

Approach to Provide Single View of Employee Data to Readily Use for Data Analysis

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Abstract:- Our aim is to develop a web application which will provide access to updated information about employees in the organization that can be used for data analysis and interpretation. An organization follows a particular structure like functional structure, divisional structure, product or matrix structure for its proper conduct. There can be various functional groups. Employees may be switched from one department to another because of changes in business requirements. They can be promoted or demoted based on their performance. It is necessary to have a system or mechanism that will keep the employee database updated at regular intervals. Many organizations can use this system to provide data for wider analysis. Also the system should be such that it takes care of all the security issues or rules of that organization. The proposed application will allow us to get the new data or existing data as input. Once data is uploaded to database, it can be edited and updated in order to reflect any changes. The application allows updating data monthly, quarterly or yearly based on business requirements. We can browse through the whole data and perform data analysis. Modern tools have been used (like Excel, Grid view) to access the application smoothly.

Keywords: Information System, Personnel records, Digital records, Organization structure, Data Quality, Records Lifecycle

I. INTRODUCTION

Planning at the forefront can assist all organizations to stay competitive and offer good services to their customers. Planning frequently depends on having accurate, up-to-date information. Personnel records are predominantly significant when it comes to getting the best out of your employees. Managing human resources in today's dynamic and competitive environment is becoming more complex and important. Recognition of employees as a precious resource in any business institute has led to increasing trend in Employee maintenance, job security etc [1]. Successful recruitment, training and staff development play an important part in achieving organizational goals. Personnel records are compulsory for the formulation and implementation of employment policies along with procedures for recruitment, training, promotion, dismissal etc. Some of these are required by law and others enable personnel to scrutinize other processes. For instance, personnel records, and the statistics they provide, are important to develop policies free from any bias based on sex, sexual orientation, religion or belief, race, age or disability. Accurate records help the organization to ensure that staff receives their correct pay, holidays, pension and other entitlements as well as benefits. They can be used to supervise fair moreover consistent management of staff, for instance related to promotion and discipline, and for worker development purposes. Many national published statistics, for instance on earnings, employee turnover, overtime are gathered from employers by means of such records. Employers' associations, individual organizations, trade unions many other bodies make the most of such information to originate their own strategies as well as policies. Fine record keeping assists organizations to

respond readily to the needs for this type of information, subject to the constraints of the Data Protection Act 1998 and individual anonymity within the statistics.

Up-to-date information can facilitate managers:

- formulate decisions on the basis of fact instead of guesswork
- be acquainted with what staff resources are accessible to meet production/ service needs
- Assess levels of performance as well as productivity more accurately
- Recognize what is happening with absence levels, sickness, employee turnover, lateness, discipline, accidents, etc. Accordingly take suitable and timely action

In order to be served best by the information systems in any organization, a high degree of data quality is required [2]. In today's tech era Employee records are kept in computerized system well-known as digital records. Digital records became omnipresent in individuals' and organizations' record keeping practices in the digital age. The growing use of digital information and records has major effects on increasing organizations' performance with efficiency in many ways. The exploitation of electronic records brought an enormous deal of changes with advantages to organizations' ability in business processes, transmission, communication, work environments, financial management, staff organizations, and decision-making. Recurrent transmission along with communication in digital layout exceeds organizations' capacity in managing those digital records so that it can make the liability and authenticity of electronic records doubtful. Authenticity has long been

understood as a significant term in archives and records management for a long time because newly created records are assumed to be all authentic and only authentic records are managed and preserved in archives [4].

II. LITERATURE REVIEW

The companies have been facing the challenges of getting the single view of business data from hundreds of data entry terminals [3]. As digital records and information are prevalent in organizations, managers must highlight the concept of authenticity in the administration of digital documents and evaluate the notion to the use of digital records in the life cycle model. The life cycle of records is a chief model in records management. It provides a method of looking at how records are created as well as used. The life cycle is based on the thought that records become less important as time passes. 90 percent of the utilization of a record takes place for the duration of the first 90 days after it is created. This small period of elevated use is followed by a longer period of low use. The records merely required to be looked up seldom throughout this second phase. In due course, even this limited utilization will stop and the records will have no additional worth to their creator.

Records have a life analogous to biological organism:

- It is born (creation phase)
- It lives (maintenance and use phase)
- It dies (disposition phase)



Fig 1. Records Lifecycle

Role of Records Lifecycle in management of records?

The life cycle is the initial point for creating a records management agenda. Without it records management plan would not be as cost efficient. Tools, systems, along with procedures are developed to supervise every phase of the lifecycle. For instance, file plans as well as tracking systems help handle active moreover semi-active records. A retention schedule is a tool that supervises the movement of records from one phase to the next. There are four phases to the life cycle of records.

Creation: Records begin the life cycle when they are created or received.

Active Records: Active records are required recurrently. They are retrieved at least once per month; therefore they are stored in readily accessible office spaces.

