

**SCHOOL MANAGEMENT SYSTEM
OF
BATHSHIREE HIGH SCHOOL**

PROGRAMME OF STUDY

BSc (Hon's) in Business Information Technology

SUBJECT CODE

COMP1181

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Abstract

Any software development should follow some structured rules and regulations for quality output. Here I can included whole development work flows followed the DSDM under Agile. This project reports describes the software development process based on DSDM (Dynamic System Development Method). DSDM supports better understanding of requirements capture, clear and specific design solutions using simple pictorial representation understandable to both designers and users.

This report is about School Management System of *Bathshiree High School (BHS)*. *BHS* is a very famous school in feni district that needs a computerized management system for easily maintain. This report covers Methodology, Planning, Feasibility, Foundation, Exploration, Engineering, Deployment, Testing and Implementation all of the stages of DSDM Atern.

This report will help the designers, developers who will attempt to carry out future development and maintain the system. It will also be necessary for the users who will operate this system.

Acknowledgement

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1. Introduction

1.1. About the system

This report describes the whole software development process and documentation of *School Management System of Bathshiree High School (BHS)*. The project is going to develop an online school management system to manage all types of works within the institution. The aims of this project is to develop an interactive web application and also with a secure control of such application. Through this web application institution store their all information like student information, teacher's information; employee information, student exams result, student attendance etc. and visitors have a facility to see the necessary information.

The target audience of this system is those people who will use it. They are mainly School admin (staffs), Teachers, Employees, Students, and Visitors etc. This application is for Bathshiree High School that will allow managing all information of this institution.

1.2. Justification of methods and framework

The system is a lightweight design oriented and has pragmatic approach to development. The whole system need to divide in a small chunk for easy development. After development each module, it will integrate with the system and have a testing. That means iterative and incremental process will be included. Depend on above section it is clear that development process fully support the criteria of DSDM (Dynamic Systems Development Method) under Agile Methodologies. That is why the agile principles will follow for developing the system.

DSDM Atern focuses on working together to achieve business goals and it also independent of tools and techniques. But whereas it's an academic project, there has only one person who will develop the system and also test the system. That's why some time it followed SSADM (Structure Systems Analysis and Design), where development process goes on stepwise. (Wikimedia Foundation, Inc, 2014)

1.3. Aims and objectives

Aims:

The aims of this project to develop a web application, which will provide online services to maintain a educational institution in Bangladesh. The institution use personal domain to explore them and also manage their all important works via online. The final goal of this projet is to deliver a complete software within a period which will fulfill the maximum requirements depends on institution expectation. After using this system institution may overcome some common problems:

- Reduce paper works.
- Easy to produce different types of report.
- Easy to maintain system database.
- Reduce students embarrassment
- Reducing staffs workload
- It's a one kind of institution advertisement.
- Easy to posts any kind of announcements and weekly envelope.
- Less costly school communication way.

- All the students and visitors received relevant information in same way.
- Use this system from everywhere if there is internet available. (SchoolSpeak, 2007 - 2014)

Objectives:

The following objectives will be fulfilled by this project:

- Develop web application to explore institution in education sector.
- To provide facility to see all necessary information for all types of visitors via online.
- To make different dynamic admin panel for managing system.
- Provide attractive and useful content for the users.
- To provide secure Login authentication for admin.
- To provide print out options for all reports.
- To provide automated email system for any kind of inquiry.

2. Initial Study

2.1. Project proposal

Project proposal will be added in appendix.

2.2. Project Background

Bathshiree high school (BHS) is one of the most famous bangle based educational institution in feni district. It was founded in 1964. The school has become famous for providing quality education to students. Every year lots of students pass their primary school education and enroll in to high school, as being one of the reputed high schools in feni district Bathshiree High School gets an amount of enrollment. Currently the school has near about 600 regular students. Managing all the work systematically required lots of workforce and time. Now they use manual system which is also known as paper based system. For maintaining quality management and technological advancement the school management decide to use software system. Bathshiree high school (BHS) needs computerized systems which will give solution for different problems like, Regular Attendance, report publish, result publish, store all information, latest notice, latest news etc.

From the beginning BHS provide necessary education and guidelines to achieve goals of students. Bathshiree High School (BHS) has produced successful student list who has achieved reputation in their own working area.

In 4 different buildings, this school maintains their all classes. It has an inner assembly ground and outer playground. It has a large pond attached with the outer playground. This school has a big mosque for prayers for the students and teachers.

2.3. Resources

The probable resources for this project is as follows:

2.3.1. Hardware

- Lenovo G400S
- Intel(R) Core(TM) i5-2450M CPU @ 2.50GHz 2.50GHz
- 8 GB DDR3 RAM (Minimum 2 GB)
- 750 GB HDD (with 20 GB free space)
- 14 inch HD Lenovo CineCrystal™ LED LCD display

2.3.2. Software

- Programming Language: C#, asp.NET
- Development Tool: Visual Studio 2010, Microsoft SQL Server2008, Java Script, ASP enabled browser
- Designing Tool: HTML, CSS, Ajax
- Windows 7 Home Premium (Operating system)
- 64 bit operating system / 32 bit operating system

2.3.3. Human resources

- Developer: 1 (because it's an academic project)
- Allocated days: 103 days (approximately)

2.4. Problem area

Bathshiree High School (BHS) now maintain their all works depends on manual system or paper based system. On the other side, the student enrolment of this school now encouraging because of academic success in previous year. The school has now 600 students. By using manual system managing all students' records is too much difficult task, inefficient and time consuming. The institution depends on paper based system to records sensitive information like student's information, management information, staff information, academic decision etc. which is very easy to misuse by getting those papers. Now the institution keeps all student attendance and employee attendance based on paper based system. This is not a good system to keeping the attendance because if anybody try to edit or hidden this information it's very easy. So it is very important to keep all sensitive information securely without this those information falls into wrong hands and misuse in wrong work which is not good for the school as well as personal good well.

Now the institution follow paper based system to provide any kind of notice to the class. If any student missed that class he/she didn't get that notice. On the other side if any guidance wants to know any information about the school he or she must go to the campus premises for knowing that information.

2.5. Possible solution

After reviewing the problem Bathshiree High School now wants to develop a computerized and also online school management system. This will reduce staff workload and increase system efficiency. The committees decide to pursue a computerized school management system to maintain all school work effectively. Develop a new computerized school management will help to increase the system productivity and reduce staff workload. If the school maintains a computerized management system it will keep sensitive data securely.

2.6. Nature of challenge

The primary challenges of this project are analysis, design, development, testing and implementation. The main challenge of this project is that, only one person needs to develop the whole system because it's an academic project. The person needs to play as system analyst, system design, developer and also the tester. The whole system is to develop by using C# programming language with asp.Net framework 4 and for database use Microsoft SQL server 2008. All are too much challenging for complete this project with a fixed time period by one person.

2.7.Critical success factor

Critical Activates:

- Develop online school management system with school website within a secure environment.
- Make different access level to make user secure.
- Provide same information for all visitors and easy navigation system for normal user and admin user.
- To make website as an advertisement for well-known to students and guidance.
- To develop attendance system for employee, teachers and students.
- Maintain alumni system for keeping those students information that already passed school.

Resources:

- Developer (Student who will develop the system)
- Supervisor (Teacher who will supervise the system)

3. Literal Review

The purpose of literal review is to analyze and research on school management system. This chapter mainly concerning of developing an online based school management system.

3.1.Similar systems review and analysis

Here I will describe some similar system overview and also its strength and weakness which will help to find system performance and activity. The similar system review will help to understand the user interaction, system navigation and system design.

ST. GREGORY'S HIGH SCHOOL

Overview:

St. Gregory's High School is a Catholic High School founded in Dhaka, British India, in 1882. Founder of the St. Gregory's High School was Father Gregory de Groote, a Belgian Benedictine priest. The school, located at Subhas Bose Avenue of Luxmibazar neighborhood of old Dhaka. In this school, most of the students were of European and Anglo-Indian Catholic communities.

Website URL: 1



Strength:

- This is very famous school in Dhaka city mainly for the Catholic communities.
- The outlook of this school website is very impressive and any one can visit this site for gathering information about the school.
- It has very easy and proper navigation system so any one can easily use this site
- The school provides their all academic information which will helpful for the parents when they choose school for their child to admit school.

Weakness:

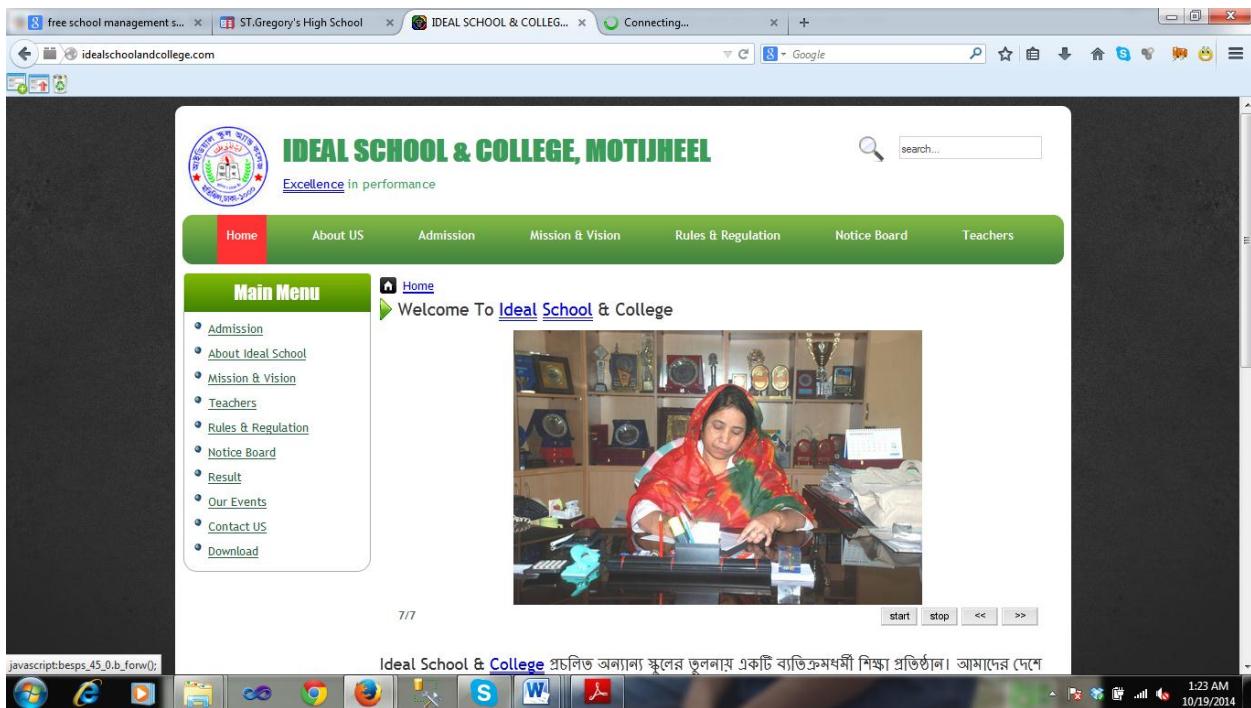
- There has no search facility for the visitor to easy find any information
- The school mission and vision are not clearly described which is help full for the student parents.
- It's a fully static website has no dynamic option or panel.

IDEAL SCHOOL AND COLLEGE, MOTIJHEEL

Overview:

Ideal school & collage is different education institution from the others who are providing education in Bangladeshi culture education system. In our country lots of school has not fulfill the desire satisfaction of student also the parents. Ideal school & college do not run the education business they want to prove real education to their students. Basically it's a Bengali medium school but they force their students to learn and speaking in English.

Website URL: <http://idealschoolandcollege.com/>



Strength:

- Ideal school & collage is one of the most reputed institution in dhaka city.
- In this school website has nice and easy navigation system.
- This site has a eay seach facility for the visitors.
- They are clearly define their school rules regulation and also admision procedure

Weakness:

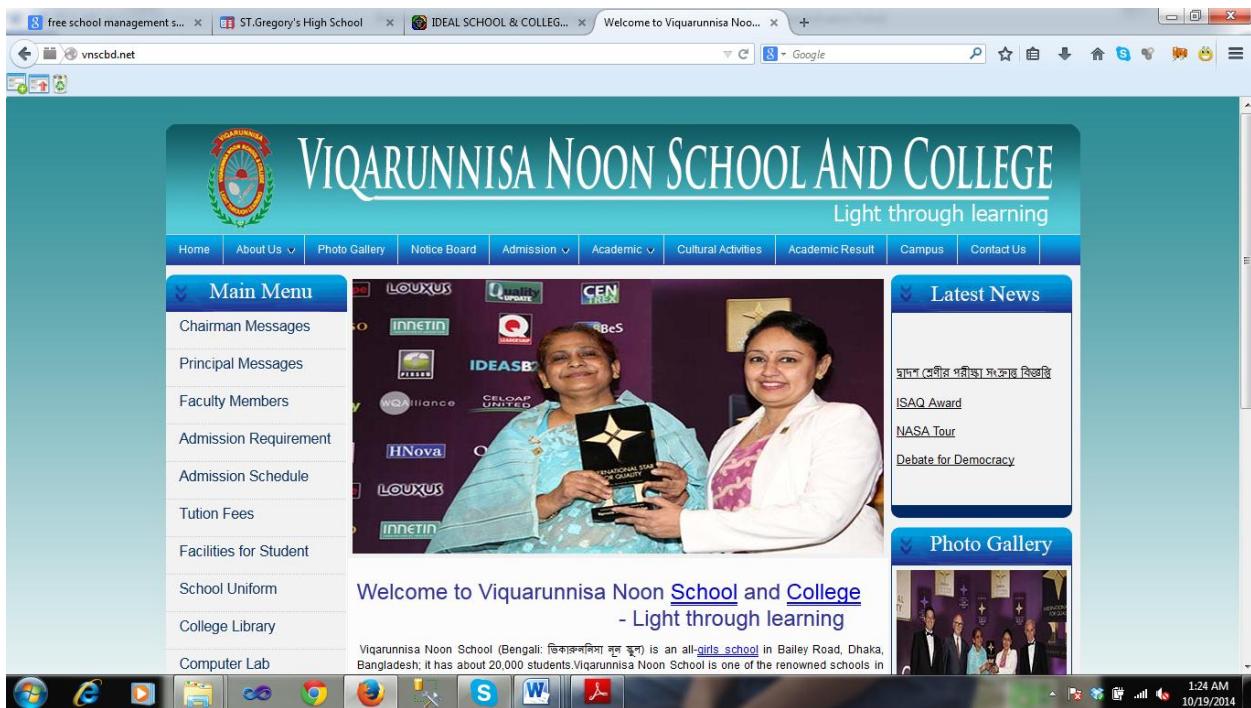
- Website outlook is not rich and they provide information shortly which is hazardous for new user.

VIQARUNNISA NOON SCHOOL AND COLLEGE

Overview:

Viqarunnisa Noon School is a girl's school in Bailey Road, Dhaka, Bangladesh. The school has about 20,000 students. Viqarunnisa Noon School is one of the renowned schools in Bangladesh. It was established in 1952 by Begum (Viqarunnisa Noon), wife of (Firoz Khan Noon), the then governor of (East Pakistan). From that, till today, this school is keeping its image equally remarkable in the sky of Educational institutions.

Website URL: <http://vnscbd.net/>



Strength:

- This is a renowned school in Dhaka Bangladesh.
- They use different types of navigation system within the website which is very easy for the new user.
- They separate news tasks for highlighted news.

Weakness:

- They have no easy search option for direct search.
- The system has no site map for all navigation.

4. Methodology

4.1.What to use and why to use

For developing the school management system I can choose DSDM (Dynamic System Management Method) Atern under agile project delivery framework. DSDM atern is framework that delivers the right solution at the right time within budget. DSDM atern mainly works for new solution, development of enhancements, and deployment of “off the shelf” solution.

The philosophy of DSDM atern is that any project must be

- Aligned to clearly- define strategic goals
- Focused on early delivery of real benefits to the business.

(tudor, 2010)

Suitable factors of DSDM Atern for project:

- According to DSDM Atern principle the primary goal of the project is to deliver business needs within right time and budget. Business and end user representative are continuously worked with the project for ensuring the achievement of business and end user needs.
- DSDM Atern indicates that communication continuously and clearly between system developer and end user is must. The end user involvement ensures that project will meet all user needs and appropriate user friendly interface will be developed.
- Depends on ISFs (Instrumental success factor) the business sponsor and senior management need to understand and accept the DSDM Atern philosophy before starting work. Because lots project was unsuccessful only they don't have any organization standard and no clear guidelines on how development methodologies should be applied.
- In DSDM Atern project, requirements are not fully analyzed and fixed. DSDM allows and expects requirements to evolve and change. For the new project development first need to identifies all high level requirement and prioritize them by using MoSCoW prioritizations to find the system core requirements.
- In DSDM Aten incremental and iterative approaches are followed for project success where development timescale is fixed. Incremental development encourages stakeholders' confidence and deliver completed part of system to use. Iterative development is related to Timebox technology where the whole project will be breakdown into small shank or in timebox.

DSDM Atern follows several key techniques for completing project:

- **MoSCoW prioritization**

MoSCoW prioritization is a technique that helps to gain a common understanding of priorities. The MoSCoW stands for-

Must Have: Must have requirements that are fundamental for the system without them system will be unworkable or useless.

Should Have: Should have are important requirements those are mandatory in less time constrained development but without them system will be useful and usable.

Could Have: Could have requirements add some business benefits to the system and which cannot leave under development without serious consequence.

Won't have this time: This types of requirements still valuable requirements but can wait until later development.

- **Facilitated workshop**

This is a kind of general discussion between developer and the end user or owner. Facilitated workshop encourages the organization employees to find out and listed their current problems which will discuss within workshop. After discussion the final problem list that is called requirement list produced and later it will prioritized by using MoSCoW.

- **Iterative development**

Iterative development is a technique to establish high level requirement during foundation phase and more evolve in exploration and engineering phase. The key techniques of iterative development evolve to:

- From high level idea
- To a delivered product
- Incrementally

The step within iterative life cycle is

- Identify: team agreed with current work object
- Plan: plan include mainly who will done the work for meeting the object
- Evolve: team work on the solution
- Review : test the work if the object achieved
- **Modeling and prototyping**

Modeling and prototyping is a linked concept. A prototype is always a kind of model but a model is not necessary a prototype. The model which is traditionally known as diagram like UML (Unified Modeling Language)

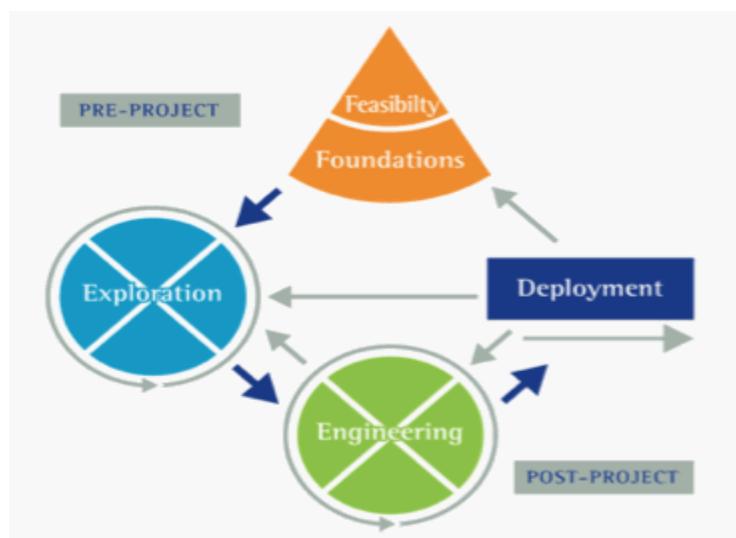
- **Timeboxing**

Time box is a technique to control the amount of time taken to complete a piece of work. There are various level timebox take place within DSDM Atern project

- From project start to end is a project time box
- Each delivery increment can define as an incremental timebox
- An early phase within the life cycle may be define as a timebox
- Development timebox may be define during exploration and engineering
- A workshop or review will define as a timebox (Tudor, 2010)

4.2.Sections of Methodology

The DSDM Atern lifecycle is design for allowing frequent delivery of product, incremental and iterative development, business involvement, testing and early delivery for business profit. It has seven phases which will describe bellow:



- **Pre project:**

In this phase project proposal is made. Business problem need to address and need to identify business sponsor and visionary. Pre project phase has precondition that the project has been proposed and initial budget will allocate for project feasibility and need to check the resources availability.

- **Feasibility:**

This phase will confirm business case and outline plan where technical solution will be considered and cost and time will be estimated. Feasibility phase will identify the expected business benefits from the proposed solution where organization and governance aspect need to concern. For completing feasibility phase need to approve terms of references and resources availability for the project.

- **Foundation:**

Here a clear start needs to be established for project where high level business process has to be described. Foundation phase defines standard of technical implementation and quality assured. This phase is set for a fixed time period where need business and technical input.

- **Exploration:**

Exploration phase identify the all business functional requirements and prioritize them by using MoSCow prioritization. All the requirements are agreed by the stakeholders and personnel. Exploration and engineering may overlap or be merged.

- **Engineering:**

This phase used iterative and incremental development to achieve operational readiness of product exploration where project stake holder and personnel are engaged. Testing is undertaken during exploration and engineering phase. This phase need to meet the acceptance criteria.

- **Development:**

This phase ensure that product is complete to use within organization. In development phase final completed solution will release into live use with its supportive operational documentation.

- **Post-project:**

Post project take place after last planned deployment of the solution where expected benefits is actually materialized. (Tudor, 2010)

4.3.Requirement gathering

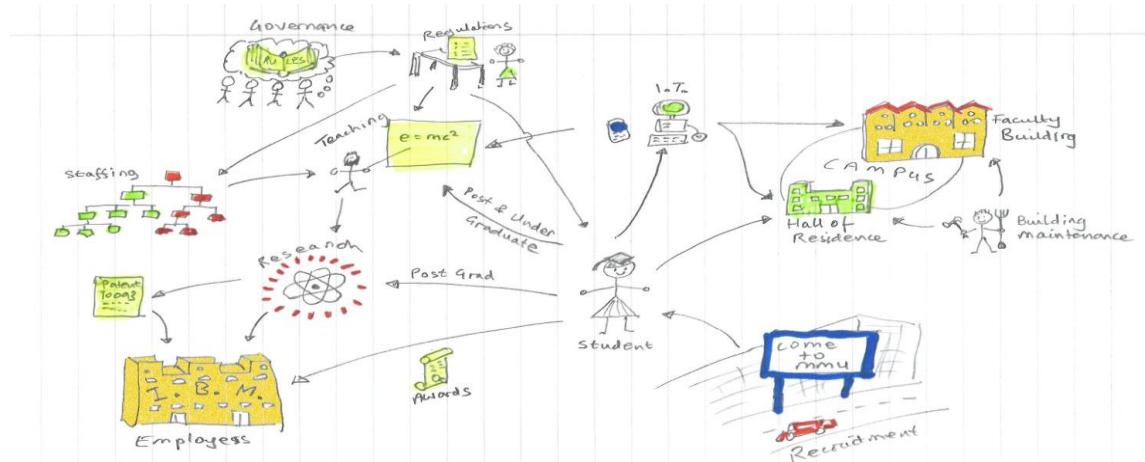
4.5.1 Techniques

The needed requirement for completing the system will gather by analyzing previous system. For requirements gather i also analyze some related system from the net or implemented school management system. Core level requirement will gather by taking interview from the end user like staff teacher which they already faced in current manual system.

4.5.2 Tools

For gathering system requirements I will use different type of tools which will describe bellow

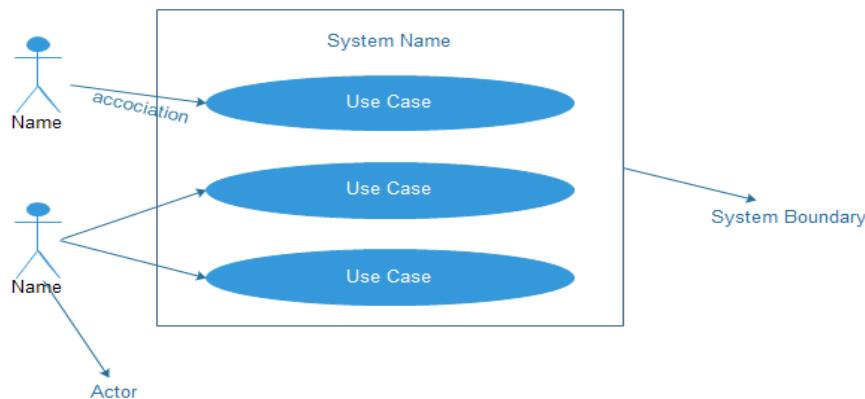
- Rich picture:



Rich picture is technique of SSM (soft system methodology) which will analyze the problem situation and represent them through the diagram. Rich picture will identify

- Data requirement of business process
- Actors and their responsibilities
- Relationship between actors and process
- Conflicts between actors and process (Introducing Rich Pictures, n.d.) (Stevens, 2014)

- Use case diagram:



Use case diagram is use to gather the high level requirement from the system where responsible actors will be shown. Use case diagrams depict:

- **Use cases:** use case are sequence of actions which will draw in horizontal ellipse
- **Actor:** actors play an important role by interacting with the system. Actors are like person, organization, and sometime external system also act as actor.
- **Association:** association means relation between actors and use cases.
- **System boundary:** system boundary indicates the system scope by drawing a rectangle around the use case where actors will represent outside the system boundary. (Scott W. Ambler, 2003-2014)

5. Planning

5.1. Project plan

5.1.1. Management plan / Work Breakdown Structure (WBS)

WBS for pre project of School management System:

WBS	Task Name	Duration	Start	Finish
1	School Management System	103 days	Mon 6/23/14	Fri 10/10/14
2	Pre Project	20 days	Mon 6/23/14	Sun 7/13/14
2.1	Project Proposal	4 days	Thu 6/26/14	Mon 6/30/14
2.2	Meeting	1 day	Tue 7/1/14	Tue 7/1/14
2.4	Introduction	1 day	Wed 7/2/14	Wed 7/2/14
2.5	Meeting	1 day	Thu 7/3/14	Thu 7/3/14
2.6	Initial Study	2 days	Fri 7/4/14	Sat 7/5/14
2.7	Meeting	1 day	Sun 7/6/14	Sun 7/6/14
2.8	Report	0 days	Sun 7/6/14	Sun 7/6/14
2.9	literature review	2 days	Mon 7/7/14	Tue 7/8/14
2.10	Meeting	1 day	Fri 7/11/14	Fri 7/11/14
2.11	Report	0 days	Fri 7/11/14	Fri 7/11/14
2.12	methodology	1 day	Sat 7/12/14	Sat 7/12/14
2.13	meeting	1 day	Sun 7/13/14	Sun 7/13/14
2.14	report	0 days	Sun 7/13/14	Sun 7/13/14

Figure: WBS of pre project part

WBS for Exploration of School management System:

WBS	Task Name	Duration	Start	Finish
14	Exploration	19 days	Mon 7/14/14	Fri 8/1/14
14.1	project plan	2 days	Mon 7/14/14	Tue 7/15/14
14.2	meeting	1 day	Wed 7/16/14	Wed 7/16/14
14.3	report	0 days	Wed 7/16/14	Wed 7/16/14
14.4	planning	16 days	Thu 7/17/14	Fri 8/1/14
14.4.16	project plan	1 day	Thu 7/17/14	Thu 7/17/14
14.4.17	meeting	1 day	Fri 7/18/14	Fri 7/18/14
14.4.18	report	0 days	Fri 7/18/14	Fri 7/18/14
14.4.19	test plan	2 days	Sat 7/19/14	Sun 7/20/14
14.4.20	meeting	1 day	Mon 7/21/14	Mon 7/21/14
14.4.21	report	0 days	Mon 7/21/14	Mon 7/21/14
14.4.22	risk management plan	2 days	Tue 7/22/14	Wed 7/23/14
14.4.23	meeting	1 day	Thu 7/24/14	Thu 7/24/14
14.4.24	report	0 days	Thu 7/24/14	Thu 7/24/14
14.4.25	change management plan	1 day	Fri 7/25/14	Fri 7/25/14
14.4.26	meeting	1 day	Sat 7/26/14	Sat 7/26/14
14.4.27	report	0 days	Sat 7/26/14	Sat 7/26/14
14.4.28	quality management	2 days	Sun 7/27/14	Mon 7/28/14
14.4.29	meeting	1 day	Tue 7/29/14	Tue 7/29/14
14.4.30	report	0 days	Tue 7/29/14	Tue 7/29/14
14.5	foundation	2 days	Wed 7/30/14	Thu 7/31/14
14.6	meeting	1 day	Fri 8/1/14	Fri 8/1/14
14.7	report	0 days	Fri 8/1/14	Fri 8/1/14

Figure: WBS of Exploration part

WBS for Engineering of School management System:

WBS	Task Name	Duration	Start	Finish
37	Engineering	22 days	Sat 8/2/14	Sun 8/24/14
37.1	new system modules	1 day	Mon 8/4/14	Mon 8/4/14
37.2	meeting	1 day	Tue 8/5/14	Tue 8/5/14
37.3	report	0 days	Tue 8/5/14	Tue 8/5/14
37.4	use case	1 day	Wed 8/6/14	Wed 8/6/14
37.5	meeting	1 day	Thu 8/7/14	Thu 8/7/14
37.6	report	0 days	Thu 8/7/14	Thu 8/7/14
37.7	class diagram	2 days	Fri 8/8/14	Sat 8/9/14
37.8	meeting	1 day	Sun 8/10/14	Sun 8/10/14
37.9	report	0 days	Sun 8/10/14	Sun 8/10/14
37.10	EERD diagram	2 days	Mon 8/11/14	Tue 8/12/14
37.11	meeting	1 day	Wed 8/13/14	Wed 8/13/14
37.12	report	0 days	Wed 8/13/14	Wed 8/13/14
37.13	sequence diagram	3 days	Thu 8/14/14	Sat 8/16/14
37.14	meeting	1 day	Sun 8/17/14	Sun 8/17/14
37.15	report	0 days	Sun 8/17/14	Sun 8/17/14
37.16	component diagram	1 day	Mon 8/18/14	Mon 8/18/14
37.17	meeting	1 day	Tue 8/19/14	Tue 8/19/14
37.18	report	0 days	Tue 8/19/14	Tue 8/19/14
37.19	deployment diagram	1 day	Wed 8/20/14	Wed 8/20/14
37.20	meeting	1 day	Thu 8/21/14	Thu 8/21/14
37.21	report	0 days	Thu 8/21/14	Thu 8/21/14
37.22	system interface	2 days	Fri 8/22/14	Sat 8/23/14
37.23	meeting	1 day	Sun 8/24/14	Sun 8/24/14
37.24	report	0 days	Sun 8/24/14	Sun 8/24/14

Figure: WBS of engineering part

WBS for Deployment of School management System:

WBS	Task Name	Duration	Start	Finish
47	Deployment	27 days	Mon 8/25/14	Wed 9/24/14
47.1	design	4 days	Mon 8/25/14	Thu 8/28/14
47.2	meeting	1 day	Fri 8/29/14	Fri 8/29/14
47.3	report	0 days	Fri 8/29/14	Fri 8/29/14
47.4	exception handling	2 days	Sat 8/30/14	Sun 8/31/14
47.5	development	11 days	Mon 9/1/14	Mon 9/15/14
47.6	meeting	1 day	Tue 9/16/14	Tue 9/16/14
47.7	report	0 days	Tue 9/16/14	Tue 9/16/14
47.8	exception handling	2 days	Wed 9/17/14	Thu 9/18/14
47.9	testing	3 days	Fri 9/19/14	Sun 9/21/14
47.10	meeting	1 day	Mon 9/22/14	Mon 9/22/14
47.11	report	0 days	Mon 9/22/14	Mon 9/22/14
47.12	exception handling	2 days	Tue 9/23/14	Wed 9/24/14

Figure: WBS of Deployment part

WBS for Implementation, critical appraisal and closing of School management System:

WBS	Task Name	Duration	Start	Finish
60	Implementation	8 days	Wed 9/24/14	Wed 10/1/14
60.1	system implementation	2 days	Wed 9/24/14	Thu 9/25/14
60.2	meeting	1 day	Fri 9/26/14	Fri 9/26/14
60.3	report	0 days	Fri 9/26/14	Fri 9/26/14
60.4	exception handling	2 days	Sat 9/27/14	Sun 9/28/14
60.5	maintainance	2 days	Mon 9/29/14	Tue 9/30/14
60.6	report	0 days	Tue 9/30/14	Tue 9/30/14
60.7	review	1 day	Wed 10/1/14	Wed 10/1/14
60.8	report	0 days	Wed 10/1/14	Wed 10/1/14
68	critical appraisal	2 days	Thu 10/2/14	Fri 10/3/14
69	closing	6 days	Sat 10/4/14	Thu 10/9/14
69.1	future work	2 days	Sun 10/5/14	Mon 10/6/14
69.2	conclusion	1 day	Tue 10/7/14	Tue 10/7/14
69.3	end of project report	2 days	Wed 10/8/14	Thu 10/9/14

Figure: WBS of implementation, critical appraisal and closing part

5.1.2. Gantt chart

Gantt chart for pre project of school management system:

