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Bagbazar, Kathmandu

Tribhuvan University

A Practical Report on

Project Work Syllabus [CSC404]

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Supervisor's Recommendation

I hereby recommend that the forthcoming project report prepared under my supervision by **Binita Subedi**, **Jeena Sherma** and **Rojina Dangi** entitled **"DIGITAL ASSIGNMENT MANAGEMENT SYSTEM"** in partial fulfillment of the requirements for the degree of Bsc CSIT is recommended for the final evaluation.

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Bagbajar, Kathmandu

ABSTRACT

The trend of submitting handwritten assignment is still in use very widely. Since we are in technical era, it is always not necessary to follow traditional. The modern time seeks minimized way to complete task in modern way. In this digital world, everything is getting advanced and everything in this world is needed to be upgraded. So, it'll be quite unreliable and less effective to follow traditional culture. So, to overcome existing limitations and provide more beneficial features here we proposed new system (Digital Assignment).

The concept and methodology used in this system manages assignments in systematical, effective and convenient way. Moreover, it is also portable and easily accessible. This system helps to save our time as we can perform this task from anywhere, anytime with the help of internet.

Using this system, especially it can be estimated that students will be upgraded in their knowledge degrade their laziness as the increased efficiency of assignment submission due to deadline provided at required time.

Keywords: Assignment, Digital Assignment.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
INTRODUCTION

1.1. Overview

As we are all in the modern technological field, it is not always appropriate to use the ancient way of doing things. Nevertheless, they are still worth using but there will be more new ideas and innovations to perform every daily task.

The proposed system will have several modules to perform its function. The first module is that of the admin who can handle and manage all the systems. His role is to connect multiple students, subjects and teachers. An admin also has a role to play in appointing the subject teacher. The system administrator has the right to view, edit, update and delete users and other related objects.

Teacher is one of the system user which is second module for this system. Teacher section is accessible to authorized teachers only. Only after logged in, features of teacher are accessible. Once teacher is successfully logged in, he can create assignments. Also he can modify the assignments if it is necessary. Teacher can view the assignment submitted by students. Understanding the assignment, he can comment and check the assignment.

The third module is the student who is also another user. Students can create their account by clicking on the sign up button if they do not already have an account. But the username must be the same as that provided by an administrator. The Student section is accessible with the username and password of the authorized student. Once the student is in, he/she can view the assignment and submit it to the teacher of the concerned subject by clicking on the submit button. He can also know whether his assignment is checked or not. He can manage both his checked and unchecked assignments.

1.2. Statement of Problem

The traditional way of managing assignments and notes has following limitations:

i. Increased paper work.
ii. Less secure
iii. Time consuming

iv. Less availability and accessibility

1.3. Objectives

The main objectives of the project are:

i. To avoid an excessive paper work.
ii. To track student's activities of submitted and not submitted assignments
iii. To make assignments available and accessible at any time.
iv. To manage assignments more efficiently.
v. To enhance student engagement.
vi. To improve grading accuracy.
vii. To track student's assignments activities records.

1.4. Scope and Limitations

1.4.1 Scope

Since every educational institution are rapidly shifting into online system, it seems to be very effective and beneficial to adopt Digital Assignment in every educational institution. Many schools/organizations are willing to get such system that may help to perform task through online system.

As this is going to be made in lower cost and simple to use we are hoping that even small institute or organizations can afford to use our system.

1.4.2. Limitations

The limitations of the project are:

- Not applicable for larger organizations
- Only focus on assignments related activity and not on other students activities.
- Cannot be used to track records for internal marks

CHAPTER 2
REQUIREMENT ANALYSIS

2.1. Literature Review

2.1.1 Blackboard Learning Management System

Blackboard Inc. known as a well-established developer of education software which provides powerful and flexible eLearning platform systems for educational instructions since more than a decade. Some of the Blackboard learning and teaching functions are to deliver content management and sharing, communication and virtual collaboration which includes - online assessments, student progress tracking, assignment and grading management, as well as create, appraise, analyze, and determine data about of campus activities all at once. The functions allow educators, administrators and students to learn and share materials in an integrated online as virtual campus system. Blackboard can integrate online learning tools with in-class learning tools [1]. Some of the various functions;

