Project Report

SCHOOL MANAGEMENT SYSTEM

CSE2004 – DATABASE MANAGEMENT SYSTEMS

Submitted by

17BCE2166- MILAN APEGAONKAR

17BCE0709- SARTHAK GARG

17BCE0085- PULKIT VARSHNEY

17BCE2001- TANISHQ BAFNA

Under the guidance of

Prof. R.Sathyaraj

Bachelor of Technology
in
Computer Science and Engineering

School of Computing Science and Engineering

Contents

1. Abstract

Education is the base for any society. So, it should provide the robust, well-designed, and quality education to the youth of the country.

During early days when data was used to be stored in offline manner, everything has to be done manually which was very time consuming and troublesome process. For changing even a small thing like attendance will take time because we have to go through all the records stored in the register.

Now, with our project we aim to reduce the paperwork along with reducing all the time consuming processes to minimum. We have used "XAMPP"as front end technology and "PHPMYADMIN"as back end technology.

This project is divided into two parts. One contains the student records and other contains the teacher's record. The student and school staff record contains the following properties.

2. Introduction

Database is collection of interrelated data where data can be easily accesses, managed and updated. For example, consider office department in school maintains details of the student such as name of the student, age, address, class etc. These all records are related with student stored in a database.

Database management System is collection of data and set of programs to access the data. It allows creation, definition and manipulation of database. DBMS provides protection and security to database. Some examples for popular dbms are MySQL, Oracle, Sybase, Microsoft Access and IBM DB2.

Characteristics of DBMS

1. It reduces complex relationships between data.
2. Enforces user defined rules and ensures data sharing.

3. It provides different interfaces which user can manipulate the data.
4. Integrated database helps in understanding relationship between data stored in different applications.

Advantages of DBMS

1. **Controlling Data Redundancy:** if database have more than one records of same type then it is called data redundancy. In DBMS, all data is stored in one single database file and that recorded data is placed in the database.
2. **Data Sharing:** Data can be shared by authorized users of the organization among multiple users. Many users can be authorized to access the same data simultaneously. The remote users also can share the same data.
3. **Enforcing Data Integrity:** In database approach, data integrity is much easier. In database, data is stored in the tables. A single database contains multiple tables which is easy to retrieve and update the data.
4. **Data Security:** Data security is the protection of the database from unauthorized access. The DBMS ensures access of the database through authorized channel. To ensure security, DBMS provides security such as by giving user name and passwords.
5. **Ease of application development:** The programmer needs to develop applications according to user specification. The other issues such as data integrity, security etc are handled by DBMS itself which makes application development easier.

In this project we aim to develop a database tackling school management which includes both the students and the faculty and their respective information which would hence allow efficient as well as secure handling of student and faculty records on a common platform to be used by the said school collectively.

BACKGROUND

Attribute: It represents property of the entity, such as employee name, address or salary.

The properties of a entity is called as attributes, consider above example, STUDENT is an entity with properties name, student_number, class and student_address.

Types of attributes:

Simple attribute, Composite attribute, single valued attribute, multivalued attribute, derived attribute null value.

Relationship: It represents an association between two or more entities, for example, relationship between a employee and a project.
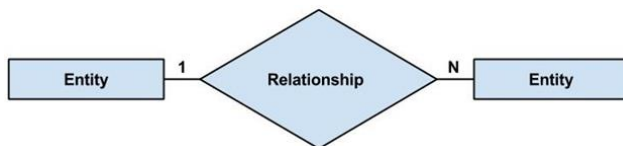
Relationship exists between two database tables when one table has foreign key that references to primary key of the other table and it is also associates between entities.
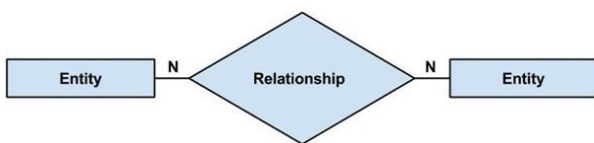
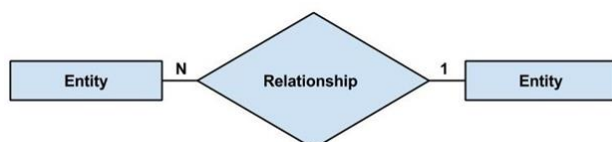## Following are types of relationships between tables.

