

## **Tutor Management System**

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This project has been submitted in fulfillment of the requirements for the Degree of Bachelor of Science in Software Engineering.

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#### APPROVAL

This Project titled "Tutor Management System" submitted by Komol Chandra Ghose (131-35-369) and Kazi Md Kamruzzaman Bablu (131-35-420) to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Software Engineering and approved as to its style and contents.

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#### **DECLARATION**

We hereby declare that, this project has been done by us under the supervision of Dr. Md. Asraf Ali, Associate Professor, Department of Software Engineering, and Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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#### **ABSTRACT**

**"Tutor"** is a management system where will three type user's admin, student, and teacher. Student can register on this site then he/she get notification by mail then he/she verified his account. After complete his verification then he/she update his profile. Without verification he/she cannot submit his post. When he/she submit his/her post for looking teacher then this location all teacher's get notification through mail then he/she contact with this student. Teacher process same like as student.

### TABLE OF CONTENTS

APPROVAL		I
ECLARATION		II
ACKNOWLEDGE	EMENTS	II
ABSTRACT		IV
TABLE OF CONT	TENTS	V
LIST OF TABLE		.VI
LIST OF FIGURE	V	/III
Chapter 1: Projec	et Initiation	1
1.1	Introduction.	1
1.2	Background of the project	
1.3	Problem with the current systems	
1.4	Purpose and Scope	
1.5	Beneficiaries and Benefits.	
1.6	Conclusion	1
Chapter 2: System	n Analysis	2
2.1	Introduction.	2
2.2	Requirement Analysis.	2
	2.2.1 Requirement Gathering	
	2.2.2 Requirement Specification.	
	2.2.3 Functional Requirement List.	
	2.2.4 Non-Functional Requirement List.	. 3
	2.2.5 Use case Diagram of Proposed System.	
2.3	Software Development Plan	
	2.3.1 Project Features	6
	2.3.2 Risk Management.	6
2.4	Software Test Plan	7
	2.4.1 Object	8
	2.4.2 Scope	. 8
	2.4.3 Test strategy.	8
2.5	Conclusion	9
Chapter 3: System	n Design	10
3.1	Introduction	10
3.2	Component Diagram.	.11
3.3	Class Diagram.	12
3.4	Crow's Foot Entity Relationship Diagram.	13
3.5	Database Design.	14
3.6	Sequence Diagram	15
3.7	Conclusion	
Chapter 4: Develo	ppment	17
4.1	Introduction	17
4.2	Technology and Tools.	17

	4.3	Reason Behind Choosing.	17
		4.3.1 In General.	17
		4.3.2 On Perspective of this project.	17
	4.4	Conclusion	17
Chapter	5: Testin	g	.18
	5.1	Introduction	18
	5.2	Test Case	18
	5.3	Black Box Testing	19
	5.4	Module Testing	20
	5.5	All other Testing	22
	5.6	Conclusion	22
Chapter	6: User N	Tanual	23
	6.1 Train	ing	23
	6.2 How	It Works	23
Chapter	7: Conclu	ısion	24
	7.1 Introd	duction	24
	7.2 Stren	gth of the System	24
	7.2 Weak	cness of the System	24
		e Scope	
Appendix		*	
Annendi			26

#### LIST OF TABLES

ó
7
9
9
0
0
1
7

## LIST OF FIGURES

Figure 2.1: Admin Use case	4
Figure 2.3: Teacher (public user) use case.	5
Figure 3.1: Component Diagram.	11
Figure 3.2: Class Diagram.	12
Figure 3.3: Crow's Foot Entity Relationship Diagram.	13
Figure 3.4: Database Design.	14
Figure 3.5: Sequence Diagram for Admin	15
Figure 3.6: Sequence Diagram for Student.	15
Figure 3.7: Sequence Diagram for Teacher.	16

### **Project Initiation**

#### 1.1 Introduction

Basic knowledge is mandatory about a system area before develop it. It is very important to understand well about before actual development and it will be very helpful for development Project initiation will give overall knowledge and visualized purpose of this system.

#### 1.2 Background of the Project

Technology is a necessity of the modern lifestyle. Technology has improved human lives significantly by providing convenience and efficiency. It has made easily possible for us to access education, communication, medicine, transportation, sports, etc. Our aim is student & teacher can find each other easily. Student & teacher can save their time.

### 1.3 Problem with the Current System

Sometimes users will publish fake tuition that make student & teacher hares.

