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Minor Project Report

on

SUBJECT AUDITS USING ERP SYSTEM

Submitted in Partial Fulfillment of the Requirements for the Third Year

of

Bachelor of Engineering

in

Computer Engineering

 \mathbf{to}

North Maharashtra University, Jalgaon

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SSBT's COLLEGE OF ENGINEERING AND TECHNOLOGY,
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CERTIFICATE

This is to certify that the minor project entitled Subject Audits using ERP System, submitted by

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in partial fulfillment of the Third Year of Bachelor of Engineering in Computer Engineering has been satisfactorily carried out under my guidance as per the requirement of North Maharashtra University, Jalgaon.

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Abstract

This Software Maintains Students subject Audit and helps in Result Analysis. It is useful and easy for maintaining all the Database of Student, Teachers and other related information regarding College. Another major Drawback observed, is College doesn't maintains the record of number of student appearing for the current Examination, and the result of particular subject, whether how many no of students have Passed and how many are Fail. This problem is solved by us using ERP System. Solution of this Problem is implemented by using microsoft visual studio express 2015 for web and Microsoft sql server as Backend. We considered three actors as Admin, Teacher and Students. Admin has privileges to create account of Student and Teacher. Admin can also add or remove subjects of particular Department, and can generate the Report. Teacher can generate the report and view the information of the student. Student is able to fill the information of all subjects and his own details. Students will be assigned with an Id and a Password. This Information will be helpful for the Teacher and Admin to generate the report Semester wise, Subject wise and overall report which indicates the result of a particular subject. By using this Software Admin can calculate the number of Students appearing for the current Examination.

Introduction

Introduction chapter will introduce the work, It will focus exactly on what is the area of project and explains what is actually be done in this work. All ideas about project work are cleared here.

The sections of the chapter are organized as follows. Section 1.1 presents background. Motivation is discussed in section 1.2. Section 1.3 presents Problem Denition. Scope of the project is discussed in section 1.4. Section 1.5 presents objective of the project. Finally, summary of the chapter is given in the last section.

1.1 Background

ERP systems are designed and configured to achieve seamless integration of all of the information flowing through an organization, By integrating information-based processes within and across different functional departments, Such as accounting, Finance, Human Resources, Manufacturing and Distribution. They also connect the organization to its customers and suppliers and thus enable the integration beyond organizational Boundaries.

In many colleges the data and information of students are maintain manually which is some what difficult and overhead for teachers and management persons. It is very difficult to maintain the data manually. Nowadays many colleges use the ERP system for maintain these records. It is observe that is very easy to maintain data of student like Student attendance, Teacher leaves, Scholarship details, Online timetable generation system, But there is no any record that how many students are appearing for the current examination. as well there is no record that how many students are pass in a particular subject.

This is one of the major problem in all the universities. Teachers and management persons have to maintain these record manually which is most difficult for them. These problem asks us to find the number of student appearing for the exam and number of students Pass in the particular Subject. There are many solution for this problem but the most efficient and time saving solution is to create an ERP System which can maintain the record of students like other systems such as students attendance, teacher leaves, timetable formation.

In colleges we have to maintain many databases like student attendance, teacher leaves, scholarship details, marks details, audit point details, etc. These all databases are maintain manually thats why management faces many overhead while maintaining all these records. Same is happened with teachers and class teachers. Students have to go personally and meet management for getting any details of their curriculum. These problems are overcome by erp system software

1.2 Motivation

It is difficult task to manage and maintain student data manually in a register one by one. As well traversing through all those registers every now and then for each single update. Its really a task of harassment. Problem faced by our teachers motivated us to create an Easy ERP solution to maintain all the data of teachers and students. As well number of students appearing for the Exam calculation may help our teachers to Exactly allot the no. of supervisors and Classrooms.