1.one-to-one relationship:
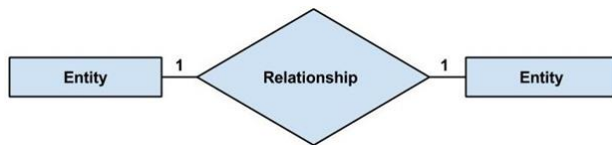
2.one-to-many relationship

3.many-to-many relationship

4.many-to-one relationship:

Database schema:

The description of database is called the database schema which is specified during database design and is not expected to change frequently. A displayed schema is called schema diagram. In relational database, the schema defines the tables, fields and relationships between fields and tables.

Keys:

Keys are important part of relational database. They are used to identify relation between tables.

Super key: It is set of attributes that identifies uniquely each record within relational database management system table.

Candidate key: it is defined as set of fields from which primary key can be selected and can uniquely identify any database record without referring to any other data.

Primary key: It is a key that uniquely identify each record in a table. Only one candidate key can be primary key.

3. Literature Survey

1]Yank, K., 2004. *Build Your Own Database Driven Website Using PHP & MySQL.* SitePoint Pty Ltd.

Build Your Own Database-Driven Website Using PHP & MySQL is a practical guide for first-time users of PHP & MySQL that teaches readers by creating a fully working Content Management System, Shopping Cart and other real-world applications. There has been a marked increase in the adoption of PHP, most notably in the beginning to intermediate levels. PHP now boasts over 30% of the server side scripting market (Source: http://www.php.weblogs.com). The previous edition sold over 17,000 copies exclusively through http://www.sitepoint.com alone. With the release of PHP 5, SitePoint have updated this bestseller to reflect best practice web development using PHP 5 and MySQL 4. The 3rd Edition includes more code examples and also a new bonus chapter on structured PHP Programming which introduces techniques for organizing real world PHP applications to avoid code duplication and ensure code is manageable and maintainable. The chapter introduces features like include files, user-defined function libraries and constants, which are combined to produce a fully functional access control system suitable for use on any PHP Website.

2]Grillenberger, A. and Brinda, T., 2012, November. eledSQL: a new web-based learning environment for teaching databases and SQL at secondary school level. In *Proceedings of the 7th Workshop in Primary and Secondary Computing Education* (pp. 101-104). ACM.

Data modeling using databases and SQL is a fundamental part of the curriculum of secondary computing education in Germany. Professional database tools like *HeidiSQL, phpMyAdmin* or *Microsoft Access* are often used in class as a "learning software", although these tools have been developed for managing complex databases, often for companies, and not for educational purposes. Such tools offer a wide range of functions of which only a small part is required by secondary computing education. At the beginning of such instruction, students can hardly work independently with these programs, as they do not know the database language SQL by then. This often leads to theory-loaded introductory phases of such classes or alternatively to a usage of such tools like spreadsheet programs. To address this problem, a new web-based learning environment for databases and SQL (named *eledSQL*), also suitable for mobile devices and only with the functionality needed for secondary computing education, was developed. The basic idea was to initially allow students to make database queries using natural language and then gradually introduce them to the use of SQL. Starting with a problem analysis and a discussion of related work in the field of teaching databases

and SQL, in this paper the conception of *eledSQL*, its implementation and first experiences with its practical use are described.

3]Beise, C., 2006. Revisiting database resource choice: A framework for DBMS course tool selection. *AMCIS 2006 Proceedings*, p.266.

Database courses have long been a core dimension of Information Systems programs. As database tools and resources continue to evolve, educators are faced with changing options for supporting database education, including enterprise systems such as Oracle, DB2, and Teradata, open source alternatives such as MySQL and PostGreSQL, and commonly available PC-focused products such as Access and SQLServer. Based on a pilot survey of database educators worldwide, this paper presents an overview of the tool options within a context of the varied criteria used by educators to make their choices:
cost, accessibility for students, ease of installation and use, support, industry relevance, and pedagogical goals. The purpose of this discussion is not to argue for a particular choice, but to provide a framework for selection based in individual database course or IS program needs and constraints.
4]
This paper summarizes a PhD research project that has contributed towards the development of Moodle - a popular open-source course management system (moodle.org). In this project we applied theoretical perspectives such as "social constructionism" and "connected knowing" to the analysis of our own online classes as well as the growing learning community of other Moodle users. We used the mode of participatory action research, including techniques such as case studies, ethnography, learning environment surveys and design methodologies. This ongoing analysis is being used to guide the development of Moodle as a tool for improving processes within communities of reflective inquiry. At the time of writing (April 2003), Moodle has been translated into twenty-seven languages and is being used by many hundreds of educators around the world, including universities, schools and independent teachers.