#### 1.4 Purpose and Scope

The goal of making this system teacher can find easily their choice able tuition or batch and student can find their suitable teacher.

#### 1.5 Beneficiaries and Benefits

#### 1: Admin

- Check All user list
- Identify them
- Manage all users

#### 2: Teacher

- Find student.
- Choose student.
- Get student post notification by mail.
- Provide all his requirements.

#### 3: Student

- Find teacher.
- Choose teacher
- Get Teacher post notification by mail.
- Provide information which types of teacher's he/she wants.

#### 1.5 Conclusion

A system is planned to develop which will give easily find teacher & student. When student submit post then nearby teacher find email notification. Student get notification by same process.

### **System Analysis**

#### 2.1 Introduction

After analyzing the requirements of the problematic area based on them a system design and specified required software development process and test plan will be choose.

#### 2.2 Requirement Analysis

User exceptions for new or modified product need analysis for determine their actual requirement, this process is known as Requirement Analysis. Requirements must be quantifiable, relevant and detailed. Functional and Nonfunctional requirements are available. By requirements gathering and specifying them requirements analysis done.

#### 2.2.1 Requirement Gathering

Requirement gathering techniques are like brainstorming, questionnaires, interviews, user observation and document research are used for problem area to identify requirement.

By meeting with our supervisor first we list the requirements from our perspective. To collect real life requirements we talk with student and teacher what type of problem they face. Collecting them we have find out this solution.

#### 2.2.2 Requirement Specification

List of raw requirements from requirement analysis are—

- 1. There will be online tuition management system.
- 2. There will be three types users:
  - a. Admin
  - b. Student
  - c. Teacher
- 3. Student & teacher can register on this site.
- 4. After completing this registration process they will verify their account.
- 5. Without completing verification teacher and student cannot submit post.
- 6. Student & Teacher can see only this month post.
- 7. When student looking teacher then nearby location teacher will get mail notification.
- 8. When teacher looking tuition then nearby location student will get mail notification.
- 9. Admin will take care of the whole system.

### 2.2.3 Functional Requirement List

Table 2.1: Functional Requirement List

ID: FR01

**Requirement Description:** Student register on this site and verify their account after verification they can submit post. When student submit post then nearest location teacher will notify by mail then they can contact with student.

• **Responsibility:** Student

• **Time Frame:** November 5, 2018 – November 15, 2018

Feature: register, verify, add post, notify teacher.

Reason to choose: Without student's information this system has no value.

#### D:FR02

**Requirement Description:** Teacher register on this site and verify their account after verification they can submit post. When teacher submit post then nearest location teacher will notify by mail then they contact with teacher.

• Responsibility: Teacher

• **Time Frame:** November 16, 2018 – November 17, 2018

**Feature:** register, verify, add post, notify student

**Reason to choose:** Without teacher's information this system has no value.

### 2.2.4 Non-Functional Requirement List

Table 2.2: Non-Functional Requirement List

:NFR	

Requirement Description: Font size and face acceptable for all device and user.

• Responsibility: Admin, teacher, student.

• **Time Frame:** Through the development phase

Feature: Include in all feature.

**Reason to choose:** For better usability and readability.

#### ID:NFR2

Requirement Description: Background color and font color acceptable for all devices and user.

• **Responsibility:** Admin, teacher, student.

• **Time Frame:** Through the development phase.

**Feature:** Includes in all feature.

**Reason to choose:** For better usability and readability.

#### ID:NFR3

**Requirement Description:** Security is also a major requirement of this system.

• **Responsibility:** Admin, teacher, student.

• **Time Frame:** Through the development phase.