1.3 Problem Defination

The college management has to handle records for many numbers of students and manually maintenance of these data was difficult. There is a need to upgrade the system with a computer based information system. There is no record of number of Students that are appearing for current exam. Also there is no record of result of a particular subject. All the details of the student are maintained in a single record. So searching and upgrading the details is a tedious task. Also there is a chance of errors. We are solving these Problem by using ERP System.

1.4 Scope

This is generic type of system, suitable for all students. Student can access the system and can check the all details. Security mediator will encrypt and decrypt data from the database. College will manage things regarding prioritization, scheduling, security, updating, etc.

1.5 Objective

The main objective of this system is to reduce the consumption of time during maintaining the records of students. Separate divisions are to provide to maintain the records of students, teachers, subject and marks details.

In other words, our Subject Audits ERP System has, following objectives:

- Simple database is maintained.
- Easy Operations for the operator of the system.
- User interface are user friendly and attractive, it takes very less time for the operator to get use to with the system.

1.6 Summary

In this chapter, an introduction of the project topic with the background, motivation ,problem denition has been discussed. Scope and objective of the project has been also discussed in this chapter. Next chapter presents system analysis of the project.

System Analysis

Systems analysis is the study of sets of interacting entities, including computer systems analysis. The development of a computer-based information system includes a systems analysis phase which produces or enhances the data model which itself is a precursor to creating or enhancing a database. There are a number of dierent approaches to system analysis. When a computer-based information system is developed, systems analysis would constitute the development of a feasibility study, involving determining whether a project is economically, socially, technologically and organizationally feasible.

The sections of the chapter are organized as follows. Section 2.1 presents literature survey. Proposed system of the project is discussed in section 2.2. Section 2.3 describes feasibility study. Risk analysis of the project is presented in section 2.4. Section 2.5 presents Project scheduling. Eart allocation topic is covered in section 2.6. Finally, summary of the chapter is given in the last section.

2.1 Literature Survey

paragraphEnterprise Resource Planning or ERP is a natural outgrowth of Manufacturing Resources Planning or MRP. Early MRP(1960)was known as Materials Requirements Planning. Both MRP and early ERP focused on planning activities within manufacturing firms. ERP software systems rapidly developed beyond planning and scheduling software for the internal environment to include both suppliers and customers, essentially an extended enterprise software system. Later, ERP systems were expanded to include firms in the service sector and government.

The future of ERP will increasingly rest on short cycle time or easy configuration for new users, students, seamless and rapid system updates for existing users, and greater cost-benefit outcomes for all users.

In college we have to maintain many databases like student databases, teacher databases, scholarship details, marks details etc. These all databases are maintain manually thats why management faces many overhead while maintaining all these record same is happened with student. Students have to go personally and meet management for getting any details of their curriculum. These problems are overcome by ERP system. This software is useful for easy user interface. The system utilised the powerful database management, data retrieval and data manipulation.

2.2 Proposed System

Presently web based ERP system is used. This system will provide in many colleges the data and Information Of Students Are Maintain Manually Which Is Some what Difficult And Overhead For Teachers And management persons. It is very difficult to maintain the data manually. Nowadays many colleges use the ERP system For Maintain These Records. It Is Observe That Is Very Easy To Maintain Data Of Student Like Student Attendance, Teacher leaves, Scholarship details, Online timetable generation system. But there is no any record that how many students are appearing for the current examination. Also there is no any record that how many students are pass in a particular subject.

By developing the system we can attain the following features:

- Easy to handle and feasible
- Cost Reduction
- Fast and Convenient

2.3 Feasibility Study

A Feasibility study is an evaluation and analysis of the potential of the proposed project which is based on extensive investigation and research to give full comfort to the decisions makers. Feasibility studies aim to objectively and rationally uncover the strengths and weaknesses of the existing business or proposed venture, opportunities and threats as presented by the environment, the resources required to carry through, and ultimately the prospects for success.

