COLLEGE ERP SYSTEM

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Abstract **— In a college there are various sections and each section handles all student information and college database. These sections are linked with each other. Current System of college is having problems of interlinking and data repetition. To overcome these problems we present College ERP System which is automated and centralized. This system have easy user interface and have powerful data management system which makes this system very useful.**

Keywords— ERP System, Case Study, ERP Survey, Enterprise Resource Planning, modules, Management System.

I. INTRODUCTION

The main objective of the existing system is to provide a user-friendly interface. The College ERP system now computerizes all the details that are maintained manually. Once the details are fed into the system or computer there is no need for various persons to deal with separate sections. Only a person is enough to maintain all the reports and records. The security can also be given as per the user requirement.

- High volumes of data can be stored with case.
- Maintenance of file is efficient and flexible.
- Records are always updated.
- Edition of Stored data and procedures can be easy.
- Reports can be generated with cases.
- Accurate and perfect calculations are made.
- Manpower is reduced.

II. LITERATURE SURVEY

ERP is stands for Enterprise Resource Planning. Enterprise resource planning (ERP) is business management software or a system which is typically used to manage core departmental data of respective business. ERP provides an integrated view of business processes, often in real-time, using common databases maintained by database management systems. ERP system track business resources— raw materials, cash, production capacity and the status of business commitments like: payroll, purchase orders, and orders. The application that make up the system share data across the various departments (purchasing, accounting, sales, manufacturing etc.)That provides the core data. ERP facilitates information flow between business function, and manages connections to outside stakeholders.

Every college has to maintain a management system for various sections which may include performance analysis, attendance system, test wise result, student information, fee structure, academic information, transport facility, staff information and many more. Managing all these sections manually on paper becomes very time consuming and complex tasks. In such system there is high possibility of misplacement of collected data and data redundancy in the form of paper records in order to overcome these drawbacks there is a need to design and implement College ERP system where a college staff can track a student profile in all aspects of academic course.

College ERP system is an online web based system which implements an user friendly and attractive interface for college. The aim for deployment and implementation of this system is to replace manual system of colleges with an automated web based system. This College ERP system also manages data accurately and efficiently which is stored over a long period of time. College ERP system provides single access point to all administrative system of colleges. In previous systems all the departments are worked independently and separately. If anyone want to access that data collectively then it is not possible with such systems.

System study of such system shows that all the booking was done manually on registers, which was very complicated job. Report generation of all records was also not possible in the existing system. Also the work of college was manually maintained and stored. All this data is maintain through register or file system in the college.

Current mode of working is based on manual system in which the all the data is first received from respective personnel and then entered in the registers or files. It is very complex job and time consuming also. The existing system is also dependent on students, if the students are absent. Then performance of student will be affected. Due to huge volume of data, a lot of problems are involved in maintaining, updating and retrieving selected information. Since previous system is totally maintained manually, some of the difficulties involved in existing system are as follows:-

1. Redundancy of data.
2. Difficulty in updating the data.
3. Non-centralized data.
4. Delay in retrieving information.
5. Problem for keeping the data.
6. Not proper retrieval of information.

III. SYSTEM DESIGN

A.Deatailed Problem Statement

The Collage ERP software solution will include the following primary modules/components: student, financial aid, finance, human resources, and advancement, collage data warehouse, reporting and analytics, workflow, document management, and student, faculty, and staff portal. Implementation services will include: technical services, data migration and conversion services, integration services, database management services, and system/end-user training.

B. System Architecture

A System Diagram (SD) in software engineering and systems engineering is a diagram that represents the actors outside a system that could interact with that system. This diagram is the high level view of a system. SDs shows a system, often software-based, as a whole and its inputs and outputs from/to external factors. System Diagrams are diagrams used in systems design to represent the more important external factors that interact with the system at hand. This type of diagram according to Kossiakoff (2003) usually "pictures the system at the center, with no details of its internal detail structure, surrounded by all other interacting systems, environment and activities. The objective of a System Diagram is to focus attention on external factors and events that should be considered in developing a complete set of system requirements and constraints".