**Feature:** Includes in all feature.

**Reason to choose:** It will ensure the security. Also save the system from hacking.

## 2.2.5 Use case Diagram of Proposed System

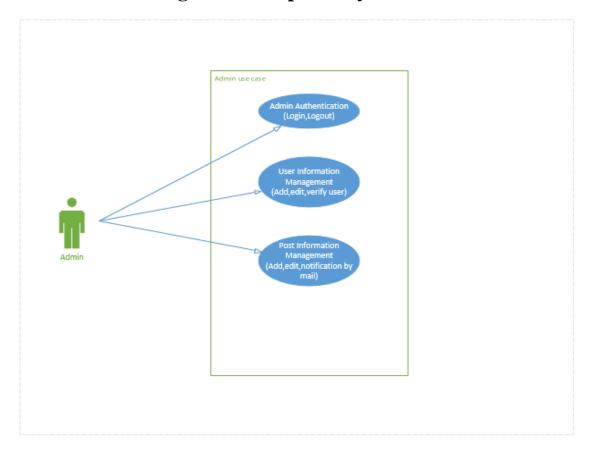


Figure 2.1: Admin Use case

For details Use Case Documentation check Appendix A section

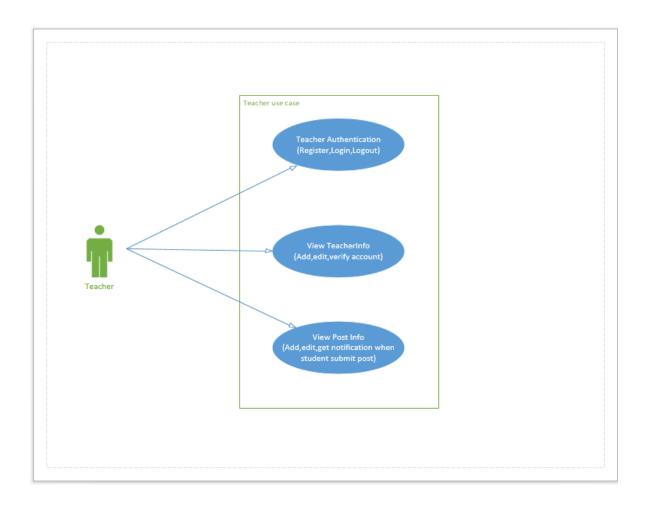


Figure 2.2: teacher Use case

For details Use Case Documentation check Appendix A section

## 2.3 Software Development Plan

#### **2.3.1 Project Features**

These are the project features we will develop in our system -

#### • For Admin

- 1. Student and teacher information management for add, edit and verify student.
- 2. Add, edit, location list.
- 3. Check how many users are verified.

#### • For Student

- 1. View profile and update profile.
- 2. View post and update post.

#### • For Teacher

- 1. View profile and update profile.
- 2. View post and update post

## 2.3.2 Risk Management

#### 2.3.2.1 Risk identification

Risk identification is involved with team members (Authors), stack holders of this project, environment factors, project management plan and scope. Very careful attention will be given to project plan and deliverable date, assumption, constraint and other key factors.

Table 2.3: Risk identification

Risk Description	Causes	Impacts
If mentioned student and does not provide information to fill up real data	They are very privacy concerned.	Have to generate dummy data which will delay development time.
If mentioned student and teacher are not very specific about expected requirements.	Lack of understanding and confused about decision.	<ul> <li>Delay development time</li> <li>Problem in requirements analysis.</li> </ul>
Expected 100% requirements (solution) to be delivered.	To meet all requirements	Delay development time OR Compromised quality
If solution does not meet the needs	<ul> <li>Lack of understanding requirements</li> <li>Not followed the appropriate solution.</li> </ul>	<ul> <li>Direct impact project structure.</li> <li>Delay development time for re-development those needs.</li> </ul>
Software failure	<ul><li>Operation System failure</li><li>Development tools failure</li></ul>	<ul><li>Data loss.</li><li>Delay development time.</li></ul>
Hardware failure	<ul><li>Low performance</li><li>Life time expired.</li></ul>	<ul><li>Data loss</li><li>Delay development time</li></ul>
Backup failure	<ul> <li>Internet connection problem</li> <li>Forget synchronize data</li> </ul>	<ul><li>Data loss</li><li>Delay development time</li></ul>
Man made and accidental effects	<ul><li>Theft of devices</li><li>Users scarcity of skills</li><li>Fire</li></ul>	<ul> <li>Data loss.</li> <li>Delay development time.</li> <li>System loss</li> <li>Hardware loss</li> </ul>
Natural effects	Earthquake, flood, storm etc.	<ul><li>Data loss</li><li>Delay development time.</li><li>Hardware loss</li></ul>

#### 2.3.2.2 Risk assessment and action plan

Risk assessment and action plan will help to measure the risk level and what action need to apply against that risk. Risk assessment normally perform by project manager here team member will manage.