- Economical Feasibility In our project, Asp.net language is easy to used and easy to learn. it is easily available. thats why this system is economically benecial to anyone.
- Operational Feasibility Our project do not cause any harmful impact on the environment. So it is operationally feasible.
- Technical Feasibility ASP.net required for project is easily available. We have used sql server as back end which is easily available So the project technically feasible.

2.4 Risk Analysis

Risk analysis and management are a series of steps that help a software team to understand and manage uncertainty. Many problems can plague a software project. A risk is a potential problemit might happen, it might not. But, regardless of the outcome, its a really good idea to identify it, assess its probability of occurrence, estimate its impact, and establish a contingency plan should the problem actually occur. Everyone involved in the software process managers, software engineers, and customers participate in risk analysis and management. Before embarking on the project it is necessary to review all of the risks that might be involved in it. These risks have been documented before the coding of the project started. [9]

The majority of the risk components lie under the categories. Table 2.1 shows the risk analysis.

- Project Risks
- Business Risks
- Technical Risks

Table 2.1: Risk Analysis

Project Risks		
Will the project meets the requirement for what it is intended to do?		
Business Risks		
Will the project satisfy the business needs in the organization?		
Technical Risks		
Will the project technically support all requirements?		

2.5 Project Schedulling

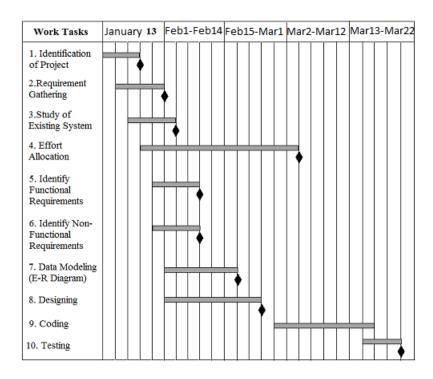


Figure 2.1: Timeline Chart

Software project scheduling distributes estimated eort across the planned project duration by allocating the eort to specic task. Scheduling for projects can be viewed from two dierent perspectives. Figure 2.2 shows timelines chart.

- In the rst view, an end-date for release of a computer-based system has already been established and xed.
- In the second view, assume that rough chronological bounds have been discuss but that the end-date is set by the software engineering organization.

2.6 Effort Allocation

Table 2.2 illustrates the effort allocation. Identication of project, requirements gathering and study of existing system accounts 10 percent of eort. 15 percent of eort is normally applied to data modeling and coding. Identication of functional and non-functional requirements, testing accounts 5 percent of project eort. Designing requires 30 percent of eort.

Work Tasks	Kalpesh	Pritesh	Riya	Sunita	Work
Identication of Project	Yes	Yes	Yes	Yes	10
Requirement Gathering	Yes	Yes	Yes	Yes	10
Study of Existing System	Yes	Yes	Yes	Yes	10
Identify Requirements	Yes		Yes		5
Data Modeling(E-R Diagram)			Yes	Yes	15
Designing(Data Architecture)	Yes	Yes			30
Coding	Yes		Yes		10
Testing	Yes	Yes			10

Table 2.2: Effort Allocation

2.7 Summary

In this chapter, literature survey, proposed system and feasibility study of the project has been described. Risk analysis, project scheduling and eort allocation has been also presented in this chapter. Next chapter presents system requirement specications.

System Requirement Specification

Understanding user requirements is an integral part of information systems design and is critical to the success of interactive systems. It is now widely understood that successful systems and products begin with an understanding of the needs and requirements of the users. As specied in the ISO 13407 standard (ISO, 1999), user-centered design begins with a thorough understanding of the needs and requirements of the users. The benets can include increased productivity, enhanced quality of work, reductions in support and training costs, and improved user satisfaction.

The sections of the chapter are organized as follows. Section 3.1 presents hardware requirements. Software requirements of the project is discussed in section 3.2. Section 3.3 describes Functional requirements. Non-Functional requirements of the project is presented in section 3.4. Finally, summary of the chapter is given in the last section.