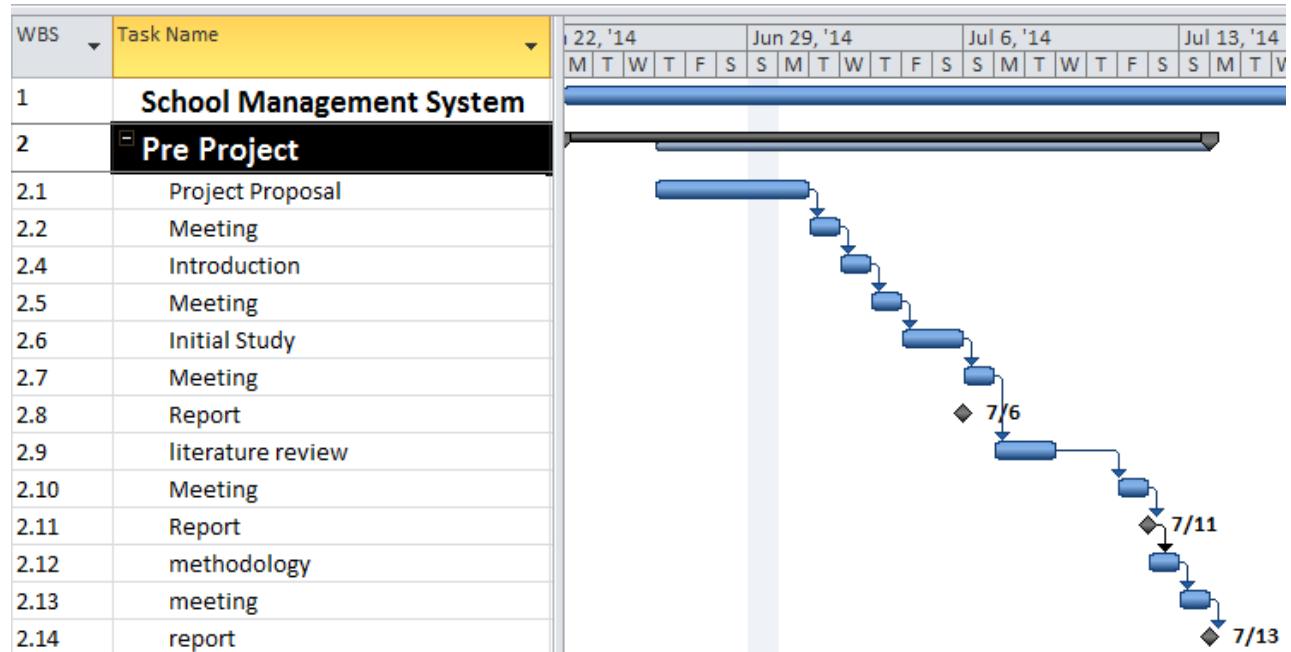


Figure: Gantt chart of pre project part

Gantt chart for Exploration of school management system:

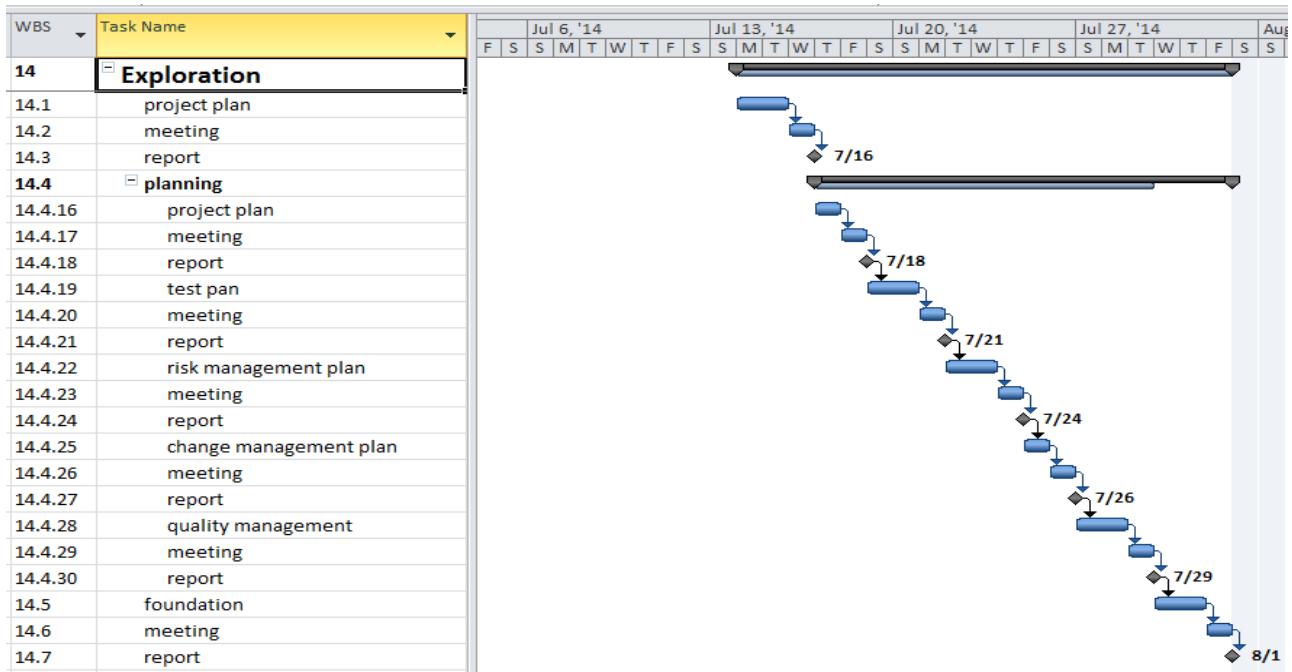


Figure: Gantt chart of Exploration part

Gantt chart for Engineering of school management system:

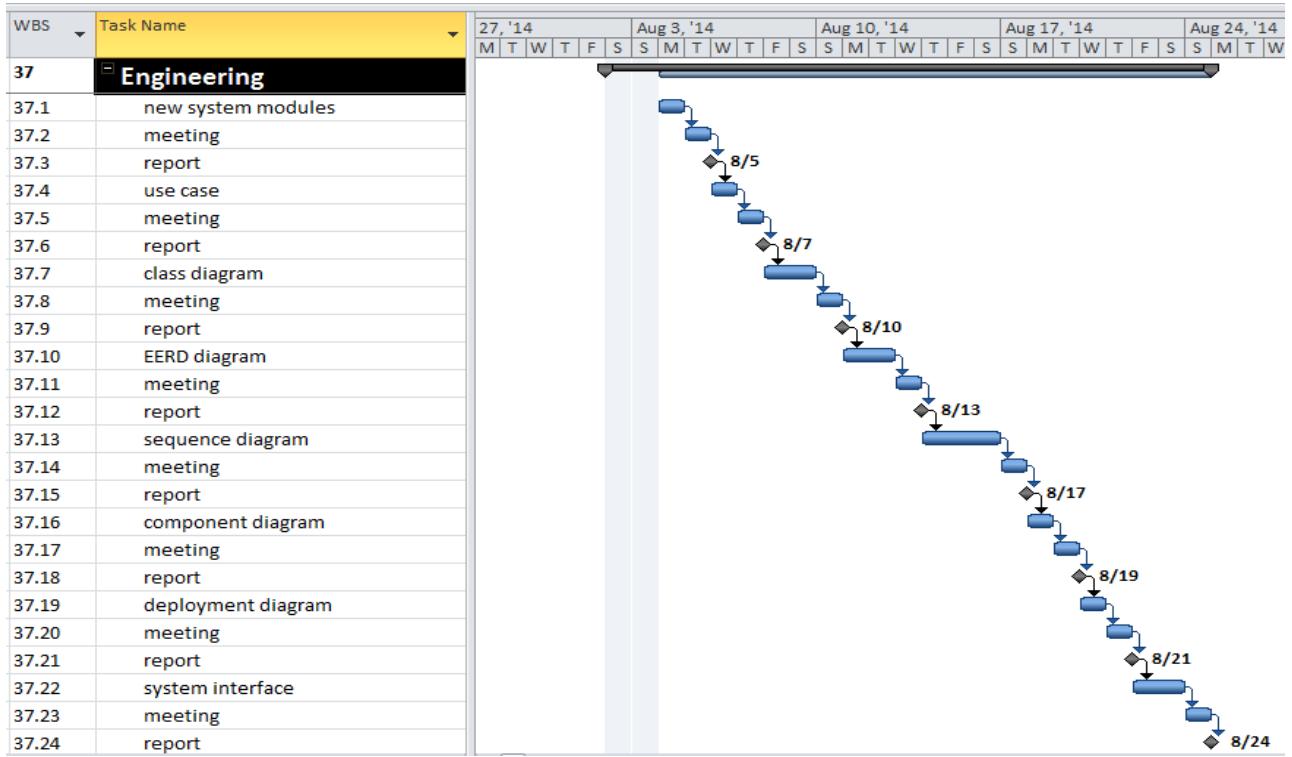


Figure: Gantt chart of engineering part

Gantt chart for Deployment of school management system

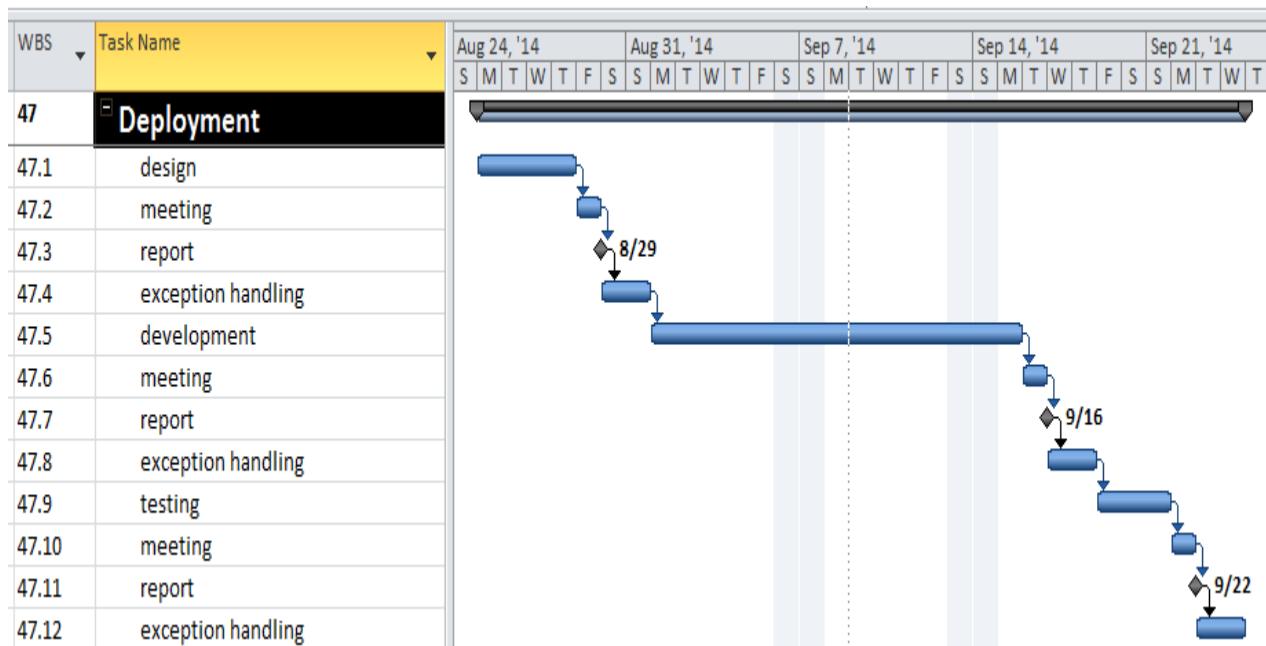


Figure: Gantt chart of Deployment part

Gantt chart for implementation, critical appraisal and closing of school management system:

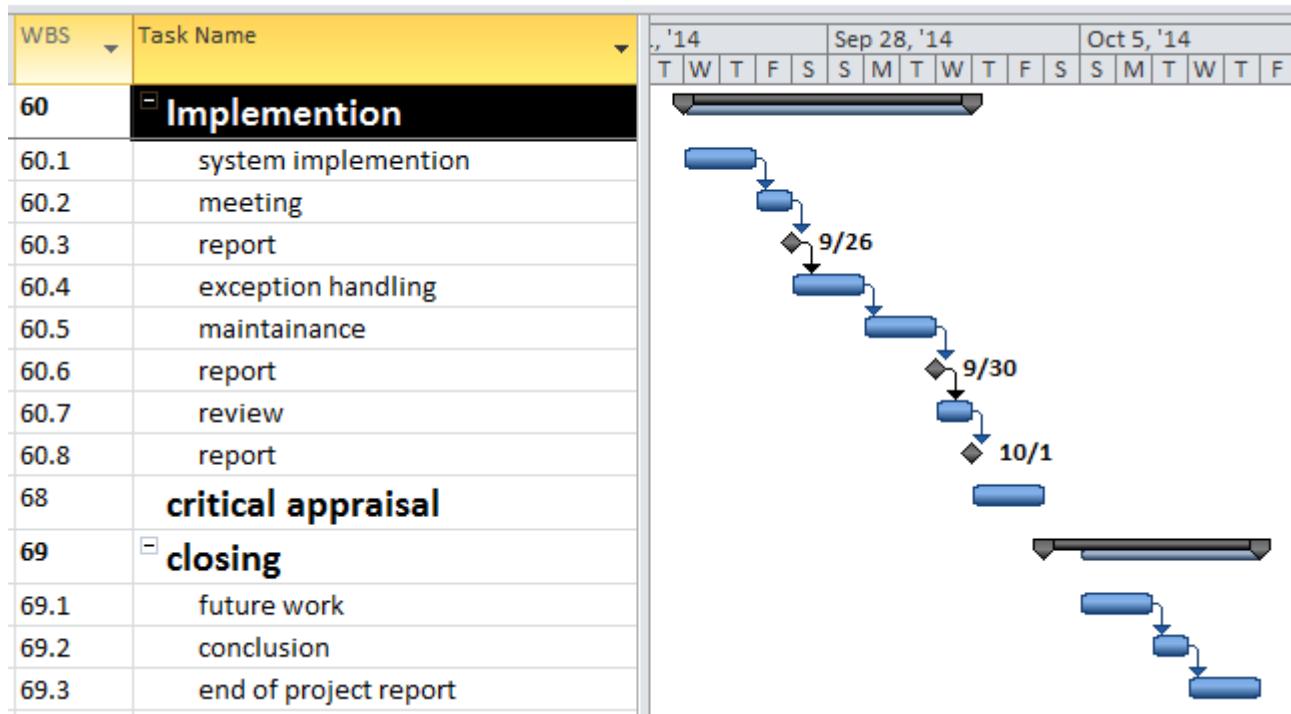


Figure: Gantt chart of Implementation, critical appraisal and closing part

5.2. Test Plan

This section will describe testing strategy and approach of BHS School Management System for quality assurance of system development. BHS (Bathshiree high school) wants to move from current manual system to new computerized system.

5.2.1. Required tests

The primary purpose of testing is to find out system limitation. Below I will describe different types of testing which will use for testing the BHS School Management System.

- **Unit Testing:** This will focus on specific section or module or function of code and this testing phase will use while system is fully developed.
- **Integration Testing:** This testing will ensure that all components of application are working perfectly in according to customer requirements.
- **Acceptance Testing:** While the system is ready to implement in user platform on that time end user perform acceptance testing which will ensure that system is ready for operational use.
- **Performance testing:** Performance testing ensure the system response time against user expectation.
- **Security Testing:** Security testing will determine the security level of BHS School Management System is used and verify and deny unauthorized access to confidential data.

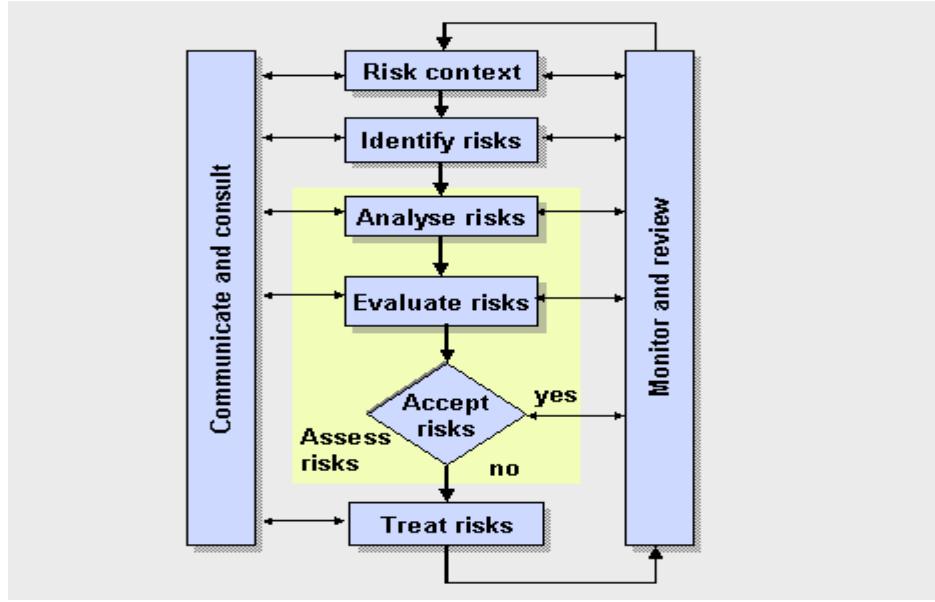
5.2.2. Testing environment

The environment requirements for testing are listed below:

- 3 or more PCs with Windows OS
- Web browser like internet explorer, Mozilla Firefox, Google chrome etc.
- Internet connections
- A printer which is attached by network
- 5 or more user with username and passwords with access levels
- Access to the database

5.3. Risk management

Risk management is a process or standard towards management of potential opportunities and risk and it is a part of practicing good management. The risk management performance is observed by the organization's management and responsible staffs will perform that risk management should clearly define and documented. Risk management mainly applies to the organization to reduce the probability to occur and impact of loss if risks occur. Risk management process has several steps which will describe below:



5.3.1 Communicate and consult:

Communication and consultation is an important element of risk management:

- Undertake the process step
- Internal and external stakeholder involvement
- Clarify stakeholder responsibilities

5.3.2 Identify risk

The goal of risk identification is to find probable risk which will occur within the system from every system aspect. For identifying risk some steps will follow

- Identify the risk that will occur
- Describe the risk scenario and possible causes

Different types of techniques should be following to identify the risk like checklist, structured workshop, records; system analysis etc. a template of risk identification should be given bellow:

Sources of risk	Area of impact		
	Area 1	Area 2	Area j
Source 1			
Source 2			
Source i			

5.3.3 Analyze risk

The objectives of risk analysis listed below

- Assess the likelihood of risk occur
- Identify the controls that reduce the likelihood of risk
- Identify potential consequences and assess them in terms of risk magnitude
- Cost of control identify
- Evaluate the importance of controls benefits
- Produce estimated risk level by combining the likelihood and consequence assessment

The initial risk priority determination will show below using matrix and combination of likelihood and consequence:

		Impact				
Likelihood		Insignificant (E)	Minor (D)	Moderate (C)	Major (B)	Catastrophic (A)
Almost certain	Medium	Medium	High	High	Extreme	
Likely	Medium	Medium	Medium	High	Extreme	
Possible	Low	Medium	Medium	High	High	
Unlikely	Low	Low	Medium	Medium	High	
Rare	Low	Low	Medium	Medium	High	

Risk analysis may be qualitative, quantitative and semi quantitative:

- Descriptive scale used for qualitative analysis to describe potential consequence magnitude
- Quantitative use numeric value and consequence expressed in terms of monetary or other probable criteria
- Allocate number used for semi quantitative to descriptive scale and prioritization od using formulas

5.3.4 Evaluate risk

Risk evaluation is a list of prioritized risk which will determine for further action:

- Compare risk levels against predefine tolerance level;
- Assess existing exposure levels against reduction exposure levels that will achievable;
- Establish risk Rank for management priorities.

5.3.5 Treat risk

Risk treatment consists of what will done if risks occur.

- Treatments are selected from following options :
 - Accept risk
 - Avoid risk
 - Transfer risk (partially or fully)

- Reduce likelihood of occurrence
- Reduce consequences and
- Retain the risk
- treatment options Asses depends on :
 - Consider costs and benefits feasibility and costs must be reasonable with obtained benefits.
 - A combined treatment options will need to be required.
 - Treatment strategies will depends on ordering based on risk ranking or cost-benefit analysis priority.

5.3.6 Monitor and review

Monitor and review is an integral part of risk management

- Monitor the effectiveness of task mitigation through treatment plans, strategies and management information systems
- Review all steps of risk management process
- evaluations and verify that mitigation plan remains relevant

For monitoring risk a risk register database is an important management tool where the risk is listed by its rank with associated action plans and responsible individuals. Database need to update regularly which is a part of ongoing project management process. (QAP, 2010)

5.3.7 Using DSDM Atern to reducing risk

In some common situation DSDM Atern can reduce risk which will describe bellow:

- **Business doesn't know exactly what it wants:** Atern supports evolving solution and also emerging understanding by using different techniques like iterative development, prototyping and modeling.
- **Business change minds depends on required:** DSDM atern accept changes as inevitable where MoSCoW prioritization allows new requirements without extending the project time frame.
- **All details are not agreed at start:** atern advocates Enough Design Up Front (EDUF), not too much and not too little which is sufficient for the project progress.
- **Business is unwilling to commit to a final sign-off:** the project emerges incrementally and avoids risk which is involved with one large sign-off. Business represents the evolution of the project to be sign-off and understand first the details that the sign-off relates to.
- **Late project delivery:** by using MoSCoW prioritization and timebox mechanism project keeps on track and obtain early warning if delivery on time is threatened.

5.4.Change management plan

Change management refers to manage changes the solution or system while develop. It is necessary to make a plan for control the changes and implementing the changes in development phase within system. According to DSDM atern change requirements need to prioritized by using MoSCoW prioritization technique. Change management not applicable for the new changes within the system it also consider the change any part of developed system. Bellow I will give a common change list in system development:

- change Software requirement
- change about third party software implementation
- change within development team
- change business change
- change business policy
- change project management policy

5.4.1. DSDM Atern welcomes change

Welcome changes of DSDM atern can easily adopt with the system because of iterative development. A system cannot be develop perfectly at first time it need to change according to user requirements and gather changes requirements by communicate regularly with the client. According to DSDM atern it follows some principle which will give bellow:

- Build the solution iteratively
- For system development it follow time box technique where the whole system can break into small chunk
- Accept feedback from the client or user after completing each iteration
- Responding for any kind of changes

5.4.2. Change workshops

Development team needs to organize change workshops with user or client from where new problem or new changes can be found or noticed. Workshop is mainly needed for analysis the new changes and discuss it with the client to ensure that new change will be effective or not. If any new requirements can find out within workshop it will discuss between developer and client that new requirement is important and it will be develop or not.

5.4.3. Key decision takers of change

After consideration of any change its need to investigate and approves from several key personnel which will describe bellow:

- **Team leader:** any change request from team members need to discuss with team leader and must be submit that request by following official change rules.
- **Project manager:** project who are mainly responsible to monitoring the project progress. If any change need to occur project manager will communicate with senior management about the approval of new change. If senior management approves then project manager officially approve the new change.
- **Solution developer:** solution developer mainly working to keep the details about change requirements which result will re-work within solution. So he need ensure about what will change.

5.5.Quality management

5.5.1. Rules applied to maintain quality

In DSDM Atern quality is delivering product that is “fit for purpose”. The quality acceptance will vary from project to project but once agreed and set it will follow for the whole project. There are three aspects relate to development of a right quality product. They are:

- **Quality control (QC):** quality control is related to test the product and reject the fault product by reviewing the product, dynamic test of product, and also using static analysis tool.
- **Quality assurance (QA):** the definition of what products are intended to be produced and along with the acceptance criteria. DSDM Atern quality audit focus on different key issues:
 - Is business involvement sufficient?
 - Is team really empowered?
 - Is lifecycle being followed?
 - Are products being produced?
 - Is feedback from reviews being incorporated?
 - Is backtracking possible?
 - Are priorities being adhered to?
 - Are timeboxes being respected?
- **Quality management (QM):** the planned to use feedback from QC and QA activities to improve process and standard for achieving quality of product. The ISO standard which can interpreted with quality management:
 - Say what you are going to do
 - Do it
 - Then demonstrate that you have done it (Tudor, 2010)

5.5.2. DSDM Atern standard quality measures

According to DSDM Atern principle it never compromise quality. Atern recognizes two types of quality one is solution quality and another one is process quality both are described below:

▪ Solution quality

Solution quality delivers the customer satisfaction and meets business need. Traditional project delivers entire scope which is essential for quality measures because traditional project has no prioritization of requirements. In DSDM Atern approach project time is fixed and need to deliver the within end date of project. There are several techniques to ensure that DSDM Atern delivered quality solution. They are:

- MoSCoW prioritization – important features focused by the team
- Timeboxing – each timebox delivery ensures that the whole project is delivered on-time
- Facilitated workshops – ensure that the workshops meet their objectives
- Modelling and prototyping – ensure the requirements understanding and solution understanding
- Demonstrations at the end of each timebox – delivered timebox ensure that solution is evolving to user’s satisfaction
- Regular review sessions at key points – the ‘inspect and adapt’ so essential to ongoing improvement

- Daily stand-ups – ensure that progress is measurable and team need to focus on priorities and problems identification
- Defined roles and responsibilities – ensure the involvement of right people with the right activities and the right times
- The Foundations phase itself – ensures that no big mistakes are made.
- **Process quality**

It's ensures the quality of organizational standard. DSDM atern approach recognized for ISO 9001 accreditation and provides documented lifecycle in line with CMMI process. The iteration of atern lifecycle structure provides a correct framework for introduction of gateway or checkpoint review. The key question can be asked to the project team providing assurance with stakeholders to the governors that project is process perfectly. Iterative approach provides the opportunity to measure the progress objectively which is not possible by the traditional waterfall in sometimes. (aterny, n.d.)

5.5.3. Quality plan and reviewing

Quality planning is an integral part of atern project planning and reviewing of project also need from time to time.

- Quality planning and review compliance with organization procedure, practice and standard.
- To access project health based on following recommended practice to identify 'at risk' projects and allow measures to back them on track, put them on hold or stop them.

For DSDM atern project need to consider key question when reviewing:

- Is business involvement sufficient to support the approach?
- Is team really empowered?
- Is lifecycle being followed?
- Are products being produced?
- Is feedback from reviews being incorporated?
- Is backtracking possible?
- Are priorities being adhered to?
- Are timeboxes being respected? (Tudor, 2010)

5.6 Configuration management

Configuration management is a process to identify configuration item of a system, control the release and change of those item, recording and reporting status of configuration item and change request and verifying completeness and correctness of configuration item. Configuration item (CI) is a product of project which needs to be recorded and protected from unauthorized change.

5.6.1 Why Configuration management is important for DSDM project

Configuration management is important for DSDM atern project because:

- DSDM atern is dynamic and embraces change
- Iterative development applies where significant changes take place which need to be managed
- It must be possible to back track to a previous product version.
- It's need to be clear that which version is current and which is older.

5.6.2 Configuration management strategy

Configuration management strategy is a part of development approach element of solution foundation.

The examples of configuration management are:

- Baseline is a part of continual integration of a solution
- Baseline of every prototype before demonstration
- Baseline of every prototype after an approval decision
- Baseline daily, which enables flexibility but can be very onerous
- Baseline at the end of development timebox which is absolute minimum and should be used if timebox is short. (Tudor, 2010)

6. Feasibility study

Feasibility study justify the proposed system that would be technically, operationally and technically feasible or not to develop. Feasibility study helps to make decision about proposed system that will work or not. All the feasibility factors will describe bellow

6.1.All possible types of feasibility

6.1.1 Technical feasibility

Technical feasibility is focus on understanding of technical resources of the organization and resources applicability to the need of proposed system. It's also an evaluation of hardware and software and how they meet the proposed system need. Technical feasibility compares the technology level that required for product development.

6.1.2 Operational feasibility

Operational feasibility is a measure how well proposed system will solve the problems and take advantage of identified opportunities and satisfaction of identifying requirements within requirement analysis phase of system development.

The operational feasibility focus on how much proposed development project fits with existing business environment and objectives concerning development plan, corporate culture delivery date and existing business processes.

To ensure project success expected operational outcomes need to be imparted during design and development. . Such design includes dependent parameters like reliability, supportability, maintainability, usability, disposability, sustainability, predictability, affordability and so on. All the parameters are needed to be considered at the early stage of design. A system may provide its intended purpose effectively when its operating and technical characteristics are applied into the design. Finally operational feasibility is a critical part of system engineering that need to be taken of the early design phase.

6.1.3 Economic feasibility

Economic feasibility is a technique to evaluate proposed system effectively that provides the economic benefits of the organization. It also analyzes the proposed system cost and benefits with the comparison of current system cost and benefits. If the analysis result is positive means benefits is grater then cost then decide that proposed system will be implement. (Wikimedia Foundation, Inc, 2014)

6.2.Cost benefits analysis

Required hardware and software for proposed system:

NO	Name	Quantity	Price per piece(BDT)
Required hardware			
1	Intel i5 3.2GHz processor	5	18200
2	4 GB DDR3 RAM	5	2550
3	500 GB Hard Drive	5	5200
4	15.6 inch HD Acer LED LCD display	5	9800
5	Printer	1	8800
Required Software			
6	Windows 7	5	12200
7	Microsoft Visual Studio 2010	5	25200
8	SQL Server 2008	5	15700
9	Crystal Reports	5	17200

(Computer Source, 2014)(Ryans IT Limited, n.d.)

Domain Registration Price

Domain Name	One Year	Two Years	Three Years	Four Years	Five Years
.COM	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.NET	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.ORG	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.INFO	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.BIZ	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.MOBI	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000
.US	BDT 800	BDT 1500	BDT 2400	BDT 3000	BDT 4000

(WEB TECH SOFT , 2013)

Web Hosting using Linux server:

Linux Hosting Plan - 01			
Feature	6 Cores Server	26 cores Server	32 Cores Server
Space	100 MB	100 MB	100 MB
Bandwidth	1000 MB	1000 MB	100 MB
FTP & Email	∞	∞	∞
Sub-Domain	∞	∞	∞
MySQL	∞	∞	∞
Up-time	99.999%	99.999%	99.999%
Yearly	1,500 Tk	1,500 Tk	2,500 Tk
	700 Tk	800 Tk	1,000 Tk

Linux Hosting Plan - 02			
Feature	6 Cores Server	26 Cores Server	32 Cores Server
Space	250 MB	250 MB	250 MB
Bandwidth	2000 MB	250 MB	250 MB
FTP & Email	∞	∞	∞
Sub-Domain	∞	∞	∞
MySQL DB	∞	∞	∞
Up-time	99.9%	99.99%	100%
Yearly (Tk)	1,500 Tk	2,800 Tk	3,500 Tk
	1,000 Tk	1,500 Tk	2,100 Tk

(WEB TECH SOFT , 2013)

Web hosting using Windows server

Windows Hosting Plan - 01			
Feature	6 Cores Server	26 cores Server	32 Cores Server
Space	100 MB	100 MB	100 MB
Bandwidth	1000 MB	1000 MB	100 MB
FTP & Email	∞	∞	∞
Sub-Domain	∞	∞	∞
MySQL	∞	∞	∞
Up-time	99.999%	99.999%	99.999%
Yearly	1,500 Tk	1,500 Tk	2,500 Tk
	400 Tk	700 Tk	800 Tk

Windows Hosting Plan - 02			
Feature	6 Cores Server	26 Cores Server	32 Cores Server
Space	250 MB	250 MB	250 MB
Bandwidth	2000 MB	2000 MB	2000 MB
FTP & Email	∞	∞	∞
Sub-Domain	∞	∞	∞
MySQL	∞	∞	∞
Up-time	99.999%	99.999%	99.999%
Yearly	1,500 Tk	1,500 Tk	2,500 Tk
	1300 Tk	1800 Tk	2500 Tk

(WEB TECH SOFT , 2013)

Additional Cost (BDT)

- Employee Salary 25000 monthly
- Internet Bill 3500 monthly
- Maintenance Cost 50000 Yearly
- Training Cost 45000 Yearly

After cost benefit analysis it is clear that the investment amount is a big challenge for school management to implement the proposed system. But for a long term with the considering proposed system do not need financial assistance after initial invest. Proposed system will increase the work efficiency and reduce the needed workforce.

6.3.DSDM good or not for this project using PAQ (Project Approach Questionaries')

PAQ are mainly based on Atern ISF's, atern principles and other project situation factors and it's only a guideline for DSDM atern following project. This is not essential to provide positive response to all questions and on the other side negative response doesn't mean the project cannot run using Atern rather identify risks which need to be managed. The good practice is that the PAQ have to place at start of any project.

6.4.ISF (Instrumental Success Factors)

There are several factors need to be considered before using DSDM atern for a specific project. If the factors are not met project has risk to develop but it doesn't mean DSDM inappropriate for the project.

Listed below all instrumental success factors:

- DSDM atern philosophy needs to accept before staring work and business sponsor and senior management need to accept the philosophy.
- Senior business management must agree to delegate appropriate level of decision making to the business ambassador and solution developer need to empower to make appropriate technical decision.
- Commitment of senior management to provide necessary business ambassador and business advisor involvement.
- Organization needs incremental delivery of solution to gain early return on investment and reducing risk.
- Solution developer needs easy access to business role and business representative need to interrupt continual and frequent throughout the project.
- Solution development team need to stable if they swapped project will put into risk. On the other side if specialist required supporting the team add him but solution development team will remain stable.
- Solution development team must be encompassing the right skills of both business area and technical environment.
- According to DSDM atern recommends solution development team size is small like seven member per team (plus or minus two). But one project can have one or more development team.
- Need a supportive commercial relationship where supplier and customer comes from different sectors and solution development team covered by contract or solution development team from same organization but working in a define service level agreement. (Tudor, n.d.)

7. Foundation

7.1. Problem area identification

7.1.1 Interview

Interview is using for gathering knowledge about old system or current manual system. Generally interview is using for one to one conversation. Here I will give some example that I finished for gathering knowledge about BHS (Bathshire High School).

Mohiuddin Alamgir (School headmaster)

Most school in our country still using paper based system which is very inefficient and leaves too much place for keeping record. I also noticed that it is tedious to find required data from records. That's why I think new management system will be benefiting for our institution. If whole management system will be compartmentalized with links between inter-department which will be effective for school.

Most of the employees of our school are not highly educated so they need training for using new management system. I already coordinate this with the directors from another department to ensure about the training.

Ahammad Imtiaz(Head of HR)

To be honest speaking, new hires and terminations faculties system in our institution is too much complicated and mater of time. Because we need to communicate with administrative and finance departments for collect information which will be easy if we use computerized system to maintain HR department.

The important information keep using paper based where no security and privacy implemented. This is an important issue for the institution because all the information is highly demandable.

Asif mohammad (Accountant)

Our department needs to keep updated records where accuracy is of importance because we manage huge amount of student data about transaction, dues, grants etc. We also manage lots of employees and faculties financial information such as salary increments, training costs etc. which all are completed by hand and using paper

I am very hardly liable about unauthorized assess of data to the Board of Directors. I think that, institution need to use computerized system where authorization and security measures are applied to access and use data.

Md. Bulbul ahammad (lecturer)

Now our institution use paper based system to maintain all class lecture, exam result, attendance etc. which is more time consuming. Every day we waste lots of time for taking attendances, notice announce etc. By using computerized system we can resolve all this problems where we don't need to announce any notice or new student see that by using computerized system. As a teacher I think we need to improve student awareness of using new system.

