Bahria College Islamabad
Student Information System

by

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DEDICATION

This project is dedicated to our beloved parents, respected teachers who helped and supported us throughout this project and all those who prayed for our success.

ACKNOWLEDGEMENTS

All praise to **Allah Almighty**, Lord of all creations and His **Prophet Muhammad (S.A.W)** Whose blessings enabled us to carry out this project and who bestowed us with the knowledge and courage to complete it successfully.

We wish to express our gratitude to the persons who have given their heart whelming support in completion of our project and in our educational career that is Mr. Rizwan Amir for supervising us in this project, we really appreciate his efforts and care and Mr. Naveed Umar for his continued support and guidance without which we could not have been able to carry out this project. We will never forget this teacher, he had always been ready to help and guide us throughout the project in any way possible. Our teachers' guidance and suggestions will always help us in every aspect of life.

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ABSTRACT

This system is specially designed for Bahria College Islamabad to overcome the problems they previously faced and streamline the process of managing students' information. The strongest features of this system are the admission process, examination process and the fee management process which have been made automatic to make processing more smooth and time efficient. The following document explains the working and complexities of the system in great detail.

Chapter – 1

Introduction

Chapter – 2

Literature Survey

Chapter – 3

Requirements Engineering

Chapter – 4

Proposed System

Chapter – 5

System Design

Chapter – 6

Implementation & Testing

Chapter – 7

Future Development

&

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User Manual

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1.1. Project Description

The Student Information System (SIS) is the prime system for functioning schools. It is an automation of the processes of the school i.e. registration process, admission process, fee process, examination process and attendance process. The system aims on providing as much ease as possible to Bahria College's management to make their work faster.

1.2. Purpose

The purpose of this document is to collect, analyze and define high level needs and features of the SIS. It focuses on meeting the requirements and needs of the stakeholders and target users. The details of how this system meets these requirements are specified in the use-cases and added specifications.

1.3. Background

Bahria College Islamabad, normally abbreviated as BCI, is a college in Islamabad, started by the Pakistan Navy in 1983. It offers education from kindergarten up to Fsc/A level. The school is partitioned into four sections i.e. primary section, girls section, boys section and cambridge section which is associated with the cambridge University. The primary and cambridge section are co-educational whereas boys' and girls' section (secondary wing) provides different schooling for boys and girls till high school. The authority of the college supervises the students and keeps up strict discipline all over the institute. There are quite a few computer labs in the college, which are equipped with computer and printer facility. Wi-Fi is not present but the computers are interconnected via LAN. [8]

1.4. Project Scope

The system provides an efficient tool that will improve main processes of the school. It maintains its own database to keep all the information needed for SIS i.e. user management, creation and management of classes, section management,

student admission process, merit-list generation, session management, fee process, examination process, attendance system and report generation. It will also improve students' information retrieval.

1.5. Product Perspective

1.5.1. Modules

- Admission
- Registration
- Fee management
- Attendance
- Examination

1.5.2. User-Characteristics

The end-user should have necessary computer knowledge to use work with it. User should be capable to follow the basic instructions specified by the system.

1.5.3 Constraints

- Merit list Marks entry (both interviews and entry test) is manual. Our system acquires accumulated marks of merit list manually.
- Software could include the testing and evaluation process for each student as well but as the software has been developed for our clients i.e. Bahria College's testing processes are not well standardized, that's why scope had to be made limited.
- Since it was necessary to keep in mind client's existing way of processing information, the features provided have been made client-oriented. So that they do not face problems in switching from old system to the new one.

1.6. Intended Audience

1.6.1. Non-User Audience

Name	Description	Responsibility
System Analyst	One of the stake holders whose role is to work on gathering all the useful needs required to develop software.	Gathers and manages the requirements that are used to identify system's functionality.
Developer	The one who's in-charge for development of the software.	Developer is responsible for designing and maintaining the system architecture. And to make sure that the architecture chains with the functional requirements
Project Manager	The one, who plans, defines objectives, executes and makes sure that the project is completed within time and that it meets the constraints.	Manages the project development from the start till its completion. Defines resources, milestones, assigns roles and responsibilities to the team and spots the dependencies, critical paths.
Tester	Performs all necessary tests to examine the software form client's perspective. Tester will actively use the system to check the system for errors and malfunctioning.	Finds out and rectifies the bugs in the system to ensure the quality and performance of the software. Defines the test cases based on the requirements specified by user.

Table 1.1 Non-User Audiences

1.6.2. User Audience

Name	Description	Features Used
Principal of Bahria College	End user of the system	• Login • Reporting
Administrator	Primary user of the system	• Login • User Management • Class Management • Section Management • Admissions • Fee Management • Attendance Management • Exams Management • Reporting
Accounts Officer	End user of the system	• Login • Admissions • Fee Management • Reporting
Examiner	End user of the system	• Login • Exam Management • Reporting

Table 1.2 User Audiences

2.1. Analysis of Existing System

System analysis is basically a method that helps in understanding the current system and client's demands. By conducting system analysis Bahria College's main processes, their work flow and problems were determined and the areas where there was a need improvement were identified. It helped a lot in recognizing what users want and how to meet their requirements.

2.1.1 Work Flow

Main processes of Bahria College are operated manually except for the fee system. Each time student applies for admission in the college, his/her data is entered manually and entry test or interview date is given at the same time. Entry test marks are evaluated and then merit list is generated manually, the applicant is confirmed as student once he/she submits the admission fee. After this whole manual process of admission, student is allotted class and section and all the related information of student, from his/her personal info to attendance record, exam marks and previous history etc is recorded in registers. The system is unable to cope up with the problems reason being that a very few items are stored on computers. This is why the existing system is unable to keep tempo with the management's needs and has failed to process the information well. Retrieval of information is inefficient and slower due to which it has become grave to meet the goals of school. As a result, school needs an improved and much efficient SIS. They need to setup a new scheme on the server to improve their quality of education.

2.1.2. Tool Used

The current fee system is based on FoxPro which is an out-dated tool now-a-days, because no fresh versions of FoxPro will be launched in future. Main issues with using FoxPro are that it has size limitation; in addition to that, it is not as secure and scalable as MS SQL and also

expertise for FoxPro are not available as much as there are available for other tools like MS. SQL, Oracle etc.

2.2. Problem Statement

Bahria College needed a computerized system to make their processes more effective, accurate and time efficient. They only had the fee management system with a lot of bugs while other processes were carried out manually which was very troublesome and required a lot of human effort.

2.3. Drawbacks of Existing System

2.3.1. Time

Time delay in processing of information. When pertaining to the manual process of Bahria College, major problem they face is waste of time. A lot of time is wasted in entering the data manually and going through all the process manually is a very time consuming job, be it the registration process, admission process, fee process or exam process. In short, the manual processes are too slow, but automating them will reduce the time consumed.

2.3.2. Human Effort

A lot of human effort is required to manage students' information.

2.3.3. Inefficient Searching

Searching is inefficient. Since most of the information is not kept in computers, searching and retrieving required information consumes a lot of time. Especially when they need to extract the information of students who have not yet paid the fee. The current system is unable to search the students' category wise.

2.3.4. Redundancy

Redundancy is a major issue. Since the system is manual, data is duplicated at multiple locations; hence each instance must be updated in order to keep the data consistent. This also leads to data inconsistency as data is replicated at numerous places.

2.3.5. Inaccurate Data Processing

Data processing is not accurate.

2.3.6. Bugs in Calculation

Every time the system gives different result of total monthly fee for same data/values.

2.3.7. Rollback Transaction

The current system is unable to reverse/rollback the fee transactions. It does not take in account or generate alerts for the students who have not yet paid the fee.

2.3.8. Defective Reports

As the system deals with large amount of data which is recorded manually by the administrator, there is a problem of defective reports.

2.3.9. Fee System

Current fee system is unable to automatically generate discounts or fee concessions for specific categories i.e. army, navy, PAF, civilians etc.

2.3.10. Limited Entries

In current fee system, only 10,000 students can be added because the system is unable to store more than 10,000 entries.

3. Requirements Engineering

Requirement analysis is a major part of software project management. It is basically a method of getting user requirements and finding out their expectations from the proposed software. Requirements tell us what a system is anticipated to do. For this process we had to arrange many meetings with our client and supervisor.

3.1. Requirements Elicitation

The methods we used to carry our search are:

3.1.1. Interviews

Interviews are totally focused on what the client wants. In our interview sessions with our client and other stakeholders, we tried to extract and obtain all the necessary information which was needed to develop the software. We conducted open-ended interviews with our client to know and understand their demands.

3.1.1.1. Interview Questions

- What are the main departments of Bahria college?
- What are the main processes?
- Relationship between these processes?
- What are the jobs of each process?
- Who handles them?
- What do they do?
- Dataflow?
- What are the flaws in existing system?
- What are the improvements expected from new system?
- What are the executives or other reports required?

3.1.2. Brainstorming

Brainstorming sessions were conducted to anticipate and understand requirements. Using the ideas that we gathered from brain storming were very helpful in defining the goals and the things we need to carry out to achieve those goals.

3.1.3. Samples of Reports, Existing Documents and Forms

This technique included gathering of all the necessary reports and forms that were previously used by Bahria College. So that we get to know about their way of processing their information, the way they carry out their tasks and what tasks they want our system to perform.

3.1.4. Ethnography of the College

Ethnography fundamentally is a technique in which a person plunges into the environment to gain understanding of the system , as in who does what, system's functions and goals. We had to limit our study to few days in order to analyze the system and gather required info. This evaluation tool helped us a lot in developing the basic concept of what the end-user wants and also helped us in testing our product and resolving the conflicts, since by the end of our research, we knew what are their expectations, processes and their overall fashion of carrying out these procedures. The chief processes we followed for ethnography are:

- Brainstorming
- Analysis of organization's policies and procedures
- Study of current system and the relationship between different processes.
- Selection of suitable users to have an interview with.

3.2. Requirement Analysis

Once the necessary information was collected from the client and other stakeholders, we needed to analyze and further study these requirements to detect and rectify the conflicts in these requirements. We also described the boundaries of the system in this phase of requirement engineering.

3.3. Requirement Validation

Gathered requirements were then validated to ensure that we had well understood the requirements and there were no conflicts in them. Then they were also verified to make sure that they match the goals and standards which were previously laid down. We also got our end-users involved in this process to rectify false assumptions, if any and to take their guidance to review the checklist. We did requirement validation by:

- Validating product w.r.t customer's demand.
- Conducting reviews.
- Creating test-cases.

4.1. Product statement

This system will provide Bahria college's management and administration with a well managed system which will be very helpful and reliable in maintaining students' information in an organized way. It will make the procedures like registration, student admission, fee management and examination system work in a more efficient and effective way, reducing the administrative burden on school.

4.2. Product Features

The salient features of the system are:

4.2.1. Control Panel to Manage the Users

Only authentic users will be allowed to access the system. This is to ensure application security.

4.2.2. Generation of Merit-List

Merit list will be generated automatically by the system, which will be based on entry test marks and total capacity of the class.

4.2.3. Admission

Admission process works automatically. Administrator will only enter the students detail and entry test marks, and system will generate merit list of the students with highest marks.

4.2.4. Fee management

Administrator can make different fee settings class-wise. Fee receipt can be printed easily for students of all classes. Also monthly statements and fee summary can be generated depending upon the categories of the students.

4.2.5. Class management

New classes can be created and edited according to the needs of college.

4.2.6. Section management

Each class contains many different sections, but each class will have limited amount of sections which are based on the total capacity of class.

4.2.7. Examination management

Exam marks can be entered by the administrator by selecting the class and section. System will automatically calculate the grade and total marks obtained by the student using subjects' marks.

4.2.8. Attendance Management

Administrator can easily change the calendar settings i.e. holidays etc. Administrator will only select the class and section and will mark the attendance of each student.

4.2.9. ID Card generation

ID card can be generated using the basic information of students.

4.2.10. Reporting

Different reports are available e.g. Fee slip, Exam result, Daily attendance, Total strength (category-wise and class-wise), Fee defaulters list, Monthly fee summary etc. [9]

4.3. Process Model

The process model used is spiral model. The reason behind choosing this model is that risk management is involved in each phase of spiral model which is the distinction between spiral model and other software process models. It involves analysis, design goals and client at each phase of the project.

Other process models can be incorporated as special-cases with the spiral model. By incorporating waterfall model, deliverables at the end of each phase can be defined clearly.

4.3.1. Phases of Spiral Model

Spiral model is made up of following phases:

- Project objectives – objectives, alternatives and constraint are defined.
- Risk assessment – Evaluation of the alternatives, risk analysis and risk mitigation.
- Development and validation – develop, implement and verify prototypes.
- Planning and management – plan the next phases, customer feedback.

The model uses prototyping for managing risks. Prototyping can be done at any phase of evolutionary development.

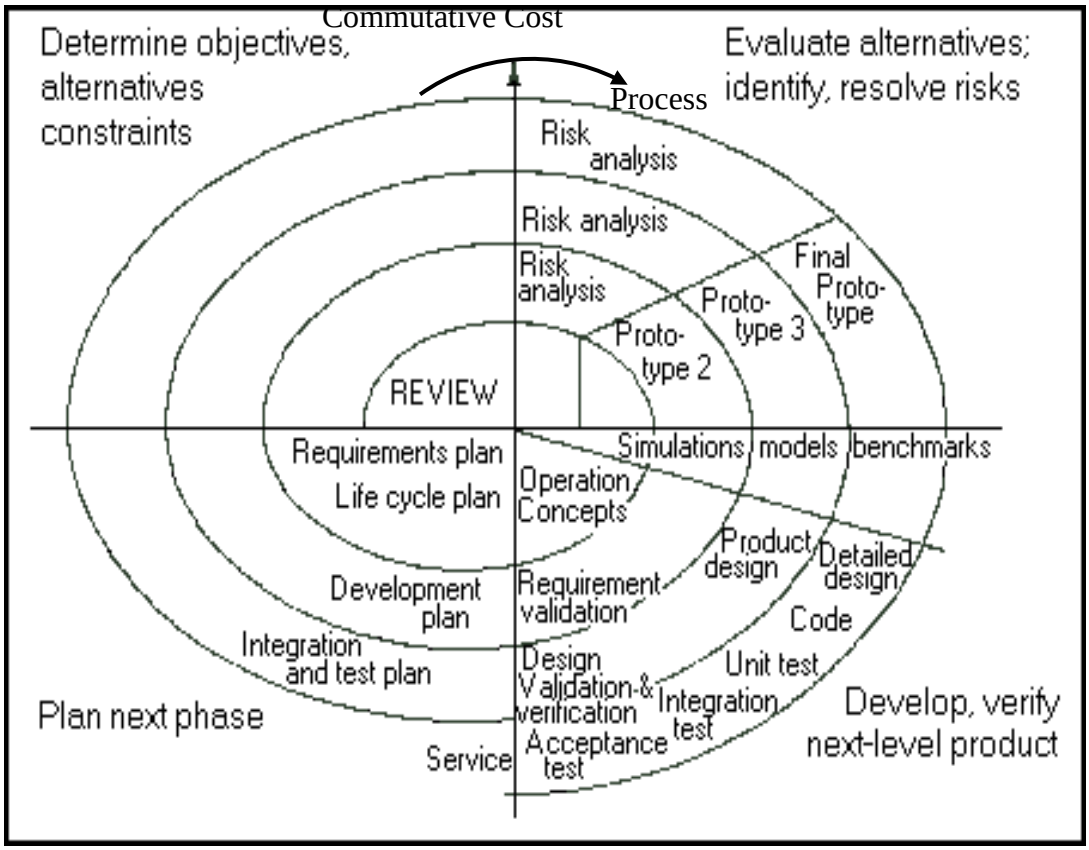


Figure 4.1. Spiral Model [4]

4.4. Software/Tool Used

- SQL Express 2005
- Microsoft Visual Studio .NET 2005
- Crystal Reports
- Microsoft Visio
- Adobe Photoshop

4.5. Hardware Requirements

Minimum hardware requirements for our system are:

4.5.1. Server

- Pentium-4 dual core
- Hard Disk 80 GB
- RAM 4GB or higher

4.5.2 Client

- Pentium-3 or higher
- Hard Disk 40 GB
- RAM 512 MB or higher

4.6. Advantages

The system provides proficient techniques for effective data compilation, storage, processing and retrieval and results. Other than that the system is:

4.6.1. User-Friendly

The described software is easy to use which will facilitate all kind of users as the clients need not to be professionals. The interface is so simple that anyone who has even basic understanding of computers will be able to use it easily.

4.6.2. Reliable

SIS will be persistent and fault tolerant.

4.6.3. Time Efficient

Since all administrative and management tasks have been computerized, therefore, less time will be consumed in processing of data.

4.6.4. Data Consistency

Information is accurate, accessible and up-to-date.

4.6.5. Error Free Calculations

Calculations are performed automatically by the system.

4.6.6. Data Cross-Checking Facility

Data cross checks can be done at different points e.g. crosscheck the report with the actual data.

4.6.7. Easy Access to Data

Access to information is much easier and accurate. Searching the data has been made easier.

4.6.8. Paper-less Environment

Manual tasks have been automated.

4.6.9. Better Views of Information

System will provide user with printable views of info as well as on-screen views of info.

4.6.1. Security

All users have separate accounts which will keep the data secure as well as it will help them distinguish their privileges from other users.

4.7. Assumptions

- Client must be able to follow the instructions given by the system. Because few things like merit criteria and seat allocation are strictly part of the system requirements.

- Applicants will be confirmed as students manually, which totally depends upon college's evaluation criteria.

4.8. Dependencies

- The system must be flexible enough to cater changes and up gradations.
- Our application is standalone, that's why there is no other dependencies in both ways i.e. input and output.

5.1. System Architecture

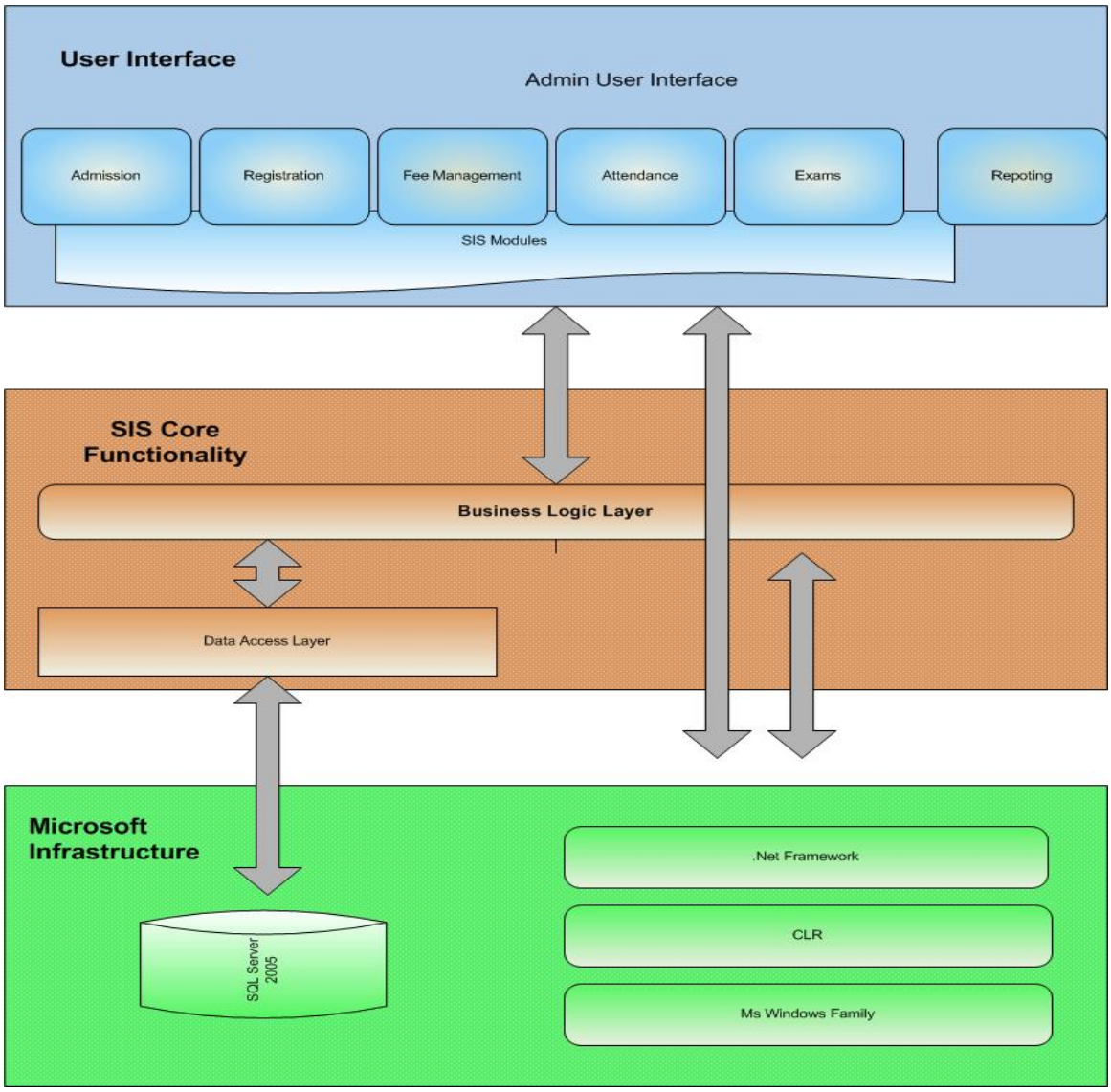


Figure 5.1 System Architecture

This is the overall design and structure of the system. It is a multi-tier architecture; with three layers having separate user interface, business layer and data layer. The diagram shows the relationship between the three layers i.e. user interface, SIS core functionality and Microsoft infrastructure. The reason behind using multi-tier architecture is that it provides flexibility of modifying the layers that are independent of each other, which makes up-gradation trouble free, simple and hence more efficient.

5.2. UML Modeling

5.2.1 Use cases

5.2.1.1. System Use-case

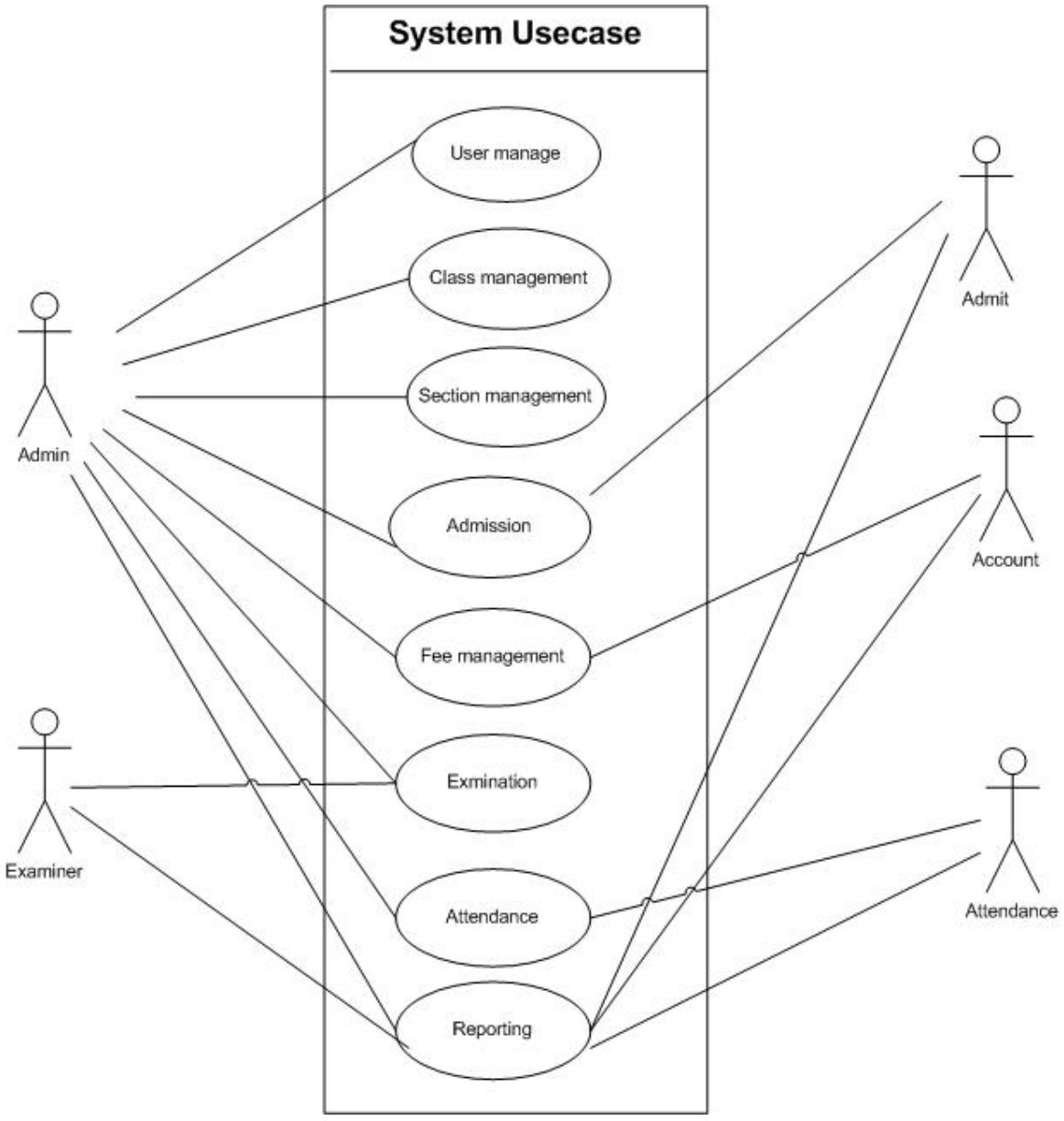


Figure 5.2 System Use-case

5.2.1.2-a. Login

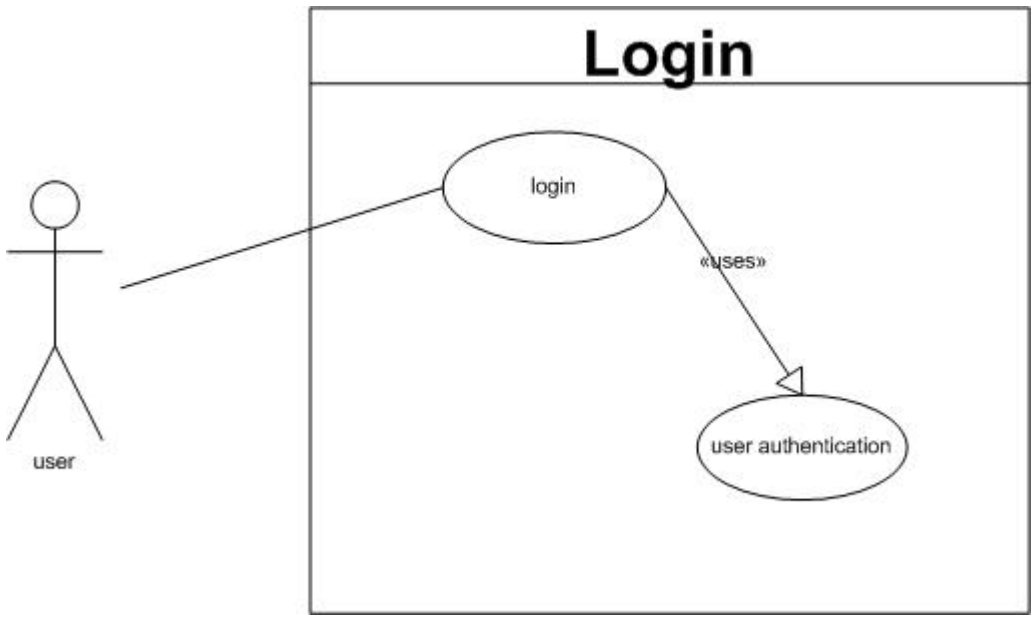


Figure 5.3 Login

5.2.1.2-b. Login

Use case section	**Comments**	
Use case name	Login Administrator	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Examiner, Accountant, Admission, Attendance officer	
Preconditions	The SIS application should be opened.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of login.	**2**. System verifies the information and determines the admin type. **3.** After which it opens the main window.
Extension/Alternation		**2a.**The system notifies that username/password entered is invalid. **3b**.All fields are required.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.1 Login

5.2.1.3. Class Management

5.2.1.3.1-a. Class Registration

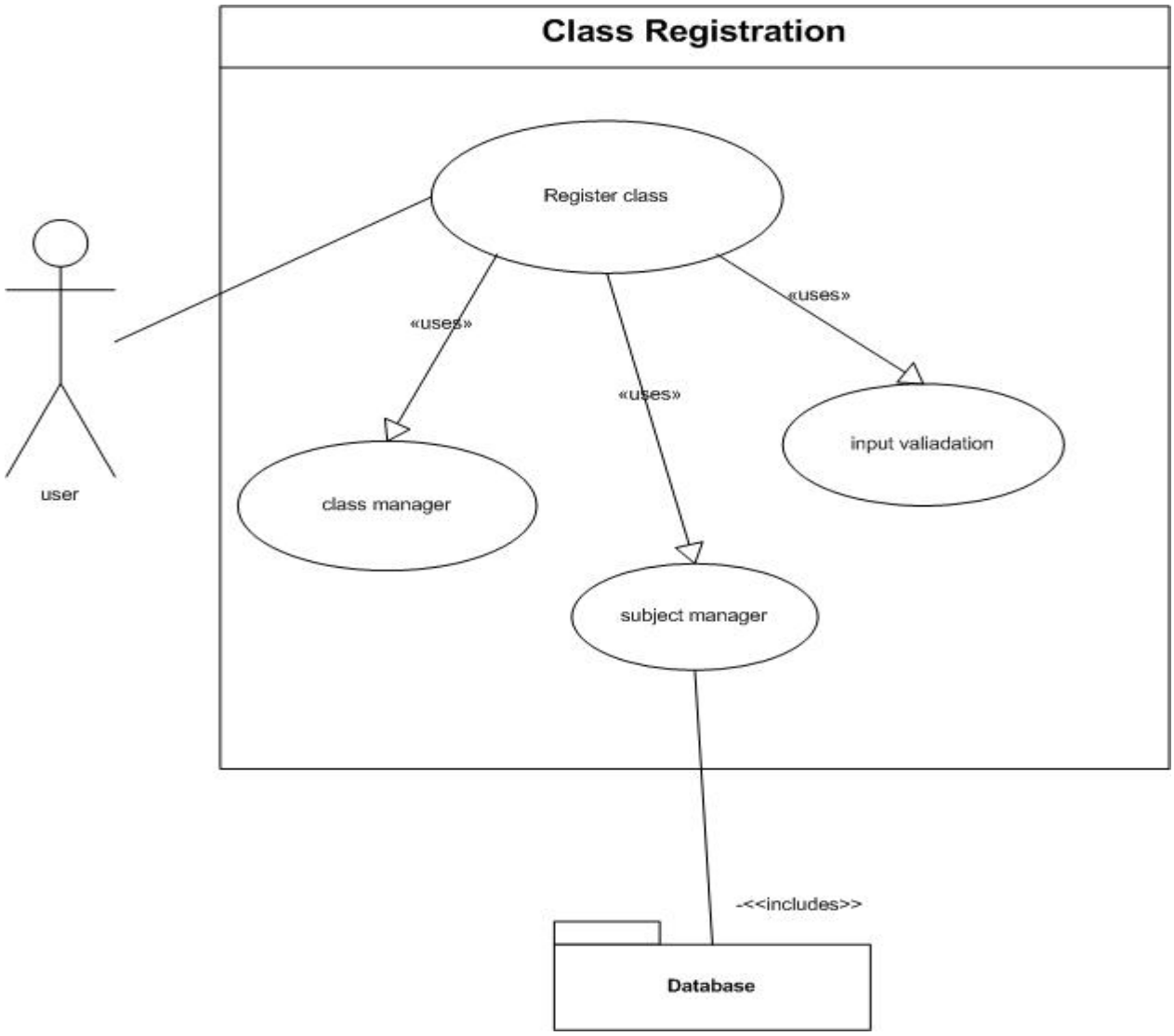


Figure 5.4 Class Registration

5.2.1.3.1-b. Class Registration

Use case section	**Comments**	
Use case name	Register Class	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator	
Preconditions	The SIS application should be opened and register new class.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of Class.	**2**. System verifies the information and determines the class type. **3.** After which the new class is registered.
Extension/Alternation		**2a.**The system notifies that class information is invalid. **3b**.All fields are required.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.2 Class Registration

5.2.1.3.2-a. Edit Class

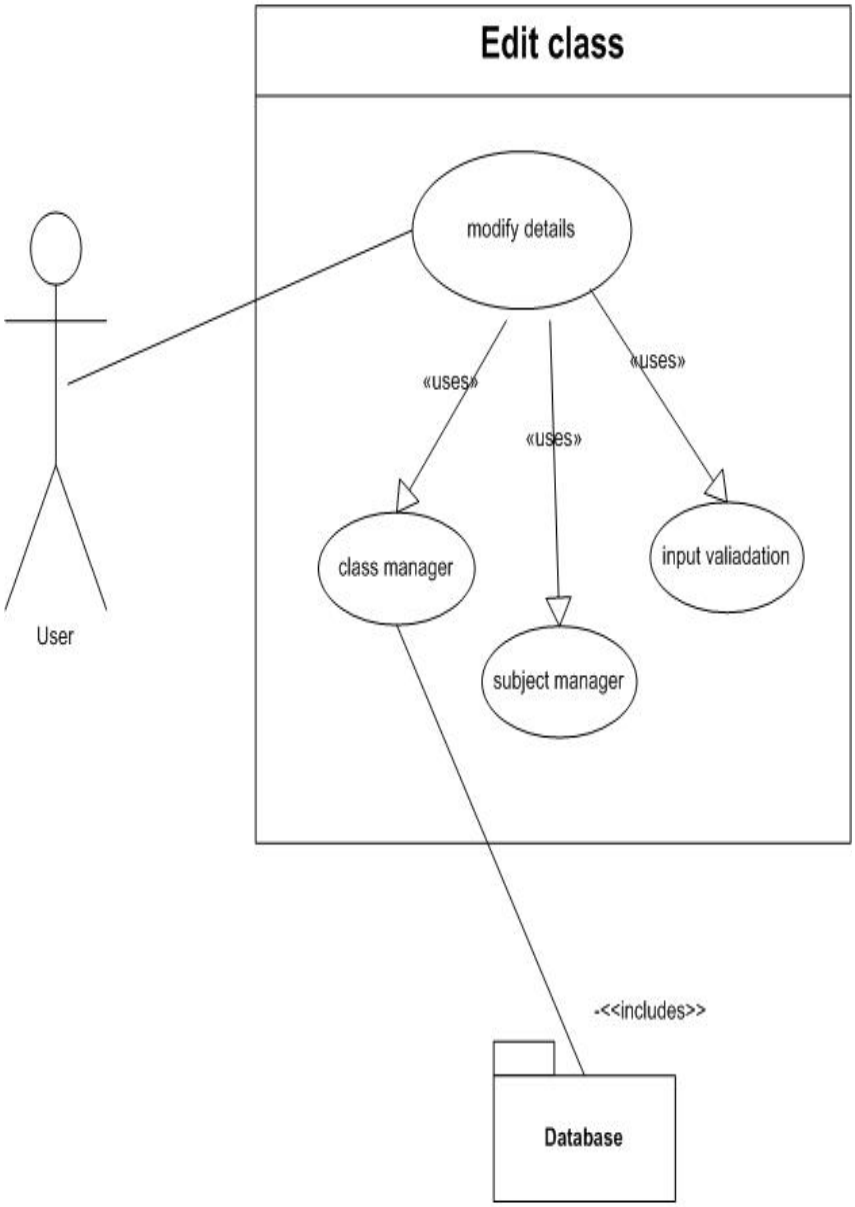


Figure 5.5 Edit Class

5.2.1.3.2-b. Edit Class

Use case section	**Comments**	
Use case Name	**Edit Class**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder & Interest	Administrator	
Preconditions	The SIS application should be opened and edit new class.	
Success Guarantee	Administrator successfully edits class information without any problem.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. Administrator selects to edit class information.	**2.** System provides the following information for editing: • Class Name • Class Type • Display Rank • Total seats **3.** System edits the Class information.

