Employee Transfer Management System

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Introduction

The computer has brought revolution in every sphere of human life, whether it is business, education field, governance, medical science etc. The computer has reduced the human work load, businesses are going global and every thing is available at the click of mouse.

In any organisation top management is using computer in almost every department. Human Resource Department is also a very important department of every organisation, whether it is public or private. All needs to record their employee related details, like their general information, pay related details and details of transfer to other departments. I hear and see most of application working in this field except any application which will trace employee transfer details and generate his/her transfer related documents.

So that I am developing an application for maintaining information related to Employees transfer and generating the transfer related documents. This application would be facilitating the Human Resource Department (Higher Management) to

- ✓ Search the employee
- ✓ Make new transfers
- ✓ Update records

Objectives

Employee Transfer Management System is concerned with managing employee's transfer related records. Currently this is maintained manually by Browse Wire IT Solutions in Joining/Transfer Registers. Salary registers, all the documents required by the employee at the time of transfer and other reports related to transfer are maintained and generated manually, which is a time consuming process and is prone to errors.

The existing system at the organisations is manual and hence not integrated. Many problems have arisen because of the manual system. But by implementing our developed system, the organization can have the following benefits;

- ➢ Our system will decrease the complexity of Human Resource Department to trace employees details which are transferred to other location.
- ➢ An employee can submit his/her request for transfer.
- ➢ Department can generate employees transfer related documents.
- ➢ This system have good management of data, along with integrity and minimizing redundancy
- ➢ This system is user friendly in all possible ways.
- ➢ The new system provides easier work than existing system for the Human Resource Department.
- ➢ The new system is secure system, that can be accessed only by authorised users.

Tools and Platform

Today we have huge no. of technologies used for software development these are C, C++, VC++, Java and Visual Basic etc. as front end and MS Access, MS SQL, Oracle etc as back end tools

Java Studio Creator is used for Front end because it provide quick software development, it support ActiveX tools, and it also provides quick error detection and correction and MS SQL server 2005 since it require less system requirement than Oracle.

Modules Deception

There are mainly two modules in the proposed project which will interact with this project. Which are described below,

Administrator

In this module administrator is the person with all administrative privileges, of the system, who can update, create and accept any enquiry related to the employee transfer. An administrator will also generate different documents related to the employee transfer.

Employee

This is the second module of this project which is related to the employee. This module have restricted access to the system. In this module an employee can submit his/her request for transfer and will be able to search any transfer related details but would not be authorised to edit or update the details.

Analysis

Problem Definition

Whenever, the problem is visualized, it is not the same as it appears. But there are some other aspects also that come into the picture only after a sharp and deep study of the problem.

This phase of system development is of great importance because it is must, for a system analyst it is necessary to have a deep knowledge of the topic on which he is working. The survey conducted by me, helps me to discover problems and challenges in path of successful development of this system.

The current system is difficult to manage, not easily searchable, hard to maitain, as there is enormouos amount of data handling involved in transfer management. All this information are stored in various registers. All information is handled manually which is really tedious and error prone. There is no organised manner to perform the transfer related functions, resulting in redundant and ambiguous data. So my goal is to provide an organized method for different entities to be able to access and modify this data.

The Exisiting System

Under the existing system *Browse Wire IT Solutions* uses the mannually prepared database for the employee records. The manually preparation of the data on the register is really tedious and error prone. Staff manageement and transfer management is not easy through this system.

Problems Faced by the Current System

- Information is stored in written in form of registers. This has many disadvantages, like checking a record in a register takes more time.
- Registers require more space.

- Retrieving information from registers is more difficult, like if want to know at what day the employee was transferred in particular department or office etc.
- It is difficult to find and modify exisitng records.
- Current system being manual is more error prone.

Proposed System

Main objectives of the project are:

1. Approval for the requested transfer.
2. Updating the transfer records.
3. Making new transfers.
4. Generate transfer letters.
5. Generate various reports like Employees transferred in particular month / time span; transfers happened for particular projects etc.

Software Engineering Approach

The goal of software engineering is to provide models that lead to the production of well documented software in a manner that is predictable. For a mature process, it should be possible to determine in advance how much time and effort will be required to produce the final product.

To develop the software successfully I have used the *Waterfall Model* (Classic Life Cycle). In this model first of all the existed system is observed. Then customer requirements are taken in consideration then planning, modeling, construction and finally deployment.

Developers Role & Responsibilities

Gathers and analyze data for developing information systems. Responsible for studying problems in the existing system and recognizing needs for the new system.

To design and develop the proposed system to solve the problem with the existing system, the developer is responsible for the following events:

✓ Evaluates project for feasibility.

