGRAM

Employee Master



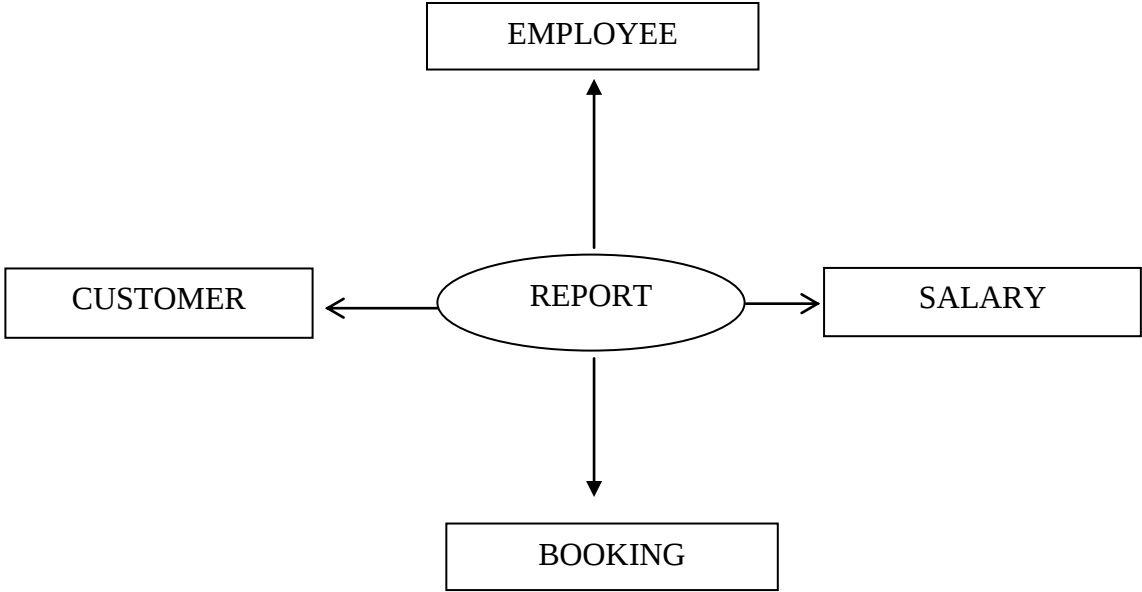
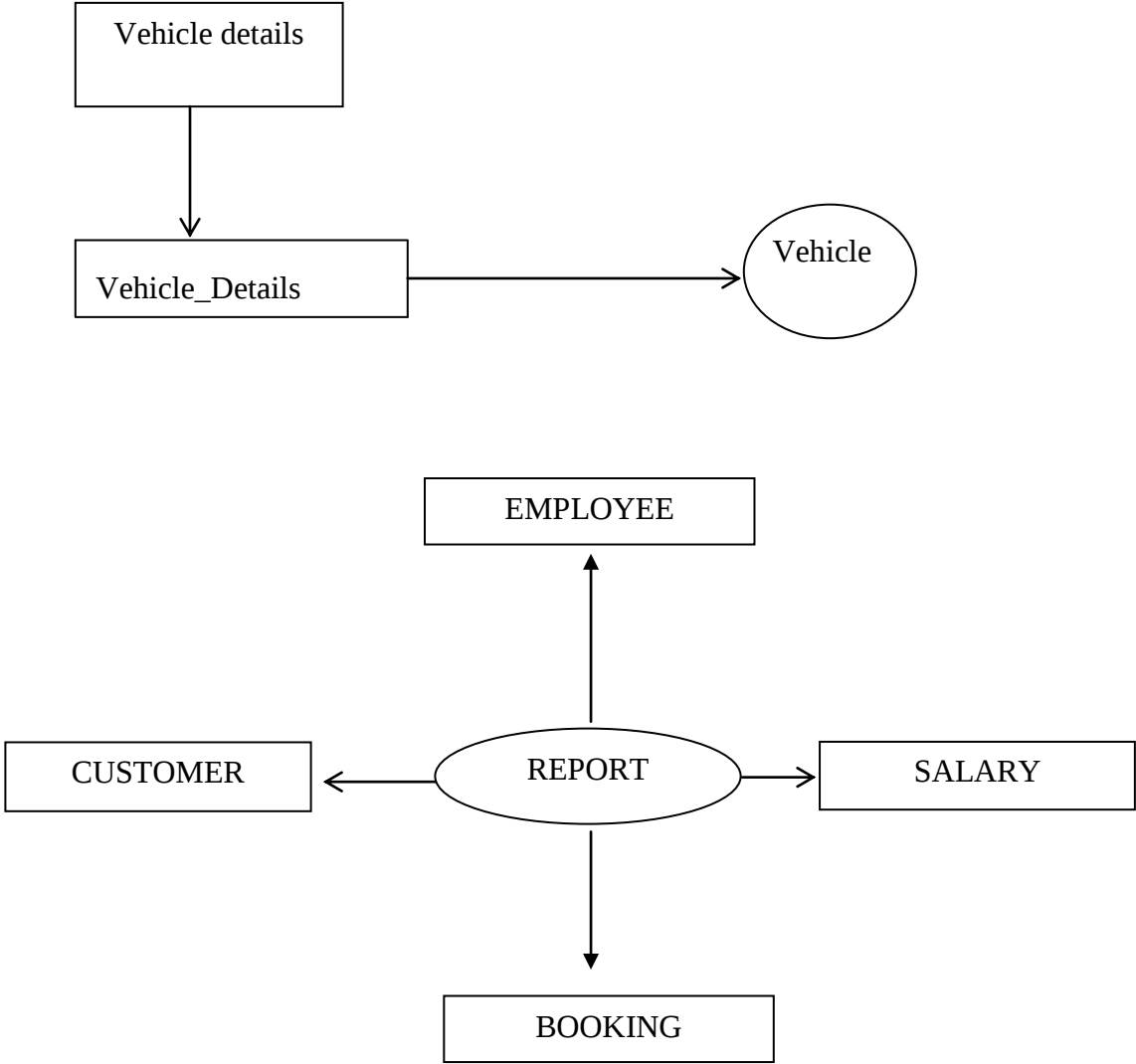
Salary Master