2.1.2 Edmodo Social Learning Platform

Edmodo is a "social learning platform" website similar to Facebook, founded by two people in 2008 [4]. Edmodo works in a very similar fashion as Facebook, with closed network, home screen looks like Facebook, and a feed of students' activity in the right hand column, which links to all of the courses in the left hand column, and tabs to access and manage courses at the top of the column [3]. As an online networking application for educators, students and parents, it is in a controlled environment appropriate for schools, colleges and universities. It is functional as a free-of charge tool for communication with over 500,000 students worldwide [4]. Some of the various functions;

Both tools do not have the capacity to track and monitor student project as the project has many faces with different milestone. In the above fact, generally, teachers assign the assignment and students submit it. But How can one student know that ‘Was his assignment totally correct? Needed any improvisation? Was teacher happy with him/her? We’ll be adding above mentioned features to develop a pattern of effective assignment submission. Of course, users need a simple, easy and reliable system. We have no paid entry and users

can use all the features of the system just by login. Once the system is built, hope this will be going to work more than what we have expect.

2.2. Requirement Analysis

2.2.1 Functional Requirements

Functional requirements identify the provision of the system and the system's reaction to the certain output and how the system should behave in day to day basis. This system is mainly focused on managing student's assignments totally virtually.

The functional requirements of "Student Assignment Management System" includes the following tasks: -

1. The user should be able to login into the system using their unique username and password.
2. The system will allow access to user account after the authentication.
3. The system will allow admin to add the user. Whenever other user tries to login, they cannot.
4. The system will allow Admin to assign subject teacher.
5. The system will allow Teacher to create assignment, view, edit and update and can download assignment the assignment.
6. The system will allow Student to submit and view their assignment status.
7. All the system user should be able to view their profile.

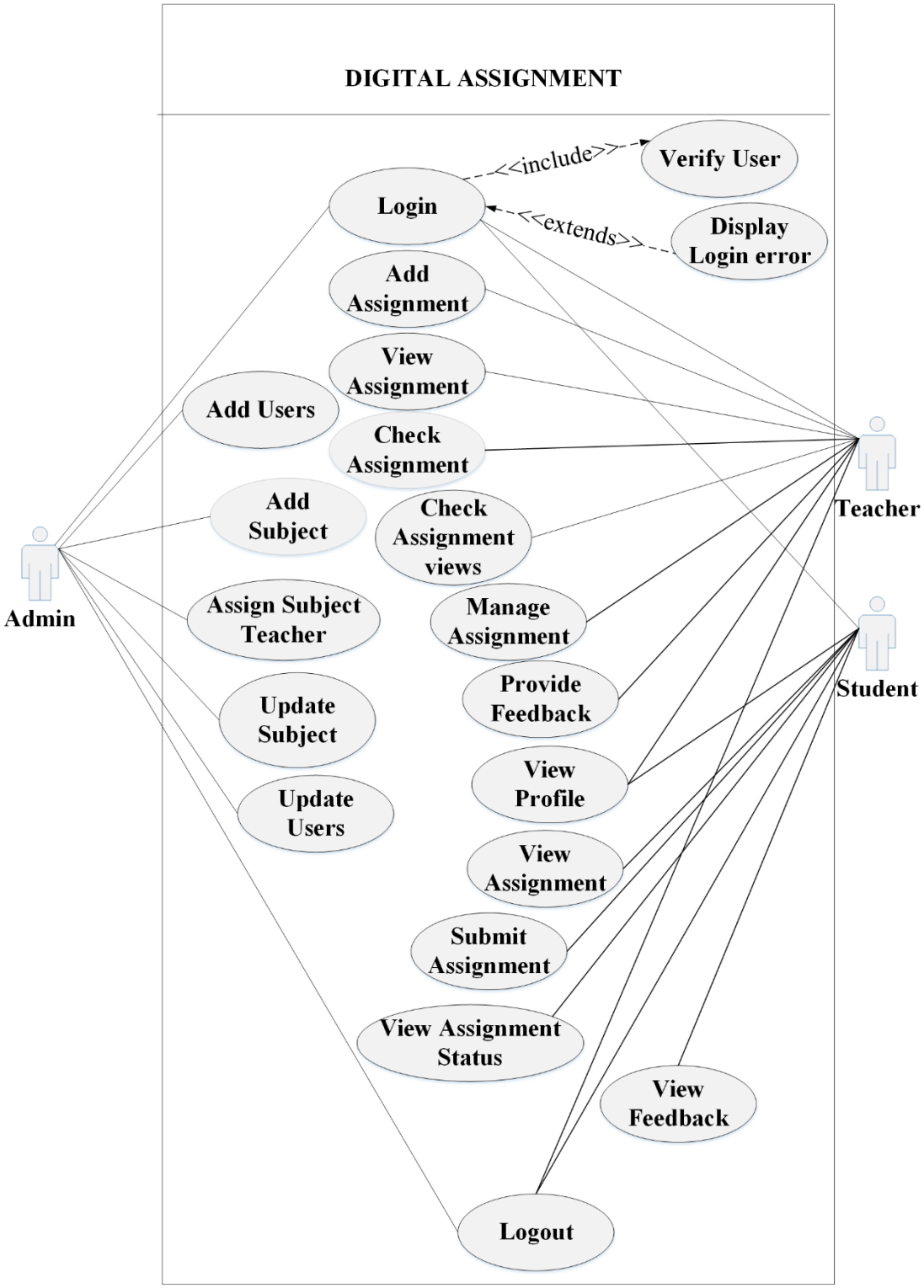
DIGITAL ASSIGNMENT
Login
<<include>>
Verify User
<<extends>>
Display Login error
Add Assignment
View Assignment
Add Users
Check Assignment
Add Subject
Check Assignment views
Assign Subject Teacher
Manage Assignment
Update Subject
Provide Feedback
Update Users
View Profile
View Assignment
Submit Assignment
View Assignment Status
View Feedback
Logout
Admin
Teacher
Student

