



Case study on University data warehousing and reporting system

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Customer	Janardan Rai Nagar Rajasthan Vidyapeeth University	Industry	Education
Domain Expertise	ETL, Process Management, Application Development	Country	India

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Warehousing the University database spread among discrete systems and create centralized financial accounting/student/examination reporting application.

Implementation of data warehousing and mining with MIS to report the financial accounts/students/examination results and consolidating the data spread among different application into central warehouse to reduce duplicative effort and redundancy.

Published on 18-July-2012

SOLUTION

Project code PROTON (Management Information System).

An integrated comprehensive data management system to maximize effectiveness and efficiencies in financial accounts, Monitoring, Assessment, Verification and Reporting.

Overview

A centralized system for accessing examination data from within the premises on intranet by using a web based application and create a management information system (MIS) to assist with management of the university, Janardan Rai Nagar Rajasthan Vidyapeeth (Deemed to be University). The MIS was originally planned to collect and merge data from three existing different systems which were running on different technologies FoxPro, Microsoft Access & VB and SQL Server and VB into a Java Based central web server based application.

Business need

The purpose behind introduction of this application was to address difficulties that JRNRVU had difficulties for many years in collation and output of financial accounting and difficulties in the processing of examination results verification and transcripts.

It was critical to improve the quality of the data and, streamline data input so university will not requested for duplicate information, and define a new database by existing databases to leverage data and its analysis, and improve financial reporting capabilities to optimize assessment tools that will enable the University to evaluate existing programs and strategize for future programs.

Apart from the examination data the university was facing problem in calculating the financial accounts payable by their franchises running in more than 3000 location across India. The account reporting was not feasible by any available sources in current situation.



Solution

The process of the university was studied for over one month and all the legal MOU with franchises were evaluated and a rules set was created based on which the fees of students were evaluated. All data in different sources were de normalized into a data warehouse and centralized into a single data system, an application software was created which implement the rules for financial accounts, fees processing and data purification, records checking and other ETL tools. A team of university experts and IT experts sit together for more than 2 months and fixed all the data inconsistencies using the tools.

Once the data has been prepared it was normalized and was used by another application for reporting and MIS. The reporting systems includes the student query, results checking, cross verifying the mark sheet submitted for verification, financial accounts reporting etc.

Benefits

The unified department has scored some quick wins in information management, including the successful development for financial project information, and a rudimentary data system to collect information of students and examination for both the annual reporting and the quarterly reporting.

CASE STUDY

PROTON (Management Information System).

Instrumented

One more main objective was locating historical data in legacy systems, and achieving consensus among the members of those systems in migrating the data to the new integrated system.

Interconnected

Integration of accounting and student information for collecting Fee franchises, course fee and other fee and generating reports annually while the collection rules are varying year by year.

Intelligent

Generates financial reporting of past 12 years and current year for evaluating capital and developing new investment plans for future.

Business context

Managers in Janardan Rai Nagar Rajasthan Vidyapeeth University Commission management are key intended users of the outputs from the system, for example requiring total student enrolment for planning purposes. Managers and administrators in university also need reliable data on students to help plan issues of financial accounting, infrastructure development and human resource planning. The university needing centralised data warehouse and data management system for exam results and transcripts to be processed.

Integration of Business Process

We have to integrate their business process of fee collecting terminology, generating investments, managing accounts, gathering information of students and conducting examination, from the result of detailed study and collaboration with the university managers we have done this things by implementing of PROTON.

Our ETL process of data migration

The key requirement is to fully understand the all database designs. This will help us to identify the related tables and fields from the old database and the new database, and to migrate all records from the old database into the matching table in new database while preserving all relations between the records from different tables. This makes the transformation stage the most important stage of the ETL process. The methods used for transformation greatly depend on the database schema and relations.

The data migration from the old application's databases to the new application database is essential for the old application to go through ETL phase, and then to become fully operational. Data migration is a type of ETL process, and in the migration of the old data to the old database we applied solutions typical for the ETL process. The main purpose of the data migration is ensuring the overall quality of the migrated data. By implementing the improvements from our previous studies, the new application can increase the scalability and its overall performance and migrate the data to the well managed format.

Management of Financial accounting system

University can manage accounting in the terms of gathering fee and conducting examinations with the developed system for Academic Year, Program Wise fee with multiple quota handling, Individual Fee Structure, Fee Waiver/Discount, Special Approval in case of delay in payment etc.

EXPERTISE DOMAIN

Having past experience with reporting on SAP Business One modules and expertise in data management and ETL we delivered the best in quality solutions for university data management and reporting.

ETL (Extraction, transformation, loading)

In computing, extract, transform, and load (ETL) refers to a process in database usage and especially in data warehousing that:

- Extracts data from outside sources
- Transforms it to fit operational needs, which can include quality levels
- Loads it into the end target (database, more specifically, operational data store, data mart, or data warehouse)
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Reporting and data mining



Harnessing the power of reporting tools like BIRT with Hibernate we have created flexible reporting and reports management systems.

Application Development

Development on the world's most demanding technology "Java" with our pre-developed business application platform "iBAS" and MS. SQL server as data backend it was fun developing the application for university.

For more information please visit: <http://www.7isys.com/services/application-development/>

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