Table 2.4: Risk Assessment

Risk Description	Action Against Risk	When To Take Action
If mentioned student and does not	Request and discuss with them to	From the beginning of the
provide information to fill up real data	provide information	project
If mentioned student and teacher are	<ul> <li>Have follow some rules to</li> </ul>	From the beginning of the
not very specific about expected	prioritize requirements.	project.
requirements.	<ul> <li>Re-interview with them to</li> </ul>	
	confirm and clear about	
	requirements	
Expected 100% requirements	Make schedule to complete all	Before starting development.
(solution) to be delivered.	requirements without	
TC 1 d 1	compromised quality.	D.C
If solution does not meet the needs	Re confirm all the requirement	Before starting development.
	and requirements without	
Software failure	compromised quality  • Must use stable	Throughout the project
Software famule	Must use stable operating system and	Throughout the project
	development tools.	
	Use some anti-virus	
	if needed.	
	Must use cloud	
	backup	
	Control unauthorized	
	access.	
Hardware failure	Use required	Through the project
	hardware for better	
	performance	
	• Use IPS	
	Must use cloud	
	backup	
Backup failure	<ul> <li>Use stable internet</li> </ul>	Through the project
	<ul> <li>Must enable</li> </ul>	
	synchronization with	
	cloud storage.	
Man made and accidental effects	Control unauthorized	Through the project
	access.	
	Check electricity	
	line.	
	Muse use cloud	
Nistronal effects	backup	Thursday the grain t
Natural effects	Must use cloud	Throughout the project
	backup	

### 2.4 Software Test Plan

Test plan is a document describing the objective and scope to be tested to run for a software project. The test plan contains identifying test items, the feature to be tested and who will tested by maintaining workflow.

### 2.4.1 Objective

To understand a system whether a system works properly or not a perfect test plan is necessary. By comparing with system output with expected output whether system is productive or nonproductive can be confirmed.

## **2.4.2** Scope

To test a system various types of tests are available. Here we will use unit and module testing through black box testing for module and source.

#### 2.4.2.1 Function to be tested

- Authentication module
- User information management
- Users list
- Posts information management
- Posts list
- Notification mail test

#### 2.4.2.2 Function not to be tested

No specific field found.

#### 2.4.3 Test strategy

The different levels of testing will apply –

### 2.4.3.1 Black Box Testing

- It will reduce the level of bugs in the system production
- It will make system more stable.
- It will help write code better

#### 2.4.3.2 Module Testing

Module testing is used along with unit testing.

- It will to detect errors of system by using unit.
- Early error detection will reduce development cost and time.
- It is used for the beginning of development so system will less error prone.

### 2.4.3.3 Acceptance testing

- It will trust worthy and satisfactory to system user.
- It will disclose more defects on the system by formal or informal way.

## 2.4.3.4 Performance Testing

• It will help to measure system performance.

• It will help to verify scalability, reliability and resource usage.

## 2.4.3.5 Security Testing

- It will ensure access control
- It will prevent from unauthorized access.
- It will be trustworthy and satisfactory to system user.

## 2.5 Conclusion

By completing system analysis and other parts of project development like system design, development and testing get very easier.

## 3. System Design

#### 3.1 Introduction

To achieve a better system and to make development work easier, time consume and less error prone System Design is must needed. System Design is way to design structure of a system like architecture, component and database design etc.

### 3.2 Component Diagram

The relationship between different components in this system.

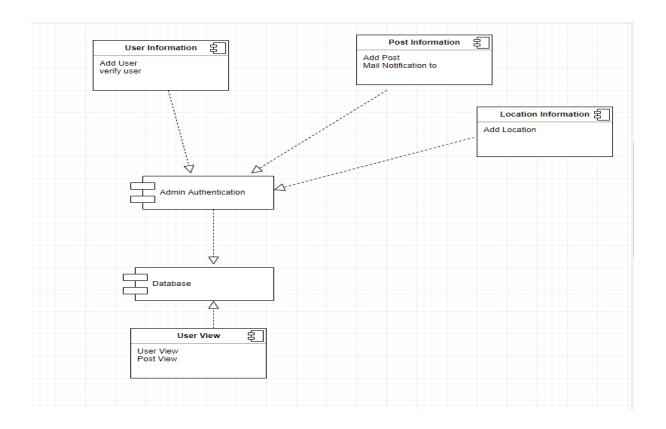


Figure 3.1: Component Diagram

## 3.3 Class Diagram

The purpose of the class diagram describes the attributes and operations of a class and also the constraints imposed of this system.