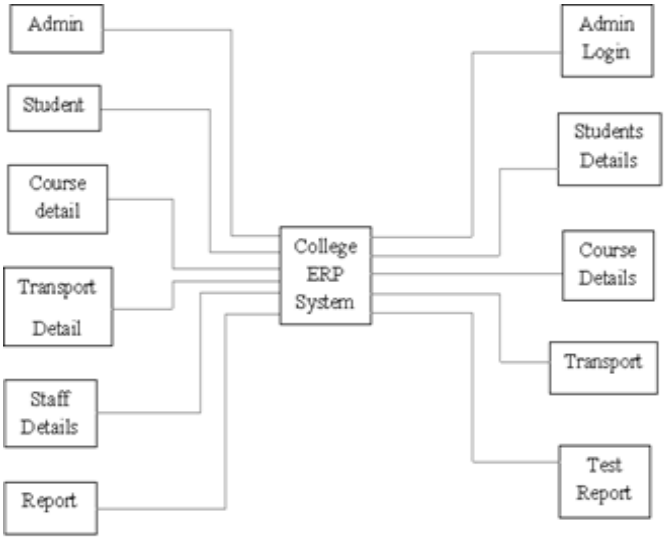


Fig. 2.1 System Design.

a.Core Modules

- Admin
- Student
- Staff
- Parent
- Transport

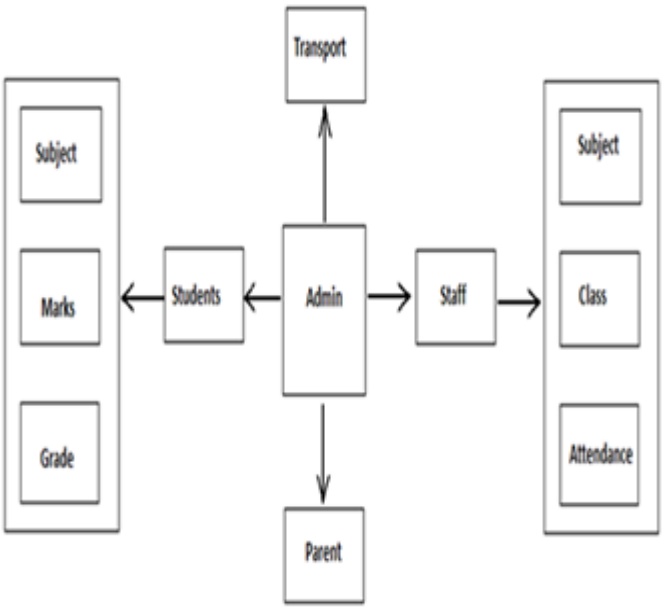


Fig. 2.2 Core Modules

b.Admin Module

Admin has all the access rights to the system. Admin is able to manage the student Admission, Staff Registration, Academics, SMS gateway, Transport, Class Routines. First he adds all the staff members of respective departments. Then the classes are added and the respective staff member

is allocated to the class as a class coordinator. After adding class and subjects the student admission process starts. This all tasks are managed by admin only. This access is forbidden for the rest of users. Admin can manage the accounts of the all the students' and staff and parents also. He is responsible to create and send student reports to their respective children. All the logs of student information can be view and manage by Admin itself.

All the manual working of Admin is skipping through this system.

Workflow:

1. Start
2. Login
3. Add/Delete Staff
4. Add/ Delete / Edit Course
5. Add/delete/Edit Class
6. Add/delete/Edit Student
7. Add/Edit Class Routine
8. Manage Transport
9. Manage Notice Board
10. Manage SMS.
11. Manage Dormitory
12. Logout
13. Stop.

c. Student Module

Students are admitted by admin only to the system. When he got admitted the username and passwords are generated by admin and can be managed by student afterwards. Student has access to personal profile, current attendance record, Class Tests records, Daily Class Routines and all the notifications and upcoming events which are managed by admin. Students also view his respective bus route and bus number through the transportation module. Another important facility provided for students is to view the notification of his/her respective department.