✓ Analyses current systems for problems and opportunities.

✓ Defines requirements for improving the system.

✓ Design system interface, flow and procedure.

✓ Performs interviews and data gathering.

✓ Evaluates technological possibilities for technical, operational and economic feasibility.

✓ Designs file and database structure.

✓ Designs user interfaces (input/output) to computer system.

✓ Designs data collection forms and technique.

✓ Developing the system.

✓ Installing the s/w on the client’s system(s).

✓ Conducting any user training that might be necessary for using the system.

✓ Maintaining the system after installing.

Feasibility Study

In feasibility study we analyze our proposed solution for being feasible or not. Under this we take into consideration three types of feasibility studies.

- ✓ Behavioral Feasibility
- ✓ Technical Feasibility
- ✓ Economic Feasibility

Behavioral Feasibility

The Browse Wire IT Solutions is very much keen of implementation of computerized Employee Transfer Management System as it would reduce their workload. So in behavior point of view our solution is feasible.

Technical Feasibility

All the necessary resources (Hardware and Software) have been gathered that are necessary for development of the proposed system. The Browse Wire IT Solutions is ready to adopt new system and to upgrade existing system. Therefore, the system is technically very much feasible.

Economic Feasibility

Since the computerization of Employee Transfer Management System of Browse Wire IT Solutions is given as a project for me, which is necessary for my course completion. The Browse Wire IT Solutions should not have to pay for this therefore it is economically feasible.

Cost/Benefit Analysis

Since project preparation is compulsory for the completion of our programme. So this project is given as the course completion subject. Therefore it is free for the Browse Wire IT Solutions.

Information Gathering

Information gathering is an art and a science. The approach and the manner in which information is gathered require persons with sensitivity and common sense and knowledge of what information is to gather and when to gather. There are many methods to gather the information. Before applying these methods the analyst has to be familiar with current system.

Familiarity with the present system can be achieved through available documentation such as procedures manuals, documents and their flow:

1. Interviews
2. Questionnaires

I went to Browse Wire IT Solutionsand conducted the above tasks. After collecting the required information I drafted the following DFD’s. In Data Flow Diagrams I describe the flow process of data in the system. For each process we have created different DFD.

Structured Analysis

The structured analysis includes the set of techniques and graphical representation of the candidate system that are easily understandable by the user. In my project I undergo with DFD (Data Flow Diagram).

Data Flow Diagram:

A data flow diagram is graphical representation that depicts information flow and the transforms that are applied as data move from input to output. The basic form of data flow diagram is also known as data flow graph or bubble chart.

The data flow diagram may be used to represent a system or software at any level of abstraction. The data flow diagram may be partitioned into levels that represent increasing information flow and functional details. Therefore, the DFDs provide a mechanism for functional modeling as well as information flow modeling. In doing so, it satisfies the second operational analysis principle (i.e. creating a functional model).

At level 0 DFD, also fundamental system model or a context model, represents the entire software element as single bubble with input and output data indicated by incoming & outgoing arrows respectively. Additional bubble and information flow paths are represented as level 0 DFD is partitioned to reveal more details.

Each of bubble may be refined or layered to depict more detail. We refine the fundamental model into transform. This should be kept in mind that information flow continuity must be maintained, that is, input and output to each refinement must remain the same. This concept is really called balancing and is essential for development of consistent model. The proposed system has four data flow diagrams. They are explained below:

System Design

Introduction

Analysis collects a great deal of unstructured data through interviews, questionnaires, on-site observations, and procedural manuals and like. It is required to organize and convert the data through system flowcharts, data flow diagrams, structured English, decision tables and the like which support future development of the system.

The Data flow diagrams and various processing logic techniques show how, where, and when data are used or changed in an information system, but these techniques do not show the definition, structure and relationships within the data.

It is a way to focus on functions rather than the physical implementation. This is analogous to the architect's blueprint as a starting point for system design. The design is a solution, a "how to" approach, compared to analysis, a "what is" orientation.

System design is a highly creative process. This system design process is also referred as data modeling. The most common formatted used the E-R notation explains the characteristics and structure of data independent of how the data may be stored in computer memories.

The process of system design can be divided into three stages. They are:

- ❖ Structure design (already discussed)
- ❖ Database design
- ❖ Interface design

As we know that system design is a solution to "How to approach to the creation of new system". It provides the understudying and procedural details necessary for implementing the system. The steps involved during system design were as follow: -

1. Logical and Physical Design

The current physical system was thoroughly reviewed from point of view how the data flows, what are its file contents, its volumes and frequency etc.

After this input, output specifications security & control specification were prepared. It was also decided that how physical information will flow through the system and a physical design walkthrough.

