SCHOOL MANAGEMENT SYSTEM

A Software Project Submitted

By

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Disclaimer

This is to ensure that this project is our original work. No part of this has been submitted anywhere. All material reproduced in this project has been properly acknowledged.

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Approval

The project "School Management System" has been submitted to the following respected members of the Board of Examiners of the Faculty of Science and Information Technology in partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering on 17th December 2019 by the following students and has been accepted satisfactory.

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Dr. Carmen Z. Lamagna
Vice Chancellor
American International University-Bangladesh

Acknowledgements

We would like to take the chance to express our gratitude to our honorable teacher & Supervisor Victor Stany Rozario, for his continuous guidance and support regarding this report. Besides this, we have found so many sincere and productive advices from many people that we would like pay honor to them. We convey our gratitude to our honorable Vice Chancellor, Dr. Carmen Z. Lamagna for encouragement.

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Chapter 1: Statement of Work

1.1 Purpose

The present education system is radical, open and more practical. It's very old when school and colleges were based on paper based record books. The purpose of developing the School Management System is to complete all of tasks including the student's fee, the teacher's salary and attendance register, timetables for all classes, fee records, examination records and results of the exams within no time and to make easy to management to store a large number of data/reports.

1.2 Project Objective

In that day schools would be under pressure the huge paperwork volume without the use of specialized management software. From school owner to the all employee staff software tools are of very helpful. Task are very easy so they save time.
School management system software make administrative works easier. Using this software staff can do all necessary functions of their institution in a decent manner.

1.3 Scope

School Management System is aimed to automate and quick view of

- Student details
- Employee details
- Take employee attendance
- Take student attendance
- Fee collected
- Salary paid to employee's over a time period Student
- Mail send and receive

1.4 System Features

Student Management

- Admission dashboard and admission management.
- Create student categories.
- Students list with default filters and custom filters.
- Add, view and manage student guardian details.
- Generate PDF reports of student profiles.

Employee Management

- Create employees and manage employee details.
- Employee leaves.
- Employee attendance management.
- Manage and Assign employee Category, Department, Positions and Grades.

Courses and Subjects Management

- Create and manage Courses, Batches and Subjects (including electives).
- Assign Weekdays, batch start & end dates, Class-teacher etc.
- Set Course-Batch-Subject associations.
- Limited management of Attendance, Timetable and Exams.

Fees Management

- Create and manage Fee-Category and Particulars.
- Create Fee-Collection schedule and enter collected fees.
- Manage Paid and Payable fees per student, per batch etc.

Examination Management

- Create and manage Exams.
- Enter marks of exams
- View assessment dashboard and set grading levels.
- Generate PDFs of report cards.

Attendance Management

- Create and monitor various employee and student attendance records.
- Create and View the Detail and Reason for availed leaves.

Reports Management

- Create Comprehensive reports per student.
- Generate Batch and student wise assessment/progress reports.
- Generate Reports for Employee and Student attendance.

Library Management

- Search and List all books.
- Add book details.
- Manage the Lending and Returning of books.
- Create Book-Categories and Author lists.

1.5 Proposed System

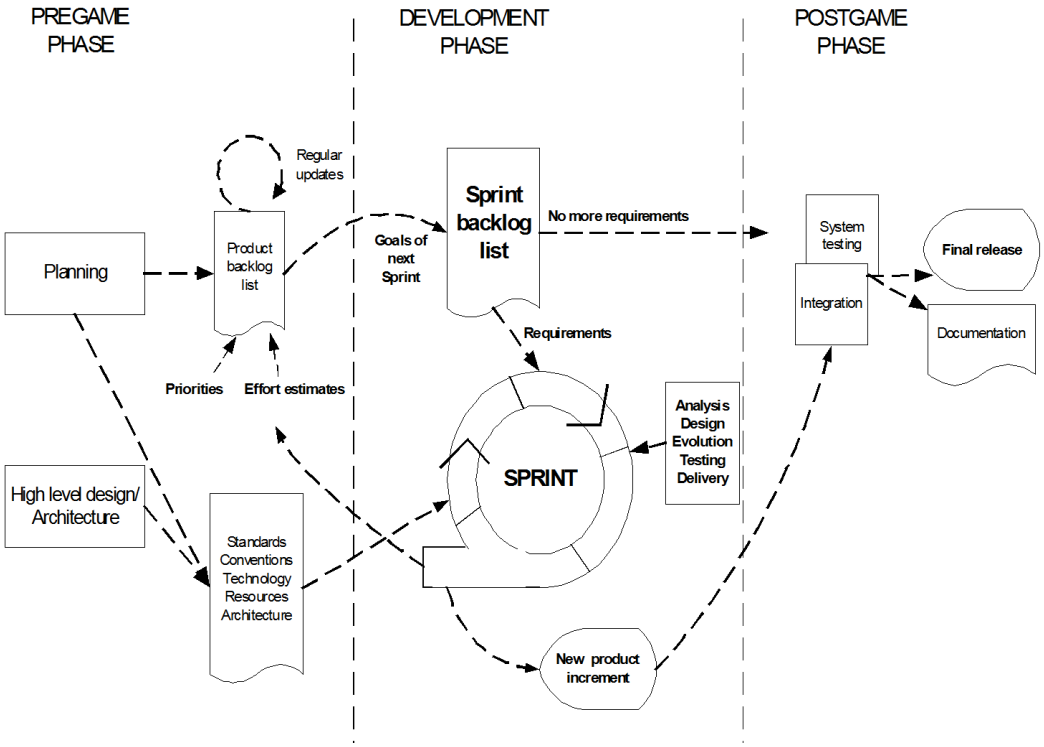
There are two version of our proposed system. One of is Desktop version and another one is Web version. Initially we are implementing desktop version. Desktop version is only for internal staffs. Such as Owner, Admin, Head Teacher, Teacher, Accountant, Librarian, Attendance-taker. Desktop version can only be used within the school premises.

1.6 Methodologies

We are use in that project scrum methodology. In that scrum methodology there are three phages

- Pre-game
- Development
- Post-game

Process



In pre-game phage there are two main part. One is planning and another one is Architecture. Based on high priority base requirement are goes in product backlog list. And it regularly updated. On high priority requirement effort and resource will be estimated. After that it goes in development phage. In that phage product backlog list is known as sprint backlog list. After that requirement are goes for development in sprint. In that sprint length time 1-4 week. Then all new product are goes for increment. All modules are integrated in post-game phase. Integrated modules are go for testing. When all the requirement of product backlog list are fulfill then it is ready for release final version.

1.7 Overview of the Present System

Currently there are very few system implemented in Bangladesh. But every system are Implemented in web based. In that software user can access anywhere through the web browser. So that this software student and parent can also use.

1.8 Weakness of the Present System

They have no desktop application for internal system.

1.9 Overview of the Proposed System

System will maintain record of each student. It will manage the student attendance. By maintaining session wise or class wise attendance. As per need of the school. System will analyze the performance system. It will maintain and update the time table for student and teacher. It will manage the fee collection of student. It will improve communication between management through mail system. It will manage and store day to day school business.

1.10 Benefits of Proposed System

- Maintain Records
- Manage Student Attendance
- Track Student Performance
- Schedule Timetable
- Fee Collection
- Improve Communication
- Effortless Administration

Chapter-2: Software Requirement Specification

2.1 Objective

In latest era, schools would be inhibited underneath the massive paperwork quantity without using specialized management software. They save effort and strength with demanding tasks and give instructor time again to students. School management software program has intention to make administrative works of educational establishments easier. Using this software, you may be capable of handling all of the day to day capabilities of your group in a comprehensive manner. It is user-pleasant and very smooth to learn.

2.2 Document Convention

- The type of font used in this project is Century Gothic
- Normal font size 11 and heading font size 12
- Microsoft word 2016

2.3 Operating Environment

This system is Desktop version. So that any windows version support this software.

2.4 Functional Requirement

Owner

- Owner shall be able to log in to the system
- Owner shall be able to add Admin to the system
- Owner shall be able to view profit through the system
- Owner shall be able to view board exam details
- Owner shall be able to send and receive mail from other staff

Admin

- Admin shall be able to log in to the system
- Admin shall be able to add employee to the system
- Admin shall be able to view employee and student attendance details
- Admin shall be able to create admission schedule
- Admin shall be able to assign subject for a teacher
- Admin shall be able to create new subject

Head Teacher

- Head Teacher shall be able to log in to the system
- Head Teacher shall be able to assign subject for a teacher
- Head Teacher shall be able to set examiner
- Head Teacher shall be able to manage board exam

Teacher

- Teacher shall be able to log in to the system
- Teacher shall be able to view student details
- Teacher shall be able to view parent details
- Teacher shall be able to upload exam mark
- Teacher shall be able to take attendance for student

Accountant

- Accountant shall be able to log in to the system
- Accountant shall be able to add student to the system
- Accountant shall be able to collect fees from student
- Accountant shall be able to pay salary to employees
- Accountant shall be able to view financial details
- Accountant shall be able to manage inventory

Librarian

- Librarian shall be able to log in to the system
- Librarian shall be able to add books to library
- Librarian shall be able to manage borrow book
- Librarian shall be able to search book
- Librarian shall be able to search borrow history

Attendance-Taker

- Attendance-taker shall be able to log in to the system
- Attendance-taker shall be able to take attendance of employees

2.5 Non-Functional Requirement

Availability

- Every 6 days in a week the system should be available.

Security

- User's password should be encrypted by the system.

Usability

- The users should not need more than 2 hours to learn how to use the system.

Maintainability

- The system should remain close for 24 hours per week to maintain and elaborate.

Reliability

- The system should not crash for more than 10 minutes per month.

Recoverability

- The system should be recovered any time it is needed.

2.6 Hardware and Software Requirement's

2.6.1 Hardware

- Minimum requirements for our main pc:
  - Processor: Dual-Core
  - RAM: 16 GB
  - System Type: Windows 10(64 bit)
  - Storage: 256 GB SSD
- Minimum requirements for internal user:
  - Processor: Dual-Core
  - Ram: 2GB
  - System Type: Windows 10(64 bit)

2.6.2 Software

- Visual Studio
- MS Server

2.7 Human Resource Requirement's

- Programmer
- UX / UI Designer
- Project Manager
- Tester

2.8 Constraint's and Limitation's

As one specific pc is used for hosting database, so if that pc faces any problem for some reason than the other pcs will not be avail to communicate with the host pc and the system will fail.

2.9 Budget

- The project budget is estimated for 4 months is around 200000tk.

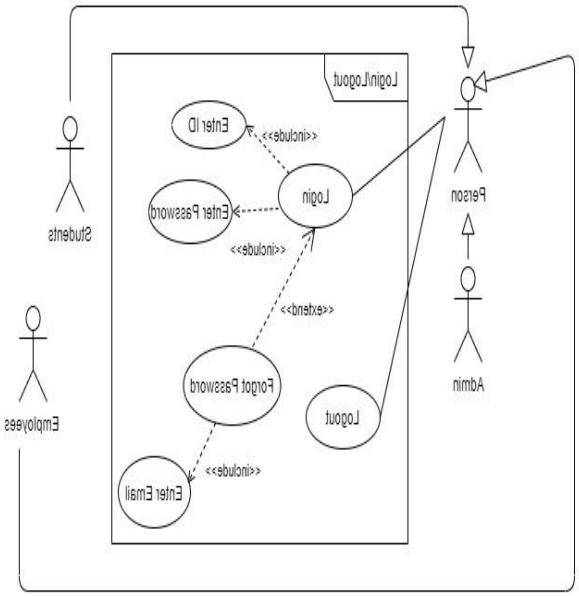
2.10 Conclusion

This Requirement Specification Document has been developed based on the common situations of studying and previous knowledge of the Project manager. Thus, any uncommon circumstances may rise on the procedure of implement can also derail the values and time frame mentioned on this document.