Extension/Alternates		**2a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.3 Edit Class

5.2.1.4. Section Management

5.2.1.4.1-a. Register New Section

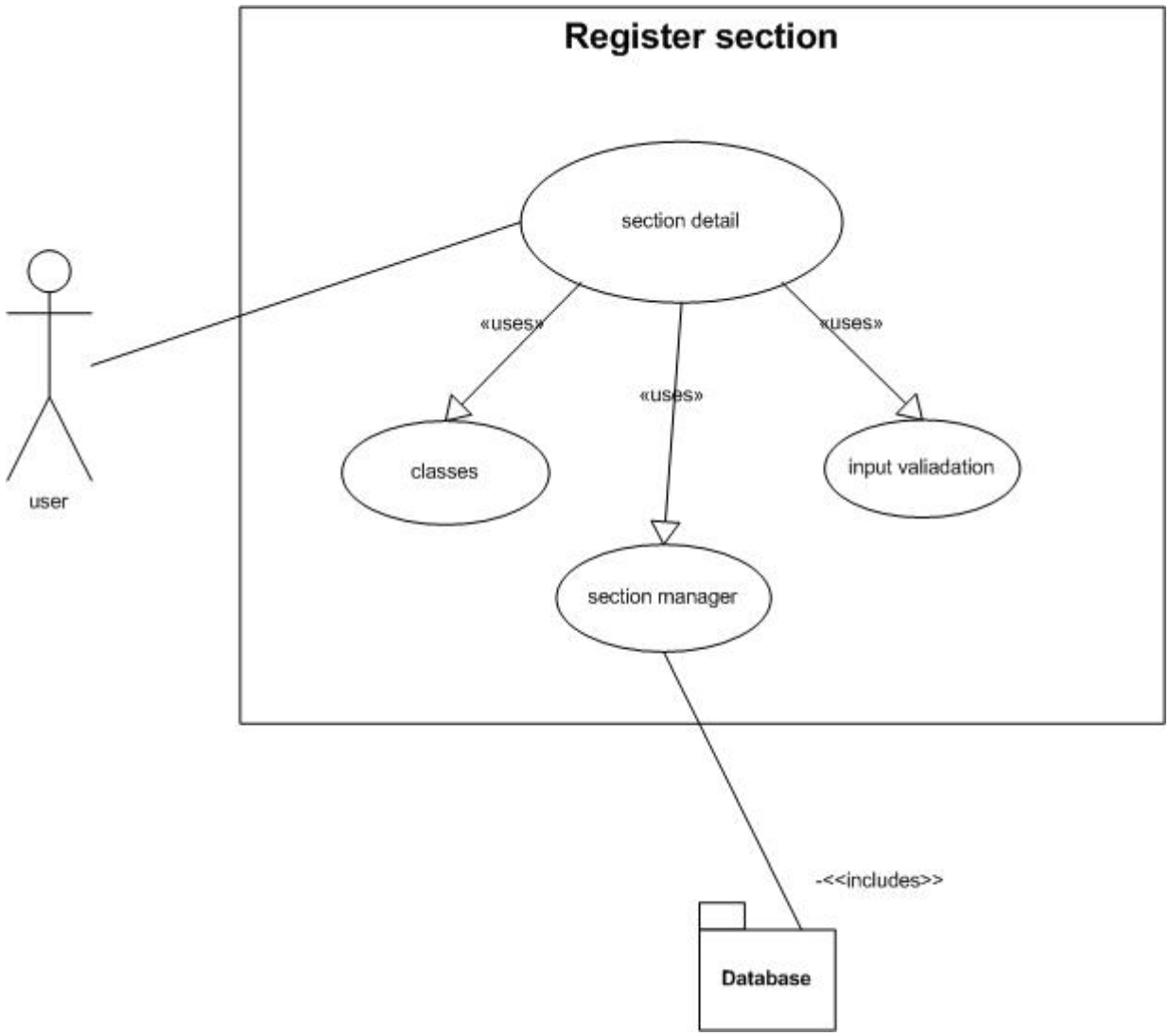


Figure 5.6 Register New Section

5.2.1.4.1-b. Register New Section

Use case section	**Comments**	
Use case name	Register New Section	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of new section.	**2**. System verifies the information and determines the User type. **3.** After which new section is created.
Extension/Alternation		**2a.**The system notifies that the user information is invalid. **3b**.All fields are required.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.4 Register New Section

5.2.1.4.2-a. Edit Section

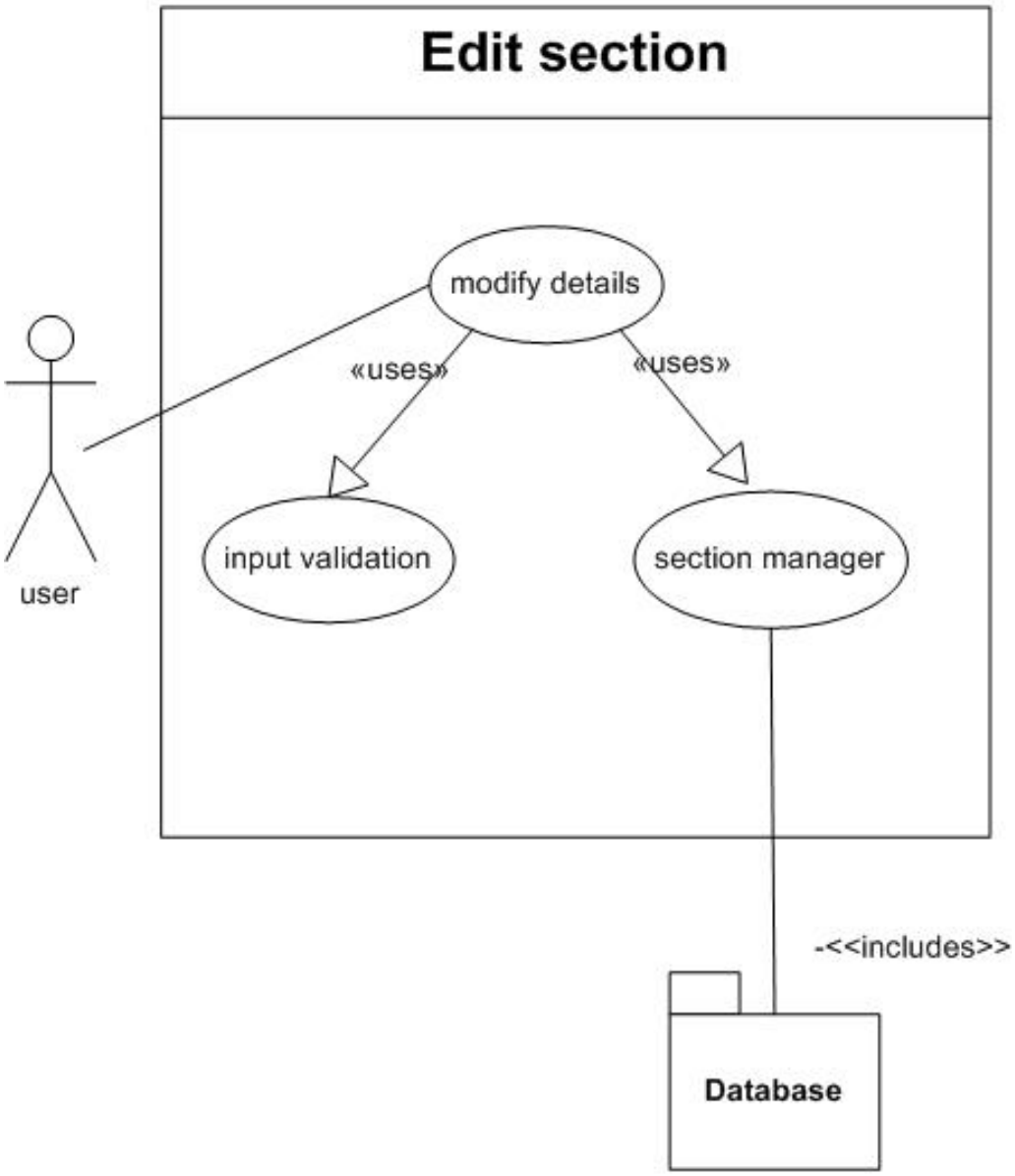


Figure 5.7 Edit Section

5.2.1.4.2-b. Edit Section

Use case section	**Comments**	
Use case Name	**Edit Section**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder & Interest	Administrator	
Preconditions	The SIS application should be opened and edit new section.	
Success Guarantee	Administrator successfully edits section details without any problem.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. Administrator selects to edit section information.	**2.** System provides the following information for editing: • Section Nature • Section Name • Section Class • Total seats **3.** System edits the Section information.

Extension/Alternates		**2a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.5 Edit Section

5.2.1.5 Admission Management

5.2.1.5.1-a. Manage Session

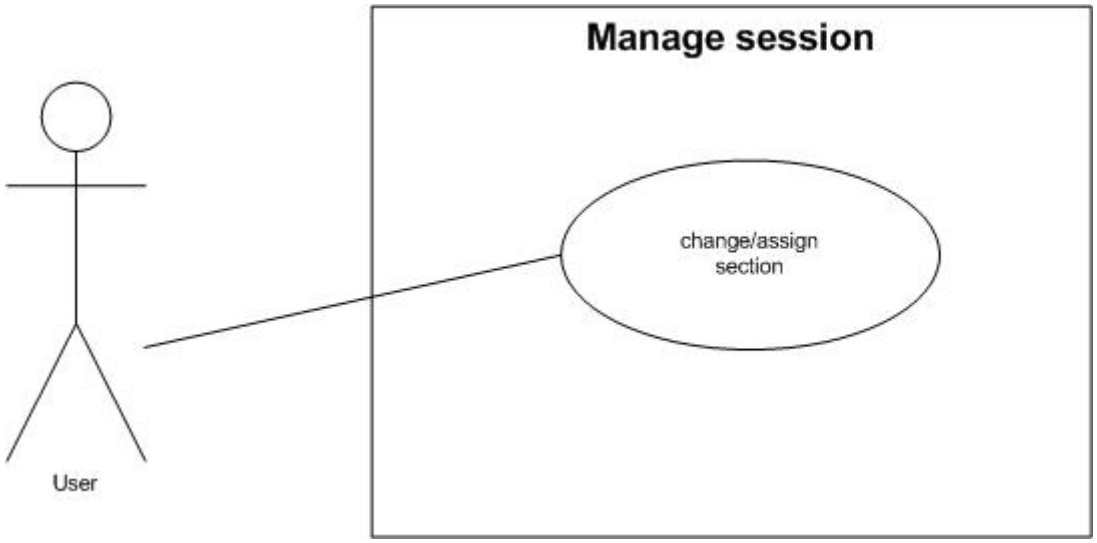


Figure 5.8 Manage Session

5.2.1.5.1-b. Manage Session

Use case section	**Comments**	
Use case name	Manage Session	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Admission	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of manage session.	**2**. System verifies the information and determines the User type. **3.** After which configuration for session is added successfully into the system.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.6 Manage Session

5.2.1.5.2-a. Applicant Registration

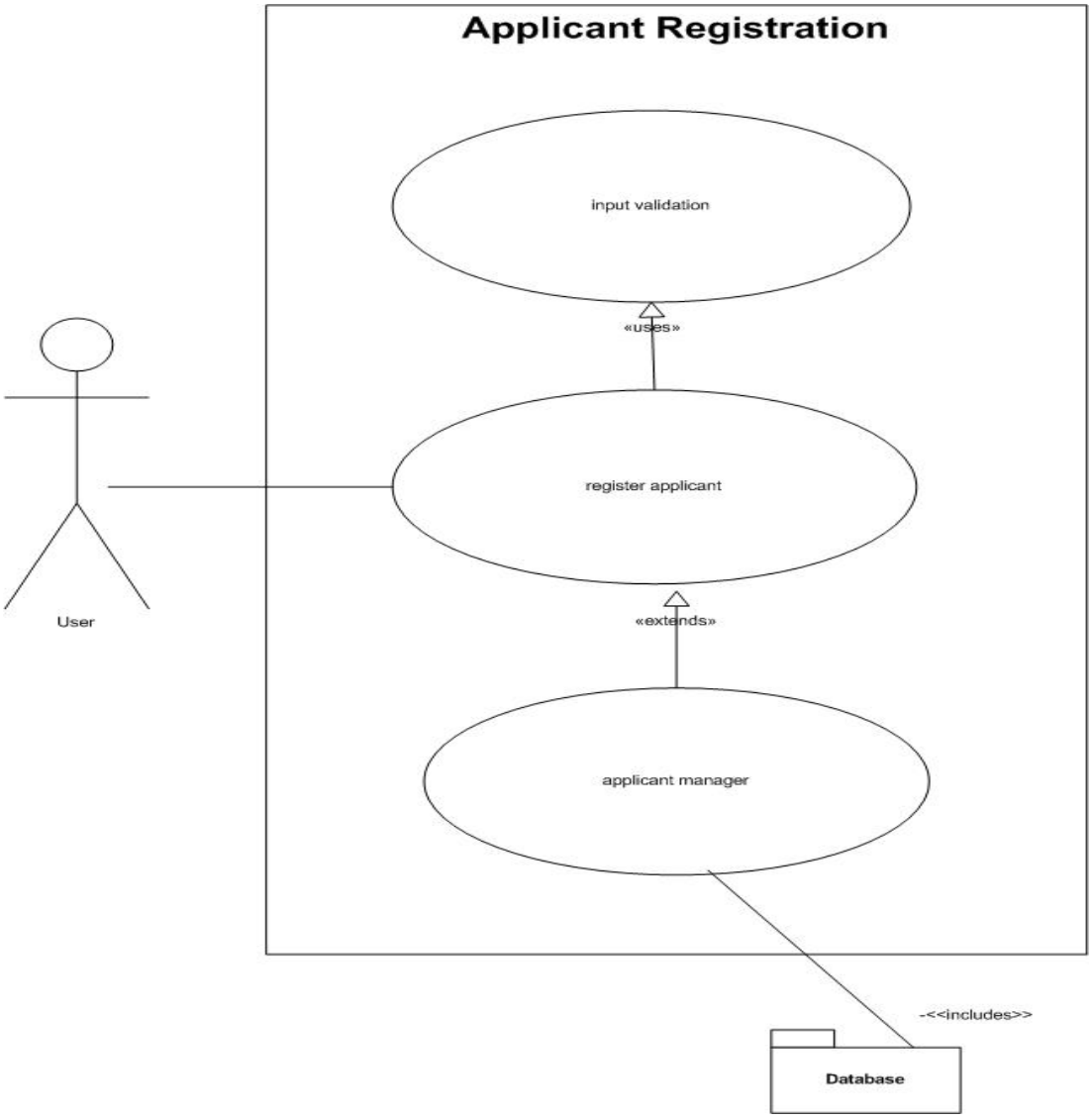


Figure 5.9 Applicant Registration

5.2.1.5.2-b. Applicant Registration

Use case section	**Comments**	
Use case Name	**Applicant registration**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder and Interest	Administrator, Admission Officer	
Preconditions	The SIS system should be opened and the administrator should be logged in.	
Success Guarantee	New applicant is successfully added into the system without any problem.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. Administrator selects to add a new applicant. **2.** Administrator enters the information. **3.** Administrator selects to check availability of Login ID.	**4.** System checks and shows availability message. **5.** System adds the Applicant and informs the administrator.

Extension/Alternates		**5a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.7 Applicant Registration

5.2.1.5.3-a. Applicant Confirmation

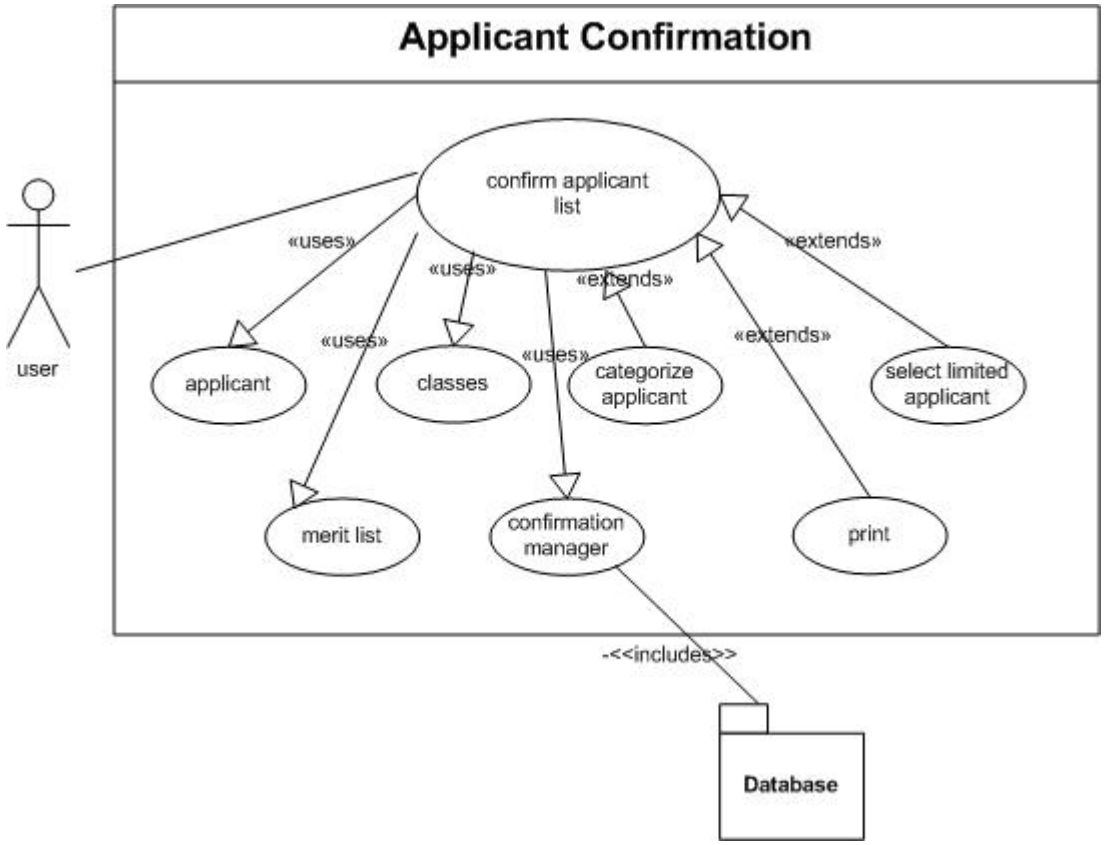


Figure 5.10 Applicant Confirmation

5.2.1.5.3-b. Applicant Confirmation

Use case section	**Comments**	
Use case name	Confirmation applicant	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Admission	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of confirmed applicant.	**2**. System verifies the information and determines the User type. **3.** After which it generates the list of confirmed applicants.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.8 Applicant Confirmation

5.2.1.5.5-a. Edit Applicant

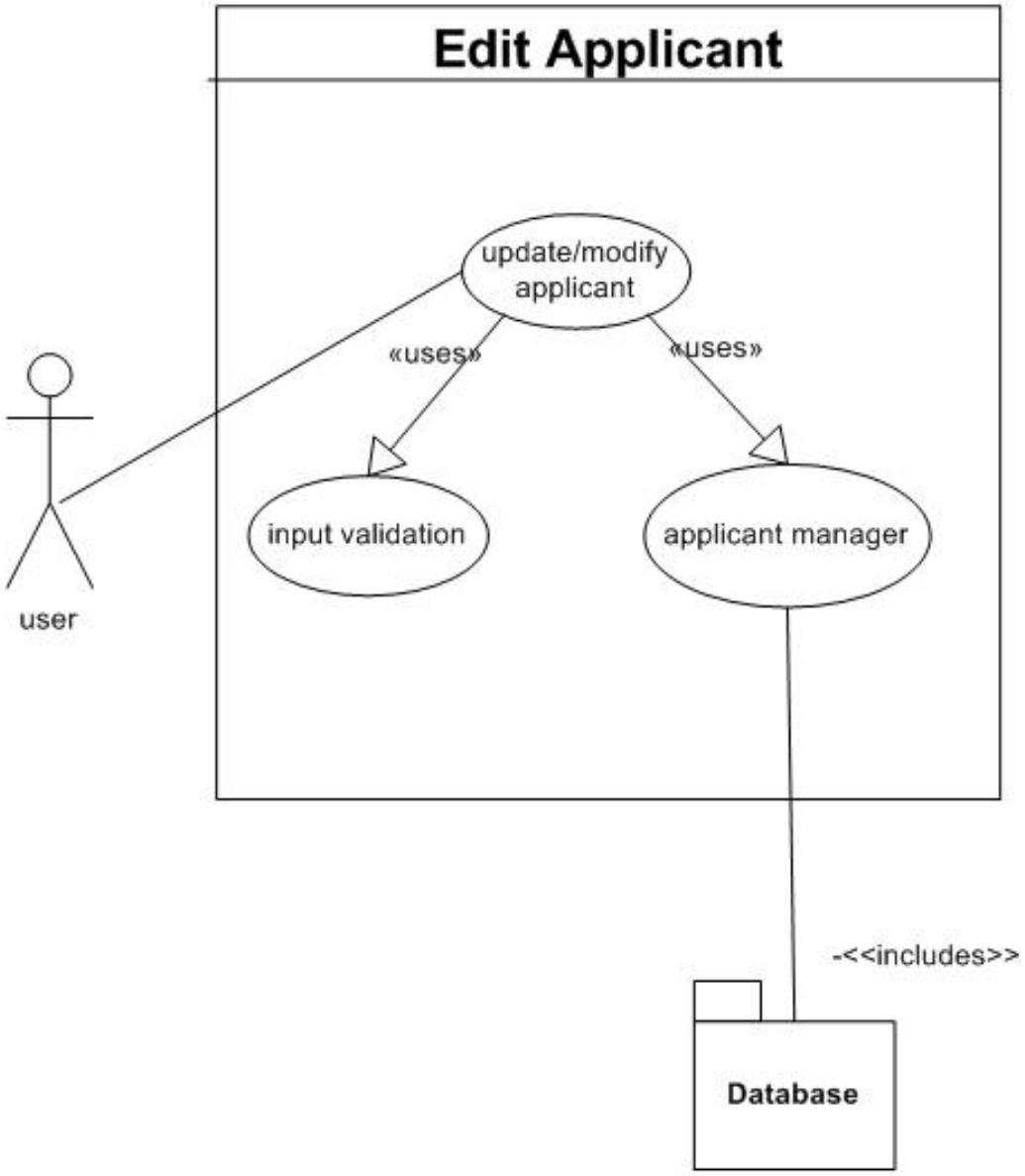


Figure 5.11 Edit Applicant

5.2.1.5.5-b. Edit Applicant

Use case section	**Comments**	
Use case Name	**Edit Applicant**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder & Interest	Administrator, Admission	
Preconditions	The SIS application should be opened and edit applicant.	
Success Guarantee	Administrator is successfully edit applicant details in the system without any problems.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. Administrator selects to edit applicant information.	**2.** System provides the following information for editing: • Applicant Name • Father Name • DOB • Religion • Place of birth • Phone no • Address **3.** System edits the applicant information.

Extension/Alternates		**2a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.9 Edit Applicant

5.2.1.5.6-a. Generate Merit List

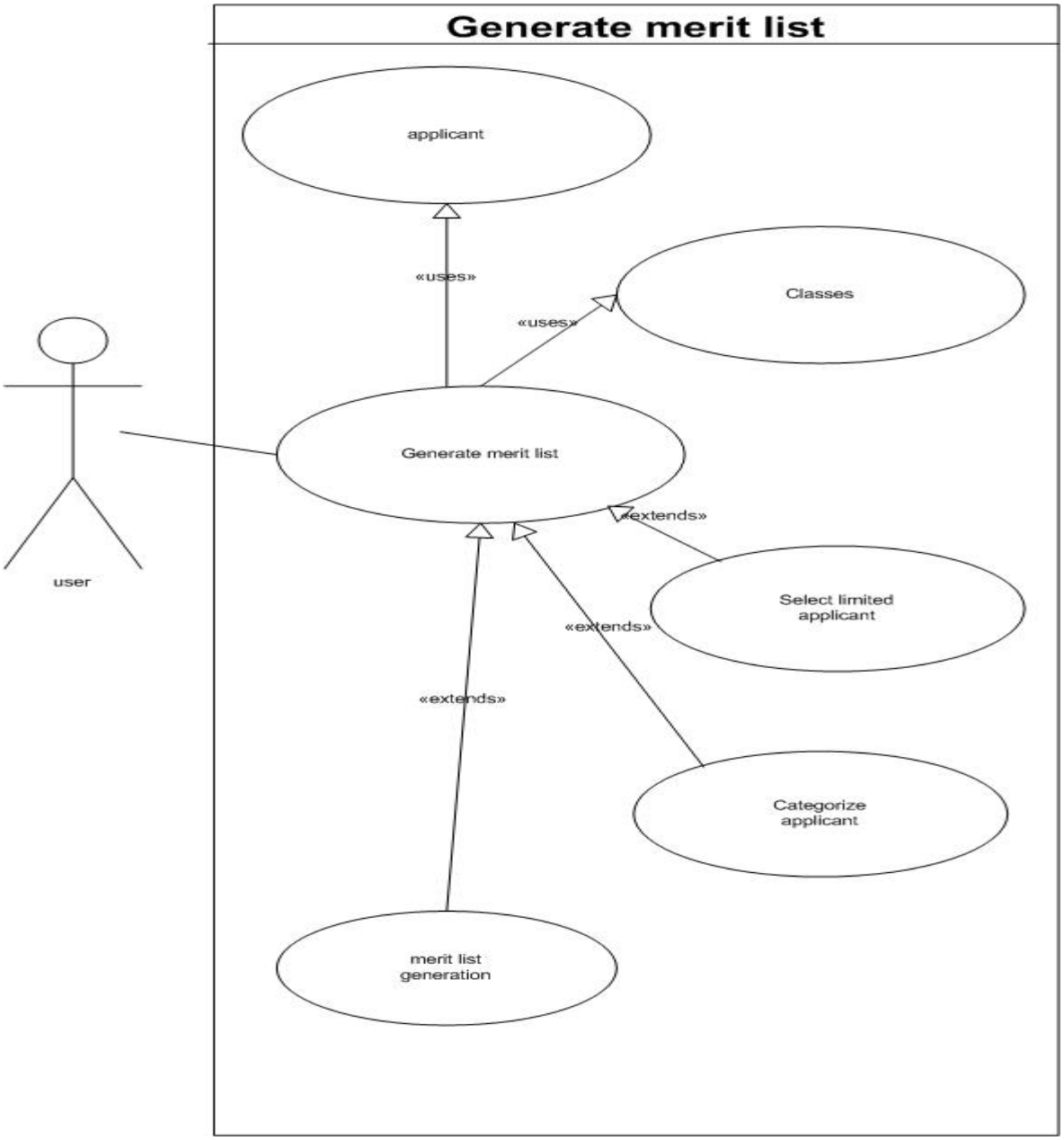


Figure 5.12 Generate Merit-List

5.2.1.5.6-b. Generate Merit List

Use case section	**Comments**	
Use case name	Merit list generation	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Admission	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of confirmed applicant and generate merit list.	**2**. System verifies the information and determines the User type. **3.** After which it generates merit list.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.10 Generate Merit-List

5.2.1.6. Student Management

5.2.1.6.1-a. Student Registration

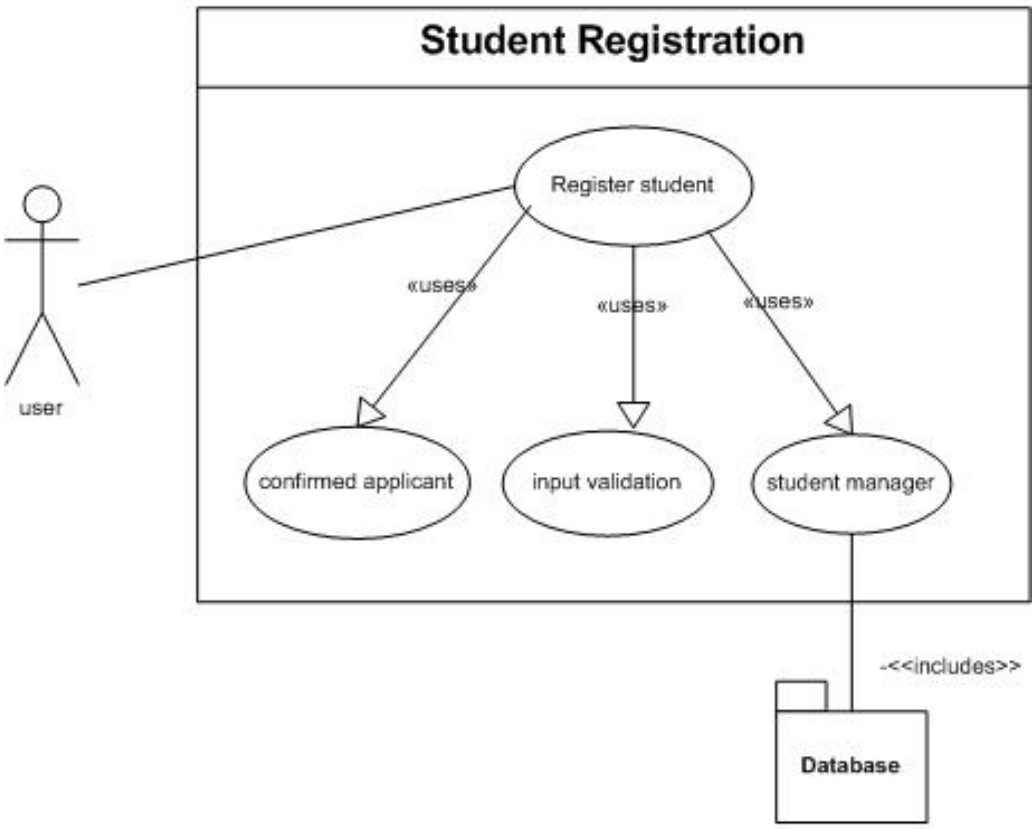


Figure 13 Student Registration

5.2.1.6.1-b. Student Registration

Use case section	**Comments**	
Use case Name	**Student registration**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder and Interest	Administrator, Admission	
Preconditions	The SIS system should be opened and the administrator should be logged in.	
Success Guarantee	A new student is successfully added in the system without any problems.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. administrator selects to add a new student.	**2.** System requests for the following information: • full name • father name • serial no • Class • Registration no

	3. Administrator enters the information.	• Section • Fee • Monthly discount • Registration fee • Other fee **4.** System checks and shows availability message. **5.** System adds the student and informs the administrator.
Extension/Alternates		**5a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.11 Student Registration

5.2.1.6.2-a. Edit Student

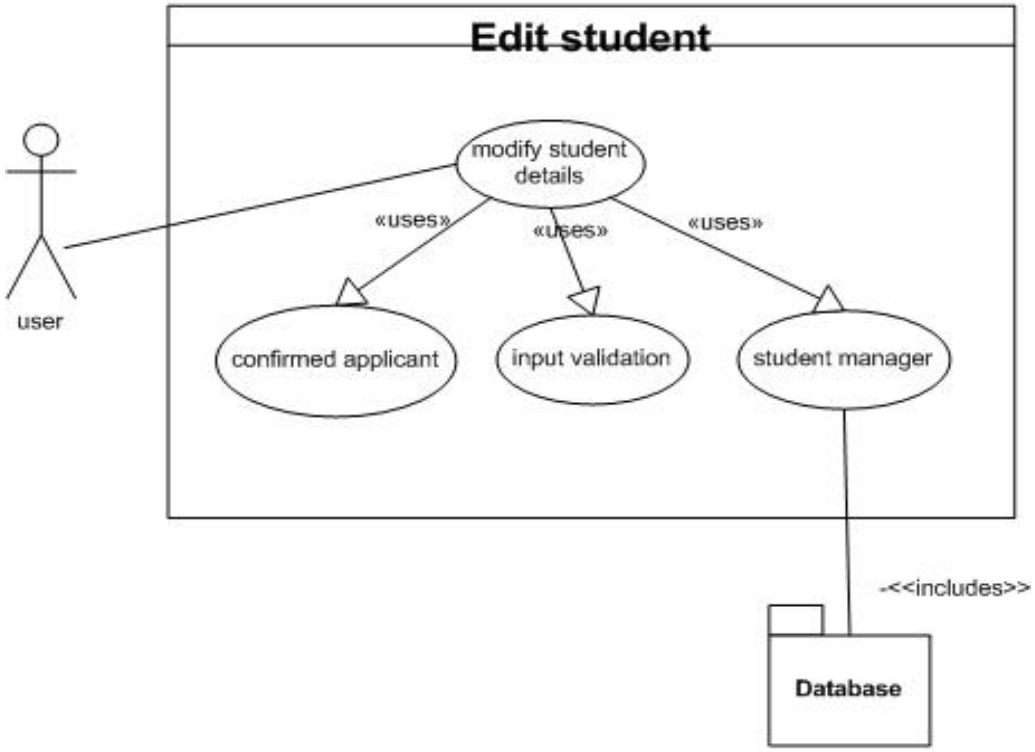


Figure 14 Edit Student

5.2.1.6.2-b. Edit Student

Use case section	**Comments**	
Use case Name	**Edit student**	
Scope	SIS	
Level	User goal	
Primary Actor	Administrator	
Stakeholder & Interest	Administrator, Admission	
Preconditions	The SIS application should be opened and edit Student.	
Success Guarantee	Administrator is successfully edit student details in the system without any problems.	
Main Success Scenario	Actor Action Or Intention	System Responsibility
	1. Administrator selects to edit Student information.	**2.** System provides the following information for editing: • Applicant Name • Father Name • Serial no • Class • Registration no **3.** System edits the applicant information.