Figure 2.2.1.1 Use Case Diagram of Digital Assignment

2.2.2 Non-Functional Requirements

- **Usability:** The system needs to be usable by every user.
- **Maintenance:** The system needs to be maintainable.
- **Extendable and Scalability:** The system is extendable and scalable for future enhancements.
- **Availability and Accessibility:** The system is available and accessible at any time.
- **Secure**: The system should be secured from unauthorized usage and access.

2.3. Feasibility Analysis

2.3.1. Economic Feasibility

Development of this application is highly economically feasible. The only thing to be done is making an environment with an effective supervision. It is cost effective in the sense that has eliminated the paper work completely. The system is also time effective because the calculations are automated which are made at the end of the month or as per the user requirement.

2.3.2. Technical Feasibility

The system will require any device where browser is supported. So, system is technically feasible.

2.3.3. Operational Feasibility

The system is easy to operate. User requires no special training for operating the system. The system will have three types of users: Admin, Teacher and Student. The system will allow access to users account after authentication.

2.3.4 Schedule Feasibility

In this we have set our project activity and according to it our project finished on 20th April and we built our project easily within time and is easily manageable.

Activities Working	22th Feb	3th Mar	5th Mar	15th Mar	27th Apr	31st Apr
Planning						
Design						
Coding						
Testing						
Documentation						