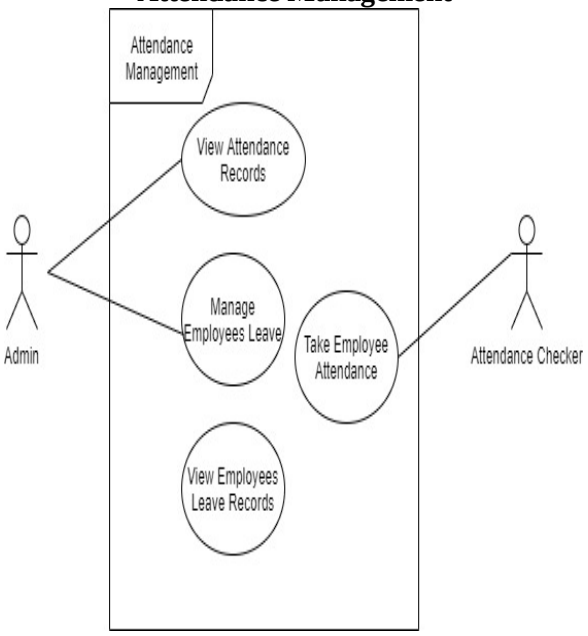
Chapter-3: Diagram

3.1 Use Case Diagram

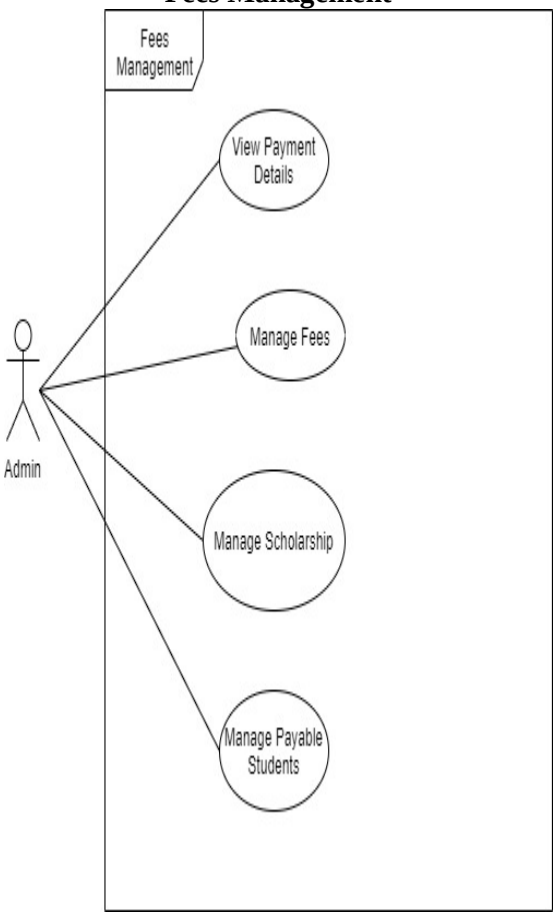
Log In



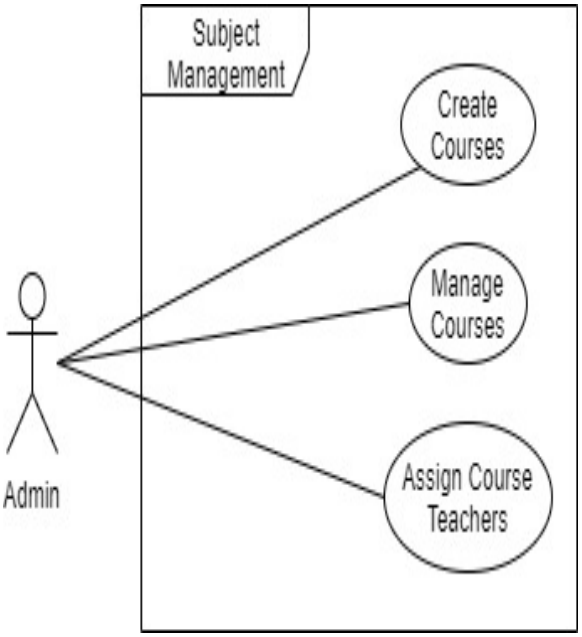
Attendance Management



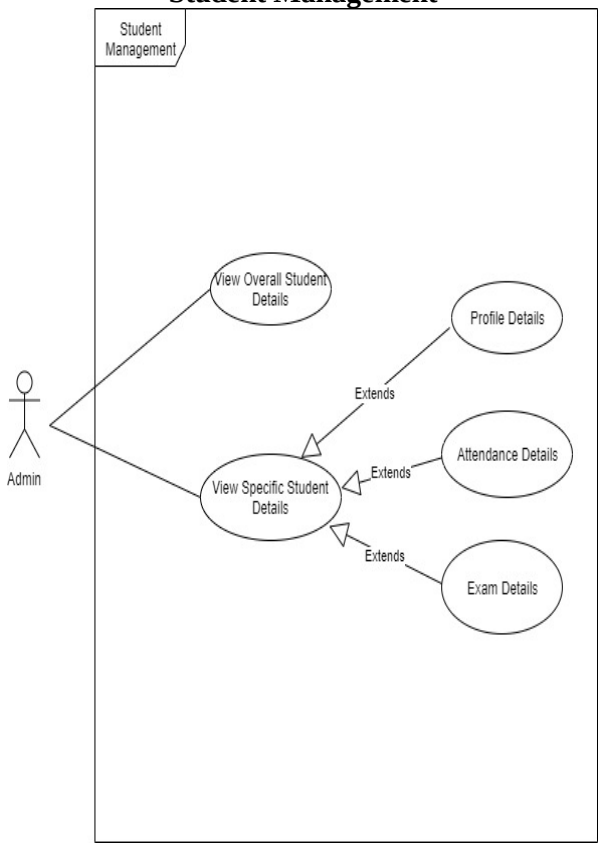
Fees Management



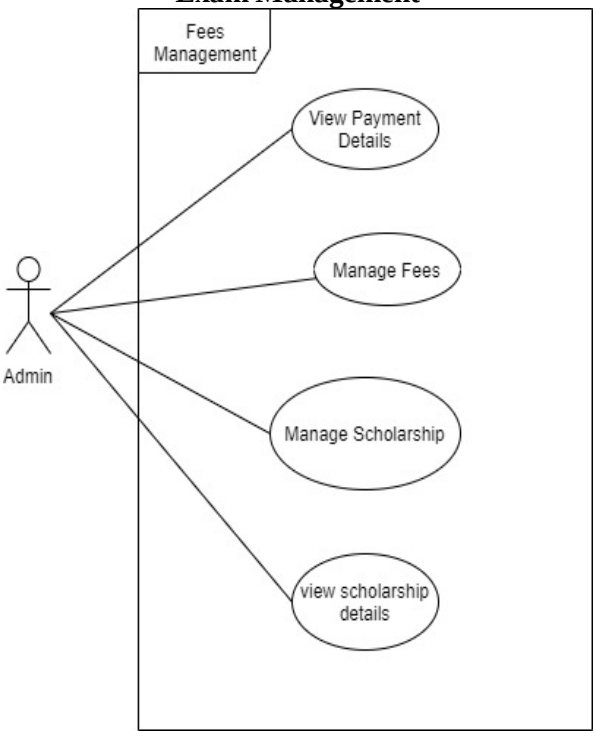
Subject Management



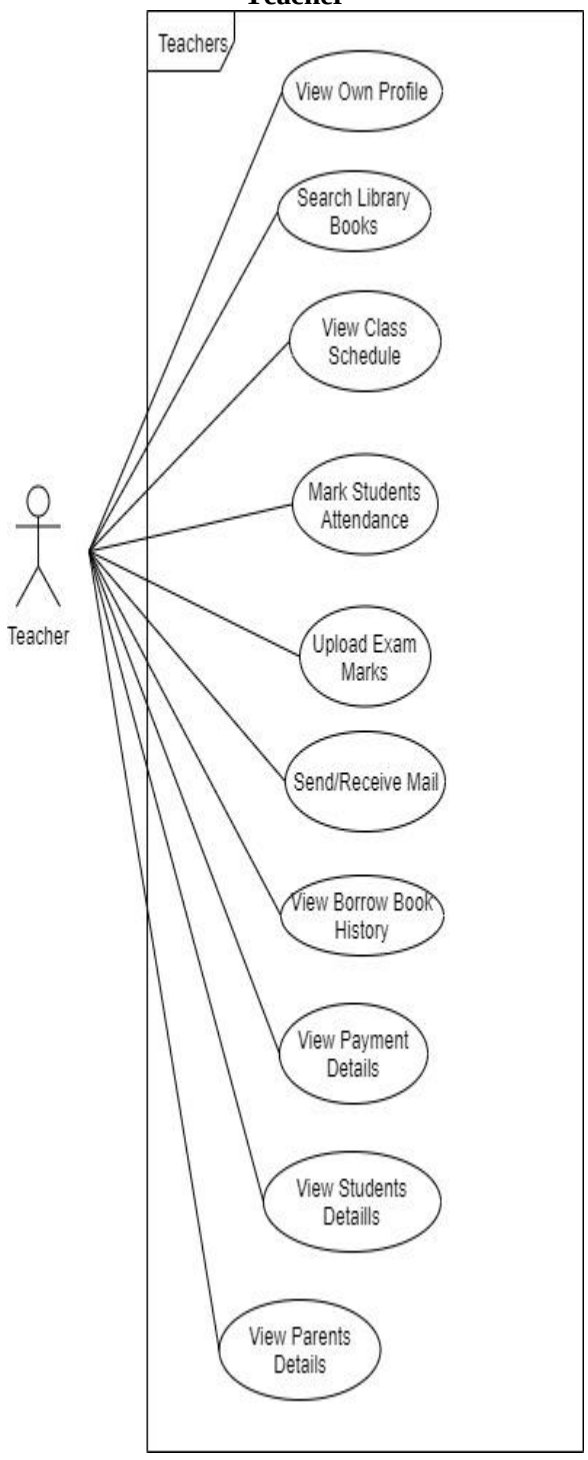
Student Management



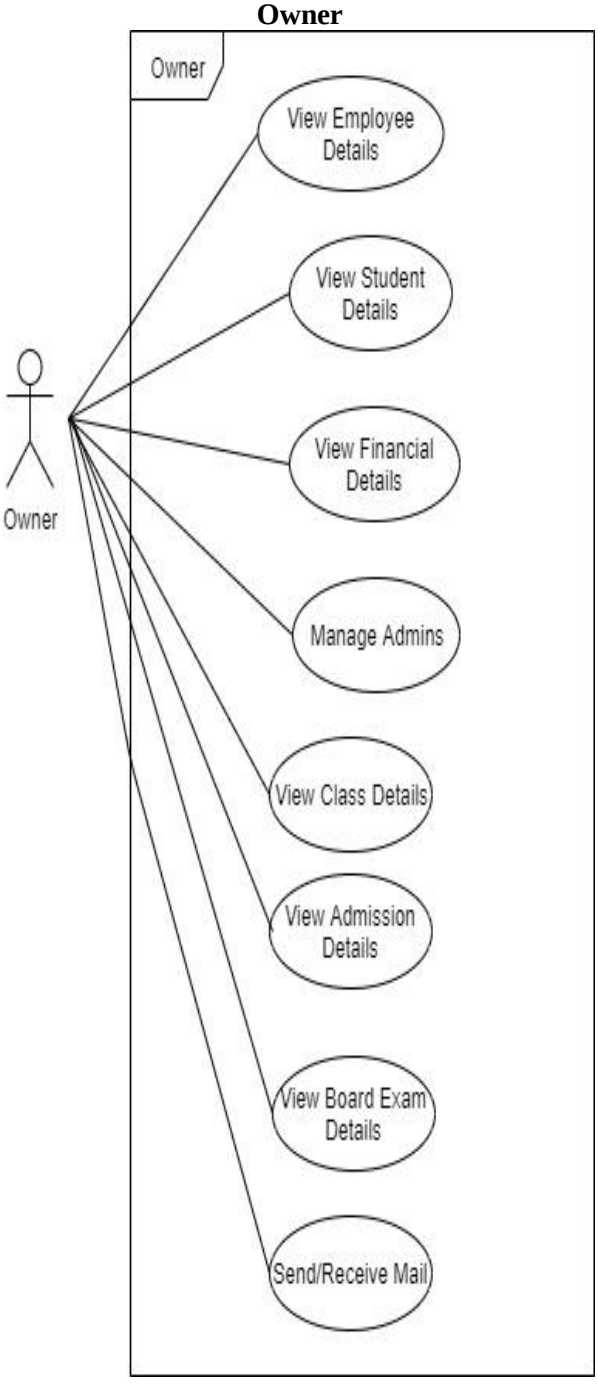
Exam Management



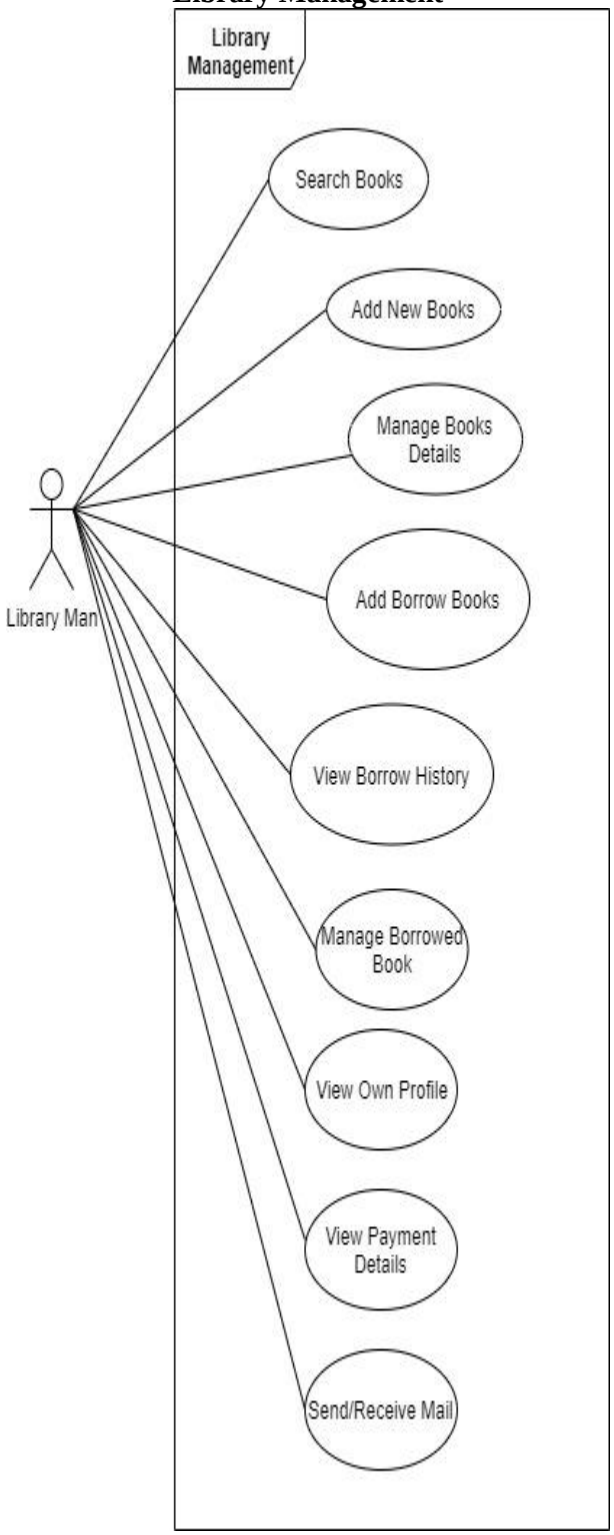
Teacher



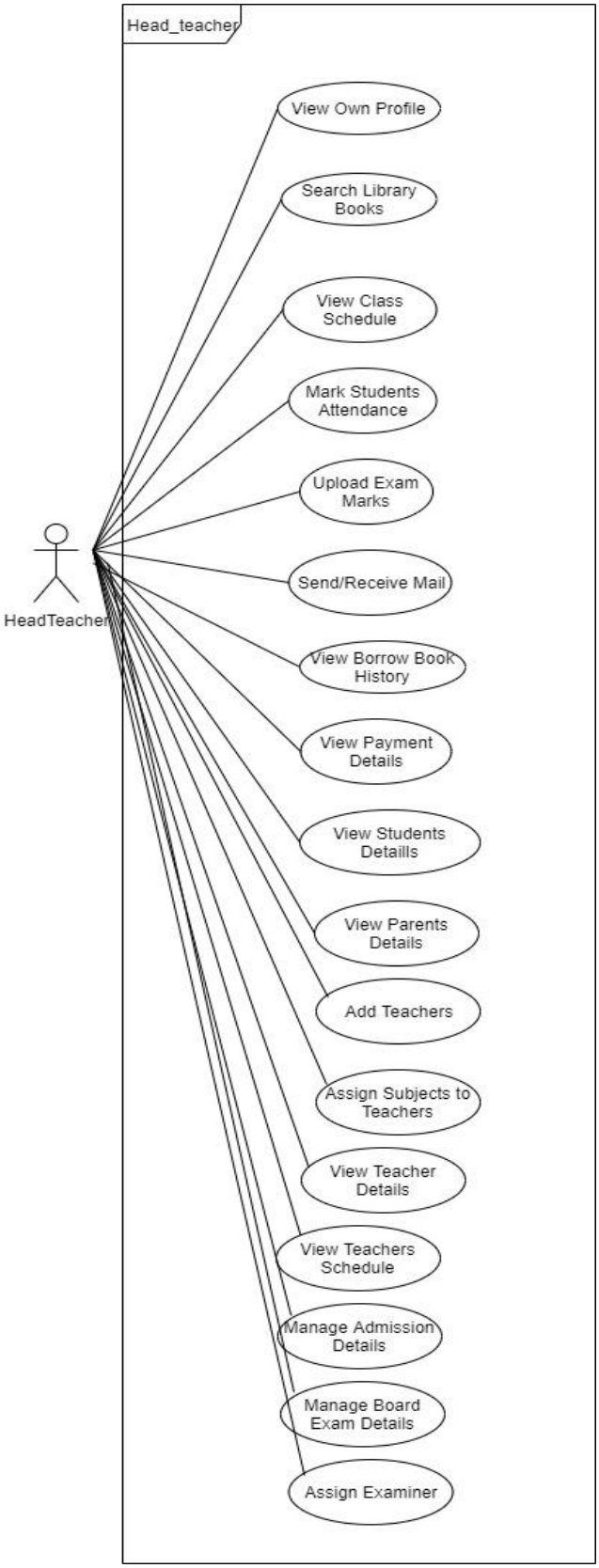
Owner



Library Management



Head Teacher



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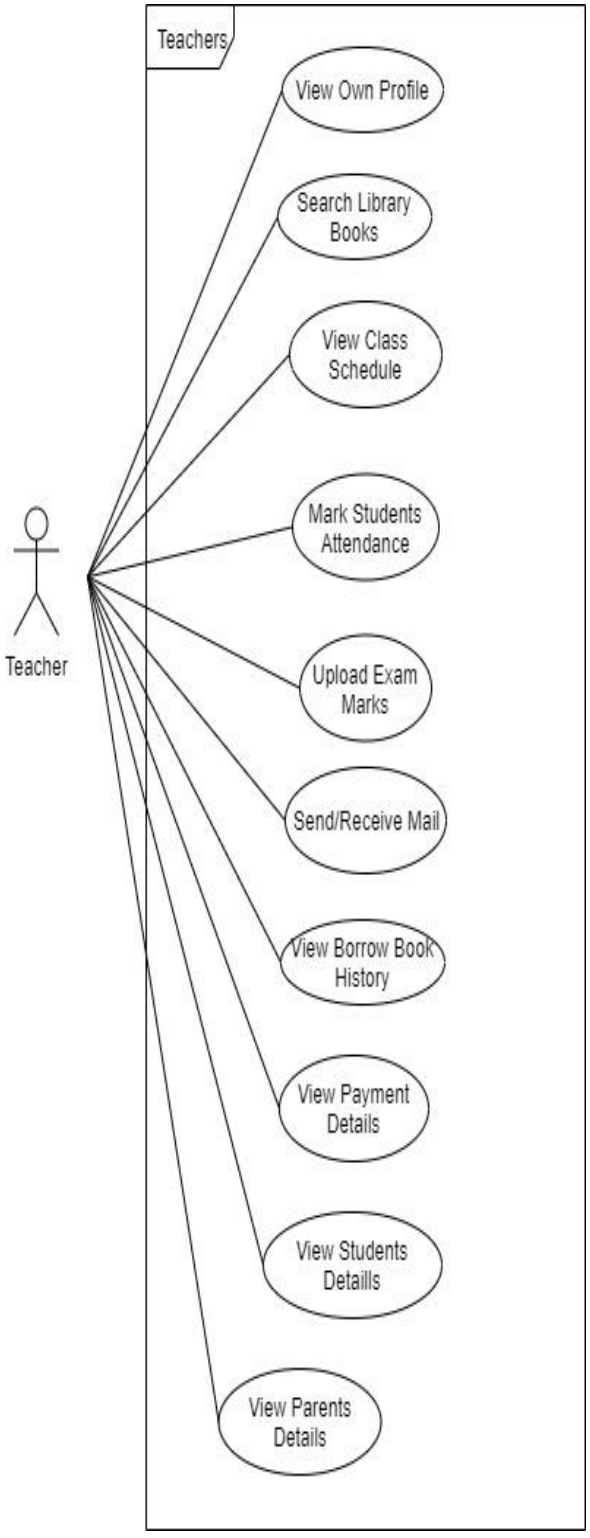
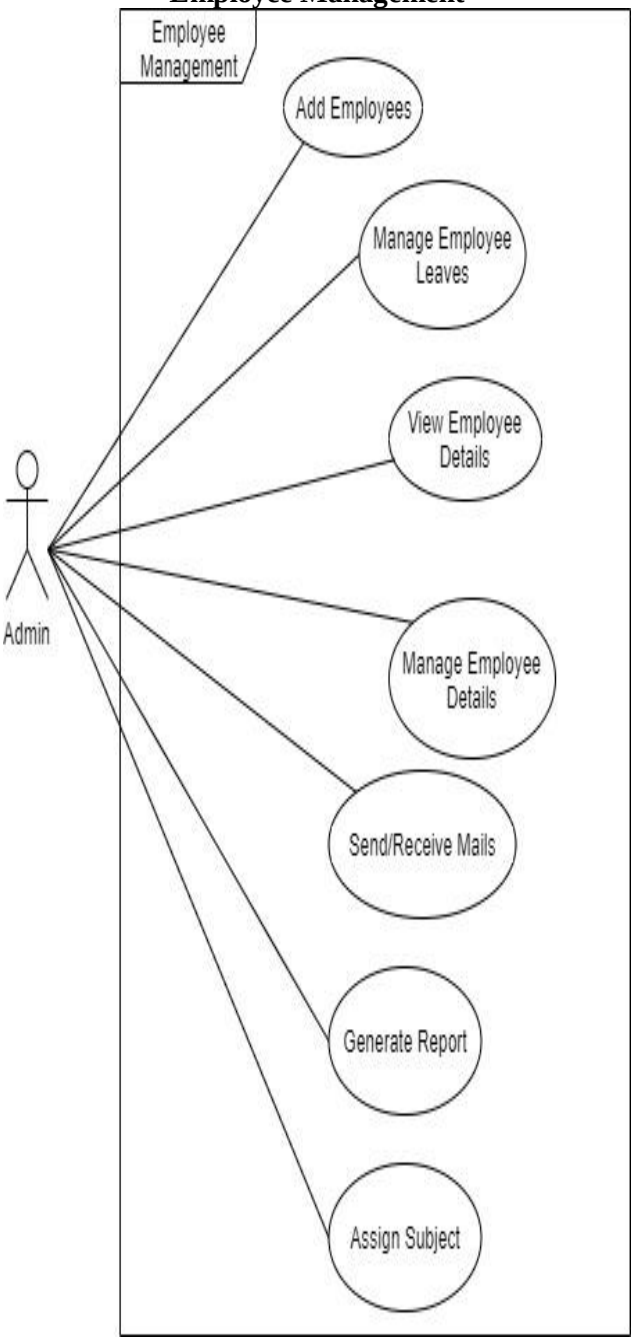
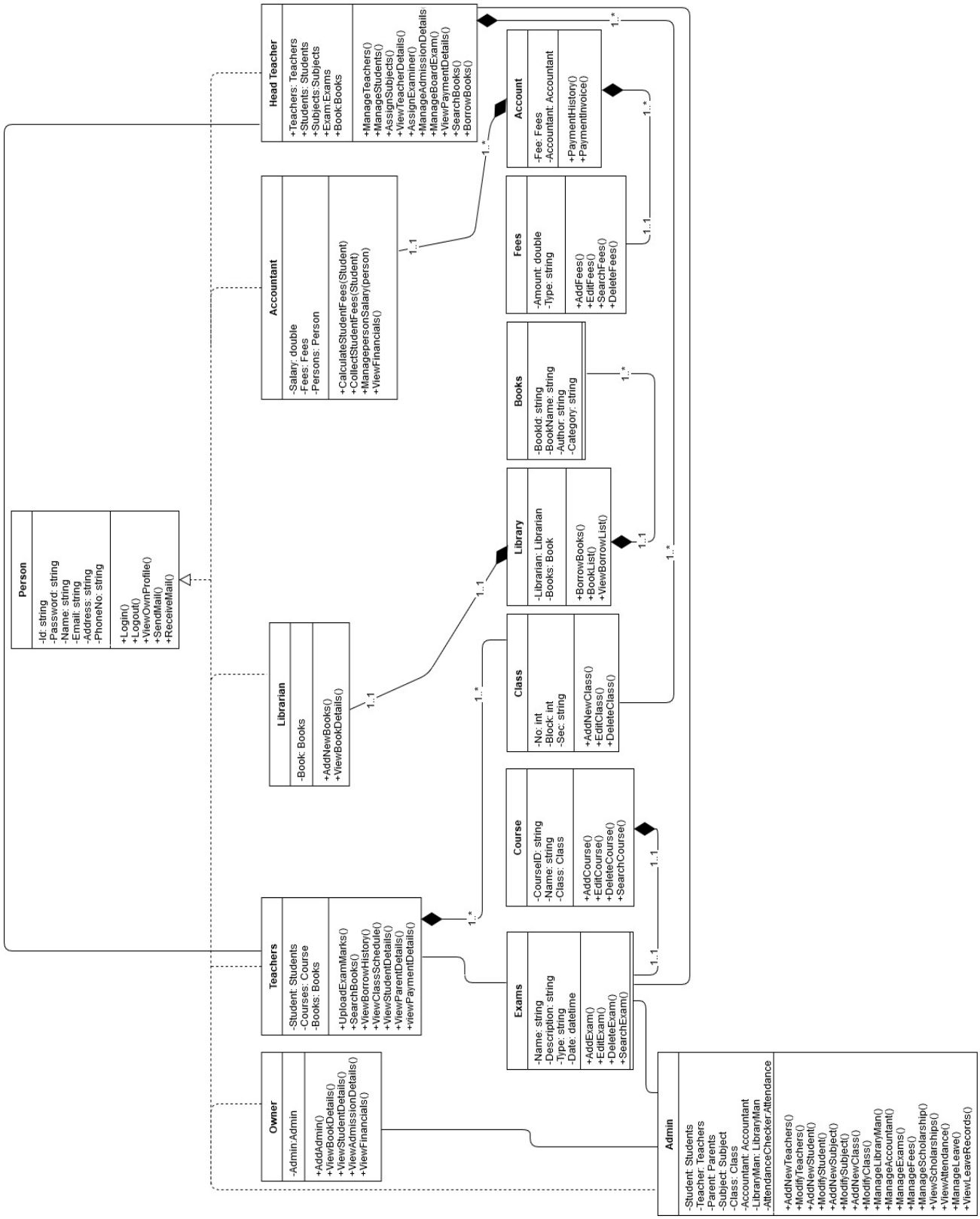


Employee Management



3.2 Class Diagram



3.3 Activity Diagram

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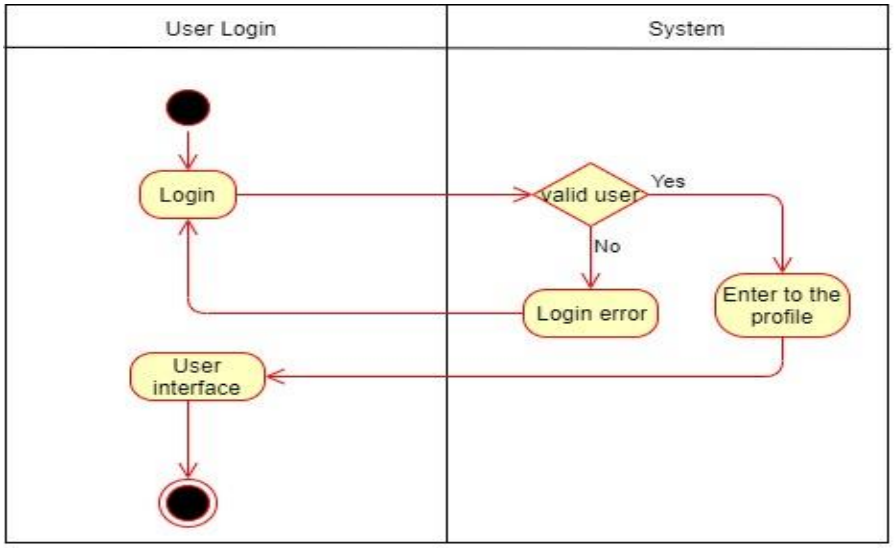

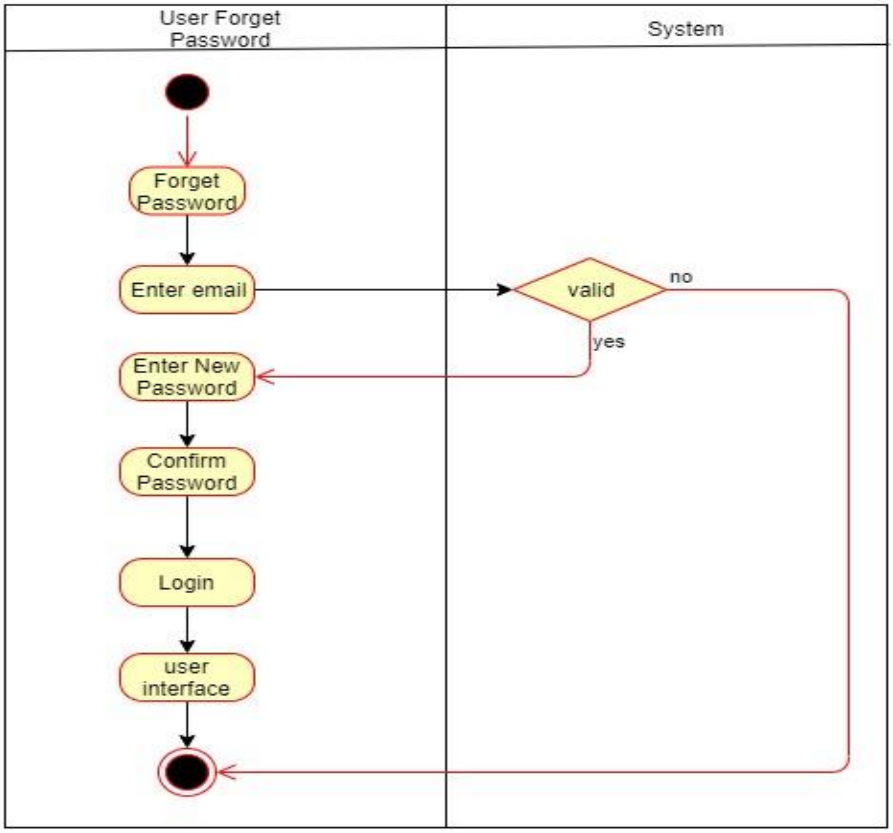

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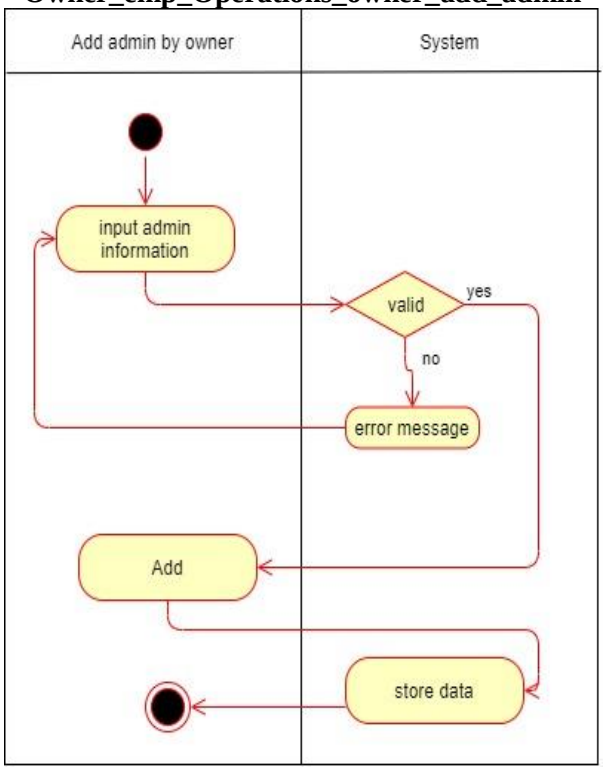
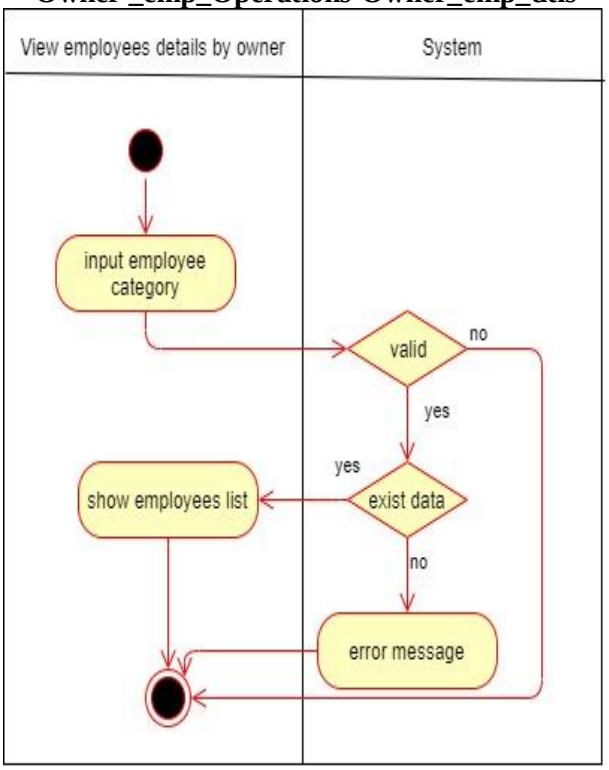