Extension/Alternates		**2a.** The system notifies that the information already exists.
Technology & Data Variation list	None	
Frequency of Occurrence	As required.	

Table 5.12 Edit Studnet

5.2.1.7. Fee Management

5.2.1.7.1-a. Submit Fee

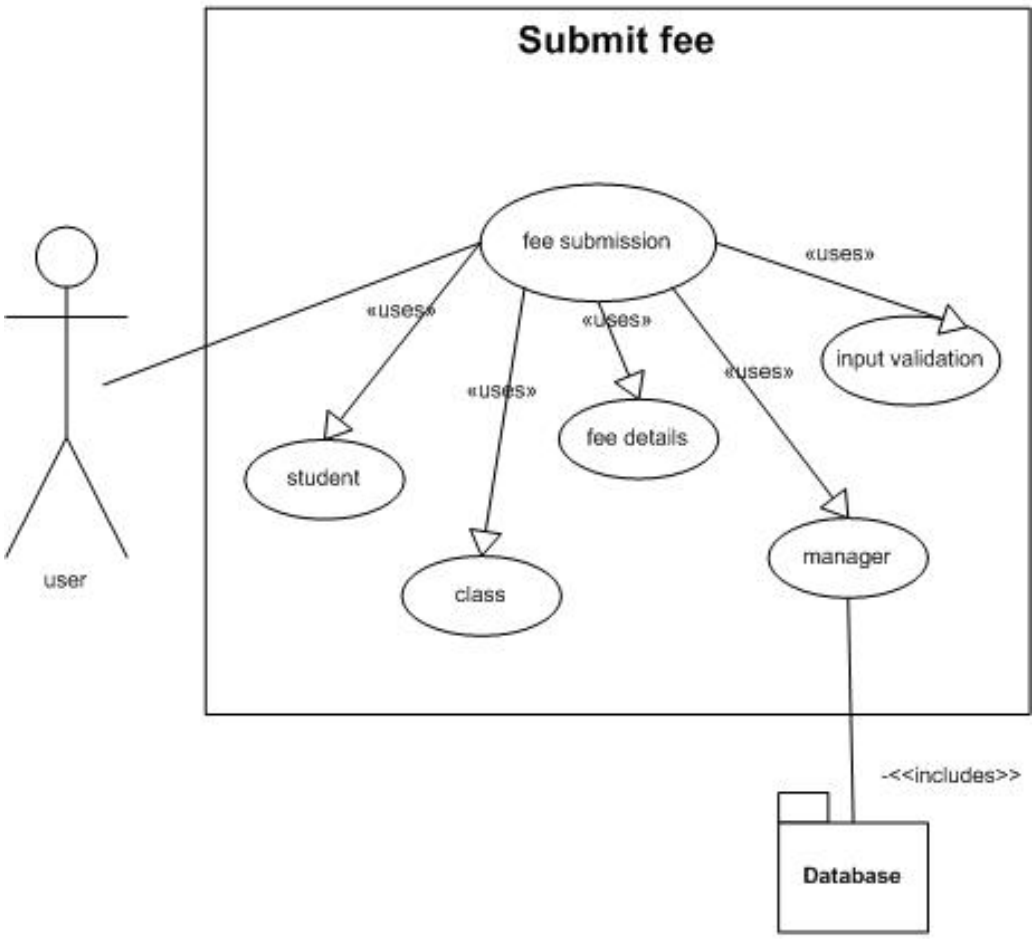


Figure 5.15 Student Fee

5.2.1.7.1-b. Submit Fee

Use case section	**Comments**	
Use case name	Fee submission	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Accountant	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of fee submission.	**2**.System verify the information and determine the User type. **3.** After which formation for fee submission is done successfully by the system.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.13 Student Fee

5.2.1.7.2-a. Fee-slip Generation

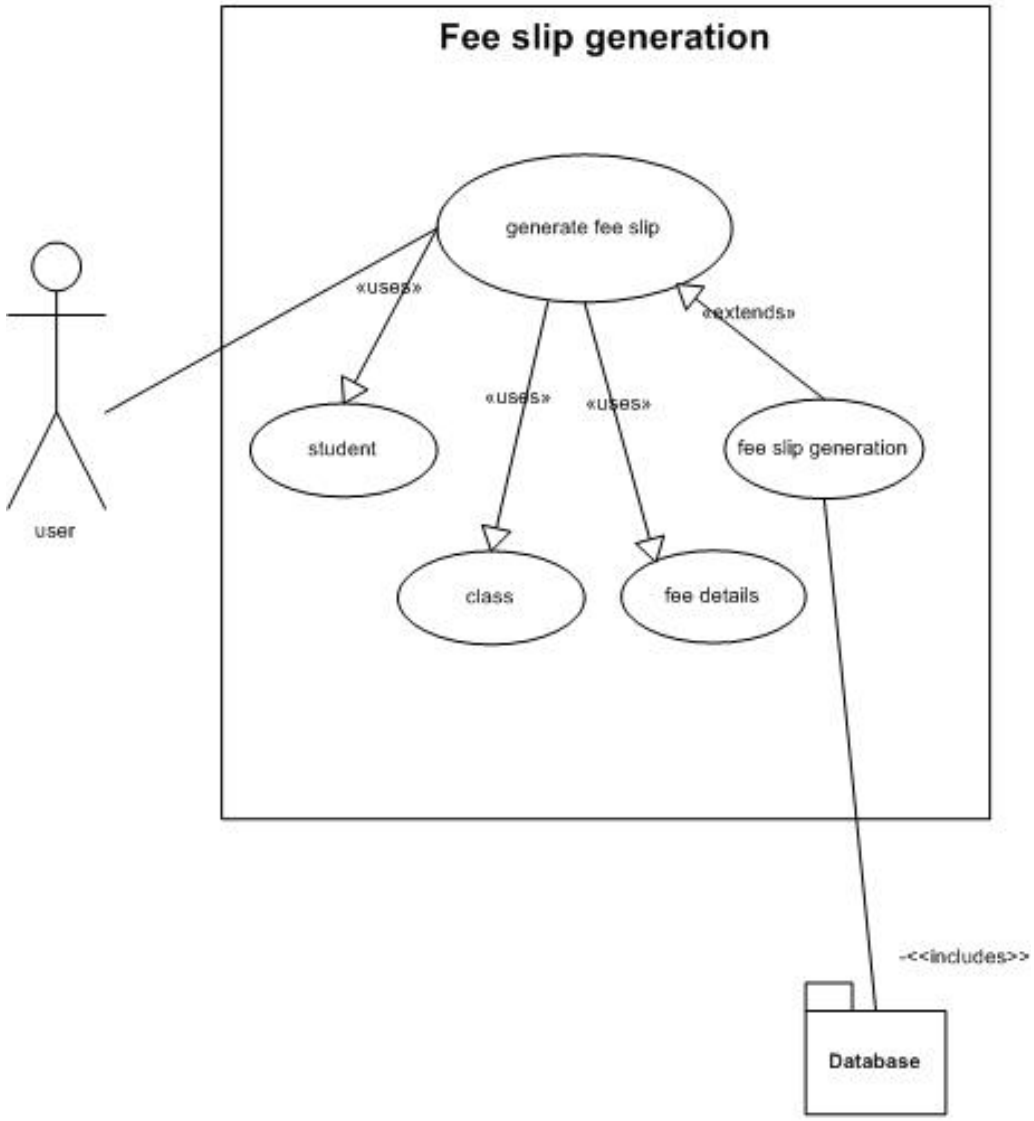


Figure 5.16 Fee Slip Generation

5.2.7.2-b. Fee-slip Generation

Use case section	**Comments**	
Use case name	Fee Slip Generation	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Accountant	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of fee submission and print fee slip.	**2**. System verifies the information and determines the User type. **3.** After which fee slip is generated.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.14 Fee Slip Generation

5.2.1.7.3-a. Fee Defaulters

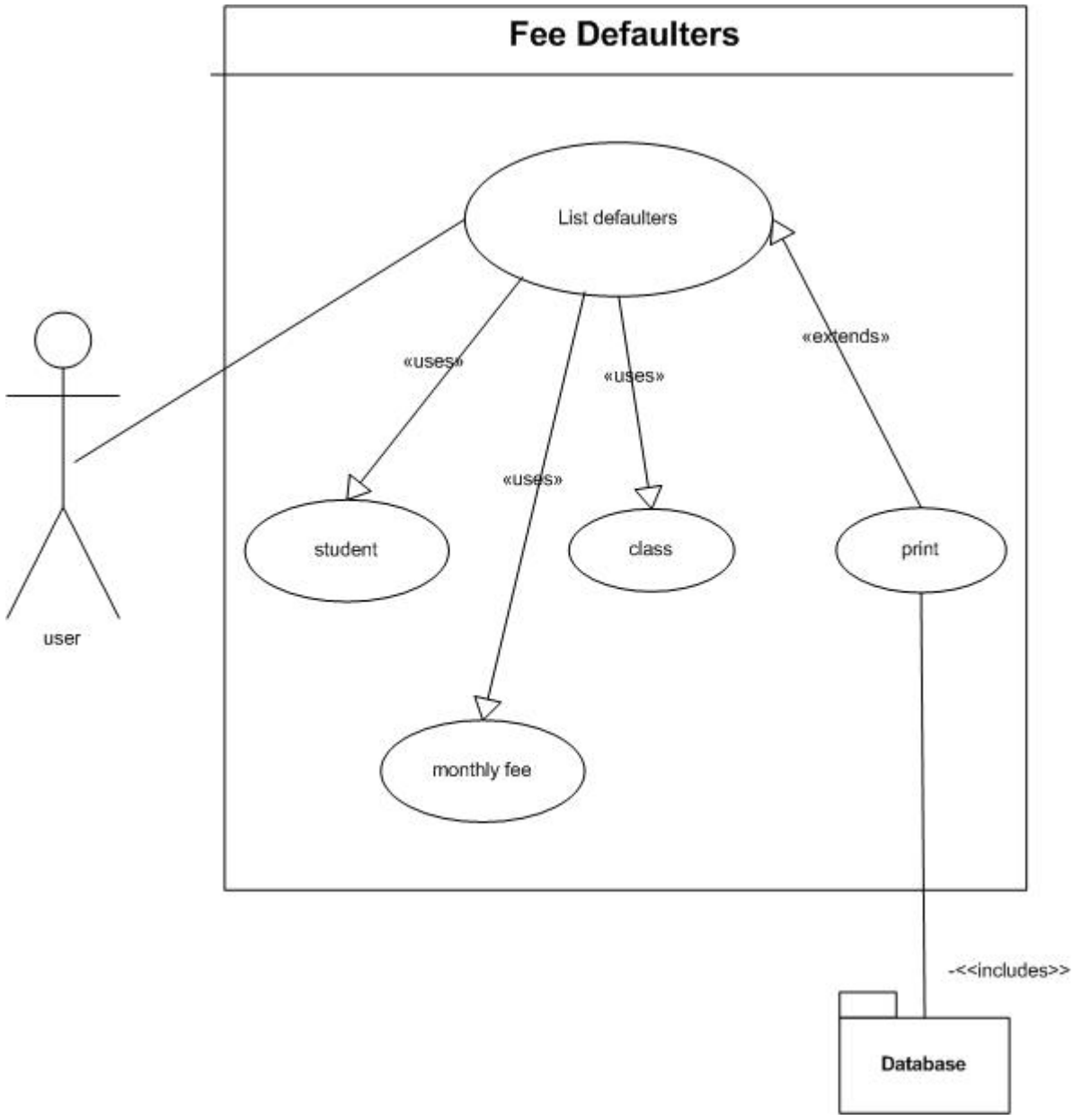


Figure 5.17 Fee Defaulters

5.2.1.7.3-b. Fee Defaulters

Use case section	**Comments**	
Use case name	Fee Slip Generation	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Accountant	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator provides the information of fee submission and print fee defaulters list.	**2**. System verifies the information and determines the User type. **3.** After which formation of fee defaulters list is done by the system.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.15 Fee Defaulters

5.2.1.8. Attendance

5.2.1.8.1-a. Mark Attendance

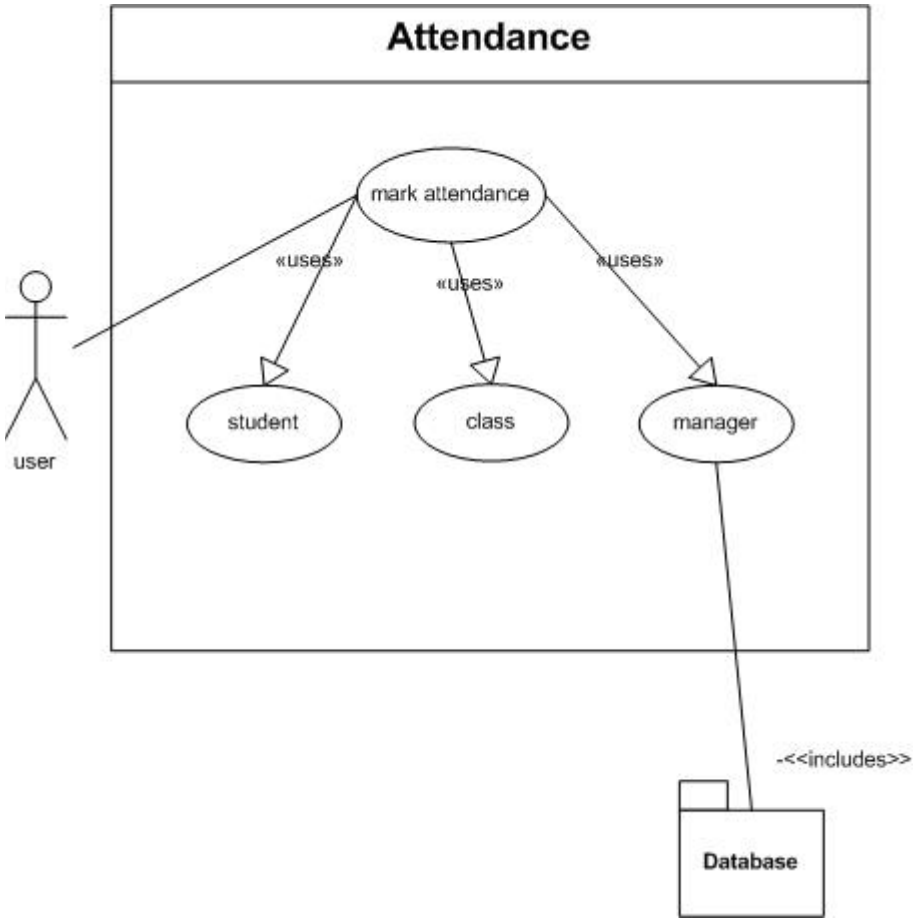


Figure 5.18 Mark Attendance

5.2.1.8.1-b. Mark Attendance

Use case section	**Comments**	
Use case name	Attendance	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Attendant	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator/ Attendance officer marks the attendance.	**2**. System verifies the information and determines the User type. **3.** After which attendance is marked successfully into the system.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.16 Mark Attendance

5.2.1.9. Manage Exams

5.2.1.9.1-a. Marks Entry

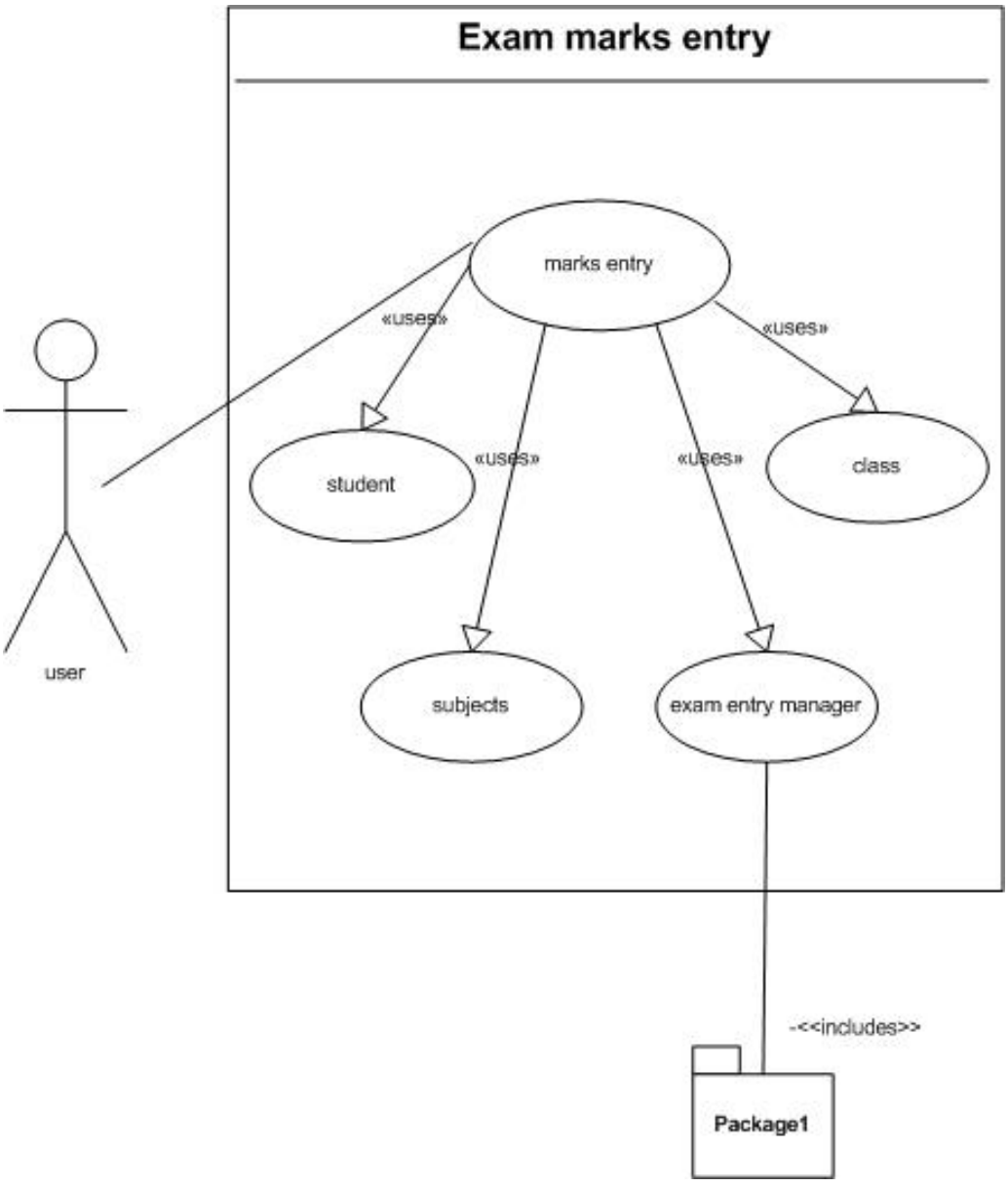


Figure 5.19 Exam Marks Entry

5.2.1.9.1-b. Marks Entry

Use case section	**Comments**	
Use case name	Marks Entry	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, examiner	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator/Examiner enters marks of the students.	**2**. System verifies the information and determines the User type. **3.** After which marks are successfully entered into the system.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.17 Exam Marks Entry

5.2.1.10-a. ID-Card Generation

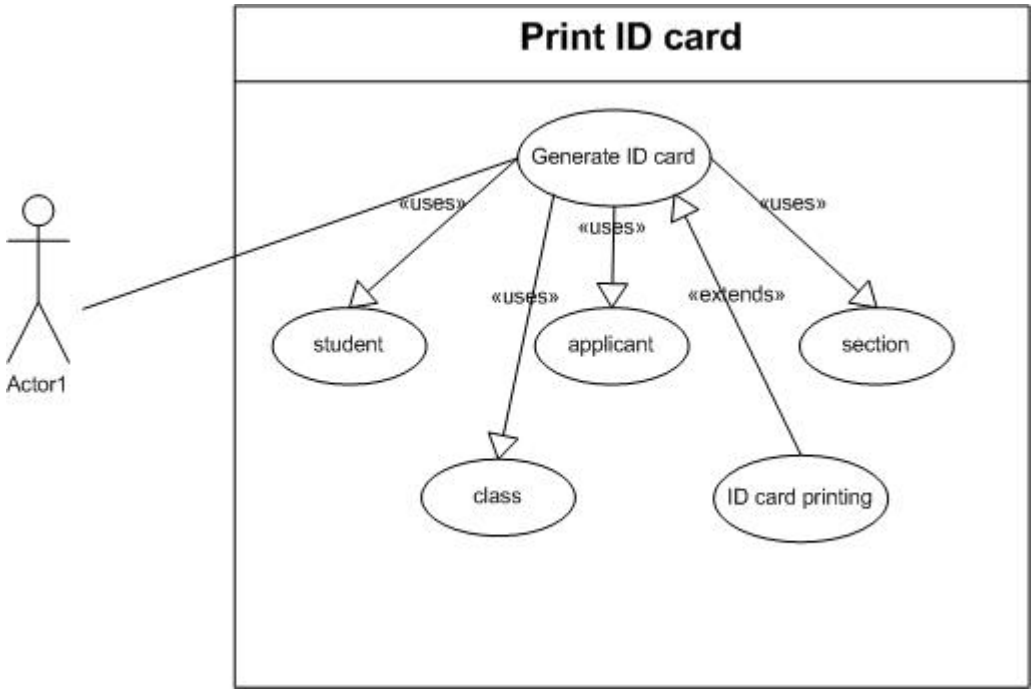


Figure 5.20 ID-Card Generation

5.2.1.10-b. ID-Card Generation

Use case section	**Comments**	
Use case name	Print ID card	
Scope	SIS	
Level	User goal	
Primary actor	Administrator	
Stakeholder and Interest	Administrator, Examiner, Accountant, Admission, Attendance	
Preconditions	The SIS application should be opened and administrator should be logged in.	
Main Success Scenario	Action/Actor or Intention	System Responsibility
	1. Administrator requests the system to generate ID card.	**2**. System verifies the information and determines the User type. **3.** ID card is generated successfully using the basic information of students.
Technology and Date Variation list	None	
Frequency of Occurrence	Frequent	