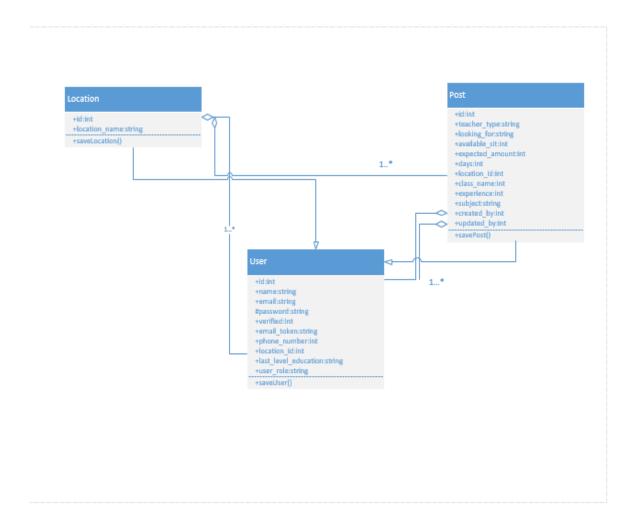


Figure 3.2: Class Diagram

## **3.4 Crow's Foot Entity Relationship Diagram**

The purpose of ERD to design relational database for this system.

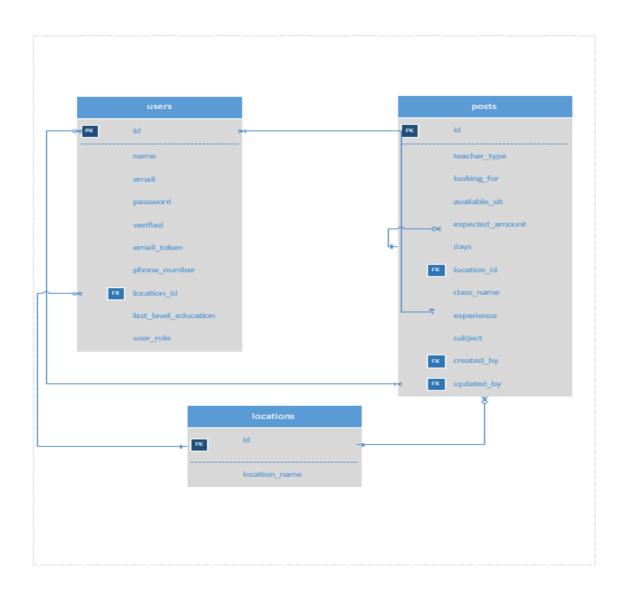


Figure 3.3: Crow's Foot Entity Relationship Diagram

## 3.5 Database Design

The complete database schema design for proposed system.

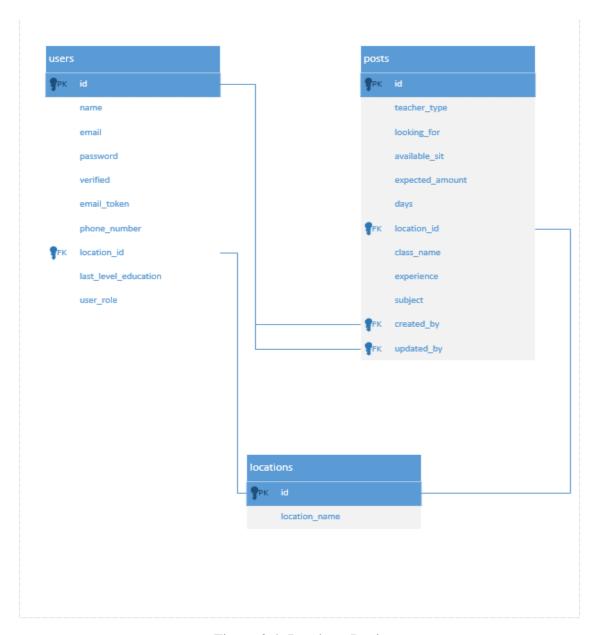


Figure 3.4: Database Design

## 3.6 Sequence Diagram

Sequence Diagram illustrate how the different parts of a system interact with each other to carry out a function, and the order in which the interactions occur when a particular use case is executed.