Figure 2.1 Gantt Chart

CHAPTER 3
SYSTEM DESIGN

3.1. Flow Diagram of a System

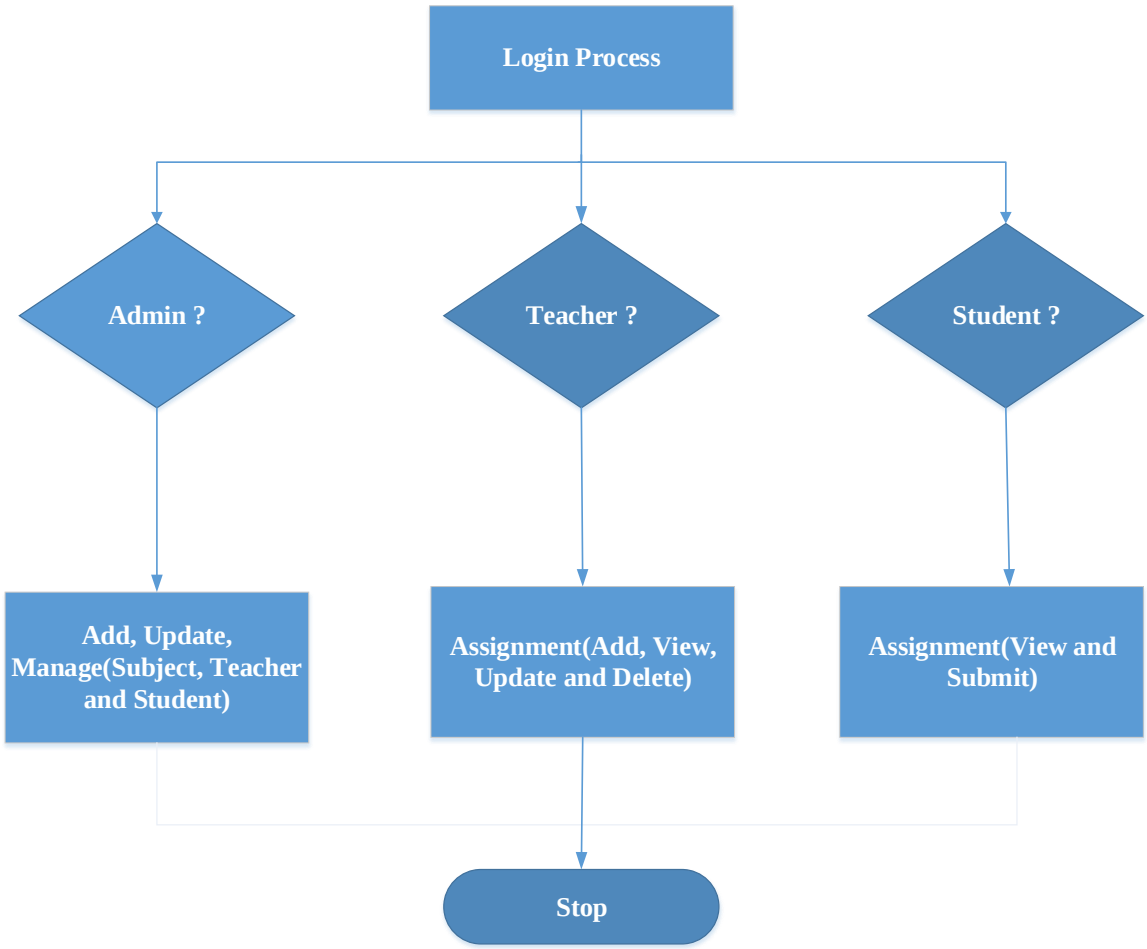

Figure 3.1 System Flow Diagram of Digital Assignment

3.2. Data Modelling (ER-Diagram)

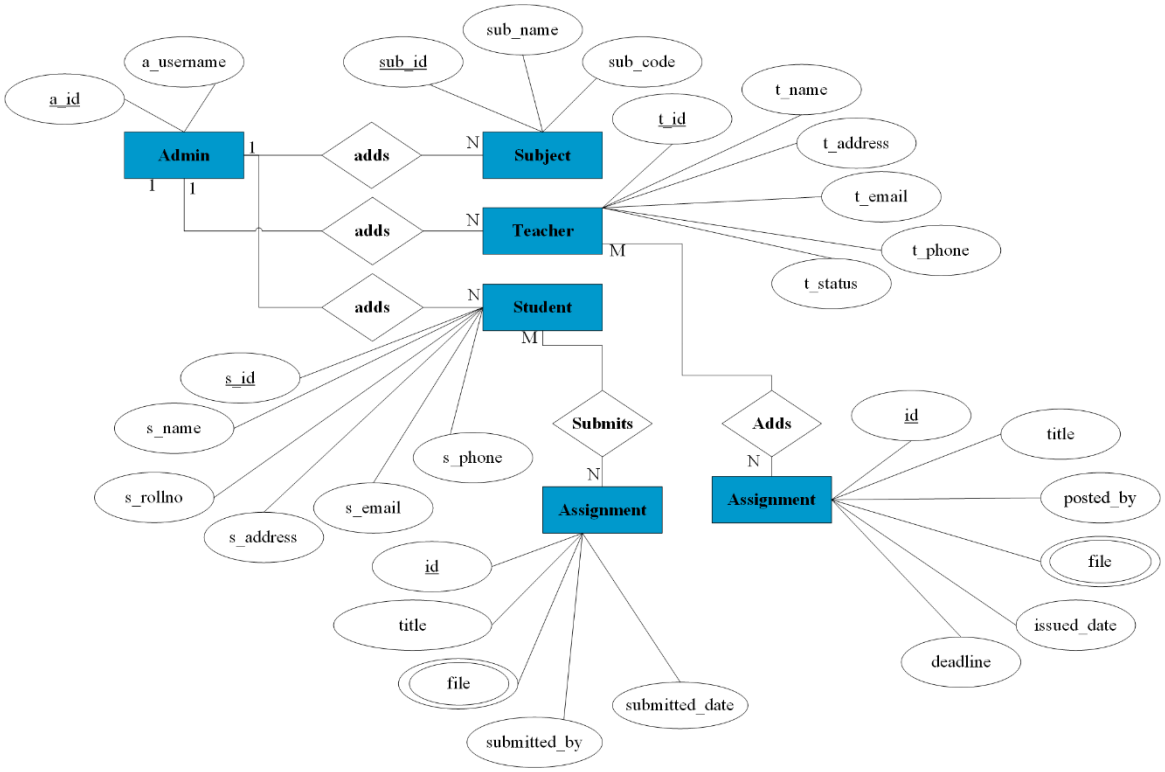

Figure 3.2 ER diagram of Digital Assignment

3.3. Sequence Diagram

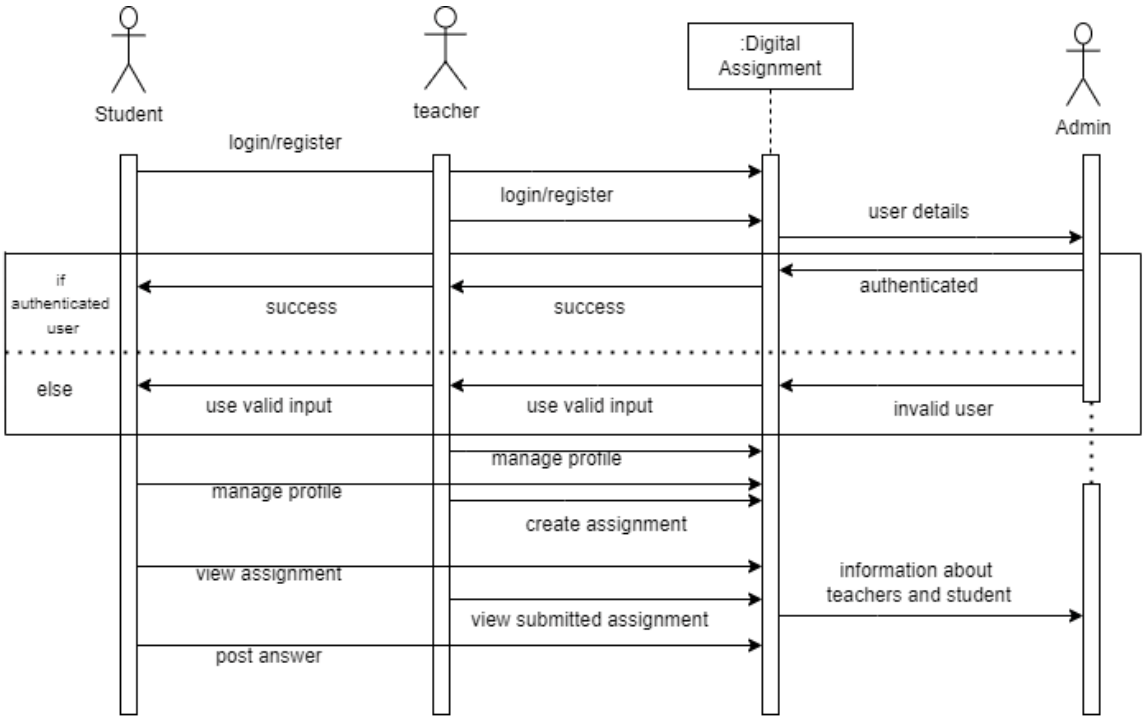

Fig 3.3 Sequence Diagram of Digital Assignment

3.4 Component Diagram

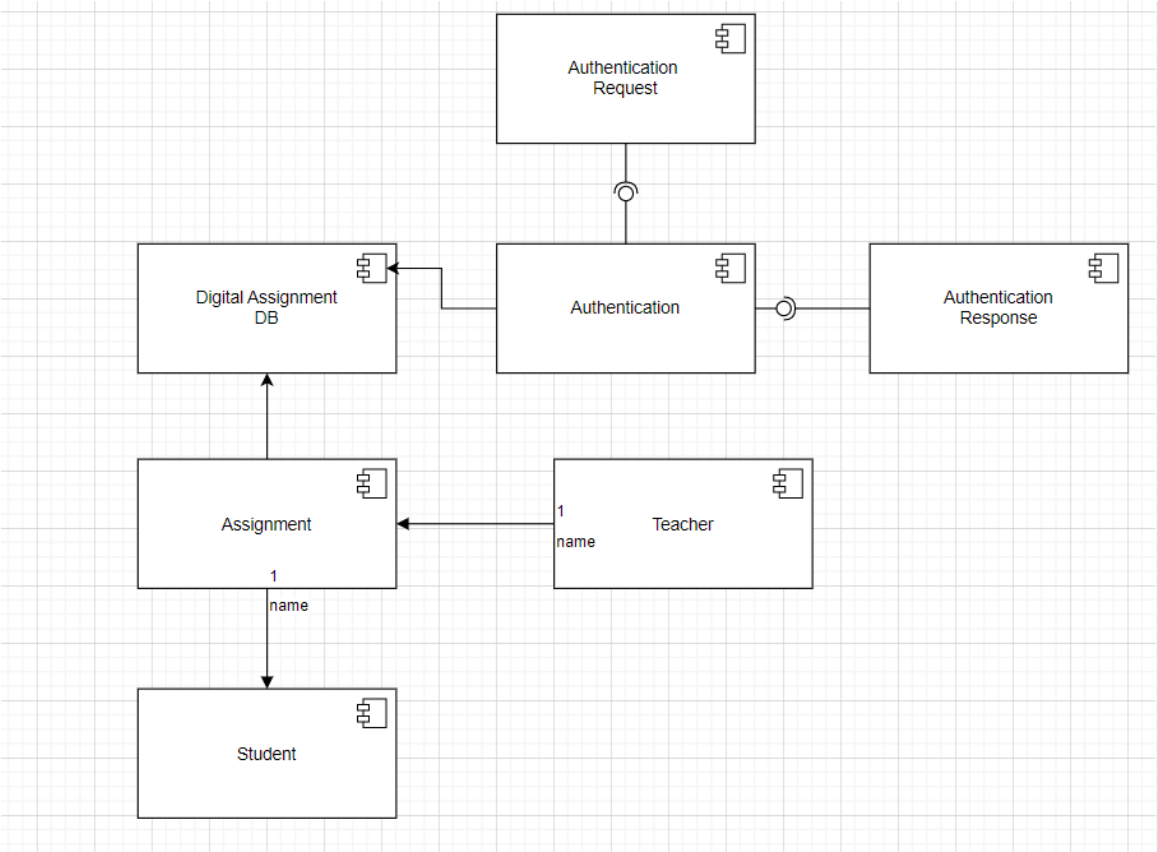

Fig 3.4 Component diagram of Digital Assignment

3.4. Algorithm Description

3.4.1 Tracking algorithm

A tracking algorithm is a type of algorithm that is used to monitor and analyze the movement or behavior of objects or entities over time. Tracking algorithms can be used in a variety of applications, such as surveillance, robotics, motion capture, and user behavior tracking. In the context of our website, the tracking algorithm we discussed is used to monitor which students have viewed a particular assignment. This information is useful for teachers to understand student engagement and to identify students who may need extra support or encouragement.

3.4.2 Assignment View Tracking Algorithm