Owner _emp_Operations-Owner_emp_dtls



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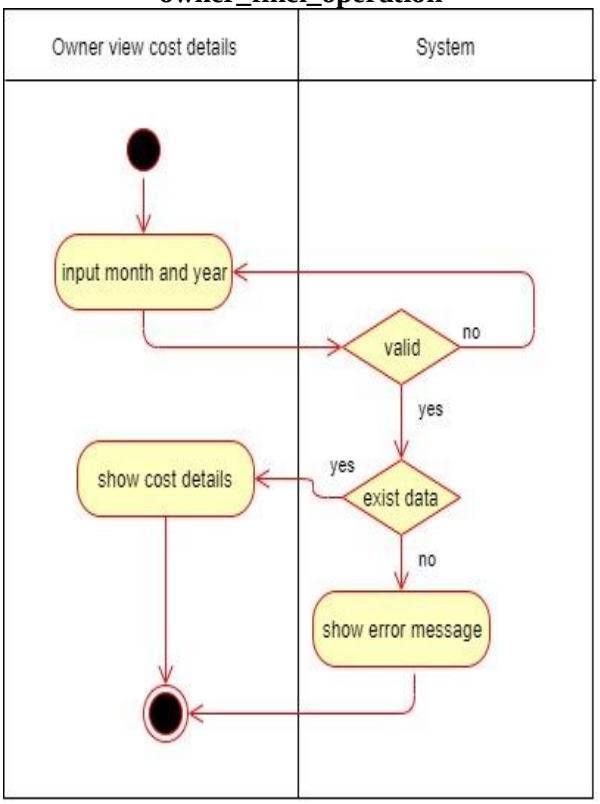

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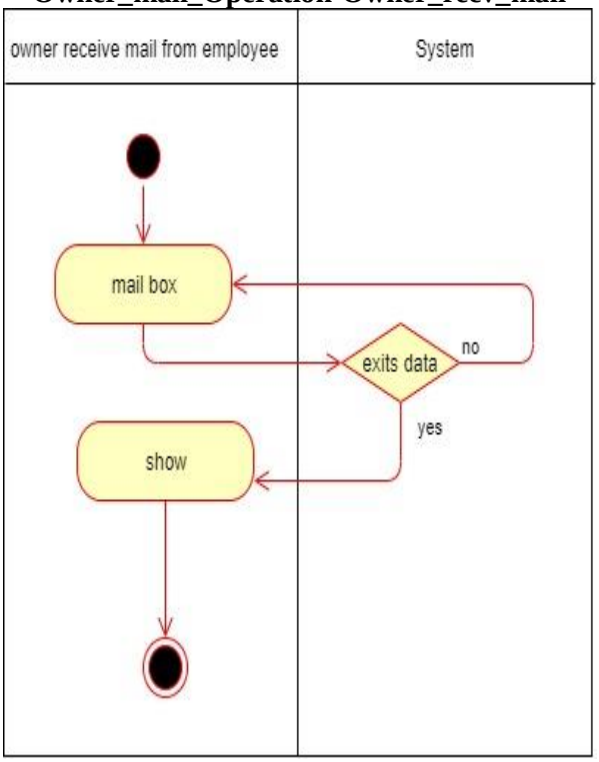

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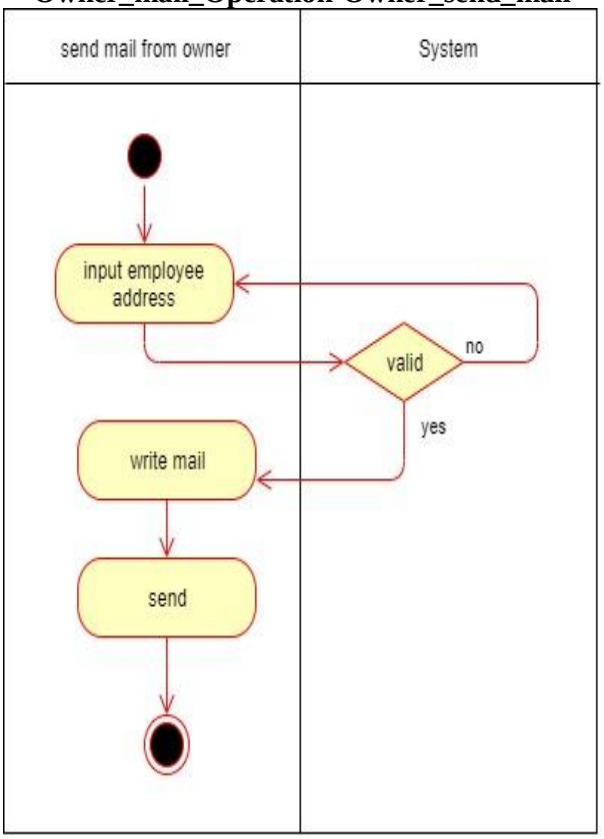

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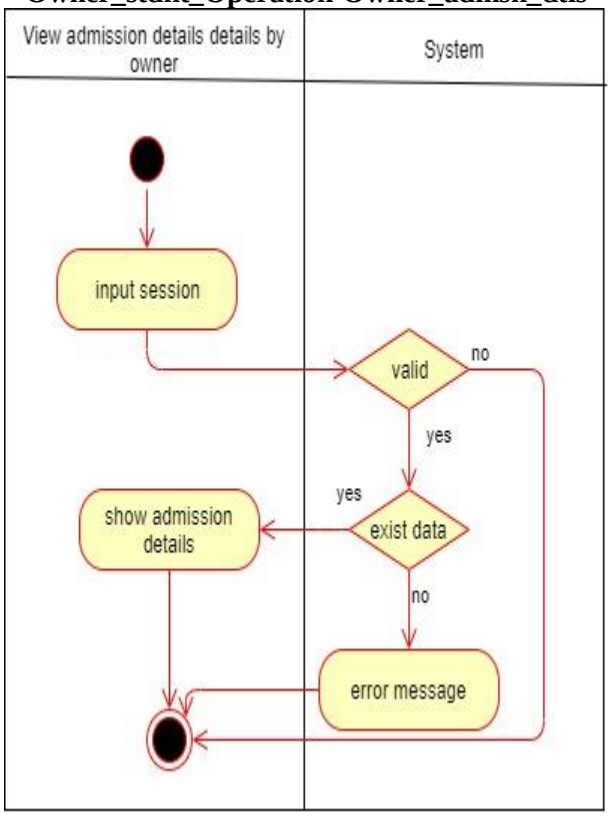

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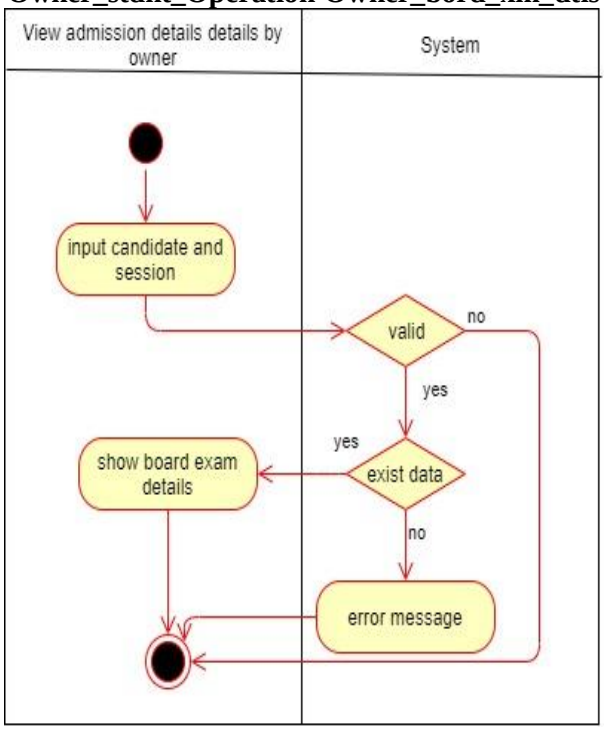

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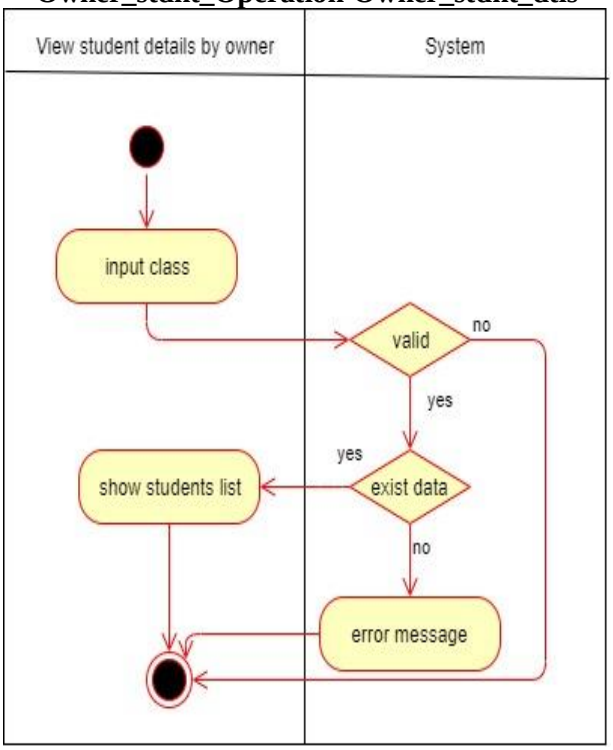

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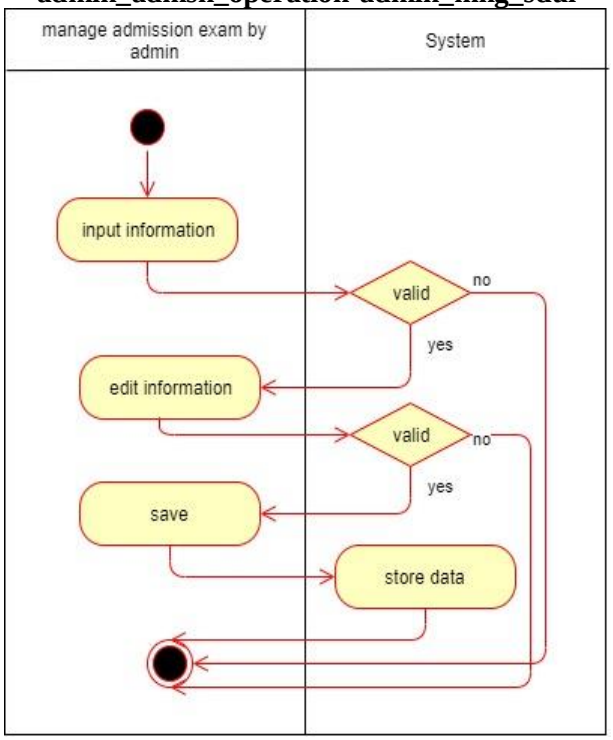

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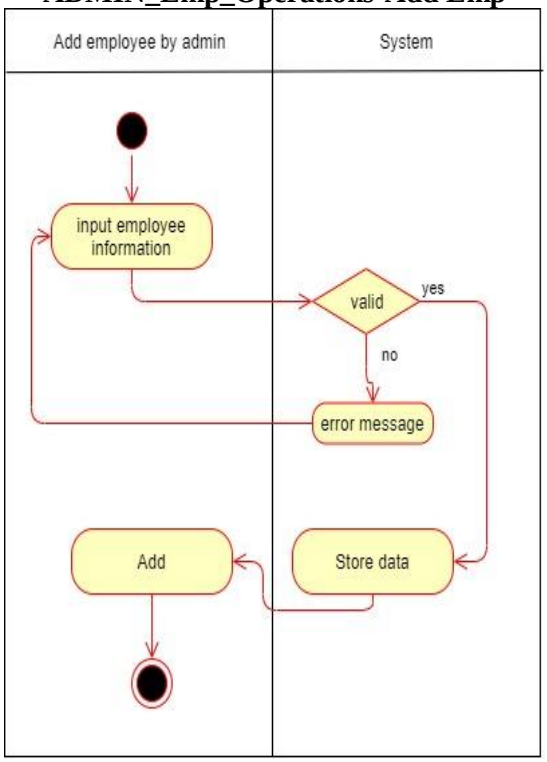

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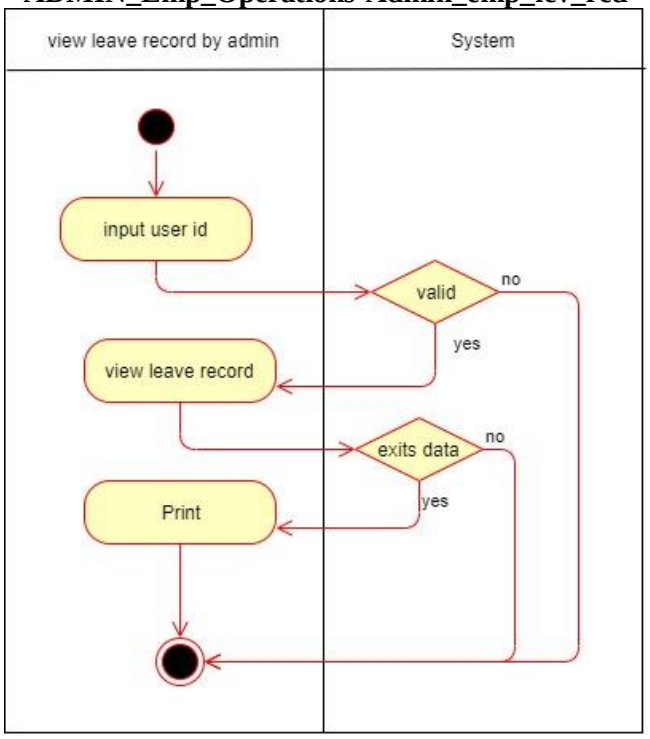

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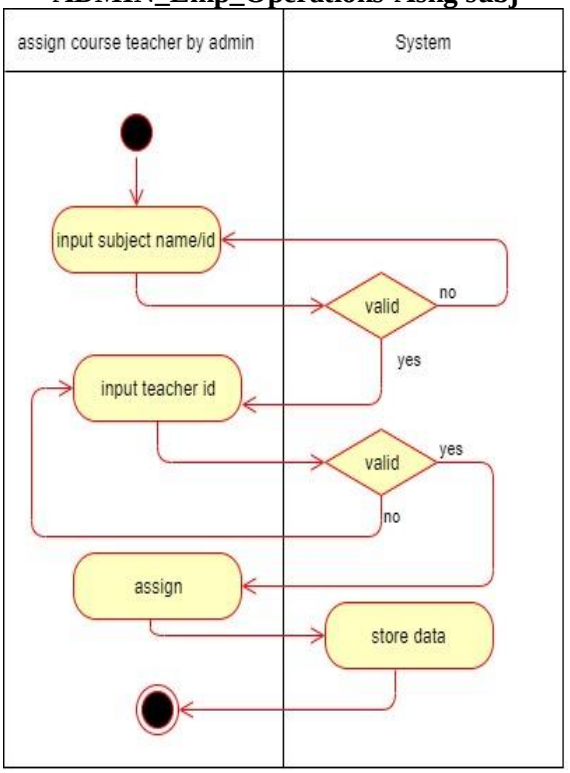

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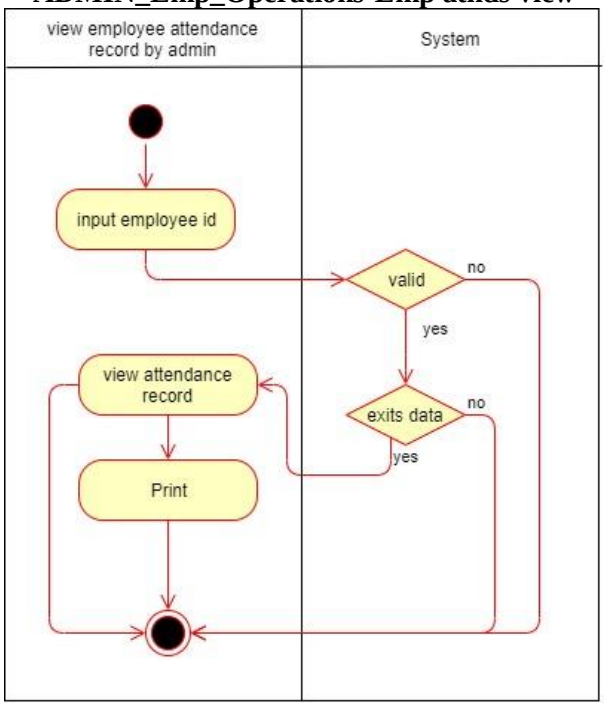

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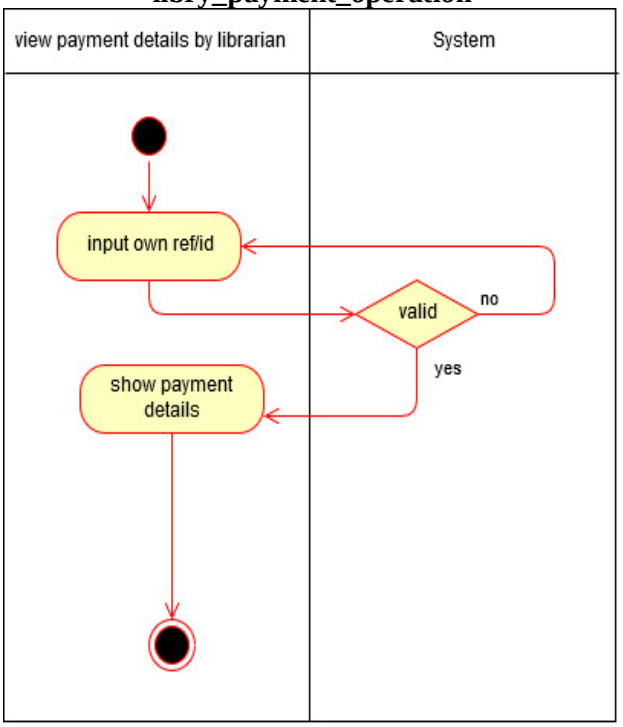

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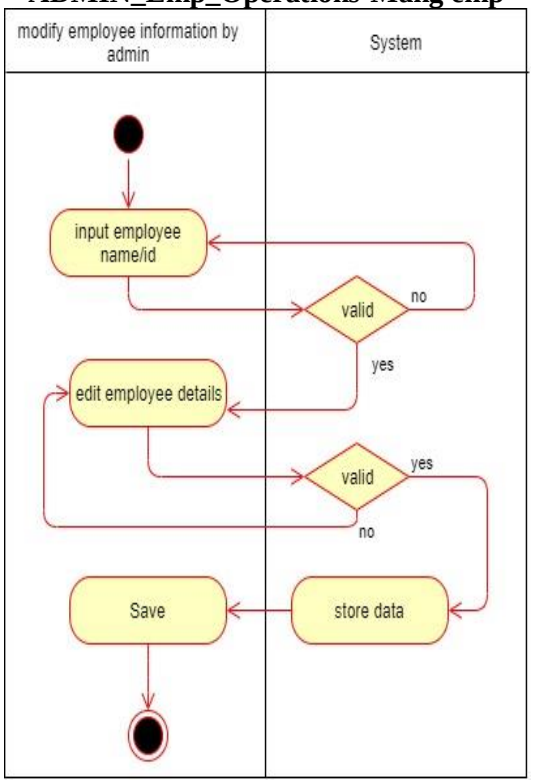

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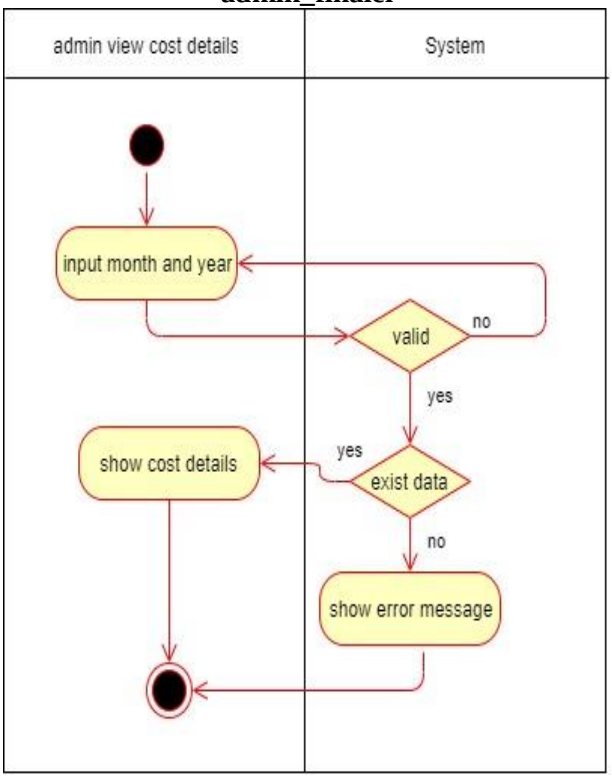

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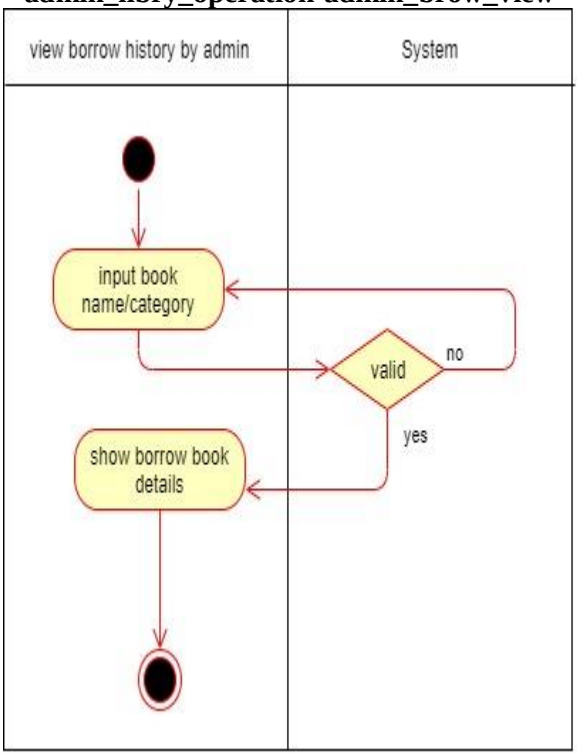