3.1 Hardware requirement

- Processor: CPU(Intel i3-500U 2.0G)
- SQL Server express 2014.
- Microsoft Visual Studio express 2015 for web.
- RAM:500MB.
- Hard Disk:50GB.

3.2 software requirement

• Platform: Windows 10

• Front End: ASP.net

• Back End: Sqlserver

3.3 Functional Requirement

In software engineering, a functional requirement denes a function of a software system or its component. A function is described as a set of inputs, the behavior, and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specic functionality that dene what a system is supposed to accomplish.

1. Admin

The Admin is the one who handle all the information related to student, subject or teacher. Admin has a ll the permissions to rome in the system in any module at any time for any task. Can create new account of student or teacher. Delete account of student or teacher. Can add a new subject or delete existing subject. Generate Overall Report which shows the result of all the semester. Generate Semester wise Report showing result of all the subject of a particular semester. Generate Subject wise Report showing result of a particular subject.

2. Teacher

Teacher is another important person of the system. There may be more than one teacher in this system. Teacher can also Generate the Reports.overall report, semester wise report and subject wise reports.

3. Student

student has no authority to made any change in the system. Student can fill Personal details. Also can fill result and marks of the subject. Only can view its semester wise reports. Student can also update own result information. student can also upload its photo.

4. Database

Database contains encrypted data, data from student, teacher and data from admin.

3.4 Non-Functional Requirement

A non-functional requirement is a requirement that species criteria that can be used to judge the operation of a system, rather than specic behaviors. This should be contrasted with functional requirements that dene specic behavior or functions. The plan for implementing functional requirements is detailed in the system design. The plan for implementing nonfunctional requirements is detailed in the system architecture.

3.5 summary

In this chapter, literature survey, proposed system and feasibility study of the project has been described. Risk analysis, project scheduling and eort allocation has been also presented in this chapter. Next chapter presents system requirement specications.

System Design

System design provides the understanding and procedural details necessary for implementing the system recommended in the system study. Design is a meaningful engineering representation of something that is to be built. It can be traced to a customers requirements and at the same time assessed for quality against a set of predened criteria for good design. In the software engineering context, design focuses on four major areas of concern: data, architecture, interfaces and components. [7]

The sections of the chapter are organized as follows. Section 4.1 presents system architecture. E-R Diagram is presented in section 4.2. Data Flow Diagram is presented in section 4.3. Section 4.4 presents UML Diagrams. Finally, summary of the chapter is given in the last section.

4.1 System Architecture

system architecture which includes following components:

1. Admin

The Admin is the one who handle all the information related to student, subject or teacher. Admin has all the permissions to rome in the system in any module at any time for any task.

2. Teacher

Teacher can also Generate the Reports.overall report, semester wise report and subject wise reports.

3. Student

Student can fill Personal details. Also can fill result and marks of the subject. Only can view its semester wise reports.

4. Database

Database contains encrypted data, data from student, teacher and data from admin.

4.2 E-R Diagram

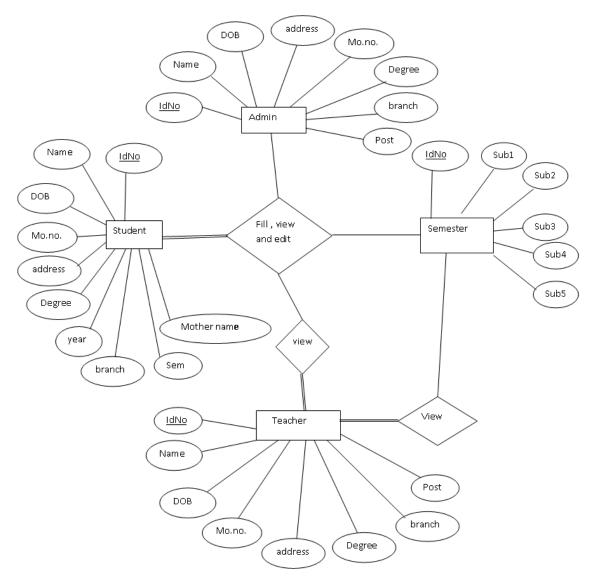


Figure 4.1: E-R Diagram

Figure 4.2 shows ER diagram which contains four entities: Teacher, Student details, Subject and student. Teacher has two attributs: id and name, in which Teacher id is primary key. Subject attributes has name and id. Name, address and contact details are attributes of student.