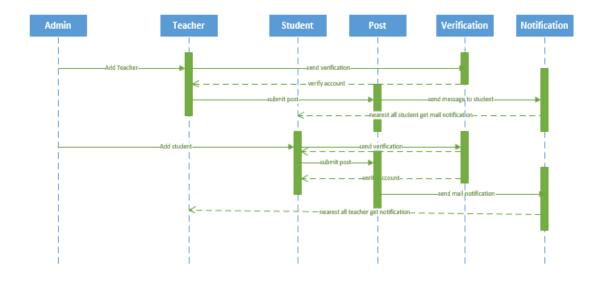


Figure 3.5: Sequence Diagram for Admin

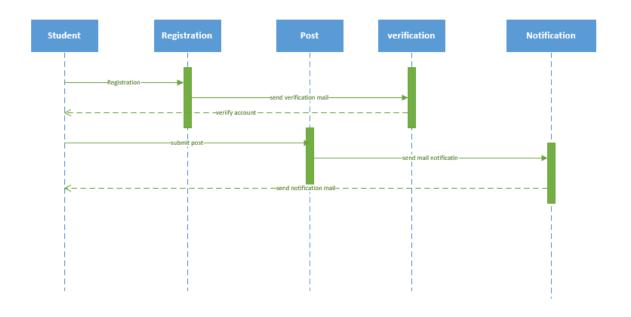


Figure 3.6 Sequence Diagram for Student

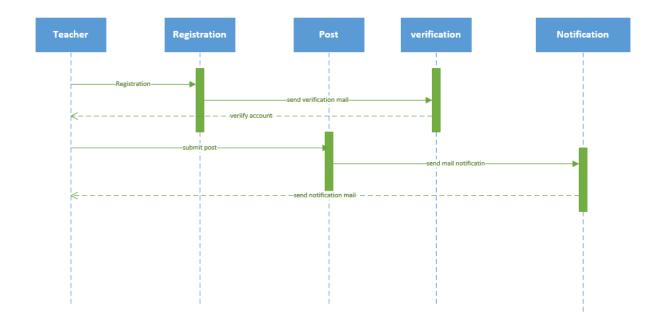


Figure 3.7 Sequence Diagram for teacher

## 3.7 Conclusion

This chapter will cover the comprehensive design of the system. Design phase converts the user's requirements into more technical terms which are prepared to development for selected technology and tools.

### 3. Development

#### 4.1 Introduction

To develop this system we (authors) have to choose technology and tools. This system will be a web application.

#### 4.2 Technology and Tools

- **Presentation Layer** -HTML5,CSS3, Bootstrap, JavaScript, jQuery
- Application Layer-PHP,LARAVEL
- Data Layer- MySQL
- **Tools** PhpStrom, xampp
- Version Control-Git (GitHub)

### 4.3 Reason behind Choosing

#### 4.3.1 In General

- **HTML5** It's a markup language used to build structure of webpage.
- **Bootstrap with CSS3** Bootstrap is library to build on CSS3 a styling language used for beautiful style webpage.
- **JavaScript with jQuery** jQuery is a library build on JavaScript language which generally used to make presentation layer interactive.
- Laravel with PHP Laravel is MVC framework build on PHP language used for server side scripting by connecting presentation and data layer.
- **SQL** MySQL which is free and open source database build on SQL to manage relational database used manipulate data and make connection to application layer.
- **PhpStrom** PhpStrom is modern text editor powerful like IDE used for coding.
- **Xampp** Xampp is build pc local server.
- Github with Git –Github is cloud hosting based on Git version control system.

#### 4.3.2 On Perspective of This Project

- **Presentation Layer** This system will be web based system so build structure and make nice interface HTML5, CSS3, Bootstrap, JavaScript, jQuery is best option.
- **Application Layer** To implement bushiness logic for this system and make connection between presentation and data layer by following MVC pattern PHP, Laravel is best choice.
- Data Layer To make relational database for this system and manage query MySQL used.
- **Tools and Backup**: For coding purpose PhpStrom editor will use and for backup with version controlling GitHub service will be used.

#### 4.4 Conclusion

We will build this system as a web based application. After comparing among other technology and tools Laravel is the best choice.

## 5. Testing

### 5.1 Introduction

Without testing it is not possible to trust the system functionality if it works properly or not. We will test the system that has been already built by following testing rules. Every parts of the system will be tested.

#### **5.2 Test Case**

For testing this system for any kind type this test case standard will follow

No	Test	Test Steps	Test Data	Expected	Actual	Pass/Fail
	Scenario	_		Results	Results	

## **5.3 Black Box Testing**

In Unit testing, here all the system units will be tested according to the test case and if it does not match the expected result, further action will be taken to fix the problem.