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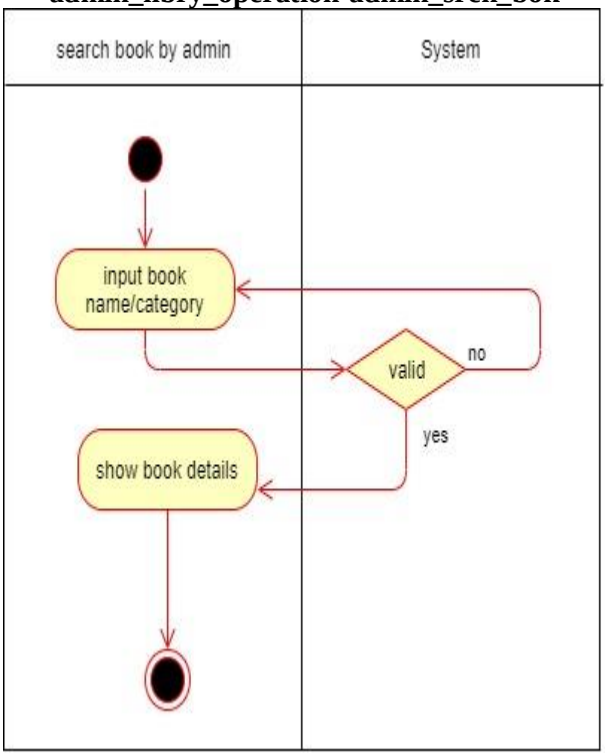

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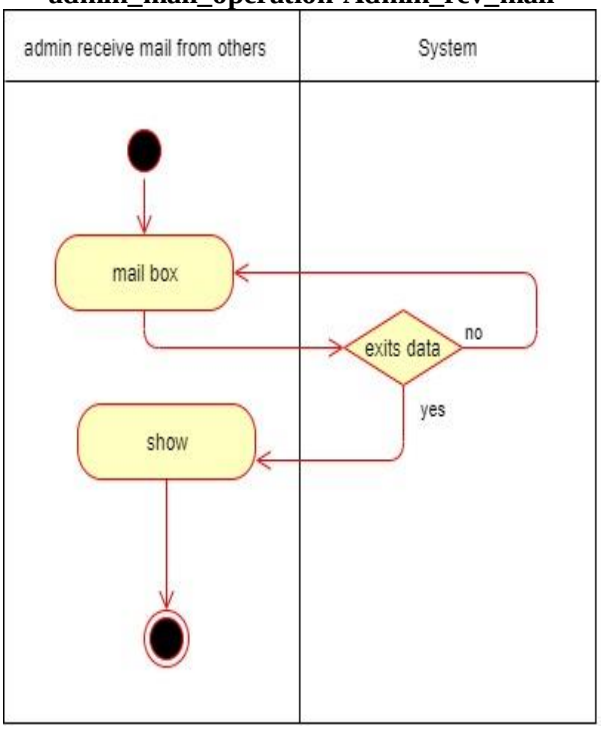

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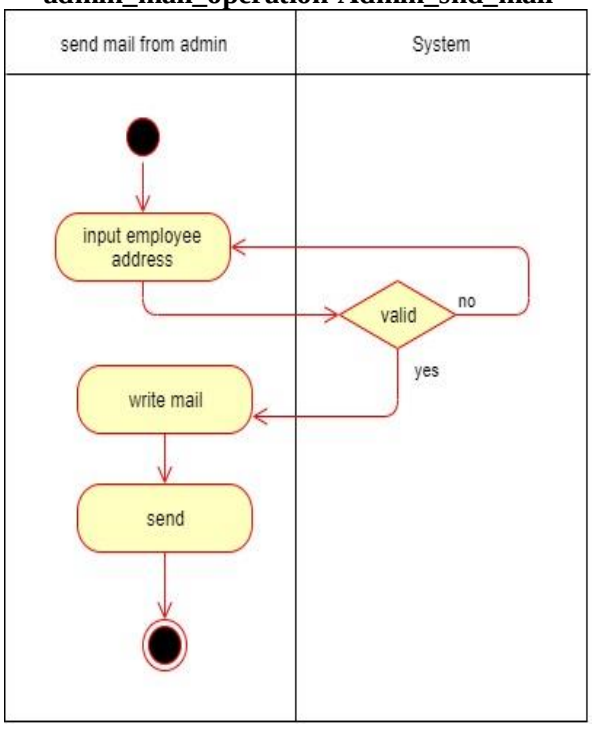
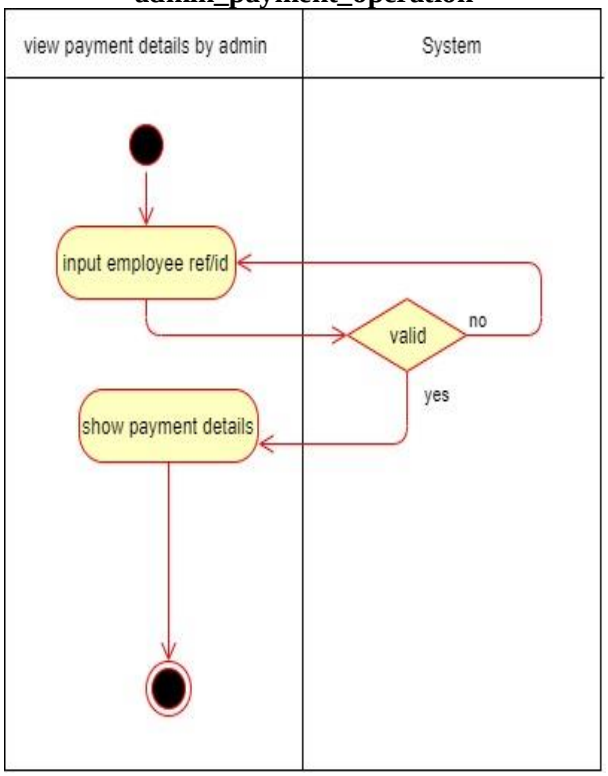
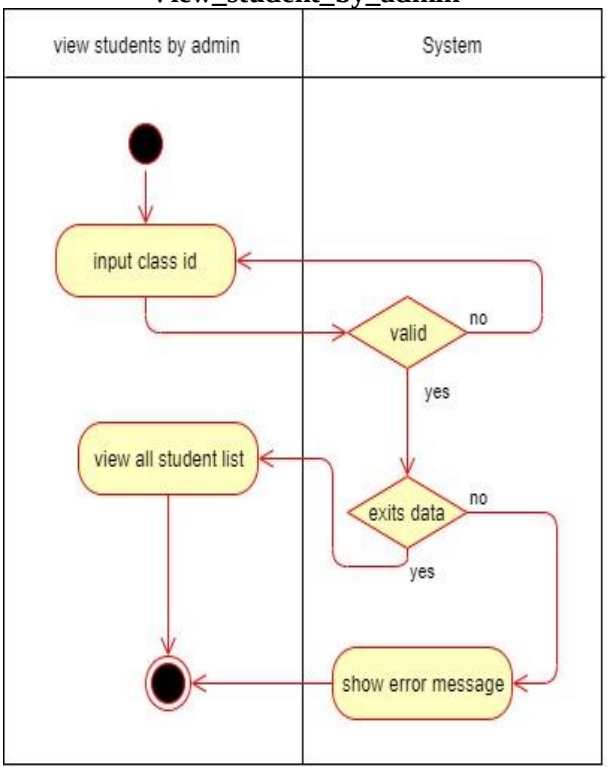


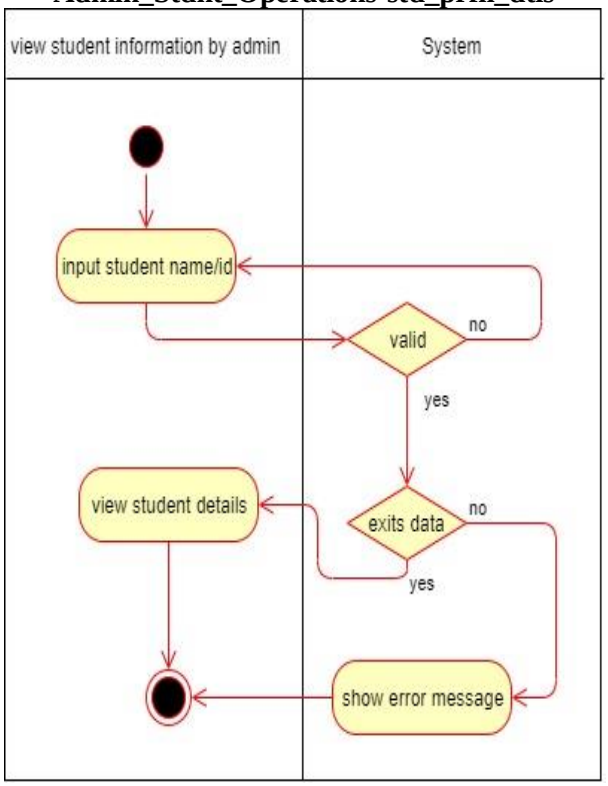
admin_payment_operation



View_student_by_admin



Admin_Stdnt_Operations-std_prfil_dtls



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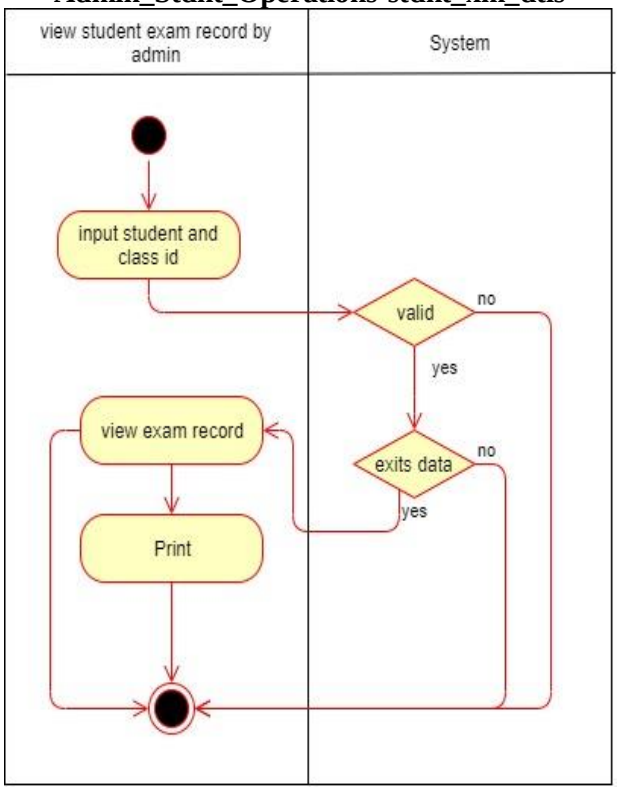
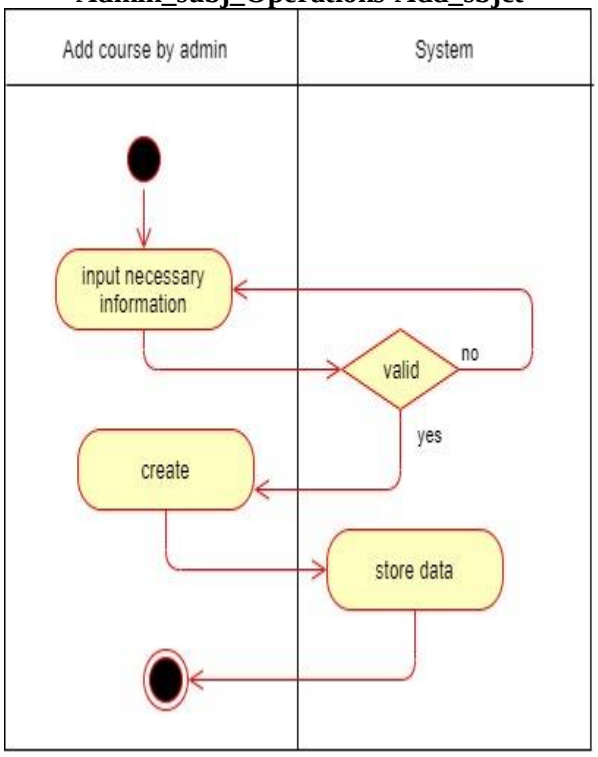


Admin_subj_Operations-Add_sbjct



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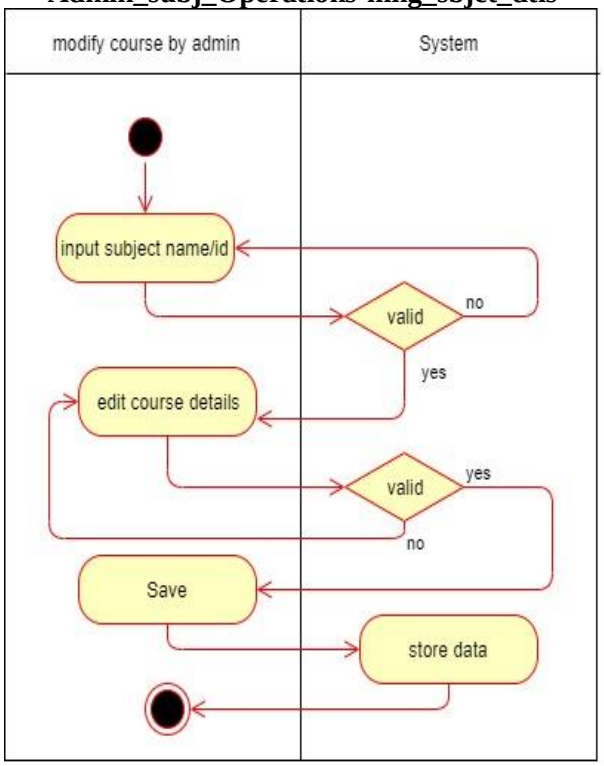
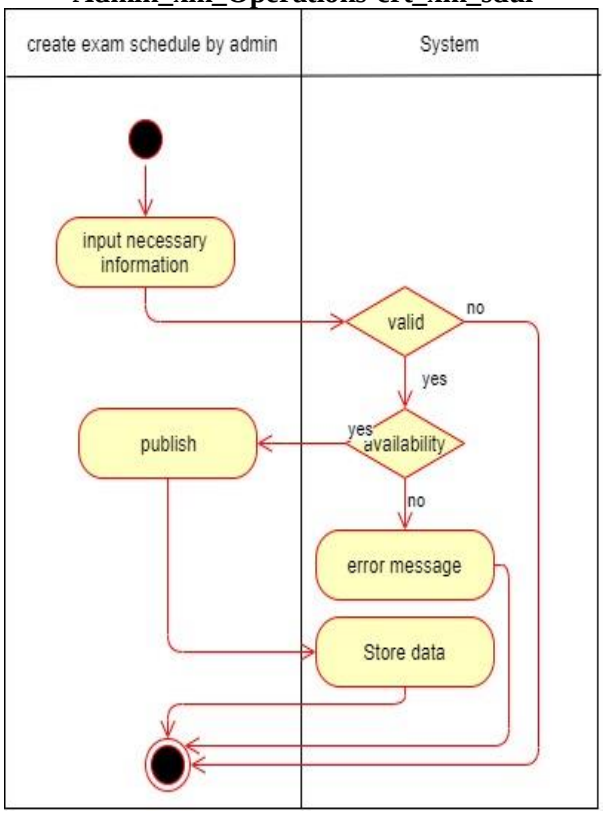
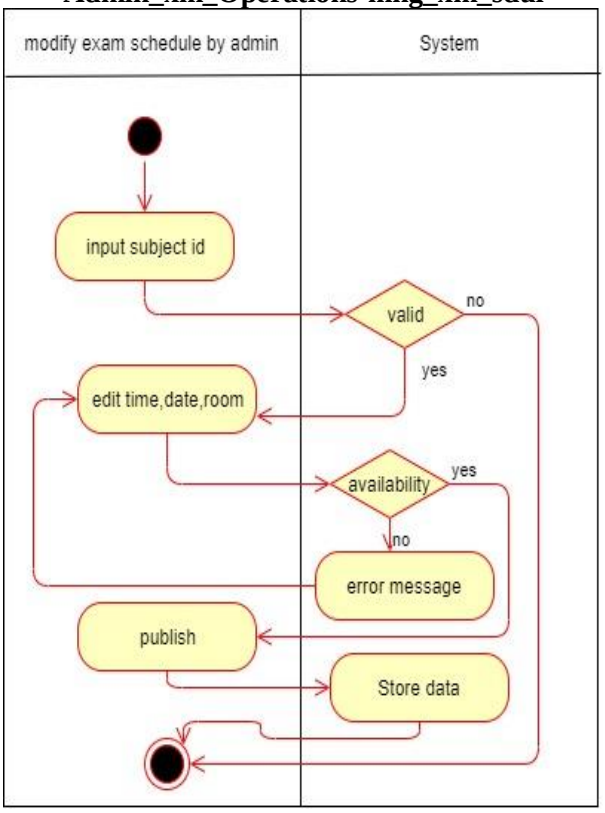


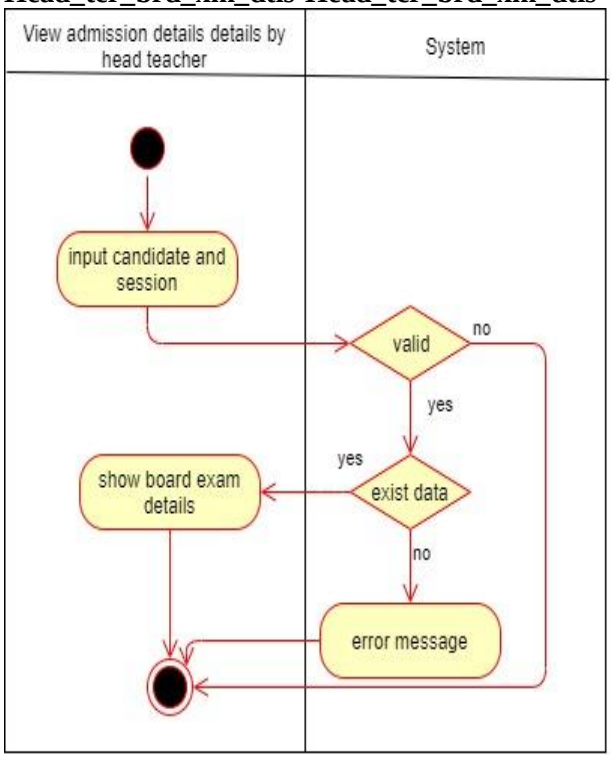
Admin_xm_Operations-crt_xm_sdul



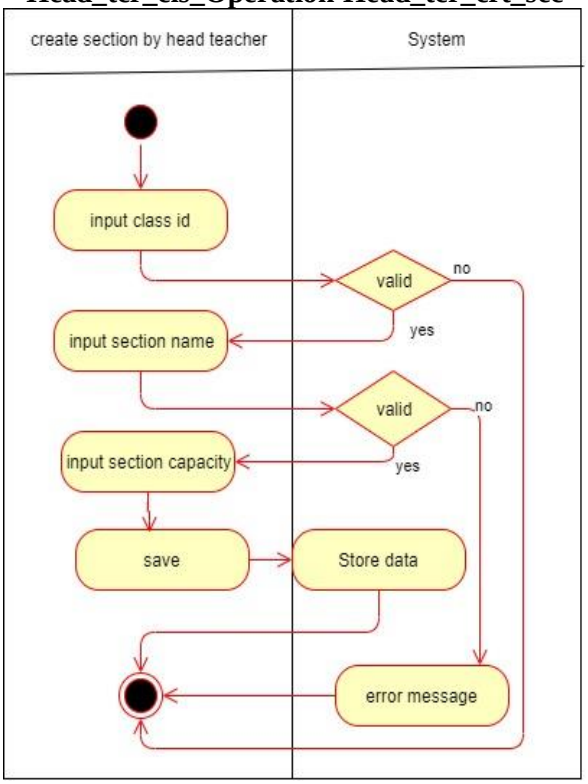
Admin_xm_Operations-mng_xm_sdul



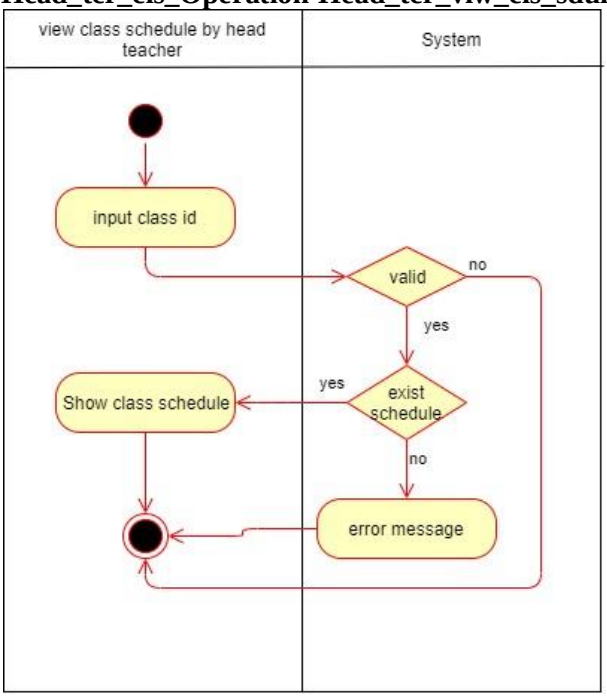
Head_tcr_brd_xm_dtls-Head_tcr_brd_xm_dtls



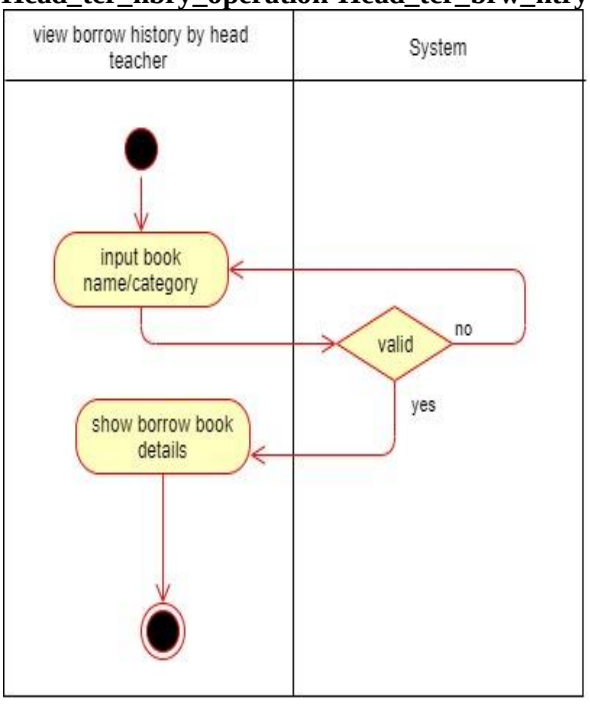
Head_tcr_cls_Operation-Head_tcr_crt_sec



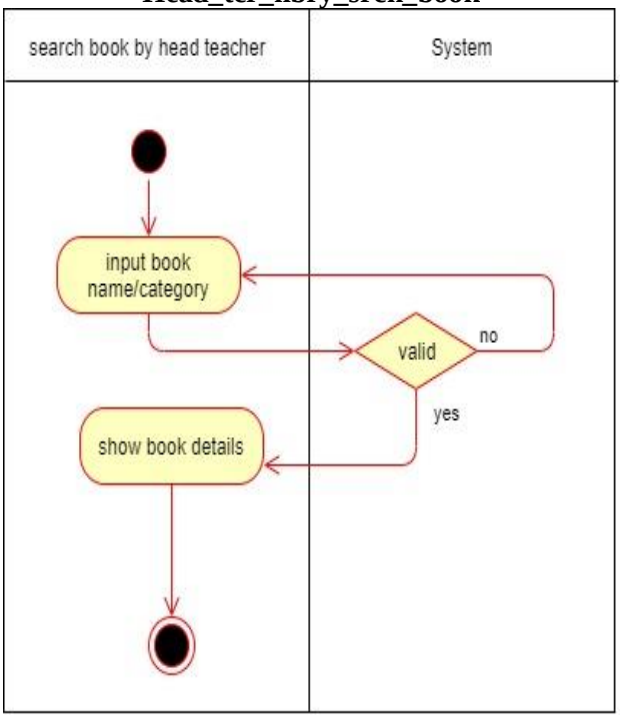
Head_tcr_cls_Operation-Head_tcr_viw_cls_sdul