4.3 Data Flow Diagram

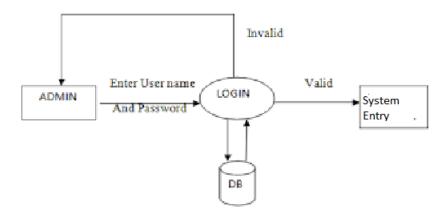


Figure 4.2: DFD 0

The DFD takes an input-process-output view of a system i.e. data objects ow into the software, are transformed by processing elements, and resultant data objects ow out of the software. The DFD enables the software engineer to develop models of the information domain and functional domain at the same time. As the DFD is rened into greater levels of details, the analyst perform an implicit functional decomposition of the system. At the same time, the DFD renement results in a corresponding renement of the data as it moves through the process that embody the applications. Figure 4.2 shows Data Flow Diagram 0, Data Flow Diagram 1 is shown in Figure 4.3.

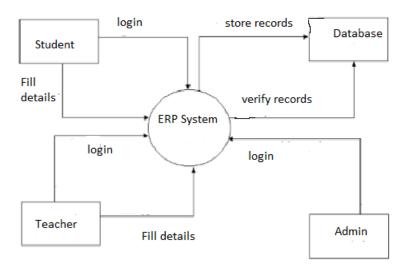


Figure 4.3: DFD 1

4.4 UML Diagrams

The Unified Modeling Language is a language that denes the industrys best engineering practices for the modeling systems. The goal of UML is to be a ready-to-use expressive visual modeling language that is simple and extensible.

A Use case diagram shows a set of use cases, actors and their relationships. Use case diagrams address the static use case view of a system. These diagrams are especially important in organizing and modeling the behaviour of the system. Figure 4.7 illustrates use case diagram for customer and database. Figure 4.8 illustrates use case diagram for admin and database(cloud).

Fill Form Change Password Add Information Report Generation Change Information Change Information Create Account Delete Account Delete Account Usecase Diagram for SUBJECT ALDITS Using ERP System

Figure 4.4: Use Case Diagram

A class diagram shows a set of classes, interfaces, collaborations and their relationships. Class diagram address the static design view of a system. Class diagrams are important not only for visualizing, specifying and documenting structural models but also for constructing executable systems. Figure 4.9 illustrates class diagram.

A sequence diagram is an interaction diagram that emphasizes the time ordering of messages. Sequence diagram is isomorphic means that we can take one and transform it into the other. Figure 4.10 illustrates sequence diagram.

A state chart diagram shows a state machine, consisting of states, transitions, events and activities. State chart diagram address the dynamic view of a system. It is especially important in modeling and behaviour of an interface, class or collaboration and emphasize the event-ordered behaviour of a object which is especially useful in modeling reactive systems. Figure 4.12 illustrates state chart diagram.