The Assignment View Tracking Algorithm is a tracking algorithm implemented in the online platform that allows teachers to monitor which students have viewed a particular assignment. The algorithm works by tracking the timestamps of when each student viewed the assignment, and then generating reports that show which students have viewed the

assignment and when they did so. This information can help teachers to gauge student engagement and identify students who may need extra support or encouragement. However, it is important to ensure that user privacy is respected, and that users are informed about the data that is being tracked and how it is being used.
The main steps involved in the Assignment View Tracking Algorithm are:

Data Collection: The algorithm collects data on which students have viewed the assignment, as well as when they viewed it. This data is typically collected automatically by the platform, using cookies or other tracking technologies.

Data Processing: The algorithm processes the collected data to generate reports that show which students have viewed the assignment and when they did so. This may involve analyzing the timestamps of when the assignment was viewed by each student, and identifying patterns or trends in the data.

Data Visualization: The algorithm presents the results of the data processing in a user-friendly way, such as a table, chart, or other visualization. This allows teachers to easily see which students have viewed the assignment and when they did so, and to identify any students who may need extra support or encouragement.

Overall, the Assignment View Tracking Algorithm is a useful tool for teachers to monitor student engagement and to identify students who may need extra support. However, it is important to ensure that user privacy is respected, and that users are informed about the data that is being tracked and how it is being used.

CHAPTER 4
IMPLEMENTATION AND TESTING

4.1. Agile Development Model

Agile development is a software development approach that emphasizes flexibility, collaboration, and iterative development. It is particularly well-suited for projects that are complex, involve changing requirements, and require frequent feedback and updates.

Agile development could help ensure that the features and functionality of the website are developed in a way that meets the needs of your users and stakeholders. With Agile, you can work in short development cycles, called sprints, where you create small increments of the website and review them regularly with your team and stakeholders. This approach allows you to make adjustments and updates to the website as you go along, based on feedback and changing requirements.