• For Admin

**Table 5.1: Black Box Testing For Admin** 

NO	Test	Test Ste	eps	Test Data	Expected	Actual	Pass
	Scenario				Results	Results	/Fail
01	Login(valid	1.	Go	kazibablubif@gmail.com	Logged In	As	Pass
	data)		to/login	&		expected	
			URL	123456			
		2.	Enter				
			email id				
			&				
			password				
02	Admin	1.	Go	kazibablubif@gmail.com	Not Logged	As	Pass
	(Invalid		to/login	&	In	expected	
	data)		URL	67896425			
		2.	Enter				
			email id				
			&				
			password				
		3.					
			submit				
03	Admin		rowse any		Cannot	As	Pass
	related URL	admin r	elated		browse any	expected	
	check	URL			URL and		
	without				redirect to		
	login				login page		

04	Add new student	Click on "add student" button and fill up form	Komol Chandra & Rony.arnob@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
05	Verify student by mail	Click email link			As expected	Pass
06	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass
07	Teacher notification	After submit form mail send to teacher	Get notification	show mail all information	As expected	Pass
08	Add new Teacher	Click on "add student" button and fill up form	Masum khan & masum@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
09	Verify Teacher by mail	Click email link			As expected	Pass
10	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass
11	Student notification	After submit form mail send to student	Get notification	show mail all information	As expected	Pass

## • For Student (public) Section

NO	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass /Fail
12	Add new student	Click on "add student" button and fill up form	Komol Chandra & Rony.arnob@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
13	Verify student by mail	Click email link			As expected	Pass
14	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass
15	Teacher notification	After submit form mail send to teacher	Get notification	show mail all information	As expected	Pass

### • For Teacher (public) Section

NO	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass /Fail
16	Add new Teacher	Click on "add student" button and fill up form	Masum khan & masum@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
17	Verify Teacher by mail	Click email link			As expected	Pass
18	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass
19	Student notification	After submit form mail send to student	Get notification	show mail all information	As expected	Pass

## **5.4 Module Testing**

Modules are the combination of units. Here all the modules that are tested to prove that they are working as expected.

• For Admin Section

**Table 5.3: Module Testing For Admin** 

NO	Test	Test Ste	ps	Test Data	Expected	Actual	Pass
	Scenario				Results	Results	/Fail
01	Login(valid	3.	Go	kazibablubif@gmail.com	Logged In	As	Pass
	data)		to/login	&		expected	
			URL	123456			
		4.	Enter				
			email id				
			&				
			password				
02	Admin	4.	Go	kazibablubif@gmail.com	Not Logged	As	Pass
	(Invalid		to/login	&	In	expected	
	data)		URL	67896425			
		5.	Enter				
			email id				
			&				
			password				
		6.	Click				
			submit				

03	Admin related URL check without login	Try to browse any admin related URL		Cannot browse any URL and redirect to login page	As expected	Pass
04	Add new student	Click on "add student" button and fill up form	Komol Chandra & Rony.arnob@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
05	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass
06	Add new Teacher	Click on "add student" button and fill up form	Masum khan & masum@yahoo.com & 123456 etc.	Saved in DB and show in a page	As expected	Pass
07	Add new post	Click add post button fill up form	Provide all information	Save in DB and show in a page	As expected	Pass

## • For Student (public) Section

**Table 5.4: Module Testing For Student** 

NO	Test Scenario	Test Ste	eps	Test Data	Expected Results	Actual Results	Pass /Fail
08	Student Records view	2.	Go to /student/v iew URL Click on required option	kazi@gmail.com	Show student basic info	As expected	Pass

#### • For Teacher (public) Section

Table 5.4: Module Testing For Student

NO	Test Scenario	Test Ste	eps	Test Data	Expected Results	Actual Results	Pass /Fail
	Scenario				Results	Results	/1'all
08	Teacher	1.	Go to	masum@gmail.com	Show	As	Pass
	Records		/teacher/v		teacher basic	expected	
	view		iew URL		info		
		2.	Click on				
			required				
			option				

## 5.5 All other testing

- Acceptance testing By unit and module testing its working as its expected which are already fulfill the acceptance testing so no need separately do it.
- **Performance Testing** We input lots of data and tested in so many ways to read and write data but system was stable and reliable.
- **Security Testing** By unit and module testing its working as its expected which are already fulfill the security testing so no need separately do it.

#### **5.6 Conclusion**

Testing is mandatory to ensure that the systems can conform user requirements. All the necessary testing is accomplished to ensure this.

### 6. User Manual

## **6.1 Training**

This system is a very sensitive because of the information it collects and for its functionality so hand on experience will best option for it. 1 day training mandatory for all admin level user.

#### 6.2 How it Works

"How It Works" section available on web application. This will help admin if they need support after training and for student (public) user it will give simple instruction to use it.

#### 7. Conclusion

#### 7.1 Introduction

The main goal is to make a central database and give an application to access them to educational institution and students. They can use this data to make educational system better, make their works easier and honest measurement for all students.