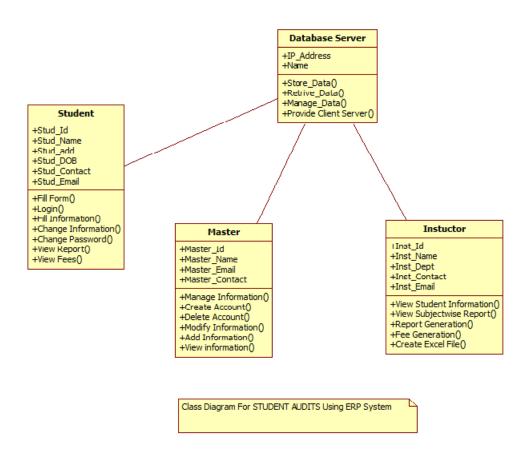


Figure 4.5: Class Diagram

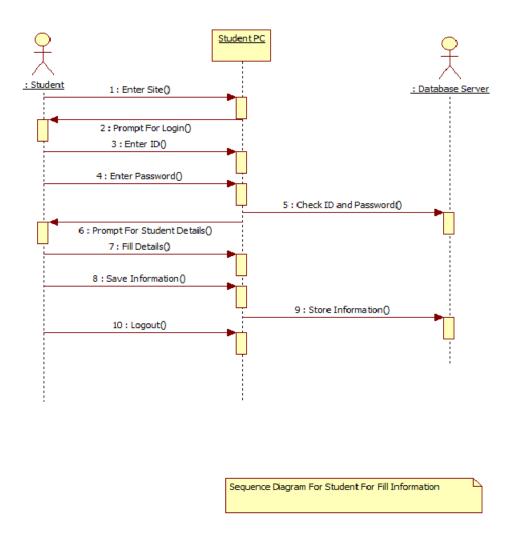


Figure 4.6: Sequence Diagram1

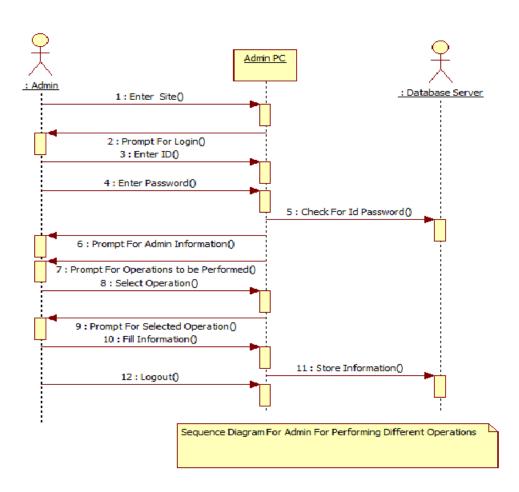


Figure 4.7: Sequence Diagram2

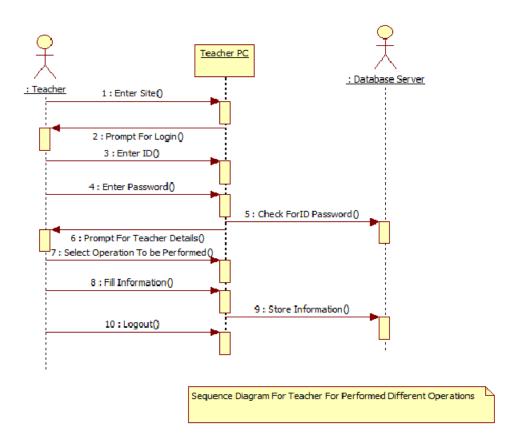


Figure 4.8: Sequence Diagram3

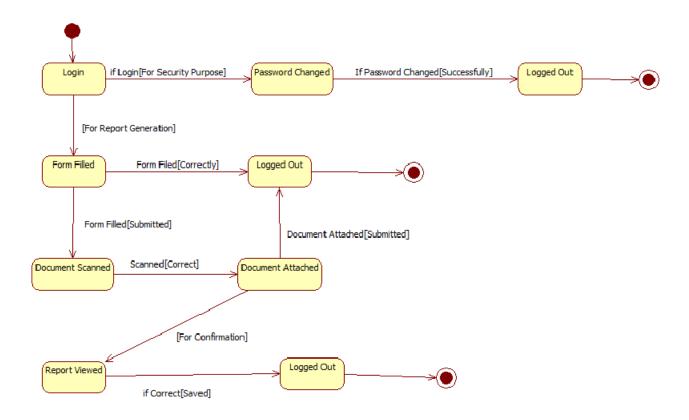


Figure 4.9: State chart Diagram

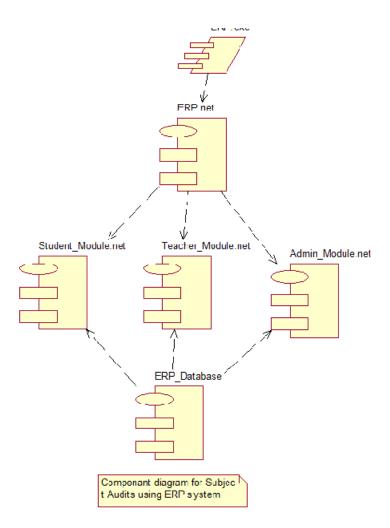


Figure 4.10: Componant Diagram

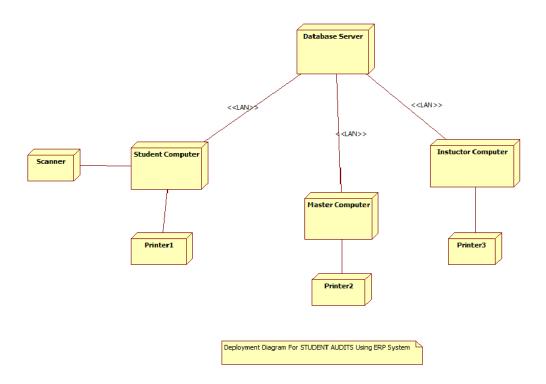


Figure 4.11: Deployment Diagram

A component diagram shows the organizations and dependencies among a set of components. Component diagram address the static implementation view of a system. They are related to class diagram in that a component typically maps to one or more classes, interfaces or collaborations. Figure 4.13 illustrates component diagram.

A deployment diagram shows the conguration of runtime processing nodes and the components that live on them. Deployment diagram address the static deployment view of an architecture. They are related to component diagram in that a node typically encloses one or more components. Figure 4.14 shows deployment diagram.

4.5 Summary

In this chapter, system architecture, E-R diagram and database diagrams are presented. Data diagrams and UML diagrams are also explained in this chapter. Next chapter presents implementation of the project.

Implementation

Implementation is the realization of an application, or execution of a plan, idea, model, design, specication, standard, algorithm, or policy. Implementation is the carrying out, execution, or practice of a plan, a method, or any design for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen. In an information technology context, implementation encompasses all the processes involved in getting new software or hardware operating properly in its environment, including installation, conguration, running, testing, and making necessary changes.

The sections of the chapter are organized as follows. Section 5.1 presents implementation details. Implementation environment is discussed in section 5.2. Section 5.3 describes ow of system development. Finally, summary of the chapter is given in the last section.