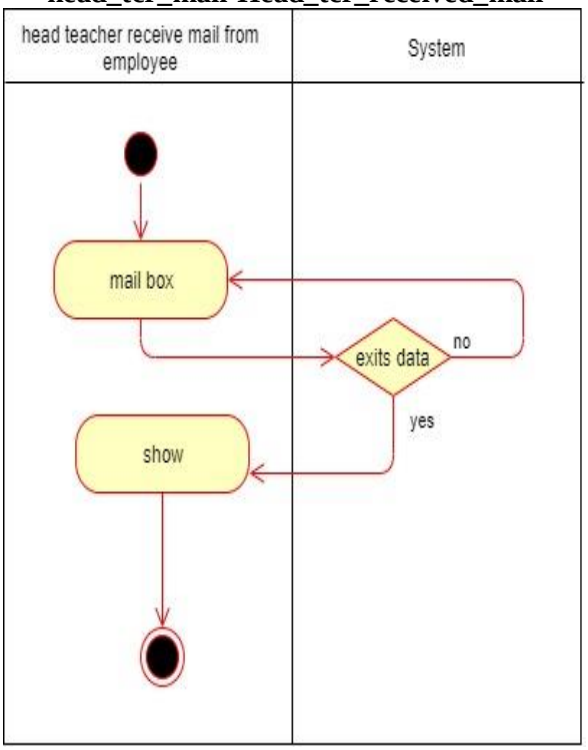
Head_tcr_libry_operation-Head_tcr_brw_htry



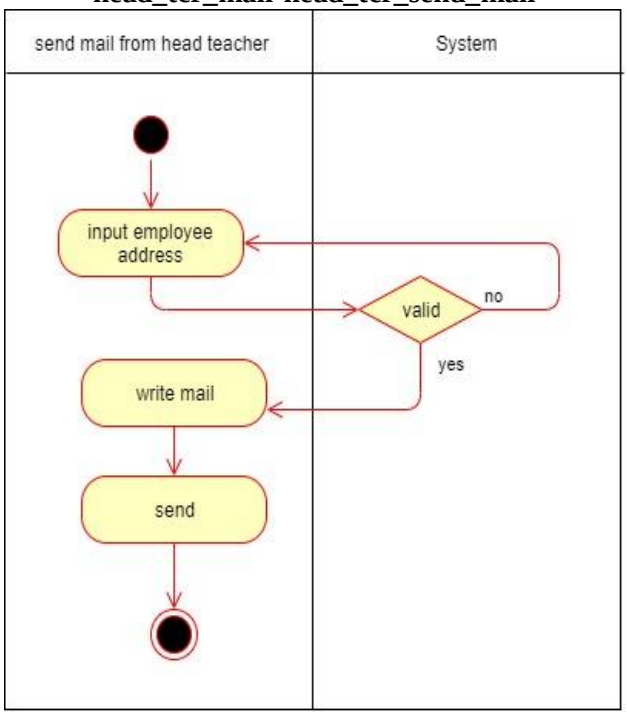
Head_tcr_libry_srch_book



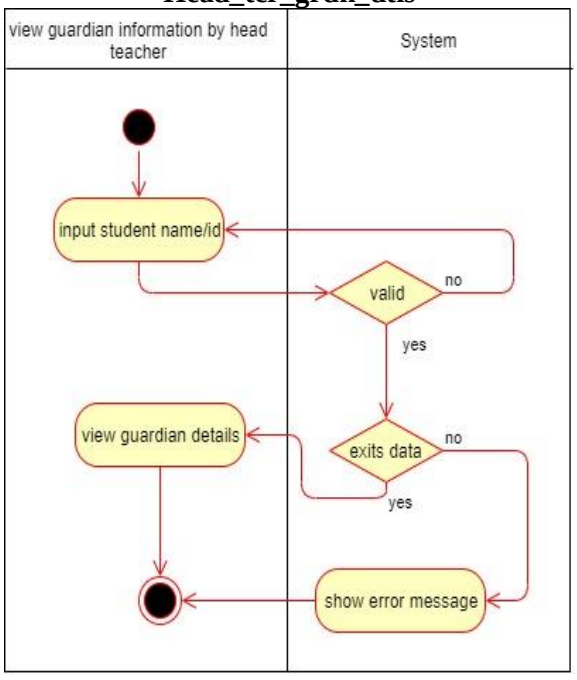
head_tcr_mail-Head_tcr_received_mail



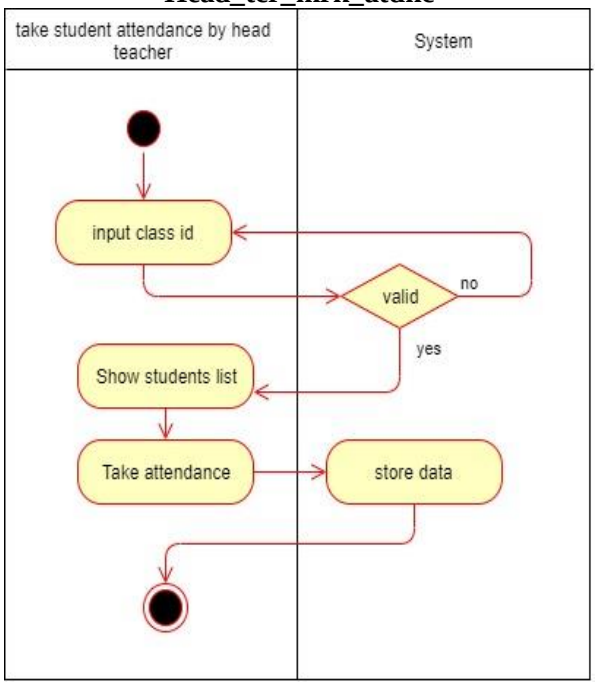
head_tcr_mail-head_tcr_send_mail



Head_tcr_stdnt_Operation-Head_tcr_grdn_dtls



Head_tcr_stdnt_Operation-Head_tcr_mrk_atdnc



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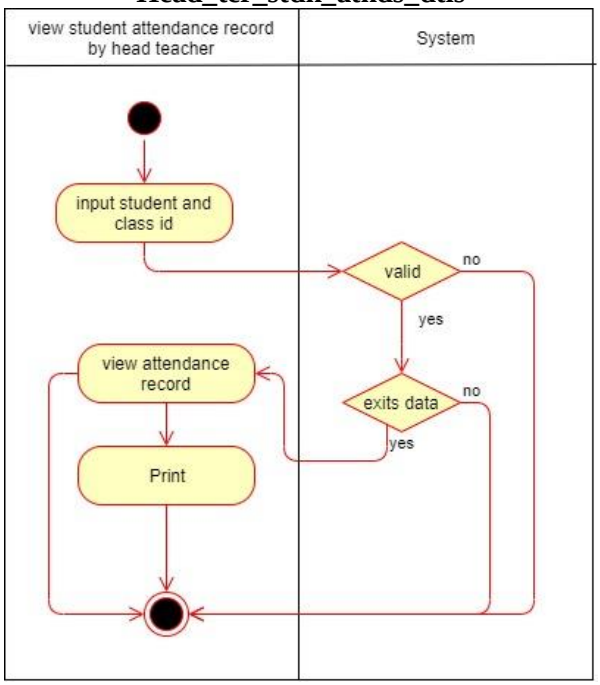

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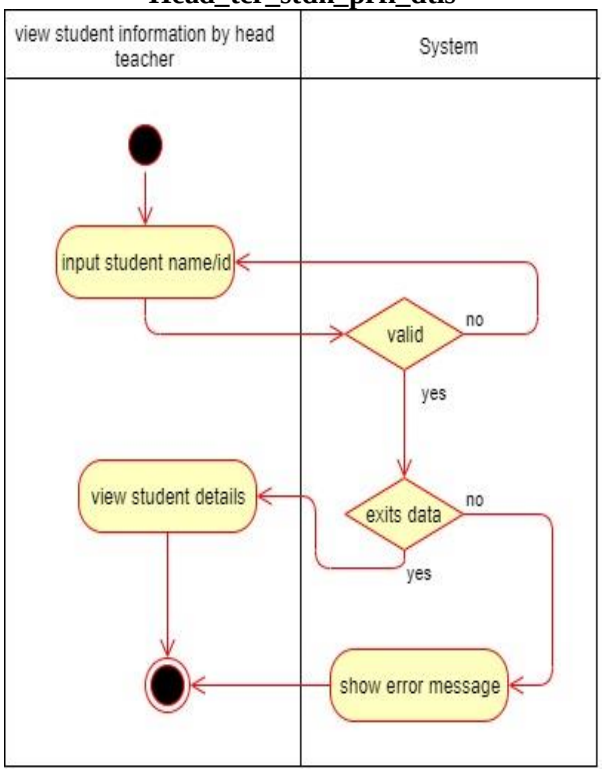
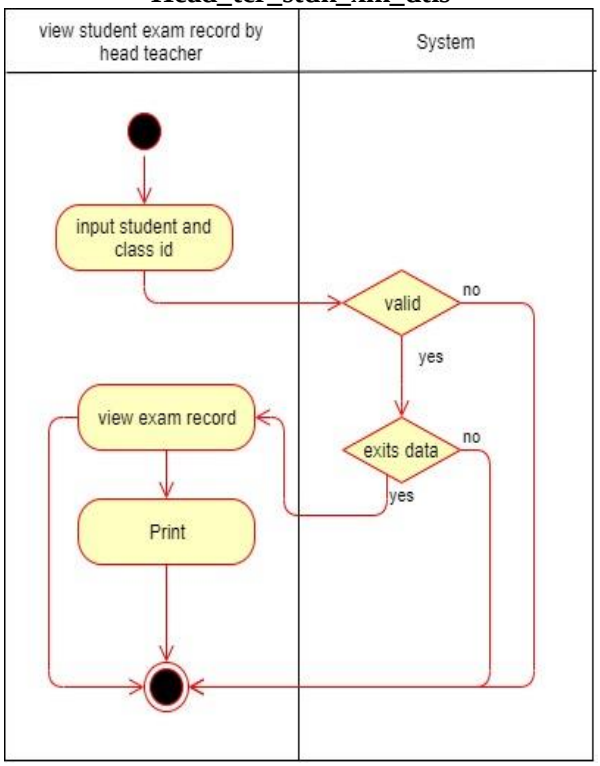


Head_tcr_stdnt_Operation-Head_tcr_stdn_xm_dtls



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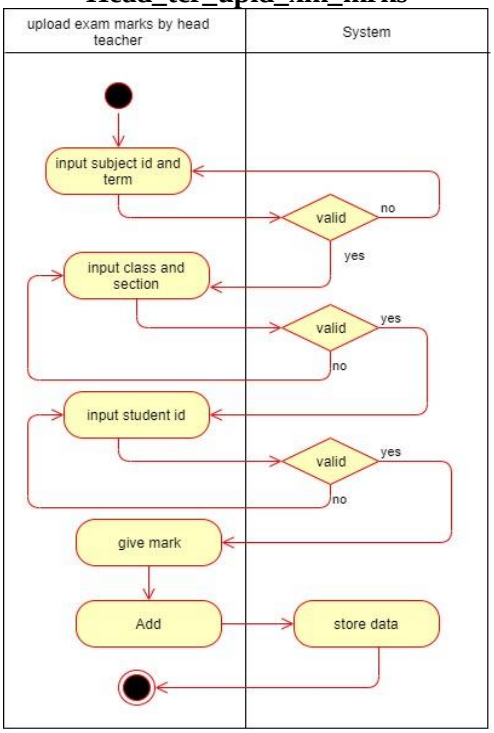

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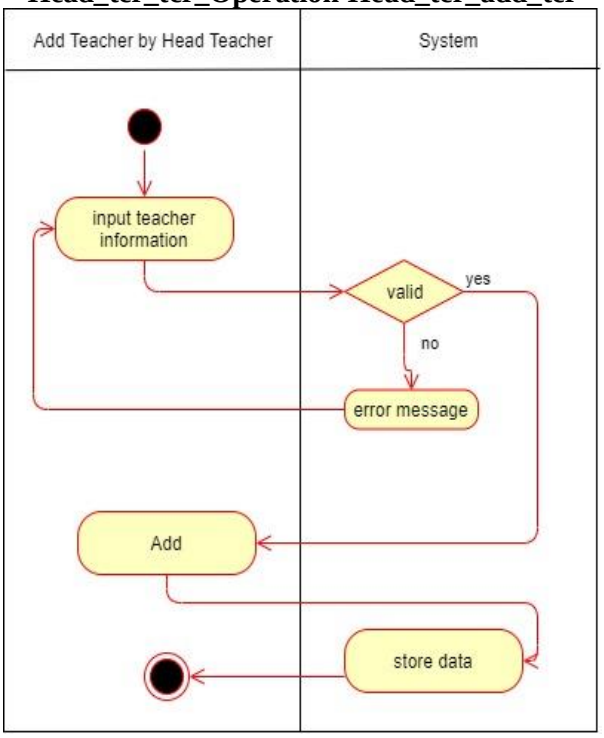
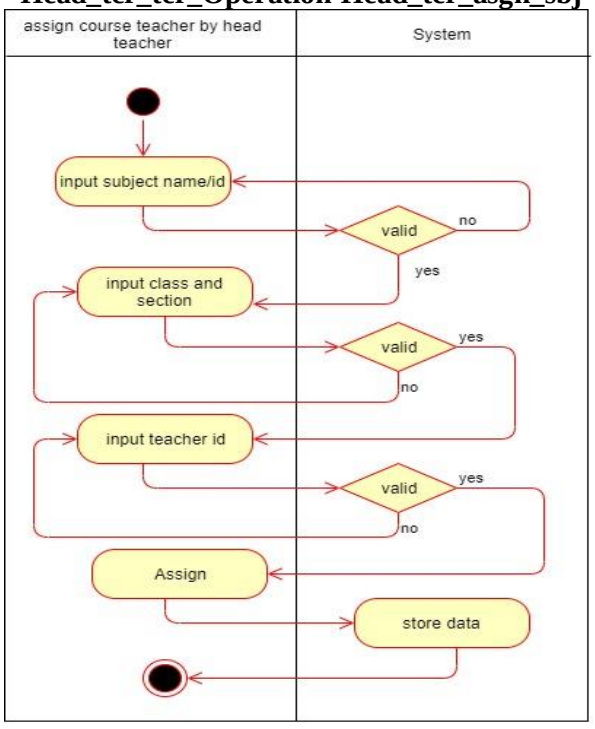


Head_tcr_tcr_Operation-Head_tcr_asgn_sbj



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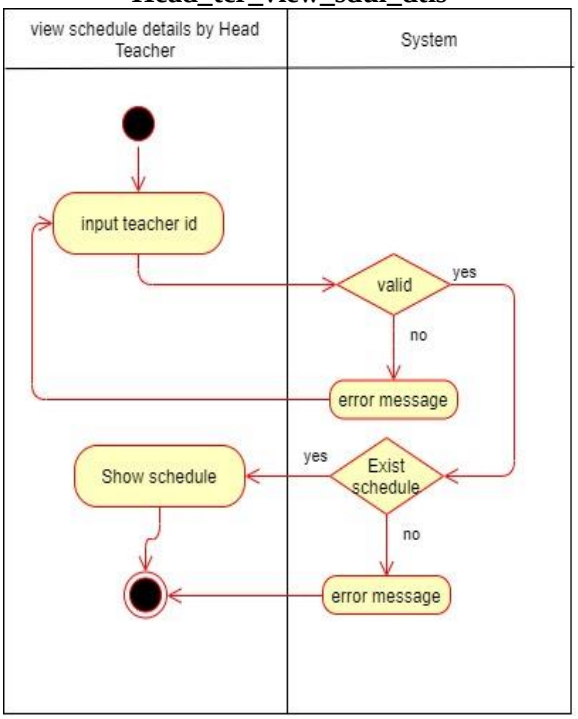

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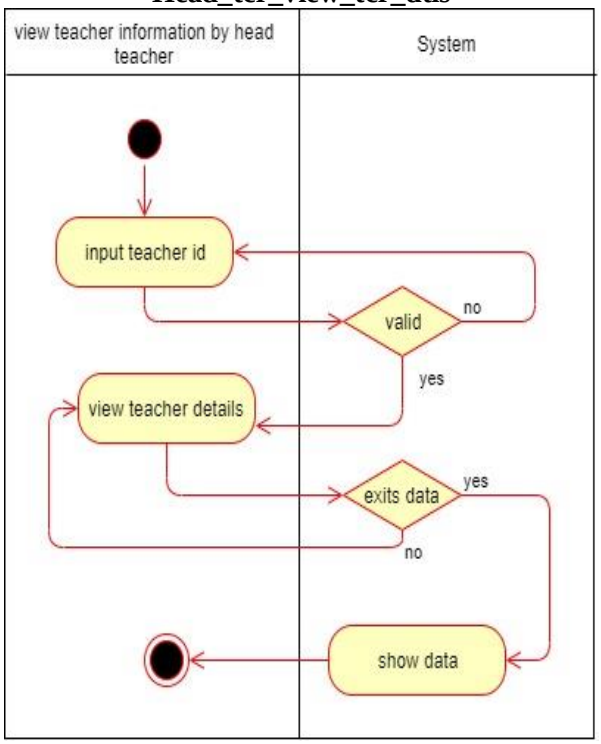

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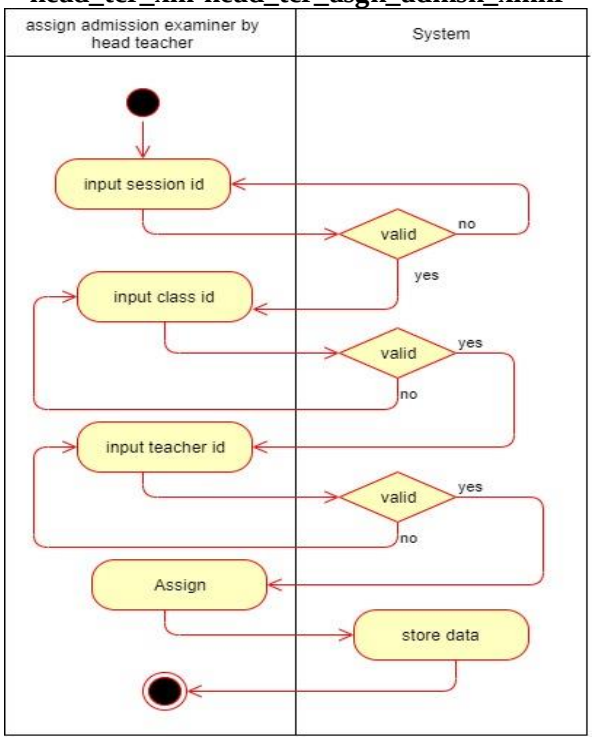
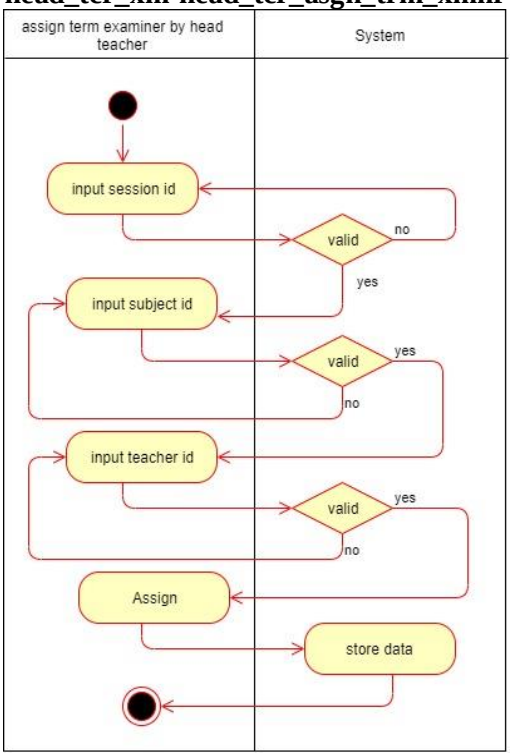
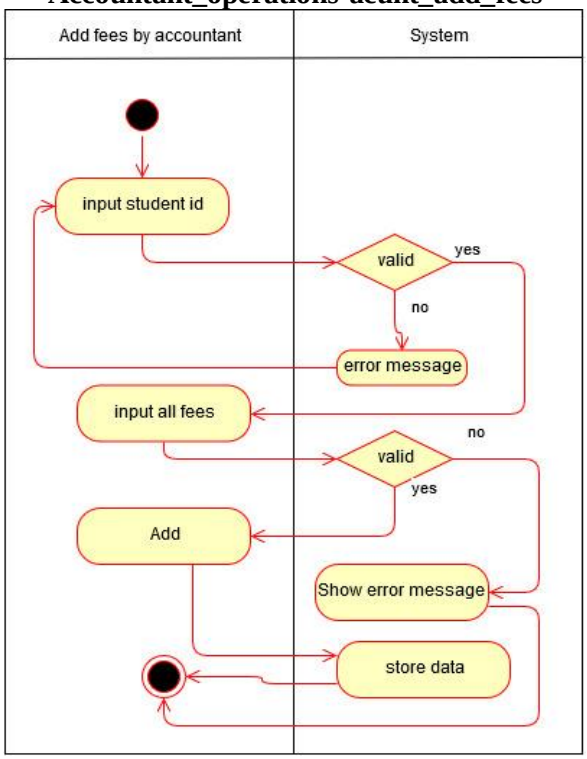


head_tcr_xm-head_tcr_asgn_trm_xmnr



Accountant_operations-acunt_add_fees



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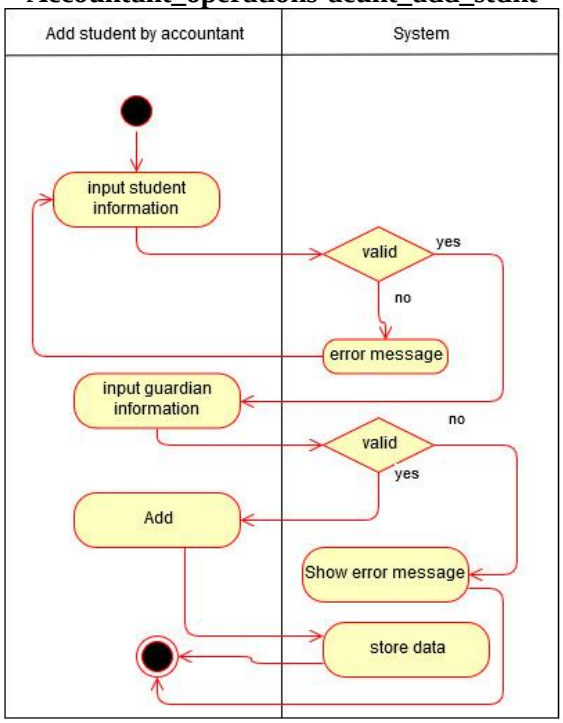