2. Output Design

Program output is most important and direct source of information to the user. Efficient intelligible output design improves the system's relationship with the user and help in decision making. A major form of output is a hardcopy from printer. The format of outputs is designed in such a way that it is simple to read and interpret In the present output we have clearly labeled title it contains date and time and all the fields are clearly mentioned (labeled).

3. Input Design

Input design is the process of converted user originated inputs to a computer based format in accurate input data are the most cause of errors in data processing. So, the input should be well design and error free. Input data is collected and organized into groups of similar data once identified appropriate input media is selected for processing.

4. Screen Design

The screen design for inputting the inputs were also panned as the format of inputs.

5. Interface Design

User interface design creates an effective communication medium between a human and a computer. Following asset of interface design principles, design identifies objects and action and then creates a screen layout that forms the basis for a user interface prototype. Interface design of Employee Transfer Management System is based on the following three principles.

Place the user in control

During the information gathering session for Employee Transfer Management System (BrowseWire IT Solutions), BrowseWire IT Solutions was asked about the attributes that he would like to have in the GUI interface.

This was done to simplify the usage of software.

Reduce the user memory load

During The design Process of Employee Transfer Management System all the possibilities such as using mnemonics for Particular action, providing visual cues etc. are worked out to make user comfortable working with our software and to make him remember less in

Make the interface consistent

All possible efforts are undertaken to maintain standard user interface.

Some of these are:

1. All visual information (likes form) is organized according to a standard that is maintain throughout all screen displays.

2. Consistent navigation is defined and implemented.

Information is display to the user in an easily understandable way and layout. Visual layout is based on a real world image. Entry filling process first shows list that is for categorizing information and then information is saved according to that categorization.

Different indications are provided to enable the user to know the context of the work at hand.

Indications

Proper interaction is necessary for good interface design. As computer industry grows it becoming more and more versatile. There are number of interaction device present in the Market like keyboard, mouse, digital pen, voice recognition commands etc. which can be used for giving input. Also interaction is not only concerted with device interaction, it is also concerned with system interaction mean how much comfortable user feels while interaction with system.

Design feature of interaction:

Since different use have different preference as someone like to work thought mouse or someone thought keyboard therefore choice have been provided to user for using for using mouse and keyboard. Software interact equally well with both using the device.

Our System is designed for interruptible interaction mean when involved in sequence of action the use can interrupt the sequence to do something else (without loosing the work that had been done).

Login Screen

When a user starts the software, the first form he encounters is the login form. In the login form the user has to choose store name then fill his Username and password. The form is used to keep check in, so that unauthorized users are granted access to the system.

Testing

Software Testing

Software Testing is an empirical investigation conducted to provide stakeholders with information about the quality of the product or service under test, with respect to the context in which it is intended to operate. Software Testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risks at implementation of the software. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs. Software Testing can also be stated as the process of validating and verifying that a software program/application/product

- meets the business and technical requirements that guided its design and development;
- works as expected; and
- can be implemented with the same characteristics.

Software Testing, depending on the testing method employed, can be implemented at any time in the development process, however most of the test effort occurs after the requirements have been defined and the coding process has been completed

Testing methods

Software testing methods are traditionally divided into black box testing and white box testing. These two approaches are used to describe the point of view that a test engineer takes when designing test cases.

Black box testing

Black box testing treats the software as a "black box"—without any knowledge of internal implementation. Black box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, model-based testing, traceability matrix, exploratory testing and specification-based testing.

Specification-based testing:

Specification-based testing aims to test the functionality of software according to the applicable requirements. Thus, the tester inputs data into, and only sees the output from, the test object. This level of testing usually requires thorough test cases to be provided to the tester, who then can simply verify that for a given input, the output value (or behavior), either "is" or "is not" the same as the expected value specified in the test case.

Specification-based testing is necessary, but it is insufficient to guard against certain risks.

Advantages and disadvantages

The black box tester has no "bonds" with the code, and a tester's perception is very simple: a code *must* have bugs. Using the principle, "Ask and you shall receive," black box testers find bugs where programmers do not. *But,* on the other hand, black box testing has been said to be "like a walk in a dark labyrinth without a flashlight," because the tester doesn't know how the software being tested was actually constructed. As a result, there are situations when (1) a tester writes many test cases to check something that could have been tested by only one test case, and/or (2) some parts of the back-end are not tested at all.

Therefore, black box testing has the advantage of "an unaffiliated opinion," on the one hand, and the disadvantage of "blind exploring," on the other.

White box testing

White box testing is when the tester has access to the internal data structures and algorithms including the code that implement these.