7.1.2 Observation

Observation is technique for gathering knowledge for system development of school management system. System developer has permission to visit school office for observing the day by day activities of all users. From observation it is clear that manual paper based system is too much time consuming and need lots of working personnel where need to support lots of money.

7.1.3 Questionnaires

Questionnaires' is a technique for gather information for new system development. Where system developer makes questionnaires and distribute that to all system related people who will be the possible user of new system. Questionnaires make about daily working system, how to manage school work, management related questions etc.

7.2.Rich picture

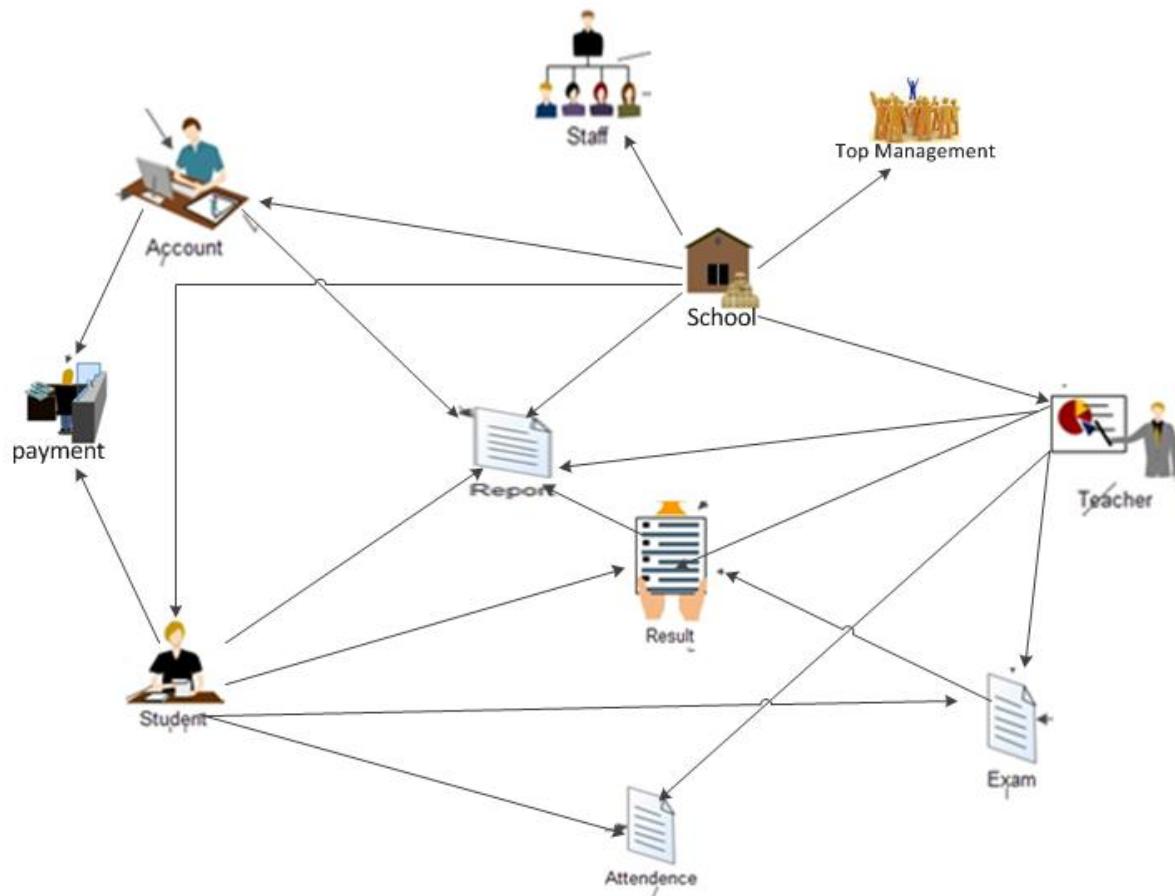


Figure: rich picture diagram of BHS school management system

7.3.Specification problem area identification and description

After facing some management problem and also data security issues school management decide to change their old system. They need an effective system where they can resolve their problems and save their time. But before developing a new system first it's necessary to find out those issues which were causing to fail the old system. After some analysis and investigation of old system some problems identified that will describe bellow:

- School are now following manual paper based system which is very inefficient where record maintaining is too much time consuming and unsecure. There have lot of changes to lose and misuse of recorded data.

- Now school keeps all personal information like student information, teachers information and employees information using paper based manual system where have changes of data lose which is very much easy. Its can serious harmful for the institution and also for reputation.
- All notice and news was published by using paper based system through the notice board or class room if anyone can miss the class he/she cannot get those notice or news.
- Publishing exam time table and result is time consuming process because its can add extra work load for the teacher where they need to make exam schedule using manual system and they need to calculate the student result for publishing which is need to be error free. Because of using paper based system still in result has some error which is discouraging for the students and their parents.
- For keeping student attendance institution follow paper based system called register which is very easy to edit later. If anyone can try to give attendance without attending the class it's possible because of using register. This system is same also for employee attendance.
- In paper based system has no facility to create monthly or yearly report which is helpful for the school management for making decision.
- The current system has no facility to introduce school management people to the student and also with their parents because it can create a positive impact on parents who are trying to select better school for her children.
- Every year school publishes their result using current manual system but it has no facility to introduce the top student of every class which is encouraging for the students.
- The school handles lots of financial transaction every day by suing paper based system which is time consuming and need lots of work force. All the information about finance is more important and need to be secure but current manual system has no security system anyone easily get those information which is the reason of school reputation going down.

7.4.Possible solution

Depends on above discussion, institution needs a solution which increases the efficiency and effectiveness of the system. For data security issue and time consuming workload need to decide a computerized system development. As a system development methodology DSDM atern under agile will be follow because it deliver the better solution within in predefine time and budget whereas school management needs to implement a computerized system within in a short time. For resolving problem school management has to be decided to adopt a school management system which has different parts that will describe bellow:

- Student management system: - this system will help to resolve the storing student information, result and attendance by providing data integrity and security. From where different types of report will be generated for the management, teachers and also for administrations.

- Employee management system: - this employee management system will improve data consistency for storing information. Where different kinds of employee activity will be recorded like employee attendance, publishing exam schedule, generating different reports for management etc.
- Accounts management system: - account management system implementation will help to record all financial transaction information up to date and generate report depends on recording information for the management decision.

After developing school management system consists all of its part all previous problem will be solve and workload, workforce will be decrease where time also be saved.

7.5.Overall requirement List

Depends on analysis and discussion with employee and management some key requirements were listed. This is kind of general discussion between developer and management which will encourage employees to find out their problems within current system. Listed requirements will be describe bellow:

- Store all students, employees, management and teachers details information within system.
- Allow administration to publish notice, news and student result which also need to be store.
- Provide a facility to teacher for organizing lectures
- Store all students, employees and teachers attendance information.
- Report generating facility for the management about their student, employee and teacher.
- Report generating facility about attendance
- Provide security for all data and information and provide extra security for sensitive data

7.6.What Technology to be implemented

Depends on reviewing current manual system problem some distinct solution will be describe bellow:

- **Desktop application:** desktop application runs in a specific desktop or laptop which is confined a physical location and have usability constraint. By using desktop application institution stores their all daily transaction information and after a period report will be generated smoothly.
- **Web Application:** web application is mainly based on client server architecture where need a web browser as client interface. Web application has similar facility like desktop application but this can be maintain via internet which can be accessed from any place where desktop application can use in stand-alone computer. Web application can provide extra features as website which will improve the dynamic publicity of school.

7.7.Recommendation and justification

Justification of desktop and web application:

Advantage of desktop application:

- Desktop applications confined to physical location and it's has usability constraint.
- For purchasing desktop applications need to pay one time and it has no continual charges.

Disadvantage of desktop application:

- Desktop applications need to be installed separately in every single computer.
- The required up gradation in desktop application is too much complex and time consuming.

Advantage of web application:

- Web application is very convenient to use means anyone can use it from the any part of the world at any time where database is available for all the time.
- It's don't have installation because it run over the internet on a web browser.
- For web application securities no software will need to install because webserver maintain problem troubleshooting for hardly arise.
- Web application works on multiple platforms means multiple Internet browsers like, Mozilla Firefox, Internet Explorer etc.

Disadvantage of web application:

- Absence of Internet or poor connectivity web application cannot perform.
- development and maintenance of web application is highly expensive (daya solusi utama, PT, 2011) (Streetdirectory, 2014)

Option selection:

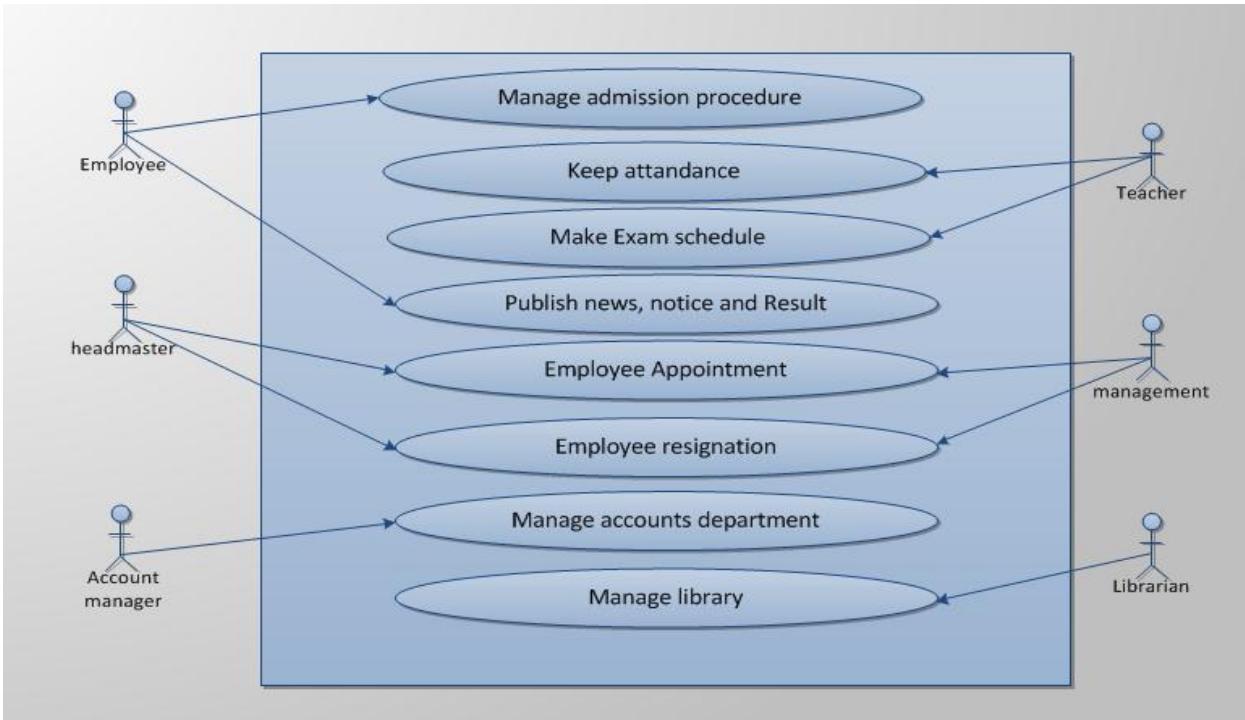
Web application is selected for bathshiree high school which will fulfill all the necessary requirements.

Reasons for choosing:

The reason for choosing web application is that, it resolves all data consistency issues and used by multiuser at any time at any place. Web application can easily maintain all details information about personal like students, teachers and employees. Data security will be implemented for ensuring data integrity.

8. Exploration

8.1.Old system use case



8.2.Requirements list

Requirements table

R001	Store student details
R002	View student information
R003	Manage student details
R004	Keep student attendance
R005	Store student results
R006	Store employee information
R007	View employee information
R008	Manage employee information
R009	Keep employee attendance
R010	Store teachers information

R011	View teachers information
R012	Manage teachers information
R013	Keep teachers attendance
R014	Store top management information
R015	View management information
R016	Manage top management information
R017	Store top student information separately from the student
R018	View top students information
R019	Manage top student information
R020	Add notice
R021	View notice
R022	Manage notice
R023	Publish notice for website visitors
R024	Add news
R025	View news
R026	Manage news
R027	Publish news for web site visitors
R028	Generate report
R029	Create user
R030	Further query confirm by email
R031	Google map for showing location
R032	About us page
R033	Create school gallery
R034	School history page

R035	Admission eligibility page
R036	Rules & regulation page
R037	How to apply p page
R038	Contact us page
R039	Web site site map
R040	Job vacancies page
R041	Student activity page
R042	Class and societies page
R043	Student services page
R044	FAQ
R045	Residential facility page
R046	Store students payment information
R047	Store employees salary information
R048	Store teacher's salary information
R049	Create school forum

8.3.Prioritized requirement list (PRL)

DSDM atern use MoSCoW Technique to prioritize requirement list. The details about MoSCoW prioritization was discussed in previous section here I just show the prioritize requirement list:

Requirements prioritization table	
Must Have	
M1	Store student details
M2	Manage student details
M3	Store employee information
M4	Manage employee information

M5	Store teachers information
M6	Manage teachers information
M7	Store top management information
M8	Manage top management information
M9	Store top student information separately from the student
M10	Manage top student information
M11	Keep student attendance
M12	Store student results
M13	Keep employee attendance
M14	Keep teachers attendance
M15	Add notice
M16	Manage notice
M17	Add news
M18	Manage news
M19	Generate report
M20	Create user
M21	Store student payment information
Should Have	
S1	View student information
S2	View employee information
S3	View teachers information
S4	View management information
S5	View top students information
S6	View notice

S7	View news
S8	Publish notice for website visitors
S9	Publish news for web site visitors
S10	Further query confirm by email
Could Have	
C1	Google map for showing location
C2	About us page
C3	Create school gallery
C4	School history page
C5	Admission eligibility page
C6	Rules & regulation page
C7	How to apply p page
C8	Contact us page
C9	Web site site map
Won't Have This Time	
W1	Job vacancies page
W2	Student activity page
W3	Class and societies page
W4	Student services page
W5	FAQ
W6	Residential facility page
W7	Store employees salary information
W8	Store teacher's salary information
W9	Create school forum

8.4.Requirement catalogue

In above requirements prioritized table have functional and also non function requirements which all are selected for the system development. Here requirement catalogue will be provide with responsible person and also identify the functional and non-function requirements.

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M1
Functional Requirements: Store student details			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	120 per day	(120- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M2
Functional Requirements: Manage student details			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	90 per day	(90-maximum) per day	
Comments:			

Source: Staff Admin	Sign Off: Staff Admin	Priority: must	Requirements ID: M3
Functional Requirements: Store employee information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100-maximum) per day	

Comments:

Rest of the requirements catalogue table will be given in appendix B.

8.5.Prototype of new system

Prototype can use to illustrate typical quality of eventual solution in atern prototype is piece of work which will demonstrate a given objective can be or has been achieved. Here is two types of prototypes describe bellow:

- Disposal prototypes:

Disposal prototype used for IT based solution which is also known as proof of concept prototype. Disposal prototype is thin and end to end mock-up pathway of solution. In DSDM it is known as capability/ technique prototype. Example is “thrown away”.

- Evolutionary prototypes:

According to iterative development, all iterative development process considers to be prototyping where element can constantly built, shown, modified and revisited. For this reason the whole iterative development technique referred as a prototype.

Based on above discussion I can choose evolutionary prototype because as a project development methodology I can follow DSDM atern methodologies under agile that's why. The main benefit of using prototype is ensuring communication between stakeholders from different business parts, organization, culture or language. (Tudor, 2010)

The new system prototypes will be added in appendix C

9. Engineering

9.1.New system modules

- Student information
 - Add student information
 - Search, update and view student information
- Student attendance
 - Keep student attendance information
- Student result
 - Store all student result
 - Provide all result under individual student login system
- Student payment
 - Store student payment information
 - Provide details about payment under individuals student login system
- Employee information
 - Store employee information
 - Search, update and view information
- Teacher information
 - Store teacher information
 - Search, update and view information

- Top management information
 - Store top management information
 - Search, update and view information
- Top student information
 - Store top student information whose position is top of every class
 - Search, delete and view top student information
- Class routine
 - add class routine which is created from Google calendar for all website visitors
- News
 - Add new news
 - Search, update and view news
- Notice
 - Add new notice
 - Search, update and view notice
- Reports
 - Generate different types of needed reports
- Create & manage users of the system
 - Provide option to create new admin users or employee users
 - Provide option to create new super admin user or teacher users
 - Provide option to create new student users
 - Provide secure facility for login into system.
 - Editing and deleting all system users

9.2.EERD diagram

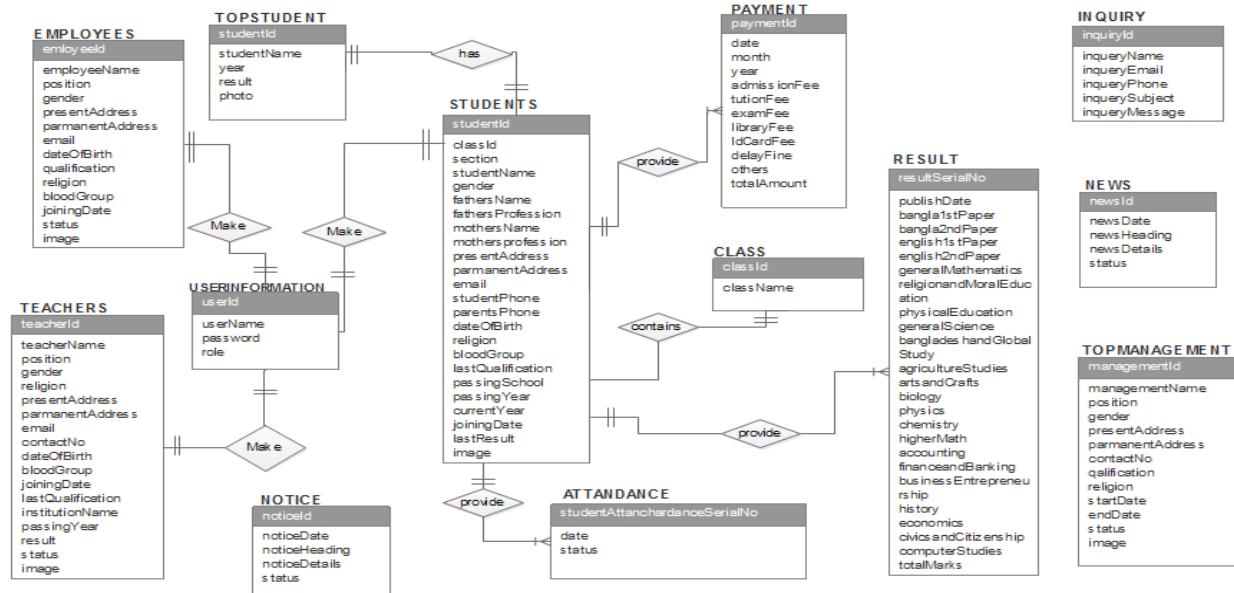


Figure: EERD of BHS school management system

9.3.Relational schema

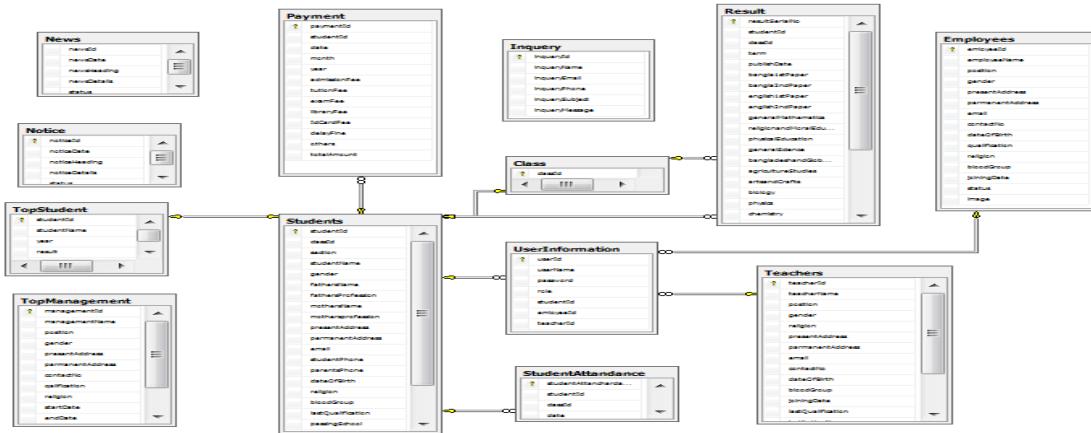
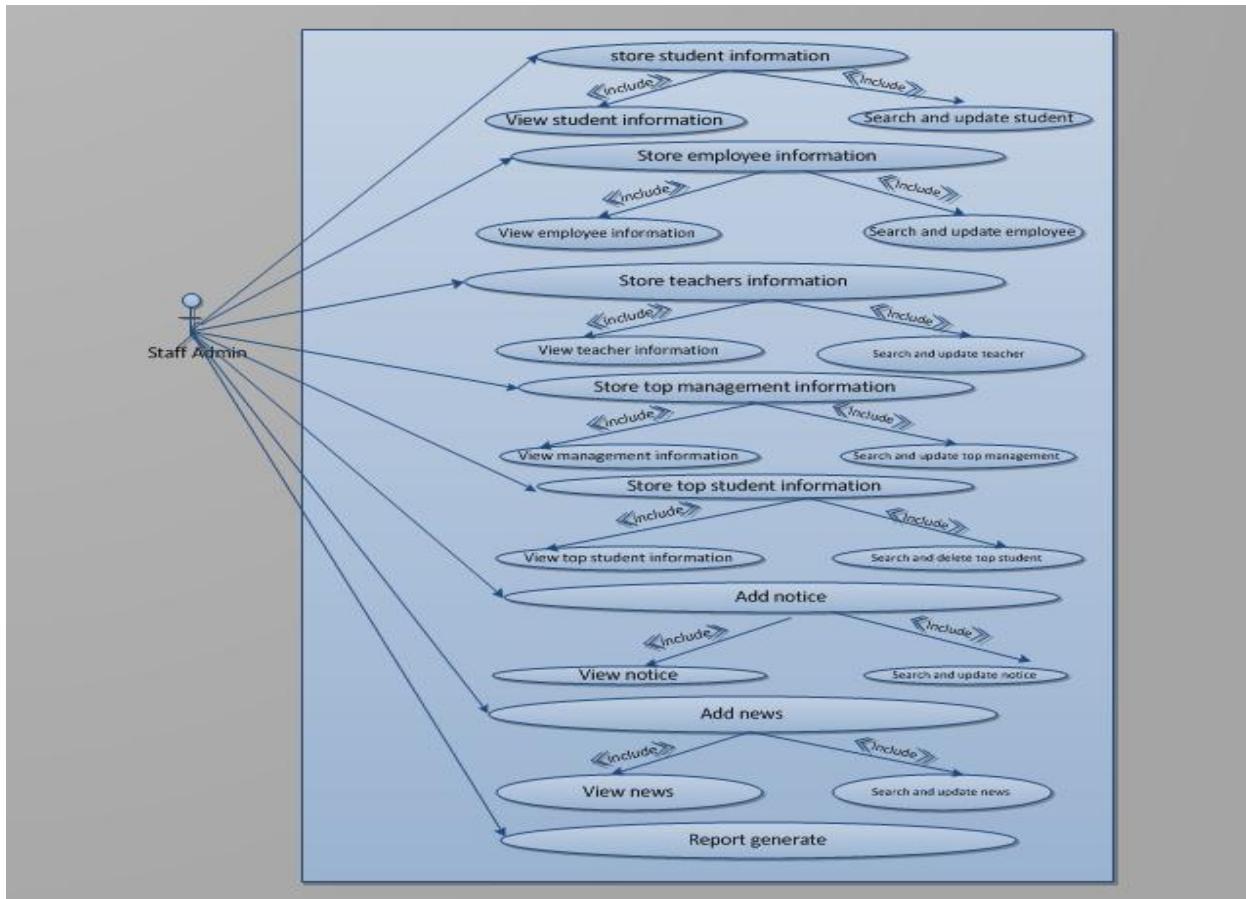


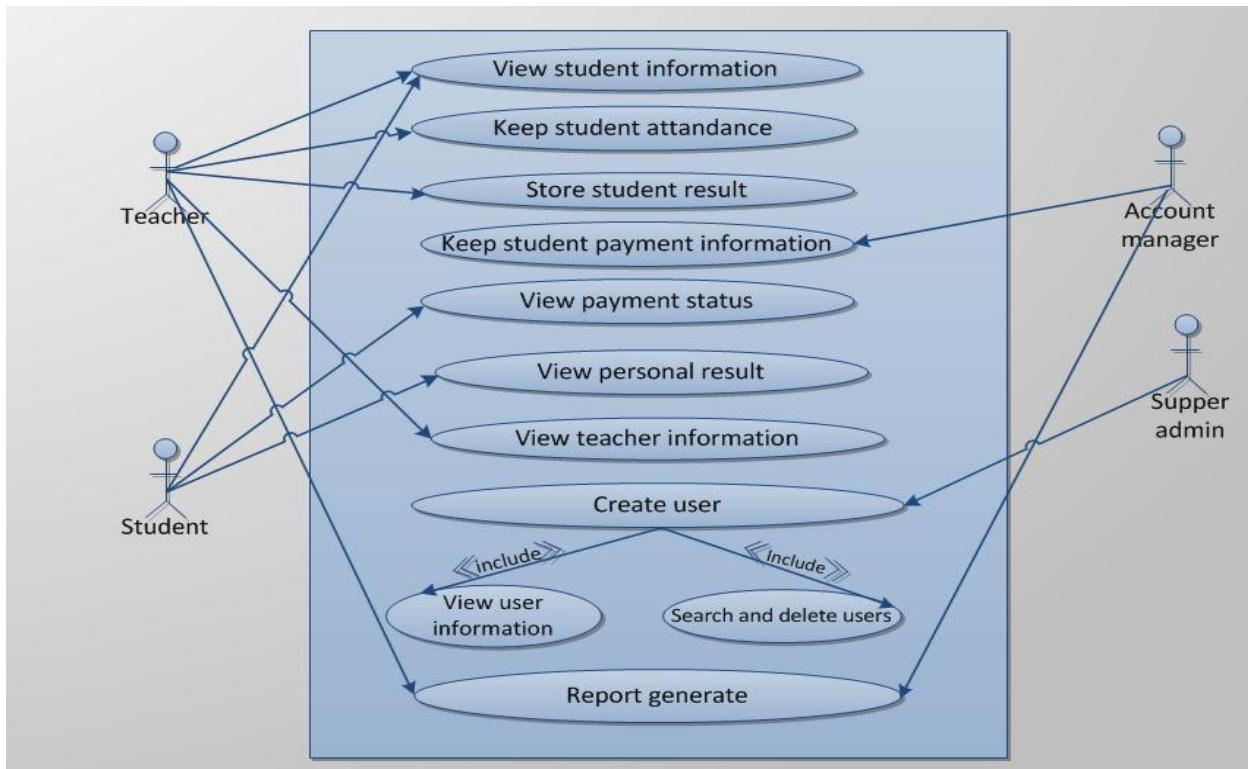
Figure: relation schema of BHS school management system

9.4. New system use case

Use case for admin user:



Use case for student, teacher, account and supper admin:



9.5.Use case description

Admin use case documentation:

Use case id	UC001	Created by	Md jahirul alam
Use case name	Store student information		
Actors	Staff admin		
Description	This functionality is needed to provide student information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view student information page • press insert information • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View student information • Search and update student information 		

Use case id	UC002	Created by	Md jahirul alam
Use case name	Store employee information		
Actors	Staff admin		
Description	This functionality is needed to provide employee information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view employee information page • press insert information • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View employee information • Search and update employee information 		

Use case id	UC003	Created by	Md jahirul alam
Use case name	Store teacher information		
Actors	Staff admin		
Description	This functionality is needed to provide teacher information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view teacher information page • press insert information • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View teacher information • Search and update teacher information 		

Use case id	UC004	Created by	Md jahirul alam
Use case name	Store top management information		
Actors	Staff admin		
Description	This functionality is needed to provide top management information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view top management information page • press insert information • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View top management information • Search and update top management information 		

Use case id	UC005	Created by	Md jahirul alam
Use case name	Store top student information		
Actors	Staff admin		
Description	This functionality is needed to provide top student information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view top student information page • press insert information • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View top student information • Search and delete top student information 		

Use case id	UC006	Created by	Md jahirul alam
Use case name	Add notice		
Actors	Staff admin		
Description	This functionality is needed to provide new notice information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view notice add page • press add notice • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View notice • Search and update notice information 		

Use case id	UC007	Created by	Md jahirul alam
Use case name	Add news		
Actors	Staff admin		
Description	This functionality is needed to provide news information which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view add news page • press add news • Provide information. • Press save button • Information save to database 		
Include	<ul style="list-style-type: none"> • View news • Search and update news information 		

Use case id	UC008	Created by	Md jahirul alam
Use case name	Report generate		
Actors	Staff admin		
Description	This functionality is needed to generate report from the database.		
Pre-condition	Admin need to login		
Post condition	The generated report will be used for managerial work		
Normal flow	<ul style="list-style-type: none"> • admin view report section • select generate report • choose report types • press generate • save or download report 		
Include			

Use case documentation of student, teacher, account and supper admin:

Use case id	UC001	Created by	Md jahirul alam
Use case name	view student information		
Actors	Teacher admin, student admin		
Description	This functionality is needed to view student information which already stored in the database.		
Pre-condition	Student and Teacher need to login		
Post condition			
Normal flow	<ul style="list-style-type: none"> • admin view student page • select year • press view button • Provide information. 		
Include			

Use case id	UC002	Created by	Md jahirul alam
Use case name	keep student attendance		
Actors	Teacher admin		
Description	This functionality is needed to keep student attendance which will save in the database.		
Pre-condition	Teacher Admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view student attendance page • search student against class • Provide attendance. • Press save attendance • attendance save to database 		
Include			

Use case id	UC003	Created by	Md jahirul alam
Use case name	Store student result		
Actors	Teacher admin		
Description	This functionality is needed to provide student result which will save in the database.		
Pre-condition	Admin need to login		
Post condition	The result added to the school database		
Normal flow	<ul style="list-style-type: none"> • teacher view student result page • insert marks for individual subject • Provide information. • Press save button • Information save to database 		
Include			

Use case id	UC004	Created by	Md jahirul alam
Use case name	keep student payment information		
Actors	employee admin / accounts manager		
Description	This functionality is needed to store student payment information which will save in the database.		
Pre-condition	Accounts manager need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view student payment page • Provide payment information. • Press save button • Information save to database 		
Include			

Use case id	UC005	Created by	Md jahirul alam
Use case name	View payment status		
Actors	Student admin		
Description	This functionality is needed to display student payment status		
Pre-condition	student need to login		
Post condition			
Normal flow	<ul style="list-style-type: none"> • Student view payment status page • Save or download information 		
Include			

Use case id	UC006	Created by	Md jahirul alam
Use case name	View personal result		
Actors	Student admin		
Description	This functionality is needed to display student result		
Pre-condition	student need to login		
Post condition			
Normal flow	<ul style="list-style-type: none"> • student view result page • save or download result information 		
Include			

Use case id	UC007	Created by	Md jahirul alam
Use case name	View personal information		
Actors	Teacher admin		
Description	This functionality is needed to display teacher personal information		
Pre-condition	Teacher need to login		
Post condition			
Normal flow	<ul style="list-style-type: none"> • admin view information page • save or download information 		
Include			

Use case id	UC008	Created by	Md jahirul alam
Use case name	Create user		
Actors	Supper admin		
Description	This functionality is needed to create users which will save in the database.		
Pre-condition	Supper admin need to login		
Post condition	The information added to the school database		
Normal flow	<ul style="list-style-type: none"> • admin view create user page • select user type • provide user information • press add user button • Information save to database 		
Include	<ul style="list-style-type: none"> • View user information • Search and delete users 		

Use case id	UC009	Created by	Md jahirul alam
Use case name	Report generate		
Actors	Teacher admin, accounts manager, supper admin		
Description	This functionality is needed to generate important report		
Pre-condition	All Admin need to login		
Post condition			
Normal flow	<ul style="list-style-type: none"> • View report page • Select report type • press generate • save or download report 		
Include			