Semi-Active/Inactive Records: Semi-active records are not required for routine business. Organizations must maintain them for reference, for authorized reasons, or for monetary reasons. They are not used frequently sufficient to validate their being stored in leading office space also equipment. Semi-active records are frequently stored at a lesser cost in a records centre. Semi-active records are occasionally called “inactive records.”

Final Disposition: Final disposition is the act that takes place once records have no more importance to an organization. In the GNWT, final disposition can hold:

- Physical annihilation of the records.
- Transfer of the records to the supervision of the NWT Archives.
- Transfer to a different department or organization.

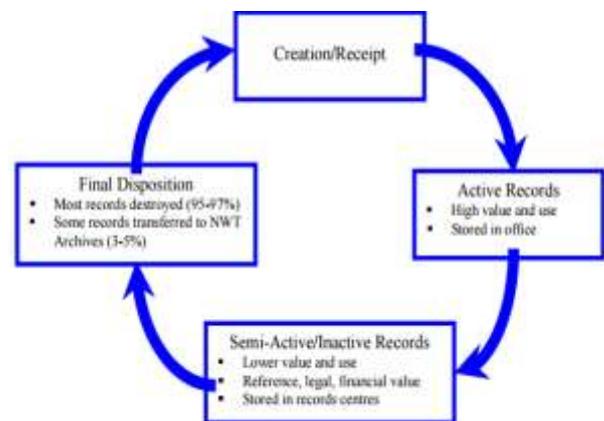


Fig 2. Phases of life cycle of records in records management

What records are required every organization ought to keep information concerning individual workers – for instance:

- Personal details – name, emergency contact, address, date of birth, education and qualifications, sex, tax code, national insurance number, details of any known work relevant disability, work experience
- Employment narration with the organization – date employment began, endorsements, current job, job designation, present department, earlier department
- Particulars of terms with conditions – pay, hours of work, holiday privilege, additional benefits, like car, private health insurance.
- Absence information – lateness, sickness, authorized or unauthorized absence, annual holiday
- Details of training or additional education undertaken through the organization, whether internal or external.

Several organizations will want their record systems to offer data for wider analysis, for example, whole wage/salary costs, on the whole time-keeping/absence levels, recruitment levels needed for optimum production stipulation. Computerized systems permit trouble-free analysis of much personnel data; organizations must be responsive of the need to keep merely those records that are applicable. All personnel as well as personal records and files must be kept safe and sound.

In order to set the system from scratch we must decide what we desire the system to do for the organization. Following questions must be answered by the potential users [5]:

- What information they require to function effectively
- What information they presently receive, from whom moreover why it is necessary
- What information they presently provide and to whom
- What information they would like the system to provide and why.

Answers to these questions may reveal that too much or too little information is being kept; otherwise that some is immaterial to the wants of the organization. The answers should also show up whether accessible information is getting to those who in fact need it in their work.

What kind of system? each record keeping computerized system, may be developed within the organization otherwise 'bought in', needs to realize definite criteria. It must be:

- Precise, reliable and consistent
- Confidential considering personal details
- Adaptable, so that it can cater for future developments along with changes
- Economical in its introduction, use moreover maintenance.

Organization must consider following before deciding the type of system:

- Where the records will be located (how much space will be required for safe storage)
- How the type of system will be affected by the design of documents, and vice versa.
- Which employees should have access to which records
- Procedures to abide by both organizational security as well as data protection necessities.

III. PROPOSED SYSTEM

In the proposed system, data is taken in the form of Excel sheet. In many organizations, it is restricted to directly access the actual database due to some security reasons. So any changes will be first made in excel file in which initial staff details are stored. Actual changes in the database will

be made by administrator or operator after uploading that excel file in database. The system provides mechanism to upload this excel file in the database using database connections and functions. A web page displays this data using gridview, here user can make changes by editing and updating the data. Updation of data is restricted to some users such as only Administrator or Operator. Pagination is used in the gridview to support effective navigation through data. Another web page provides browsing facility, where user can browse through all the employee details and records.

Getting Input: Data is first stored in the excel sheet. Data will have various records of employees which will contain employee details. Details of employees that are to be stored in database will depend upon organization to organization, what details they want to preserve for their employees. Organization can store various details about employees as discussed before.

Upload Data: This excel file is uploaded to database using database connectivity mechanisms and connectivity drivers. It also depends on the organization that who is allowed to upload the data. Organization may allow any user to upload the data or it can restrict to only operator or administrator.

Displaying, editing and updating records: The uploaded data can now be viewed on web page screen in the gridview. Records are arranged using pagination. Gridview is the most used and powerful tool for displaying employee details. On this page editing and updating records facility is provided. Updating the records is required because employees may change department or they can be promoted to higher designations. So it is necessary to have the records updating facility such that whenever there are any changes in employee details, they must be reflected in the database. Only administrator can update the records. Some organization can grant the updating rights to operator also.

Browsing Data: Higher management needs employee details for decision making and various other purposes. Browsing facility is provided for this purpose where higher management or administrator can browse through the employee data in a nutshell.