5.1 Implementation Details

An implementation detail is the decision that is left to be made by the developers and is not specied at entire level. Such as requirement document or depending on the context of the architectural document. [6]

5.2 Implementation Requirement

Implementation environment gives details of platforms for the development of the system, development of android application and web application. This implementation is done by using front end as ASP.net and back end as Sqlserver.

5.2.1 Web Application

A web application or "web app" is a software program that runs on a web server. Unlike traditional desktop applications, which are launched by your operating system, web apps must be accessed through a web browser. Web apps have several advantages over desktop applications. Since they run inside web browsers, developers do not need to develop web apps for multiple platforms. For example, a single application that runs in Chrome will work on both Windows and OS X. Developers do not need to distribute software updates to users when the web app is updated. By updating the application on the server, all users have access to the updated version. [8]

5.2.2 Database

For development of database we use SQLserver which is a popular choice of database for use in web applications. Web applications that create and manage SQLserver databases, build database structures, back up data, inspect status, and work with data records. For development of the database we use SQLServer which is a popular choice of database for use in web applications. Web applications that create and manage SQLServer databases. SQL Server also enhances the solution by increasing the readable secondaries count and sustaining read operations upon secondary-primary disconnections, and it provides new hybrid disaster recovery and backup solutions with Microsoft Azure, enabling customers to use existing skills with the on-premises version of SQL Server to take advantage of Microsoft's global data centers.