9.6.Class diagram

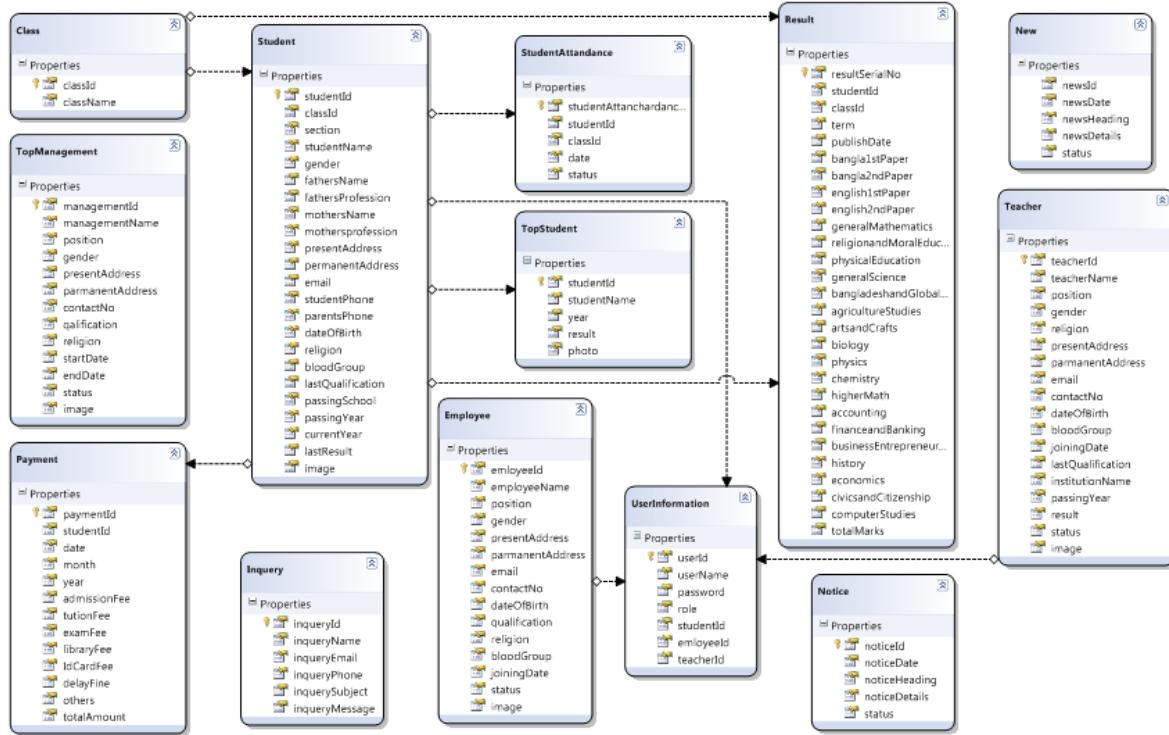


Figure: class diagram of BHS school management system

9.7.Sequence diagram

➤ Sequence diagram for login system

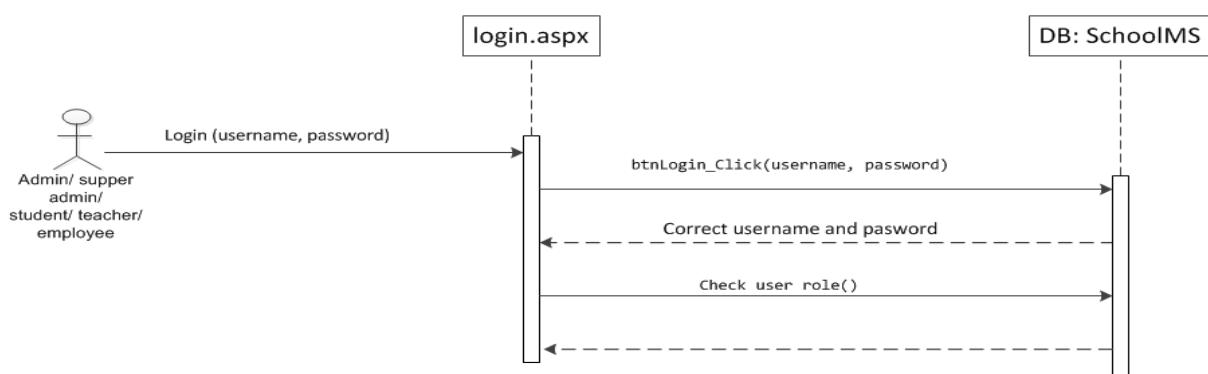


Figure: sequence diagram for system login

➤ all Sequence diagram for data insert

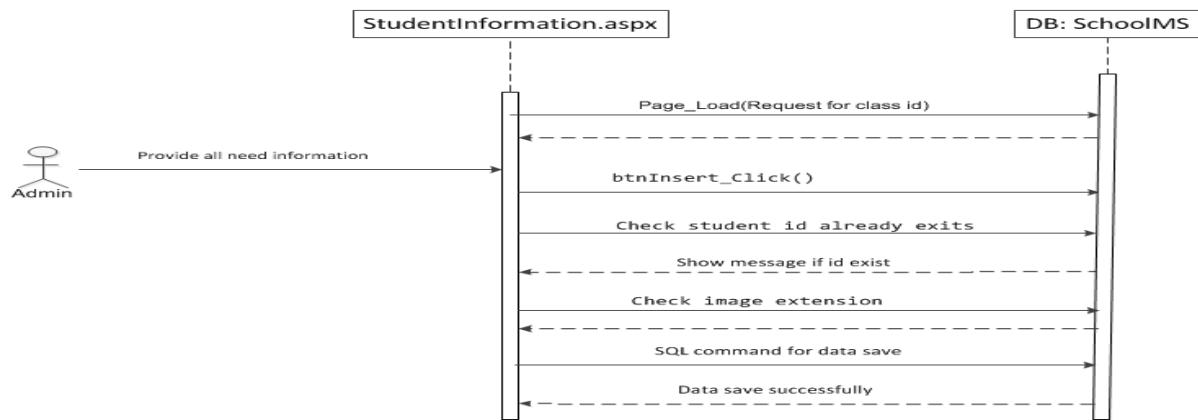


Figure: sequence diagram for insert student information

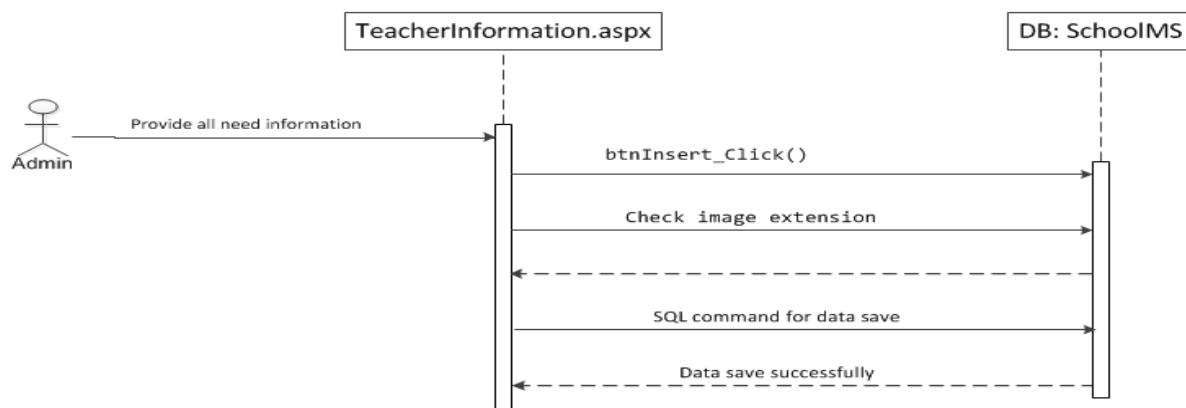


Figure: sequence diagram for insert teacher information

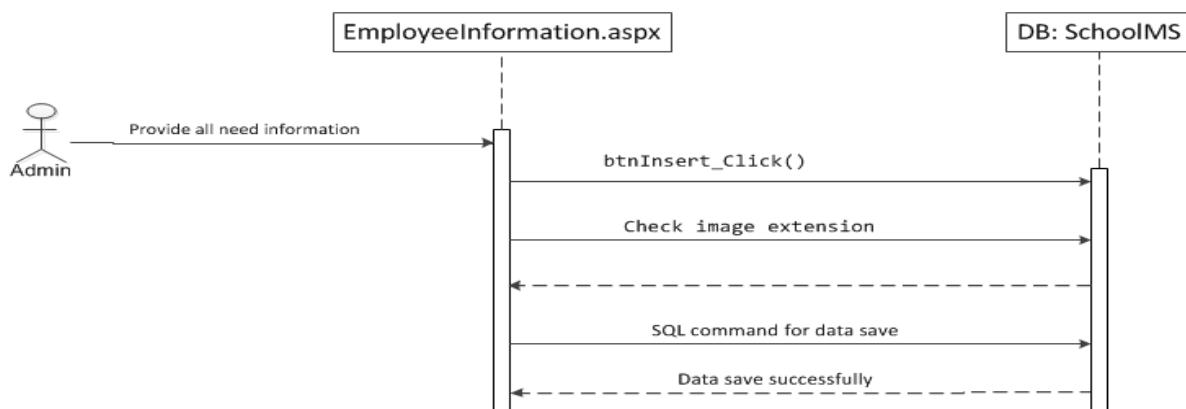


Figure: sequence diagram for insert employee information

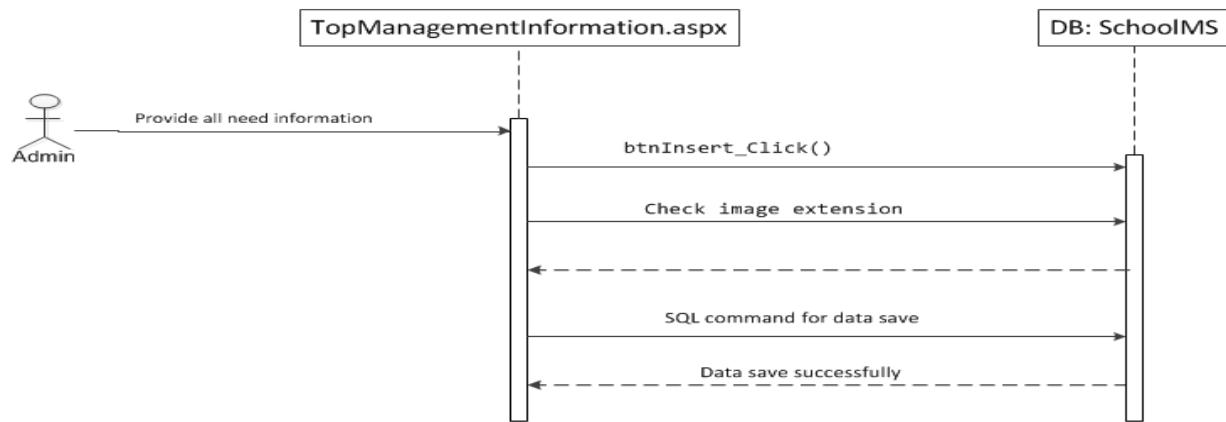


Figure: sequence diagram for insert top management information

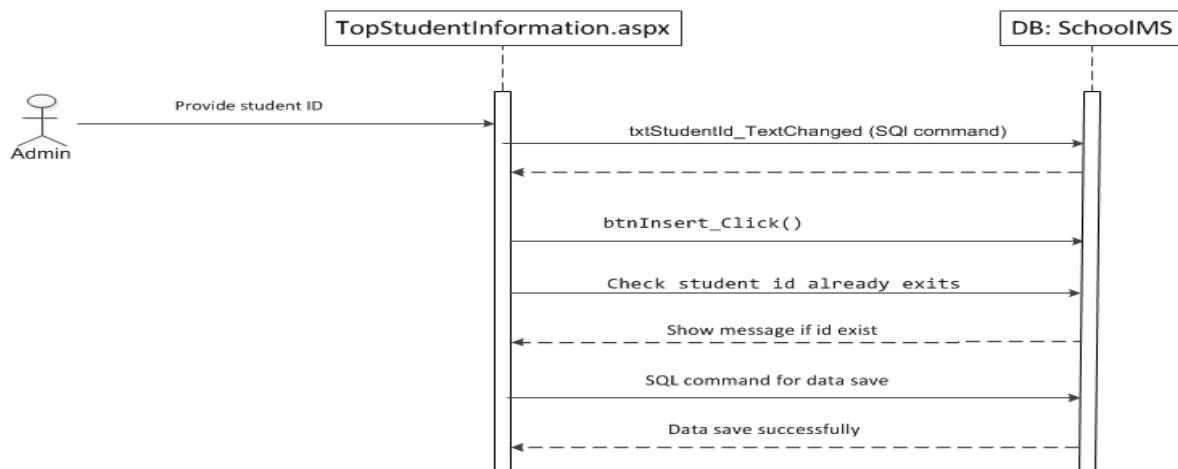


Figure: sequence diagram for insert top student information

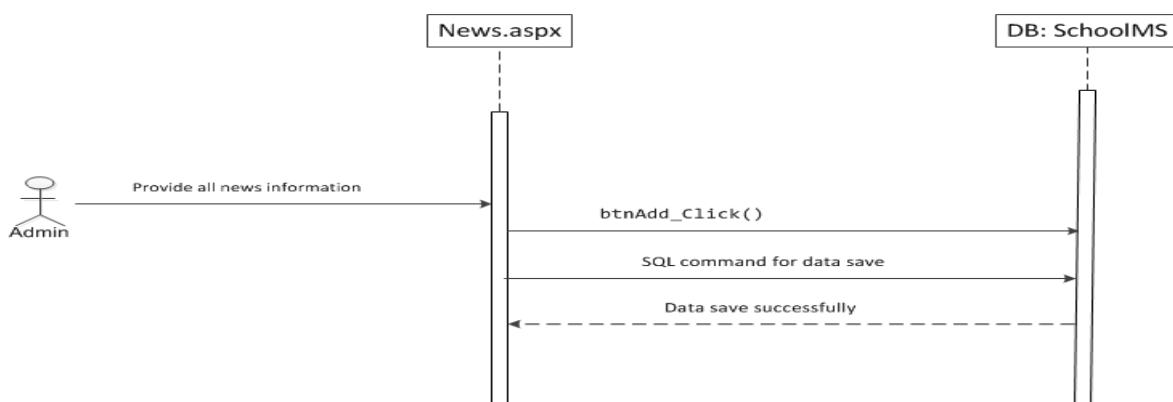


Figure: sequence diagram for insert news information

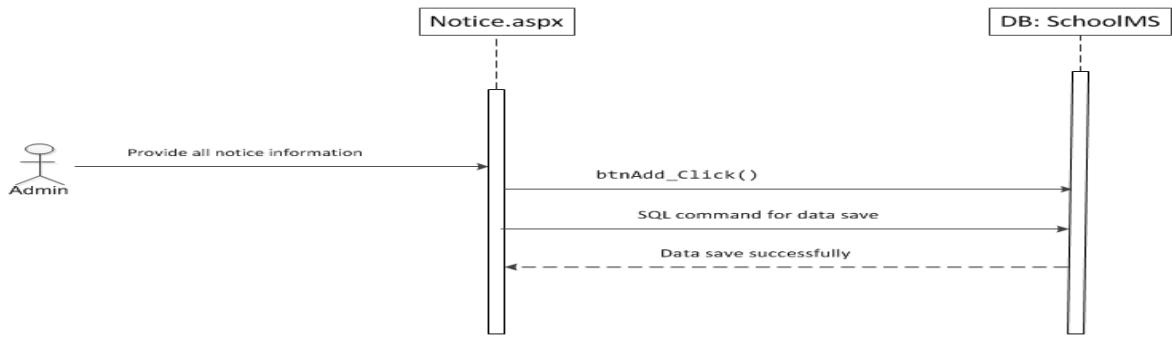


Figure: sequence diagram for insert notice information

➤ all sequence diagram for data view

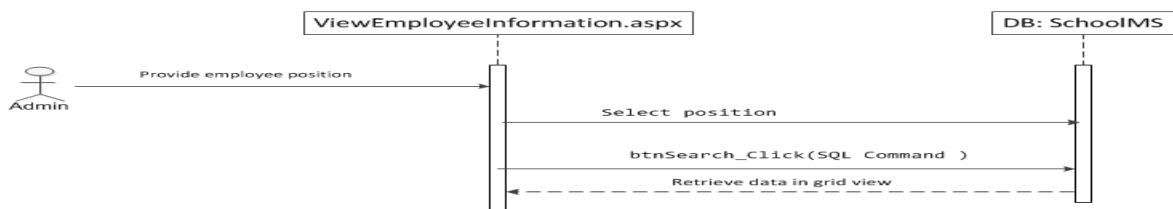


Figure: sequence diagram for view employee

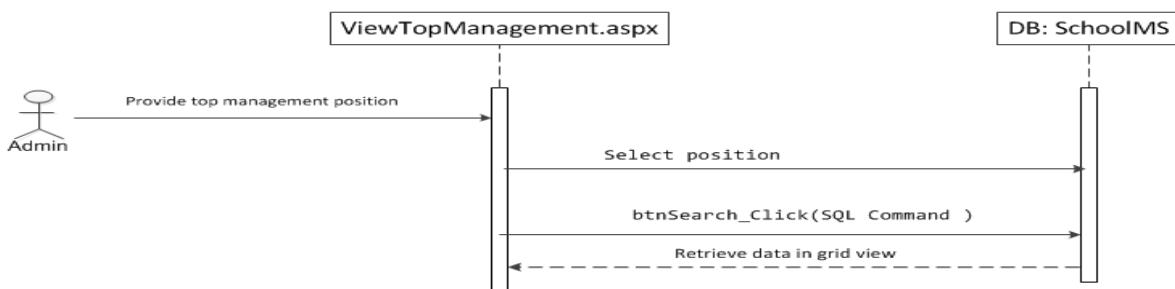


Figure: sequence diagram for view top management

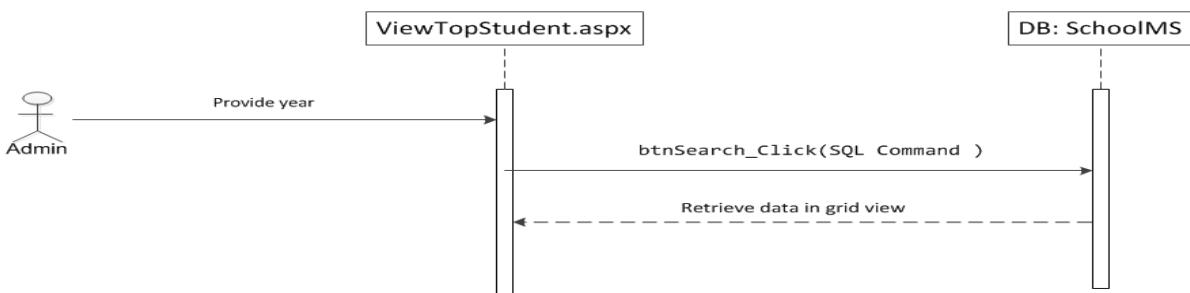


Figure: sequence diagram for view top student

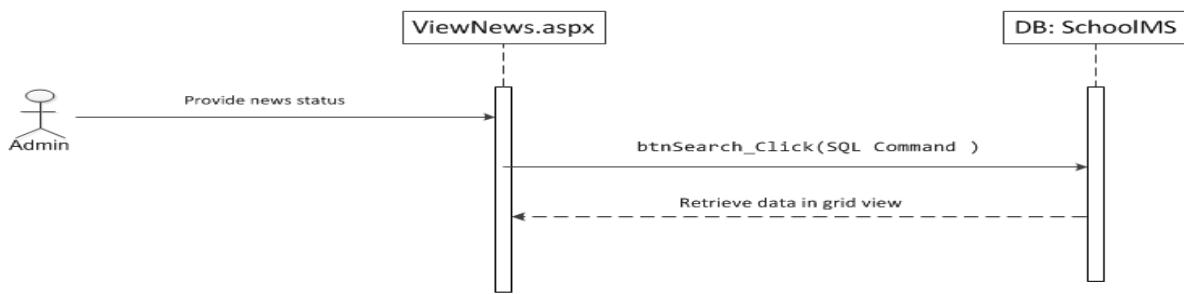


Figure: sequence diagram for view news

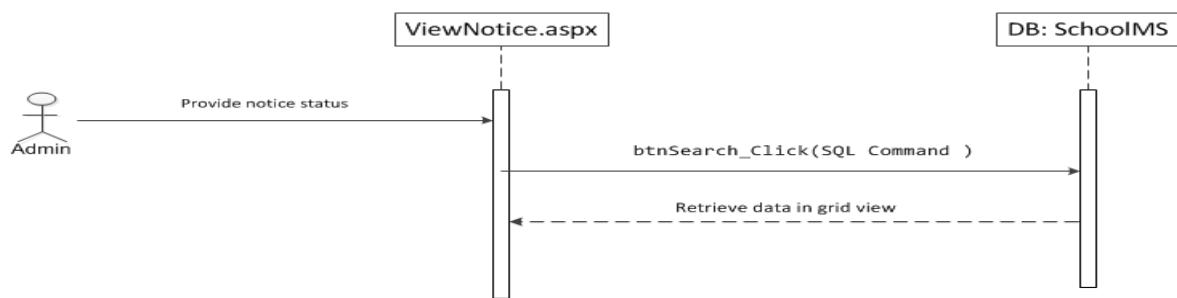


Figure: sequence diagram for view notice

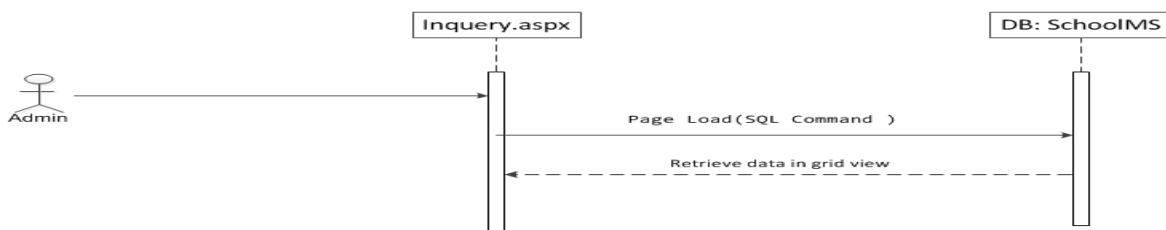


Figure: sequence diagram for view inquiry

➤ all sequence diagram for data manage

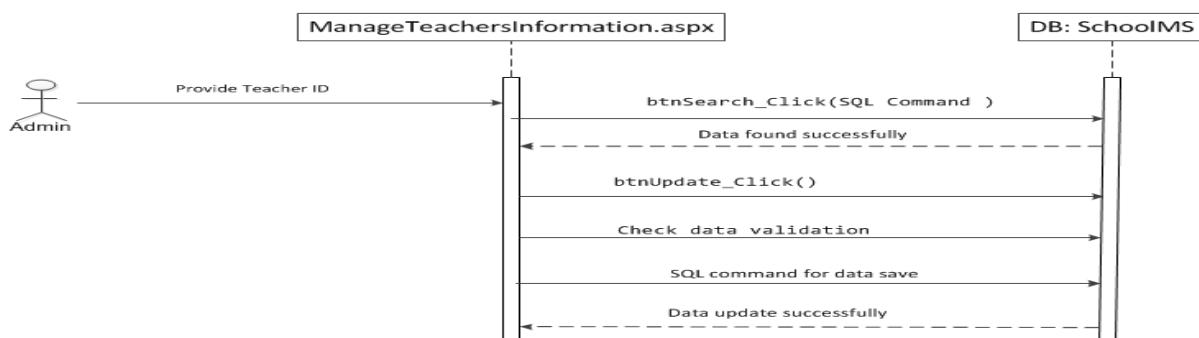


Figure: sequence diagram for manage teacher information

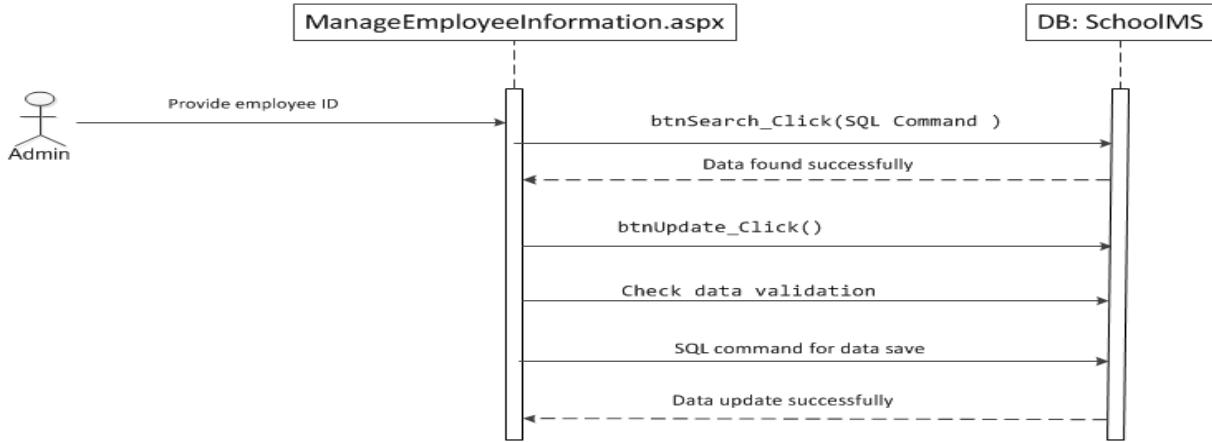


Figure: sequence diagram for manage employee information

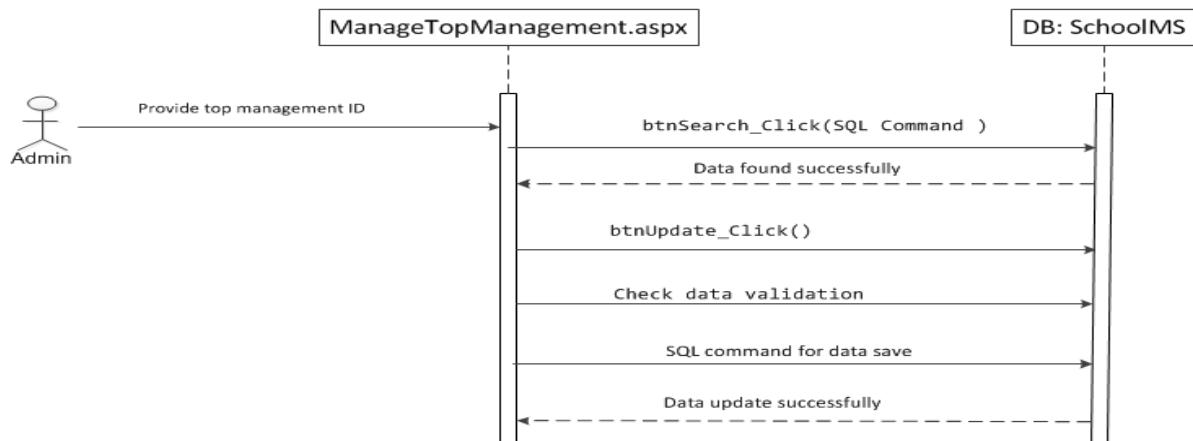


Figure: sequence diagram for manage top management information

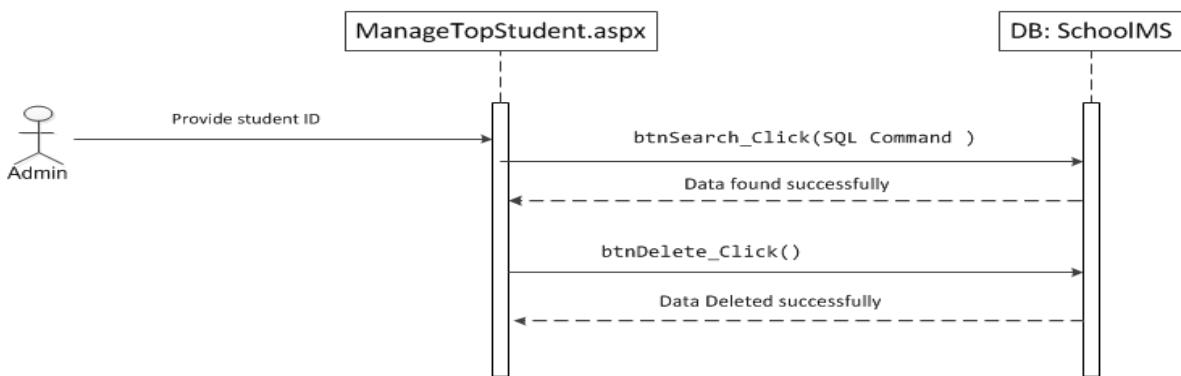


Figure: sequence diagram for manage top student information

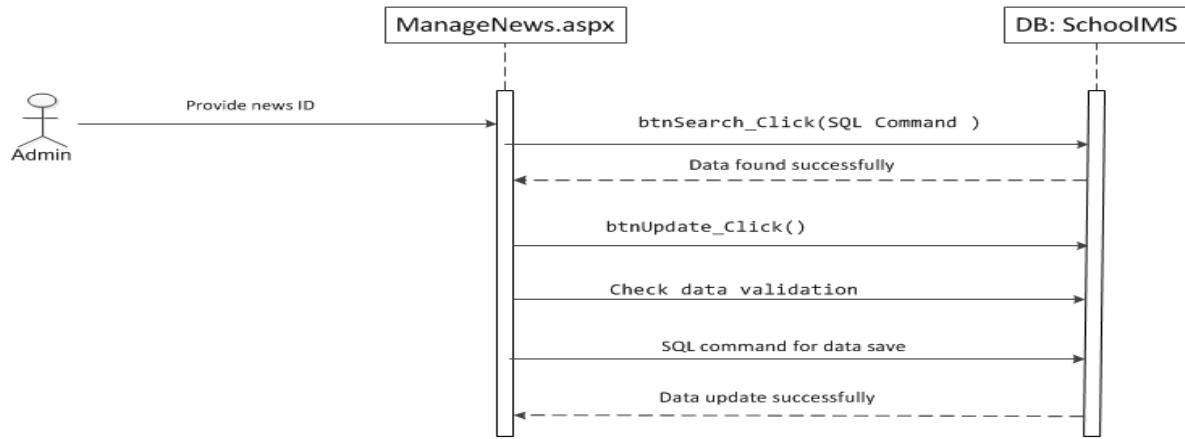


Figure: sequence diagram for manage news information

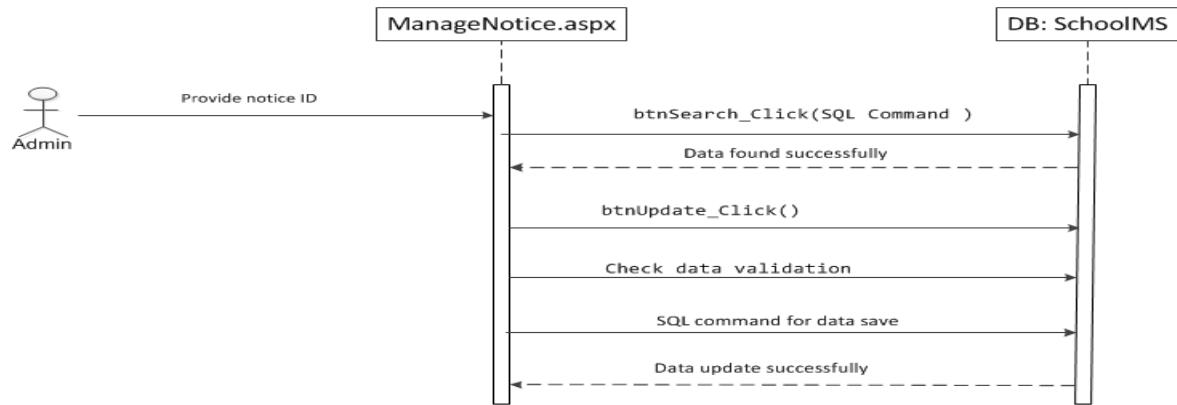


Figure: sequence diagram for manage notice information

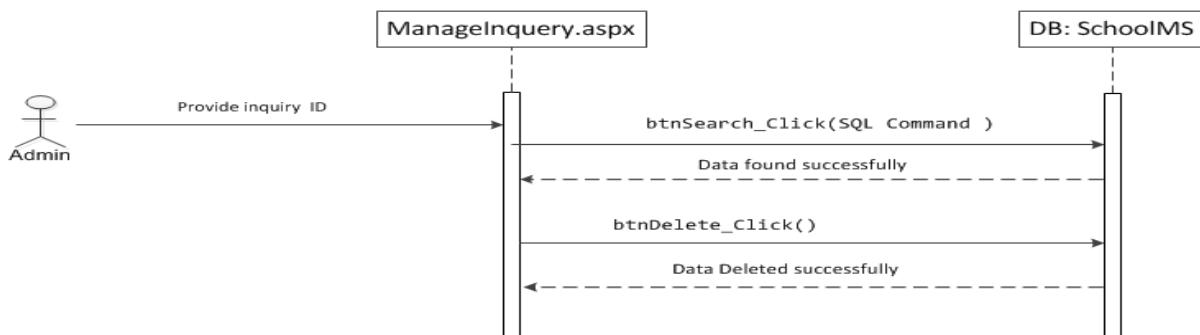


Figure: sequence diagram for manage inquiry message

- all sequence diagram for student payment, result and attendance

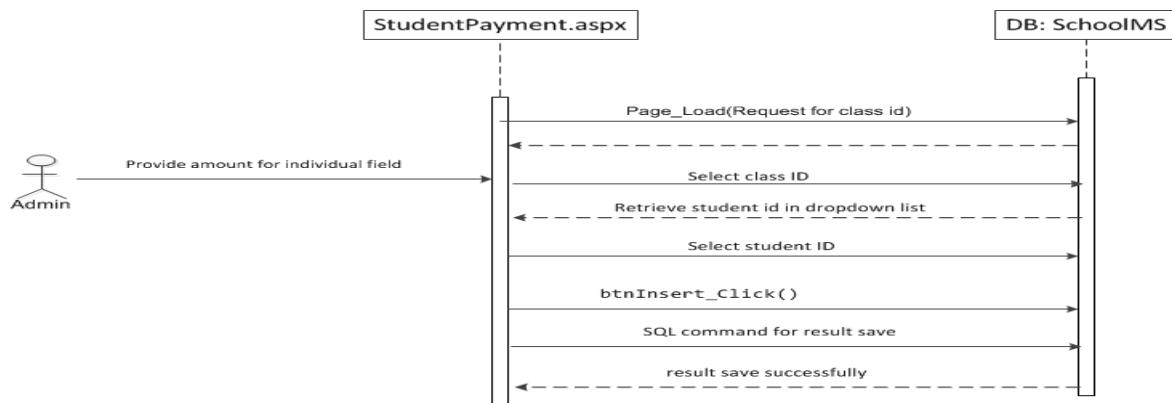


Figure: sequence diagram for student payment

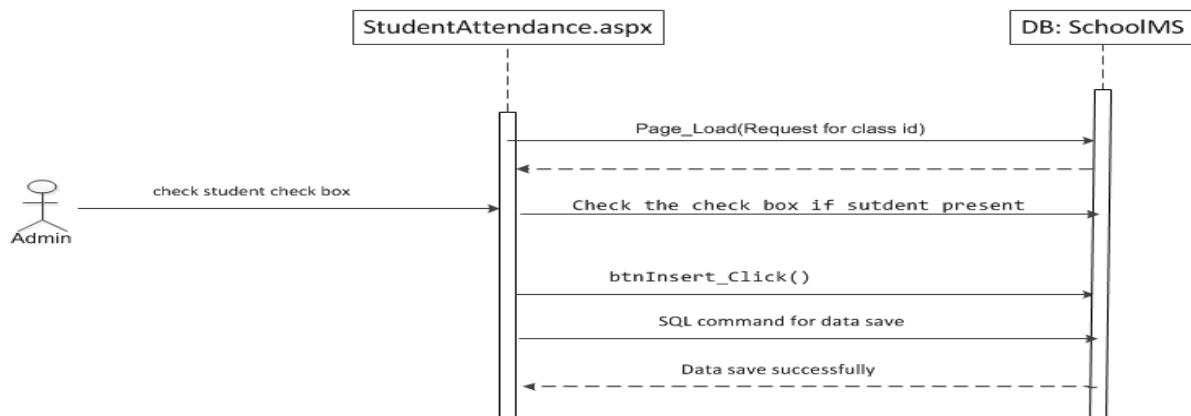


Figure: sequence diagram for student attendance

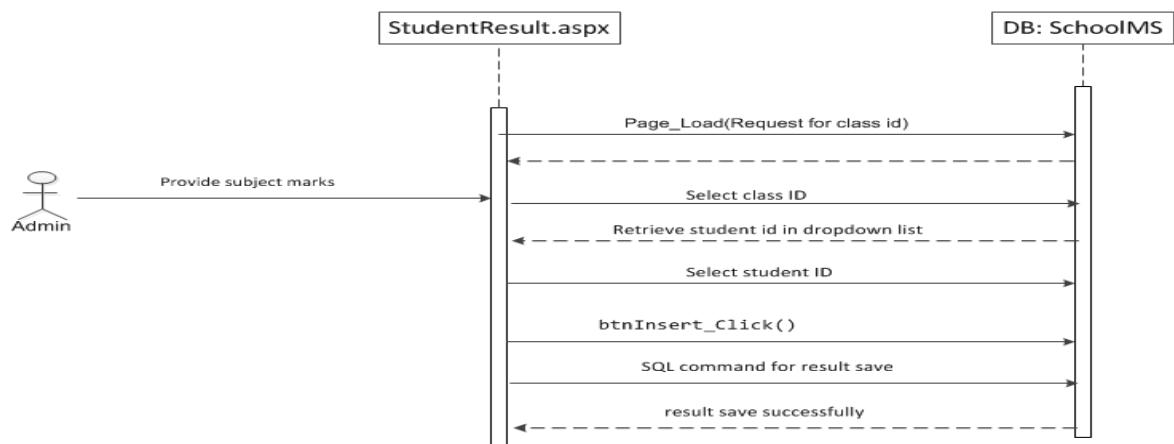


Figure: sequence diagram for student result

- sequence diagram for report generate

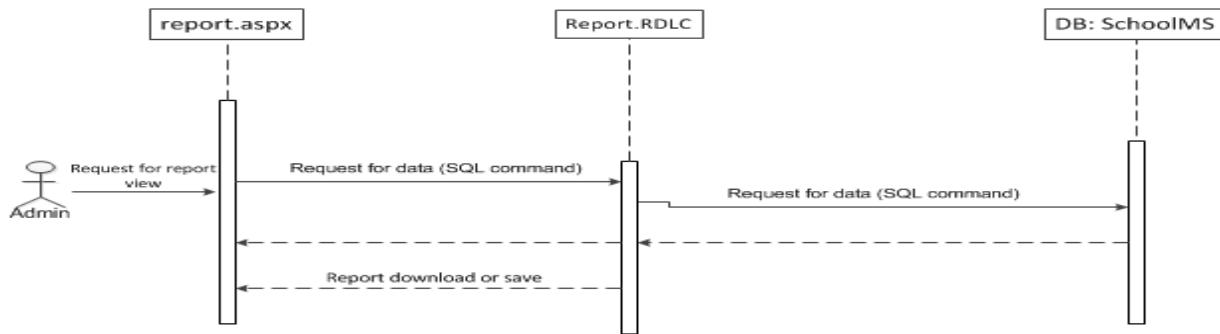
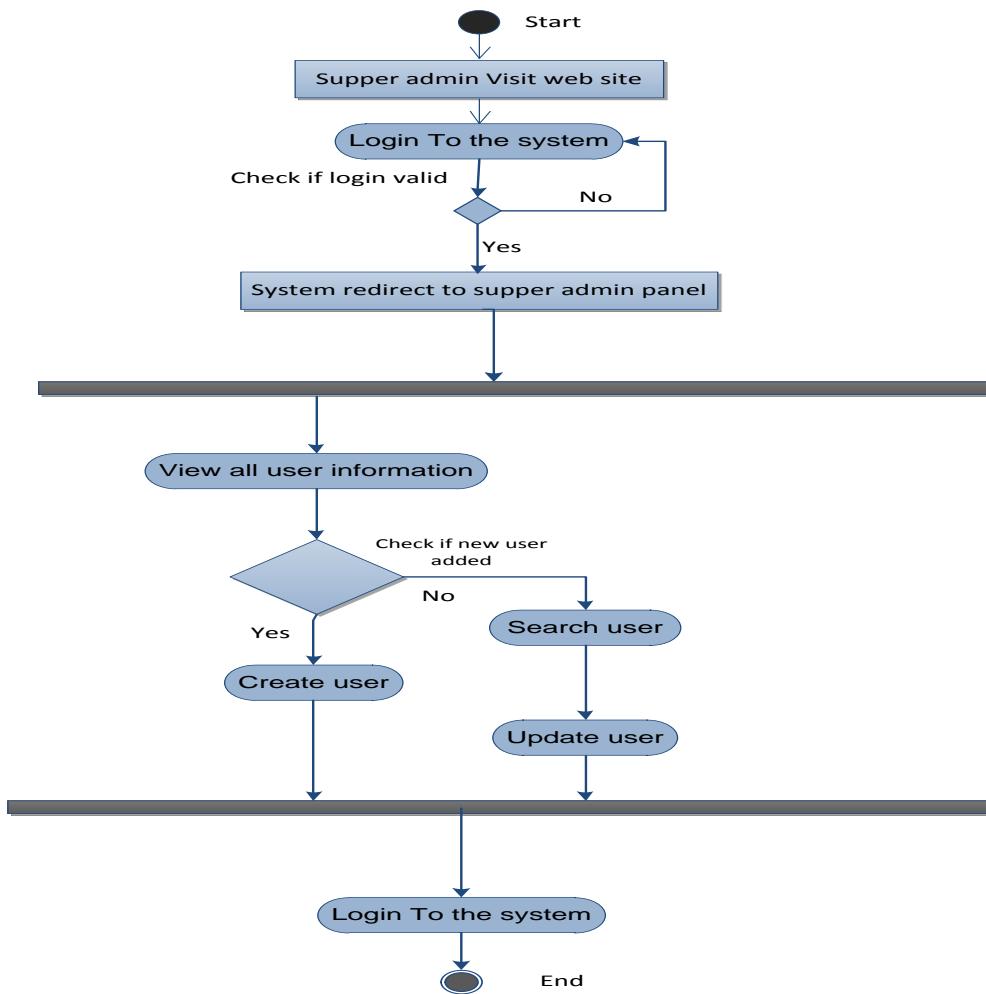


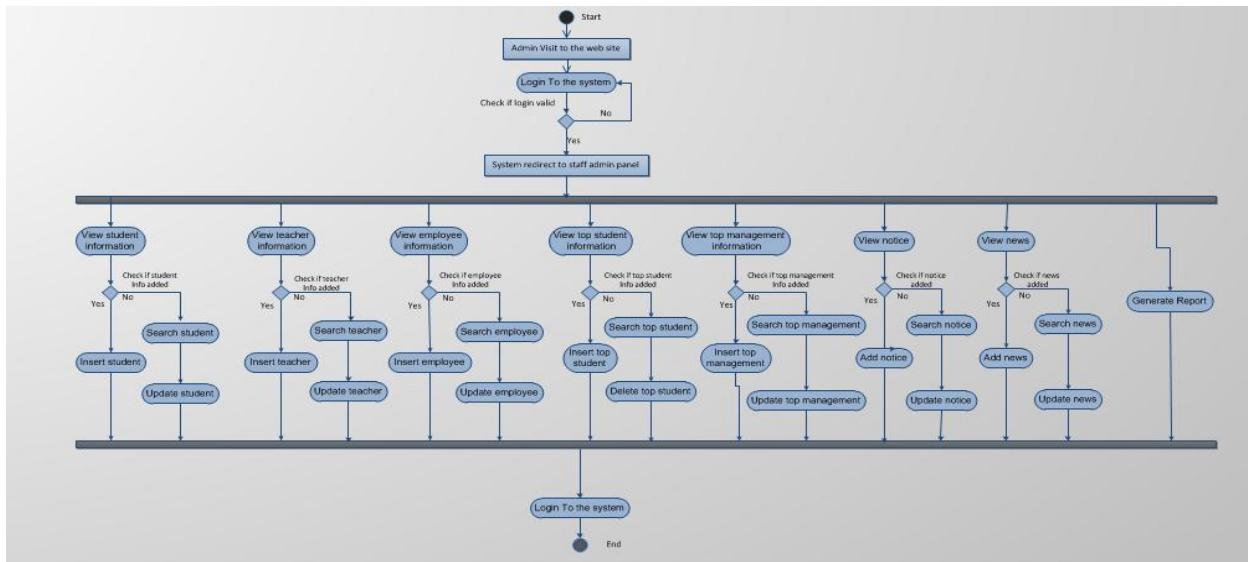
Figure: sequence diagram for report generate

9.8.Activity diagram

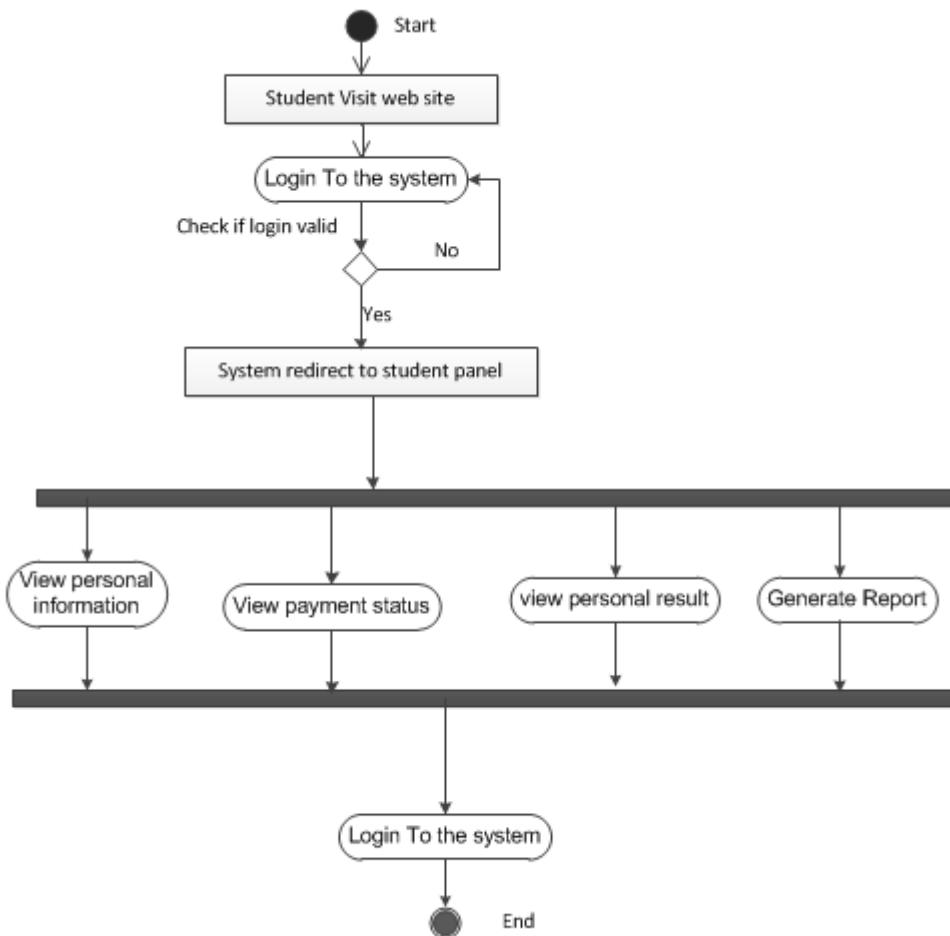
- Activity diagram from supper admin perspective



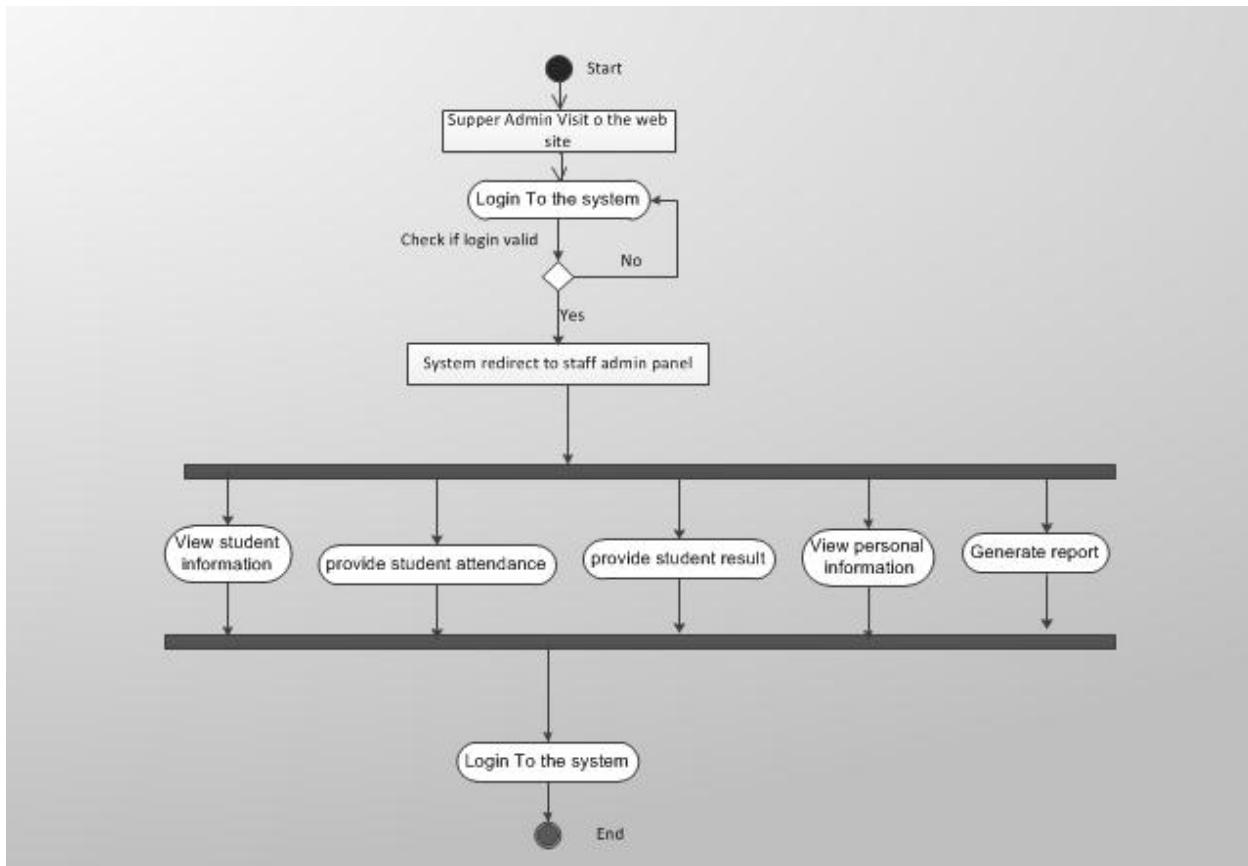
➤ Activity diagram from staff admin perspective



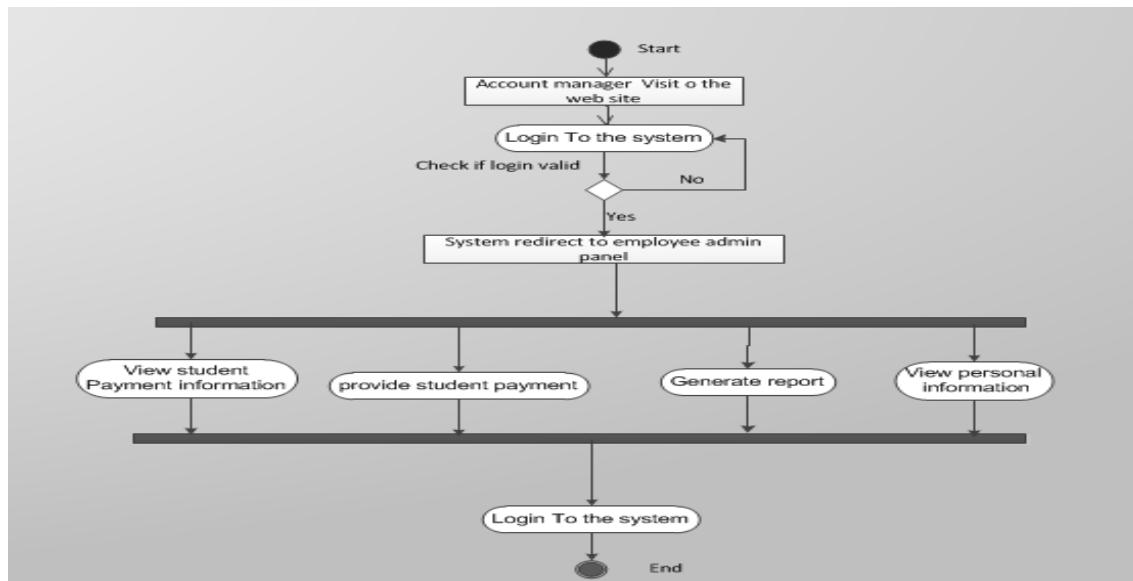
➤ Activity diagram from student perspective



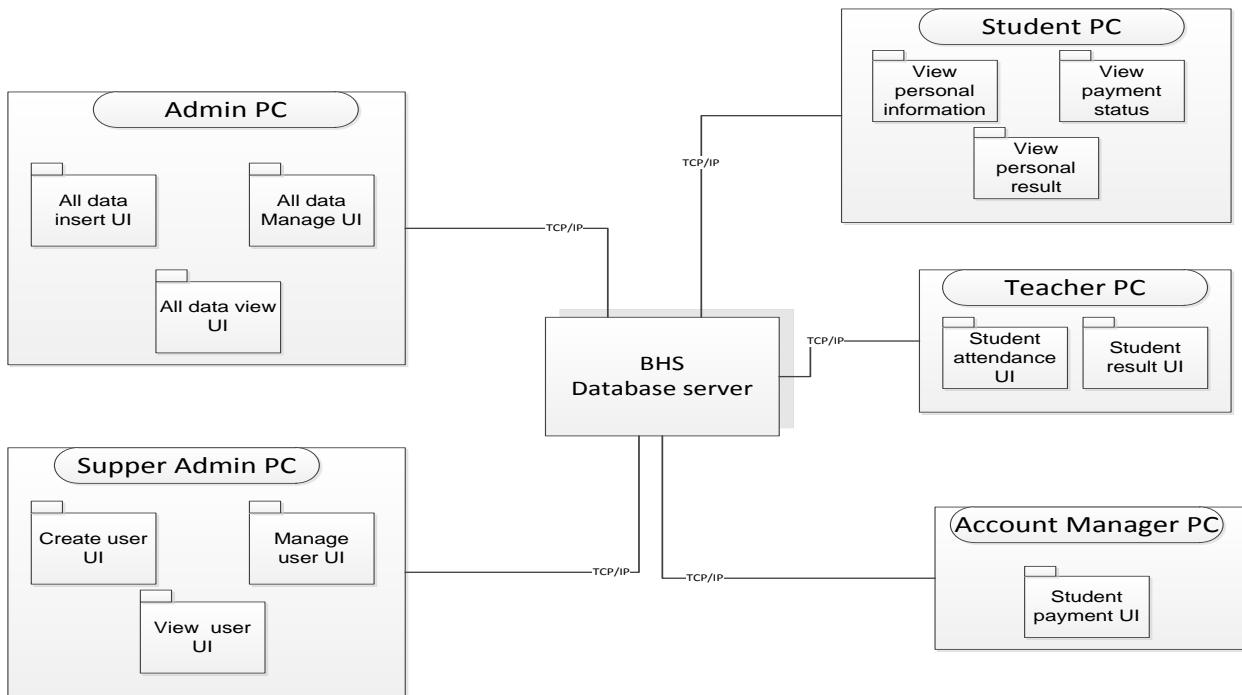
➤ Activity diagram from teacher perspective



➤ Activity diagram from employee/ account manager perspective



9.9.Deployment diagram



10. Deployment / development

This section includes the development phases of proposed system mainly it works with coding. Development of user interface and also related database tables carried out in this section. The ultimate target of all phases in this section is to complete project which means working product.

The total development time duration is 27 days which is started from 25 august 2014 to 24 September 2014. The full development time table chart will give bellow:

WBS	Task Name	Duration	Start	Finish
47	Deployment	27 days	Mon 8/25/14	Wed 9/24/14
47.1	design	4 days	Mon 8/25/14	Thu 8/28/14
47.2	meeting	1 day	Fri 8/29/14	Fri 8/29/14
47.3	report	0 days	Fri 8/29/14	Fri 8/29/14
47.4	exception handling	2 days	Sat 8/30/14	Sun 8/31/14
47.5	development	11 days	Mon 9/1/14	Mon 9/15/14
47.6	meeting	1 day	Tue 9/16/14	Tue 9/16/14
47.7	report	0 days	Tue 9/16/14	Tue 9/16/14
47.8	exception handling	2 days	Wed 9/17/14	Thu 9/18/14
47.9	testing	3 days	Fri 9/19/14	Sun 9/21/14
47.10	meeting	1 day	Mon 9/22/14	Mon 9/22/14
47.11	report	0 days	Mon 9/22/14	Mon 9/22/14
47.12	exception handling	2 days	Tue 9/23/14	Wed 9/24/14

Figure: time table of development phase

10.1. Development tools

The development tools selection is important for system development. For developing BHS (Bathshire High School) school management system I will use ASP.Net (core language is C#). The UI (User Interface) design is based on CSS2 and HTML. For all kind validation I will use JavaScript which is very popular now a day. For database design I have used SQL server 2008 and for system development I used IDE Visual Basic 2010.

10.2. Timeboxing

For developing web based school management system for BHS (Bathshiree High School) using timeboxing techniques is appropriate whereas the whole project is followed DSDM Atern project development methodology. Generally time development timeboxes are 10 and 30 days (2 to 6 weeks) length where important thing is the shorter the better but another thing is that following time of development timebox is not mandatory. Timeboxing is an iterative approach for project development where the whole work would be under controlled and deliver the end product within predefine time period. Below I will give the whole system timebox as a chart:

Time box no	Date	Deliverables
1	25 August 2014 to 27 August 2014	I. Frontend design + develop for the BHS school management system II. Test all frontend pages
2	28 August 2014 to 2 September 2014	III. Whole system Database design and develop+ testing IV. UI design / Layout design for the whole system V. Break down the main task to smaller tasks VI. Testing all above as a whole
3	3 September 2014 to 6 September 2014	I. Login + session + user authentication + testing II. All CRUD operation for staff admin/user with appropriate UI + testing III. Testing all above as a whole
4	7 September 2014 to 14 September 2014	I. All CRUD operation for supper admin/user with appropriate UI + testing II. Testing all above as a whole
5	15 September 2014 to 17 September 2014	I. All CRUD operation for employee admin/user with appropriate UI + testing II. Testing all above as a whole
6	18 September 2014 to 20 September 2014	I. All CRUD operation for teacher admin/user with appropriate UI + testing II. Testing all above as a whole
7	21 September 2014 to 23 September 2014	I. All CRUD operation for students with appropriate UI + testing II. Testing all above as a whole
8	25 September 2014 to 29 September 2014	I. Report design and develop for different level user II. Test the report III. Testing all above as a whole

10.3. Break down of the main business task

- Frontend design:
 - Design and the whole system frontend pages
 - Make all navigation within frontend page
- Whole system database:
 - Design the whole system database
 - Select attributes for all tables
 - Develop whole system database
 - Create relation within all tables
- Login System security & user authentication
 - Create login page layout or UI design
 - CRUD operation for login
 - Manage session in login
 - Manage user authentication within whole system
 - Testing the login system is working or not
- CRUD operation for student information
 - UI design for student information pages
 - Make function for CRUD operation
 - Test the student information page
- CRUD operation for Teacher information
 - UI design for teacher information pages
 - Make function for CRUD operation
 - Test the teacher information page
- CRUD operation for employee information
 - UI design for employee information pages
 - Make function for CRUD operation
 - Test the employee information page
- CRUD operation for top management information
 - UI design for top management information pages
 - Make function for CRUD operation
 - Test the top management information page
- CRUD operation for top student information
 - UI design for top student information pages
 - Make function for CRUD operation
 - Test the top student information page
- CRUD operation for news
 - UI design for news pages
 - Make function for CRUD operation
 - Test the news information page

- CRUD operation for notice
 - UI design for notice pages
 - Make function for CRUD operation
 - Test the notice page
- CRUD operation for inquiry
 - UI design for inquiry pages
 - Make function for CRUD operation
 - Test the inquiry page
- Report design and develop
 - Report design for different level user
 - Develop report for user
 - Test the report

10.4. Coding samples

Sample code will be given in appendix H

11. Testing

11.1. Test schedule

47.9	testing	3 days	Fri 9/19/14	Sun 9/21/14
47.10	meeting	1 day	Mon 9/22/14	Mon 9/22/14
47.11	report	0 days	Mon 9/22/14	Mon 9/22/14
47.12	exception handling	2 days	Tue 9/23/14	Wed 9/24/14

Figure: test schedule of BHS school management system

11.2. Test case

Heading	Description
Project name	BHS school management system
Test case title	System login
Assign to	Lead tester
Steps	<ul style="list-style-type: none"> • Provide username and password • Login button click
Expected result	Successful login
Actual Result	Success

Heading	Description
Project name	BHS school management system
Test case title	Insert student information
Assign to	Lead tester
Steps	<ul style="list-style-type: none"> • Provide all necessary information • click save button