Customer Master



Vehicle Detail



4.2 DATA BASE DESIGN

EMPLOYEE_MASTER

FIELD NAME	TYPE	DESCRIPTION
Employee_id	Integer	Number of the employee
Name	Text	Name of the employee
Address	Text	Address of the employee
Dob	Date	Date of birth of employee
Qualification	Text	Qualification of the employee
Designation	Text	Employee designation
Date_of_join	Date	Joining date of employee
Contact_no	Text	Employee contact number

This table contains the details of the Employee and their relating fields.

SALARY_MASTER

FIELD NAME	TYPE	DESCRIPTION
Employee_id	Integer	Number of the employee
Name	Text	Name of the employee
Designation	Text	Qualification of the employee
Basic_Salary	Single	Basic salary for employee
Over Time Salary	Single	OT salary for employee
Net Salary	Single	Net salary for Employee
Month	Text	Monthly salary for employee

This table contains the details of the Employees Salary and their relating fields.

CUSTOMER_MASTER

FIELD NAME	DATA TYPE	DESCRIPTION
Customer_id	Integer	Number of the customer
Company_name	Text	Name of the company
Contact_name	Text	Name of the customer
Address	Text	Address of the customer
Phone_number	Text	Customer contact number
Email	Text	Customer Email id

This table contains the details of the Customer and their relating fields.

BOOKING

FIELD NAME	DATA TYPE	DESCRIPTION
LLR_No	Text	LLR Number of the customer
Sender_name	Text	Name of the sender
Sender_address	Text	Address of the sender
Receiver_name	Text	Name of the Receiver
Receiver_Address	Text	Address of the receiver
Date_book	Date	Customer Email id
Weight	Text	Weight of the parcel
Amount	Single	Amount of the parcel
Amount_received	Boolean	Amount received for parcel
Amount_received_date	Date	Amount received date of the parcel

This table contains the details of the Booking of the parcel and their relating fields.

VEHICLE_DETAILS

FIELD NAME	TYPE	DESCRIPTION
Registration_no	Text	Registration number for vehicle
Vehicle_name	Text	Name of the vehicle

This table contains the details of the Vehicle and their relating fields.

5. SYSTEM TESTING AND IMPLEMENTATION

5.1 SYSTEM TESTING

TESTING FUNDAMENTALS

Software testing is an important element of S/W quality assurance and represents the ultimate review of specification, design and coding. The increasing visibility of S/W as a system element and the costs associated with a S/W failure are motivating forces for well planned, through testing.

Though the test phase is often thought of as separate and distinct from the development effort--first develop, and then test--testing is a concurrent process that provides valuable information for the development team.

Internal Testing

The software testing was given equal priority to the system study phase. The question raised during system study was “how to do?” and during testing the importance was given to the question that “how it should be done?”.

Each and every user screen, database structures etc., have been designed after consulting the considering the user requirements.

Unit Testing

For successful implementation each and every module of the new system was tested separately to rectify the error within its boundaries. Detail design description was

used as a guide in the process. The database was checked with sample data to ensure its normal form. Each query result and reports were also checked for their integrity.

The tests that were done under the unit testing are,

(a) Interface Testing

To assure that the information properly flows into and out of program unit.

(b) Data Structure Testing

To ensure that the data are stored properly in the underlying tables.

(c) Independent Path Testing

All independent paths through the module were executed at least once to assure that they are behaving as per expectations.

Integration Testing

It is a system technique for construction of the program structure while at the same time conducting tests to uncover errors associates with interfacing. The objective is to take unit-tested modules and build a program structure as specified by the system design.

All the modules that go under the unit testing are integrated together to get the whole software as a single module. Integration separate modules are done in a systematic

manner. This integration is a formal procedure that must be executed carefully and according to the need.

Validation Testing

To cover functional errors ie., to check whether functional characteristic confirm to the specifications or not. The goal of validation testing is to demonstrate the software traceability to the requirements. Validation test confirms whether the software is functional.