Workflow:

1. Start
2. Login
3. View personal information
4. View subjects
5. View teachers
6. View marks
7. View class routines
8. View transport
9. View notice board
10. Logout

d.Staff Module

Staff members are registered by admin and login details are generated by admin which can be managed by staff afterwards. Staff has access rights to manage all the data of their subjects of respective class. They can manage daily attendance of all students of respective subjects and classes. Staff members are able to give notifications and can upload some documents related to their respective subjects. Staff can generate the daily, monthly or yearly report of individual student as well as class.

Mark sheet generation and time table generation facility is also available for staff. Instead of manual work this application gives automatic work.

Workflow:-

1. Start
2. Login
3. View student information
4. View/Edit student's marks
5. Manage daily attendance of students
6. Add notes
7. View subjects
8. View personal class routine
9. View transport

10. View noticeboard
11. Logout
12. Stop

e. Parent Module

Parents are able to track all information and academic records of their respective child. They are not able to view the information relevant to other students. The parents are added by the admin after the admission of their child. Parents can view result sheets, attendance records, notifications etc. This module gives parents to keep track of its respective child's educational growth. Parents are able to communicate with teachers if they wish. In short this module facilitates to view educational growth of respective child.

Workflow:-

1. Start
2. View Student Information
3. View student Mark sheet
4. View Transportation
5. Logout
6. Close

f. Transport Module

Admin has given the access rights to manage the transport information which is accessible to all the users. Users can view all the routes and respective buses of the routes including their pickup points. Timing of respective bus from pickup point is also shown in this module.

C. Mathematical Model

Mathematics is shared because it is reach and interesting discipline it provides set of ideas and tools. That are effective in solving problems which is useful in theoretical studies in other field when used problem already posed in Mathematical model form, I theory construction mathematics provides abstract structures which did in understand situations arising in other fields.

Problem formulation and theory construction involve across known as mathematical model building .given a situation and formulates other than mathematics or in everyday life mathematical model building is activity that begins with situation and formulates a precise mathematical problem whose situation or analysis in case of theory construction is enables us the better understand of original situation.

Mathematical modeling originally begins with situation in real world sometimes in relatively controlled conditions of laboratory and sometimes in the much less complete understood environment of meows and forests offices and factories and everyday life.

For example a psychologist observer certain types of behavior in rats running in maze, aside life, ecologist notes the number of eggs laid by endangered sea turtles or an economist record the volumes of international trade under a specific traffic policy. Each seeks to understand the observations and to predict future behavior.

These efforts may be based completely on intuition but more often they are the result of detailed study, experience and the recognition of similarities between the current situation and the other situations which are better understood.

This close study of the system, the accumulation and organization of information is really the first step in model building. Much of initial work must be a done by a researcher who is familiar with the origin of the problem and the basic biology, economics, psychology, or whatever else is involved.

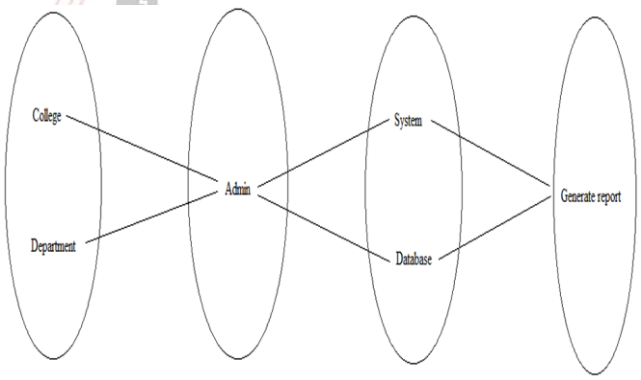


Fig. 2.3 Set theory

Use of discrete mathematics to describe the problem definition:

S = "ERP System for Computer Department".

S= {I, O, F, C, DV, CS}.