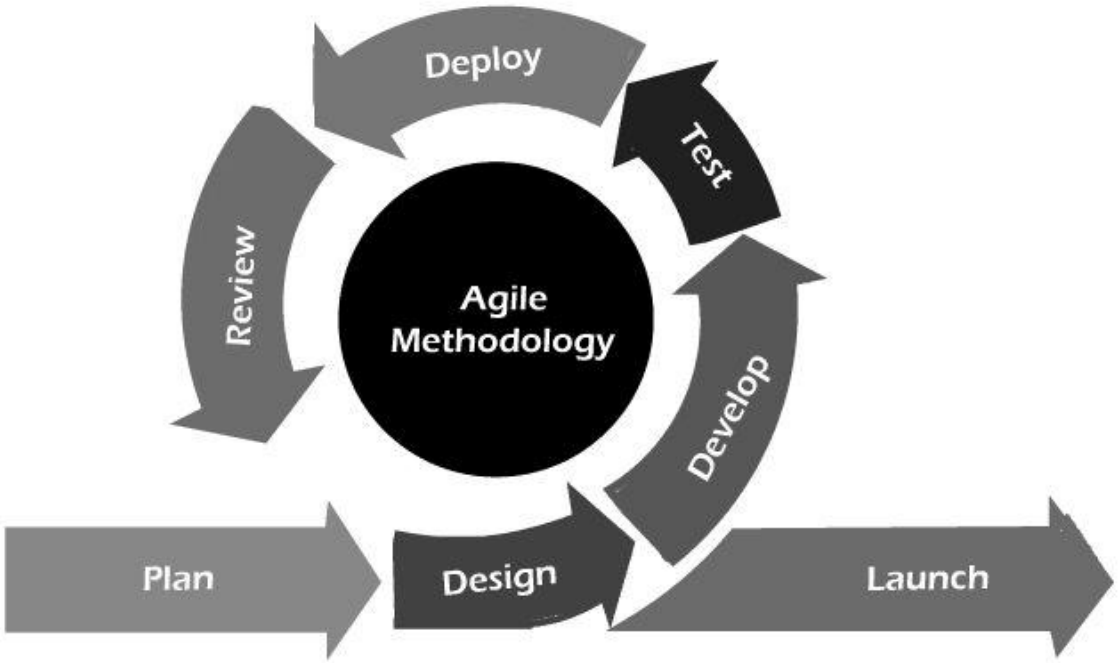

Figure 4.2 Agile Development Model

4.1.1. Tools used

i. Diagram Tools

These tools are used to represent system components, data and control flow among various software components and system structure in a graphical form. We have used draw.io as our diagram tool.

ii. **Documentation Tools**

Documentation in a software project starts prior to the software process, goes throughout all phases of SDLC and after the completion of the project. Here we have used MS. Office 19 for the documentation of our project.

iii. **Programming Tools**

These tools consist of programming environments IDE. We have used Visual Studio Code as our programming tool.

iv. **Web Development Tools**

Web tools provide live preview of what is being developed and how will it look after completion. We have used Mozilla Firefox and Google Chrome as our web development tool.

4.1.2. Others Tools and Platforms

Visual Studio Code

Sublime Text Editor is a source-code editor that can be used with a variety of programming languages. We've used Visual Studio Code as a code editor as it includes support for debugging, syntax highlighting, intelligent code completion, snippets and code refactoring. Also we can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

Hyper Text Mark-up Language (HTML):

To run and to display the system in a web browser, we've used HTML which is the standard markup language. To make web system beautiful, user friendly, attractive and responsive, we've assisted CSS and Bootstrap.

JavaScript: JavaScript is used for form handling and also for the overall behavior of web pages.

MySQL:

To store and manage the information of all the system users, we've used MySQL which is an open-source relational database management system. It runs on a server and we've used server version: 10.3.16-MariaDB.

PHP:

We've used PHP for web (backend) development since it is a server-side scripting language. It is fast, flexible and pragmatic tool to the most powerful websites in the world.
PHP version we've used: 7.3.6.

XAMPP:

We've used XAMPP as a software platform which helps a local host or server to test the system we've build. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself.

