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Improving College Students Performance Using A Data Warehouse

Computer Science

KEYWORDS : Information System, Data Warehouse, Data Mining

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ABSTRACT

Today every organization relies on database system to manage their data. Databases are used to conduct daily transactions of organization. To take any decisions of organization it requires these databases. Data Mining is the technology which is mostly used today to analyze the data and taking decisions based on that. Data mining techniques are not used for regular databases. For the use of Data mining there is need to convert operational data into informational data is known as Data Warehouse. This paper represents the design model for building data warehouse for college information system. It is based on four stages i.e. Data extraction, data cleansing, data transforming and data loading. The system is implemented in SQL server 2010.

1. Introduction-

Nowadays every organization uses database to store their data. Any application i.e. Web or Windows application relies on database as a container to store data. Today due to the competition of educational organization there is needed to maintain the quality. So to provide the basic facilities to the students, improve the performance of the student etc. organization depends on this data. Data warehouse and Data mining is the technology which is used to taking decisions on organizations.

Data warehousing is the process of collecting data from database and convert into informational database. Data mining is the techniques used to analyze data from data warehouse and used for taking decisions.

In college information system there are number of different modules specified i.e. Student module, Faculty module, Admin module and many others. All these systems are connected to different distributed database having daily transactions and processes.This system is used to analysis of data and also for decision making in organization. This paper proposes a Data warehouse design for college information system which helps to admin for taking decisions. Extract data from database cleansing of data transform and finally load in to repository i.e. data warehouse and it is ready for data mining process.

2. Background-

Operational database-

It is regular database support to regular task, operations, updations.

Informational database-

It is converted database used for decision making process.

Data Warehouse-

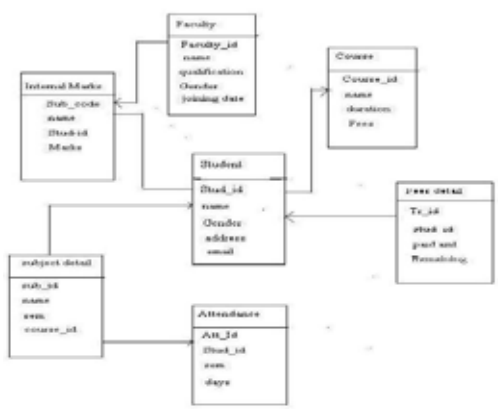
It is subject oriented, integrated, time –variant, non-updatable collection of data used in support of organization decision making process.

Data mining-

It is techniques of analyzing data by using clustering, classification etc. tools

3. Operational database design-

It is the simple & regular database which is used later to design data warehouse. This database hasdifferent tables. Which are created by using SQL server. In this college information system there is an front end development technologies like .NET, JAVA,PHP etc. having different form design which is used to input different values related to student registration, Faculty registration course detail, fees detail, education stream, Internal marks, Attendance etc. and data is stored by using back-end technologies like MS-Access, SQL Server etc. below figure shows the operational database design.



4.Data Warehouse design-

Decision making is concerned with performance of the student & their all academic details along with that design of proposed information database by using operational database.

4.1Data cleansing & transforming-

This section discusses SQL queries are used for load the data in data warehouse

Step1-

Create database for your Data Warehouse in SQL server

```
createdatabasecollege_dw
Go
Use college_dw
Go
```

Step2-

Create Internal_marks table in data warehouse

```
create tableInternal_marks
 {
Sub_codeint primary key,
   Name varchar(50),
Stud_idint Not Null,
Marks int not null
 }
Go
```

Step3-

Create Faculty table

```
Create table Faculty
 {
Faculty_idint primary key,
    Name varchar(50),
Qualificationvarchar(50),
Gender varchar(50),
joining_date date
 }
Go
```

Step4-

```
Create course table
Create table course
 {
Course_idintprimry key,
    Name varchar(50),
    Duration int not null,
    Fees int not null
 }
Go
```

Step5-

```
Create subject detail table
Create table subject_detail
{
subidintprimry key,
  Name varchar(50),
Semvarchar(50),
Course_idint not null
}
Go
```

Step6-

```
Create student table
Create table student
 {
Stud_idintprimry key,
  Name varchar(50),
gendervarchar(50),
addressvarchar(50),
emailvarchar(50),
 }
Go
```

Step7-

```
Create fees detail table
Create table fees_detail
 {
Tr_idint primary key,
   Stud-id int,
   Paid int,
   Remaining int
 }
Go
```

Step8-

```
Create attendance table
Create table attendance
 {
Att_idint primary key,
Stud_idint,
Semint,
Daysint
  }
Go
```

Step9-

```
Create fact table student
Create table student_detail
{
stud_idint primary key,
course_idint,
sub_codeint,
tr-idint,
gradevarchar(50)
}
Go
```

4.2Conceptual schema-star schema-

The proposed data warehouse is star type design with one center fact table and seven dimensions below fig shows the basic star conceptual diagram of the proposed data warehouse.

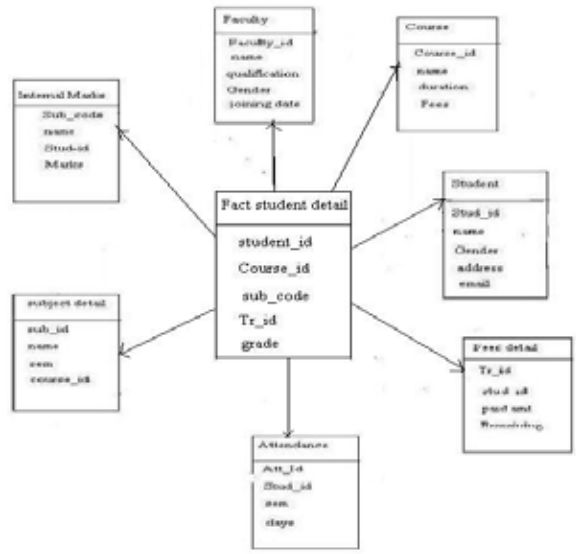


Fig.Data warehouse star schema

5. Implementation-

The proposed data warehouse design is implemented under SQL server. So all data were successfully cleaned and transformed. Data mining can be carried out on this data warehouse which is helpful for organization to take a decision.

6. Conclusions-

This paper introduces a model for building a Data warehouse for improving college students performance and the whole college activities. Operational database is a regular database needs to convert informational database which is used for data mining process and helpful for decision making for organization. Proposed model is help to principles for data analysis

References-

1. Surajitchoudhary, UmeshwarDayal "An overview of Data warehouse and OLAP technology"
2. Mr. DiskekMankand,Mr. PreyashDholakiyaInternational Journal of Scientific and Research publicationsVolume 3, Issue 3, March 2013ISSN 2250-3153 "The study on Data Warehouse design and usage"
3. Tony R. Sahama and Peter R. Croll"A Data Warehouse Architecture for Clinical Data Warehousing"
4. HassaneTahir, Patrick BrézillonInternational Journal of Database Management SystemsIJDMS Vol.5, No.2, April 2013 "shared context for improvingcollaboration in database administration"
5. G.Satyanarayana Reddy, RallabandiSrinivasu, M. PoornachanderRao, Srikanth Reddy Rikkula(IJCSE) International Journal on Computer Science and EngineeringVol. 02, No. 09, 2010, 2865-2873 "Data warehousing, Data mining, OLAP and OLTP technologies areessential elements to supportdecision-making process inindustries"