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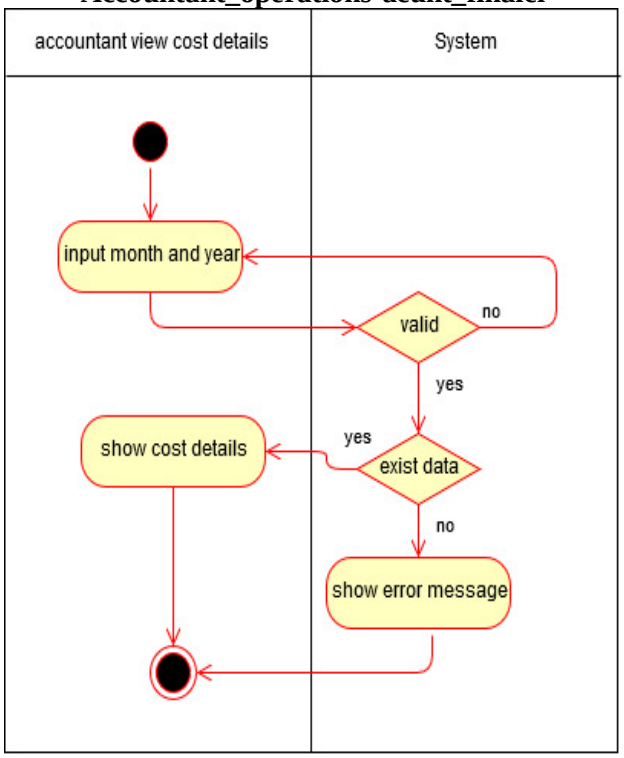
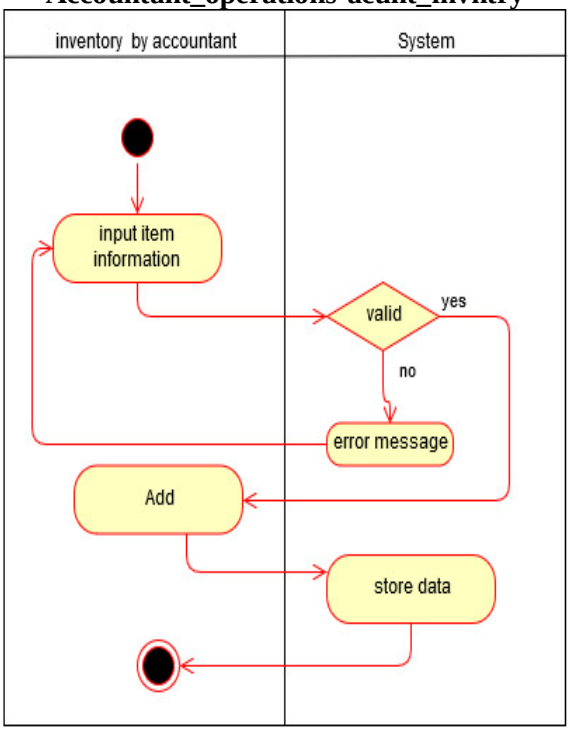


Accountant_operations-acunt_invntry



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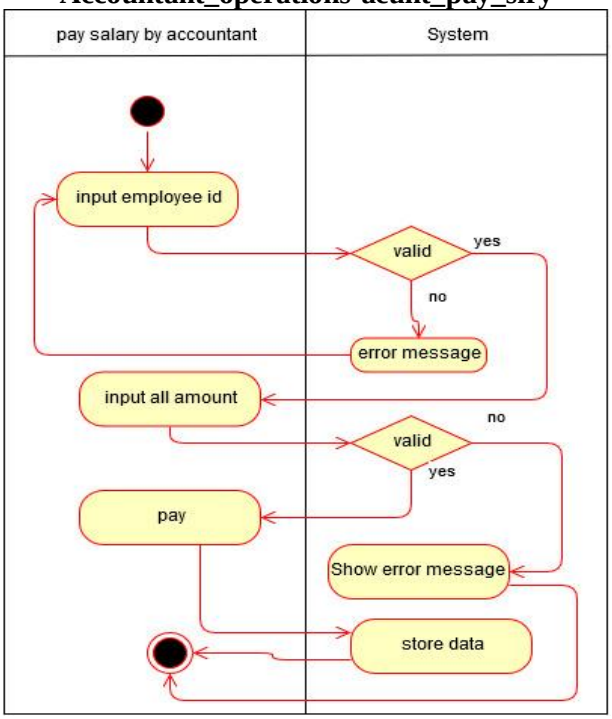
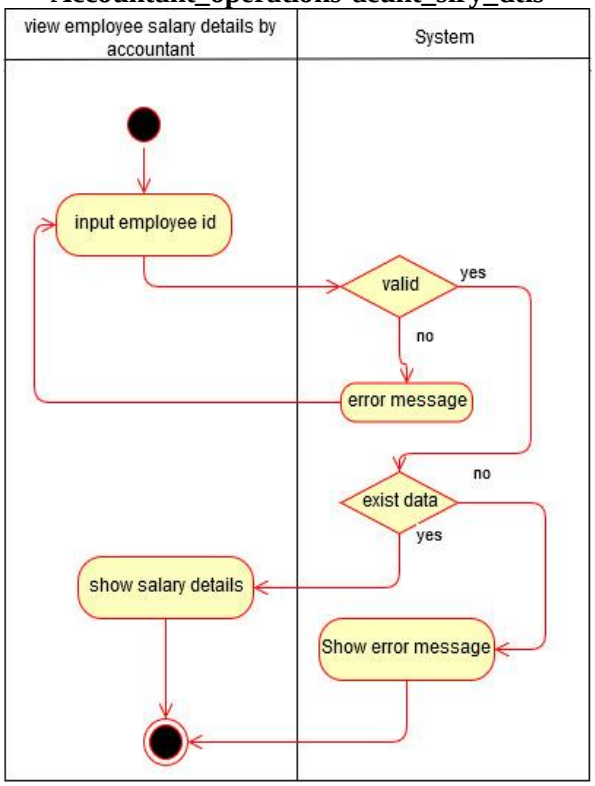
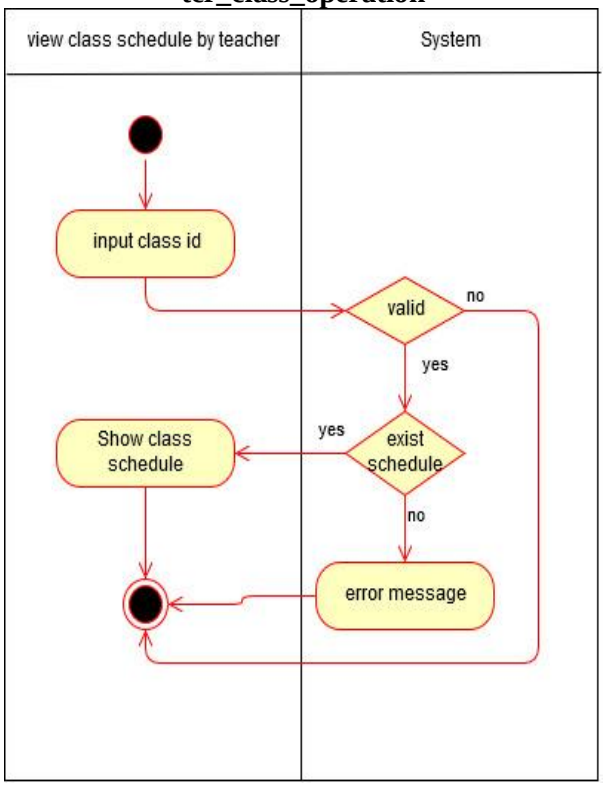


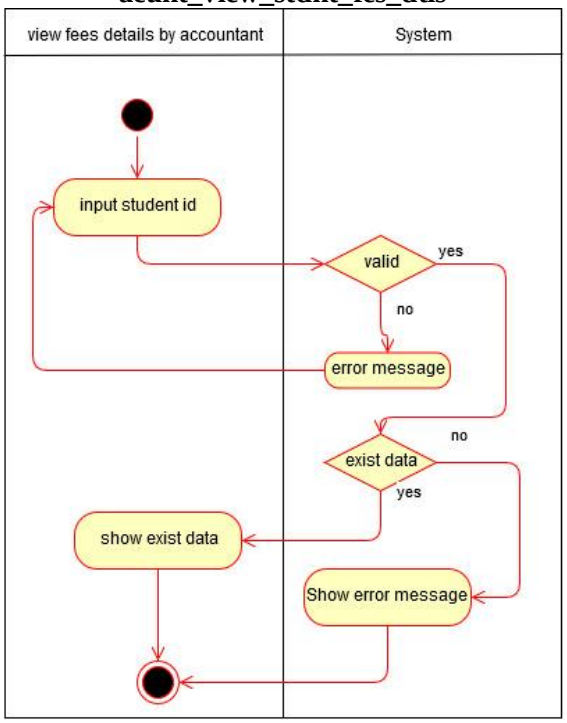
Accountant_operations-acunt_slry_dtls



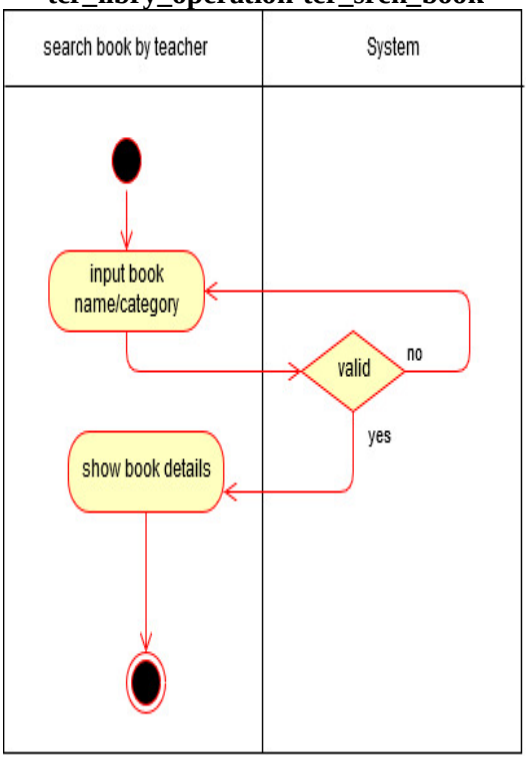
tcr_class_operation



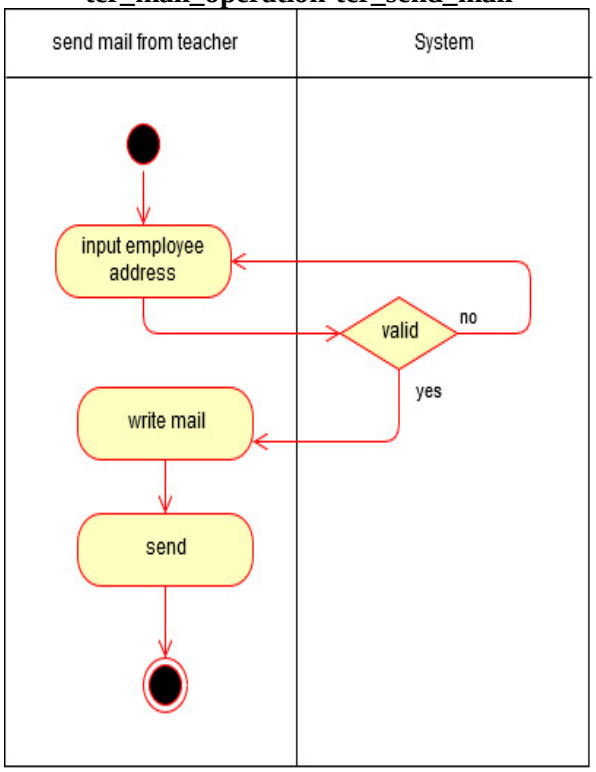
Accountant_operations-acunt_view_stdnt_fes_dtls



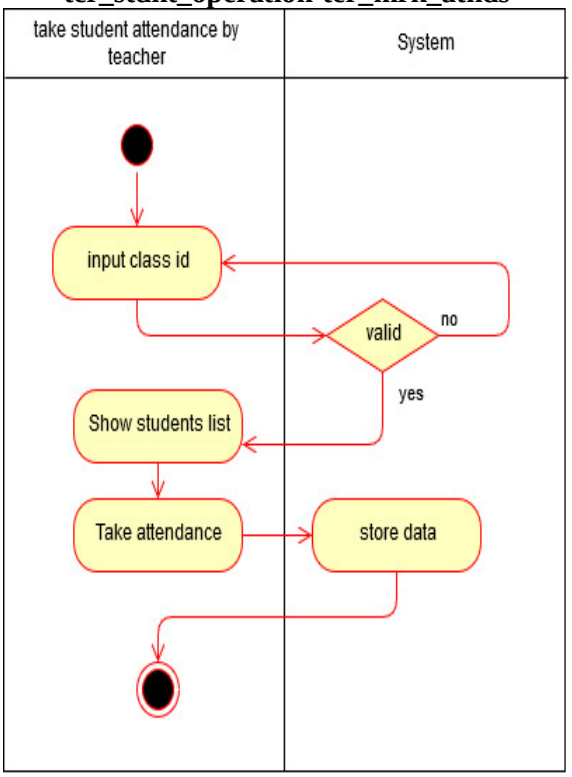
tcr_libry_operation-tcr_srch_book



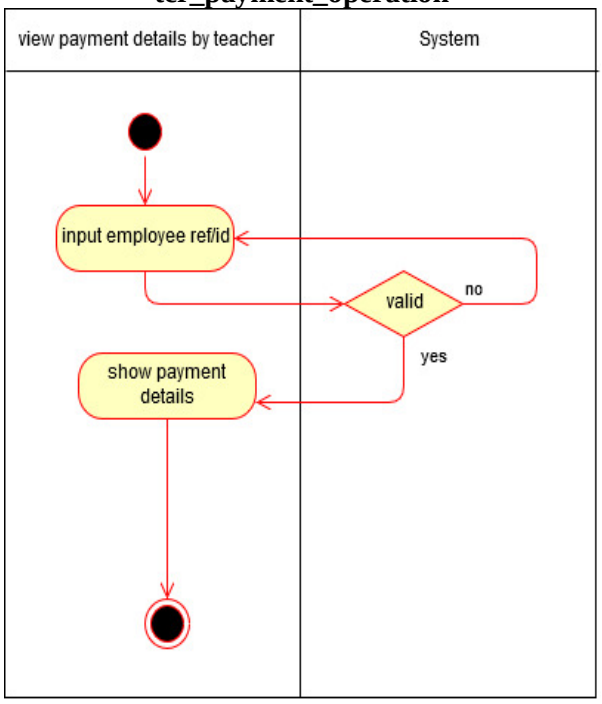
tcr_mail_operation-tcr_send_mail



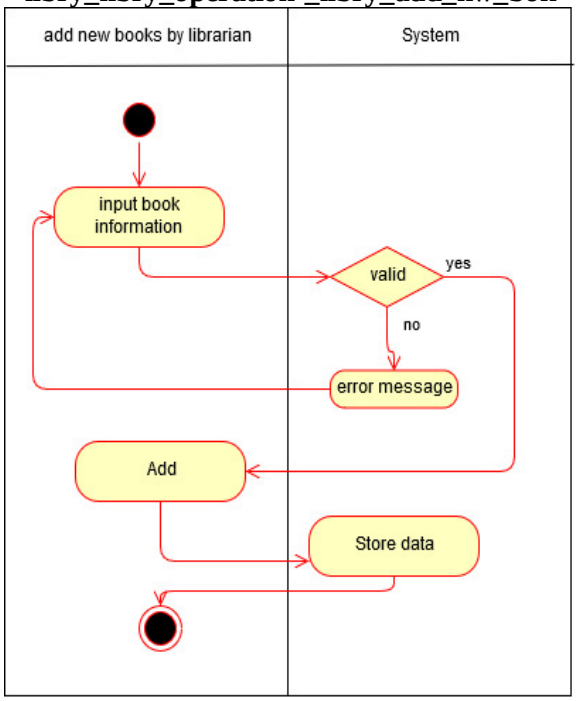
tcr_stdnt_operation-tcr_mrk_atnds



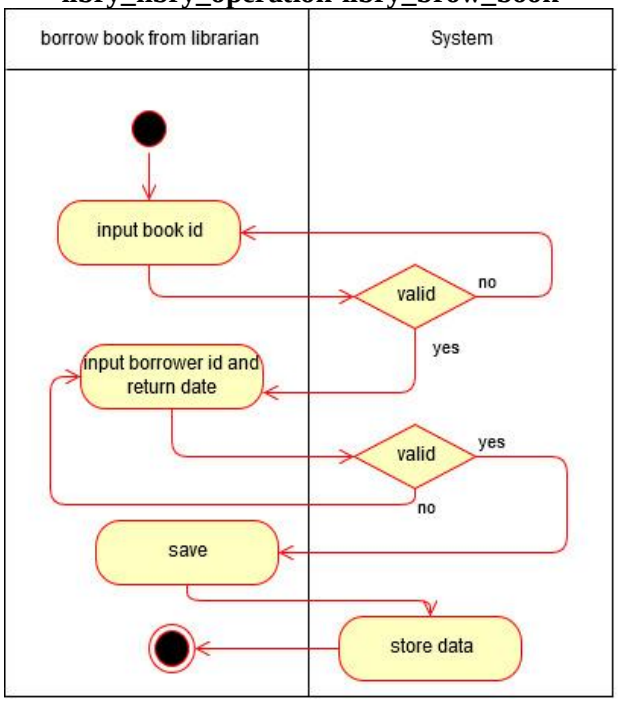
tcr_payment_operation



libry_libry_operation-_libry_add_nw_bok



libry_libry_operation-libry_brow_book



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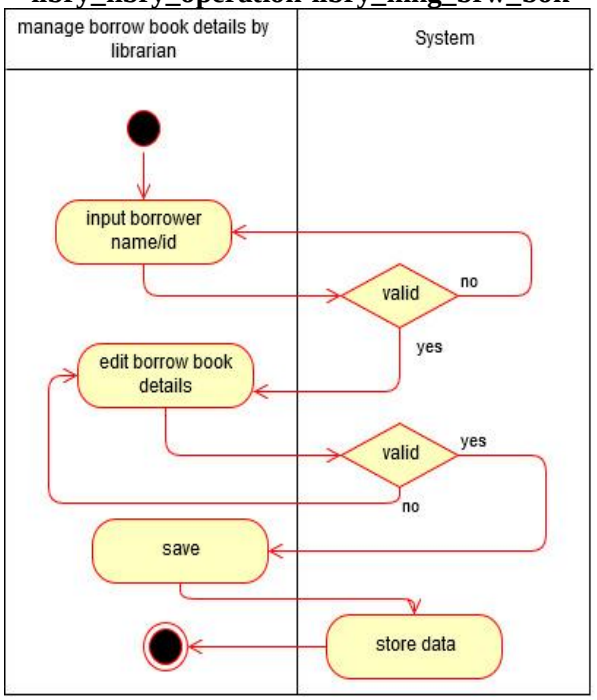
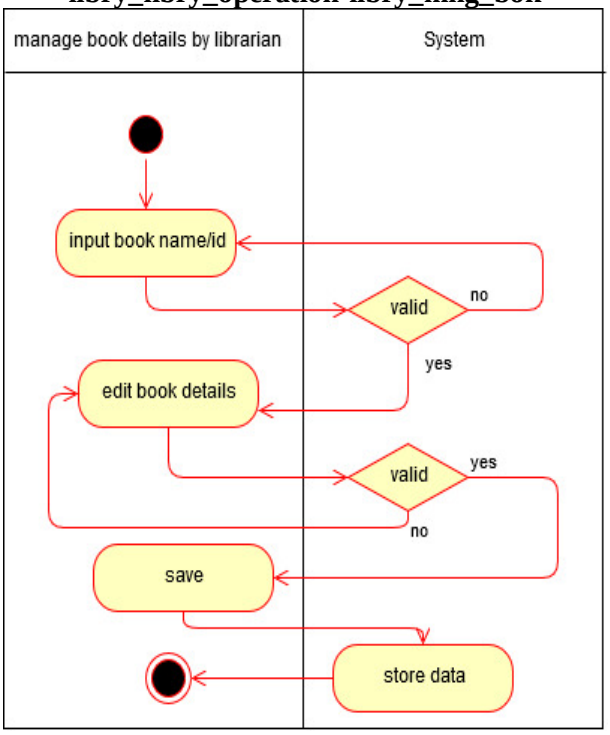
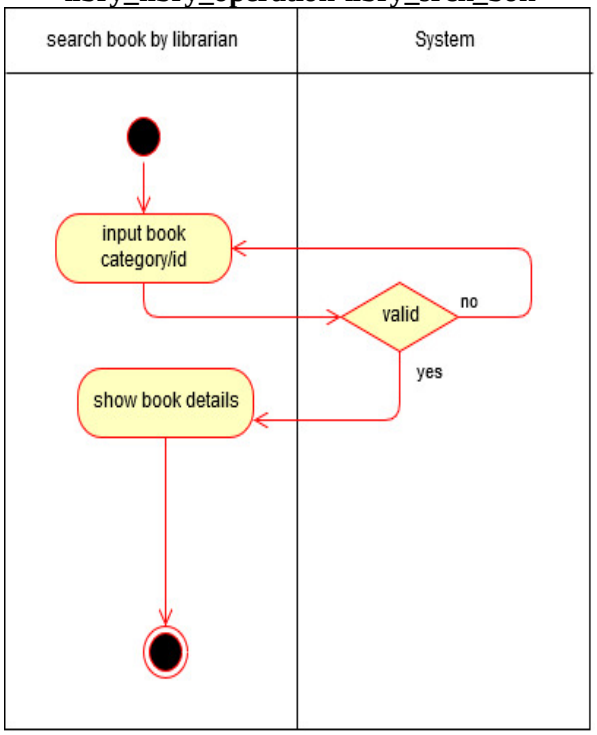