4.2. Testing

Once we have generated the source code of our system, we have tested our entire system to identify and resolve the errors generated before delivery to the customer. Following testing techniques are well known and the same strategy is adopted during this project testing.

i. **Unit testing:**

Unit testing focuses verification effort on the smallest unit of software design- the software component or module. The unit test is white-box oriented. The unit testing implemented in every module of student attendance management System, by giving correct manual input to the system, the data are stored in database and retrieved. If you want required module to access input or get the output from the End user any error will accrued the time will provide handler to show what type of error will have accrued.

ii. **System testing:**

System testing is actually a series of different tests whose primary purpose is to fully exercise the computer-based system. Below we have described the two types of testing which have been taken for this project. It is to check all modules worked on input basis if we want change any values or inputs will change all information.

4.2.1. Unit Testing

Table 4.1. Testing Registration Form

TC ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Status
TC 01	Account sign up form validation	Choose username and fill other field to create an account.	Choose username provided by system admin and enter an email and password	Display message “Successfully signup ”	Display message “Account created successfully ”	Pass
TC 02	Password Validation	Unmatched password	When no matched password	Display message “Password does not match. “	Display message “Password doesn’t match. Try entering similar password.”	Pass

Table 4.2. Testing Login Form

TC ID	Test Case Name	Test Case User	Test Case Description	Step	Expected Result	Actual Result	Status
TC 03	Login Validation	Admin	Enter valid username and password	Click Login as admin and Enter valid username and password	Successful login or an error message “Invalid username or Password” have to be displayed.	Successful Login Directed to Admin dashboard.	Pass
TC 04	Login Validation	Admin	Enter invalid username and password	Click login as admin and Enter invalid username and invalid password	An error message “Invalid username or password... ” must be displayed.	An error message “Invalid username or password. ” was displayed.	Pass
TC 05	Login Validation	Teacher	Enter valid username and password	Choose login as Teacher and Enter username and password	Successful login or an error message “Invalid username or password” must be displayed.	Successful Login Directed to Teacher page.	Pass

TC 06	Login Validation	Teacher	Enter invalid username and password	Choose login as Teacher and Enter invalid username and password	An error message “Invalid User or Password” must be displayed.	An error message “Invalid username or password. ” was displayed.	Pass
TC 07	Login Validation	Student	Enter valid username and password	Click login as student and Enter username and invalid password	Login Successful or an error message “Invalid username or password” must be displayed.	Successful Login Directed to Student page.	Pass
TC 08	Login Validation	Student	Enter invalid username and password	Click login as student and Enter invalid username and invalid password	An error message “Invalid username or password” must be displayed.	An error message “Invalid username or password. ” was displayed.	Pass

Table 4.3 Testing Admin Dashboard

TC ID	Test Case Name	Test Case Description	Step	Expected Result	Actual Result	Status
TC 10	Add Subject	Inserting a new subject	Insert New subject	Successfully Add new subject or display an error message “Subject is already added”.	Subject added successfully	Pass
TC 11	Insert Subject	Insert Subject that already exist in table.	Insert New Subject	Display an error message “Subject is already added”.	Display an error message “Subject is already added”.	Pass
TC 12	Inserting New Subject	Inserting New Subject	Add subject name and code	Successfully Add new Subject or display an error message “Subject is already added”.	Display message “Subject added successfully”	Pass

TC 13	Add Teacher	Adding a new teacher	Add new teacher	Successfully add new Teacher or display an error message.	Teacher added successfully	Pass
TC 14	Add an existing teacher	Try to add an existing teacher	Add teacher by filling forms	Teacher name already exists.	Display message "Teacher already exists"	Pass
TC 15	View Profile	View teacher profile	Click on a view details button	Display Profile	Profile displayed	Pass
TC 16	Edit detail	Edit teacher detail	Click on an edit button and update new detail	Detail updated	Profile updated Successfully	Pass
TC 17	Logout	End session	Logout to end session	Session end logout	Session end logout	Pass

CHAPTER 5
CONCLUSION AND FUTURE RECOMMENDATIONS

5.1 Conclusion

The problems identified with the existing systems were solved well in line with our objective. Our system had reduced paperwork and was also safe from file loss and unauthorized access. By using this system both teacher and student can do their respective activities efficiently. Assignments were available at any time and could be easily accessed with a verified user login. Now one can easily use this system as it is user friendly and responsive in web browser.

Using this system, the educational organizations will be able to save their time and effort to handle the student's assignments.

5.2. Future Recommendations

This work can be further extended to global purposed system. The project has a very vast scope in future. In order to improve the effectiveness of the application to its greater height and full potential, it’s recommended that the following features should be added for future expansion of this project.

i. System available for global use
ii. File and class note sharing.
iii. User video chat/ conference system

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