Table 5.18 Print ID-Card

5.2.2. System Sequence Diagram

5.2.2.1. Login

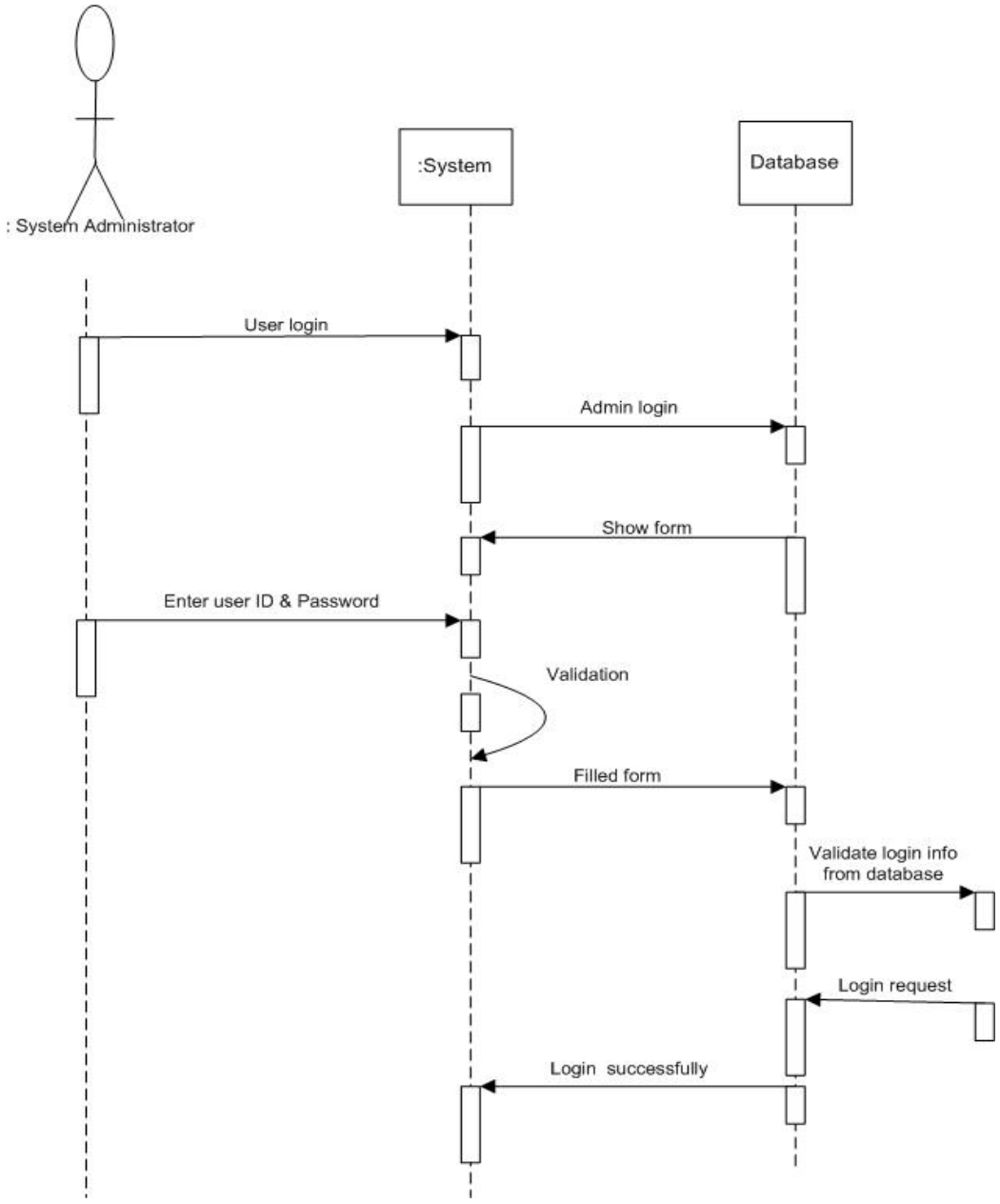


Figure 21 Sequence Diagram Login

5.2.2.2. Manage User

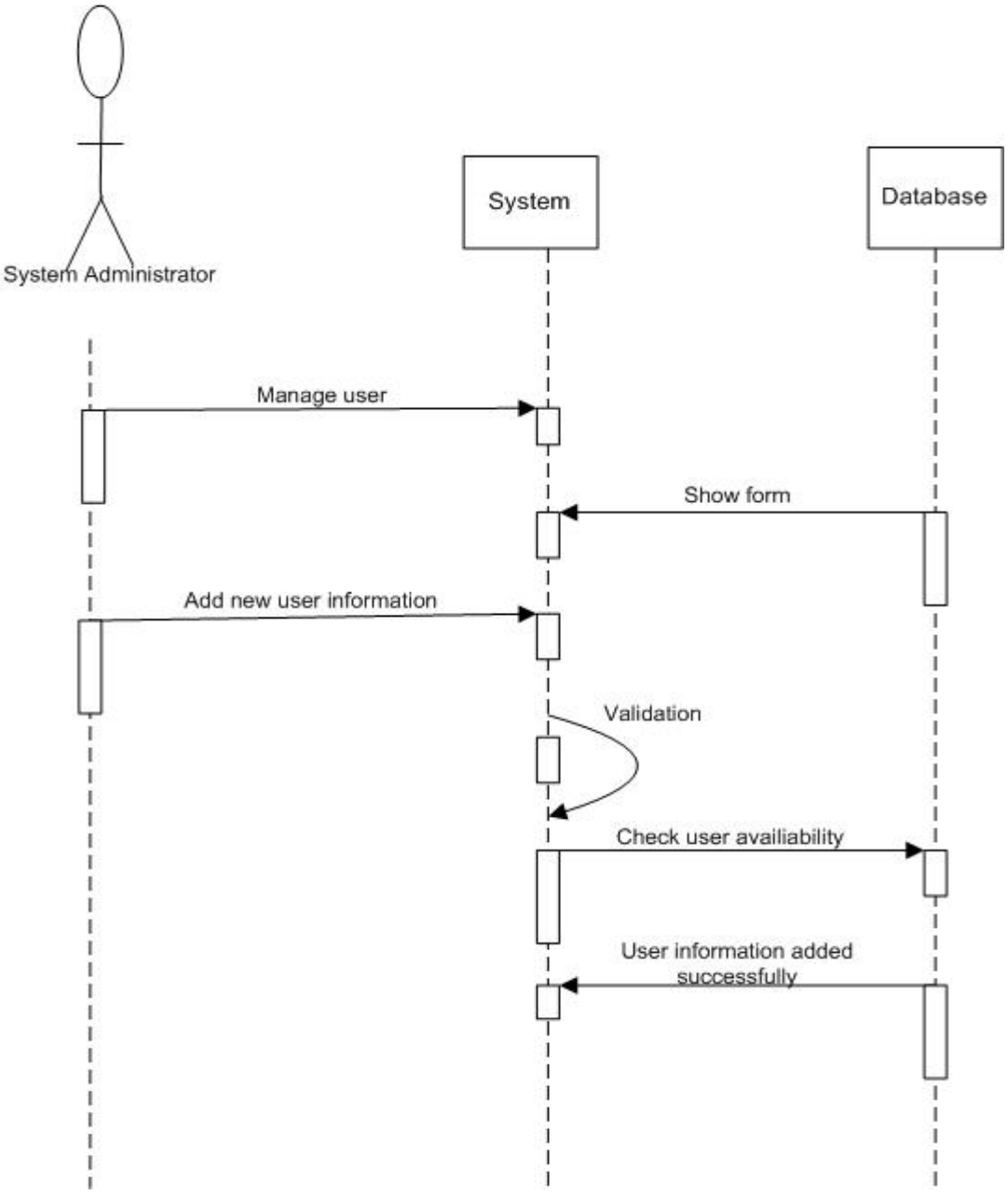


Figure 5.22 Sequence Diagram Manage User

5.2.2.3. Register New Class

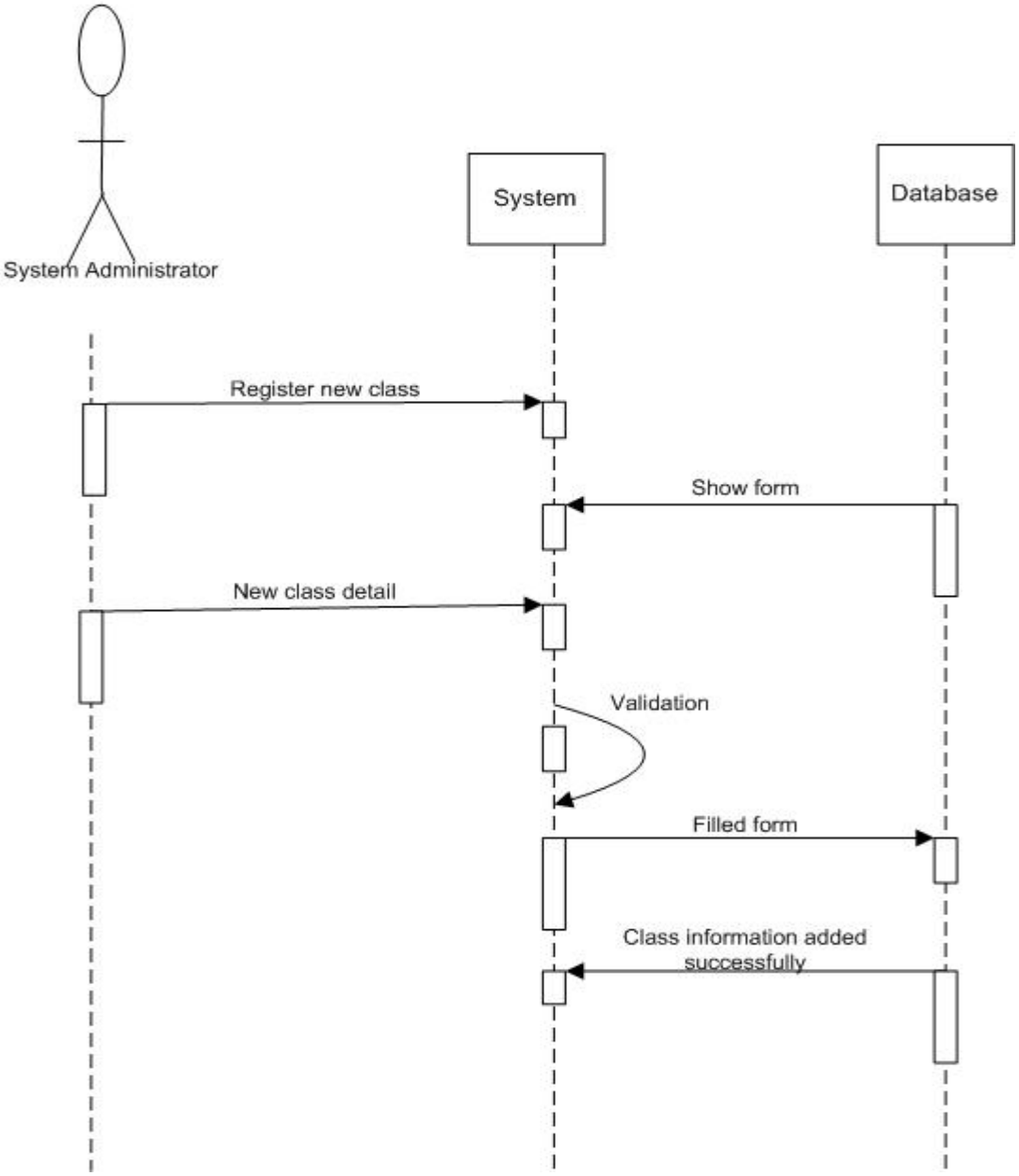


Figure 5.23 Sequence Diagram Register User

5.2.2.4. Register New Section

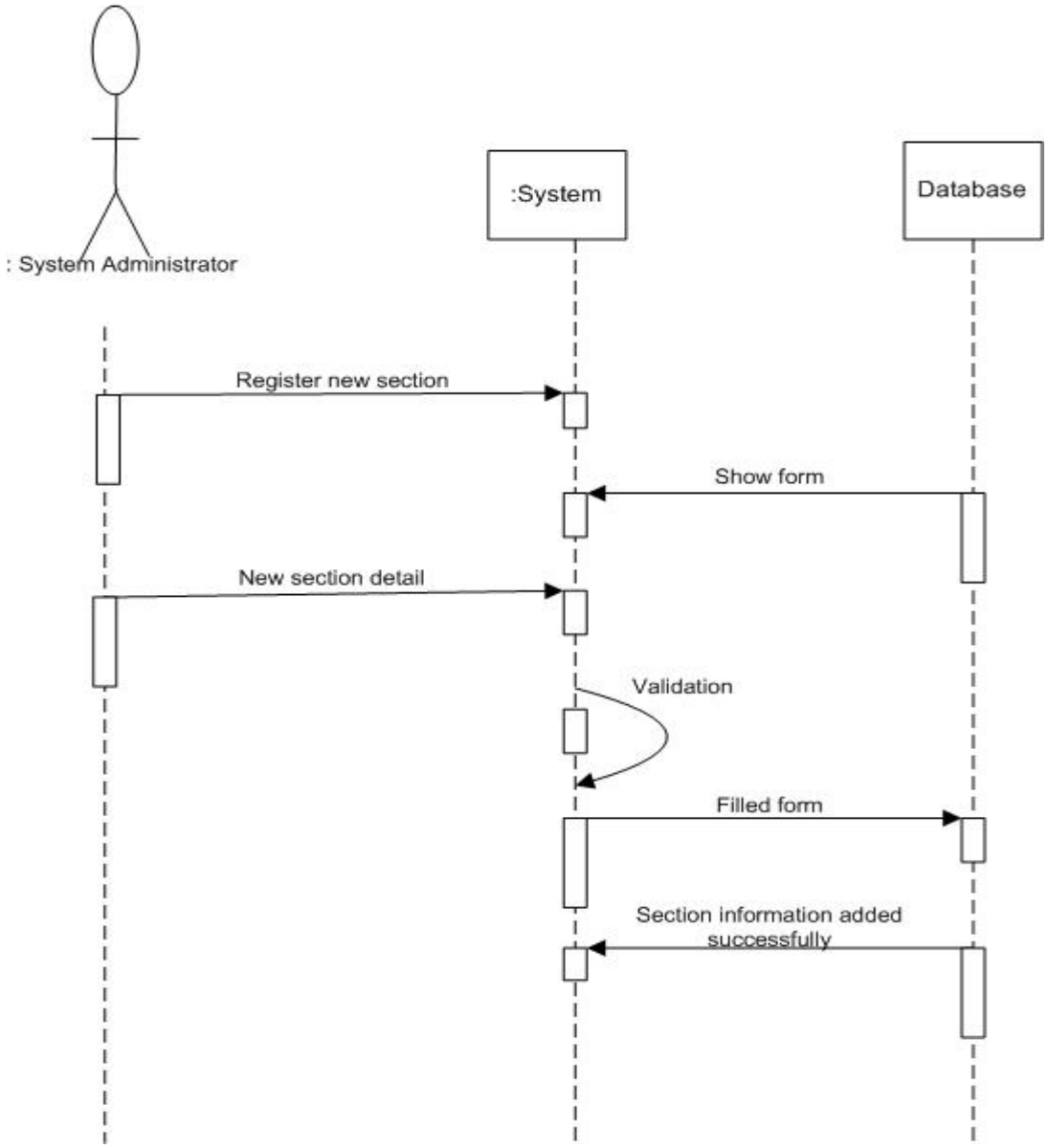


Figure 5.24 Register New Section

5.2.2.5. Register New Applicant

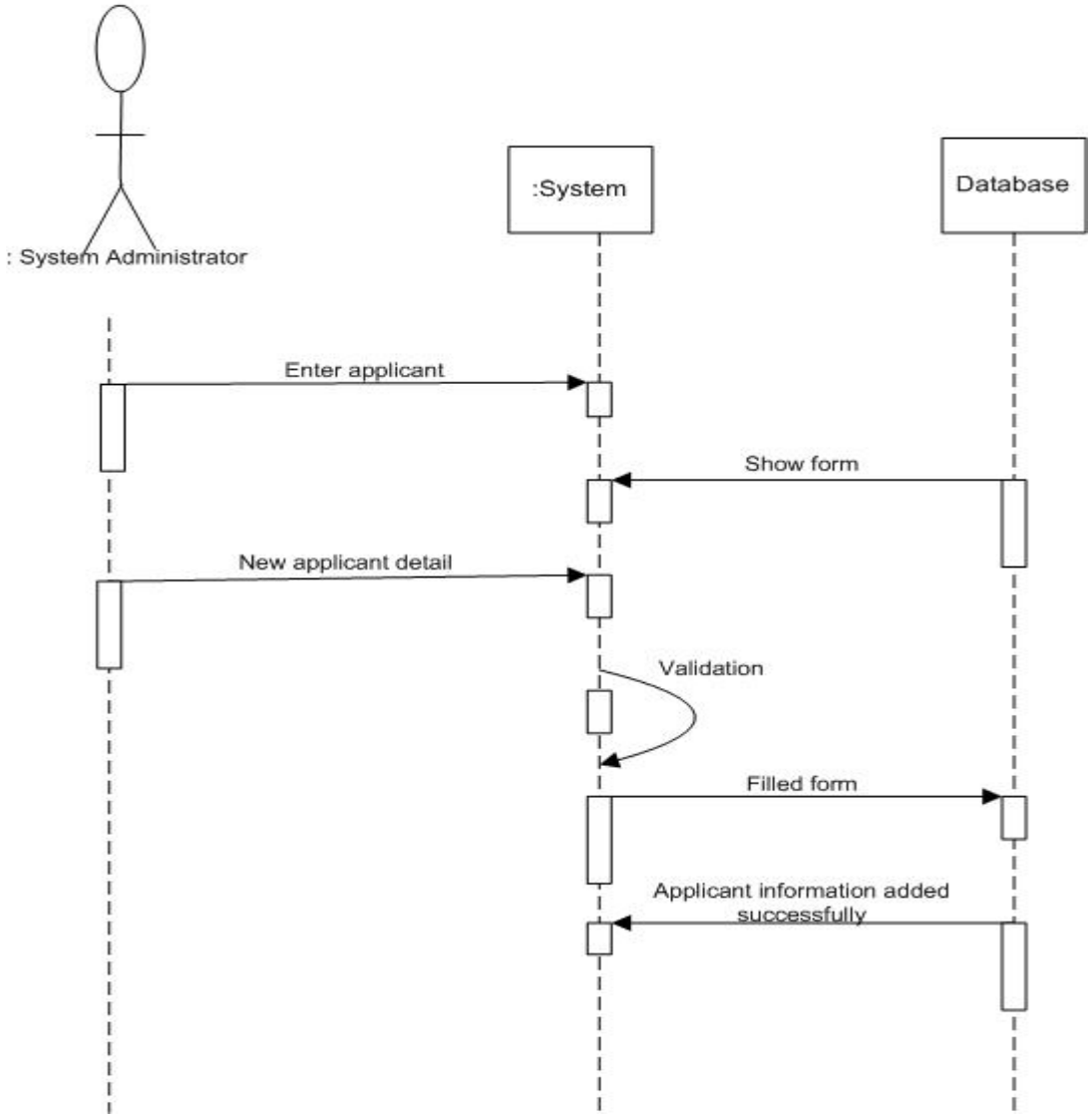


Figure 5.25 Sequence Diagram Register New Applicant

5.2.2.6. Generate Merit-List

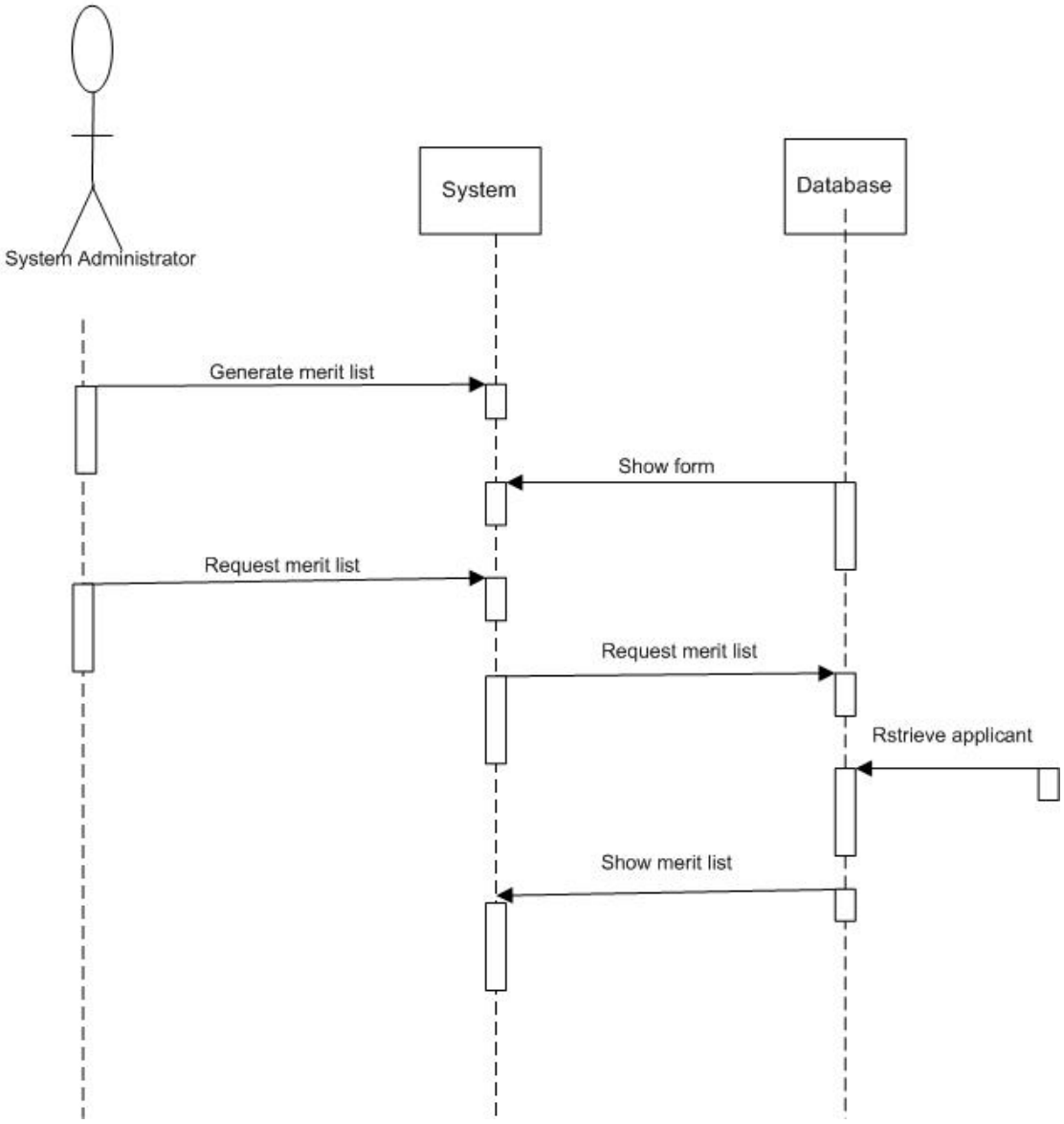


Figure 5.26 Sequence Diagram Generate Merit-List

5.2.2.7. Register New Student

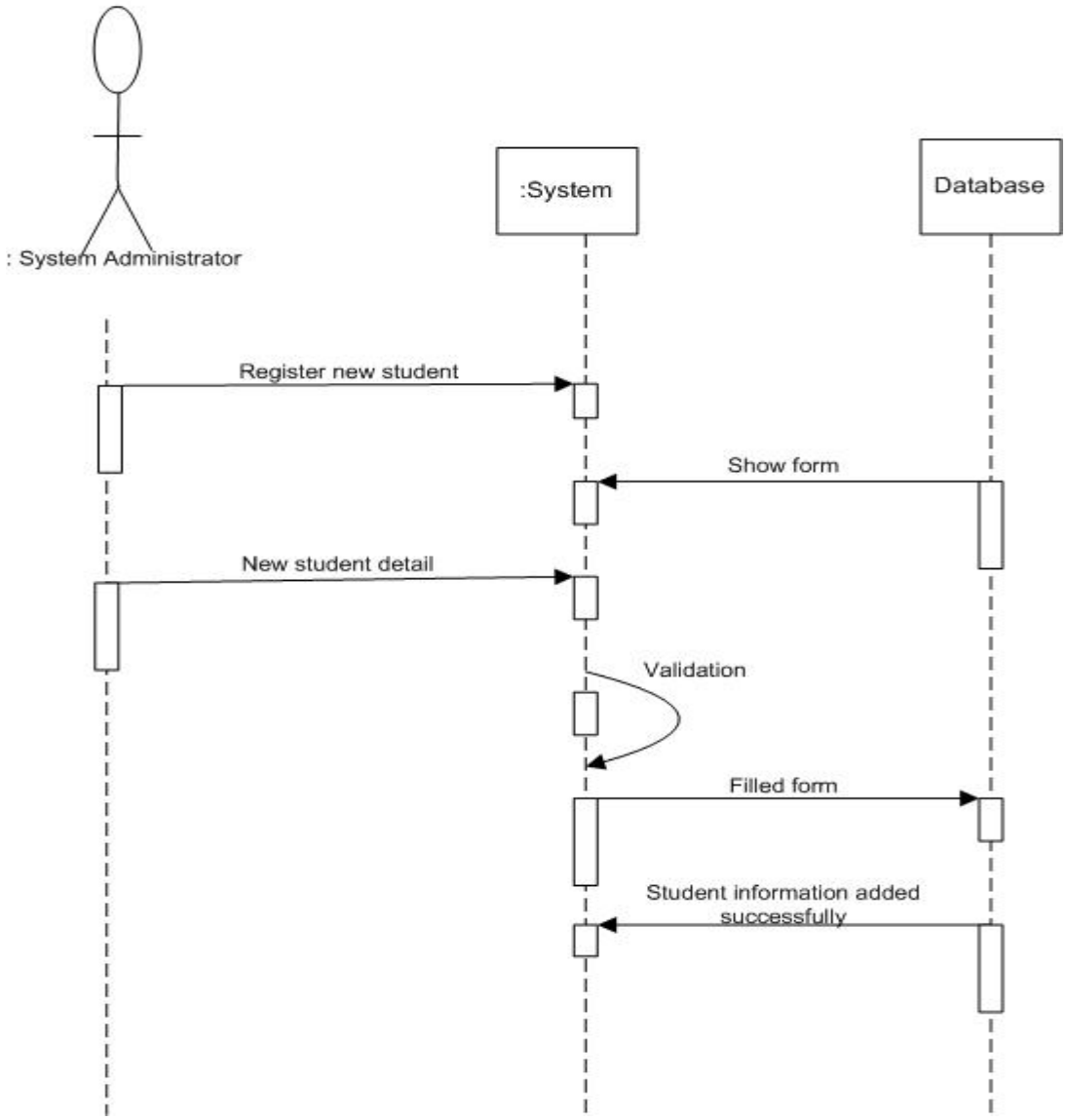


Figure 5.27 Sequence Diagram Register New Student

5.2.2.8. Generate Fee-Slip

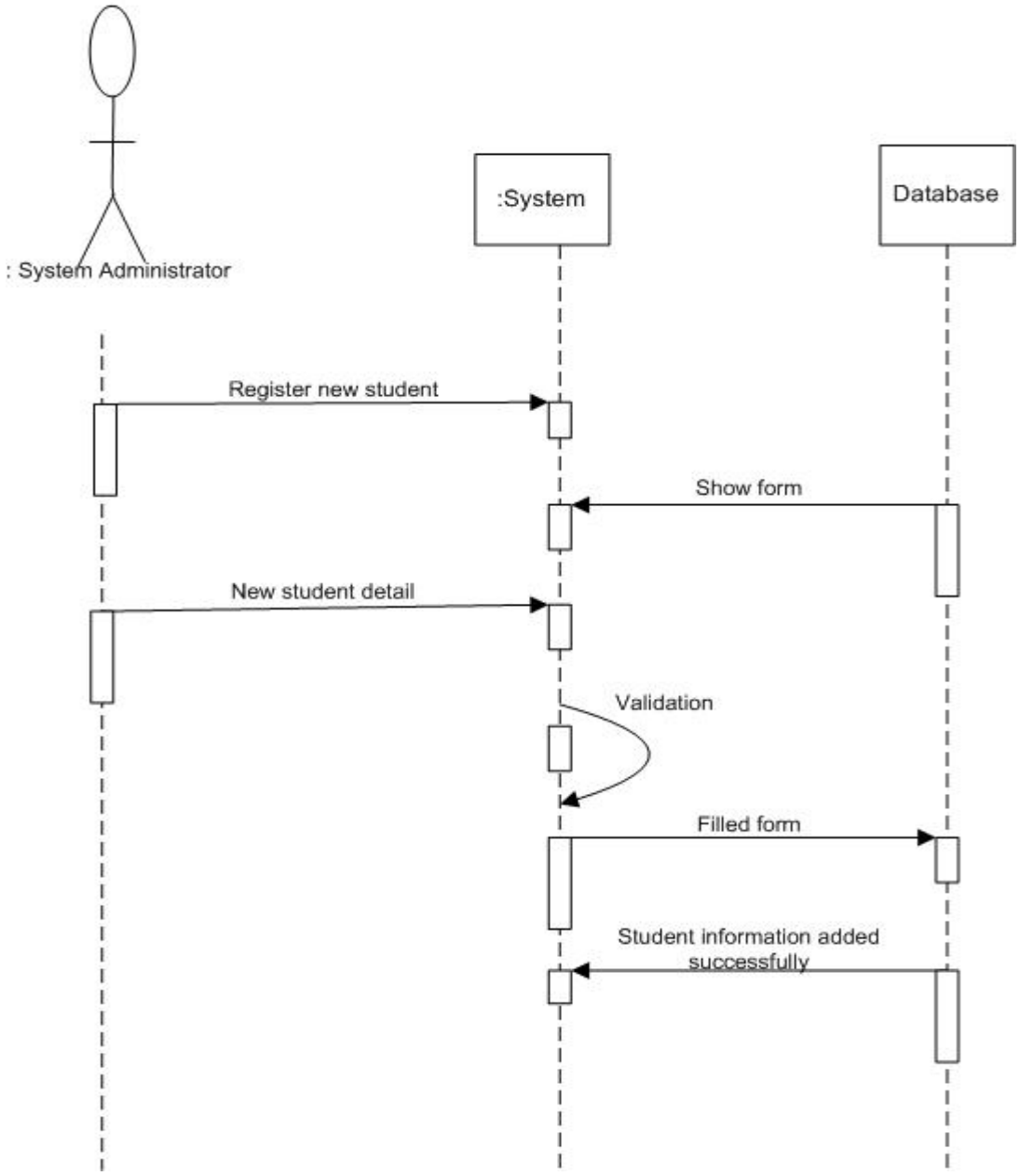


Figure 5.28 Sequence Diagram Generate Fee-Slip

5.2.2.9. Mark Exam Result

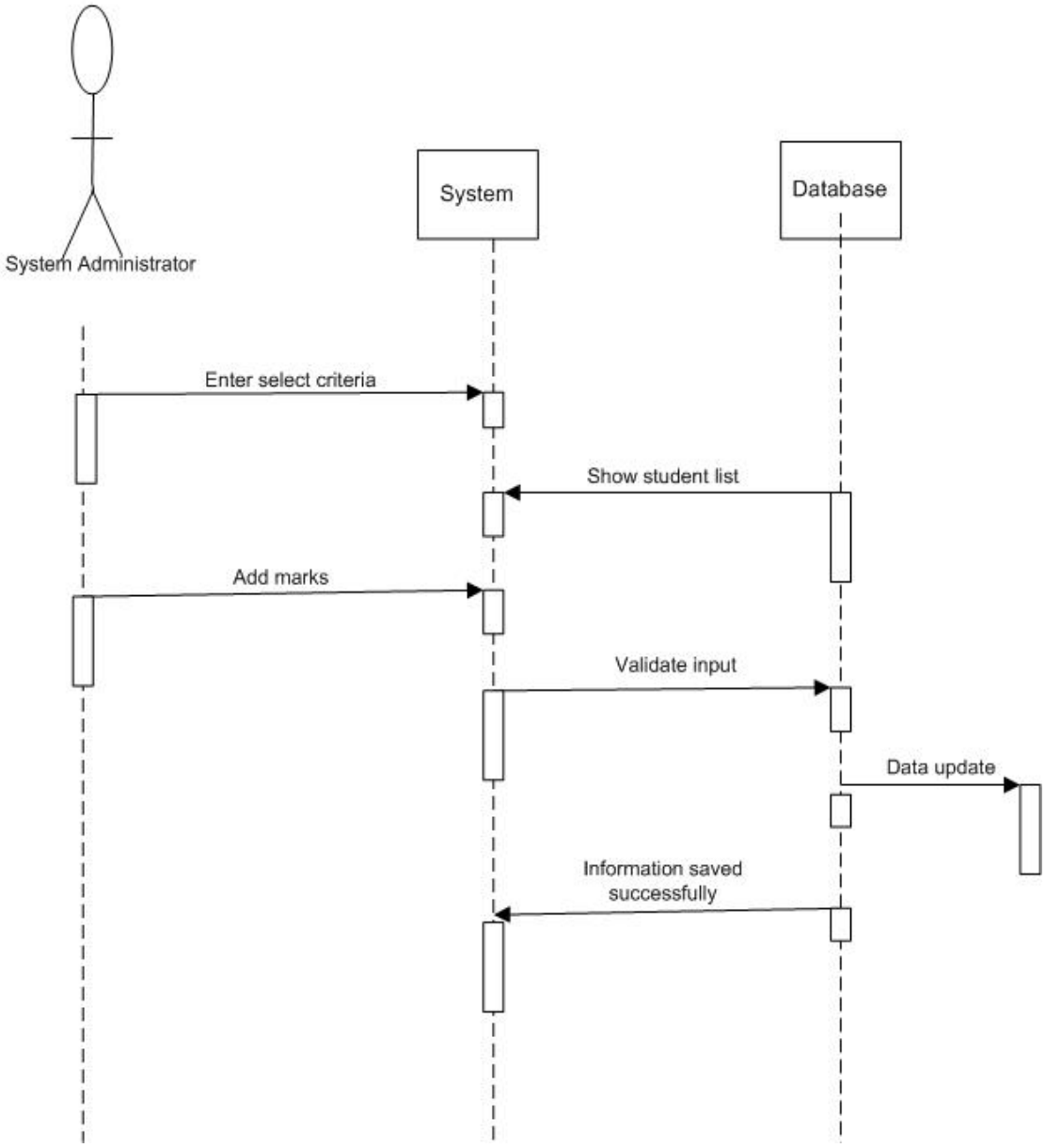


Figure 5.29 Sequence Diagram Mark Exam Result

5.2.2.10. Mark Attendance

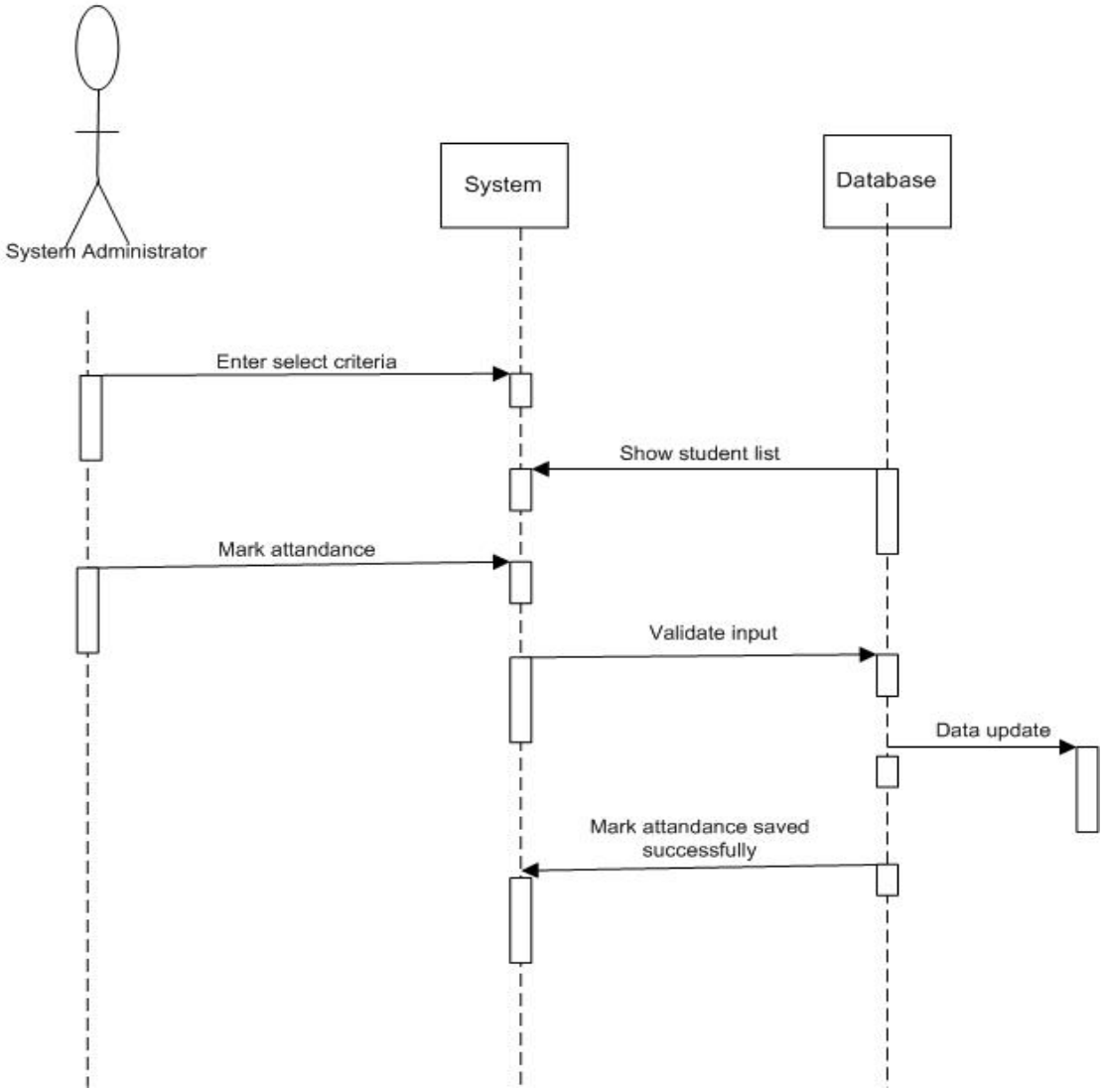


Figure 5.30 Sequence Diagram Mark Attendances

5.3. Database Diagram

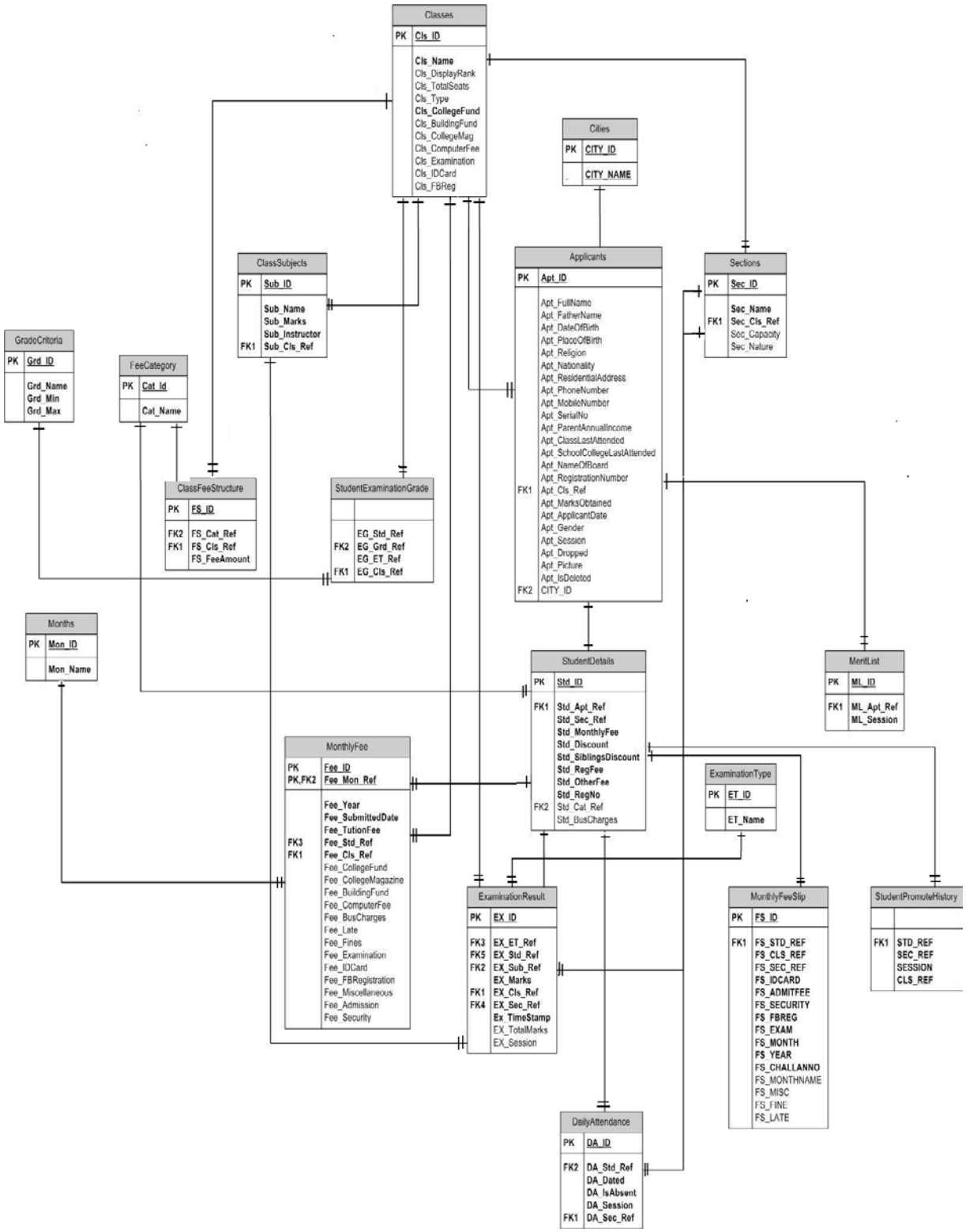


Figure 5.31 Database Diagram

5.4. Deployment Diagram

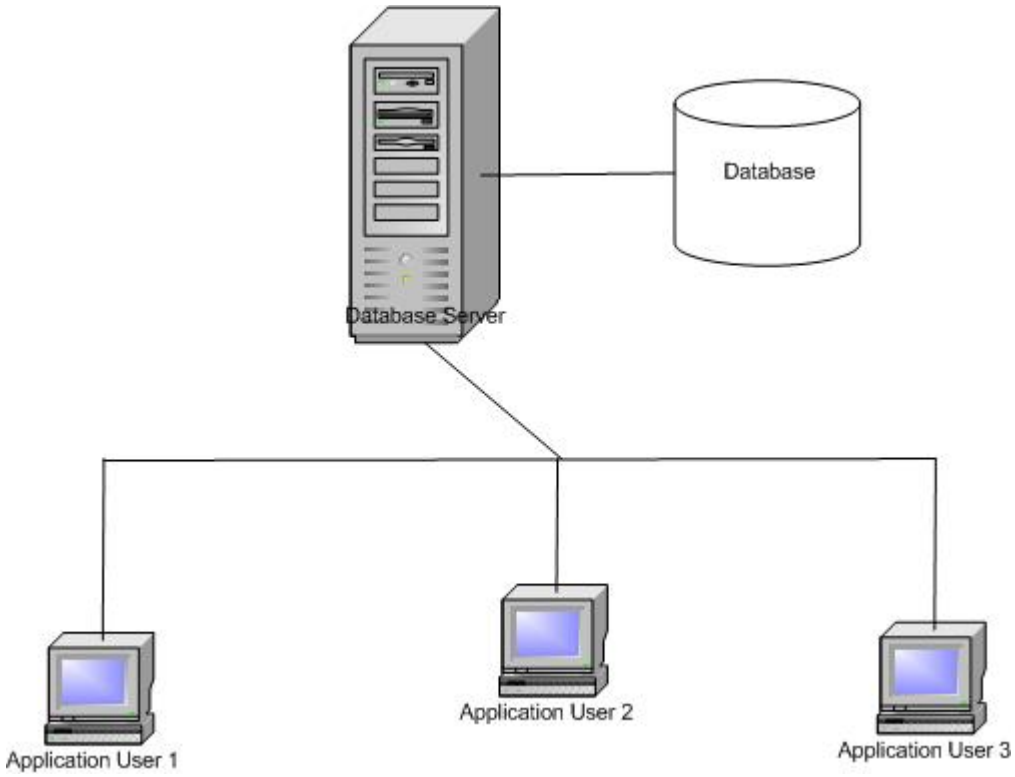


Figure 5.32 Deployment Diagram of the System

The database server is controlled by the administrator. It works together with the database and performs the operations requested by clients. The users send request to the server and server in return facilitates the clients by obtaining the relevant information from database and providing it to clients.

6.1 System Implementation

System design was suitably followed to implement the system. The changes that were required at the implementation time to deploy the system were catered efficiently so that other components of the system don't get interrupted.

6.1.1. Modular Approach

Implementation of the system was done step by step. Whole system was divided into different modules, each module was then integrated. Following is the list of modules which are mentioned in order in which they were implemented.