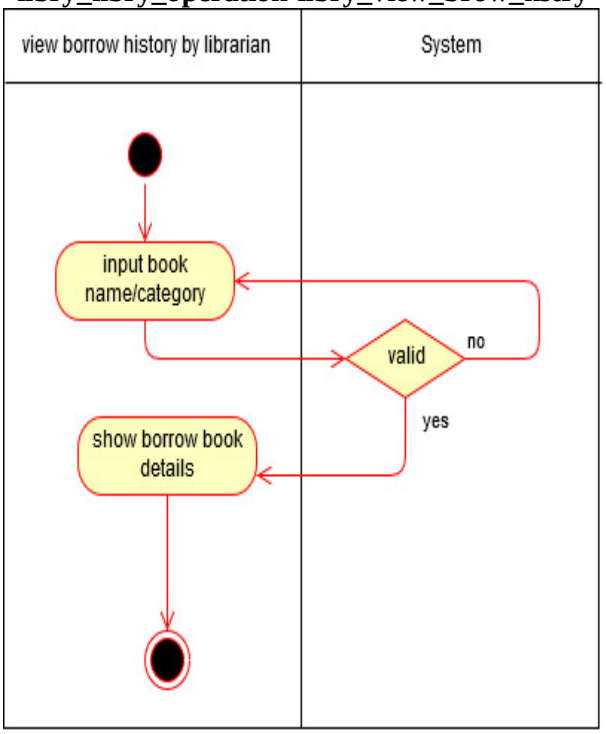
libry_libry_operation-libry_mng_bok



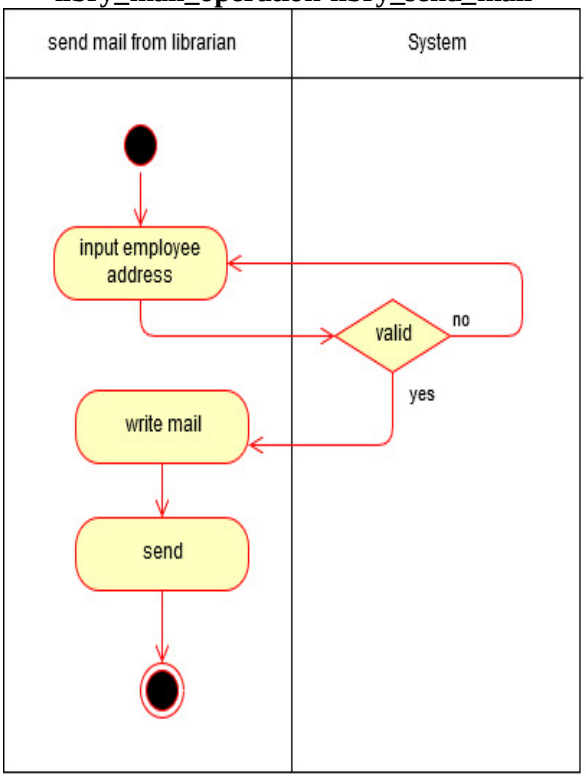
libry_libry_operation-libry_srch_bok



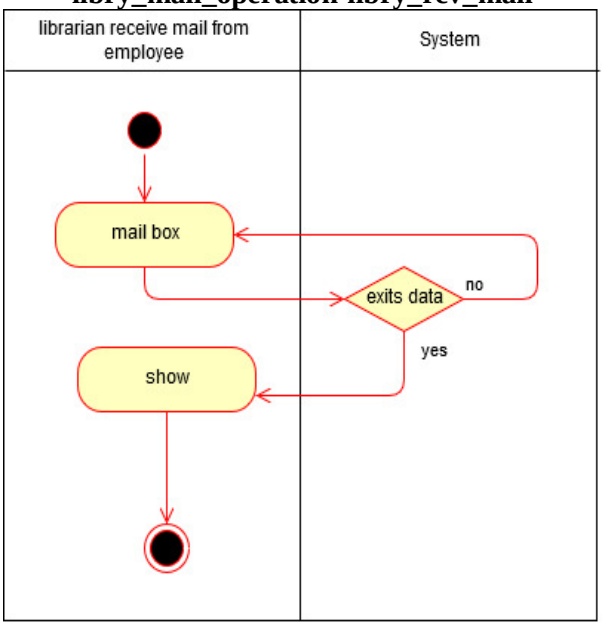
libry_libry_operation-libry_view_brow_hstry



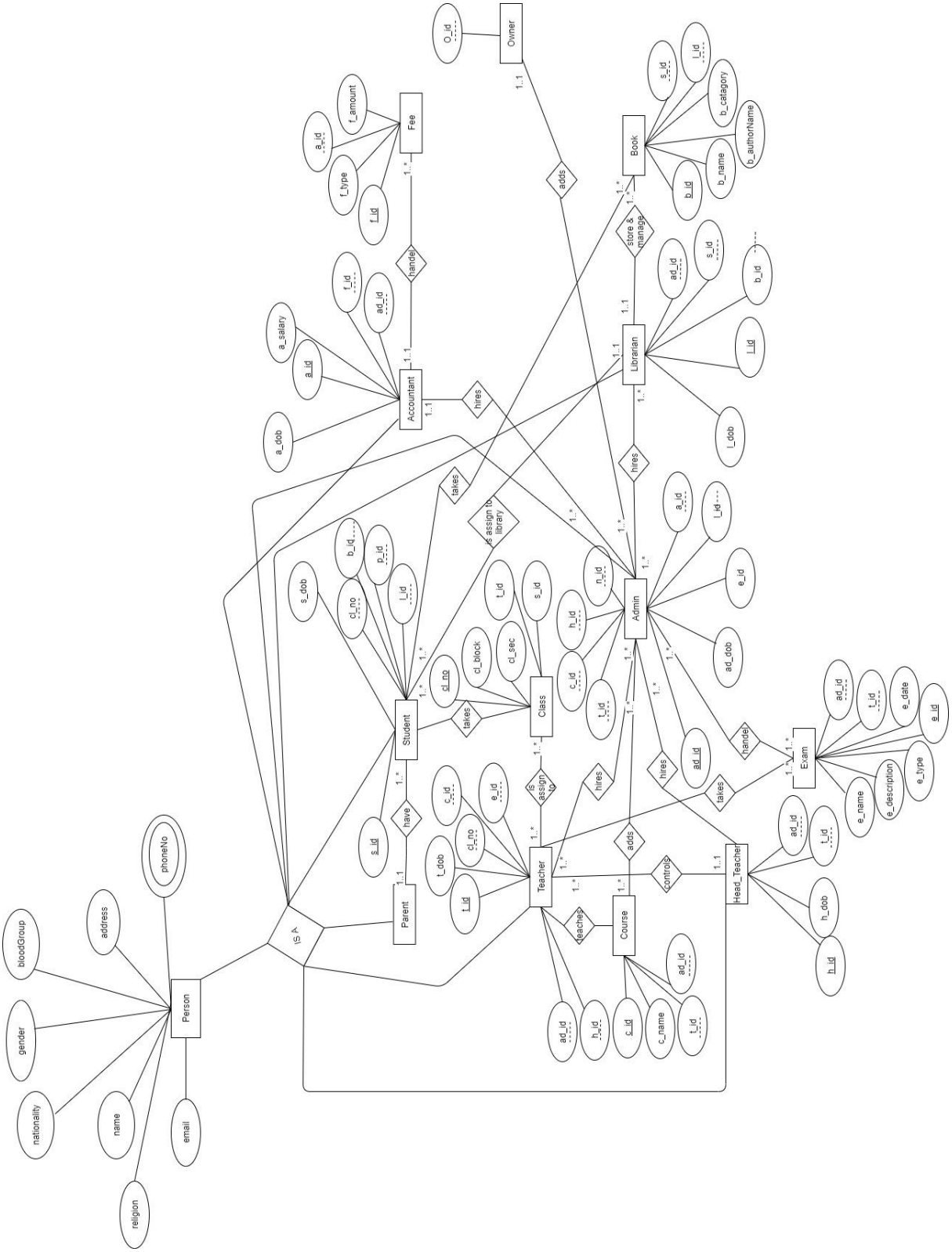
libry_mail_operation-libry_send_mail



libry_mail_operation-libry_rcv_mail



3.4 ER Diagram



3.5 Data Dictionary

Table Name: Inventories

nvarchar	no		Key
id	int	no	primary
referenceNo			
itemName	nvarchar	no	
value	int	no	
quantity	int	no	
employeeId	nvarchar	no	
date	date	no	

Table Name: Login

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
password	nvarchar	no	
status	int	no	

Table Name: Section

Attribute	Data Type	Is Null	Key
id	int	no	primary
section	nvarchar	no	
class	nvarchar	no	
capacity	int	no	

Table Name: Student Attendance

Attribute	Data Type	Is Null	Key
id	int	no	primary
studentId	nvarchar	no	
date	date	no	
class	nvarchar	no	
session	nvarchar	no	
sec	nvarchar	no	
employeeId	nvarchar	no	

Table Name: Add Admission

Attribute	Data Type	Is Null	Key
id	int	no	primary
session	nvarchar	no	
date	date	no	
class	nvarchar	no	
time	nvarchar	no	

Table Name: Mails

Attribute	Data Type	Is Null	Key
id	int	no	primary
mform	nvarchar	no	
mto	nvarchar	no	
date	date	no	
mail	nvarchar	no	
mread	int	no	
subject	nvarchar	no	

Table Name: Headmaster Term Exam

Attribute	Data Type	Is Null	Key
id	int	no	primary
session	nvarchar	no	
employeeId	nvarchar	no	
class	nvarchar	no	
sec	nvarchar	no	
subId	nvarchar	no	
term	nvarchar	no	
examDate	date	no	
examTime	nvarchar	no	

Table Name: Head Admission

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
session	nvarchar	no	
class	nvarchar	no	
examDate	datetime	no	
examTime	nvarchar	no	

Table Name: Employee Attendance

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
date	date	no	
enter	time	no	
out	time	no	

Table Name: Employees

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
employeeName	nvarchar	no	
fatherName	nvarchar	no	
motherName	nvarchar	no	
dob	date	no	
religion	nvarchar	no	
gender	nvarchar	no	
bloodGroup	nvarchar	no	
degree	nvarchar	no	
presentAddress	nvarchar	no	
permanentAddress	nvarchar	no	
category	nvarchar	no	
nationality	nvarchar	no	
basic	float	no	
home	float	no	
medical	float	no	
tiffin	float	no	

Table Name: Guardians

Attribute	Data Type	Is Null	Key
id	int	no	primary
studentId	nvarchar	no	
gName	nvarchar	no	
gProfession	nvarchar	no	
email	nvarchar	no	

Table Name: Employee Salary

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
basic	float	no	
home	float	no	
medical	float	no	
tiffin	float	no	
ta_da	float	yes	
incentive	float	yes	
festival	float	yes	
examScript	float	yes	
examGuard	float	yes	
total	float	no	
referenceNo	nvarchar	no	

Table Name: Fee

Attribute	Data Type	Is Null	Key
id	int	no	primary
studentId	nvarchar	no	
class	nvarchar	no	
sec	nvarchar	no	
admissionFee	int	yes	
monthlyFee	int	no	
month	nvarchar	yes	
examFee	int	yes	
term	nvarchar	yes	
fine	int	yes	
developFee	int	yes	
others	int	yes	

Table Name: Teacher Exam Details

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
examCount	int	no	
scriptCount	int	no	

Table Name: Admission Details

Attribute	Data Type	Is Null	Key
id	int	no	primary
applicantsRoll	nvarchar	no	
applicantsName	nvarchar	no	
fromFee	int	no	
session	nvarchar	no	
class	nvarchar	no	
date	date	no	

Table Name: Add Term Exam

Attribute	Data Type	Is Null	Key
id	int	no	primary
session	nvarchar	no	
class	nvarchar	no	
sec	nvarchar	no	
subId	nvarchar	no	
term	nvarchar	no	
examDate	date	no	
examTime	nvarchar	no	

Table Name: Teacher Subjects

Attribute	Data Type	Is Null	Key
id	int	no	primary
employeeId	nvarchar	no	
subId	nvarchar	no	
classId	nvarchar	no	
sec	nvarchar	no	

Table Name: Student Class

Attribute	Data Type	Is Null	Key
id	int	no	primary
studentId	nvarchar	no	
class	nvarchar	no	
sec	nvarchar	no	

Table Name: Subjects

Attribute	Data Type	Is Null	Key
id	int	no	primary
subId	nvarchar	no	
name	nvarchar	no	
class	nvarchar	no	
sec	nvarchar	no	
day	nvarchar	no	
time	nvarchar	no	

Table Name: Borrow Books

Attribute	Data Type	Is Null	Key
id	int	no	primary
bookId	nvarchar	no	
borrowerId	nvarchar	no	
borrowName	nvarchar	no	
phoneNo	nvarchar	no	
borrowDate	date	no	
returnDate	date	no	
returnd	int	no	

Table Name: Books

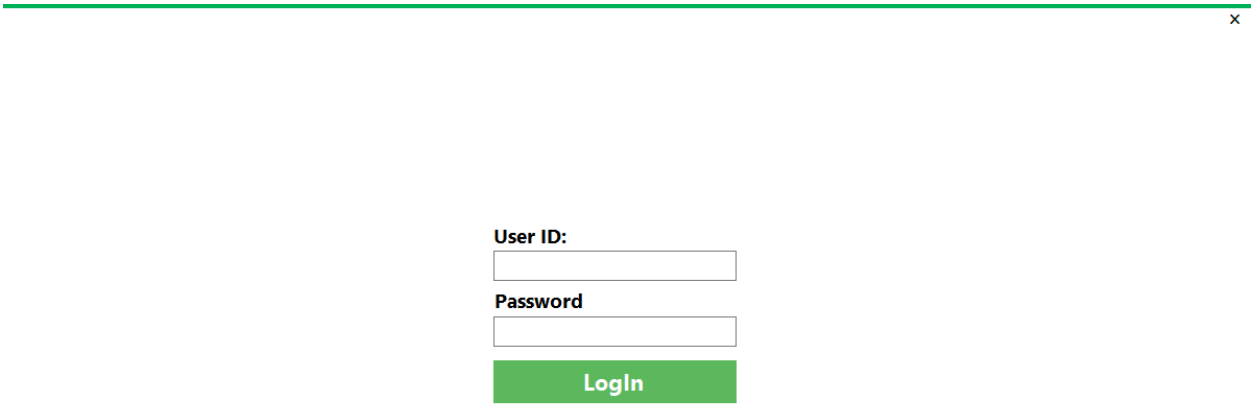
Attribute	Data Type	Is Null	Key
id	int	no	primary
bookId	nvarchar	no	
title	nvarchar	no	
edition	int	no	
author	nvarchar	no	
catagory	nvarchar	no	
quantity	int	no	
shelf	nvarchar	no	

Table Name: Students

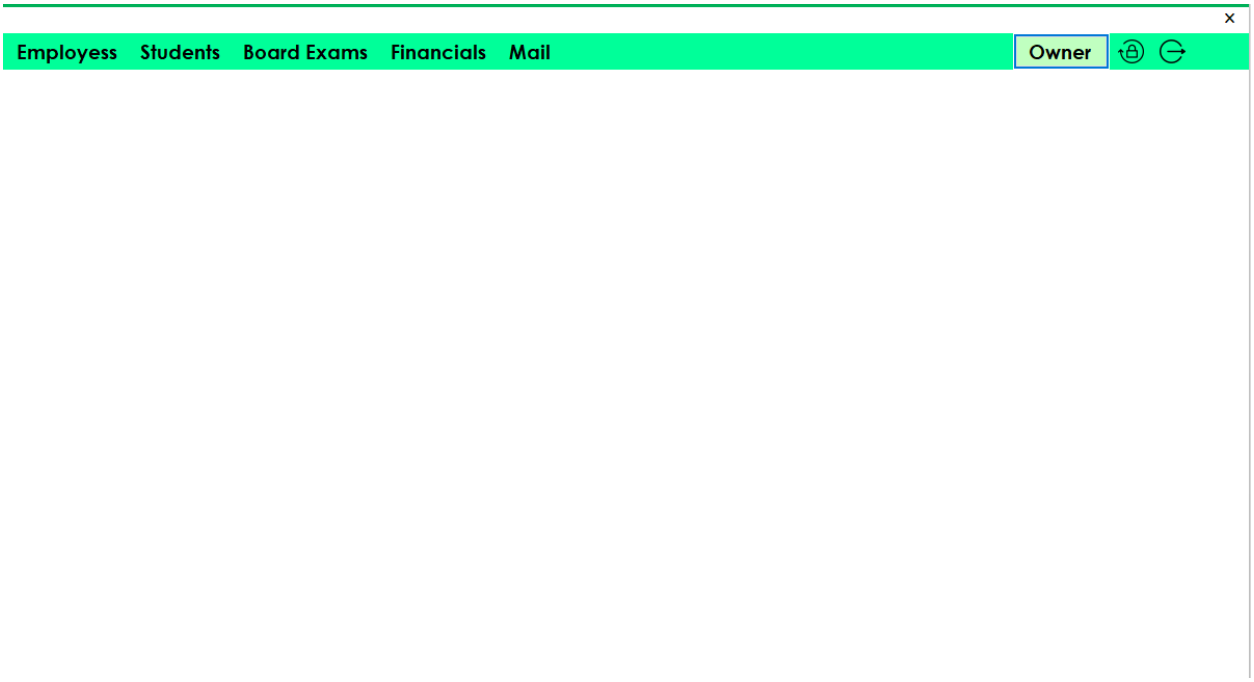
Attribute	Data Type	Is Null	Key
id	int	no	primary
studentId	nvarchar	no	
studentName	nvarchar	no	
fatherName	nvarchar	no	
motherName	nvarchar	no	
dob	date	no	
religion	nvarchar	no	
gender	nvarchar	no	
bloodGroup	nvarchar	no	
presentAddress	nvarchar	no	
permanentAddress	nvarchar	no	
nationality	nvarchar	no	

3.6 Prototype

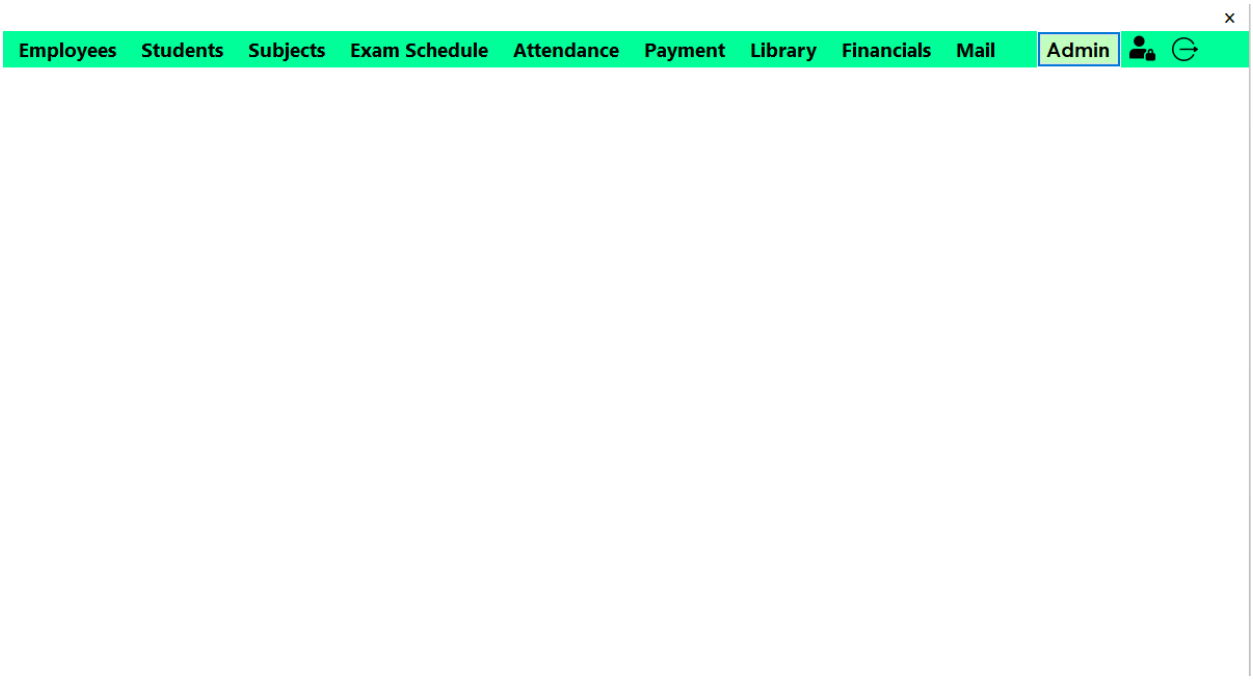
Login



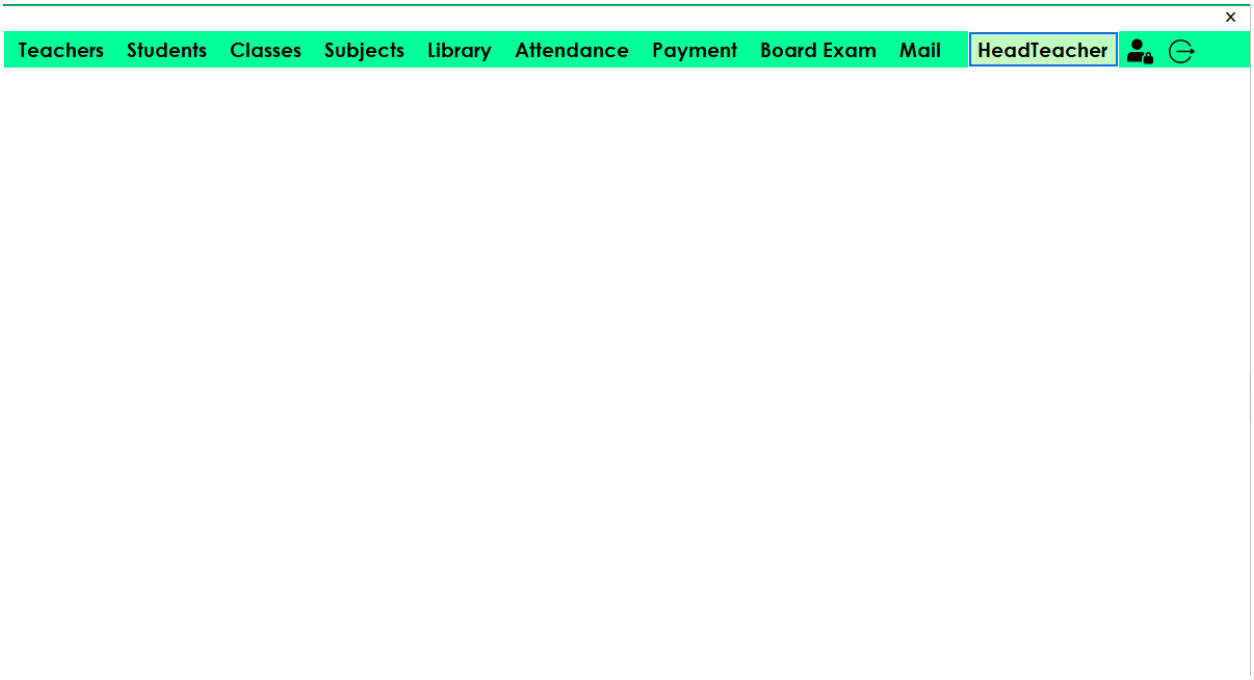
Owner



Admin

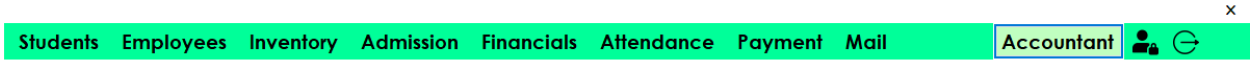


Head Teacher



Teacher

Accountant



Librarian

Attendance Taker

Chapter-4: Software Project Management Plan

4.1 Document History and Distribution

The development of School Management System is a desktop based system where user can do their all kind of school related work. Users can benefit from this service by saving valuable time.