4. Tools and methodologies

Languages used:

There were various languages used to create this project both for front end and the backend. They are listed below:

PHP

PHP is a server-side scripting language designed primarily for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Development Team.

PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Preprocessor.

Mysql

MySQL is written in C and C++. Its SQL parser is written in yacc, but it uses a home-brewed lexical analyzer. MySQL works on many system platforms, including AIX, BSDi, FreeBSD, HP-UX, eComStation, i5/OS, IRIX, Linux, macOS, Microsoft Windows, NetBSD, Novell NetWare, OpenBSD, OpenSolaris, OS/2 Warp, QNX, Oracle Solaris, Symbian, SunOS, SCO OpenServer, SCO UnixWare, Sanos and Tru64. A port of MySQL to OpenVMS also exists.

The MySQL server software itself and the client libraries use dual-licensing distribution. They are offered under GPL version 2, beginning from 28 June 2000 (which in 2009 has been extended with a FLOSS License Exception) or to use a proprietary license.

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML can embed programs written in a scripting language such as JavaScript which affect the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997

JAVASCRIPT:

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

CSS:

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs,variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

Software Used:

There are 2 software used to develop the database and make the website:

XAMPP:

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform, Apache , MariaDB, PHP and Perl. It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

PhpMyAdmin:

It is a free and open source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, it has become one of the most popular MySQL administration tools, especially for web hosting services.
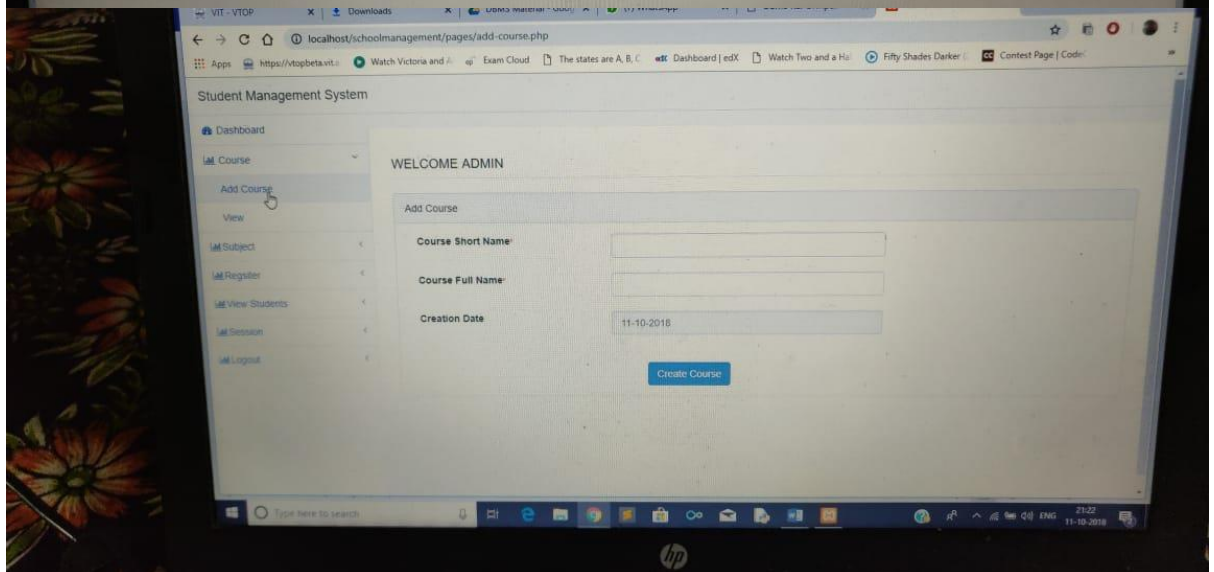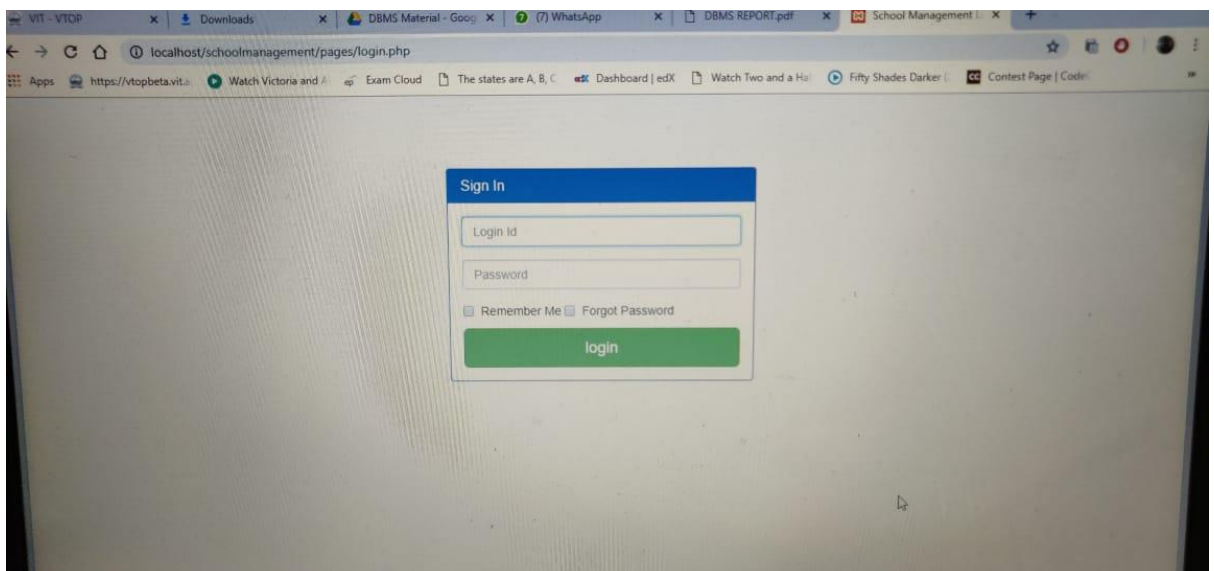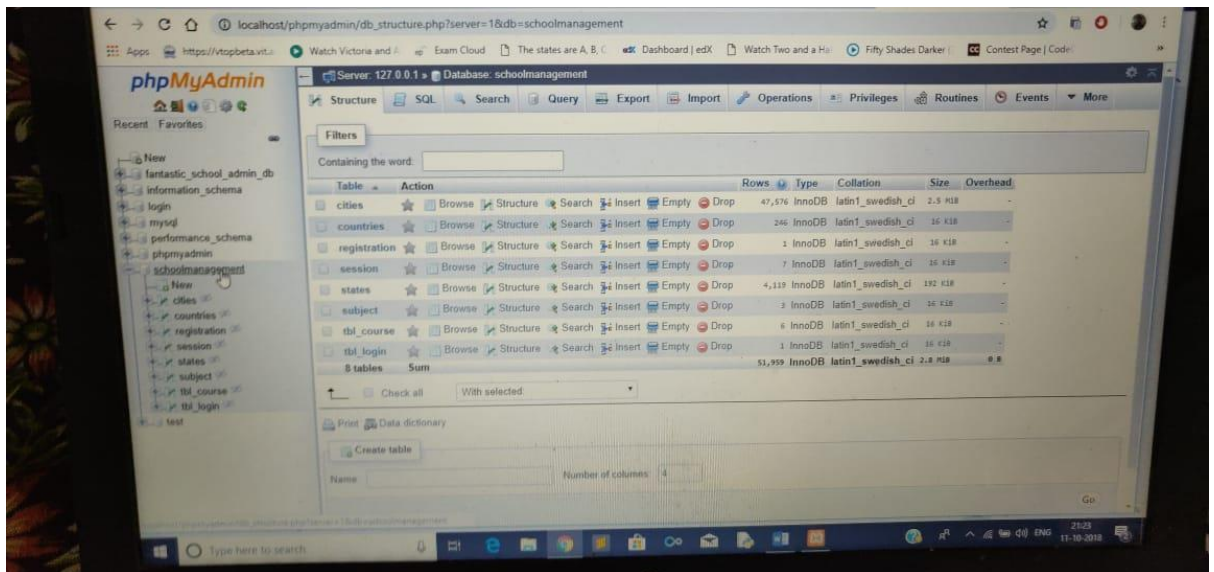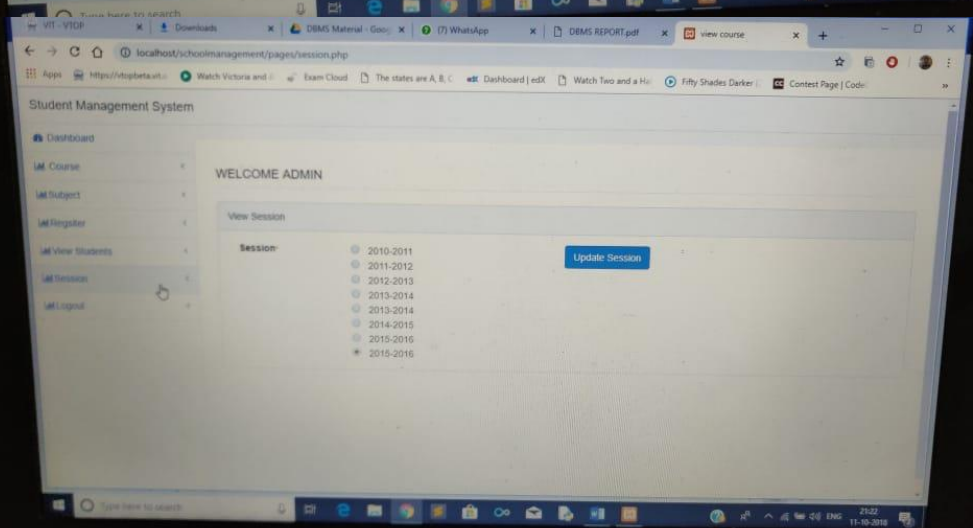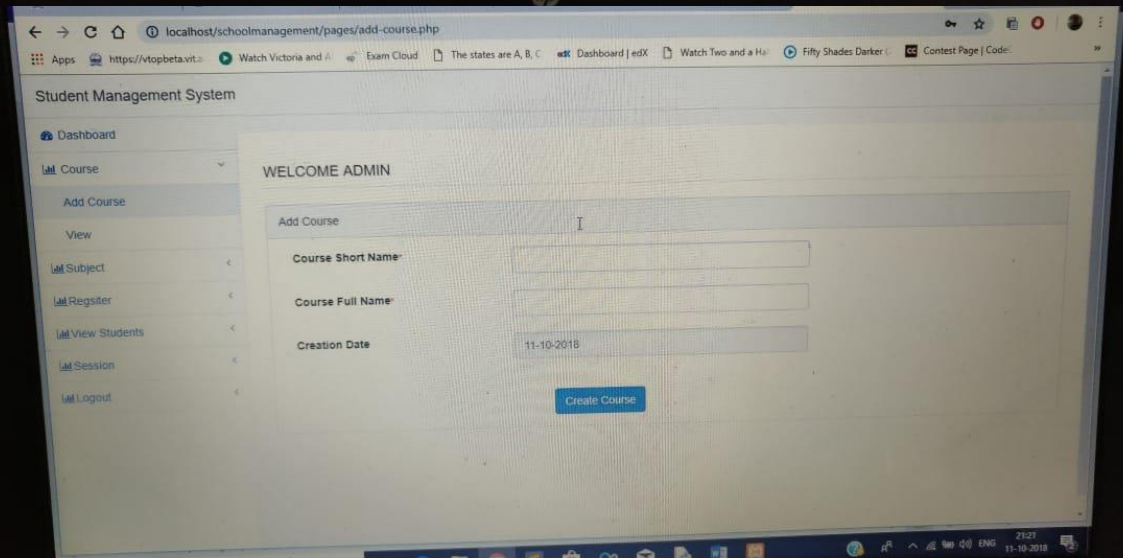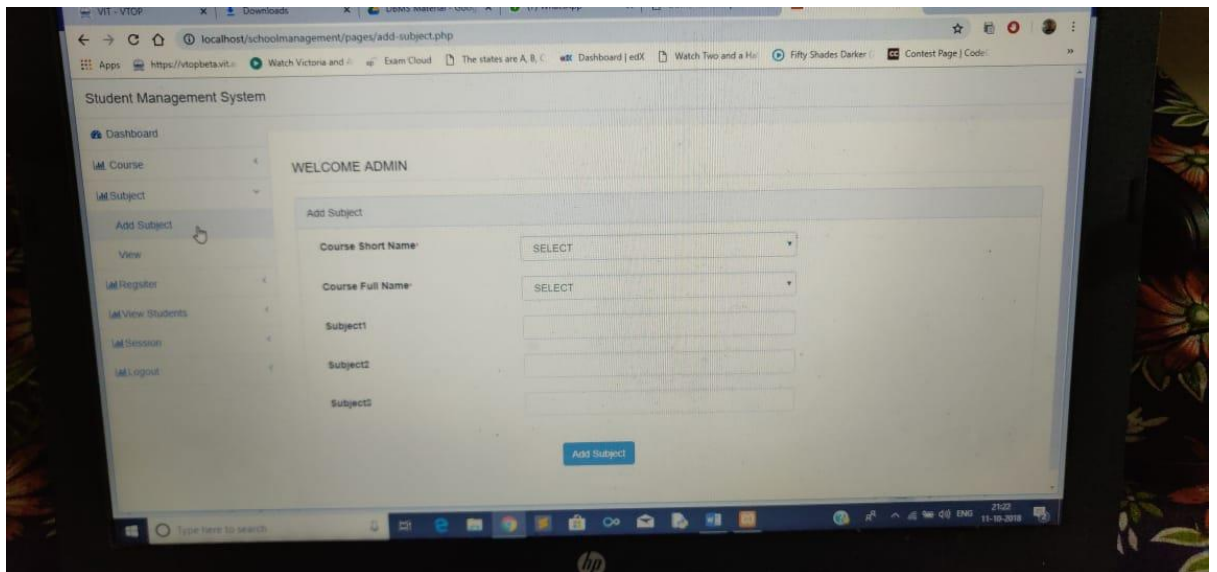
Steps Taken to accomplish the Project:

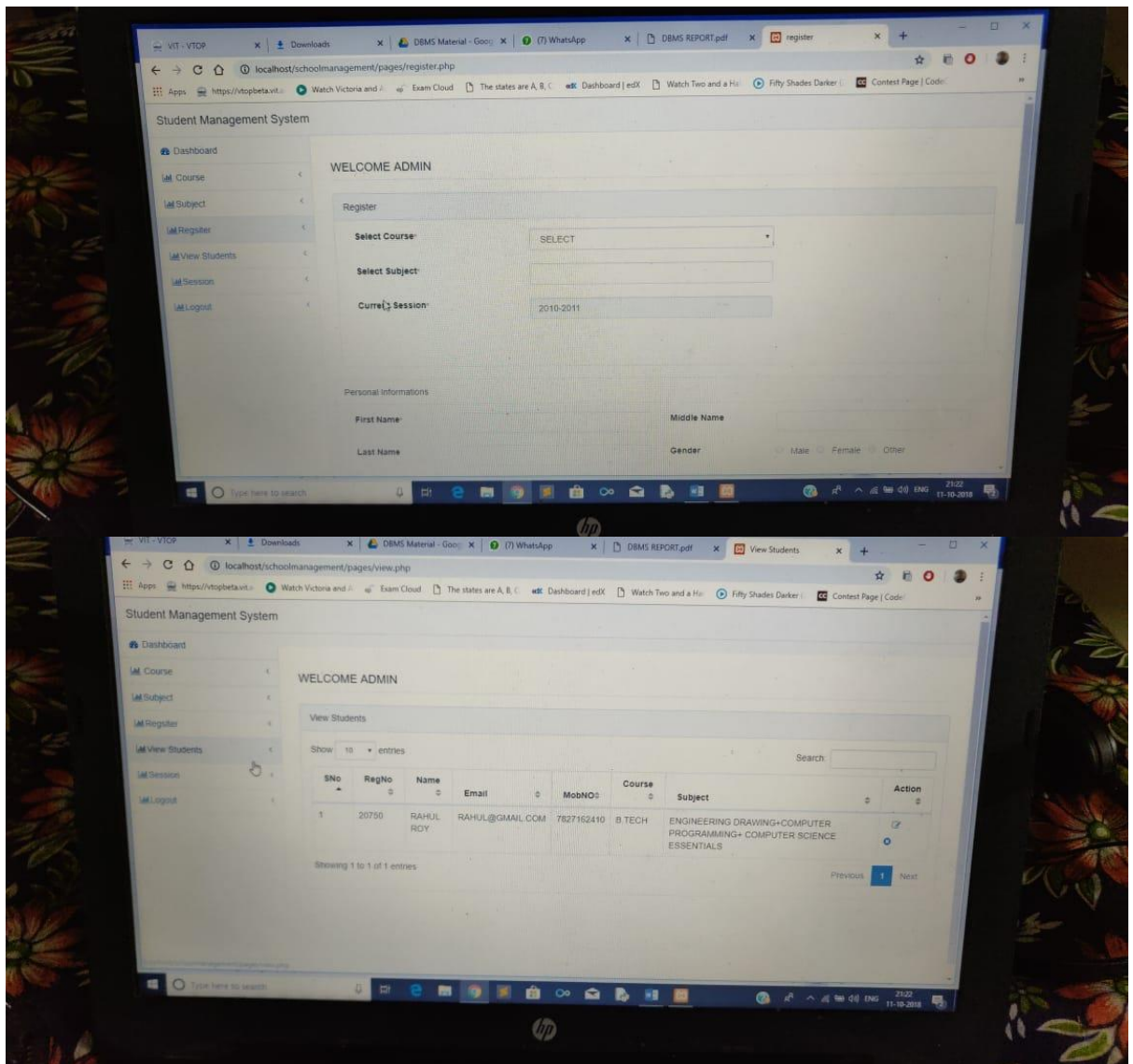1. We found the entities to be used in or project