1. Admin Module
2. Class and Section Management Module
3. Admission Module
4. Fee Module
5. Exam and Attendance Module
6. Reporting

Parallel Activities: Class, Section Management Module and Exam, Attendance Module were implemented in parallel. It was necessary to finish these parallel activities first before heading to next modules. For instance, before admitting students, it is mandatory to first have class and sections in which students are to be admitted.

By making divisions into modules of our system we managed to achieve better performance and ease in management.

6.2. Testing Evaluation

Testing is an important step before actually handing-over the system to the client. It gives very clear idea of whether the system is working properly or not, whether or not the requirements of client are met. The main objective of the testing process is to identify the bugs and to rectify them as soon as possible.

6.2.1. Tests Conducted

Different types of tests that were conducted are listed below:

6.2.1.1. Unit Testing

This testing is performed on every process and operation. Every single operation is tested during its process and after the completion as well.

6.2.1.2. Big-Bang Testing

Since the approach followed is modular. So after combining the modules, this testing was done to ensure that the overall operations and the functionality of the system is according to the specifications.

6.2.1.3. Black-box Testing

6.2.1.3.1 Test Case: Login Facility

Test Case ID : TC-SIS-001	**Test Item** : Login
Author : SIS Developers	**Documentation Date** : November 28,2010
Test Type : Manual -- Black Box	**Test Case Name** : Login
Component : Login Facility	**Release / Version :** 1.0
Test case Description: The test case will determine the correct functionality of login. **Operation Procedure :** In the SIS Login page 1. Enter User name and password 2. Press Sign In	
Pre-conditions :	**Post-conditions :**

1. The SIS application should successfully open. 2. The user record must exist in the system.	The user is successfully Login to the system.
Input Data/Events :	**Expected output Data/Events**
1. Enter Username and Password 2. Click on Sign in Button.	1. The User is Logged into system successfully in case of correct information. 2. The system shows error message in case of incorrect Username or Password
Actual Input Data/Events	**Actual output Data/Events**
1. Enter admin as Username and admin as Password 2. Click on Sign in Button.	1. The administrator account was successfully logged in.
1. Enter admin as Username and abc as Password 2. Click on Sign in Button.	1. The system shows error message in case of incorrect Username or Password

Table 6.1 Test Case Login Facility

6.2.1.3.2 Test Case: Manage User

6.2.1.3.2.1 Test Case: Register User

Test Case ID : TC-SIS-002	**Test Item** : Register User
Author : SIS Developers	**Documentation Date** : November 28,2010
Test Type : Manual -- Black Box	**Test Case Name** : Register Facility
Component : Register Facility	**Release / Version :** 1.0
Test case Description: The test case will determine the correct functionality of register user. **Operation Procedure :** In the SIS registration Form. 1. Enter User name, User type, password and confirmed password. 2. Press Save detail.	
Pre-conditions :	**Post-conditions :**
3. The SIS application should successfully save user details. 4. The user record must exist in the system.	The user successfully saves user details to the system.
Input Data/Events :	**Expected output Data/Events**
3. Enter Username, User type, Password and confirmed password.	1. The user saves details into the system successfully in case of correct information. 2. The system shows error message in

4. Click on Save Button.	case of incorrect Password or Confirmed Password.
Actual Input Data/Events	**Actual output Data/Events**
3. Enter admin as Username and administrator as User Type and admin as Password and admin as Confirmed Password. 4. Click on Save in Button.	2. The account was successfully created.
3. Enter admin as Username and administrator as User Type and admin as Password and 123 as Confirmed Password. 4. Click on Save in Button.	2. The system shows error message in case of incorrect Password or Confirmed Password.

Table 6.2 Test Case Register User

6.2.1.3.3 Test Case: Manage Class

6.2.1.3.3.1 Test Case: Register Class

Test Case ID:TC-SIS-003	**Test Item:** Register Class
Author: SIS Developers	**Documentation Date:** November 28,2010
Test Type: Manual-Black Box	**Test Case Name:** Register Class
Component: Manage class	**Release/Version:** 1.0

Test Case Description: The test case will determine the correct functionality of class registration.

Operation Procedure: In the SIS class registration form.

1. Click Class Management tab.
2. System will show Register new class and list of all classes.
3. Select appropriate menu.
4. Then enter class name, class type, class rank, total seats, and Monthly fee.
5. Click on save button.

Pre-conditions:	**Post-condition:**
1. The SIS application should successfully register new class. 2. The user record must exist in the system.	Class Registration data is successfully entered. A success message is shown by system.
Input data/Events:	**Expected output data/Events**

1. Enter class type, class name, class rank and total seats. 2. Click on save button.	**1.** The class registration detail is entered into the system successfully in case of correct information. **2.** The system shows error message in case of incorrect information.
Actual Input Data/Events	**Actual output Data/Events**
1. Enter primary wing ad Class Type and Class l as Class Name and 3 as Total Seats and 1 as Rank. 2. Click on Save in Button.	**1.** Class Registration information successfully added.
1. Enter Cambridge as Class Type and class l as class name and class Rank 1 and 3 as Total Seats. 2. Click on save in Button.	1. The system shows error message in case of incorrect class type.

Table 6.3 Test Case Register Class

6.2.1.3.4. Test Case: Manage Section

6.2.1.3.4.1. Test Case: Register Section

Test Case ID:TC-SIS-004	**Test Item:** Register Section
Author: SIS Developers	**Documentation Date:** November 28,2010
Test Type: Manual-Black Box	**Test Case Name:** Register Section
Component: Manage Section	**Release/Version:** 1.0

Test Case Description: The test case will determine the correct functionality of section registration.

Operation Procedure: In the SIS section registration form.

1. Click Section Management tab.
2. System will show Register new section and list of all section.
3. Select appropriate menu..
4. Then enter class nature, class name, class rank and total seats.
5. Click on save button.

Pre-conditions:	**Post-condition:**
1. The SIS application should successfully register new section. 2. The user record must exist in the system.	1 Section Registration data is successfully entered. A message is shown by system.

Input data/Events:	**Expected output data/Events**
1. Enter class nature, class name and total seats. 2. Click on save button.	1. The section registration detail is added to the system successfully in case of correct information. 2. The system shows error message in case of incorrect information.
Actual Input Data/Events	**Actual output Data/Events**
1. Enter primary wing ad Class Type and Class l as Class Name and 3 as Total Seats and 1 as Rank. 2. Click on Save in Button.	1. The section Registration information successfully added.
1. Enter Cambridge as Class Type and class l as class name and class Rank 1 and 3 as Total Seats. 2. Click on save in Button.	**1.** The system shows error message in case of incorrect class type.

Table 6.4 Test Case Register Section

6.2.1.3.5. Test Case: Admission

6.2.1.3.5.1. Test Case: Manage session

Test Case ID:TC-SIS-005	**Test Item:** Manage session
Author: SIS Developers	**Documentation Date:** November 28,2010
Test Type: Manual-Black Box	**Test Case Name:** Manage session
Component: Admission	**Release/Version:** 1.0
Test Case Description: The test case will determine the correct functionality of manage session. **Operation Procedure:** In the SIS manage session form. 1. Click Admission tab. 2. System will show manage session. 3. Select appropriate menu.. 4. Enter session year. 5. Click on save button.	
Pre-conditions: 1. The SIS application should be successfully added new session. 2. The user record must exist in the system.	**Post-condition:** 1. New session is successfully selected and changed. A message is shown by system.
Input data/Events:	**Expected output data/Events**

1. Select session. 3. Click on save button.	1. The session is changed successfully 3. The system shows error message in case of incorrect information.
Actual Input Data/Events	**Actual output Data/Events**
1. Enter 2010 as session. 2. Click on Save in Button.	1. The session information successfully added.
1. Enter 2010, 2011 as session. 2. Click on save in Button.	**2.** The system shows error message in case of correct session.

Table 6.5 Test Case Manage Session

6.2.1.3.5.2. Test Case: Register Applicant

Test Case ID:TC-SIS-006	**Test Item:** Register Applicant
Author: SIS Developers	**Documentation Date:** November 28,2010
Test Type: Manual-Black Box	**Test Case Name:** Register Applicant
Component: Admission	**Release/Version:** 1.0

Test Case Description: The test case will determine the correct functionality of applicant registration.

Operation Procedure: In the SIS applicant registration form.

1. Click Admission tab.
2. System will show Register new applicant.
3. Select appropriate menu.
4. Enter Full name, Father name, DOB, Gender, Place of Birth, Nationality, phone #, Mobile #,Address, Registration #.
5. Click on save button.

Pre-conditions:	**Post-condition:**
1. The SIS application should successfully register new applicant. 2. The user record must exist in the system.	1. Applicant data is successfully entered. A message is shown by system.
Input data/Events:	**Expected output data/Events**
1. Enter Full name, Father Name, DOB,	1. The applicant detail is added to the

Gender, Place of Birth, and Nationality, phone #, Mobile #, Address, Registration #. 2. Click on save button.	system successfully in case of correct information. 2. The system shows error message in case of incorrect information.
Actual Input Data/Events	**Actual output Data/Events**
1. Enter Sara as full name, Wajid as father name,2 march 1990,female as gender, Islamabad as place of birth, Pakistani as nationality,0513333378 as phone #,033287876565 as mobile #,12345 as registration #. 2. Click on Save in Button.	1. The applicant information successfully added.
1. Enter Sara as full name, Wajid as father name,2 march 1990,female as gender, Islamabad as place of birth, Pakistani as nationality,0513333378 as phone #,033287876565 as mobile #,56673 as registration #. 2. Click on save in Button.	1. The system shows error message in case of incorrect registration #.

Table 6.6 Test Case Register Applicant

6.2.1.3.6. Test Case: Manage Exams

6.2.1.3.6.1. Test Case: Submit Exam Result

Test Case ID:TC-SIS-007	**Test Item:** Submit Exam Result
Author: SIS Developers	**Documentation Date:** November 28,2010
Test Type: Manual-Black Box	**Test Case Name:** Submit Exam Result
Component: Manage Exams	**Release/Version:** 1.0
Test Case Description: The test case will determine the correct functionality of Submission of Exam Result. **Operation Procedure:** In the SIS submit Exam result. 1. Click Manage Exam tab. 2. System will show Submit Exam Result, View Exam Result, and View Consolidated Result. 3. Select appropriate menu. 6. Enter subject marks. 7. Click on save button.	
Pre-conditions:	**Post-condition:**
1. The SIS application should successfully enter subject marks. 2. The user record must exist in the system.	1. Subject marks are successfully entered. A message is shown by system.

Input data/Events:	**Expected output data/Events**
1. Enter physics, chemistry, and mathematics. 2. Click on save button.	1. The subjects details are added to the system successfully in case of correct information. 2. The system shows error message in case of incorrect information.
Actual Input Data/Events	**Actual output Data/Events**
1. Enter Physics, chemistry and mathematics. 2. Click on Save in Button.	1. The subject information successfully added.
1. Enter 40 as Physics and 70 as chemistry and 60 as mathematics. 2. Click on save in Button.	1. The system shows error message in case of incorrect information.

Table 6.7 Test Case Submit Exam Result

7.1. Future Development & Enhancements

Although the project is in accordance with the client's needs and requirements but still it can be further improved for extensive usage. Following things can be introduced in future to enhance the functionality of the system:

- Exam results can be sent to parents or guardians via email.
- Notifications of fee defaulters and other events can be sent to parents or concerning persons via short message service (sms).
- Fee receiving can be made automatic i.e. when fee is submitted in bank, system automatically notifies it and the relevant information is saved into the system. This can be done by using internet facility.
- Marking attendance can be made automatic by using thumb recognition technology.
- The same system can be used in Bahria College Karachi and other branches of Bahria College.

7.2. Conclusion & Recommendations

This system is capable of performing all the tasks mentioned in this document effectively and efficiently. The product is almost a generic one, which not only will meet the needs of Bahria College but it can also be implemented in other educational institutes. It can be used for rest of the branches of Bahria College as well. This project is developed with the hope that it will be applied and used by Bahria College making their work easier, simpler and time efficient. However the product can be further enhanced by introducing some minor changes. It is believed that this project is one of our biggest achievements of our student life.

Following is the brief description of the usage of the system. Since the system has many users assigned, each one having different roles. The system uses login to differentiate between these users, authenticate them and keeps their privileges separate.

A.1 User Logon Screen / Initial Setup

A.1.1 Login

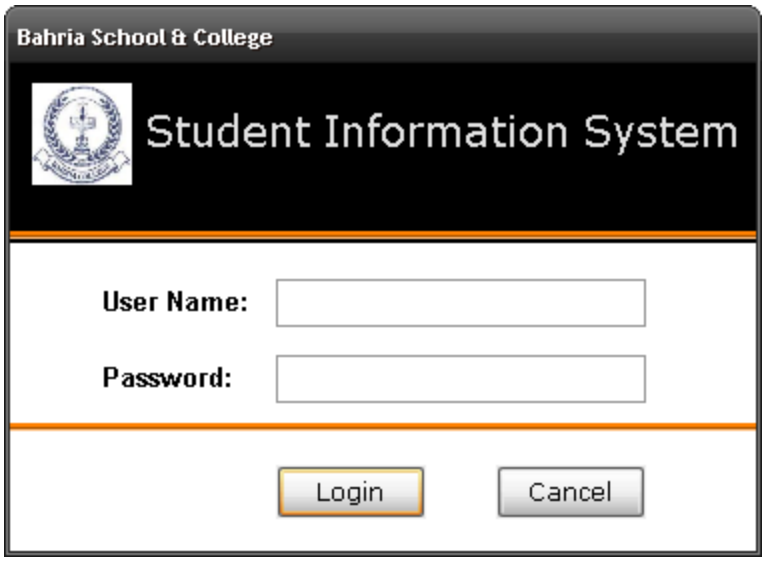


Figure A.1 Login

In login form, user is asked to fill two fields i.e. username and password. This is to ensure application security. Specific privileges have been assigned to restricted users so that only they will be allowed to perform relevant operations and retrieve info.

A.1.2 Input Checks

A.1.2.1 Wrong Password

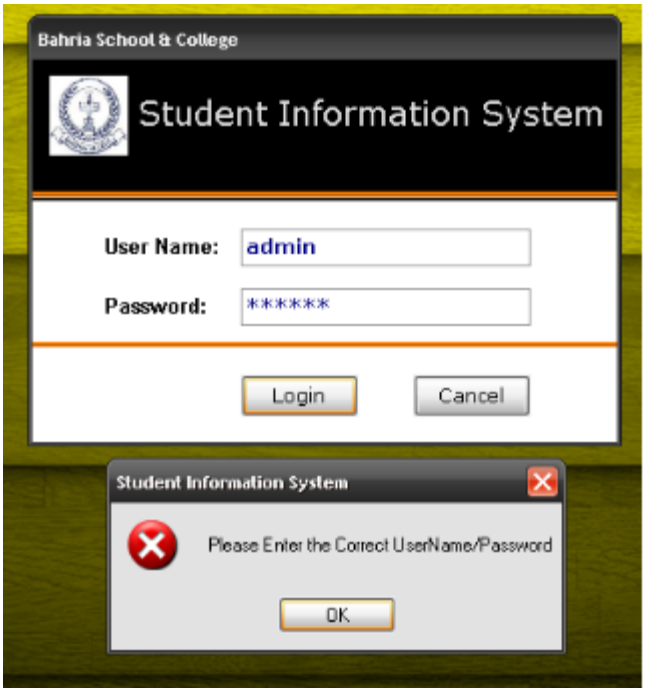


Figure A.2 Wrong Password

If the user enters wrong username or password, an error message will be displayed to enter correct username/password.

A.1.2.2. Special Characters

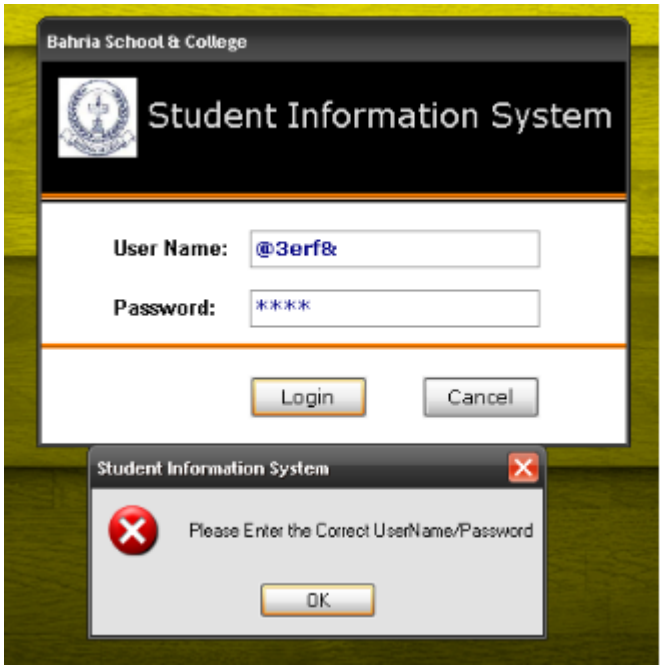


Figure A.3 Special Characters

In case, the user enters special characters in username field, an error message will be displayed because the system does not accept special characters in username field.

A.1.2.3. If Caps lock is Turned On

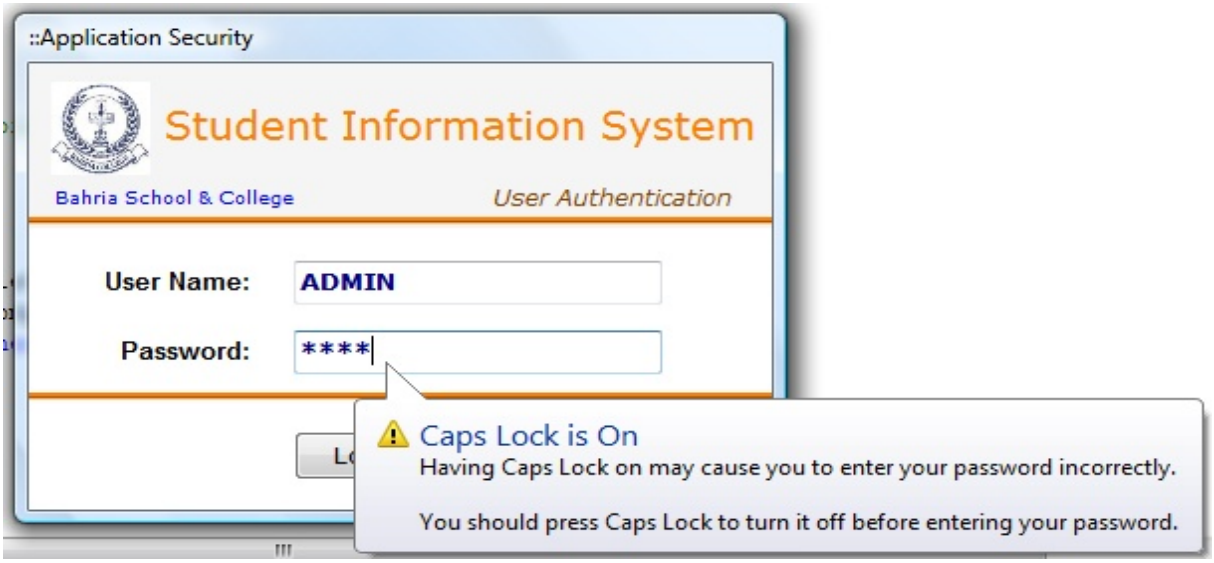


Figure A.4 Caps lock is On

If the username enters the username and password while having the caps lock on, system will show a pop up message displaying a warning that it may produce invalid password.

A.1.5. Correct Entry

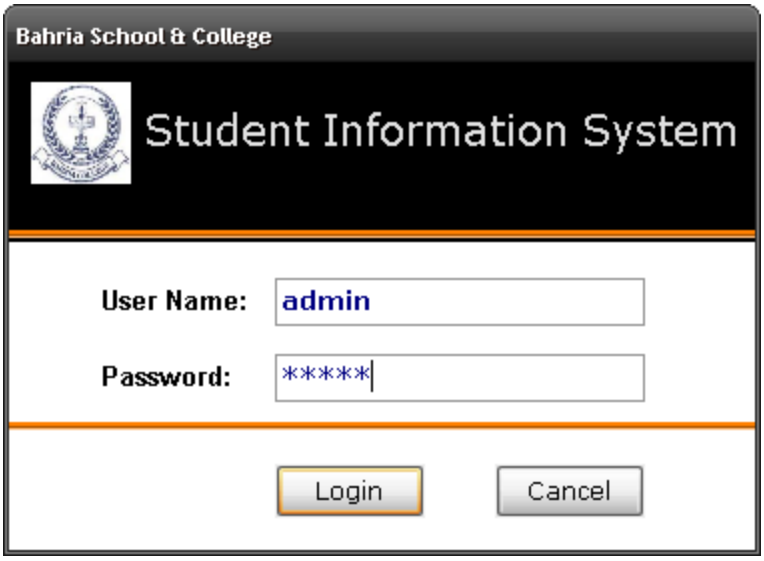


Figure A.5 Correct Entry

When the username and password are entered correctly, system will verify it and authentic user will successfully log in to the system.

A.2. Main Window

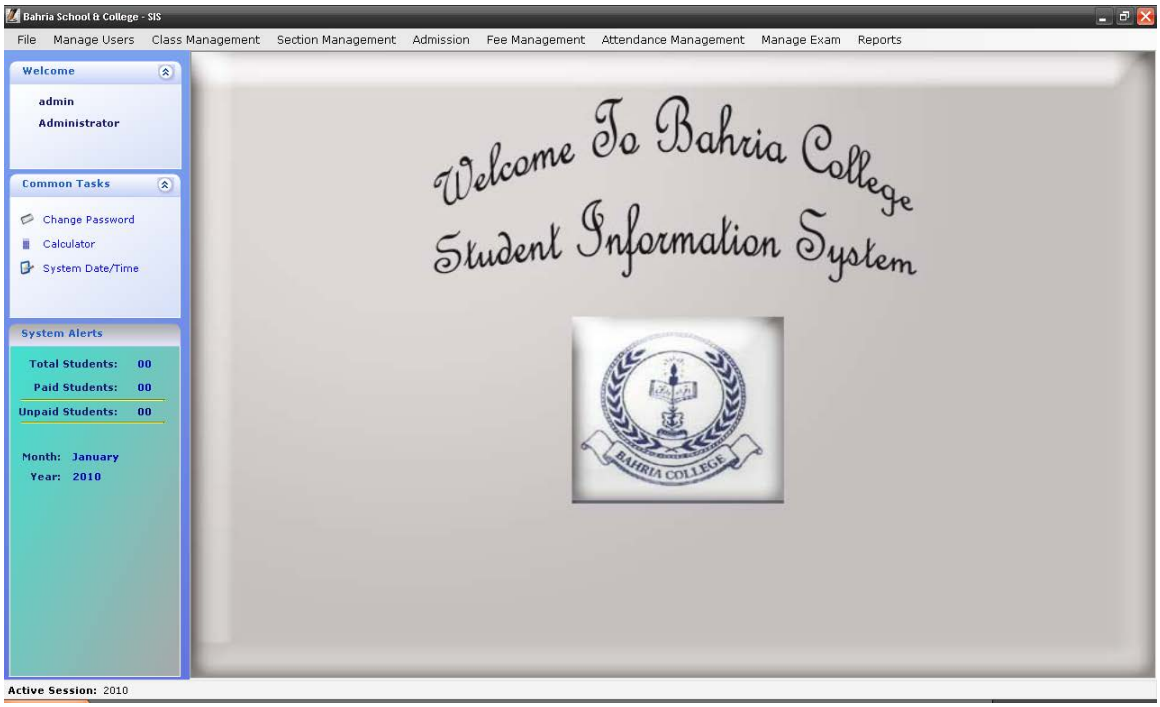


Figure A.6 Main Window

The menu bar displays main processes i.e. manage users, class management, section management, admissions, fee management, attendance management, exam management and reporting. The control on left side of the main window shows the user name and type, second section in control bar shows the added features like calculator etc. Third section displays the alert for fee defaulters.

A.3. Manage Users

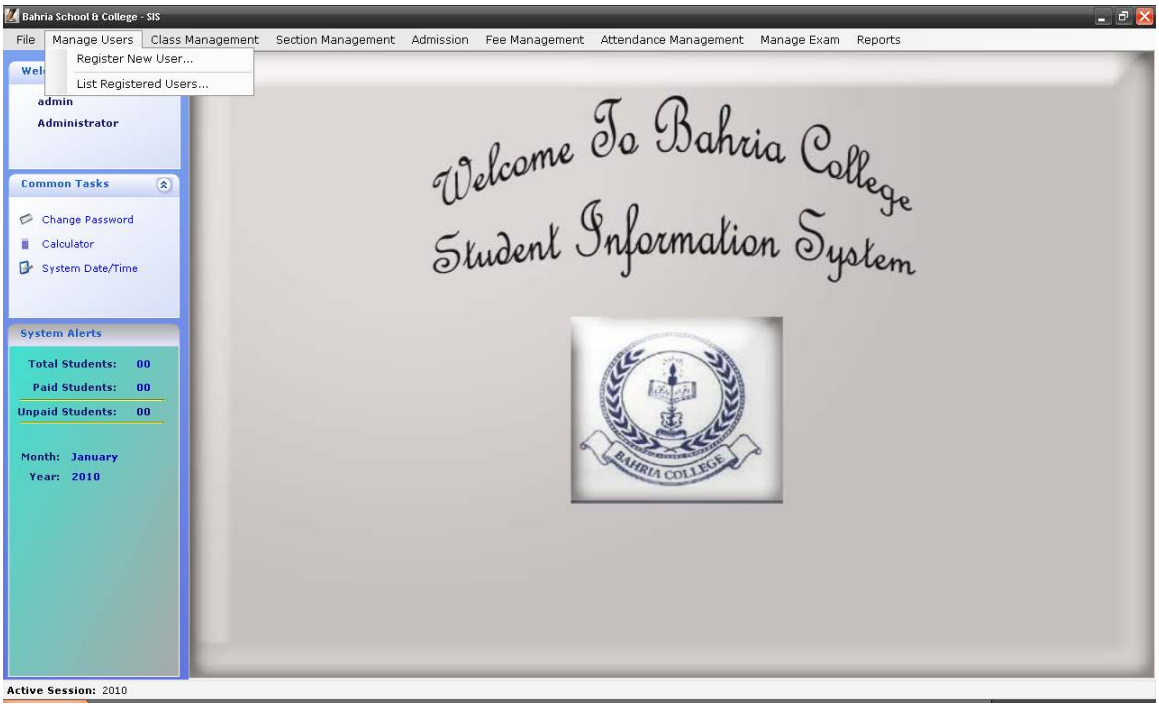


Figure A.7 Manage Users

The 2nd menu named Manage Users, contains two more forms i.e. register new user and list/view registered users. This option will allow the user (only administrator) to add, edit, delete and view users. Assign their type, session etc.

A.3.1. Register New User

Figure A.8 Register New User

On clicking Register new user, a new form will be opened. Which has four fields i.e. username, user type, password and confirm password.

- Specify the name you want to enter in username field but do not include special characters otherwise it will give an error message and user will not be created.
- 2nd field will show drop down menu from which user will choose the type of the user. There are different types of users.
  - ✓ Administrator- has all the privileges. He is the sole person who has access to everything.
  - ✓ Accountant- only fee management process will be visible to accountant. He will be in charge of managing the fee process.
  - ✓ Admission- restricted to admission process only. Manages admissions.

- ✓ Attendance- can only view, create, edit, and delete the data in attendance module.
- ✓ Examination- This user will only be able to view exam module. He will be able to enter, edit, delete and view exam marks.

- In 3rd field i.e. password, user is asked to enter password of his/her choice but with minimum length of 5 characters.
- Confirm password field verifies the password.

A.3.1.1. Error Messages

A.3.1.1.1. Empty Fields

Figure A.9 Empty Fields

If the user leaves the fields empty and clicks “save Details” button, an error message will be displayed saying that all fields must be filled first.

A.3.1.1.2 Duplication

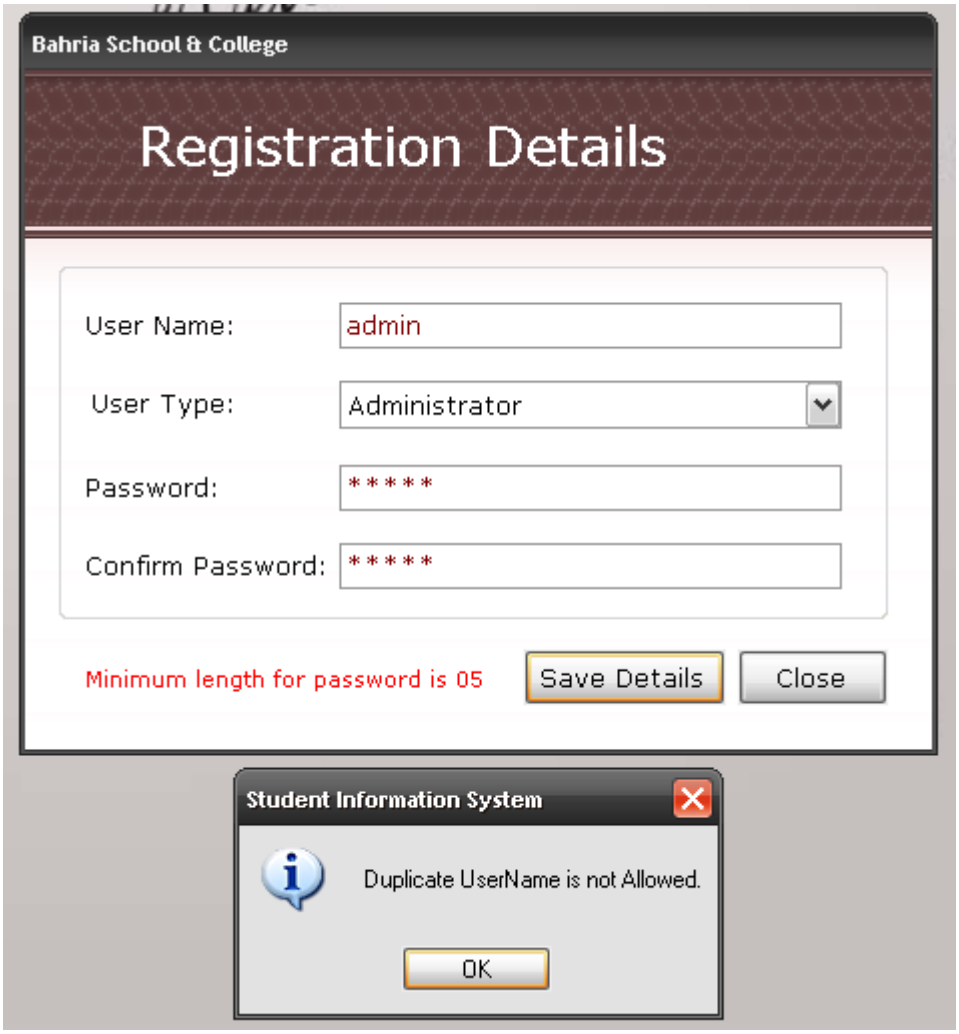


Figure A.10 Duplication

Duplicate entry is not allowed for some of the fields which are meant to be unique. E.g.: A username that has already been entered and saved in the system will also cause the system to generate an error message. User must enter a unique username every time he enters a new one, as duplicate username will not be accepted by the system.

A.3.1.2 Successful Creation of User

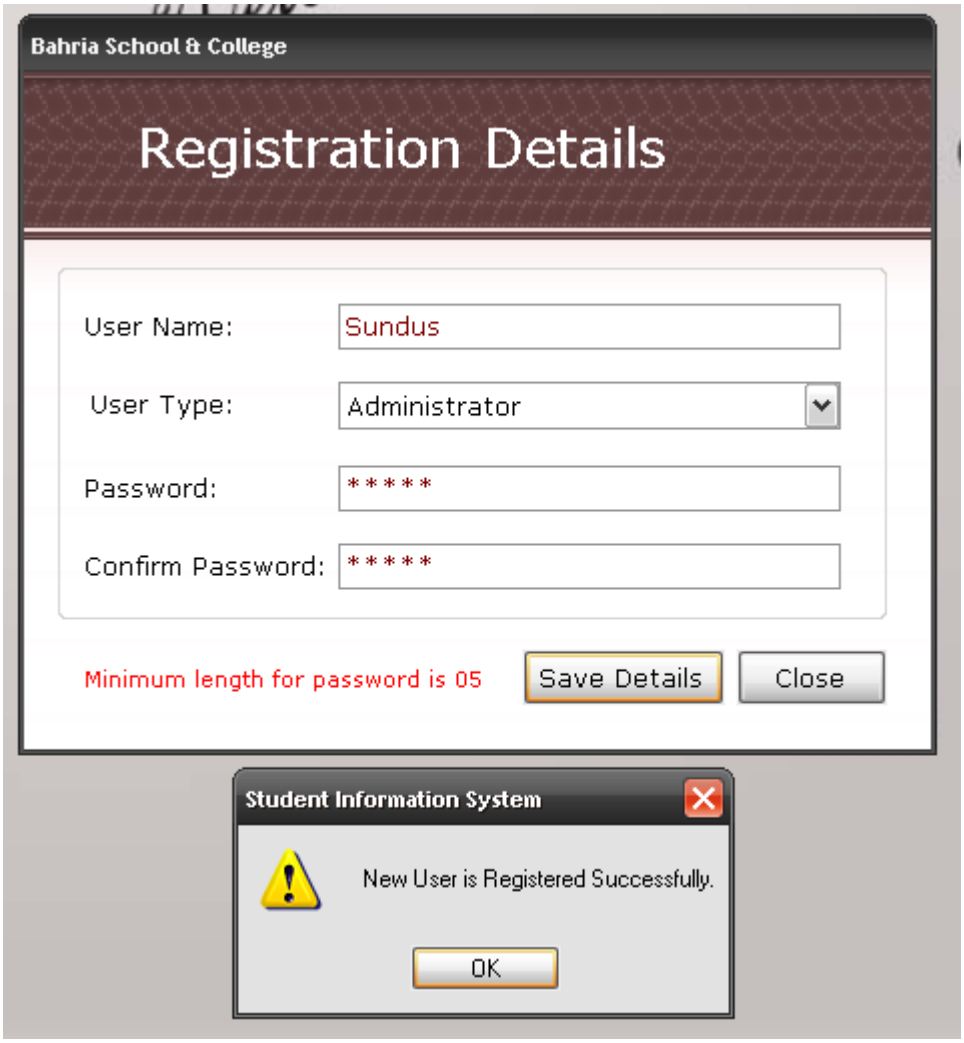


Figure A.11 Successful Creation of User

Once the user has entered all the fields right i.e. right username, user type and correct passwords, system will show a message which will say that the new user has been created successfully.