Expected result	Data save Successfully
Actual Result	Success

Heading	Description
Project name	BHS school management system
Test case title	View student information
Assign to	Lead tester
Steps	<ul style="list-style-type: none"> • select class name • select student ID • click search button
Expected result	Data found Successfully
Actual Result	Success

Heading	Description
Project name	BHS school management system
Test case title	Manage student information
Assign to	Lead tester
Steps	<ul style="list-style-type: none"> • input student ID • click search button • change anything need • click update button
Expected result	• data found successfully

	<ul style="list-style-type: none"> • Data save Successfully
Actual Result	Success

11.3. Unit testing

The table shows unit testing of admin login module:

Test procedure	Output	Analysis of test result
No login data provided	Requesting message is displayed for providing user name password.	Login denied and displayed message to insert login data in required fields.
Invalid username and password	Invalid Error message is displayed	Login failed and error message show that username and password error
Valid admin username and password	System redirected to the admin home page in admin section.	Successfully login after checking validity username and password.

Result:

Figure: result of required data

The screenshot shows a login form titled "BHS IS SECURITY SYSTEM". It features a blue padlock icon in the top-left corner. The form has two input fields: "Username :" containing "shipu" and "Password :" containing a redacted password. Below the fields are "Login" and "Reset" buttons. A red error message at the bottom states "Wrong username & Password !!!".

Figure: result of invalid user

The screenshot shows a login form titled "BHS IS SECURITY SYSTEM". It features a blue padlock icon in the top-left corner. The form has two input fields: "Username :" containing "shipu" and "Password :" containing a redacted password. Below the fields are "Login" and "Reset" buttons.

Figure: result of valid user information

The screenshot shows the "BHS SECURED INFORMATION SYSTEM(ADMIN)" dashboard. At the top left is a blue padlock icon. The title "BHS SECURED INFORMATION SYSTEM(ADMIN)" is centered above a horizontal menu bar. The menu bar includes links: HOME, TOP STUDENTS, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, NEWS, and INQUIRY. Below the menu bar are two buttons: "VIEW REPORT" and "LOGOUT". A teal bar at the bottom displays the text "Login user : shipu". On the left, a vertical sidebar lists navigation options: TOP STUDENT, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, NEWS, and VIEW REPORT. The main content area features a large, stylized blue watermark-like text "WELCOME TO BHS SECURED INFORMATION SYSTEM!".

Figure: Result of successful admin login

Table shows the insert student information for unit testing:

Test procedure	Output	Analysis of test result
No login data provided	Requesting message is displayed for providing user name password.	Insert request denied and displayed message for providing data in required fields.
Insert invalid data in required field	Invalid Error message is displayed	insert failed and error message show that required field data is not correct
Insert valid data and data will store in database	System store student data into specific table and show successful message	Successfully insert after checking data validation.

Student Information Form

Student ID / Roll :	<input type="text"/> * This field is required
Class :	<input type="text"/> * Select * This field is required
Section :	<input type="text"/> * Select * This field is required
Student Name :	<input type="text"/> * Please write student name here * This field is required
Gender :	<input type="text"/> * Select * This field is required
Fathers Name :	<input type="text"/> * Please write father's name here * This field is required
Fathers Profession :	<input type="text"/> * Please write father's profession here * This field is required
Mothers Name :	<input type="text"/> * Please write mother's name here * This field is required
Mothers Profession :	<input type="text"/> * Please write mother's profession here * This field is required
Present Address :	<input type="text"/> * Please write Present Address here * This field is required
Permanent Address :	<input type="text"/> * Please write Permanent Address here * This field is required
Email :	<input type="text"/> * Write email address (j.j@h.h.h.com) * This field is required
Student Phone :	<input type="text"/> * Please write student phone here * This field is required
Parents Phone :	<input type="text"/> * Please write Parents phone here * This field is required
Date of Birth :	<input type="text"/> * Write Date of birth here (DD/MM/YYYY) * This field is required
Religion :	<input type="text"/> * Select * This field is required
Blood Group :	<input type="text"/> * Select * This field is required
Last Qualification :	<input type="text"/> * Write Last Qualification here * This field is required
Passing School :	<input type="text"/> * Write passing school name here * This field is required
Passing Year :	<input type="text"/> * Write passing year here (2000) * This field is required
Current Year :	<input type="text"/> 2014
Last Result :	<input type="text"/> * Select * This field is required
Image :	<input type="file"/> Choose File No file chosen
Insert	

Figure: result of error message of required field

Student Information Form

Student ID / Roll :	1-07-0014	* Student id only 8 number
Class :	10th	
Section :	general	
Student Name :	shikha	* Name atleast 5 characters
Gender :	Male	
Fathers Name :	pkd	* Fathers name atleast 5 characters
Fathers Profession :	business	
Mothers Name :	hasina begum	
Mothers Profession :	housewife	
Present Address :	kgd	* Present Address atleast 10 characters
Permanent Address :	Please write Permanent Address here	
Email :	pkd	* Enter Valid Email
Student Phone :	Please write a student phone here	
Parents Phone :	Please write Parents phone here	
Date of Birth :	Write Date of birth here (DD/MM/YY)	
Religion :	Select	
Blood Group :	Select	
Last Qualification :	Write Last Qualification here	
Passing School :	Write passing school name here	
Passing Year :	Write passing year here (2000)	
Current Year :	2014	
Last Result :	Select	
Image :	<input type="file"/> No file chosen	
Insert		

Figure: result of error message for invalid data

Student Information Form

Student ID / Roll :	1-07-0014	
Class :	10th	
Section :	general	
Student Name :	shikha	
Gender :	Male	
Fathers Name :	muhammad	
Fathers Profession :	business	
Mothers Name :	hasina begum	
Mothers Profession :	housewife	
Present Address :	101 bangladesh	
Permanent Address :	as above	
Email :	pk@gmail.com	
Student Phone :	019567898	
Parents Phone :	016456328	
Date of Birth :	00-01-1990	
Religion :	Islam	
Blood Group :	A+ (Positive)	
Last Qualification :	hsc	
Passing School :	kamal hossain school	
Passing Year :	2012	
Current Year :	2014	
Last Result :	B	
Image :	 <input type="file"/> 4.jpg	

Figure: result of valid data

Student Information Form

Data Save Successfully.....

Student ID / Roll :	Write student ID here (01-06-2014)
Class :	<input type="text" value="seven"/>
Section :	<input type="text" value="general"/>
Student Name :	<input type="text" value="Please write student name here"/>
Gender :	<input type="text" value="Male"/>
Fathers Name :	<input type="text" value="Please write father's name here"/>

Figure: successful data insert message

View Student Information

Class:	<input type="text" value="seven"/>	Year:	<input type="text" value="2014"/>	
<input type="button" value="Search"/>				
ID	Name	Fathers Name	email	Phone
01-07-2014	md jubayer hissain	md abul mia	jubayer44@gmail.com	01915675498
02-07-2014	ali imran	nur hossain	ali@gmail.com	01915675498

Figure: display inserted information

11.4. Integration testing (2 to 3)

In this testing section need to check individual software module is working or not in a combine or group. This is also called navigation testing where need to test all the links in website is working properly. Integration testing followed big bang theory where developed module tested as completed software.

Here I will give show that the entire link within the system is working:

Link test of general user pages:



BATHSHIREE HIGH SCHOOL

Institution For Real Education

[IS Application](#) | [Forum](#) | [Our Campus](#)

HOME

ABOUT US

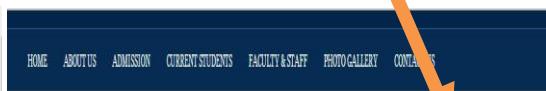
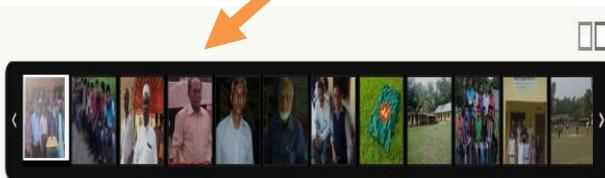
ADMISSION

CURRENT STUDENTS

FACULTY & STAFF

PHOTO GALLERY

CONTACT US



Contact Us

Bithshiree High School

Town/City: Degunkhujan, Feni
Postcode/Zip: 1714
Tel: 022-254696
Email: contact@mydomain.com

Update News

* feni education board visit BHS

Notice

* Scholarship notice

Top Students

Link test of admin page:

The screenshot illustrates the BHS Secured Information System (Admin) interface. At the top, there is a header bar with a lock icon and the title "BHS SECURED INFORMATION SYSTEM(ADMIN)". Below the header is a navigation menu with links: HOME, TOP STUDENTS, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, NEWS, INQUIRY, and VIEW REPORT. A "LOGOUT" link is also present. A dropdown menu is open under the "TOP STUDENTS" link, showing options: "Insert Information" (highlighted with a yellow box), "View Information" (also highlighted with a yellow box), and "Manage Information". The main content area displays a large watermark-like text "BHS SECURED INFORMATION SYSTEM". Below the header, a teal bar shows the login user: "Login user : shipu".