Where,

F= Function. C= Constraint.

DV= Decision Vector. CS=Constraint Satisfy.

Using discrete mathematics we can define a system in that convert input respected output functions which are required to produce output constraints decision vectors and how the constraints are satisfied.

We can easily register add student we don't need to do it manually. Creates roll no n details automatically everything is handled by admin and stored in centralized database. In this way we generate mathematical model for our system.

Use of set theory:-

Here, Input= {I1, I2, I3, I4}

I1= Name of Student.
I2=Address of student.
I3= Contact Details.
I4=Category of student.

OUTPUT = {O1, O2}

O1=Report generate on student registration.
O2=Roll call List.

FUNCTIONS = {P1, P2, P3, P4}

P1=Student Registration.
P2= View Student Record.
P3=Roll call List.
P4=Create Division.

Description about Functions:

When admin do the registration of any student then our system automatically update the data base of respective class and generate the roll call list or assign the roll no to that particular student.

Our system also creates the division if the capacity of one division is full. This capacity of class is decided by Collage Administration. Here Admin maintain records of all year students and staff also.

All manual working will be removing through this system and also the clerical mistakes are also decreasing. All student records are view by Admin, HOD, management and staff. Using all this records staff can maintain the further records of the students i.e. Attendance, marks, detention list etc. In our system there is one more function is available for collage or department for their purpose or their further analysis.

Constraints{X1, X2}:

X1:- administrator or head of department must be login in our system

X2:-Detail Information about student.

Decision vector {Q1}:

Q1=RN (Registration Number)

Constraint satisfy {R1, R2, R3}

R1: using system, R2: Using database

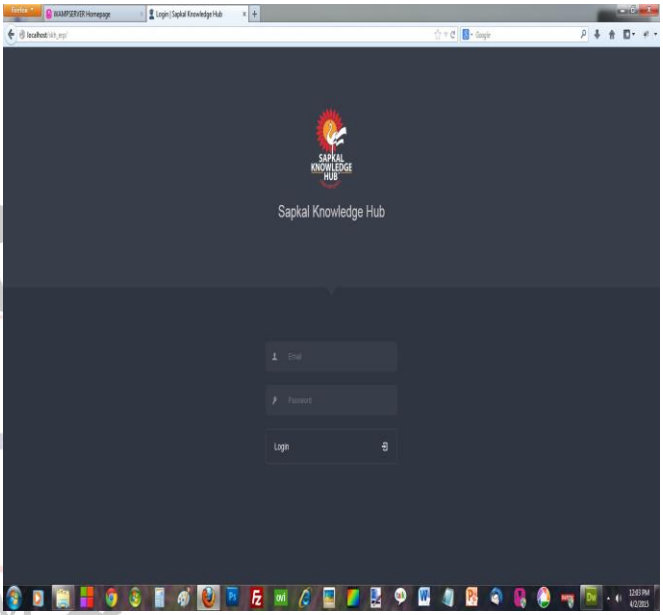
R3: Using results

Actual set of system is,

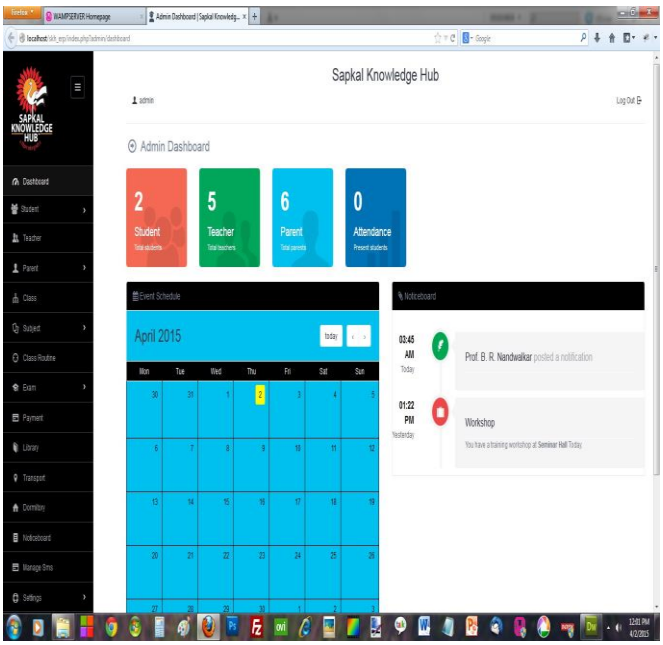
S= {I1,I2,I3,I4,O1,O2,P1,P2,P3,P4,x1,x2,Q1,,R1,R2,R3}