A.3.2. List Registered Users

Figure A.12 List of Registered Users

This form will display all the users that have been created, specifying two attributes of each item i.e. login name and user type. The form also has added functionalities like addition, deletetion and updation of the users.

A.3.2.1 Deleting a User

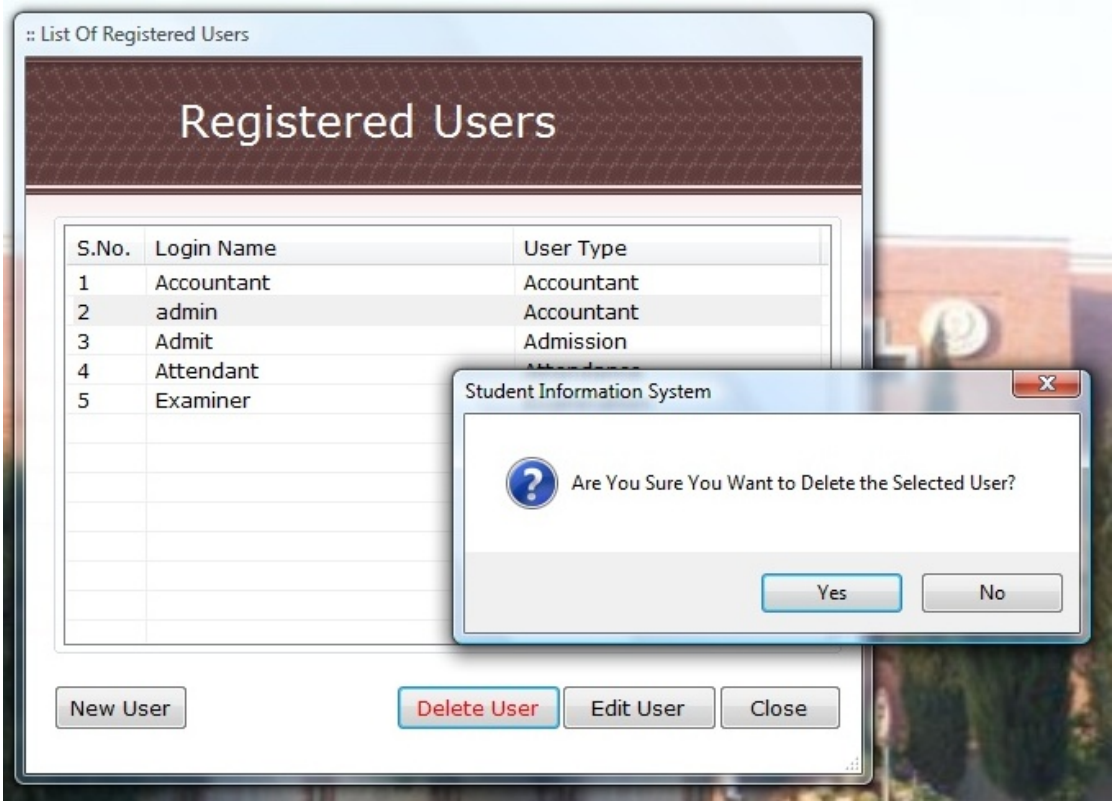


Figure A.13 Deleting a User

By selecting any specific user and clicking on the delete button, user will be able to delete a user. This will display a confirmation message first, which has two buttons i.e. Yes and No, pressing “Yes” will delete the user whereas no action will be performed in case of “No”.

A.3.2.1.1 Successful Deletion of User

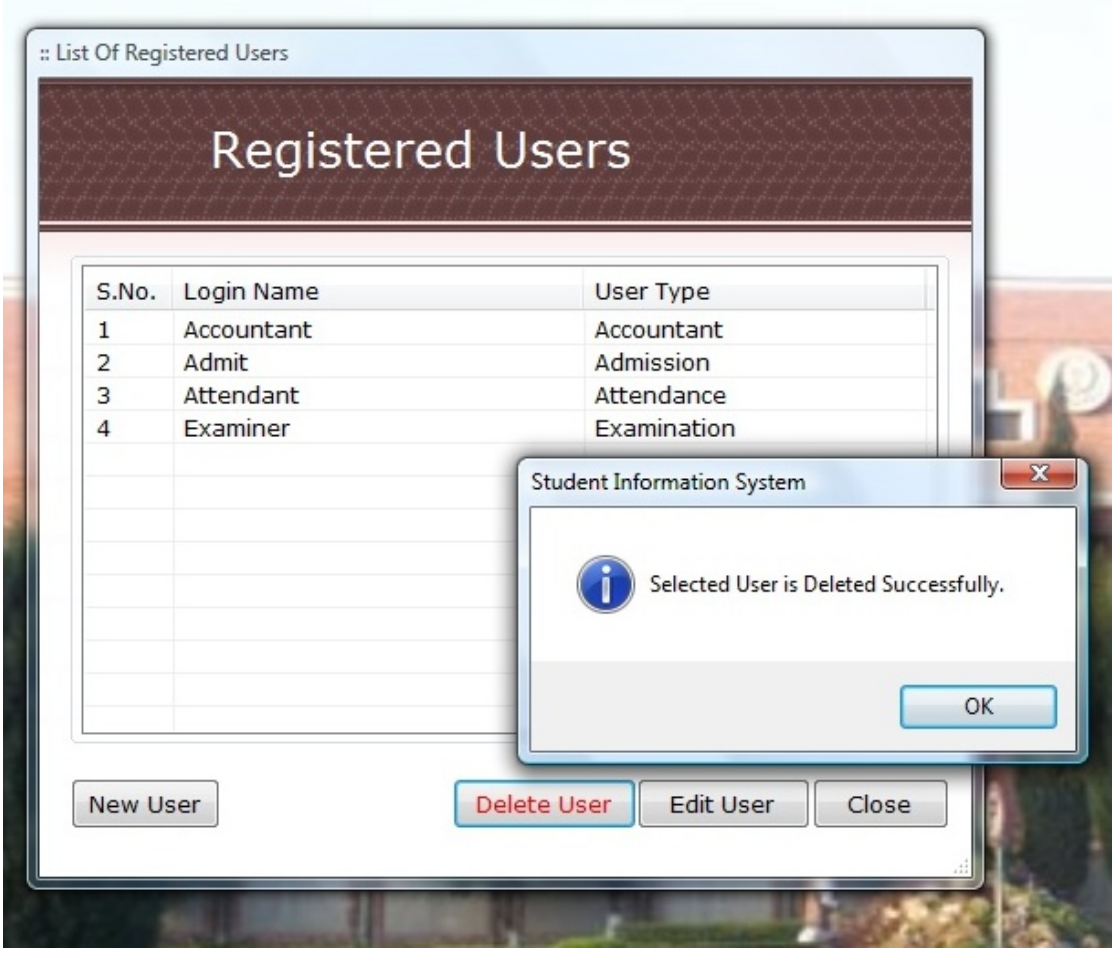


Figure A.14 Successful Deletion of User

Pressing yes on the confirmation message will delete the user from the system and the system will show success message that the user has been deleted.

A.3.2.2 Edit/Modify a User

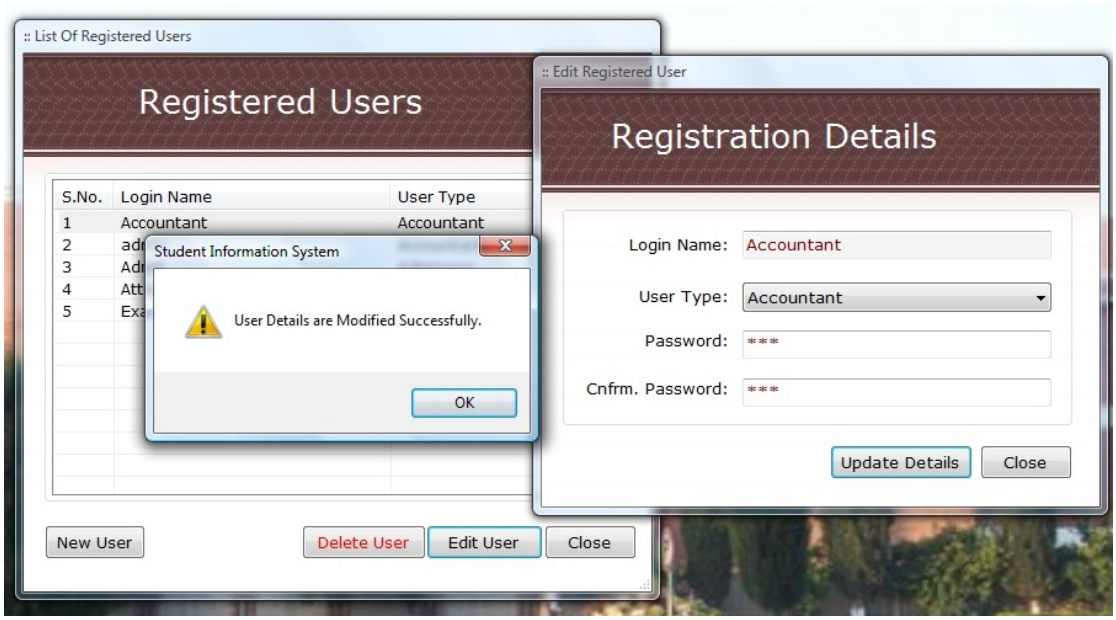


Figure A.15 Edit/Modify a User

On pressing “edit user” button on the “list of Students” form, a new form will be opened displaying the user details in edit mode. Change /modify the fields and press update details. If the details are correctly entered according to previous user details criteria, changes will be saved and a message will be displayed which reads that the user details have been modified successfully.

A.3.2.3 New User Button

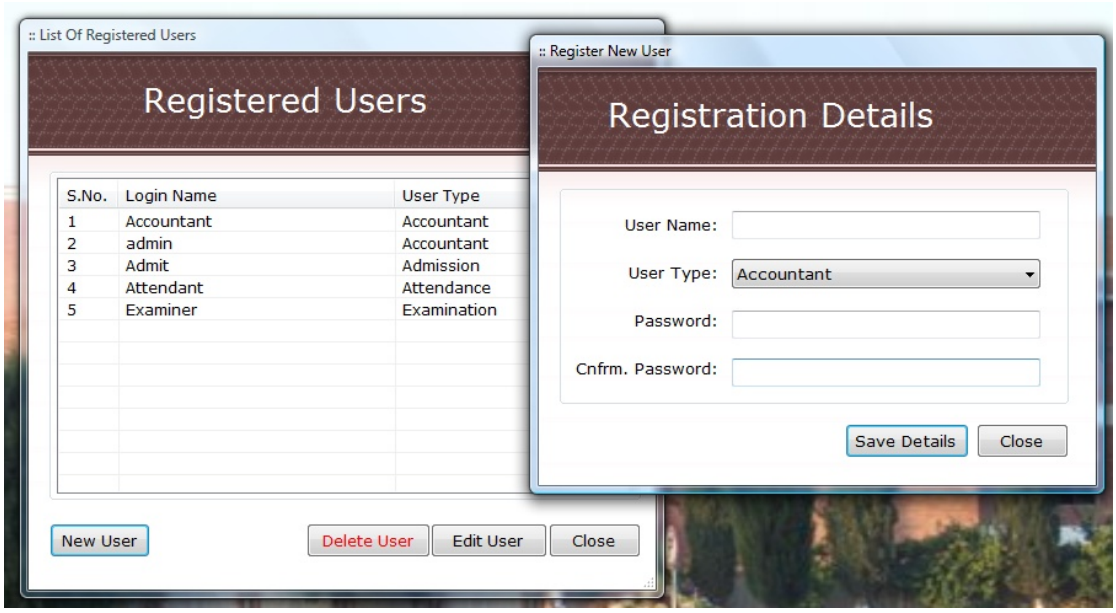


Figure A.16 New User Button

User can directly add new user from the “list of Users” form by simply clicking the “new User” button. This will take the user to same “New User” form which we have already discussed in figure 3.1.2.

A.4. Class Management

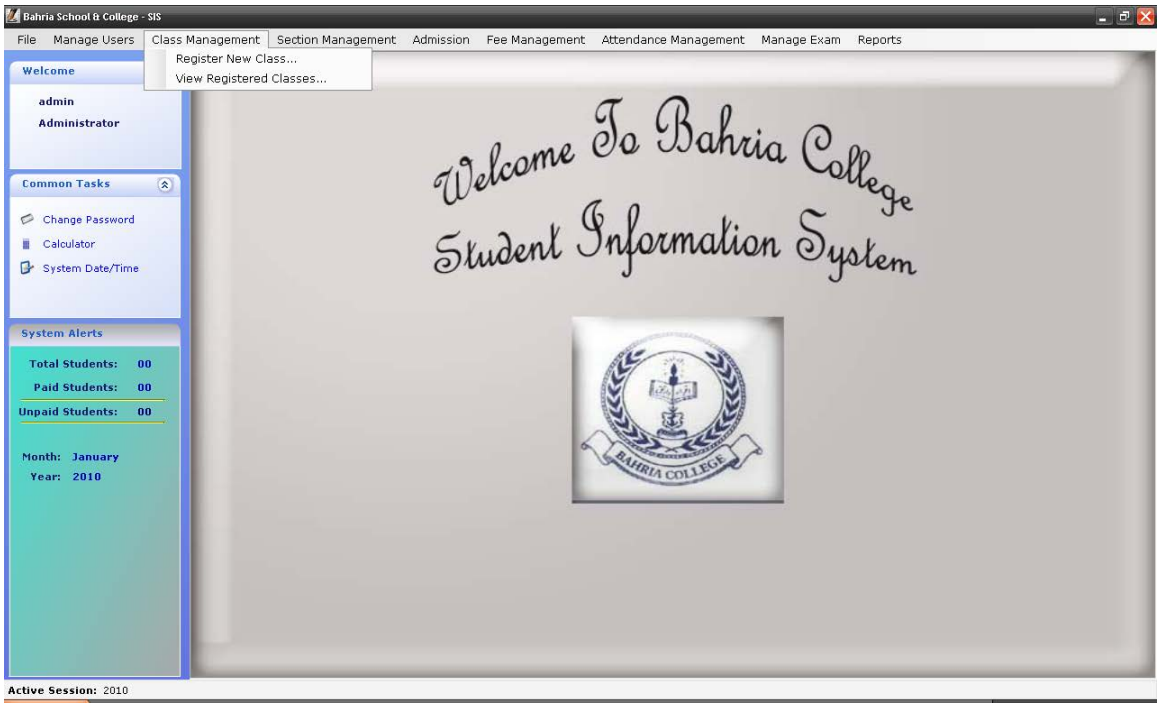


Figure A.17 Class Management

Class management process allows user to create, edit, view n delete classes. With each class user also has to enter the categories and fee details for that category. We will discuss it in next figure.

A.4.1. Register New Class

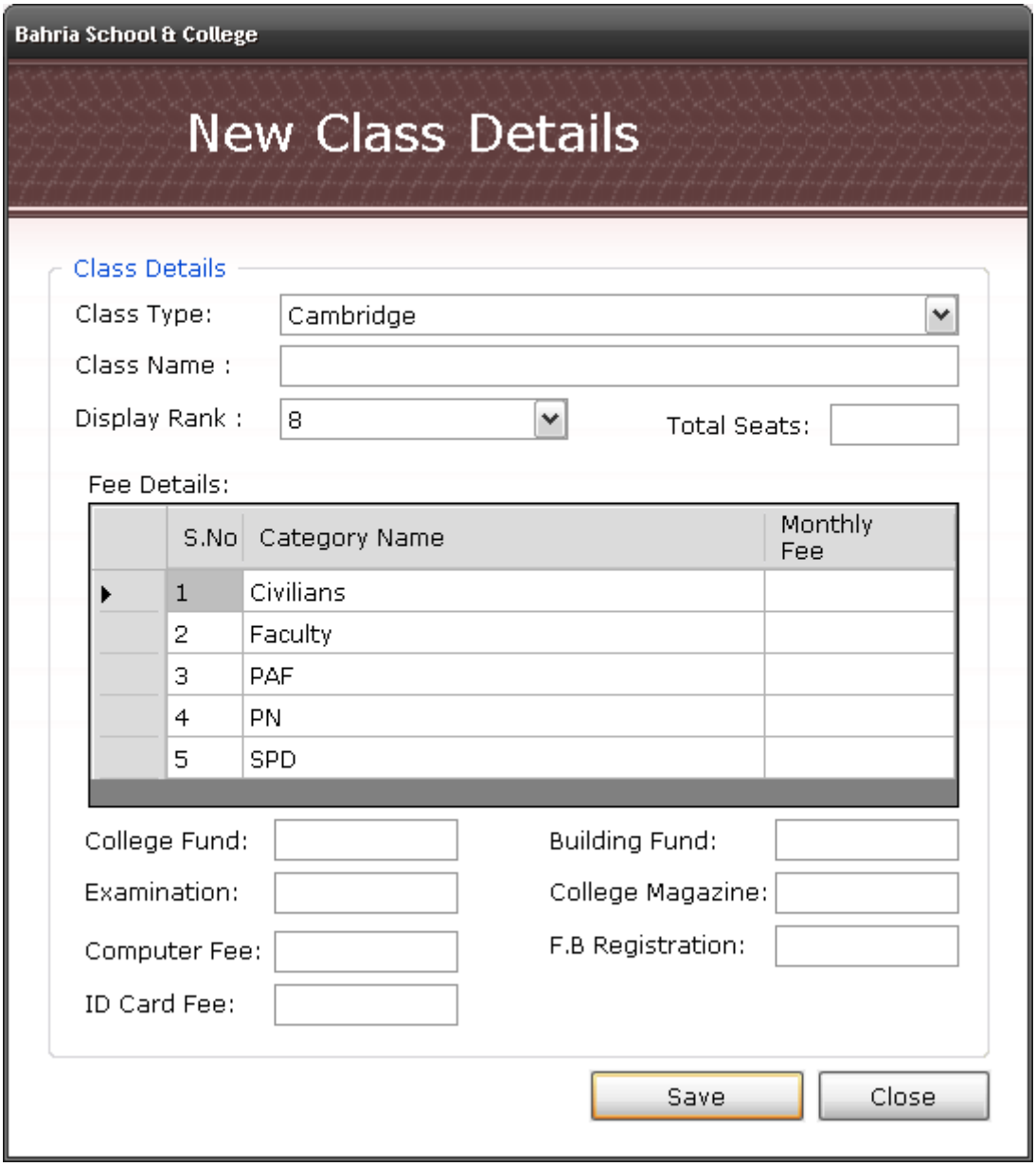


Figure A.18 Register New Class

On clicking the "Register New class "option from class management section, system will open a separate form in which the user will enter details of the class he wants to add. These details include:

- ✓ Class name- Name of the class

- ✓ Display Rank- it is basically the display order of that particular class. A class will always be displayed according to its order in display rank.
- ✓ Total Seats- Total capacity of class
- ✓ Fee Details- it has three columns.
    - o Serial no- display id
    - o Category name- there are different categories of students that are specified class wise.
    - o Monthly fee- Monthly fee against each category is mentioned when creating a new class.

A.4.2. View Registered Classes

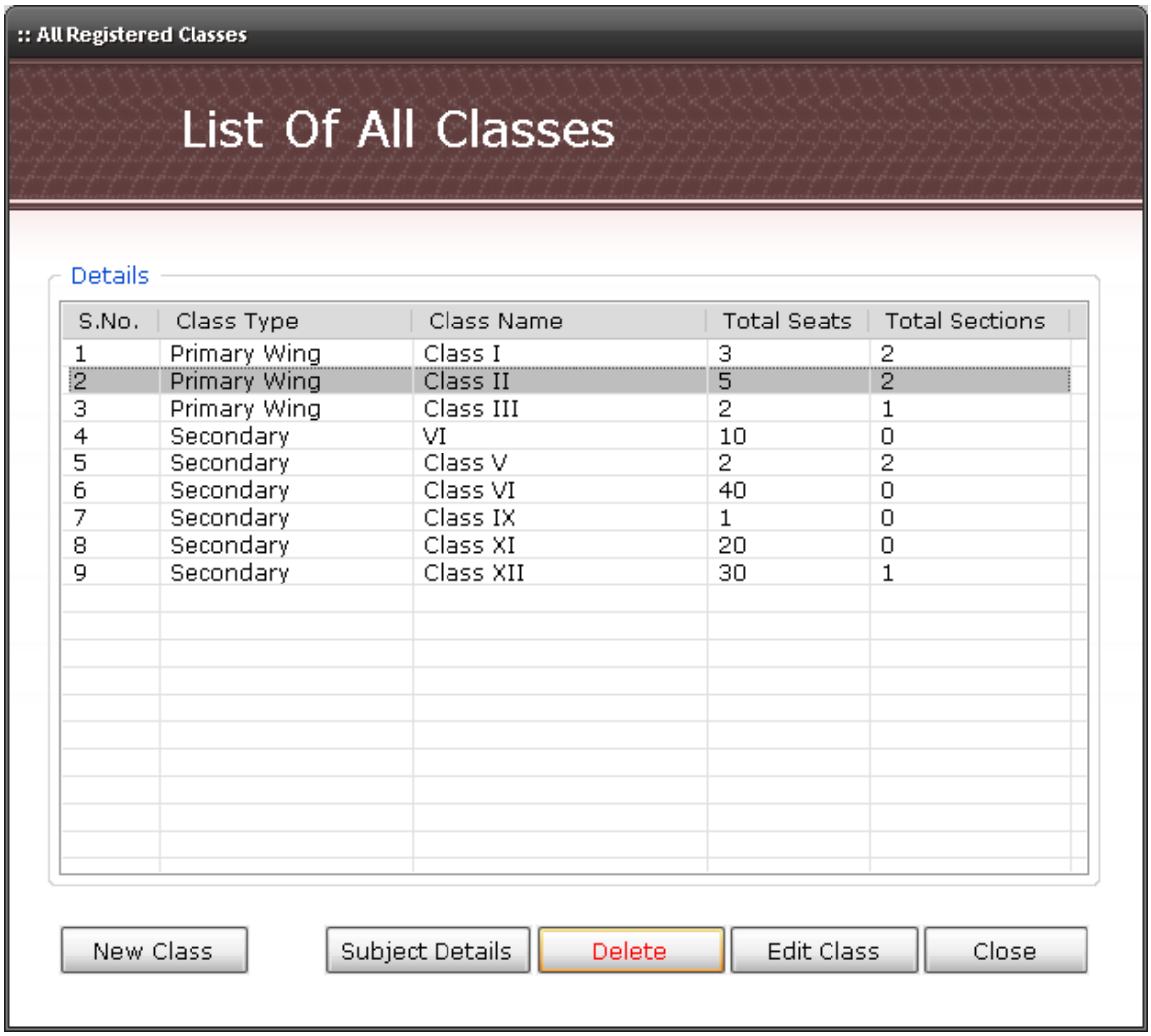


Figure A.19 View Registered Classes

This form shows the classes that have been registered and successfully entered into the system. The form further has some buttons like:

- New class – takes user to register new class form.
- Subject Details – User can enter the subjects' details against each class.
- Delete – delete the selected class from the system. A class cannot be deleted if it has one or more sections. In that case user will first delete the sections of that particular class.
- Edit Class – to edit the details of a class.

- Close – form will be closed.

A.4.2.1. Subject Details

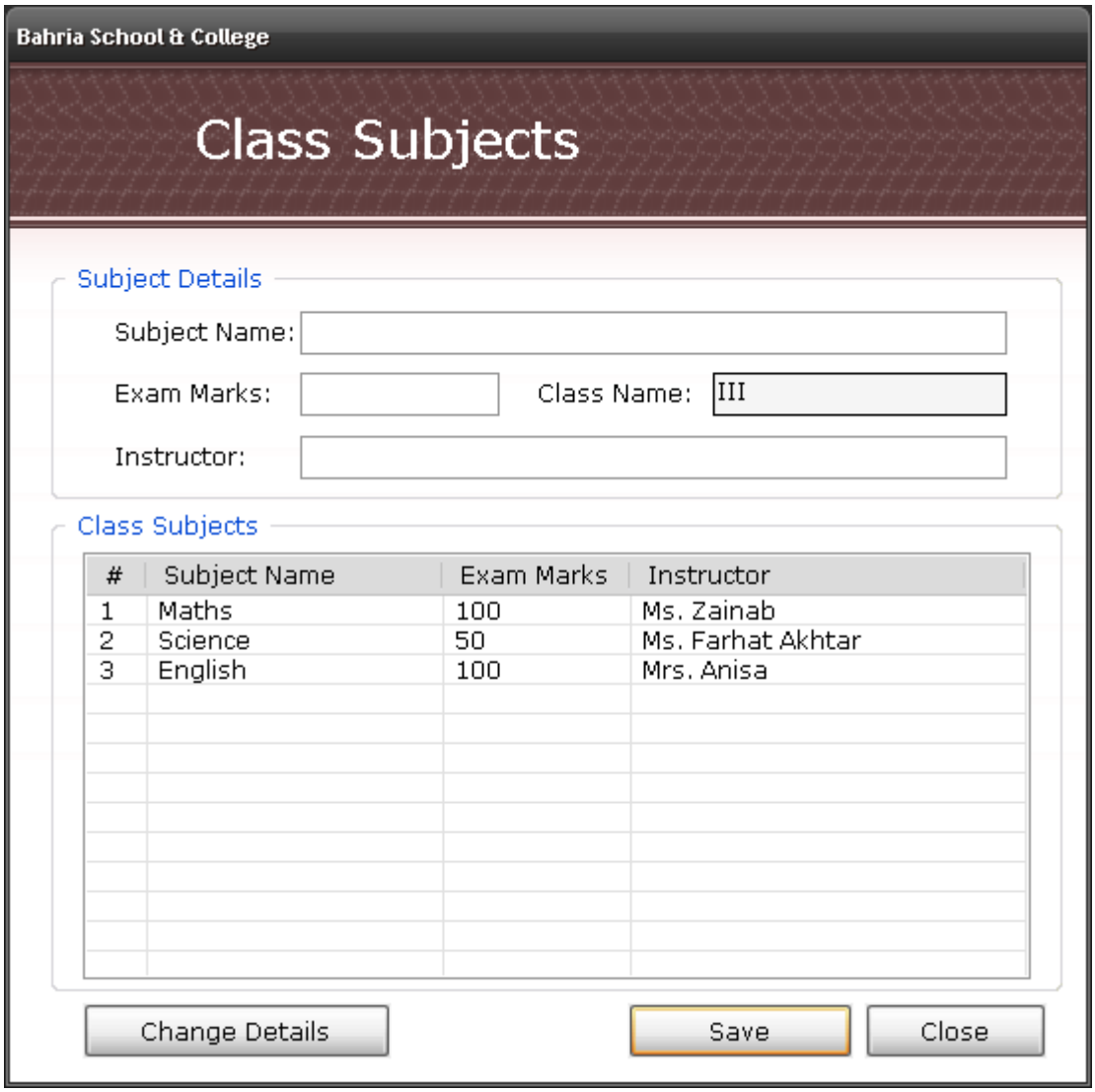


Figure A.20 Subject Details

This form allows the user to enter subject details of each class, by entering the name of the subject, total marks of that particular subject and the instructor name. User can also change/edit the subject details by pressing “change Details” button.

A.4.2.1.1. Change Details

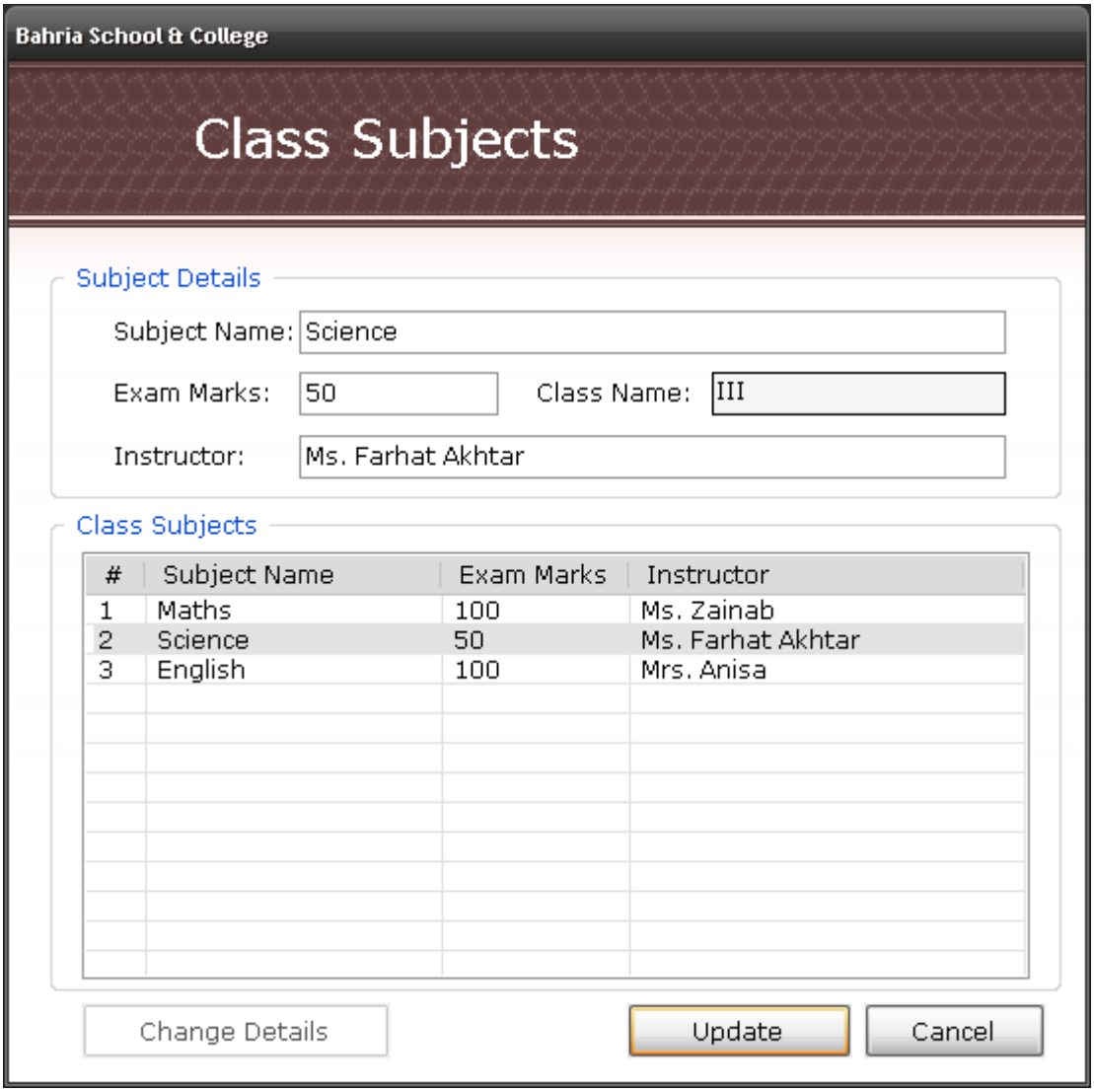


Figure A.21 Change Subject Details

Using this form user can modify/edit the details of subjects. Clicking on “update” button will modify the details of that particular subject of a particular class.

A.4.3. Edit Class

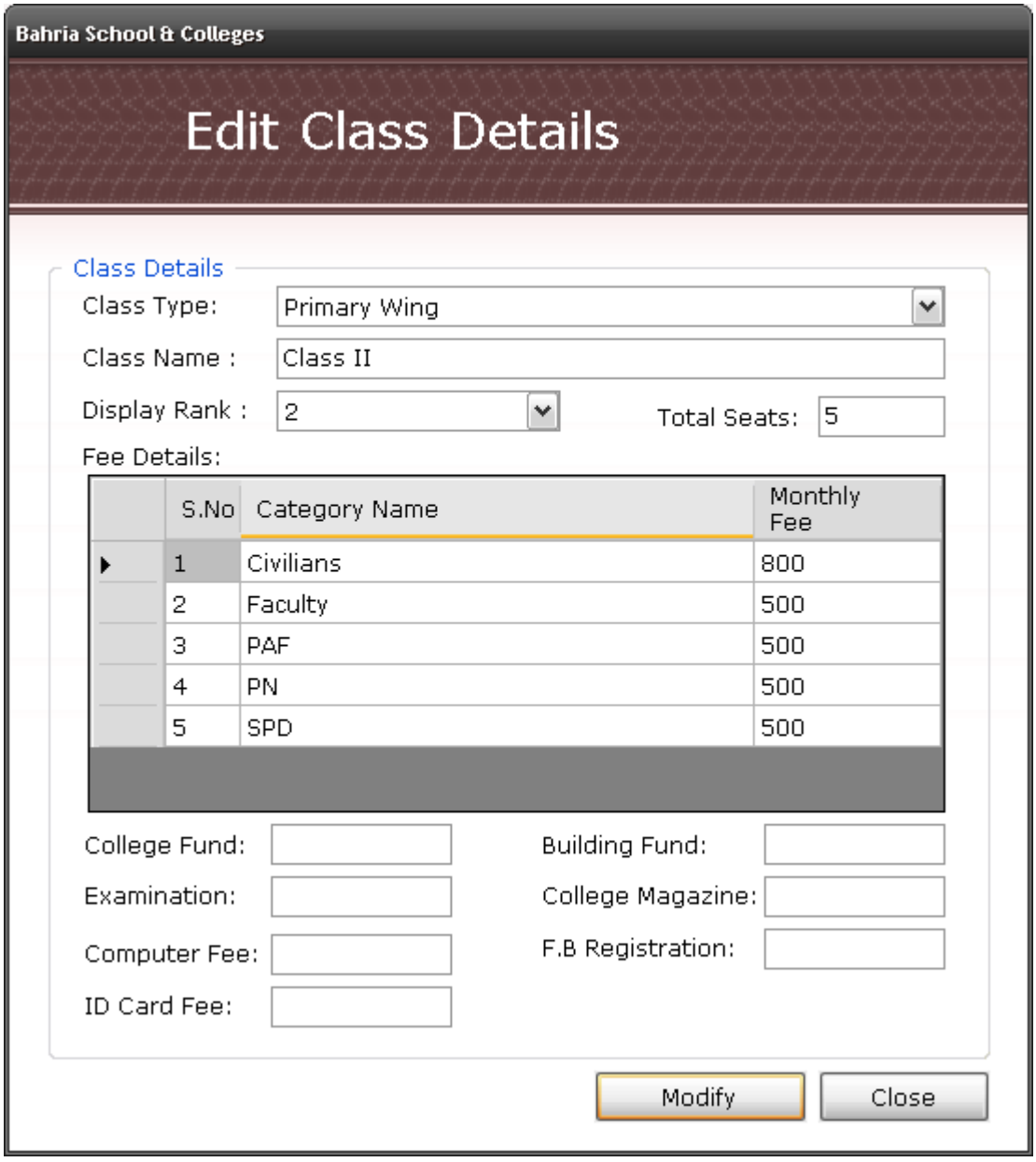


Figure A.22 Edit Class

This form allows user to modify or edit the details of a class.