The interface is divided into two main sections. On the left, a sidebar contains links: TOP STUDENT, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, NEWS, INQUIRY, and VIEW REPORT. The "TOP STUDENT" link is currently active. The right section contains two sub-pages:

- Top Student Information Form:** This page has fields for Student ID (01-10-2014 (roll-class-year)), Student Name (Please write student name here), Year (Write year here (2000)), Result (Write result here), and an "Insert" button.
- View Top Student Information:** This page has a search form with a "Year" field set to "2014" and a "Search" button. Below the search form is a table with columns: ID, Student Name, Year, and Result. The table data is as follows:

ID	Student Name	Year	Result
01-06-2014	md shahimul islam	2014	A-
01-07-2014	md jahayer hissein	2014	A-
01-08-2014	md rabbeni	2014	A
01-09-2014	md shahadat hossain	2014	A
01-10-2014	md miszunur rahaman	2014	A+

11.5. System testing

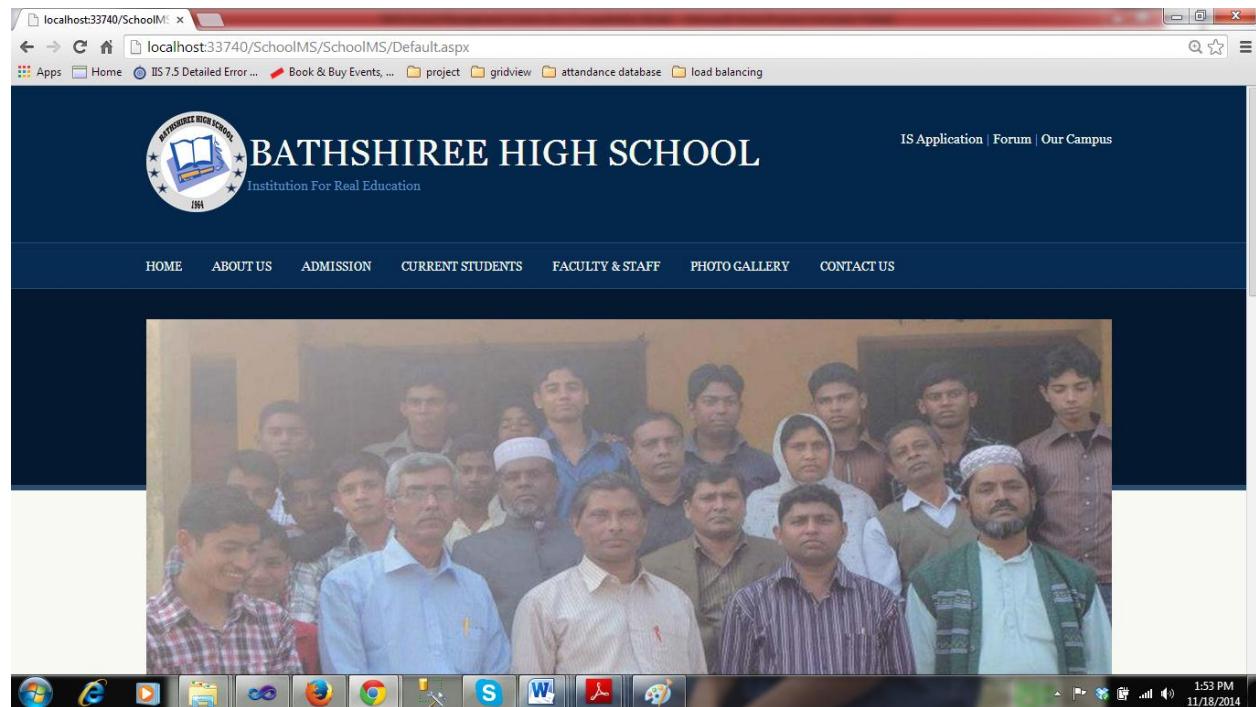
In this phase the system has configure in user environment to cheek system accuracy and performance. The whole system functionality need to be testing which will required and most important thing is data validation check because unnecessary data can harmful for the system and which will create problem in report generation.

11.6. Compatibility testing

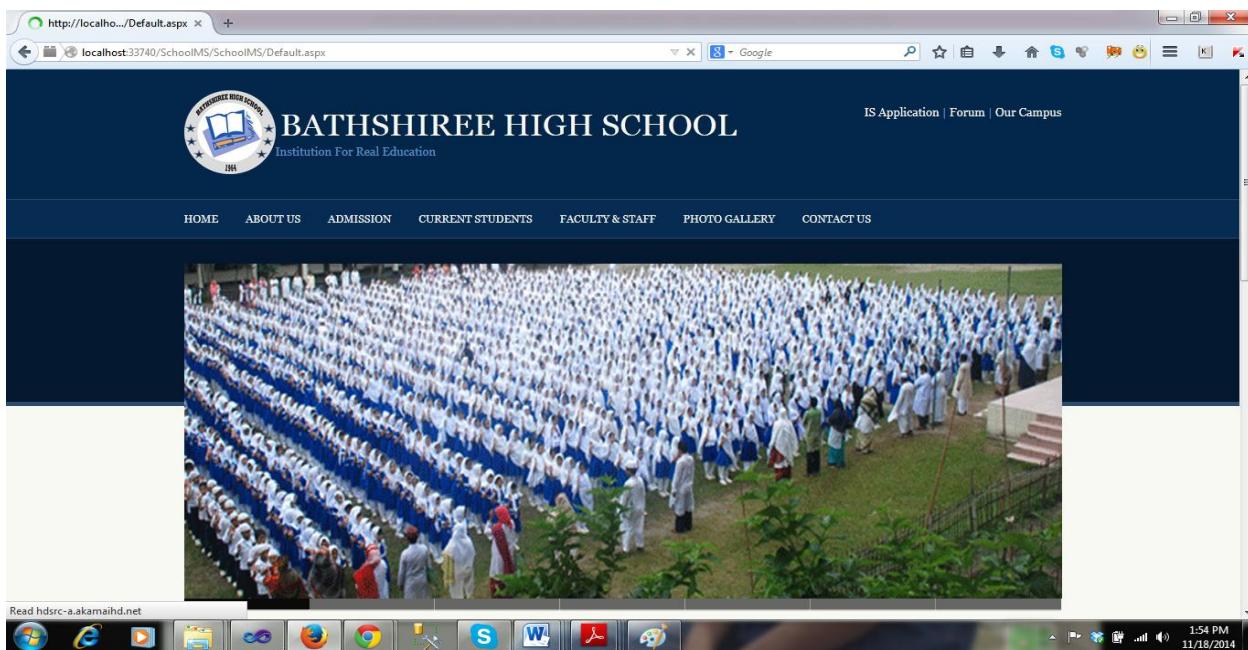
In this testing section, need to check the system run in most popular browser because all system user not using same browser. For this reason compatibility testing is most important from the user side.

Test case description	Execution	Current system	result
Running in Google chrome	Yes	Meet requirements	Success
Running in Mozilla Firefox	Yes	Meet requirements	Success

Test result of Google chrome:



Test result of Mozilla Firefox:



11.7. Security testing

In the security testing phase's system need to check the authorized access into system and prevent them. The system also needs to check the authorized access and their access level means user role and redirect them to access area. If the user input wrong user or password the system provide error message to the user and prevent login into system. If anyone can try to access authorized page system prevent to access and request to login for those pages. After login into system if the user not use system for 30 minutes system will automatically logged out because of destroy session.

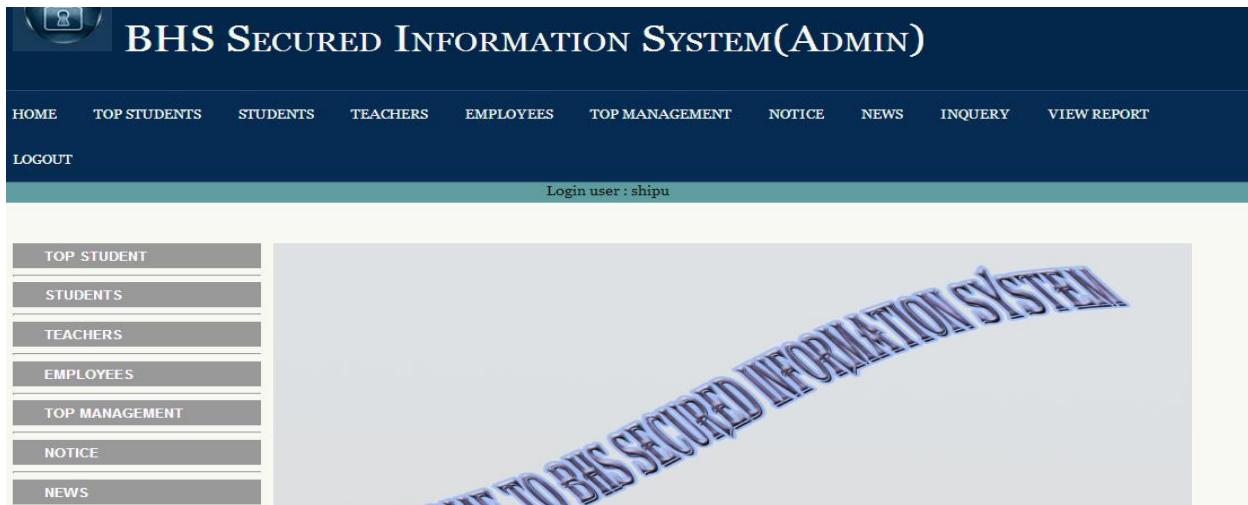
Input	Action	Execute output	Reason	Result
Incorrect user and password	Show error message	Prevent access to system	User name and password is not correct	Success
Correct username and password	Redirect to access panel	Successfully login into system	User name and password correct	Success
System not use since 30 minutes after login	User not using system	If anyone tries to access after 30 minutes of login he/ she won't be able use.	Whereas user not using system since 30 minutes the system session destroy after 30 minutes	success

Incorrect username and password:



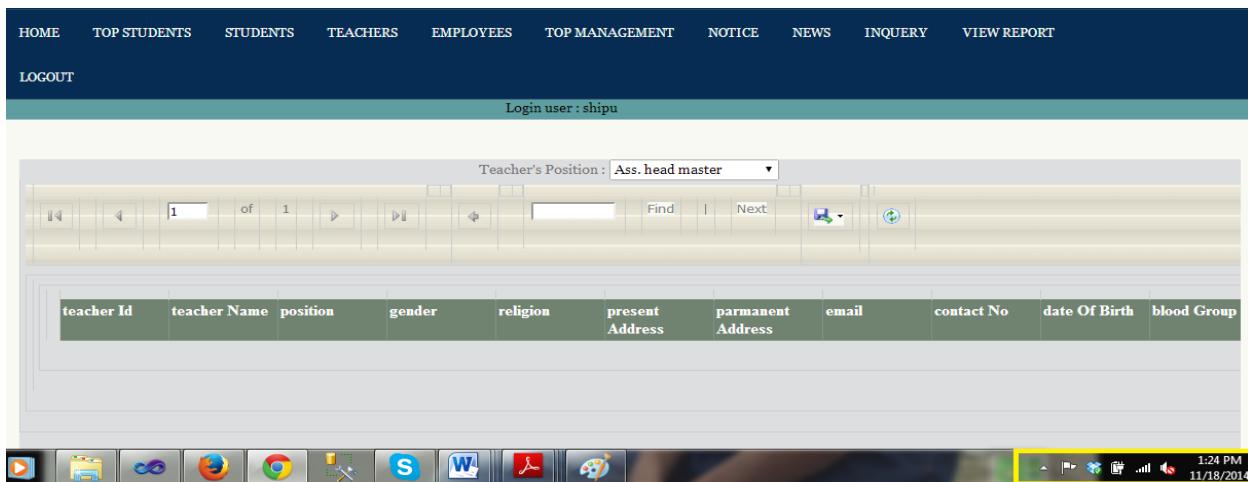
The screenshot shows a login form titled "BHS IS SECURITY SYSTEM". It features a lock icon and fields for "Username" (shipu) and "Password". Below the fields are "Login" and "Reset" buttons. A message at the bottom states "Wrong username & Password !!!".

Correct username and password:



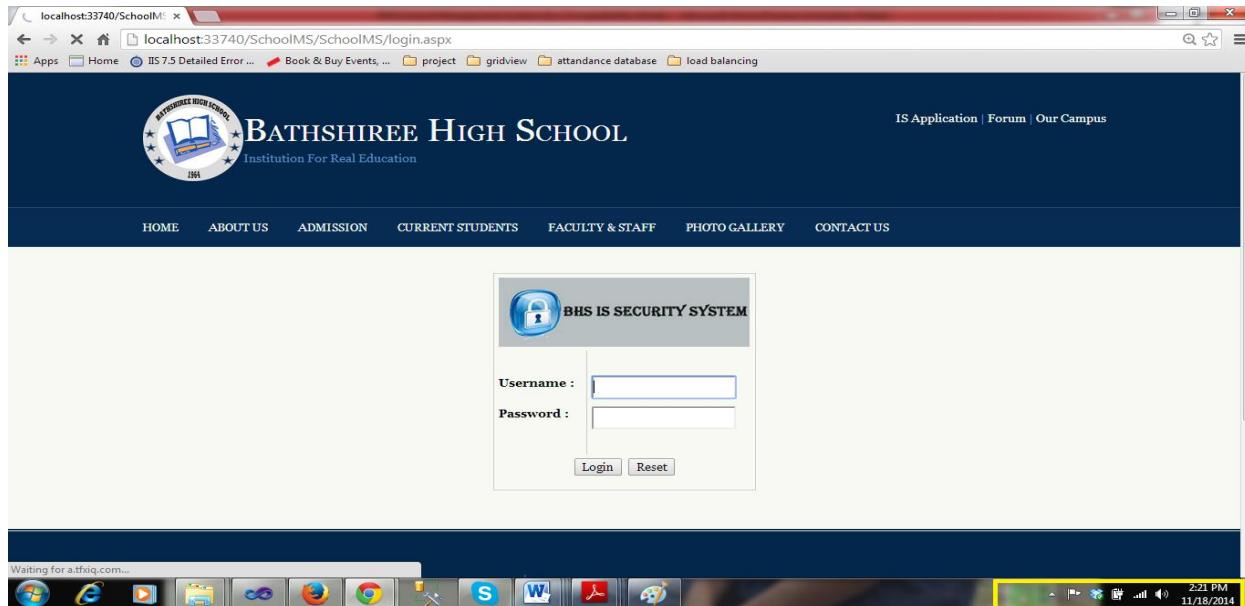
The screenshot shows the BHS Secured Information System (Admin) dashboard. The title bar reads "BHS SECURED INFORMATION SYSTEM(ADMIN)". The menu bar includes links for HOME, TOP STUDENTS, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, NEWS, INQUIRY, and VIEW REPORT. A "LOGOUT" link is also present. The main area displays a large watermark-like text "WELCOME TO BHS SECURED INFORMATION SYSTEM!" and a sidebar with links for TOP STUDENT, STUDENTS, TEACHERS, EMPLOYEES, TOP MANAGEMENT, NOTICE, and NEWS.

System login 1:24 minutes:



The screenshot shows a teacher management screen. The top navigation bar is identical to the previous dashboard. The main content area shows a search interface with a dropdown for "Teacher's Position" set to "Ass. head master". Below it is a search toolbar with various icons. A table header is visible, listing columns for teacher Id, teacher Name, position, gender, religion, present Address, permanent Address, email, contact No, date Of Birth, and blood Group. The status bar at the bottom right shows the time as 1:24 PM and the date as 11/18/2014.

Try to use after 30minutes:

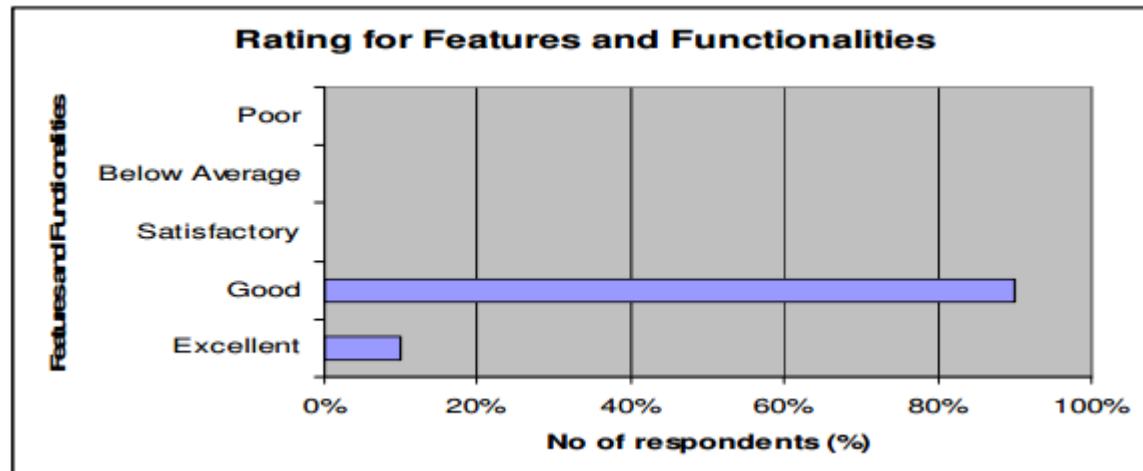


11.8. Acceptance testing

In this testing phase, the system must be tested from the user and administration where users test the system interaction, hardware and other application. Here need to taste actual data rather test data. This testing will continue until developer and owner agreed to implement the system.

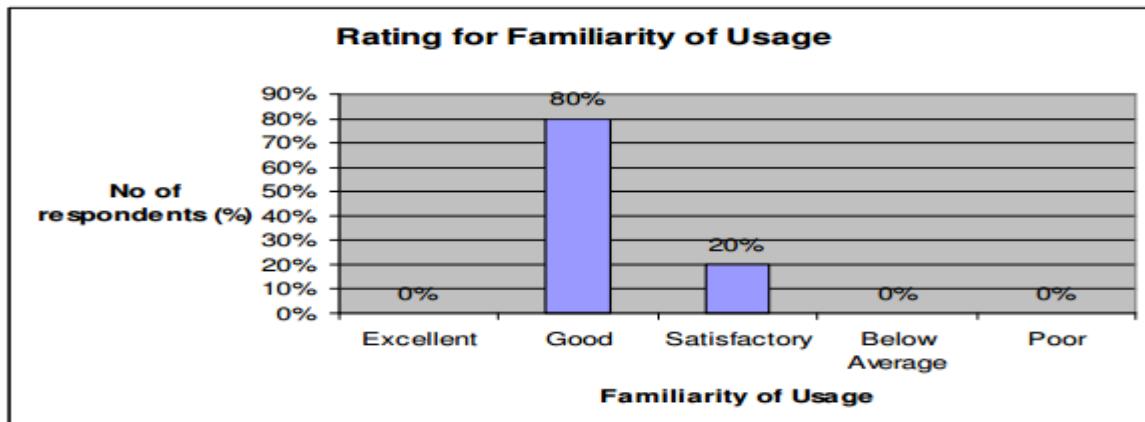
In order to meet acceptance testing some actual users from BHS school management system was invited in school office premises. The result will give bellow:

➤ Functionalities & Features



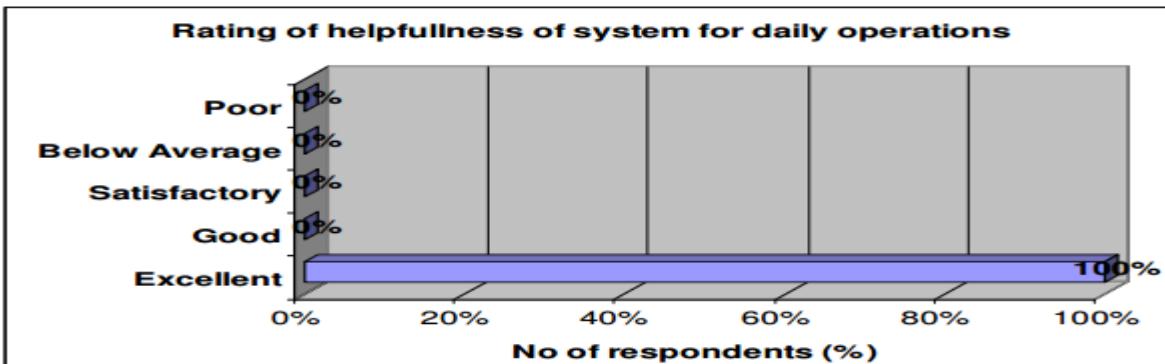
From above figure most of the user's feedback was system is good and some of user feedback is excellent that means users are satisfied with system features and functions.

➤ Familiarity



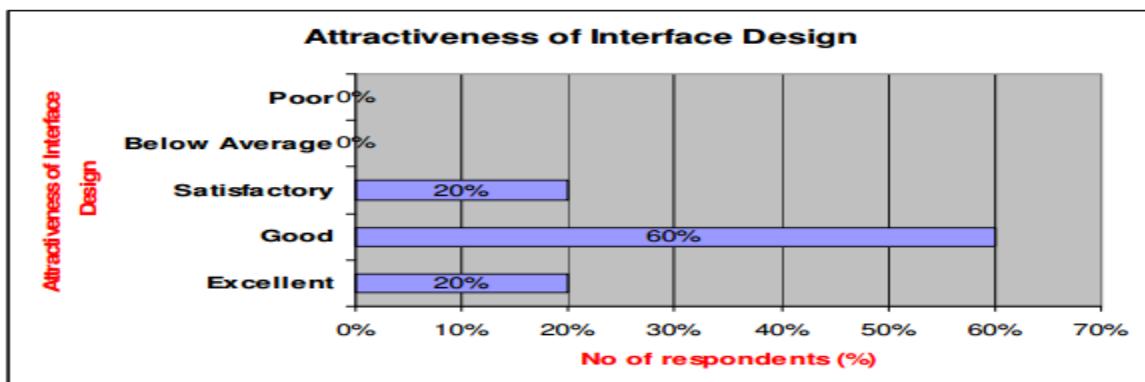
From above chart it is clear that 80% users feedback was system is familiarity and rest of users feedback was system is good.

➤ daily operation



Above figure shows users agreed that system is very helpful for daily work.

➤ system Attractiveness



From above figure shows that 60% user says that system attractiveness is good, 40% satisfactory and 20% excellent that means it's clear that project has been successful.

12. Implementation

12.1. Training

Before system implementation provides training is necessary for the employee or users who are actually going to use this. Through the training period users are closely familiarized with new system. The primary goal of training period is to help users and provide guideline of how to use the system and successful training will ensure that users don't enter incorrect data into those systems which will decrease the chances of error creating.

According to DSDM atern principle end user and business ambassador has strong knowledge about the new system because those people were very close to system development project. They will help to train other employees or users.

Training plan

Here I will describe training process which will follow within organization:

Training Title	Description
System access	Here provide training about how to access the system as an employee based on their role. For system access employee can use login system.
Managing all information	All important task relate to the system like personal information, attendance, result etc. will covered within training session.
Generating reports	Here trainer will give some necessary information to the users or employees like how to generate report and how will save them.

Training Roles

This will identify the roles and responsibilities needed to provide training.

Role	Responsibility
Lead Trainer	Responsible for managing and providing all training.
Business Ambassador	Provides assistance in training programs.

12.2. System implementation

The system implementation stage starts when the system is completely tested and accepted by the user or client. For implementing new system has different ways which will describe bellow:

- Direct cut over: direct cut over method is involves where old system is completely dropped and new system is completely implemented at same time. Here old system is no longer available or not working. And it is important to ensure that new system is fully tested all function is working well where user must be trained to using the system.

- Parallel: this method involves using both the old and new system together for a fixed period of time. Parallel system will help to familiarize the user with the new system and allow major problems within the system to be occurring without loss of data. Here the old system remains active as a backup of new system. This system is mainly used when product is in critical nature.
- Phased: this system involves to implement the part by part of new system with the use of old system where the whole new system is under development. In this method conversion process is under control and manageable.
- Pilot: pilot method involves the new system will install for a number of users when they ensure that new system is working well and all functions are working without error then it will provide for all users. Actually it is one kind of testing process. (Idunphy, 2009)

Depends on above discussion, parallel approach will be used for the institution where new system and old system both are used together. When user will confirm that new system is working well then old system will be closed. Parallel method reduces the data losses risk and required more time which is also more costly but overall it is better for the institution and also for user for better understanding.

13. Critical appraisal and evaluation

13.1. Objective that could be meet

13.1.1. Success rate against each objectives

In the time of BHS working process investigation several issues were noticed but the analysis and interview provided clear requirements idea which is necessary for the project development. The requirements list was prioritized by using MoSCoW rules where Must Have requirements are most important for the project.

BHS school management system total high level requirements was 49 where must have requirements was 21, should have was 10, could have was 9 and won't have this time was 9.

All must have requirements fulfilled is the minimum success of project. Should have requirements also need to fulfill which includes all types of information view. Both must have and should have requirements completion set the project success.

'Could have' requirement also needs for the current system because it makes the system more effective and efficient which is most important for the project success.

For avoiding system complexity won't have requirements are dropped which will develop in further development. The won't have requirements are not essential for the current project but it will make the system more effective. Without the won't have requirements the system will not work perfectly.

13.1.2. How much better could have been done

From prioritized high level requirements all could have requirements were not fully developed. From the could have list one requirement is not developed which does not affect the system directly. Without this system is working. If missed could have requirement was developed the project success rate would be high.

13.1.3. Why it could not be done

The main reasons of missing could have requirement is system deadline. Whereas this project is developed based on DSDM Atern project management methodology so that project must be complete within pre define time. Another reason for requirements missed was school Google location map is not created in Google map. In the project development time I have no enough time to create Google map location because it's an academic project where system developer, tester is one person.

13.1.4. Which objectives have been missed

The want have requirement was missed from the current system development. The missed requirements are listed below:

- Job vacancies page
- Student activity page
- Class and societies page
- Student services page
- FAQ
- Residential facility page
- Store employees salary information
- Store teacher's salary information
- Create school forum

13.1.5. Why these objectives have missed

Want have requirements are not necessary for the system because it has no major impact on the system. Without this type of requirements system is fully working. According to MoSCoW prioritization rules want have requirements are not feasible for the system but those requirements will be including in future development.

13.1.6. How better is the features of the solution

The currently developed BHS school management system features are

- Student information
- Teacher information
- Employee information
- Top management information
- Top student information
- Student attendance
- Student result
- Student payment
- Manage all information
- View all necessary information
- Report on student, employee, teacher and top management.

Depends on above discussion it is clear that current system covers the features of student management system, part of employee management system, part teacher management system and also part of accounts management system.

13.2. Objectives totally no met / touched

While developing school management system management want complete accounts management system for the school but it will not develop fully. The student payment id a part of school accounts management system was developed another part was not developed because lack of accounts management knowledge. Another important thing is employee attendance and teacher attendance is not developed because for this I need to finger print system. Then need to include with the school management system. But I have no vast knowledge about finger print system that's why is not developed.

13.2.1. Why it could not be touched

As a BIT (Business Information Technology) student I have no knowledge about finance management and bookkeeping where as I have no subject on this topics. Gather knowledge about bookkeeping and finance calculation or accounting is a matter of time. As project is developed under DSDM methodology I have no enough time for gathering extra knowledge.

13.2.2. Including software and documentation

While system development there was lots of problem that I have faced for needed features development. Some of the feature could not be developed because lack of knowledge on specific field. One "Could Have" requirements was missed and all won't have requirements was missed due to DSDM atern predefine time. Hopefully all missed features will develop in future development of school management system.

While preparing system documentation I had research lots of book and articles which was time consuming. Relevant material finding was a problem and documentation following DSDM Atern was also a difficult task.

14. Lesson Learned

14.1. What have I learned

Developing school management system for bathshiree high school was a challenging and also learning experience time for me. All of the project phases delivered knowledge and experience. For successful analysis and development use different types of diagram like rich picture, use case, activity and also sequence diagram. DSDM atern methodology under agile used to managing project as project management methodology to deliver the right solution at the right time within budget. For font end design use HTML and CSS where Ajax and JavaScript used for enhance the design. For design the database used Microsoft SQL server 2008 and C# programing language within ASP.NET used as a programming language. All tools and language helped to increase the knowledge for the system development as a system developer.

14.2. What problem I have faced

While developing the school management system I have faced numerous problems where most of the problems are coding related. Below some of the problem will be given that I have faced:

- The implementation of DSDM atern in practical field is too much difficult where DSDM used as a project management methodology.
- It was difficult to explain how DSDM atern will implement for the system development to the school management. But after starting implementation it was interesting.
- Conducting interview for gathering requirements was difficult time because employees explain unrealistic requirements which are not an actual problem.
- According to DSDM a principle communicate continuously and clearly is a difficult task because school management committee are not agreed to give time for regular communication.
- As it is an academic project all work need to be done by me it is really a difficult issue for developing the project within in a time.
- For system development one major problem is to develop account management system because I have no experience about the accounts that's why I omitted this section from the project.
- While coding to develop the task I have faced lots of coding error and for the solution I took help from internet, read books and sometime take counseling from programing teacher.

14.3. What solutions occurred

As discuss before I had faced some problems which I solve by using some technique that will describe bellow:

I have face problem to understand the DSDM atern for this I consult with my project supervisor she provide me some resource and guideline which help me to better understand about DSDM.

I have faced some problem while capturing requirements from the employees because they discuss unnecessary problem, I had to filter all problems and get functional and also high level requirements.

In coding I faced lots of error and I took help from the internet and sometimes I took help from our programmer teacher about how to solve the problem then he give me some advice to solve problems.

15. Conclusion

15.1. Summary of the project

The system development as a final year project is challenging like real life project of software development project. Each and every stage of system development delivered experience and knowledge like system analysis, system design tools and techniques, programing language and most important is methodologies which is using as a guide line of project.

The developed solution based on school management system for BHS (Bathshiree High School) was great learning experience. This was first time I am working in field for gather knowledge about school. For developing the whole system I can follow DSDM Atern as a project management methodology for this I need to understand its rules, techniques and also principles. I hope the developed system or solution fulfill BHS (Bathshiree High School) goals.

15.2. Goal of the project

BHS (Bathshiree High School) having difficulties to maintain their important records like student information and their attendance and result, employee information, teachers information, management information etc. Currently they use paper based manual system which too much time consuming and need more work force to manage their all works. School committee decides to use computer based and automated system for the school to maintain solve their all problems. The committee listed some goals which will fulfill by the new computerized system

- Mange student information and generate necessary reports.
- Manage student attendance and generate reports
- Manage student payment information and generate reports
- Records top students in every class and every year
- Mange teachers information and generate reports
- Manage employee information and generate necessary reports.
- Manage management information and generate reports
- Manage total school accounts
- Improve data security for the institution.

15.3. Success of the project

The project success means how much the actual goal was met which are define in previous point by the school management committee. The success was noticeable because the maximum requirements were met where some requirements could not meet like school accounts. Due to lack of account management system knowledge the requirements could not met. If I will develop this section in future development I will provide to the school.

15.4. My experience

It was a life time experience that I got when I was work in field and meet new peoples like students, managements, teachers, employee etc. Working with new methodologies named DSDM atern and implementing in my project is great experience. For completing my project first I analyses the whole system and then complete design and development section where I got lots of experience. For

developing system I used ASP.Net where core language is C#, HTML and CSS for interactive design from all of this framework and programing language I got lots of knowledge and experience.

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17. Appendices

17.1. Appendix A Project proposal

**SCHOOL MANAGEMENT SYSTEM
OF
BATHSHIREE HIGH SCHOOL**

PROJECT DEVELOP BY:

**MD. JAHIRUL ALAM
NCC ID: 000844411**

SUBMITTED TO:

Ms. Nayeema Rahman

SUBMISSION DATE:

20th November 2014

Background of the project:

Bathshiree high school (BHS) is one of the most famous bangle based educational institution in feni district. It was founded in 1964. The school has become famous for providing quality education to students. Every year lots of students pass their primary school education and enroll in to high school, as being one of the reputed high schools in feni district Bathshiree High School gets an amount of enrollment. Currently the school has near about 600 regular students. Managing all the work systematically required lots workforce and time. Now they use manual system which is also known as paper based system. For maintaining quality management and technological advancement the school management decide to use software system. Bathshiree high school (BHS) needs computerized systems which will give solution for different problems like, Regular Attendance, report publish, result publish, store all information, latest notice, latest news etc.

From the beginning BHS provide necessary education and guidelines to achieve goals of students. Bathshiree High School (BHS) has produced successful student list who has achieved reputation in their own working area.

In 4 different buildings, this school maintains their all classes. It has an inner assembly ground and outer playground. It has a large pond attached with the outer playground. This school has a big mosque for prayers for the students and teachers.

Aims and objectives of the project:

Aims:

The aims of this project to develop a web application, which will provide online services to maintain a educational institution in Bangladesh. The institution use personal domain to explore them and also manage their all important works via online. The final goal of this projet is to deliver a complete software within a period which will fulfill the maximum requirements depends on institution expectation. After using this system institution may overcome some common problems:

- Reduce paper works.
- Easy to produce different types of report.
- Easy to maintain system database.
- Reduce students embarrassment
- Reducing staffs workload
- It's a one kind of institution advertisement.
- Easy to posts any kind of announcements and weekly envelope.
- Less costly school communication way.
- All the students and visitors received relevant information in same way.
- Use this system from everywhere if there is internet available.

Objectives:

The following objectives will be fulfilled by this project:

- Develop web application to explore institution in education sector.
- To provide facility to see all necessary information for all types of visitors via online.
- To make different dynamic admin panel for managing system.
- Provide attractive and useful content for the users.
- To provide secure Login authentication for admin.
- To provide print out options for all reports.
- To provide automated email system for any kind of inquiry.

Justification of methods and framework

The system is a lightweight design oriented and has pragmatic approach to development. The whole system needs to be divided into small chunks for easy development. After development each module, it will integrate with the system and have a testing. That means iterative and incremental process will be included. Depend on above section it is clear that development process fully supports the criteria of DSDM (Dynamic Systems Development Method) under Agile Methodologies. That is why the agile principles will follow for developing the system.

DSDM Atern focuses on working together to achieve business goals and it is also independent of tools and techniques. But whereas it's an academic project, there is only one person who will develop the system and also test the system. That's why sometimes it follows SSADM (Structure Systems Analysis and Design), where development process goes on stepwise.