4.1.1 Edition History

Edition#	Edition Date	Description of Change	Author
01	February 23, 2020	Primary Phage	Borhan Uddin, Zahir Mahmud, Talat Iram, Ashfaque Uddin

4.1.2 Distribution

Recipient Name	Recipient Organization	Distribution Method
Victor Stany Rozario	AIUB	Hard Copy, Soft Copy

4.2 Assumptions

The assumptions during the projects are

- The development team has not enough experience
- Additional resource (people and money) are may not be enough for this proposed system

4.3 Project Deliverables

- SOW - Statement of Work
- SRS - Software Requirements Specification
- SPMP - Software Project Management Plan
- SDP - Software Design Plan

4.4 Managerial Process Plans

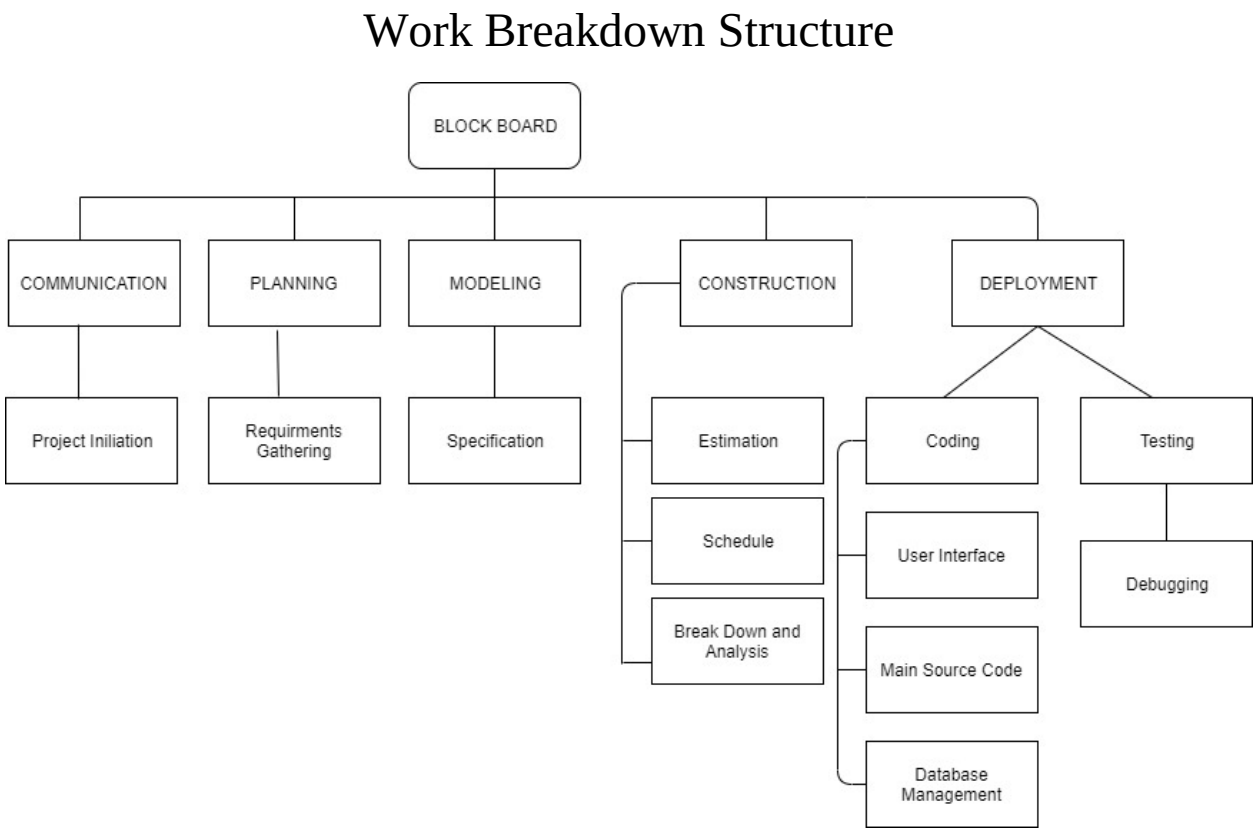
4.4.1 Project Startup Plan

The materials and resources is described by this section. The rational for many of the choices will not be described in this section because most of this information is established in advance for the project team.

4.4.2 Effort Estimation Plan

As previously stated in that, the total development time is estimated to be 5 days and the total internal cost to be BDT. These figures were obtained by expert judgment by analogy that is by comparison with similar projects.

As the project does not have any historical data available and it contains unique characteristics, we have decided to follow bottom up approach of estimation. Bottom up approach follows basic WBS (work breakdown structure) where effort for each bottom level task is estimated. The broken estimated parts later will be added together to get a more descriptive overview of the effort needed for the project. WBS is basically followed in bottom up approach only.



4.4.3 Staffing Plan

For this project purpose every project member available for a fixed duration time. In this time includes the team member and supervisor meetings and projected related other discussion.

4.4.5 Project Staff Training Plan

No additional staff training is needed for this project.

4.5 Work Plan

Activity Schedule and Resource Allocation

4.5.1 Activity Schedule

Term	Description
BA	Business Analyst
PM	Project Manager
D	Developer
QT	Quality Tester

Project Schedule						
				Project Start Date		22-Sep-2019
				Project End Date		16-Dec-2019
WBS	Task	Lead	Start	End	Work Days	% Complete
1	Project Analysis	PM / BA	22-Sep-19	10-Oct-19	15	100%
2	Design	PM/D	13-Oct-19	24-Oct-19	10	100%
3	System Development	D/QT	27-Oct-19	7-Nov-19	10	50%
4	System Integration	D/QT	10-Nov-19	1-Dec-19	16	40%
5	Overall System Test	QT	2-Dec-19	11-Dec-20	8	20%
6	Trial Trading	PM	12-Dec-19	16-Dec-19	3	0%

4.5.2 Resource Allocation

- According to the activity planned, a group of experienced employees will be recruited.
- At early stage of the project, official space are not agreed to be required. As soon as the profits are more than investment than a separate official space will be taken.
- Official necessary equipment and materials will be needed to be purchased. Once official space will be taken where the budget will be 50000tk.
- Project might need special space is taken but that will be only considered after making a proper evaluation of profit and loss statement. The statement is scheduled after 4 month of the deployment.
- The project budget for 4 month is estimated to be around 200000tk.

4.6 Control Plan

4.6.1 Requirements Control Plan

When changes are to be made in the requirements after the Software Requirement Specification has been released, the changes shall be brought to the attention of the developers and discussed. Any changes that are to be made will be with the prior approval of the supervisor and only if feasible and permissible within the constraints of the project and resources in terms of knowledge and skill of the developers required. Once the changes have been made to the Software Requirement Specification document, an updated version of the Software Requirement Specification will be released.

4.6.2 Schedule Control Plan

If the work scheduled gets behind, the developer will be ready to spend extra time on the project in between and after the schedules to make up for the lost time and deliver the final project on time.

4.6.3 Process Improvement Plan

After the development, the project will be regularly checked by the project manager and he will suggest the developers if any kind of improvement is needed.

4.6.4 Quality Control Plan

Any major changes that affect the milestones or the budget will have to be approved by all and documented. All will be responsible for ensuring that the project will be completed on time and within budget. This will be accomplished through daily meetings of the team members with the supervisor. At each meeting, developer team will present the day's progress and problems. Al will determine whether they are progressing as expected and whether they are following the specification document and the project management plan. Any major problems faced by the team members will immediately be reported to all.

4.6.5 Reporting Plan

The updated Software Project Management Plan will be circulated as mentioned in schedule of section 4.6.1 each of preliminary versions of all the documents and updates and status reports will be sent and discussed with the advisor and upon approval the approved document will be circulated to the other members of the team. The report on the status of the project will be sent to the members of the team.

4.6.6 Metrics Collection Plan

As the system based on object oriented so the metrics focus on measurement that can be applied to the class and the design characteristics localization, encapsulation, information hiding, inheritance, and object abstraction techniques that make the class unique.

4.7 Risk Management Plan

Risk	Impact	Probability
1	Medium	70%
2	High	50%
3	Extreme	53%
4	High	40%

For Risk 1

Description:

Team does not have any idea about the interface and website.

Contingency plan:

Organize three day training program and build a prototype.

For Risk 2

Description:

The team is not understanding the database management specifies.

Contingency plan:

Arrange One week workshop with the development team.

For Risk 3

Description:

The website can crash with too much user load.

Contingency plan:

Initial prototype deployment to check user loads. Testing all bounds of code.

For Risk 4

Description:

Since the website is real time all of the updates will be displayed at every change being made in the user links. Possible error on code cannot be caught during compilation. Only run time environment can catch the problem.

Contingency plan:

Initial prototype delivery to stake holder's users to check functionalities.

These risks can be dealt with ---

Risk prevention/avoidance-

The project can be protected from the risk of overrunning the schedule by increasing duration estimates or reducing functionality.

Risk reduction –

Some risk while they cannot be prevented, can have their likelihoods reduced prior planning. Prototyping will allow to reduce the risk.

Risk transfer –

Extra money can be added to transfer the risk.

4.8 Process Model

The SCRUM agile process model will be follow during the project implementation.

4.9 Product Acceptance Plan

Every milestone of the project will be accepted formally by the project manager by signing appropriate acceptance documentation. At the end of every phase the project manager will perform an acceptance test. This may result in additional requests for change and improvements. The project manager will test the final product/application for acceptance.

4.10 Configuration Management Plan

All the project deliverables are to be considered as configuration items. The configuration item as well as its file would be named after the document like SOW, SRS and followed by the version number.

4.11 Verification and Validation Plan

For this project we must be follow the validation and verification plan. In this plan we are following

- Tools and technique
- Separate document

4.12 Quality Assurance Plan

The quality of our project will be maintained and checked by the project manager. He will assure that this project is maintaining the quality.

4.13 Reviews and Audits Plan

Review and Audits would be addressed as a part of the Software Quality Assurance and Verification & Validation Plan that would be developed following recommended departmental standards.

4.14 Problem Resolution Plan

All problems would be resolved informally the developer and the project manager. That is, there is no specific plan. But project plan may be updated by the SPMP.

Chapter-5: Software Quality Testing

5.1 Objective

In latest era, schools would be inhibited underneath the massive paperwork quantity without using specialized management software. They save effort and strength with demanding tasks and give instructor time again to students. School management software program has intention to make administrative works of educational establishments easier. Using this software, you may be capable of handling all of the day to day capabilities of your group in a comprehensive manner. It is user-pleasant and very smooth to learn.

5.2 Scope

School Management System is aimed to automate and quick view of

- Student details
- Employee details
- Take employee attendance
- Take student attendance
- Fee collected
- Salary paid to employee's over a time period Student
- Mail send and receive

5.3 System Features

Student Management

- Admission dashboard and admission management.
- Create student categories.
- Students list with default filters and custom filters.
- Add, view and manage student guardian details.
- Generate PDF reports of student profiles.

Employee Management

- Create employees and manage employee details.
- Employee leaves.
- Employee attendance management.
- Manage and Assign employee Category, Department, Positions and Grades.

Courses and Subjects Management

- Create and manage Courses, Batches and Subjects (including electives).
- Assign Weekdays, batch start & end dates, Class-teacher etc.
- Set Course-Batch-Subject associations.
- Limited management of Attendance, Timetable and Exams.

Fees Management

- Create and manage Fee-Category and Particulars.
- Create Fee-Collection schedule and enter collected fees.
- Manage Paid and Payable fees per student, per batch etc.

Examination Management

- Create and manage Exams.
- Enter marks of exams
- View assessment dashboard and set grading levels.
- Generate PDFs of report cards.

Attendance Management

- Create and monitor various employee and student attendance records.
- Create and View the Detail and Reason for availed leaves.

Reports Management

- Create Comprehensive reports per student.
- Generate Batch and student wise assessment/progress reports.
- Generate Reports for Employee and Student attendance.

Library Management

- Search and List all books.
- Add book details.
- Manage the Lending and Returning of books.
- Create Book-Categories and Author lists.

5.4 Functional Requirement

Owner

- Owner shall be able to log in to the system
- Owner shall be able to add Admin to the system
- Owner shall be able to view profit through the system
- Owner shall be able to view board exam details
- Owner shall be able to send and receive mail from other staff

Admin

- Admin shall be able to log in to the system
- Admin shall be able to add employee to the system
- Admin shall be able to view employee and student attendance details
- Admin shall be able to create admission schedule
- Admin shall be able to assign subject for a teacher
- Admin shall be able to create new subject

Head Teacher

- Head Teacher shall be able to log in to the system
- Head Teacher shall be able to assign subject for a teacher
- Head Teacher shall be able to set examiner
- Head Teacher shall be able to manage board exam

Teacher

- Teacher shall be able to log in to the system
- Teacher shall be able to view student details
- Teacher shall be able to view parent details
- Teacher shall be able to upload exam mark
- Teacher shall be able to take attendance for student

Accountant

- Accountant shall be able to log in to the system
- Accountant shall be able to add student to the system
- Accountant shall be able to collect fees from student
- Accountant shall be able to pay salary to employees
- Accountant shall be able to view financial details
- Accountant shall be able to manage inventory

Librarian

- Librarian shall be able to log in to the system
- Librarian shall be able to add books to library
- Librarian shall be able to manage borrow book
- Librarian shall be able to search book
- Librarian shall be able to search borrow history

Attendance-Taker

- Attendance-taker shall be able to log in to the system
- Attendance-taker shall be able to take attendance of employees

5.6 Non-Functional Requirement

Availability

- Every 6 days in a week the system should be available.

Security

- User's password should be encrypted by the system.

Usability

- The users should not need more than 2 hours to learn how to use the system.

Maintainability

- The system should remain close for 24 hours per week to maintain and elaborate.

Reliability

- The system should not crash for more than 10 minutes per month.

Recoverability

- The system should be recovered any time it is needed.

5.7 Test Plan

5.7.1 Feature to Be Tested

Owner

FR-1: Owner shall be able to log in to the system.

FR-2: Owner shall be able to add Admin to the system.

FR-3: Owner shall be able to send and receive mail from other staff.

Admin

FR-4: Admin shall be able to log in to the system.

FR-5: Admin shall be able to add employee to the system.

FR-6: Admin shall be able to create admission schedule.

FR-7: Admin shall be able to assign subject for a teacher.

FR-8: Admin shall be able to create new subject.

Head Teacher

FR-9: Head Teacher shall be able to log in to the system.

FR-10: Head Teacher shall be able to assign subject for a teacher.

FR-11: Head Teacher shall be able to set examiner.

FR-11: Head Teacher shall be able to create course.

Teacher

FR-12: Teacher shall be able to log in to the system.

FR-13: Teacher shall be able to view student details.

FR-14: Teacher shall be able to view parent details.

FR-15: Teacher shall be able to upload exam mark.

FR-16: Teacher shall be able to take attendance for student.

Accountant

FR-17: Accountant shall be able to log in to the system.

FR-18: Accountant shall be able to add student to the system.

FR-19: Accountant shall be able to collect fees from student.

FR-20: Accountant shall be able to pay salary to employees.

FR-21: Accountant shall be able to view financial details.

FR-22: Accountant shall be able to manage inventory.

Librarian

FR-23: Librarian shall be able to log in to the system.

FR-24: Librarian shall be able to add books to library.

FR-25: Librarian shall be able to search book.

FR-26: Librarian shall be able to search borrow history.

Attendance-Taker

FR-27: Attendance-taker shall be able to log in to the system

FR-28: Attendance-taker shall be able to take attendance of employees

5.7.2 Feature Not To Be Tested

Owner

FR-29: Owner shall be able to view profit through the system

FR-30: Owner shall be able to view board exam details

Admin

FR-31: Admin shall be able to view employee and student attendance details.

Head Teacher

FR-32: Head Teacher shall be able to manage board exam.

Librarian

FR-33: Librarian shall be able to manage borrow book.

5.8 Test Deliverables

1. Before testing phase

- Test plans document.
- Test cases documents.
- Test Design specifications.

2. During the testing

- Test Data.
- Test execution logs.

3. After the testing cycles is over

- Test Results

5.9 Test Case

FR-1: Login to the system.(All type of user)

Project Name: School Management System			Test Designed By: MD. Talat Iram	
Test Case ID: TCSMS-01			Test Designed date: April 1, 2020	
Test Priority (Low, Medium, High): High			Test Executed by: MD. Talat Iram	
Module Name: Login			Test Execution date: April 5, 2020	
Test Title: Login with user ID and password				
Description: Specific user home page				
Precondition: Have a valid user ID and passwords				
Test Steps	Test Data	Expected result	Actual results	Status (Pass/Fail)
Go to the Application Enter User ID Enter password Click Login	User ID: 17-34042-1 Password: 2256	User should login with the system	PASS	PASS
Post Condition: User successfully login with the system.				

Table 1: Test Case 1

FR-11: Head Teacher shall be able to create course.

<table>
<tr><td colspan="3">Project Name: School Management System</td><td colspan="2">Test Designed By:
Talat Iram</td></tr>
<tr><td colspan="3">Test Case ID: TCSMS -02</td><td colspan="2">Test Designed date:
April 3, 2020</td></tr>
<tr><td colspan="3">Test Priority (Low, Medium, High): High</td><td colspan="2">Test Executed by:
Talat Iram</td></tr>
<tr><td colspan="3">Module Name: Create Course</td><td colspan="2">Test Execution date:
April 6, 2020</td></tr>
<tr><td colspan="5">Test Title: Verify course creation with required information</td></tr>
<tr><td colspan="5">Description: Test the system’s course create section</td></tr>
<tr><td colspan="5">Precondition: Need to have class & course details</td></tr>
<tr><td>Test Steps</td><td>Test Data</td><td>Expected Results</td><td>Actual results</td><td>Status (Pass/Fail)</td></tr>
<tr><td>– Go to the Application
– Enter class name
– Enter course details
– Enter day
– Enter time
– Click add button</td><td>Subject Id: 111
Name: Bangla
Class: 1
Day: Saturday
From: 8:00 AM
To: 9:00 AM</td><td>Subject should be assigned as specified</td><td>Course Created</td><td>Pass</td></tr>
<tr><td colspan="5">Post Condition: Head Teacher should have successfully assigned the course through the system.</td></tr>
</table>

Table 2: Test Case 2

FR-24: Librarian shall be able to add books to library.

Project Name: School Management System			Test Designed By: Borhan Uddin	
Test Case ID: TCSMS-03			Test Designed date: April 3, 2020	
Test Priority (Low, Medium, High): High			Test Executed by: Khan Md. Ashfaque Uddin	
Module Name: Add book			Test Execution date: April 6, 2020	
Test Title: Verify adding new book				
Description: Test the system's adding new book				
Precondition: Different Book should have unique id				
Test Steps	Test Data	Expected Results	Actual results	Status (Pass/Fail)
– Go to the application – Enter book details – Select category – Click Add button	Book Id: 111 Edition: 3rd Shelf: f4 Title: Bangla Author: Nazrul Quantity: 10	Books should be added	Books added	Pass
Post Condition: Books should have been added to the library book list				

Table 3: Test Case 3

FR-12 :Head Teacher shall be able to set grading level.

Project Name: School Management System			Test Designed By: Borhan Uddin	
Test Case ID: TCSMS-04			Test Designed date: April 3, 2020	
Test Priority (Low, Medium, High): High			Test Executed by: Borhan Uddin	
Module Name: Set grading level			Test Execution date: April 6, 2020	
Test Title: Verify setting grading level				
Description: Test the system's grading section				
Precondition: No precondition				
Test Steps	Test Data	Expected Results	Actual results	Status (Pass/Fail)
- Go to the application - Enter the marks range - Enter grade - Click set button	Marks Range:90-100 Grade: A+	Grade should be set	Grade set	Pass
Post Condition: Grading level should have been set correctly				

Table 4: Test Case 4

FR-25: Librarian shall be able to search book by author name.

Project Name: School Management System			Test Designed By: Talat Iram	
Test Case ID: TCSMS-05			Test Designed date: April 3, 2020	
Test Priority (Low, Medium, High): Medium			Test Executed by: Talat Iram	
Module Name: Categorize book by author list			Test Execution date: April 3, 2020	
Test Title: Verify searching the books by author name				
Description: Test if librarian can find all same author's book by author name.				
Precondition: Books should have author name				
Test Steps	Test Data	Expected Results	Actual results	Status (Pass/Fail)
– Go to the application – Click on search books – Write author name on the author text box.	Author: Kamal	All books of the specified author's should be displayed	Got all the books of Kamal	pass
Post Condition: Librarian should have found all the desired books by author name				

Table 5: Test Case 5

FR-10: Head Teacher shall be able to assign subjects to the teachers.

Project Name: School Management System			Test Designed By: **Borhan Uddin**	
Test Case ID: TCSMS-06			Test Designed date: April 3, 2020	
Test Priority (Low, Medium, High): High			Test Executed by: Borhan Uddin	
Module Name: Assign Subjects			Test Execution date: April 6, 2020	
Test Title: Verify assigning subjects to the teachers				
Description: Test the subject assigning with the required information.				
Precondition: Teacher and subject ID should be valid.				
Test Steps	Test Data	Expected Results	Actual results	Status (Pass/Fail)
– Go to the application – Click on assign subjects – Fill up the requirements – Click set button	Session: 2020 Teacher's ID: 321 Subject Id: 111 Day: Monday Name: Bangla Time: 8:00-9:00 Class:1 Sec: A	Subject should be assigned correctly.	Subject assigned	pass
Post Condition: Subject should have been assigned correctly for the specified teacher.				

Table 6: Test Case 6

FR-5: Admin shall be able to add employee to the system.

Project Name: School Management System			Test Designed By: Talat Iram	
Test Case ID: TCSMS-07			Test Designed date: April 3, 2020	
Test Priority (Low, Medium, High): High			Test Executed by: Talat Iram	
Module Name: Add Employee			Test Execution date: April 9, 2020	
Test Title: Verify Registration with phone number/email and password				
Description: Test the system's registration page				
Precondition: Have a valid phone number and 4 length's passwords				
Test Steps	Test Data	Expected Results	Actual results	Status (Pass/Fail)
– Go to the Application – Enter phone number – Enter password – Click submit	Phone number: 01788357527 Password: 2256	User should login with the system		
Post Condition: User has been successfully registered with the system.				

Table 7: Test Case 7

5.10 Risk

Risk	Details	Mitigation
Skills	Team member lack the required skills for software testing.	Plan training course to skill up your members
Resources	The project schedule is too Tight. It's hard to complete this project on time	Set Test Priority for each of the test activity.
Leadership	Test Manager has poor management skill	Plan leadership training for man-ager
Concentration	A lack of cooperation negatively affects your employees' productivity	Encourage each team member in his task, and inspire them to greater efforts.
Defects	Defects are found at a late stage of the cycle	Defect management plan is in place to ensure prompt communication and fixing of issues.

Risks during testing

Reference

1. https://www.academia.edu/36247893/School_Management_System_Project_Document.docx
2. http://dspace.bracu.ac.bd/xmlui/bitstream/handle/10361/9154/16373005_M.Engg%20CSE.pdf?sequence=1&isAllowed=y
3. https://www.scribd.com/doc/65038044/School-Management-System-Documentation
4. https://sourceforge.net/projects/schoolms/files/Documentation/SMS_Requirement_Definition.pdf/download
5. https://www.slideshare.net/aki_string/school-management-system-21413550
6. https://codecanyon.net/search/school%20management%20system
7. http://relaut.com/reliable-school-management-documentation/
8. https://zaman-it.com/school-management-software-erp