A.5. Section Management

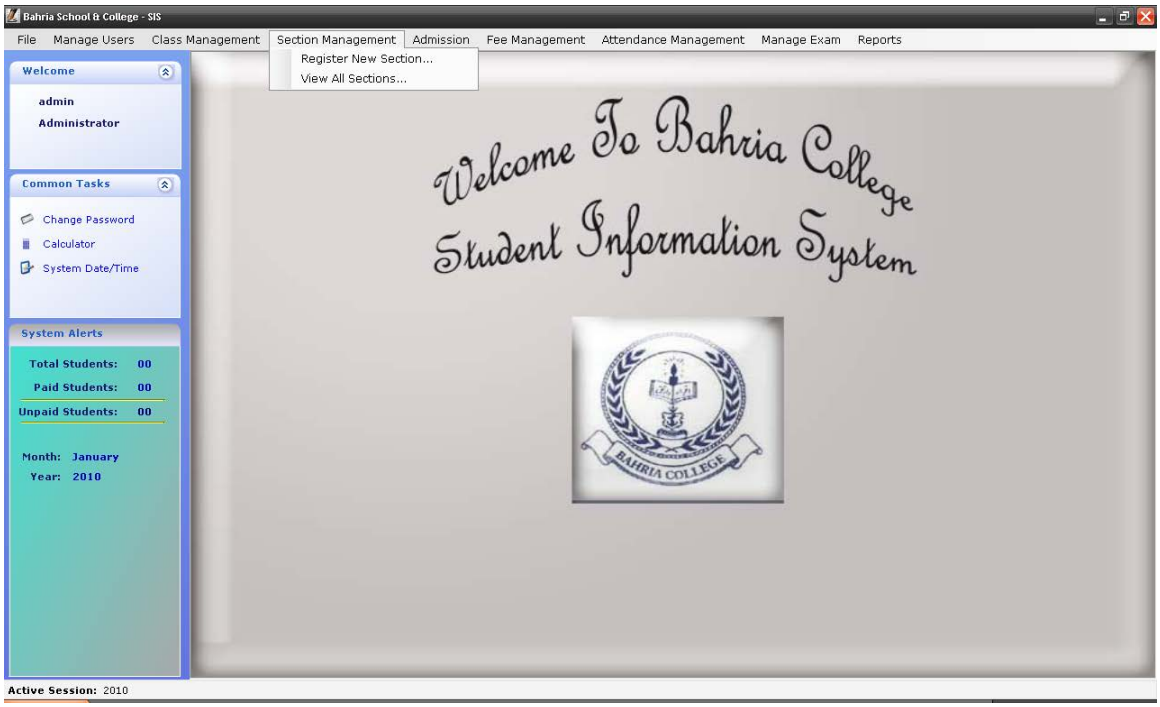


Figure A.23 Section Management

The section Management option on the menu bar allows the user to create new section, edit the sections and view them. It consists of two more forms:

- Register new section
- View all sections

A.5.1. Register New Section

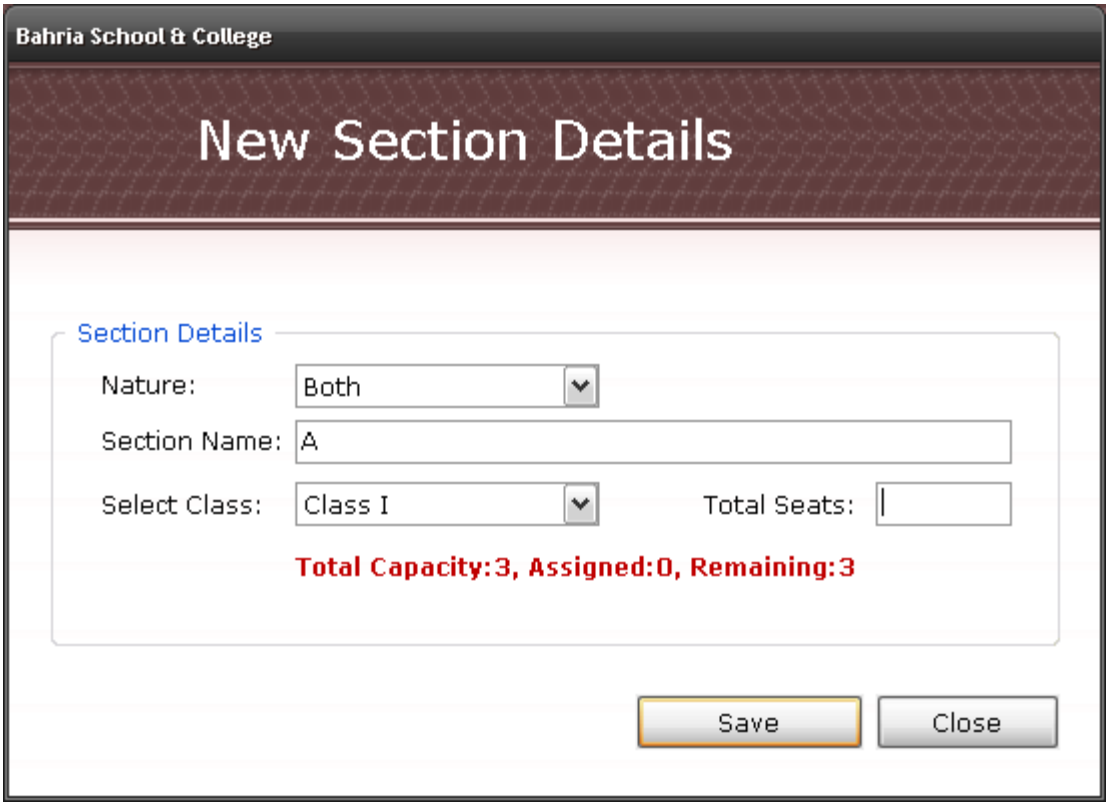


Figure A.24 Register New Section

In the above form, new section is created after the user enters all the details correctly.

1st field i.e. 'Nature' has a drop down menu, with options:

- Both – co educational system
- Boys – boys wing
- Girls – girls wing

2nd field is Section name

3rd is the class for which the user wants to create sections.

4th is total seats which is basically the capacity of each section which should be less than or equal to Total Seats of a class. If the total seats of section exceed total seats of that particular class then the system will show an error message.

A.5.2. List/View All Sections

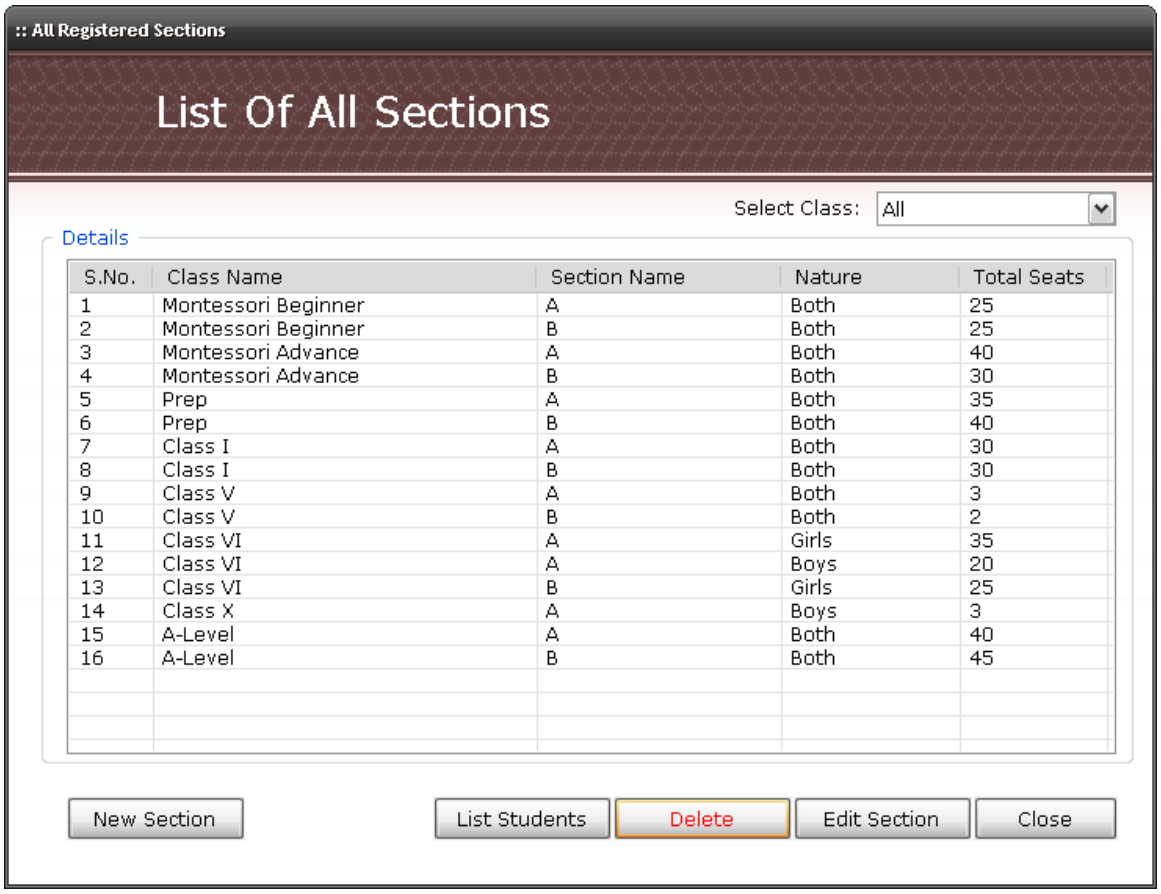


Figure A.25 List All Sections

This option gives user a display list of all the sections, with added functionalities like:

- Create new section
- View list of all students (categorized section-wise)
- Delete section
- Edit section

Create, List Students and Edit option takes the user to new forms, where he can perform the respective operations.

A.5.4. List Students

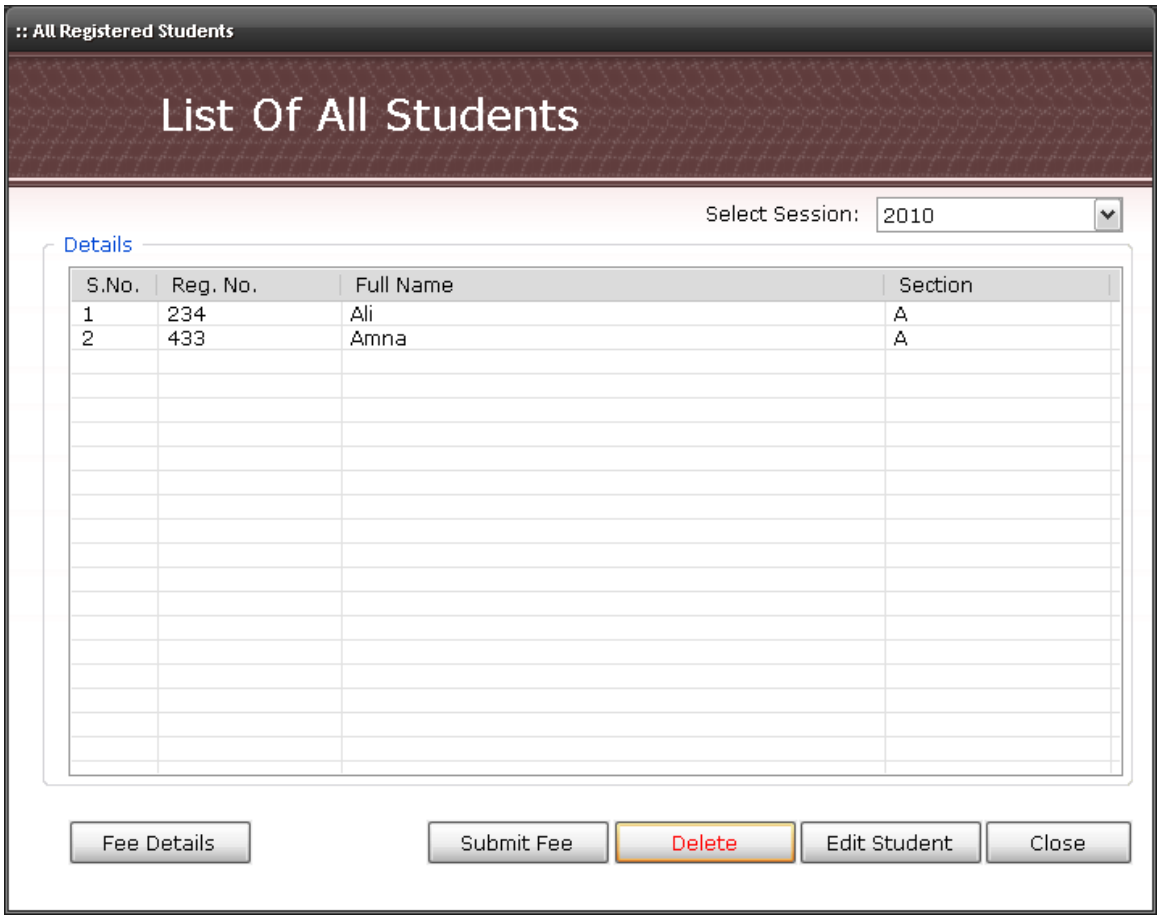


Figure A.26 List Students

The Select Session option provides this facility of viewing student list of any previous session/ previous batch. In this form user can perform man y different operations like he/she can:

- Enter Fee Details – Allows the user to view fee calendar of a year
- Submit Fee – Submit monthly fee slip
- Delete Student – Delete the student from list
- Edit Student – Modify the details of the students of a particular class and section.

Each one of them gets opened up in a different form.

A.5.3. Edit Section Details

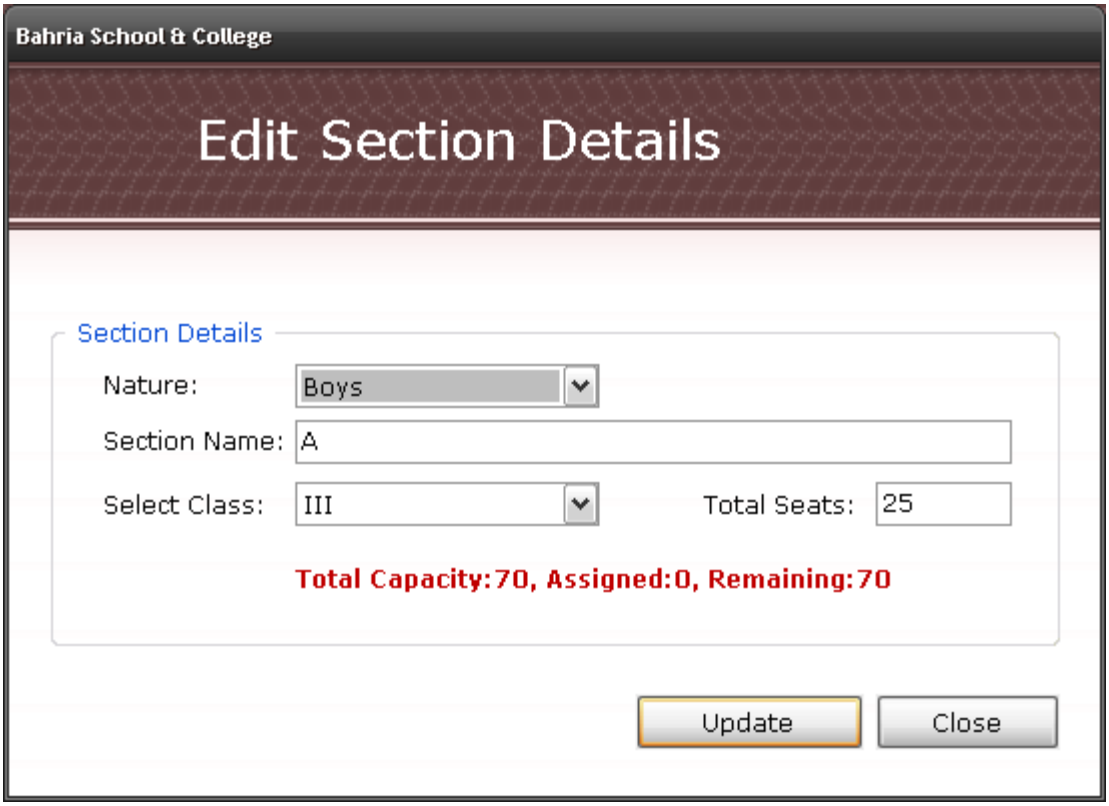


Figure A.27 Edit Section Details

The user can edit the details of the sections by selecting the “Edit Section” option from List of Students form.

A.5.5 Delete Section

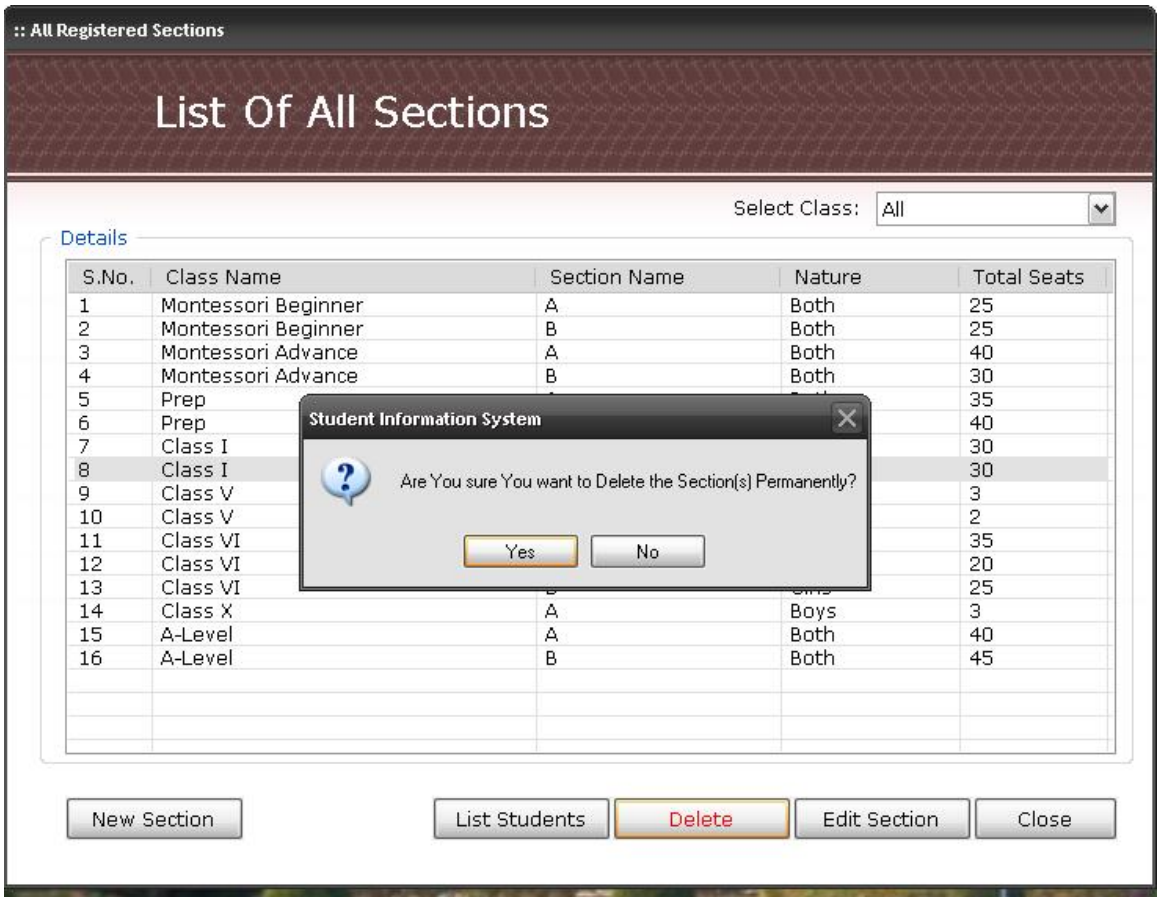


Figure A.28 Delete Section

The delete option deletes the section of a particular class that the user has selected.

It shows error messages if:

- The user presses delete button without selecting any section.
- User wishes to delete a section that has one or more students in it. For a section to be deleted it is mandatory that the section must not contain any students.

A.6. Admissions

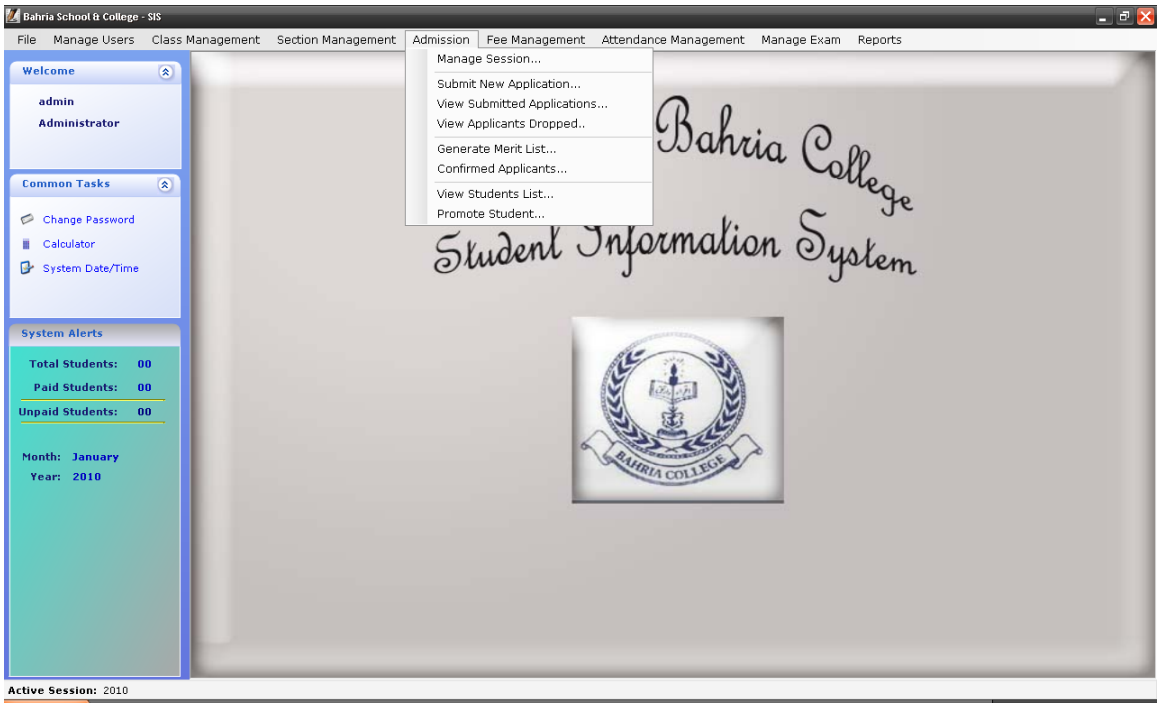


Figure A.29 Admissions

This tab displays the operations that should be performed to process admission of a student. Selecting any one of these will take the user to a new form. It comprises of following forms:

- Manage session
- Submit new application
- View submitted applicants
- View applicants dropped
- Generate merit list
- Confirmed applicants
- View students list
- Promote Students

A.6.1 Session Management

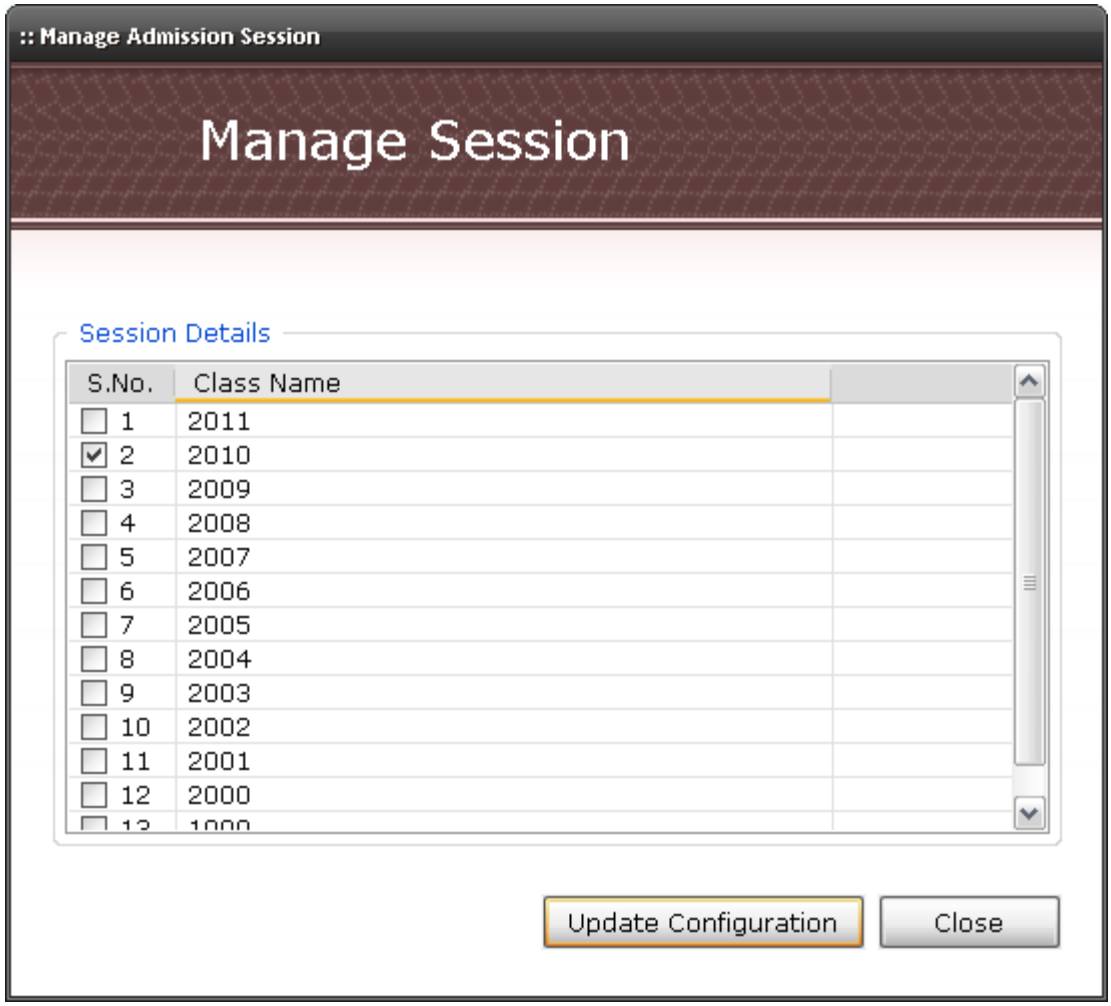


Figure A.30 Session Management

This form gives the user an option to change the session/year. The default session is the current year, but the user can select any previous year to view or enter details for that particular session.

A.6.2 Register Applicant

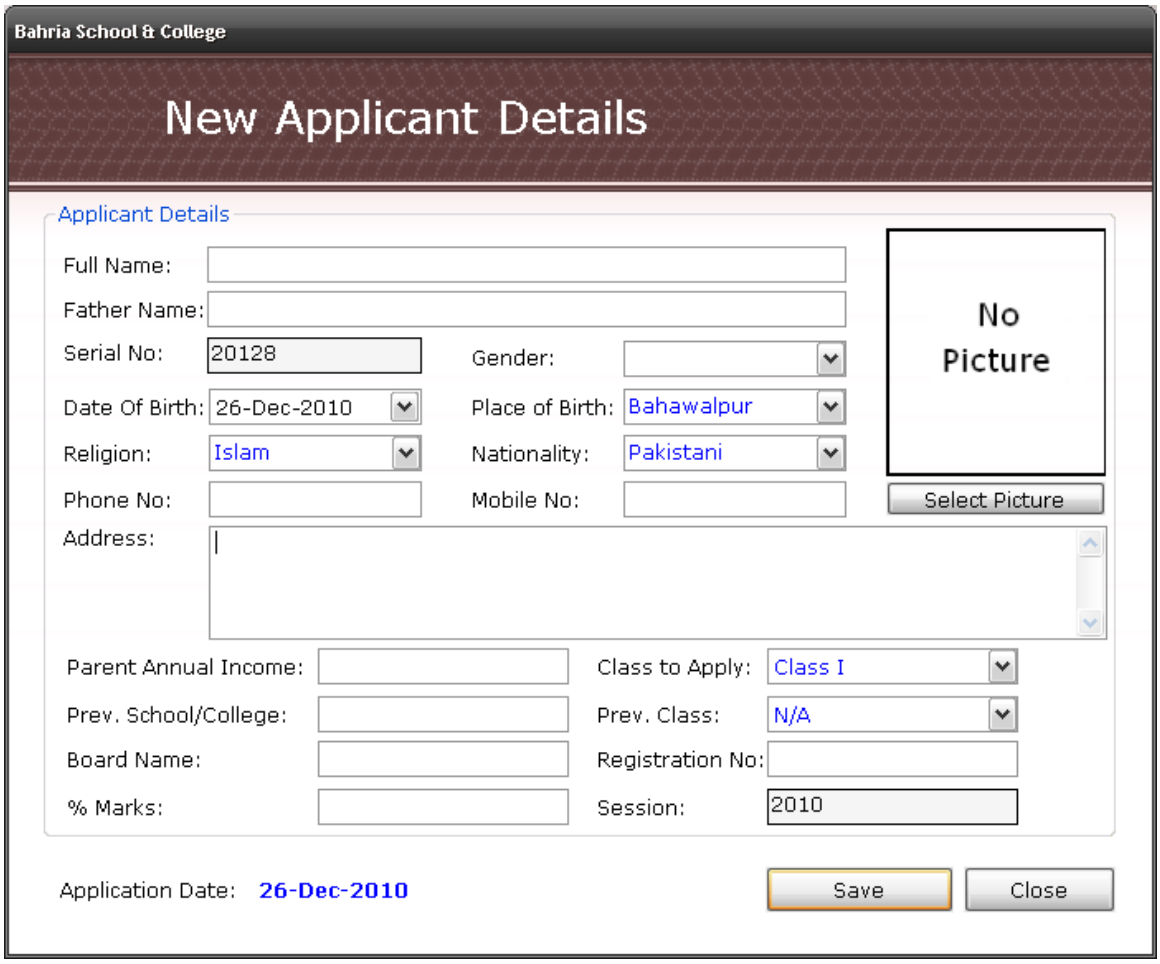


Figure A.31 Create New Applicant

New applicants can be entered by filling the above form. User is required to enter all the fields first and then save the details, otherwise it show error message like:

The user must save the pictures according to the names of the applicant so that he does not find any difficulty in fetching them.

A.6.3. List of Submitted Applicants

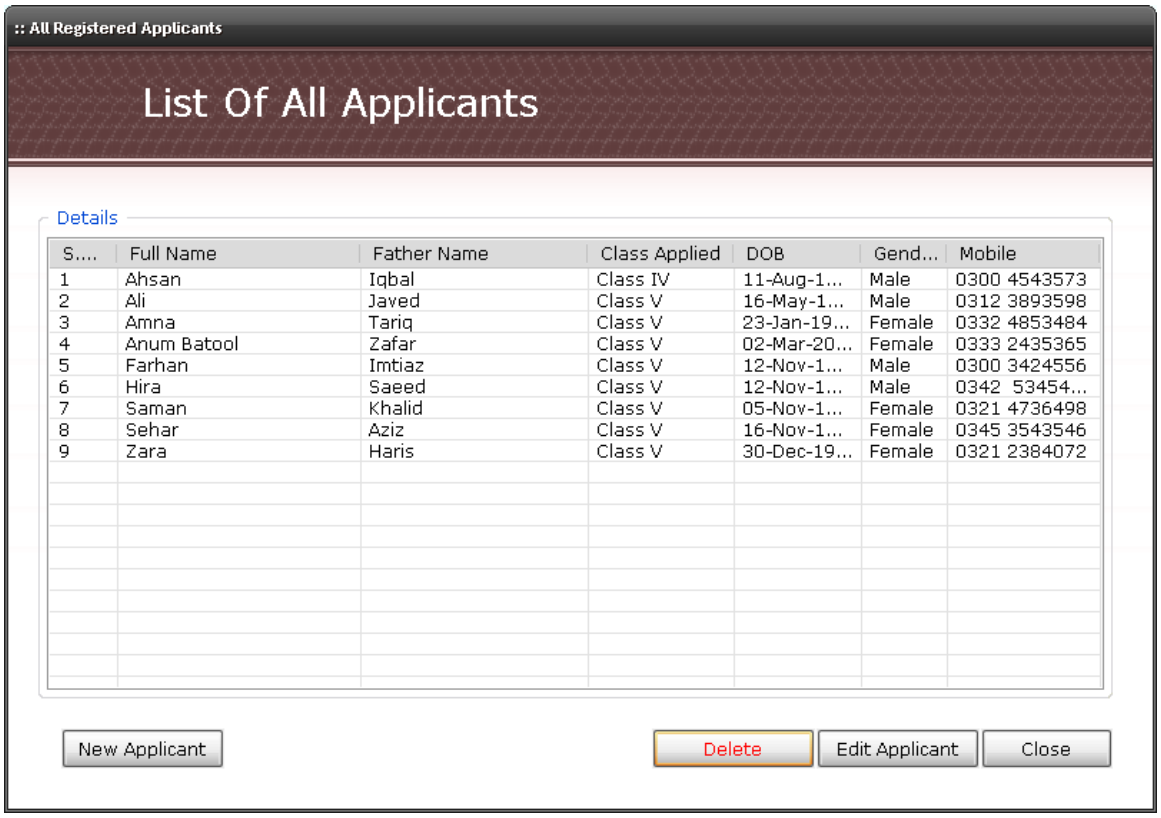


Figure A.32 List of Submitted Applicants

This form displays list of all the applicants with their details. It also allows the user to toggle to “New Applicant” or “Edit Applicant” form if he wants to create a new user or edit one. The delete button enables the user to delete applicants by selecting them and pressing delete button.