Resources

The probable resources for this project are as follows:

Hardware

- Lenovo G400S
- Intel(R) Core(TM) i5-2450M CPU @ 2.50GHz 2.50GHz
- 8 GB DDR3 RAM (Minimum 2 GB)
- 750 GB HDD (with 20 GB free space)
- 14 inch HD Lenovo CineCrystal™ LED LCD display

Software

- Programming Language: C#, asp.NET
- Development Tool: Visual Studio 2010, Microsoft SQL Server 2008, Java Script, ASP enabled browser
- Designing Tool: HTML, CSS, Ajax
- Windows 7 Home Premium (Operating system)
- 64 bit operating system / 32 bit operating system

Human resources

- Developer: 1 (because it's an academic project)
- Allocated days: 103 days (approximately)

Gantt chart:

Gantt chart for pre project of school management system:

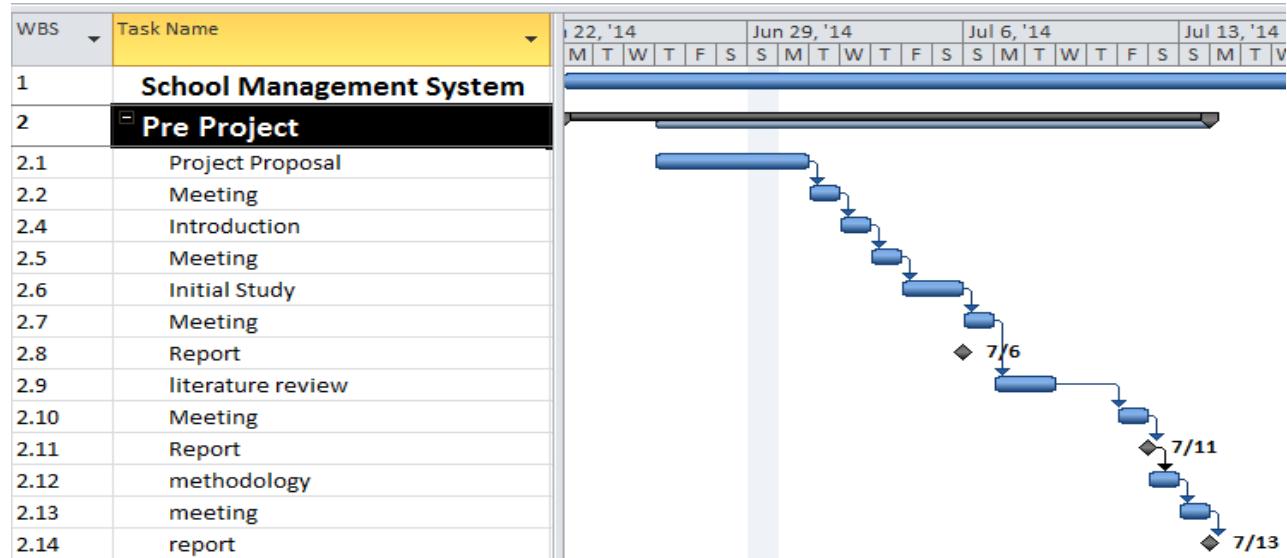


Figure: Gantt chart of pre project part

Gantt chart for Exploration of school management system:

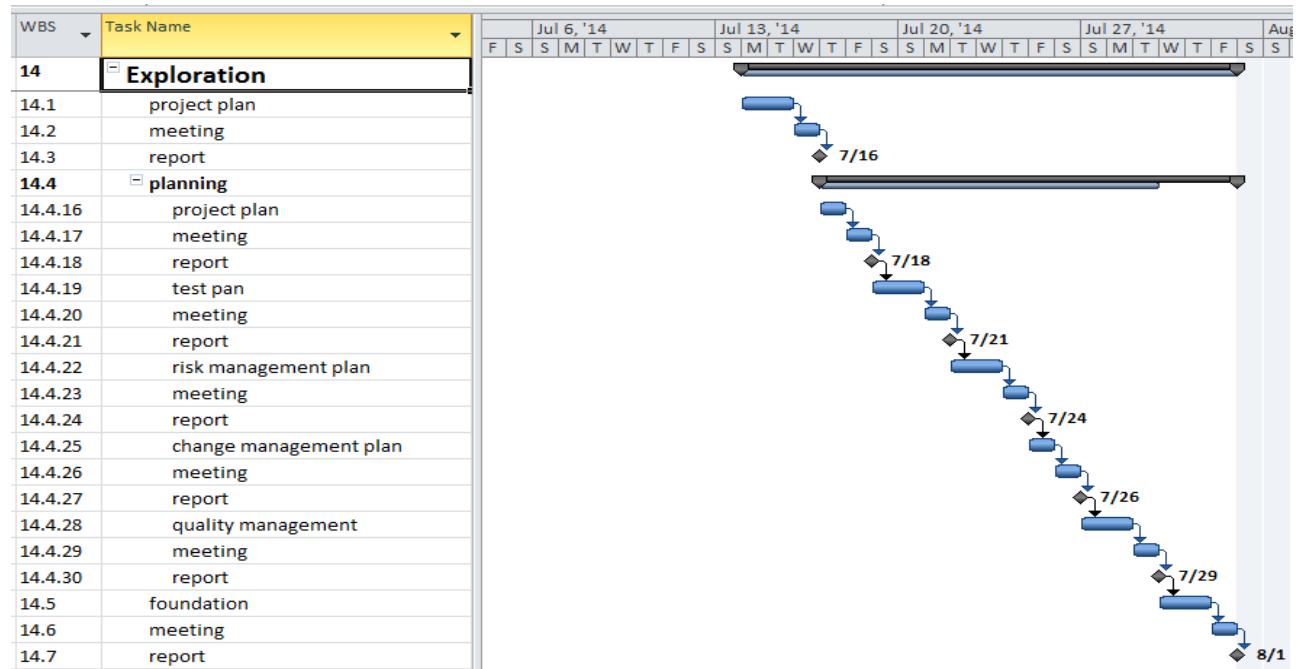


Figure: Gantt chart of Exploration part

Gantt chart for Engineering of school management system:

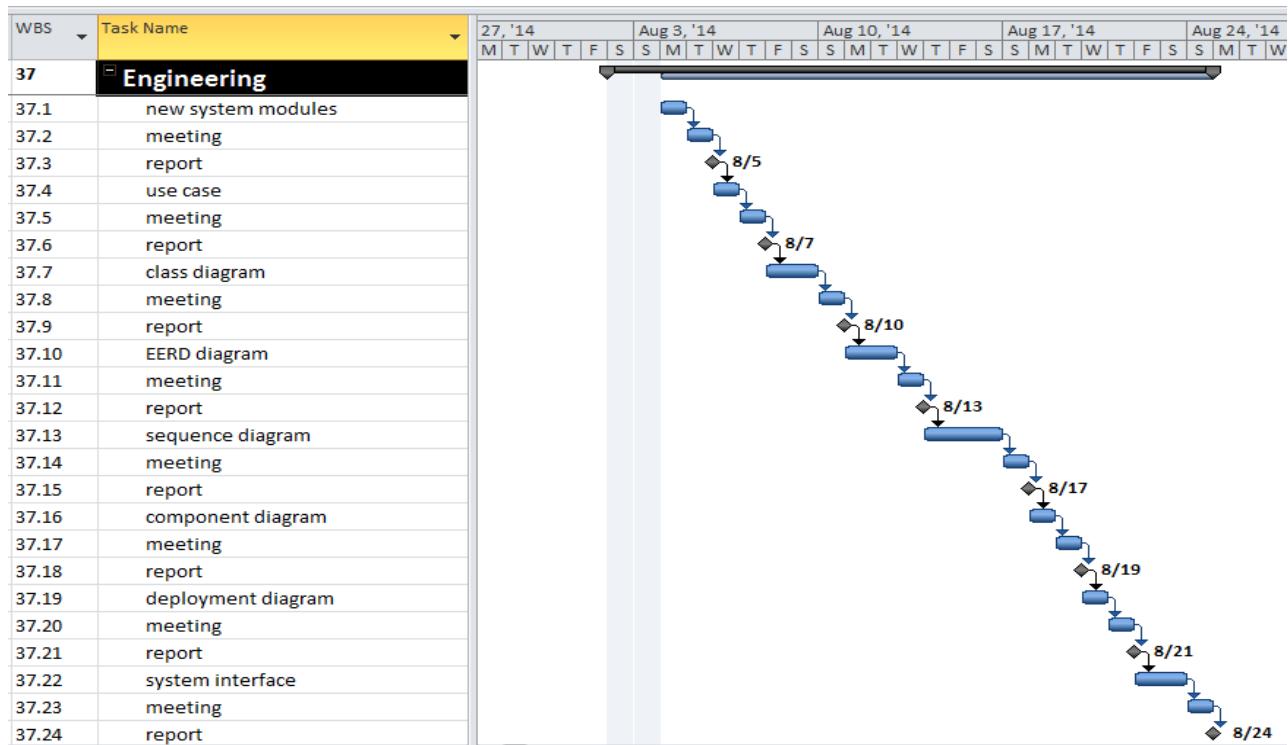


Figure: Gantt chart of engineering part

Gantt chart for Deployment of school management system

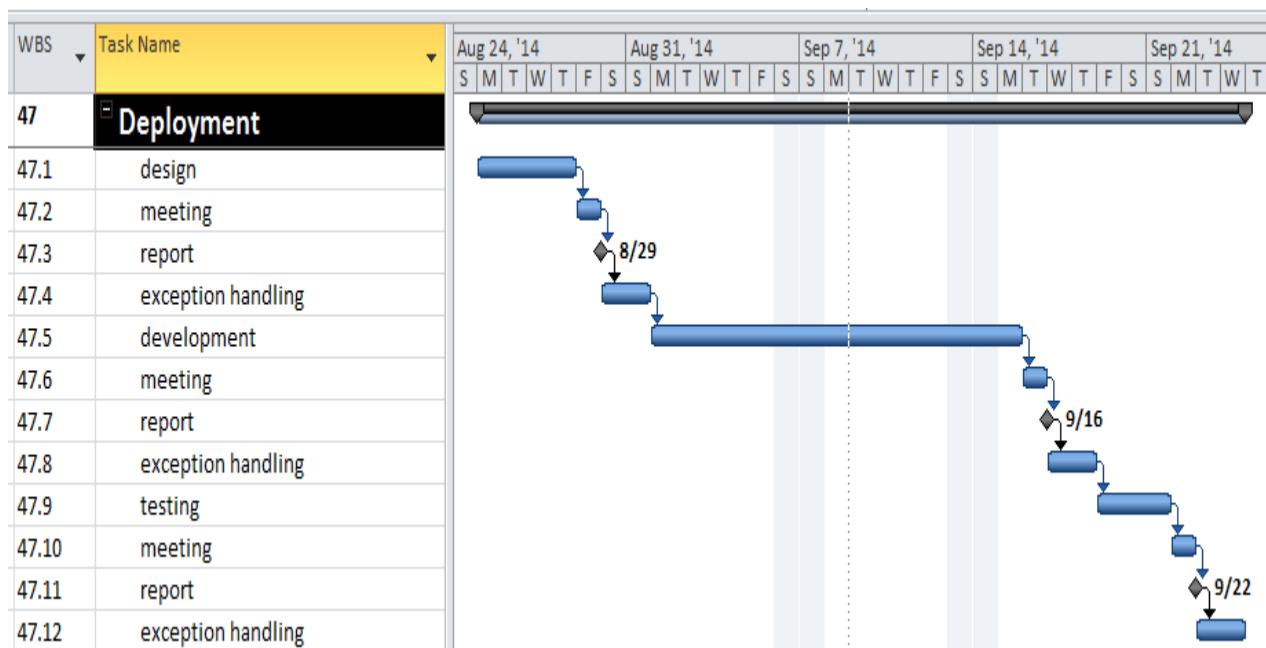


Figure: Gantt chart of Deployment part

Gantt chart for implementation, critical appraisal and closing of school management system:

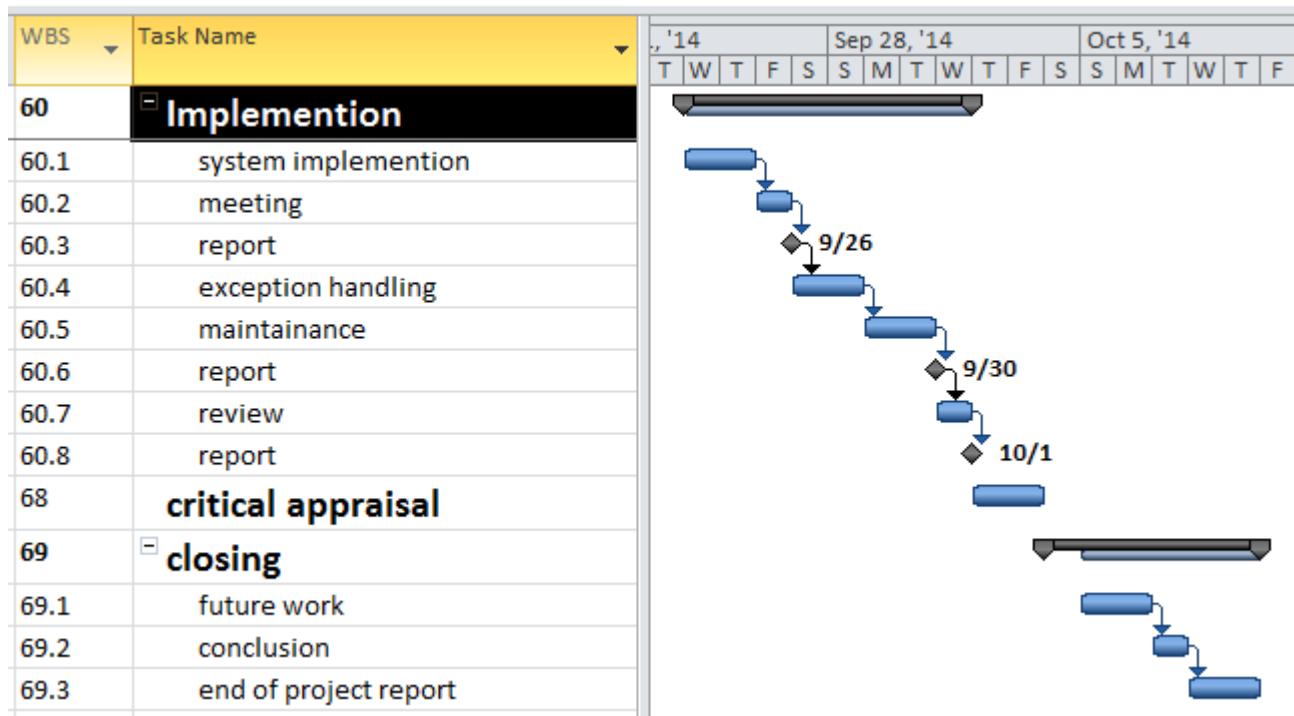


Figure: Gantt chart of Implementation, critical appraisal and closing part

17.2. Appendix B

Requirements catalogue

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M4
Functional Requirements: Manage employee information			
Non-Functional Requirements:			
Description:		Target value	Acceptable range
Volume		100 per day	(100- maximum) per day
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M5
Functional Requirements: Store teachers information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M6
Functional Requirements: Manage teachers information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M7
Functional Requirements: Store top management information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M8
Functional Requirements: Manage top management information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M9
Functional Requirements: Store top student information separately from the student			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M10
Functional Requirements: Manage top student information			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin, Teachers	Sign Off: staff admin, teachers	Priority: must	Requirements ID: M11
Functional Requirements: Keep student attendance			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	100 per day	(100- maximum) per day	
Comments:			

Source: staff admin, Teacher	Sign Off: staff admin, teacher	Priority: must	Requirements ID: M12
Functional Requirements: Store student details			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	120 per day	(120- maximum) per day	
Comments:			

Source: employee	Sign Off: employee	Priority: must	Requirements ID: M13
Functional Requirements: Keep employee attendance			
Non-Functional Requirements: 3			
Description:3	Target value	Acceptable range	
Volume	50 per day	(50- maximum) per day	
Comments:			

Source: teacher	Sign Off: teacher	Priority: must	Requirements ID: M14
Functional Requirements: Keep teachers attendance			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	50 per day	(50- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M15
Functional Requirements: Add notice			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	10 per day	(10- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M16
Functional Requirements: Manage notice			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	10 per day	(10- maximum) per day	
Comments:			

Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M17
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Functional Requirements: Add news		
Non-Functional Requirements:		
Description:	Target value	Acceptable range
Volume	10 per day	(10- maximum) per day
Comments:		

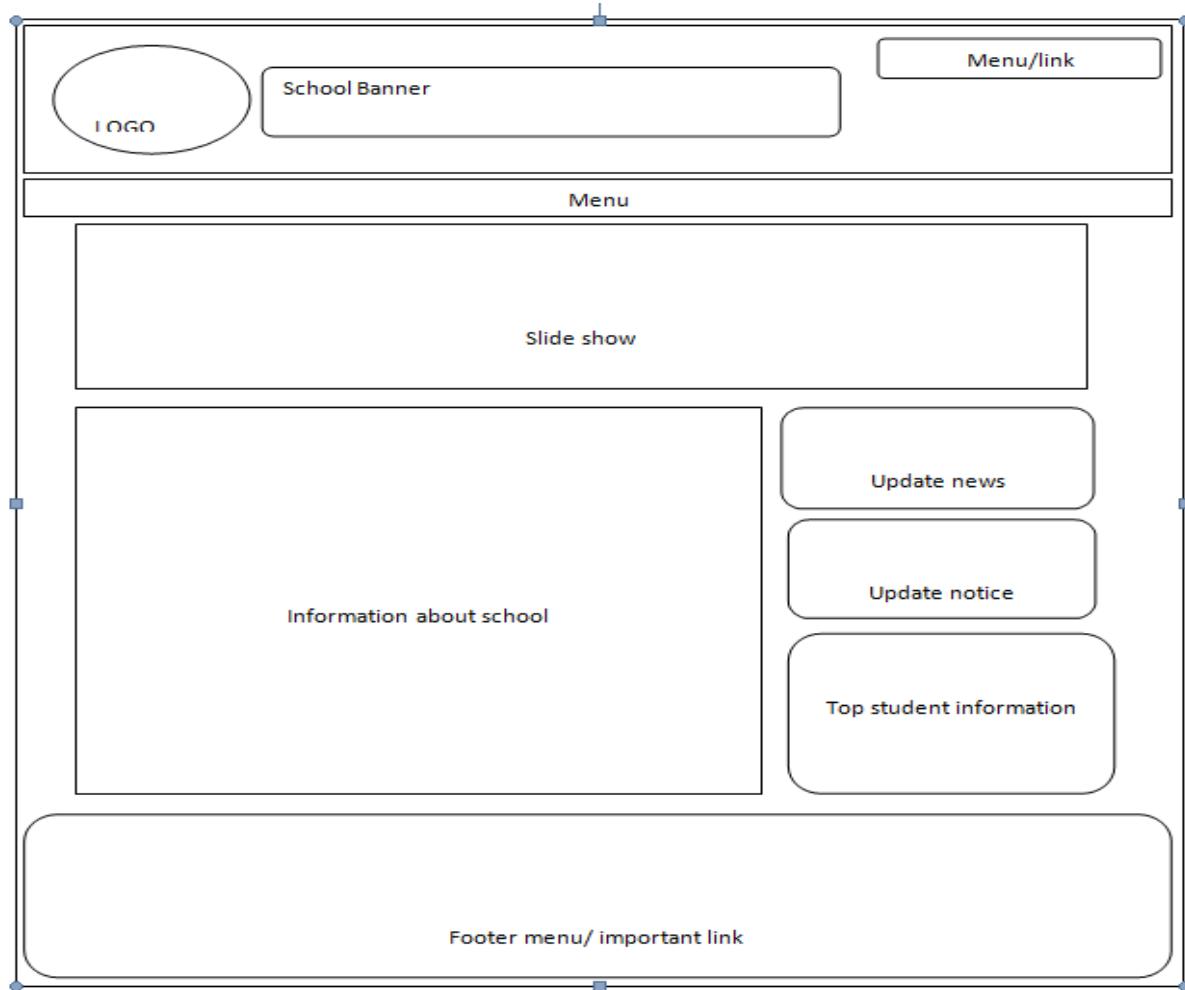
Source: staff admin	Sign Off: staff admin	Priority: must	Requirements ID: M18
Functional Requirements: Manage news			
Non-Functional Requirements:			
Description:		Target value	Acceptable range
Volume		10 per day	(10- maximum) per day
Comments:			

Source: staff admin, supper admin, employee, teacher	Sign Off: staff admin, supper admin, employee, teacher	Priority: must	Requirements ID: M19
Functional Requirements: Generate report			
Non-Functional Requirements:			
Description:		Target value	Acceptable range
Volume		100 per day	(100- maximum) per day
Comments:			

Source: Supper admin	Sign Off: supper admin	Priority: must	Requirements ID: M20
Functional Requirements: Create user			
Non-Functional Requirements:			
Description:	Target value	Acceptable range	
Volume	10 per day	(10- maximum) per day	
Comments:			

1.1.Appendix C

Prototype of new system



General information page

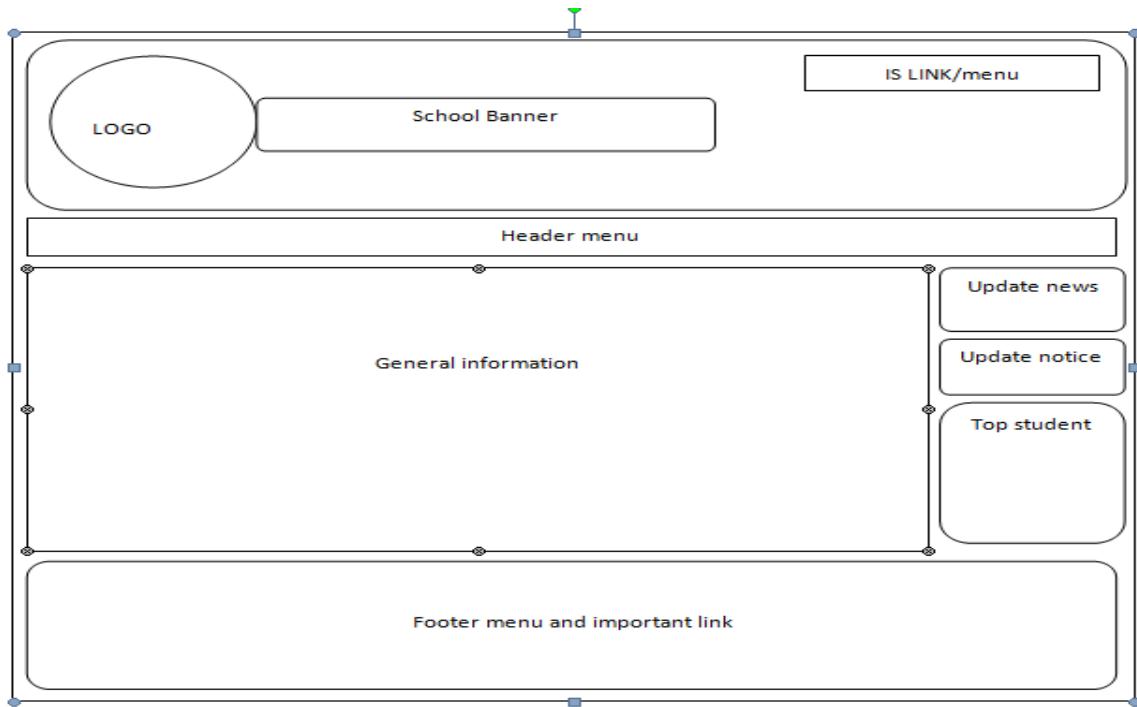
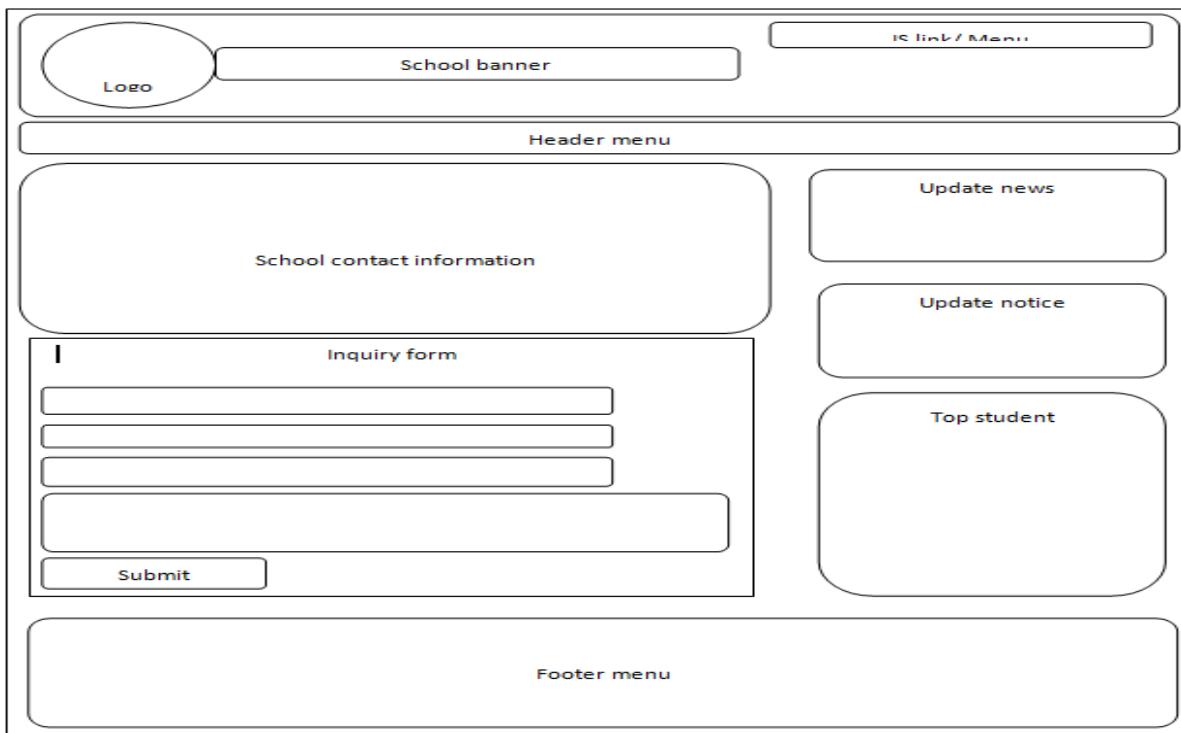


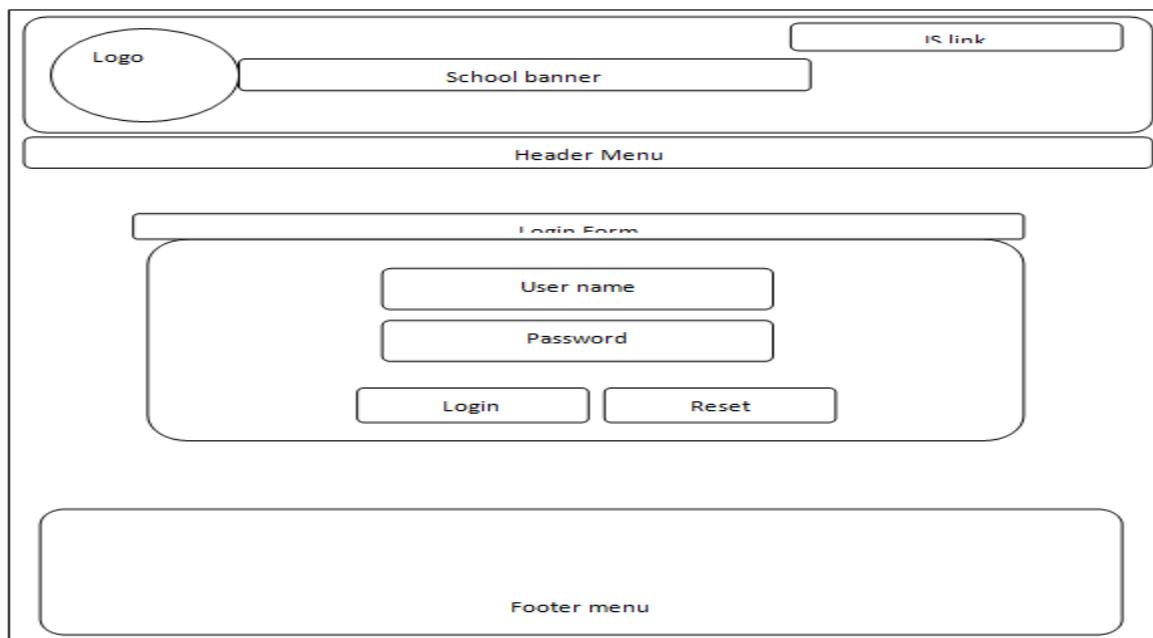
Photo galley page



Contact page



Login page:



1.2.Appendix D

Data dictionary

Bellow I give data dictionary based on data base table.

Employees Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	employeeId	int		Auto increment
2.	employeeName	varchar	50	Cannot be null
3.	Position	varchar	50	Cannot be null
4.	Gender	varchar	50	Cannot be null
5.	presentAddress	varchar	50	Cannot be null
6.	parmanentAddress	varchar	50	Cannot be null
7.	Email	varchar	50	Cannot be null
8.	contactNo	varchar	50	Cannot be null
9.	dateOfBirth	varchar	50	Cannot be null
10	Qualification	varchar	50	Cannot be null
11	Religion	varchar	50	Cannot be null
12	bloodGroup	varchar	50	Cannot be null
13	joiningDate	varchar	50	Cannot be null
14	Status	varchar	50	Cannot be null
15	Image	varchar	50	Cannot be null

Class Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	classId	int		Auto increment
2.	className	varchar	50	Cannot be null

Inquiry Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	inquiryId	int		Auto increment
2.	inquiryName	varchar	50	Cannot be null
3.	inquiryEmail	varchar	50	Cannot be null
4.	inquiryPhone	varchar	50	Allow null
5.	inquirySubject	varchar	50	Cannot be null
6.	inquiryMessage	varchar	MAX	Cannot be null

News Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	newsId	int		Auto increment
2.	newsDate	varchar	50	Cannot be null
3.	newsHeading	varchar	50	Cannot be null
4.	newsDetails	varchar	MAX	Cannot be null
5.	Status	varchar	50	Cannot be null

Notice Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	noticeId	int		Auto increment
2.	noticeDate	varchar	50	Cannot be null
3.	noticeHeading	varchar	50	Cannot be null
4.	noticeDetails	varchar	MAX	Cannot be null
5.	status	varchar	50	Cannot be null

Payment Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	paymentId	int		Auto increment
2.	studentId	varchar	50	Cannot be null
3.	Date	varchar	50	Cannot be null
4.	Month	varchar	50	Cannot be null
5.	Year	varchar	50	Cannot be null
6.	admissionFee	Money		Allow null
7.	tutionFee	Money		Cannot be null
8.	examFee	Money		Allow null
9.	libraryFee	Money		Allow null
10.	IdCardFee	Money		Allow null
11.	delayFine	Money		Allow null
12.	Others	Money		Allow null
13.	totalAmount	money		Cannot be null

Result Table:

No	Attributes Name	Type	Length/ values	Validation rules
1.	resultSerialNo	int		Auto increment
2.	studentId	varchar	50	Cannot be null
3.	classId	Int		Cannot be null
4.	Term	varchar	50	Cannot be null
5.	publishDate	varchar	50	Cannot be null
6.	bangla1stPaper	varchar	50	Cannot be null
7.	bangla2ndPaper	varchar	50	Cannot be null
8.	english1stPaper	varchar	50	Cannot be null
9.	english2ndPaper	varchar	50	Cannot be null
10.	generalMathematics	varchar	50	Cannot be null
11.	religionandMoralEducation	varchar	50	Cannot be null
12.	physicalEducation	varchar	50	Cannot be null
13.	generalScience	varchar	50	Cannot be null
14.	bangladeshandGlobalStudy	varchar	50	Allow null
15.	agricultureStudies	varchar	50	Allow null
16.	artsandCrafts	varchar	50	Allow null
17.	Biology	varchar	50	Allow null
18.	Physics	varchar	50	Allow null
19.	Chemistry	varchar	50	Allow null
20.	higherMath	varchar	50	Allow null
21.	Accounting	varchar	50	Allow null
22.	financeandBanking	varchar	50	Allow null
23.	businessEntrepreneurship	varchar	50	Allow null
24.	History	varchar	50	Allow null
25.	Economics	varchar	50	Allow null
26.	civicsandCitizenship	varchar	50	Allow null
27.	computerStudies	varchar	50	Allow null
28.	totalMarks	varchar	50	Cannot be null

Student Attendance Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	studentAttanchardanceSerialNo	int		Auto increment
2.	studentId	varchar	50	Cannot be null
3.	classId	Int		Cannot be null
4.	Date	varchar	50	Cannot be null
5.	Status	varchar	50	Cannot be null

Students Table:

No	Attributes Name	Type	Length/ values	Validation rules
1.	studentId	Varchar	50	Cannot be null
2.	classId	Int		Cannot be null
3.	Section	Varchar	50	Cannot be null
4.	studentName	varchar	50	Cannot be null
5.	Gender	varchar	50	Cannot be null
6.	fathersName	varchar	50	Cannot be null
7.	fathersProfession	varchar	50	Cannot be null
8.	mothersName	varchar	50	Cannot be null
9.	Mothersprofession	varchar	50	Cannot be null
10.	presentAddress	varchar	50	Cannot be null
11.	permanentAddress	varchar	50	Cannot be null
12.	Email	varchar	50	Cannot be null
13.	studentPhone	varchar	50	Cannot be null
14.	parentsPhone	varchar	50	Cannot be null
15.	dateOfBirth	varchar	50	Cannot be null
16.	Religion	varchar	50	Cannot be null
17.	bloodGroup	varchar	50	Cannot be null
18.	lastQualification	varchar	50	Cannot be null
19.	passingSchool	varchar	50	Cannot be null
20.	passingYear	varchar	50	Cannot be null
21.	currentYear	varchar	50	Cannot be null
22.	lastResult	varchar	50	Cannot be null
23.	Image	varchar	50	Cannot be null

Subject Table:

No	Attributes Name	Type	Length / values	Validation rules
1.	subjectCode	int		Auto increment
2.	subjectName	varchar	50	Cannot be null
3.	Section	Varchar	50	Cannot be null
4.	classId	Int		Cannot be null

Teachers Table:

No	Attributes Name	Type	Length/values	Validation rules
1.	teacherId	Int		Cannot be null
2.	teacherName	Varchar	50	Cannot be null
3.	Position	Varchar	50	Cannot be null
4.	Gender	varchar	50	Cannot be null
5.	Religion	varchar	50	Cannot be null
6.	presentAddress	varchar	50	Cannot be null
7.	parmanentAddress	varchar	50	Cannot be null
8.	Email	varchar	50	Cannot be null
9.	contactNo	varchar	50	Cannot be null
10.	dateOfBirth	varchar	50	Cannot be null
11.	bloodGroup	varchar	50	Cannot be null
12.	joiningDate	varchar	50	Cannot be null
13.	lastQualification	varchar	50	Cannot be null
14.	institutionName	varchar	50	Cannot be null
15.	passingYear	varchar	50	Cannot be null
16.	Result	varchar	50	Cannot be null
17.	Status	varchar	50	Cannot be null
18.	Image	varchar	50	Cannot be null

Top Management Table:

No	Attributes Name	Type	Length/values	Validation rules
1.	managementId	Int		Cannot be null
2.	managementName	Varchar	50	Cannot be null
3.	Position	Varchar	50	Cannot be null
4.	Gender	varchar	50	Cannot be null
5.	presentAddress	varchar	50	Cannot be null
6.	parmanentAddress	varchar	50	Cannot be null
7.	contactNo	varchar	50	Cannot be null
8.	Qualification	varchar	50	Cannot be null
9.	Religion	varchar	50	Cannot be null
10.	startDate	varchar	50	Cannot be null
11.	endDate	varchar	50	Cannot be null
12.	Status	varchar	50	Cannot be null
13.	Image	varchar	50	Cannot be null

Top Student Table:

No	Attributes Name	Type	Length/values	Validation rules
1.	studentId	Varchar	50	Cannot be null
2.	studentName	Varchar	50	Cannot be null
3.	Year	Varchar	50	Cannot be null
4.	Result	varchar	50	Cannot be null
5.	Photo	varchar	50	Cannot be null

User Information Table:

No	Attributes Name	Type	Length/values	Validation rules
1.	userId	Int		Cannot be null
2.	username	Varchar	50	Cannot be null
3.	Password	Varchar	50	Cannot be null
4.	Role	varchar	50	Cannot be null
5.	studentId	varchar	50	Allow null
6.	employeeId	Int		Allow null
7.	teacherId	Int		Allow null

1.3.Appendix E

User guide

Bellow i will give some user instructions for admin panel. With the user instruction i also attach screen shoots which will help admin user for better understand.