#### 7.2 Strength of the System

Most of the major objectives of this system already built up by following requirement collection, system analysis and design and by testing it. After that this system becomes ready for production. System is built on top technology so it is stable, reliable and future maintainable. This system will help our education system, educational institution, students and other institutions.

We have tried to build most functional and nonfunctional requirement to make it feature rich, user friendly, secured and performance focused.

#### 7.3 Weakness of the System

We have tried our best to build this system better and fulfill all the requirements but some of them were not possible built for time shortage and government permission. Major weakness or missing features of this system are

- Log of every action on this system.
- Integrating all the educational institutions in one place
- For verification of birth certificate link to the government server.

### 7.3 Future Scope

The system has been developed for research purpose to see how much impact it has. A product has been built without compromising its main goal. If we can get support from larger team and government supports this project then lots of advanced and rich feature can be implemented. If the all goals of this project can be implemented with more new goals it will become one of the most popular and grateful project in our country.

# Appendix A

### USE CASE DOCUMENTATION

Use Case Name:	Student Information Management
Actors:	Admin
Preconditions:	Admin logged in into system
Post Conditions:	Admin has access permission to perform
	action.
Primary Scenario:	<ul> <li>Fill up form to add new student to</li> </ul>
	database
	• Enter student email to verify student.
	<ul> <li>Modify student info who forget their</li> </ul>
	email or password.

Use Case Name:	Teacher Information Management
Actors:	Admin
Preconditions: Admin logged in into system	
Post Conditions:	Admin has access permission to perform
	action.
Primary Scenario:	Fill up form to add new teacher to database
	Enter teacher email to verify teacher.
	<ul> <li>Modify teacher info who forget their</li> </ul>
	email or password.

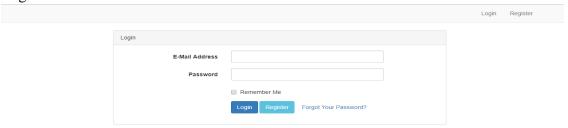
Use Case Name:	Student Information Management
Actors:	Student
Preconditions:	Student logged in into system
Post Conditions:	Student has access permission to perform
	action.
Primary Scenario:	<ul> <li>View student all information</li> </ul>
	• Student can submit their post &
	teacher get notification mail
	<ul> <li>Student can modify their post</li> </ul>

Use Case Name:	Teacher Information Management
Actors:	Teacher
Preconditions:	Teacher logged in into system
Post Conditions:	Teacher has access permission to perform
	action.
Primary Scenario:	<ul> <li>View teacher all information</li> </ul>
	<ul> <li>Teacher can submit their post &amp;</li> </ul>
	student get notification mail
	Teacher can modify their post

## Appendix B

## **Screenshot of the Live System**

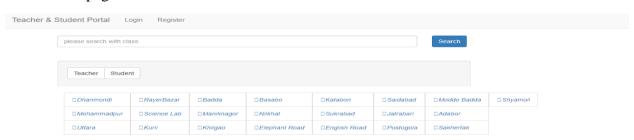
1. Login



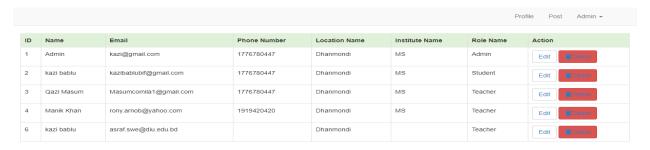
#### 2. Registration page



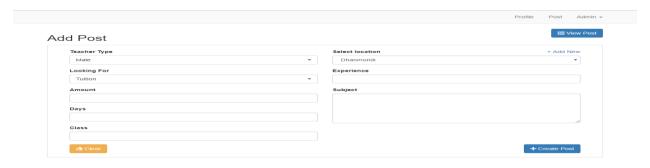
#### 3. Font page



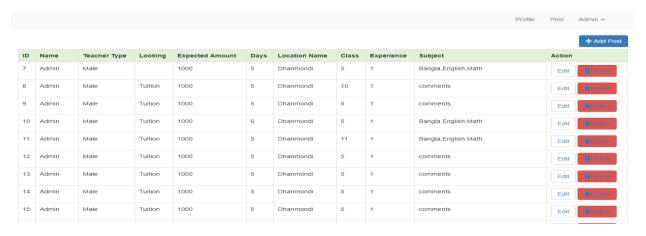
#### 4. User list



#### 5. Post create



#### 6. Post view



#### 7. Verify account mail



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