Testing plays a vital role to reach the cent percentage perfectness in any system. It is the major quality control measure used to determine the status and usefulness of the system. Its basic function is to find the errors in the software by examining all the possible loop holes. The goal of testing is top find out uncovered requirements, designs or coding errors or invalid acceptance or storage of data etc.

Testing of the new system has been done successfully in different levels. There are so many testing activities that help to find the errors and to reach a safer state in the system implementation.

In the case of on-line response it is found out that the response time is normal. In volume testing even when the number of records increased the software and hardware was found to be functioning satisfactorily. By stress testing, it gives good response to the volume testing and also takes only short time interval to finish. Hence passes the stress test too.

5.2 VERIFICATION AND VALIDATION

This system has been verified and validated by using the

(a). Test data

(b) . Live data

Verified With Test Data

In this case of testing, the data were developed artificially and these data are applied to the system. The result of the system was checked, whether it satisfies the specification of the system. Each module in this system has been tested independently and finally tested as a package.

Verified With Live Data

In this case, the real data are applied to the system and its result was checked with original result that was calculated manually.

The goals of verification and validation activities are to access and improve the quality of the work products generated during development and modification of software. Quality attributes of interest include correctness, completeness, consistency, reliability, usefulness, usability, efficiency to standards and overall cost effectiveness.

Verification is a rigorous mathematics demonstration that source code confirms to its specification. Validation is the process of evaluating software at the end of the software development process to determine the compliance with requirements.

5.3 SYSTEM IMPLEMENTATION

The new system was started to operate along with existing system. The result of the new system was compared with the old system. Suppose the result is wrong, the error must be debugged. After the acceptance of the user, the existing system will be placed by the new system. This software package has been made user friendly and menu driven. So any user can handle this package very easily and it does not require any intensive training for the user.

Documentation

Before implementing the system two important documents should be proposed.

User Manual

It leans the user about the guidelines and procedures to use various functions available in the system. It includes the complete list of error message and the appropriate action to be taken.

System Manual

It leans all the aspects of design, which is useful mainly for the further maintenance of the system.

User Training and Documentation

After successful completing of acceptance testing, the application project is ready to use. In order to put new application system into use, following activities should be completed.

- ❖ Preparation of User & System documentation
- ❖ User training kit
- ❖ Test run for a period of one month to ensure smooth switching over.

A presentation of the project will be made to user followed by demonstration learning about the usage of the software. General training would be given to the user of the system. The main aim of the training would to furnish the user with a working knowledge of newly developed system. User manuals describing the procedures for invoking the function listed on menu will be circulated to user departments.

6. MAINTENANCE

6.1. CORRECTIVE MAINTENANCE

The term “software maintenance” is used to describe the software engineering activities that occur following delivery of a software product to the customer. The maintenance phase of the software life cycle is the time period in which a software product performs useful work.

Maintenance activities involve making enhancement to software products, adapting products to new environments and correcting problems. Software product enhancement may involve providing new functional capabilities, improving user display and modes of interaction, and upgrading external documents. Adaptation of software to a new environment may involve moving the software to a different machine. Problem correction involves modification and revalidation of software to correct errors.

The enhancement of this project can be accomplished easily. That is, any new functional capabilities can be added to the project by simply including the new module in the homepage and giving a hyperlink to that module. Adaptation of this project to a new environment is also performed easily.

Even with the best quality assurance activities, it is likely that they customer will uncover defects in the software. Corrective maintenance changes the software to correct defects.

6.2. ADAPTIVE MAINTENANCE

An activity that modifies the software to properly interface with a changing environment. The system has been modified so that various change include to the new system.

In case of Fund Transfer, adoptive maintenance has been performed, that is in earlier system (character based UNIX system) changes are fixed and if any new changes are to be included, was a difficult task. Now provisions are given so that the user can define various changes. Such as it designed to accommodate the new change in further.

As software is used, the customer/user will recognize additional functions that will provide benefit. Perceptive maintenance extends the software beyond its original functional requirements.

9. FUTURE ENHANCEMENT

The computerized system has been designed and developed flexibly for the current requirements of the user. The reports modules contain options for creating various reports needed by the Company.

In future new reports can be added in this module when the user requirement changes. This software is not providing budget allocations. In future budget allocations may be added as additional features in the system.

- The application can be enhanced by many extra features. Some of these features can be summarized as follow:
- Improving the user interface, because the user interface always can be improved
- Back end the system to EBS to achieve the payment process-Develop mobile application, since it is more easy to use
- Develop a version for fees collection in public transport

7. CONCLUSION

This has been developed to efficiently manage the cargo transportation administration at Star Transport. The new system has to run successfully.

The goals that have been achieved by this new system are as follows

1. User friendly screens for data entry and other operations.
2. Less processing time.
3. Database Security.
4. The reports can be produced easily and very fast.
5. Only the correct data can be given as input. If the data are invalid, they cannot store at all.
6. It is also flexible, easy and reliable.
7. Higher level authorities can easily ascertain the man power utilization.

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