5.3 Flow Of System Development

The ow of system development describes How you performed and develop the proposed methods and procedure. Basic functionality, execution and steps of system execution are:

5.4 summary

In this chapter, implementation details and implementation environment are presented. Flow of system development is also explained in this chapter. Next chapter presents system testing of the project.

System Testing

Software testing is a critical element of software quality assurance and represents the ultimate review of specication, design, and code generation. The increasing visibility of software as a system element and the attendant costs associated with a software failure are motivating forces for well-planned, thorough testing. Once source code has been generated, software must be tested to uncover (and correct) as many errors as possible before delivery to customer.

6.1 How to implement testing

A goal of testing is to design a series of test cases that have a high likelihood of nding errors. This technique provide systematic guidance for designing tests that:

- 1. Exercise the internal logic of software components, and
- 2. Exercise the input and output domains of the program to uncover errors in program function, behavior and performance.

Software is tested from two dierent perspectives:

In both cases, the intent is to nd the maximum number of errors with the minimum amount of eort and time. A set of test cases designed to exercise both internal logic and external requirements is designed and documented, expected results are dened, and actual results are recorded. While begin testing, change point of view. Try hard to break the software. Design test cases in a disciplined fashion and review the test cases you do create for thoroughness. [1]

6.1.1 Black Box

Internal program logic is exercised using white box test case design techniques. In this testing we consider each and every module to perform input and output test. Validity Testing For this module, we gave the expected inputs that are username and password. Then if test case pass, it will login successfully. Behavior and performance Testing After successful Login we check whether student login their correct or not. Test case passes when the operations are correct and fail when exceptions occur.

6.1.2 White Box

Software requirements are exercised using black box test case design techniques. Independent Program paths In this we tested each module separately and tested that whether each module work correctly or not.

6.2 Test cases and Test Result

Positive Test Cases The positive flow of the functionality must be considered, Valid inputs must be used for testing and Must have the positive perception to verify whether the requirements are justied.

6.3 Summary

In this chapter, Black box testing, White box testing are presented. Various test cases such as positive and negative test cases are also explained in this chapter. Next chapter presents implementation of the project.

Results and Analysis

Data analysis is a ongoing process in a project. It gives sucient data to draw a meaningful conclusion. It can be wise to do some data analysis, even while collection of data is ready. The sections of the chapter are organized as follows. Section 7.1 presents sample snapshot of important processing and its explanation. Finally, summary of the chapter is given in the last section.

7.1 Sample Snapshot of important processing and its explanation

The following snapshot shows the Student home, Teacher home and Admin home which are registered by the specic details. The Admin is the one who handle all the information related to student, subject or teacher. Teacher can also Generate the Reports. overall report, semester wise report and subject wise reports. Student can fill Personal details. Also can fill result and marks of the subject. Only can view its semester wise reports. Student can also update own result information [9].

7.2 summary

In this chapter sample snapshots of important processing and its explanation is presented. Next chapter presents conclusion and future scope of the project.



Figure 7.1: Admin Home



Figure 7.2: Teacher Home



Figure 7.3: Student Home

Conclusion and Future Work

8.1 Conclusion

It is more easy for faculty members to use ERP system rather doing manual work. It is easy to handle and store information by using ERP system and also for generating various reports. In colleges we have to maintain many databases like student attendance, teacher leaves, scholarship details, marks details, audit point details etc. These all databases are maintained manually thats why management faces many overhead while maintaining all these records. Same is happened with teachers and class teachers, students have to go personally and meet management for getting any details of their curriculum. These problems are can be overcome by erp system software

8.2 Future Scope

Further modifications such as adding facility for audit points calculations, Student Attendance and automatic Fee generation will be developed in this system. Student can also upload results and other necessary documents to the system.

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