2. We discovered the relationships between the said entities which constitute both the participation and cardinality among the entities

3. We created the entity-relationship diagram based on our data discovered

4. We formed the relational schema based on the er diagram

5. Searched of the languages and softwares necessary for developing the project

6. Searched for the knowledge required for making the project

7. Coded the structure of the database and specified the primary key and foreign key

8. Input the rows in different tables and other related data

9. Finalized an verified the relations between different entities

10. Started working on frontend with html to make webpages

11. Linked different webpages among each other and with the backend database

12. Debugging and verification of the project

5. Experiment and Result

Student Management System

Dashboard

Course

Subject
- Add Subject
- View

Register

View Students

Session

Logout

WELCOME ADMIN

Add Subject

Course Short Name*	SELECT
Course Full Name*	SELECT
Subject1	
Subject2	
Subject3	

[Add Subject]

Student Management System

Dashboard

Course
- Add Course
- View

Subject

Register

View Students

Session

Logout

WELCOME ADMIN

Add Course

Course Short Name*	
Course Full Name*	
Creation Date	11-10-2018

[Create Course]

Student Management System

Dashboard

Course

Subject

Register

View Students

Session

Logout

WELCOME ADMIN

View Session

Session*
- 2010-2011
- 2011-2012
- 2012-2013
- 2013-2014
- 2013-2014
- 2014-2015
- 2015-2016
- 2015-2016

[Update Session]

6. Conclusion

Student information management system lead to a better organization structure since the information management of the students is well structured and also lead to better as well as efficient utilization of resources.

Student Information Management System can be used by education institutes to maintain the records of students easily. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming. All these problems are solved

using this project

Our project Student Information Management System was developed by all three of us.We, a team of three persons took a step by step approach in order to reach our goal.We applied the knowledge we gained during our training period at EN Technologies Pvt. Ltd. and developed this project "STUDENT INFORMATION MANAGEMENT SYSTEM"

7. References

8. http://ieeexplore.ieee.org/abstract/document/1498081/

9. https://dl.acm.org/citation.cfm?id=320457

10. http://ieeexplore.ieee.org/abstract/document/4767553/?reload=true

11. http://en.cnki.com.cn/Article_en/CJFDTOTAL-DLXT200224006.htm

12. http://ieeexplore.ieee.org/abstract/document/54719/

13. https://dl.acm.org/citation.cfm?id=16864

14. http://en.cnki.com.cn/Article_en/CJFDTOTAL-JJYJ200003003.htm

15. https://www.google.com/patents/US5310349

16. https://www.google.com/patents/US5696898