Data Analysis: Companies are finding new ways to grow profitability by using data analysis software to better measure their success and performance. Various data analytics tools can be used in this phase to perform data analysis. Following steps show overall flow of the proposed system:

- 1) Getting Input (Get data in the form of Excel Sheet)
- 2) Upload Data (Upload Excel file in database)
- 3) Displaying, editing and updating records (making changes to database)
- 4) Browsing Data
- 5) Data Analysis

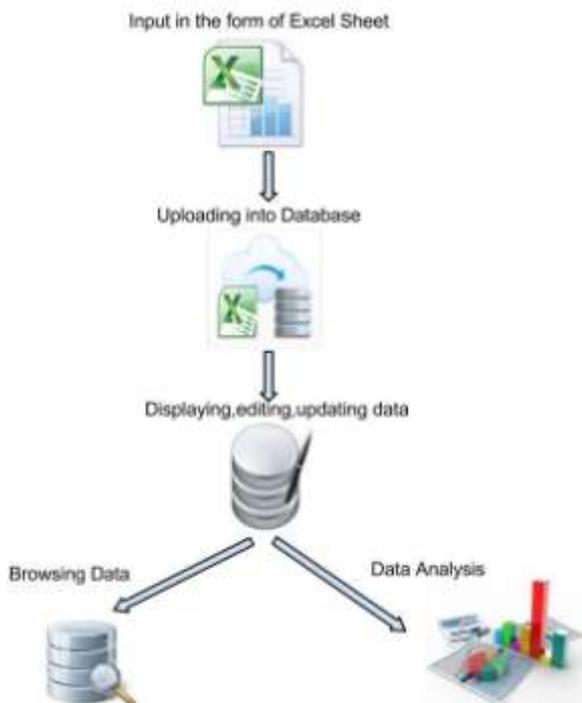


Fig 3. Proposed System

IV. IMPLEMENTATION

The system is implemented in Microsoft Visual Studio 2010.

Front End: Asp.net

Coding: C#

Back End: Microsoft SQL Server 2008

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It can create both native code and managed code. GUI applications can be built using windows forms and windows form designer. Layout can be controlled by lodging the controls inside other containers otherwise locking them to the side of the form. Controls that show data are bound to data sources like databases or queries. The UI is linked with code by means of an event-driven programming model. The designer produces either C# or VB.NET code for the application.

Microsoft SQL Server is developed by Microsoft. As a database, it is a software product whose major function is to store and retrieve data as requested by other software applications; it can be on the same computer otherwise those running on another computer across a network (including the Internet). SQL Server 2008 incorporates support for structured and semi-structured data; digital media formats for pictures, audio, video and other multimedia data.

In order to get the data from excel sheet and upload it to database, additional data connectivity components are required "2007 Office System Driver: Data Connectivity Components". When we have to make use of Excel 2007 or higher files using OLEDB connection in C#, it requires use of OLEDB ACE drivers for connection which do not come

by default in Windows and therefore we need to install The 'Microsoft.ACE.OLEDB.12.0' provider.

Software Requirements The software requires following things installed on the server machine:

- Microsoft Visual Studio 2010 or above
- 'Microsoft.ACE.OLEDB.12.0' provider
- Microsoft SQL Server 2008

Hardware Requirements 4 GB of RAM or more, Intel Core i3 Processor

The proposed system was implemented in local machine taking few employee details. This can be considered as a subset of the whole original system. Following screenshots show the working in a very precise way. For uploading Excel file into database, Column names of the data table in which data is being uploaded should be exactly same as column headers in Excel file in which employee data is currently stored.



Fig 4. Importing Employee details using Excel file

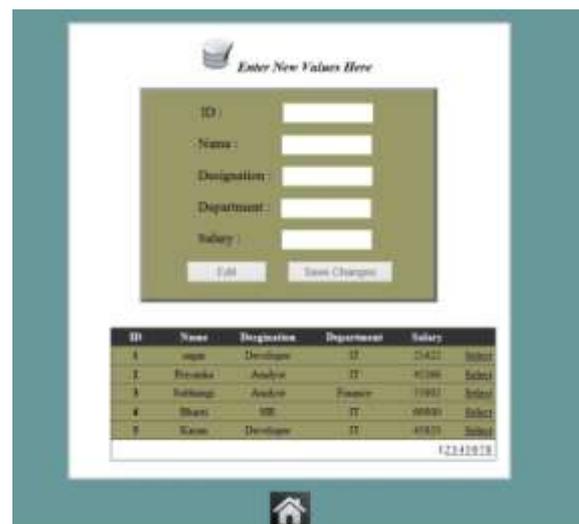


Fig 5. Showing Employee Details in Gridview using pagination



Fig 6. Editing and Updating Employee Details



Fig 7. Browsing through Data

V. Conclusion

To perform data analysis we must first gather all the relevant and useful information together, which seems to be really tedious in the organizations that have multiple functional groups and structures, the proposed system will help such organizations to access all their staff details coming from different terminals at one place. Security issues are also considered as the actual database is not directly updated or modified by anyone, but only by the administrator or operator. Efficient record management scheme suggested above will assist the organization to have controlled use of information, Competitive Decision making. It provides true disciplinary approach to information.

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