Types of white box testing

- API testing (application programming interface) - Testing of the application using Public and Private APIs

- Code coverage - creating tests to satisfy some criteria of code coverage (e.g., the test designer can create tests to cause all statements in the program to be executed at least once)

- Fault injection methods - improving the coverage of a test by introducing faults to test code paths

- Mutation testing methods

- Static testing - White box testing includes all static testing

A sample testing cycle

Although variations exist between organizations, there is a typical cycle for testing:

- **Requirements analysis**: Testing should begin in the requirements phase of the software development life cycle. During the design phase, testers work with developers in determining what aspects of a design are testable and with what parameters those tests work.

- **Test planning**: Test strategy, test plan, tested creation. Since many activities will be carried out during testing, a plan is needed.
- **Test development**: Test procedures, test scenarios, test cases, test datasets, test scripts to use in testing software.
- **Test execution**: Testers execute the software based on the plans and tests and report any errors found to the development team.
- **Test reporting**: Once testing is completed, testers generate metrics and make final reports on their test effort and whether or not the software tested is ready for release.
- **Test result analysis**: Or Defect Analysis, is done by the development team usually along with the client, in order to decide what defects should be treated, fixed, rejected (i.e. found software working properly) or deferred to be dealt with later.
- **Defect Retesting**: Once a defect has been dealt with by the development team, it is retested by the testing team.
- **Regression testing**: It is common to have a small test program built of a subset of tests, for each integration of new, modified, or fixed software, in order to ensure that the latest delivery has not ruined anything, and that the software product as a whole is still working correctly.
- **Test Closure**: Once the test meets the exit criteria, the activities such as capturing the key outputs, lessons learned, results, logs, documents related to the project are archived and used as a reference for future projects.

System Implementation

System Implementation means the process of converting a new or a revised system design into an operational one. One aspect of implementation is conversion and another aspect is the post implementation review and software maintenance.

The purpose of System Implementation is to make the new system available to a prepared set of users (the deployment), and positioning on-going support and maintenance of the system within the Performing Organization (the transition). At a finer level of detail, deploying the system consists of executing all steps necessary to educate the Consumers on the use of the new system, placing the newly developed system into production, confirming that all data required at the start of operation is available and accurate, and validating that business functions that interact with the system are functioning properly. Transitioning the system support responsibilities involves changing from a system *development* to a system *support* and *maintenance* mode of operation, with ownership of the new system moving from the Project Team to the Performing Organization.

A key difference between System Implementation and all other phases of the lifecycle is that all project activities up to this point have been performed in safe, protected, and secure environments, where project issues that arise have little or no impact on day-to-day business operations. Once the system goes live, however, this is no longer the case. Any miscues at this point will almost certainly translate into direct operational and/or financial impacts on the Performing Organization. It is through the careful planning, execution, and management of System Implementation activities that the Project Team can minimize the likelihood of these occurrences, and determine appropriate contingency plans in the event of a problem.

Following standards have been followed while developing the system:

- Design Standards

- Developments Standards
- Documentation Standards

Implementation is achieved if we have put all the standards in the project development. Its aim is to convert design standards into real application that is user friendly and easy to understand. Proper user manuals have been constructed for users to be acquainted with the system.

Software Maintanence

Software Maintenance is a task that every software development group has to face when the software is delivered to the customer's site, installed & operational. Therefore, delivery or release of software inaugurates the maintenance phase of the life cycle. The time spent & effort required keeping software operational after release is a very significant & consumes about 40-70% of the cost of entire life cycle.

Maintenance of this system is entirely depends on the future requirements. In future we may get new type of requirement from the client side then for that we have make changes.

Before the future enhancements we need to have back up of the system and its log files so that if in future system crashes then the system be replaced and corrected this way we can have system maintained as it is.

To perform maintenance we must perform a detailed planning of the maintenance process so that we can make necessary adjustments in budgets, workings etc.

Types of maintenance

- Adaptive
- Corrective
- Preventive
- Predictive

Limitations

This project is developed for single user. Only single user can use the software i.e. the system is standalone and don't have network support. So, that the database is decentralized which result, the high data redundancy, have complex i.e. tough to maintain and not economic.

This project is also not support multitasking, means if a user is working on a form, he/she cannot open another form. First he has to complete his work on the current form and then he can switch to another form. This project is made for only partial fulfillment of BCA degree, it is not really implemented in any organisation. In this project all information about Employee Transfer Management System is not consider.

Future Scope

This project can be used in many organizations after adding some more useful modules in the project for which Human Resource Department are providing services.

➢ This project can be developed for online services, by which any employee can see its details anytime-anywhere.

➢ This project can be developed with centralized database so that data storage and backup services will be easy.

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