IV. RESULT ANALYSIS

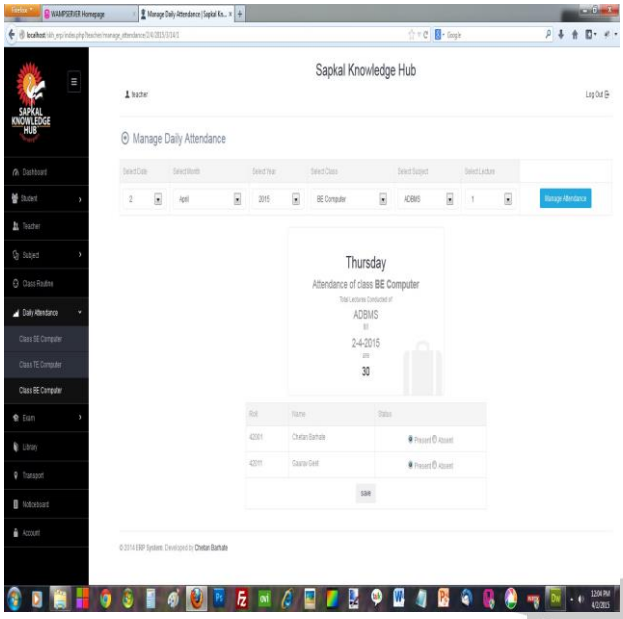
Login Window:



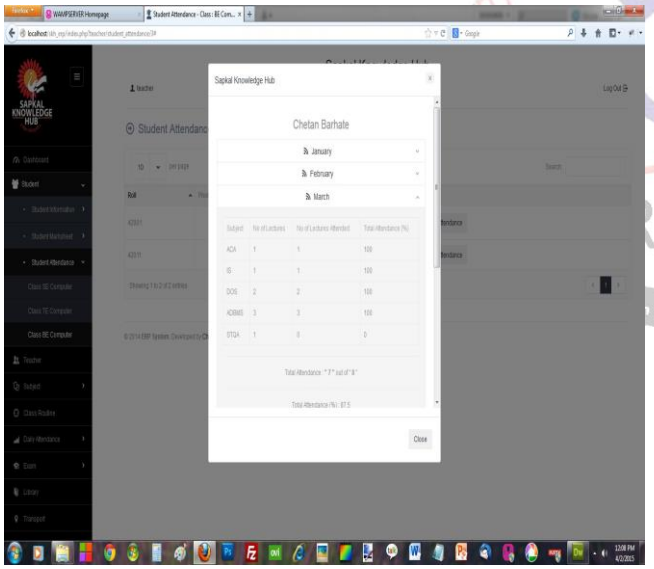
Dashboard:



Daily Attendance:



Attendance Report



V. CONCLUSION

The fundamental problem in maintaining and managing the work by the administrator is hence overcome. Prior to this it was a bit cumbersome for maintaining the time table and also keeping track of the daily schedule. But by developing this web-based application the administrator can enjoy the task, doing it ease and also by saving the valuable time. The amount of time consumption is reduced and also the manual calculations are omitted, the reports can be obtained regularly and also whenever on demand by the user. The effective utilization of the work, by proper sharing it and by providing the accurate results. The storage facility will ease the job of the operator. Thus the system developed will be helpful to the administrator by easing his/her task.

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