First admin user need to click IS Application

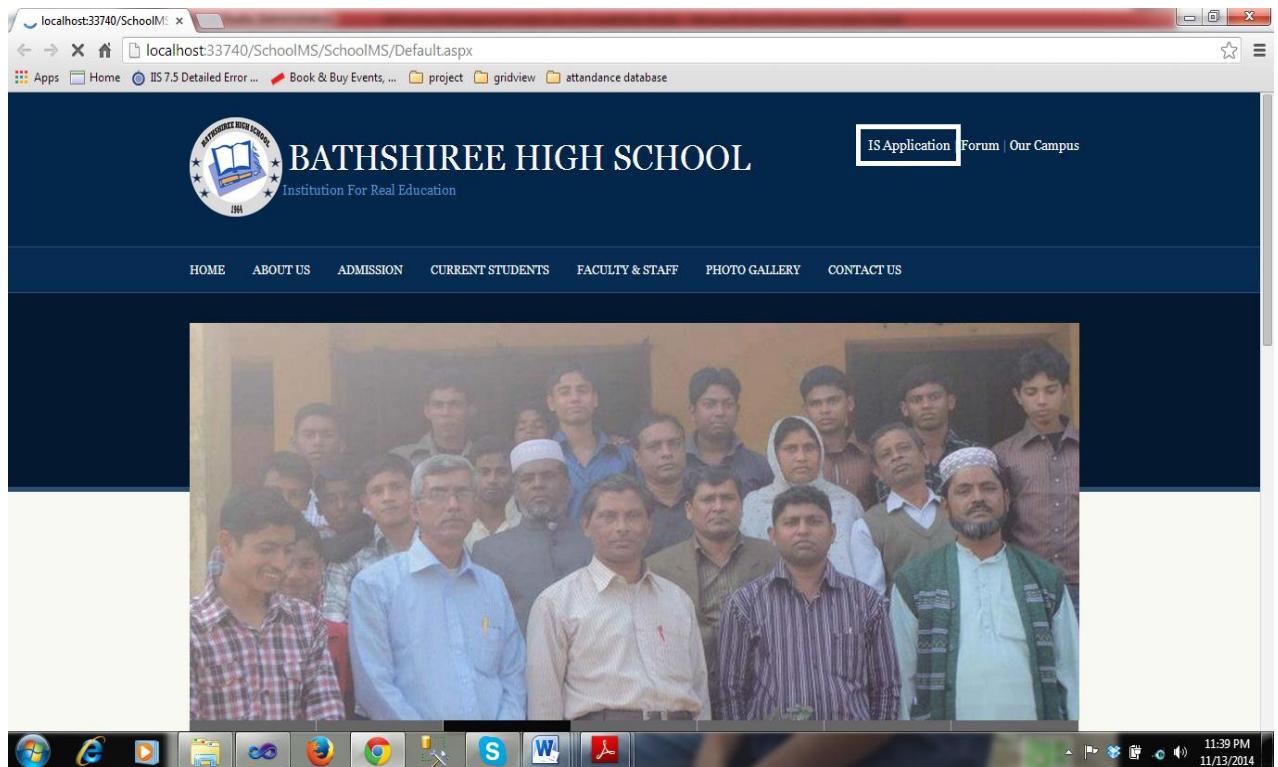


Figure: system home page

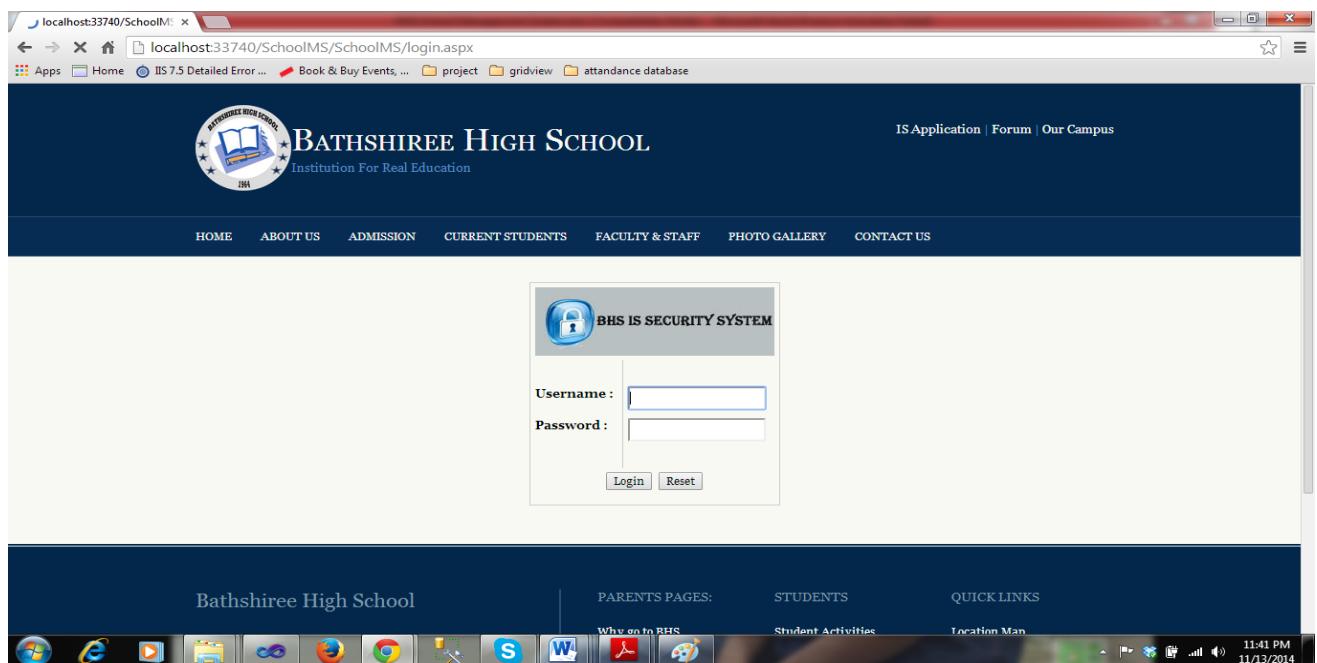


Figure: system login page

When user click the IS Application link system will redirect user to login page here user give the username and password. In this system have five types of users they are supper admin who have extra permission to create edit and delete user .another one is staff admin who is mainly responsible to maintain the system. Teachers' admin mainly work with student attendance and result. Employee means accountant works with student payment and student also has login permission to see their personal information, view result and also payment status.

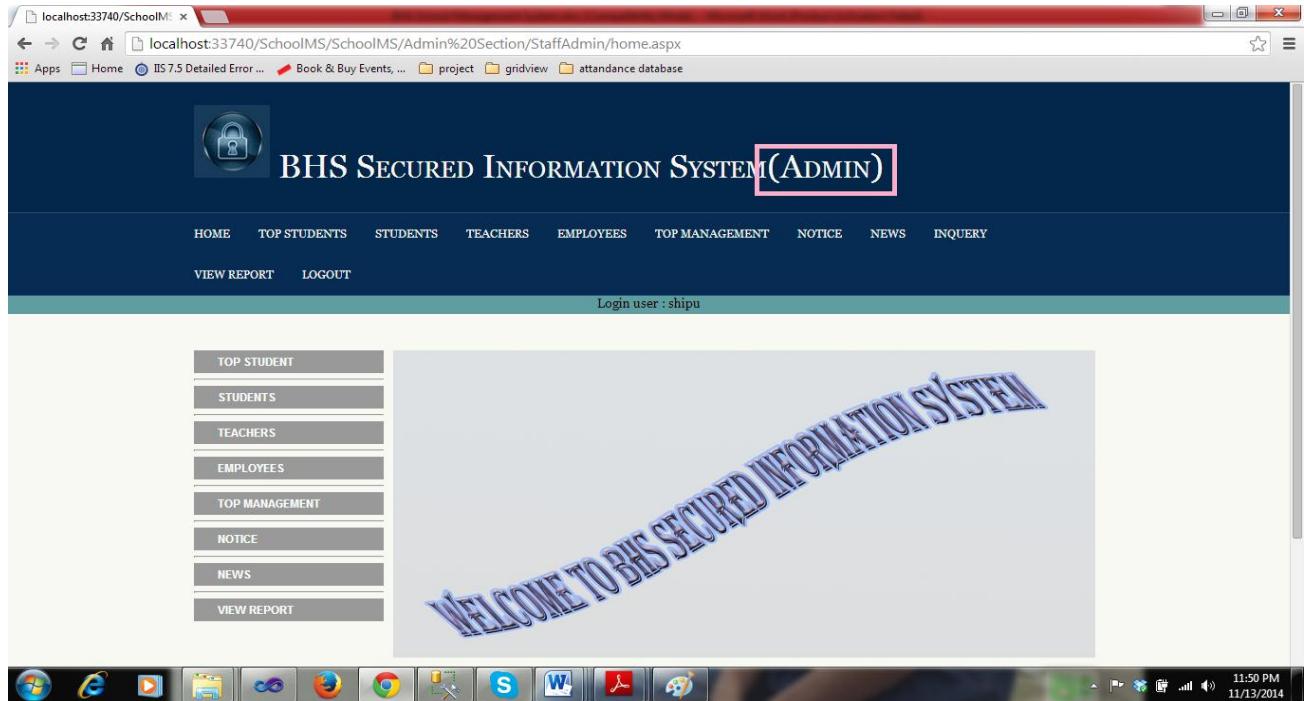


Figure: admin login into the system

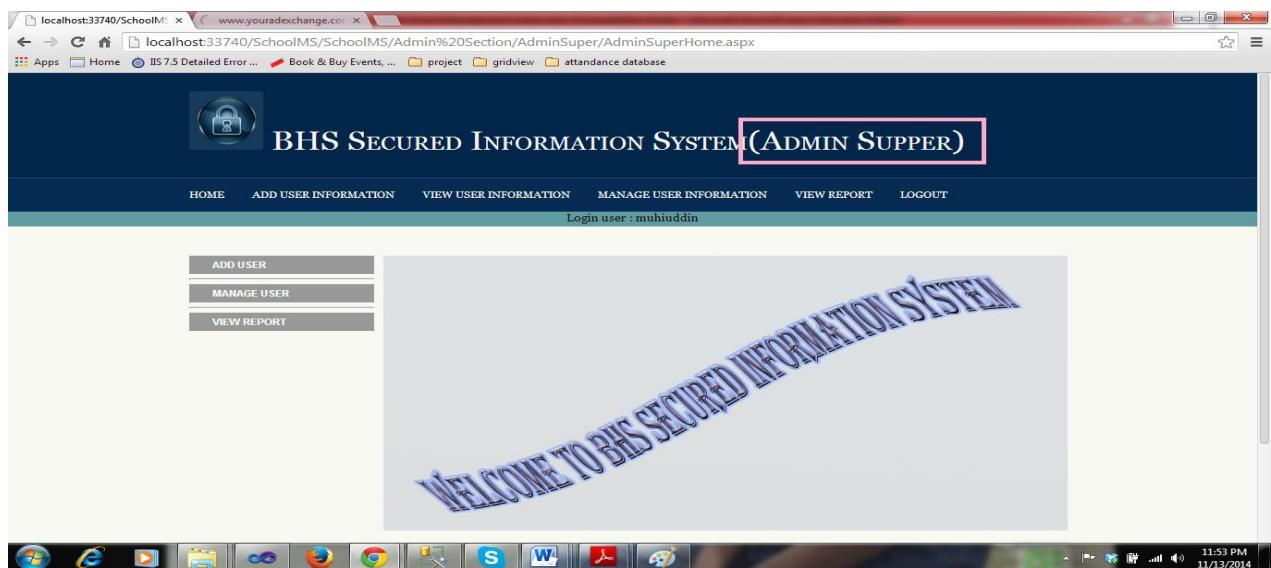


Figure: supper admin login into system

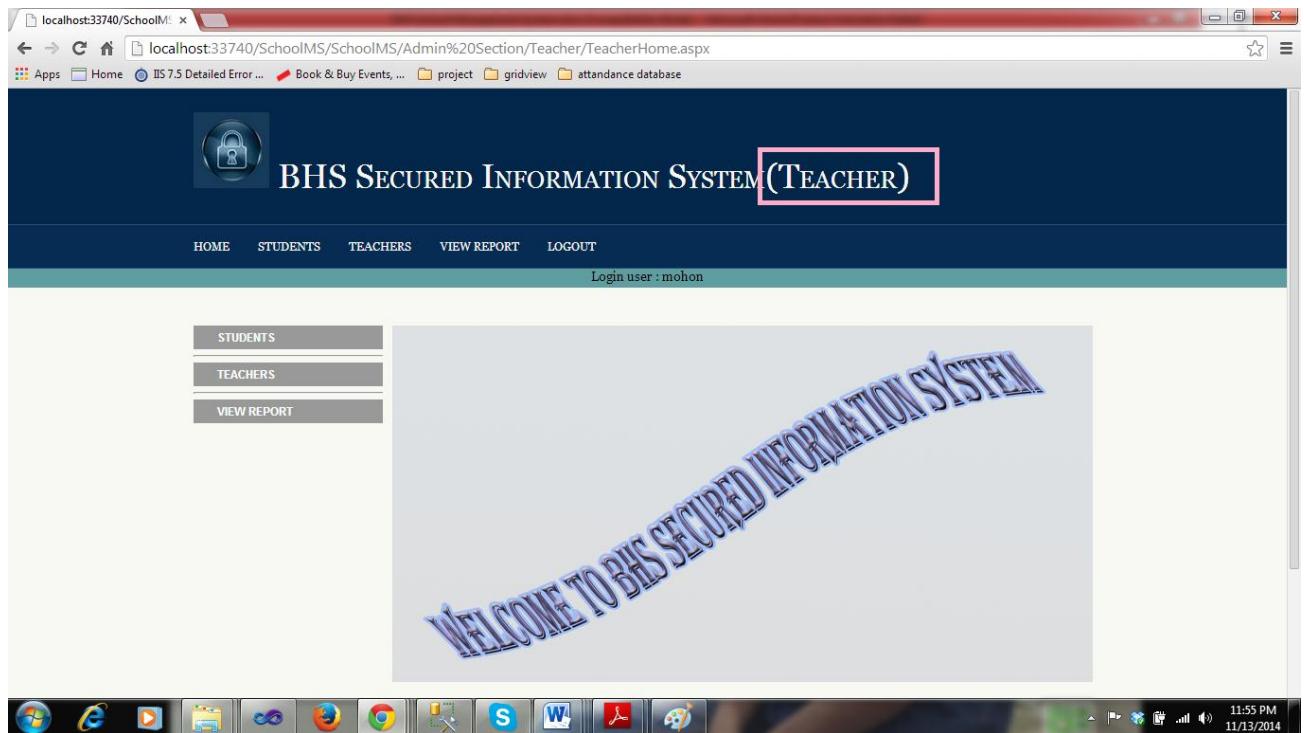


Figure: teacher login into system

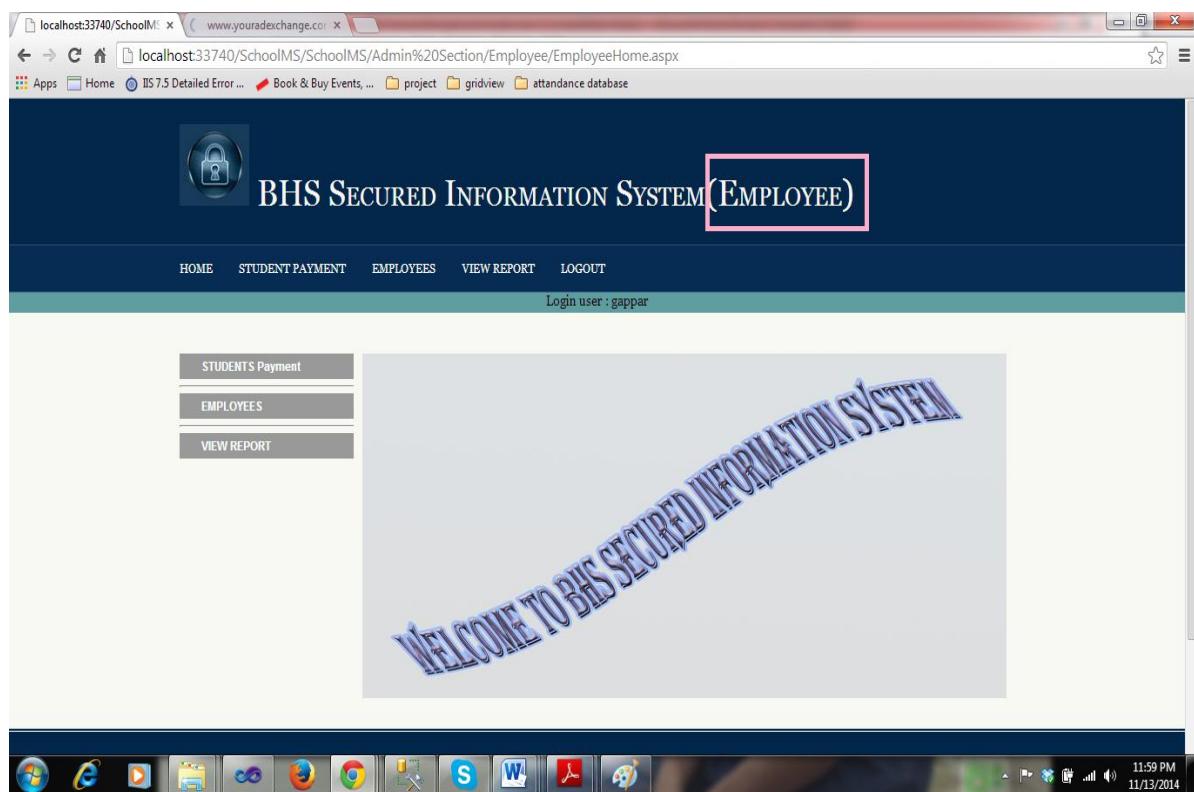


Figure: Employee login into system

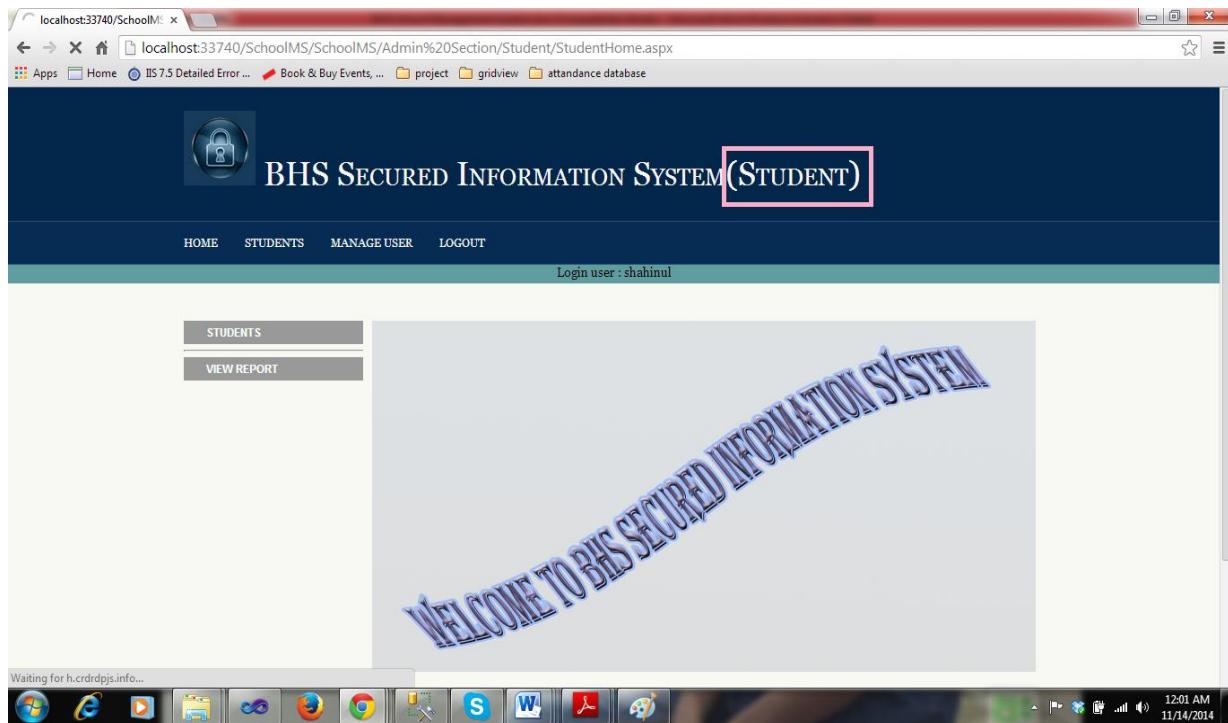


Figure: student login into system

1.4.Appendix E

System code

Bellow I give some sample code of my system:

Default master page:

```
<%@ Master Language="C#" AutoEventWireup="true" CodeFile="MasterPage.master.cs"
Inherits="MasterPage" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head id="Head1" runat="server">
    <title></title>
    <asp:ContentPlaceHolder id="head" runat="server">
    </asp:ContentPlaceHolder>
    <link rel="stylesheet" href="styles/layout.css" type="text/css" />
    <script type="text/javascript" src="scripts/jquery-1.4.1.min.js"></script>
    <script type="text/javascript" src="scripts/jquery-slidedeck-lite.js"></script>
</head>
<body id="top">
    <form id="form1" runat="server">
        <div class="wrapper row1">
            <div id="header" class="clear">
                <div class="fl_left" style="width:">
                    <div width="100px" style="float:left;">
                        
                    </div>
                    <div style="width:600px; margin-top:20px; padding-left:10px;">
```

```

        <h1><a href="Default.aspx">Bathshiree High School</a></h1>
        <p style="text-align:left;">Institution For Real Education</p>
    </div>
</div>
<br />
<div>
<p style="text-align:right;"><a href="login.aspx"> IS Application</a> |
    <a href=""> Forum</a> |
    <a href=""> Our Campus</a>
</p>
</div>
</div>
</div>
<!--
#####
-->
<div class="wrapper row2">
    <div id="topnav" >
        <ul>
            <li class=""><a href="Default.aspx">Home</a></li>
            <li><a href="#">About Us</a>
                <ul >
                    <li><a href="history.aspx">History</a></li>
                    <li><a href="mission.aspx">Mission/Vission</a></li>
                </ul>
            </li>
            <li><a href="#">Admission</a>
                <ul>
                    <li><a href="Rules_Regulation.aspx">Rules & Regulation</a></li>
                    <li><a href="How_to_apply.aspx">How To Apply</a></li>
                </ul>
            </li>
            <li><a href="#">Current Students</a>
                <ul>
                    <li><a href="AllNotice.aspx">Notice</a></li>
                    <li><a href="AllNews.aspx">News</a></li>
                    <li><a href="classRoutine.aspx">Class Routine</a></li>
                </ul>
            </li>
            <li><a href="">Faculty & Staff</a>
                <ul>
                    <li><a href="FacultyMember.aspx">List Of Faculty Members</a></li>
                    <li><a href="TopManagement.aspx">Top Managements</a></li>
                    <li><a href="ManagementStaff.aspx">Management Staffs</a></li>
                </ul>
            </li>
            <li><a href="PhotoGallery.aspx"> Photo Gallery</a>
            </li>
        <%--      <li><a href="">Alumni</a>
            <ul>
                <li><a href="AllAlumniInfo.aspx">All Alumni Info:</a></li>
                <li><a href="AlumniRegistration.aspx">Alumni Registration</a></li>
            </ul>
        </li>--%>
            <li class="last"><a href="contact.aspx">Contact Us</a></li>
        </ul>
        <div class="clear"></div>
    </div>

```

```

</div>
<!--
#####
## -->
<div>
<asp:ContentPlaceHolder id="ContentPlaceHolder1" runat="server">
</asp:ContentPlaceHolder>
</div>
<!--
#####
## -->
<div class="wrapper row5">
    <div id="footer" class="clear">
        <!--
#####
## -->
        <div class="foot_contact">
            <h2>Bathshiree High School</h2>
            <address>
                Town/City: Dagunbhuiyan, Feni<br />
                Postcode/Zip: 1704<br />
                <strong>Tel:</strong>02-254896<br />
                <strong>Email:</strong> <a href="#">contact@mydomain.com</a>
            </address>
        </div>
        <div class="footbox">
            <h2>Parents Pages:</h2>
            <ul>
                <li><a href="WhyGoToBHS.aspx">Why go to BHS</a></li>
                <li><a href="#">Usefull Contacts</a></li>
                <li><a href="#">Quality & Standard</a></li>
                <li class="last"><a href="#">Job Vacancies</a></li>
            </ul>
        </div>
        <div class="footbox">
            <h2>Students</h2>
            <ul>
                <li><a href="#">Student Activities</a></li>
                <li><a href="#">Clubs & socities</a></li>
                <li><a href="#">Student Services</a></li>
                <li class="last"><a href="#">Students Result</a></li>
            </ul>
        </div>
        <div class="footbox last">
            <h2>Quick Links</h2>
            <ul>
                <li><a href="#">Location Map</a></li>
                <li><a href="SiteMap.aspx">Site Map</a></li>
                <li><a href="#">FAQ</a></li>
                <li class="last"><a href="#">Residential Facility</a></li>
            </ul>
        </div>
        <!--
#####
## -->
    </div>
</div>

```

```

<!--
#####
-->


<div id="copyright" class="clear">
        <p class="fl_left">Copyright © 2013 -<a href="#">Bathshiree High School</a> All Rights Reserved</p>
    </div>
</div>
<script type="text/javascript">    $('.slidedeck').slidedeck();</script>
</form>
</body>
</html>


```

Default page:

```

%@ Page Title="" Language="C#" MasterPageFile="~/SchoolMS/MasterPage.master"
AutoEventWireup="true" CodeFile="Default.aspx.cs" Inherits="_Default" %>
<asp:Content ID="Content1" ContentPlaceHolderID="head" Runat="Server">
    <link rel="stylesheet" href="styles/layout.css" type="text/css" />
    <script type="text/javascript" src="scripts/jquery-1.4.1.min.js"></script>
    <script type="text/javascript" src="scripts/slidedeck-lite.js"></script>
    <link rel="shortcut icon" href="../favicon.ico">
    <link rel="stylesheet" type="text/css" href="css/demo_slide.css" />
    <link rel="stylesheet" type="text/css" href="css/style_slide.css" />
    <link href='http://fonts.googleapis.com/css?family=Open+Sans+Condensed:300|Playfair+Display:400italic' rel='stylesheet' type='text/css' />
    <noscript>
        <link rel="stylesheet" type="text/css" href="css/noscript_slide.css" />
    </noscript>
    <script type="text/javascript"
src="http://ajax.googleapis.com/ajax/libs/jquery/1.7.0/jquery.min.js"></script>
        <script type="text/javascript" src="js/jquery.eislideShow.js"></script>
        <script type="text/javascript" src="js/jquery.easing.1.3.js"></script>
        <script type="text/javascript">
            $(function () {
                $('#ei-slider').eislideShow({
                    animation: 'center',
                    autoplay: true,
                    slideshow_interval: 3000,
                    titlesFactor: 0
                });
            });
        </script>
</asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <div class="wrapper row3">
        <div id="featured_slide">
            <!--
#####
-->
            <div class="container">
                <div class="wrapper_slide">
                    <div id="ei-slider" class="ei-slider">
                        <ul class="ei-slider-large">

```

```

            <li>
                
                <div class="ei-title">
                    </div>
            </li>
            <li>
                
                <div class="ei-title">
                    </div>
            </li>
        </ul><!-- ei-slider-large -->
        <ul class="ei-slider-thumbs">
            <li class="ei-slider-element">Current</li>
            <li><a href="#">Slide 6</a></li>
            <li><a href="#">Slide 1</a></li>
            <li><a href="#">Slide 2</a></li>
            <li><a href="#">Slide 3</a></li>
            <li><a href="#">Slide 4</a></li>
            <li><a href="#">Slide 5</a></li>
            <li><a href="#">Slide 7</a></li>
        </ul><!-- ei-slider-thumbs -->
        </div><!-- ei-slider -->
    </div><!-- wrapper -->
</div>
<script type="text/javascript"
src="http://ajax.googleapis.com/ajax/libs/jquery/1.7.0/jquery.min.js"></script>

```

```

<script type="text/javascript" src="js/jquery.eislideShow.js"></script>
<script type="text/javascript" src="js/jquery.easing.1.3.js"></script>
<script type="text/javascript">
$(function () {
    $('#ei-slider').eislideShow({
        animation: 'center',
        autoplay: true,
        slideshow_interval: 3000,
        titlesFactor: 0
    });
});
</script>
</div>
<!--
#####
-->
</div>
<!--
#####
-->
<div class="wrapper row4" style="padding-top:50px;">
    <div id="container" class="clear">
        <!--
#####
-->
<div id="content">
    <h1>WelCome To Bathshiree High School</h1>
    <p>Bathshiree High School (BHS) is a famous school in Feni district. This was founded in 1964 with a mission to provide well-rounded education for all our students. Bathshiree high school (BHS) is a girls and boys combined school in Feni, Bangladesh.</p>
    &nbsp;
    <p>In 3 different buildings, this school maintains their classes. It has an inner assembly ground and outer playground. It has a large pond attached with the inner assembly ground. This school has a mosque for prayers for the students. For respecting glorious history of liberation war 1971 the school has a shohid minner.</p>
    &nbsp;
    <p>BHS's (Bathshiree High School) mission is to build curious, knowledgeable and caring young individuals, who will be equipped to tackle head-on the challenges of our modern-day "global village". They will aspire to become responsible citizen, who will embrace and respect people from other cultures and walks of life.</p>
    &nbsp;
    <p>In the present global perspective of the twenty-first century, because of unprecedented advancement, dynamism, diversity of science and technology, life has become much more competitive. Skilled, educated, proficient and potential persons are now demanded to cope with this dynamism and challenge. With this end in view, Bathshiree High School (BHS) has been established undertaking the responsibility of providing modern and standard education to the students.</p>
</div>
<div id="column">
    <div class="subnav">
        <h2>Update News</h2>
        <asp:GridView ID="GridView1" runat="server" AutoGenerateColumns="False" DataSourceID="SqlDataSource1" AllowPaging="True" PageSize="3" EmptyDataText="No Update News Found....">
            <Columns>
                <asp:HyperLinkField DataNavigateUrlFields="newsHeading" 

```

```

        DataNavigateUrlFormatString="New.aspx?x={0}"
DataTextField="newsHeading" />
    </Columns>
</asp:GridView>
<asp:SqlDataSource ID="SqlDataSource1" runat="server"
    ConnectionString="<%$ ConnectionStrings:SchoolMSConnectionString %>" 
    SelectCommand="SELECT * FROM [vwActiveNews]"></asp:SqlDataSource>
<h2>Update Notice</h2>
<asp:GridView ID="gvUpdateNotice" runat="server" AutoGenerateColumns="False"
    DataSourceID="SqlDataSource2" EmptyDataText="No Update Notice Found...">
    <Columns>
<asp:HyperLinkField DataNavigateUrlFields="noticeHeading"
    DataNavigateUrlFormatString="Notice.aspx?y={0}"
    DataTextField="noticeHeading" />
    </Columns>
</asp:GridView>
<asp:SqlDataSource ID="SqlDataSource2" runat="server"
    ConnectionString="<%$ ConnectionStrings:SchoolMSConnectionString %>" 
    SelectCommand="SELECT * FROM [vwActiveNotice]"></asp:SqlDataSource>
<h2>Top Students</h2>
<asp:GridView ID="grvTopStudent" runat="server" AutoGenerateColumns="False">
    <Columns>
        <asp:ImageField DataImageUrlField="photo" NullDisplayText="no image"
            DataImageUrlFormatString=".//Admin Section/Image/Students/{0}">
            <ControlStyle Height="25px" Width="25px" />
        </asp:ImageField>
        <asp:BoundField DataField="studentName" />
        <asp:BoundField DataField="year" />
    </Columns>
</asp:GridView>
</div>
</div>
<!--
#####
##### -->
    <div class="clear"></div>
</div>
</div>
</asp:Content>

```