A.6.4. Display Dropped Applicants

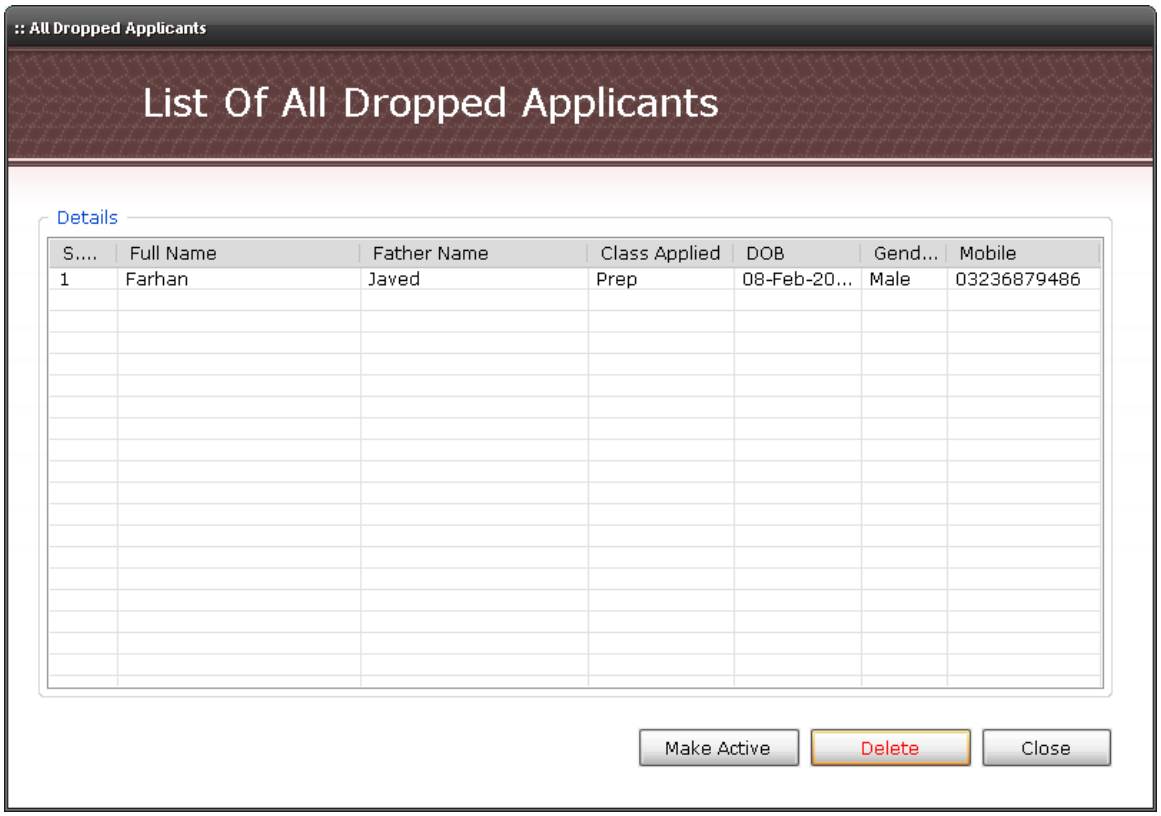


Figure A.33 Display Dropped Applicants

This form shows the applicants that have been dropped from the submitted applicants list.

- The “Make Active” button will make the selected applicant active again he/she will be deleted from this form and will be moved again to the submitted applicants list.
- The “delete” button will delete the applicant permanently from the system.

A.6.5. Generate Merit List

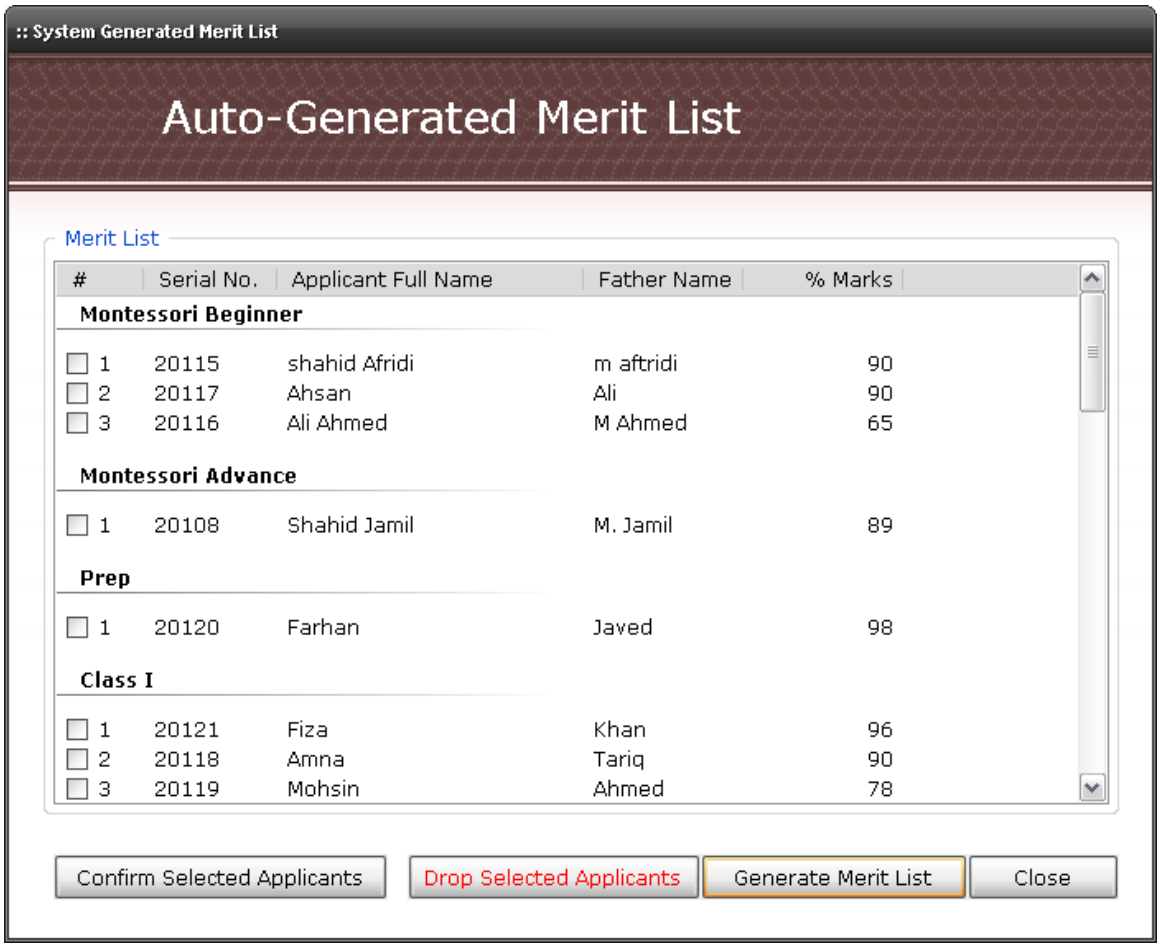


Figure A.34 Generate Merit-List

The above form will generate the merit list automatically when the user presses "Generate Merit List" button. The merit list is generated on the basis of entry test marks, but the system first checks the total capacity of the class.

- "Confirm Selected Applicants" button will confirm the applicant as student and will move the applicant from merit list to confirmed applicants list.
- "Drop Selected Applicants" button will discard the selected applicant from merit list.

A.6.6. List of Confirmed Applicants

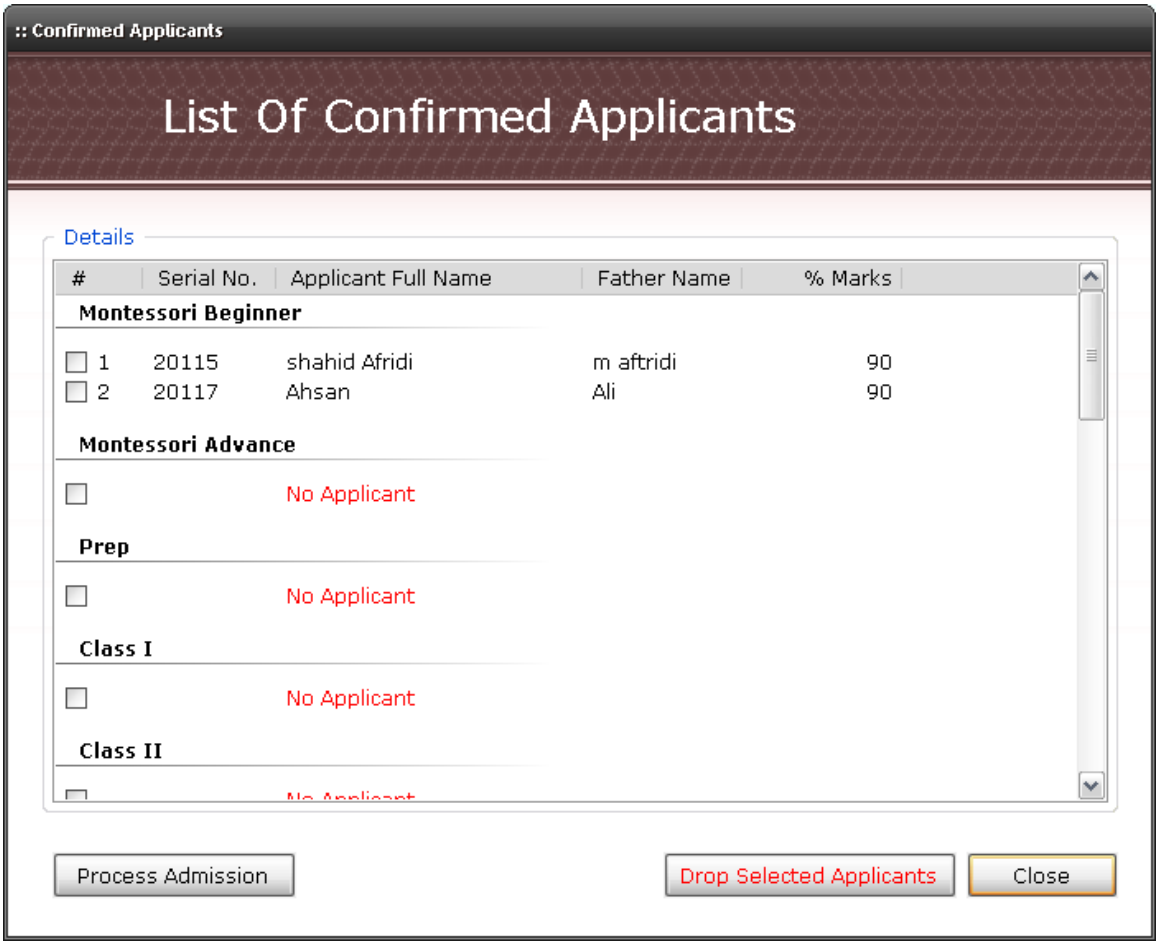


Figure A.35 List of Confirmed Applicants

This form displays the applicants that have been confirmed by the user. The applicants are displayed class wise.

- The Process Admission button takes the user to another form where the applicant is finally confirmed as student.
- The Drop Selected Applicants button discards the applicant from confirmed applicants list and moves it to dropped applicants list.

A.6.7. Admission Form

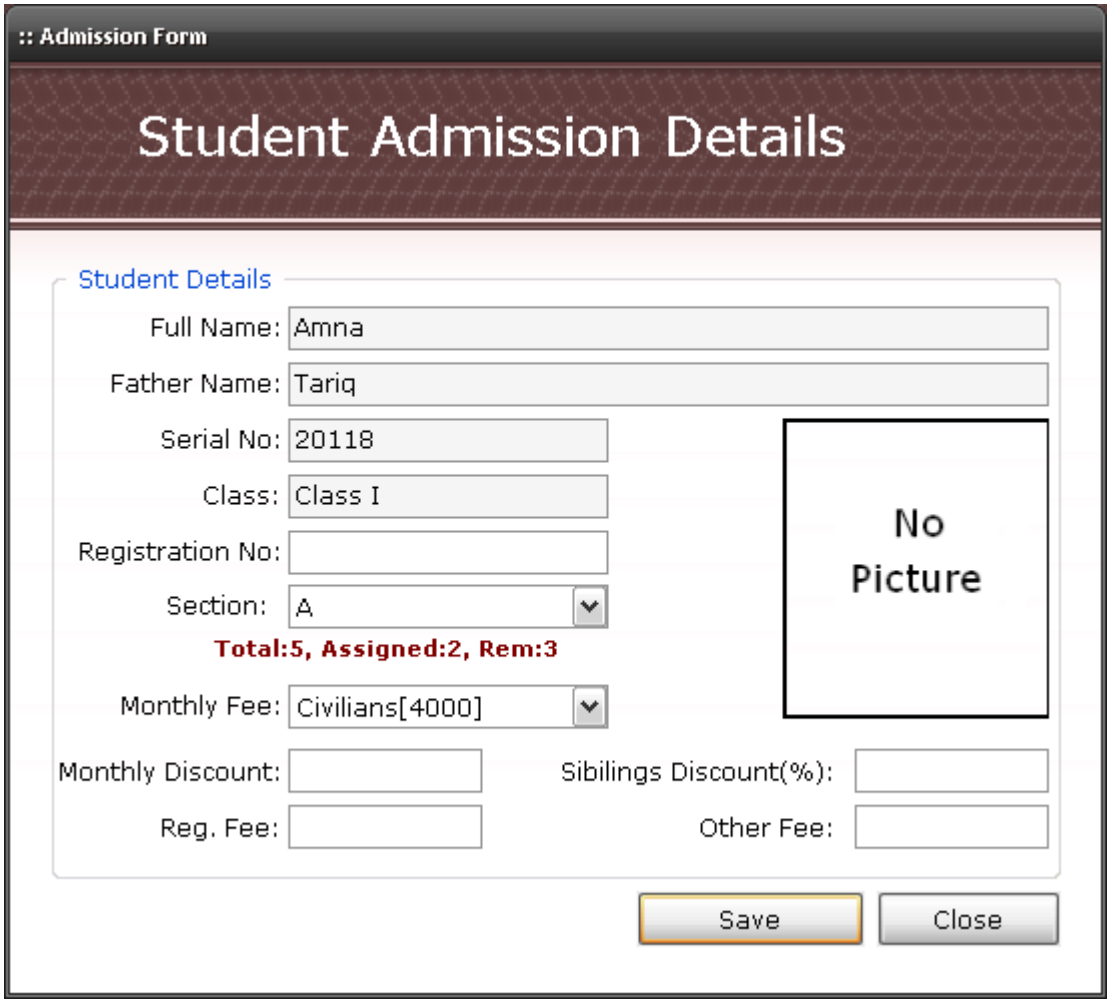


Figure A.36 Admission Form

By pressing the "Process Admission" button user will be toggled to a new form which is basically the admission form, where the user is asked to enter the details. Saving the details will enter the student into the system, which means the admission process comes to an end here.

A.6.8. View Registered Students

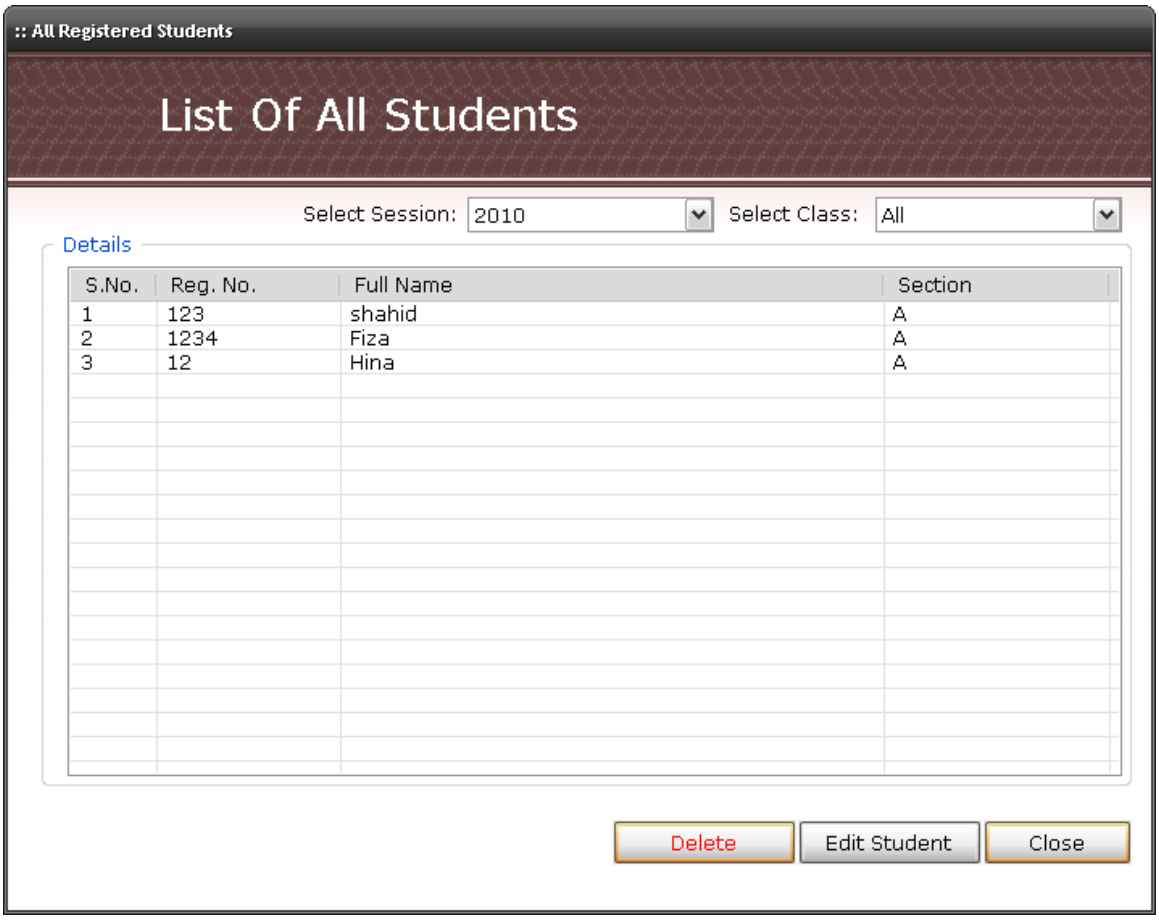


Figure A.37 View Registered Students

This form displays all those students that have been confirmed as students. The user can also edit student details or delete student by clicking Edit Student or Delete button.

A.7. Fee Management

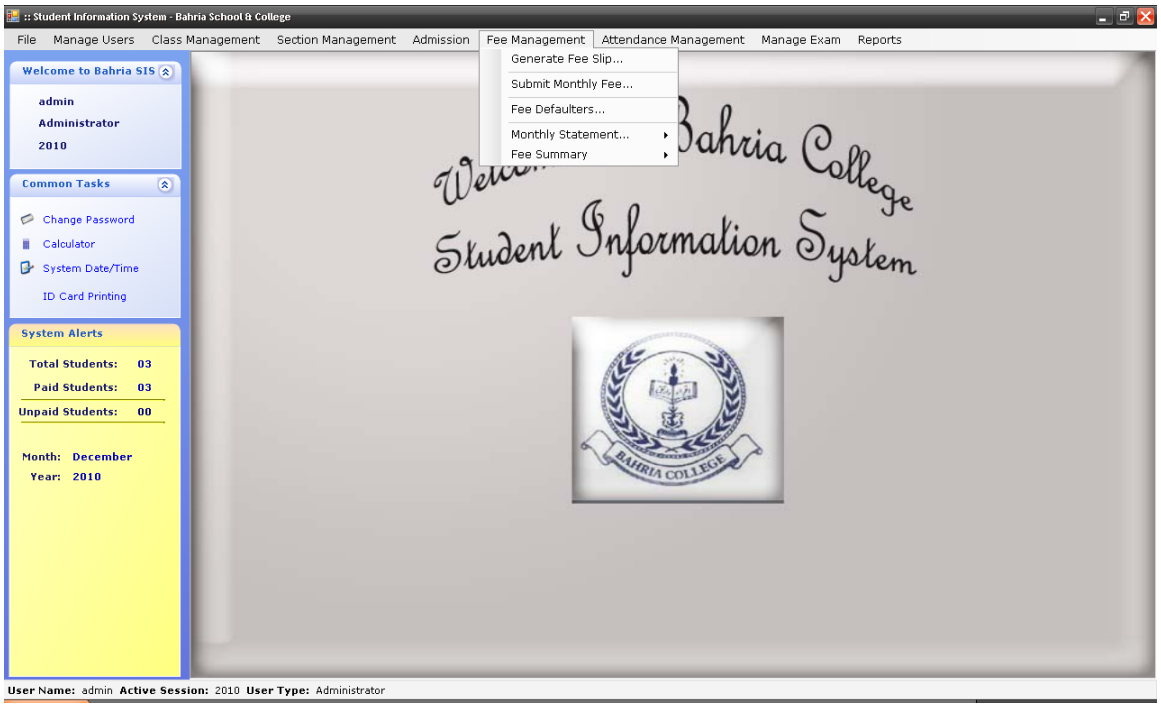


Figure A.38 Fee Management

This tab is used to manage the fee system of the college. It further consists of following forms:

- Generate fee slip – fee slips will be generated.
- Submit monthly fee – to submit monthly fee of the students.
- Fee defaulters – it will show the list of student who haven't yet paid the fee.
- Monthly fee statement – its is basically a report showing the monthly fee statements.
- Fee summary – this report will show the total fee summary of the college.

A.7.1. Fee Slip Generation

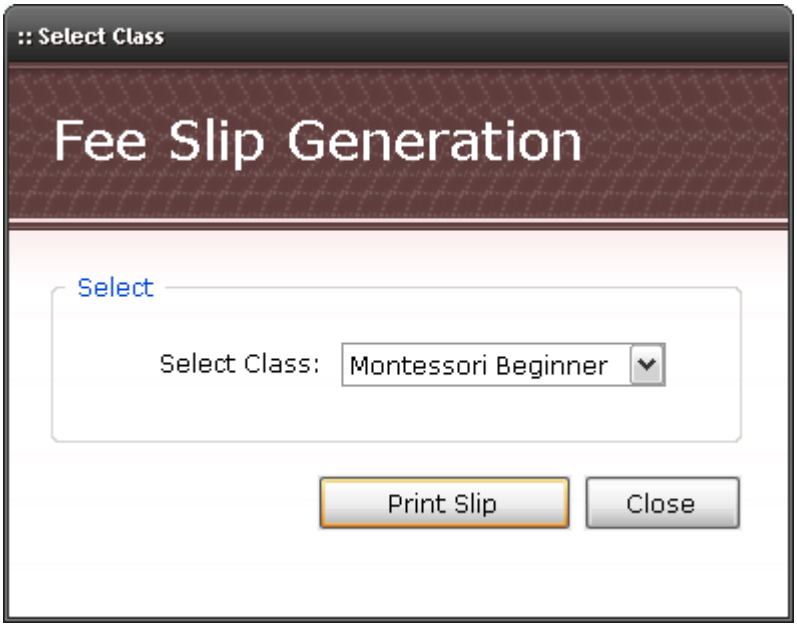


Figure A.39 Fee Slip Generation

The user is asked to first select the class, because fee slips are generated class wise. Print Slip button will allow the user to get the printable version of fee slip.

A.7.2. Fee Submission Form

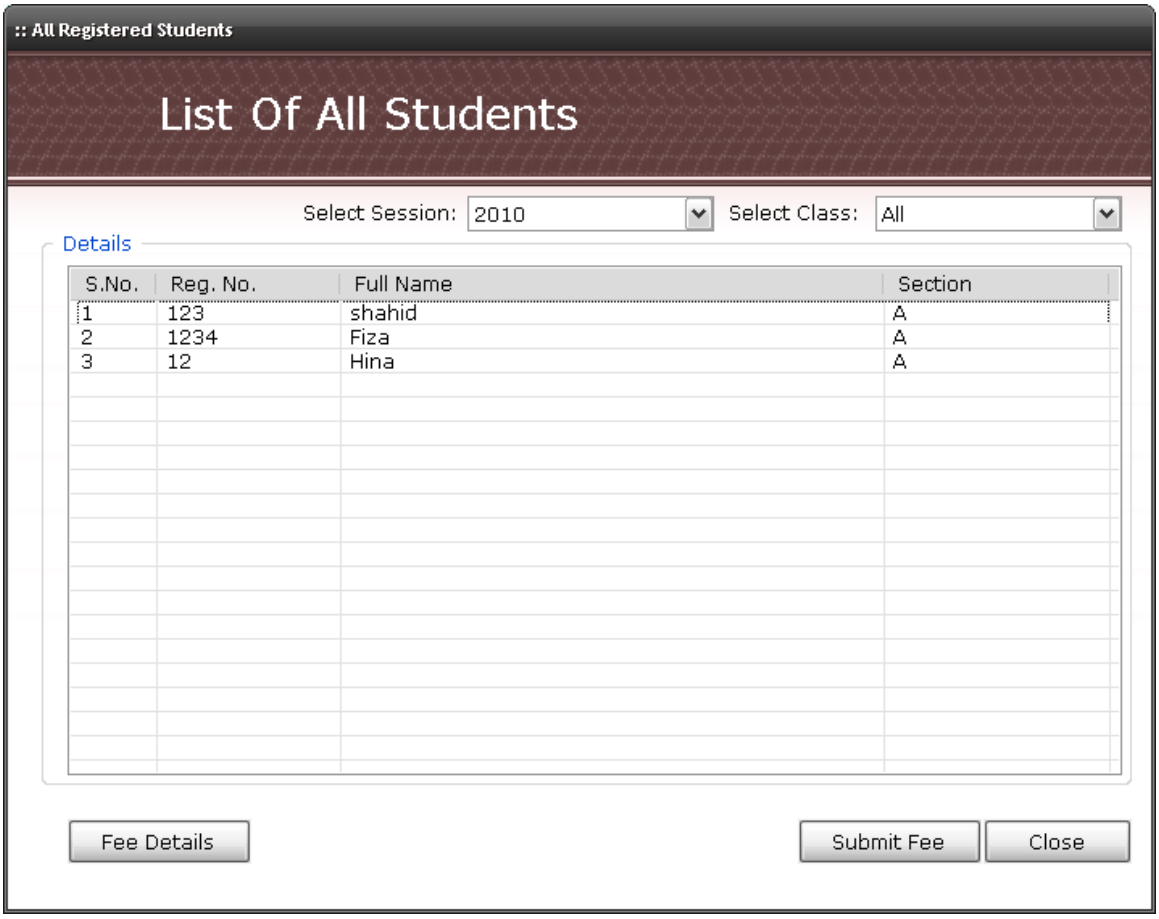


Figure A.40 Fee Submission Form

This form displays the students who have not yet paid the fee. Using this form user can either view the annual fee details of a student by clicking Fee Details button or enter the details by clicking the submit Fee button.

A.7.3. Fee Calendar

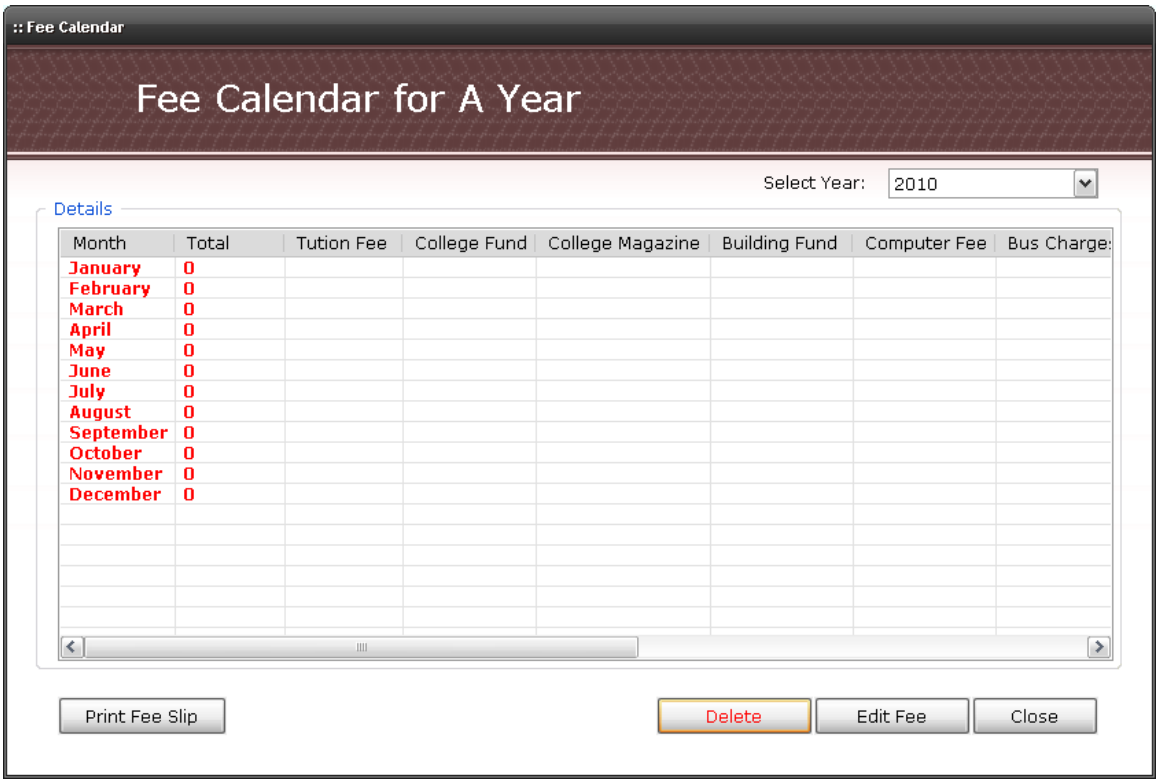


Figure A.41 Fee Calendar

Annual fee details of a student are displayed in this form. The user can also print, edit, or delete these details from this form. Selecting year from the drop down menu on extreme top right side of the form will show the fee calendar of that particular year/session.

A.7.4. Submission of Monthly Fee

Figure A.42 Submission of Monthly Fee

The “Submit Fee” option takes the user to this form. Fee details of a student for a particular month will be entered into the system if the user provides valid details.

A.7.5. View Fee Defaulters

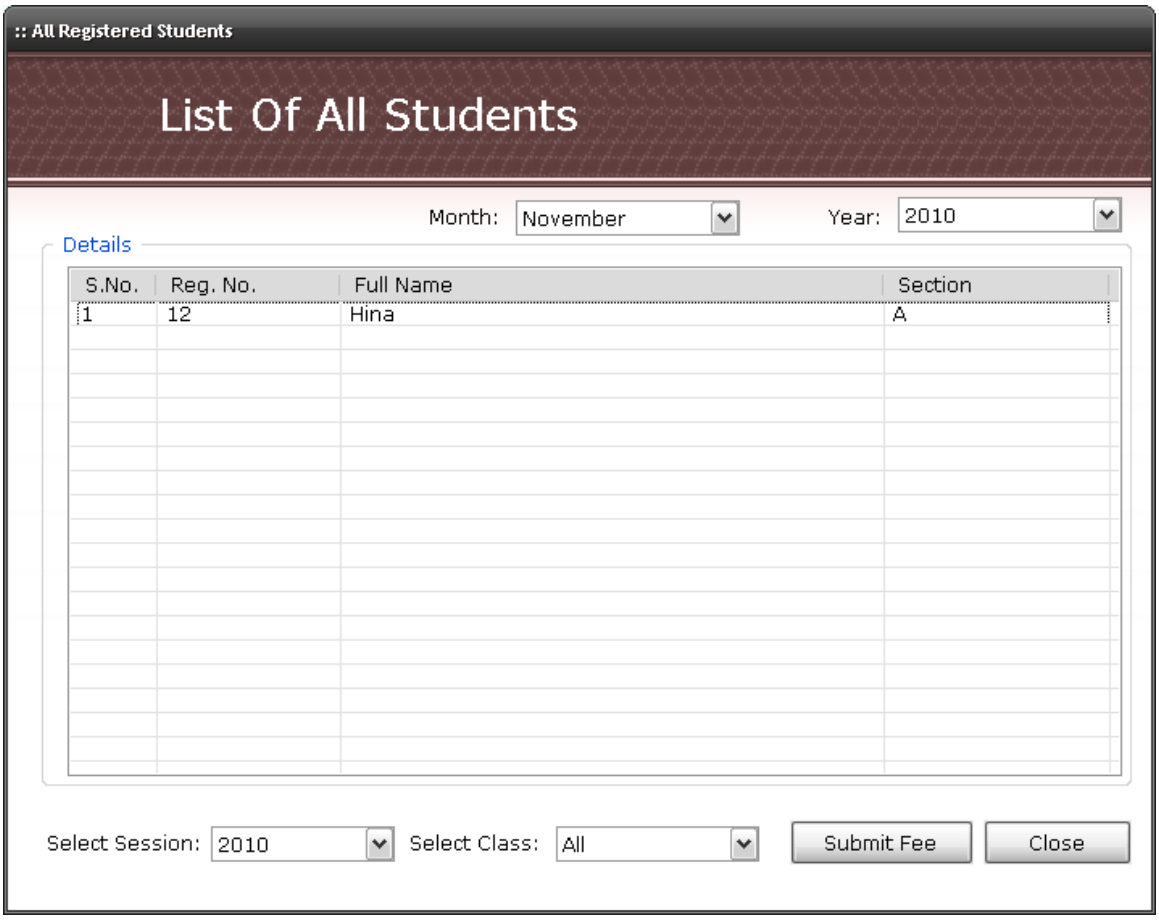


Figure A.43 View Fee Defaulters

This form displays a list of those students who have not yet paid the fee. The user can submit the fee of any particular student by selecting the student and pressing "Submit Fee" button.

A.8. Attendance Management

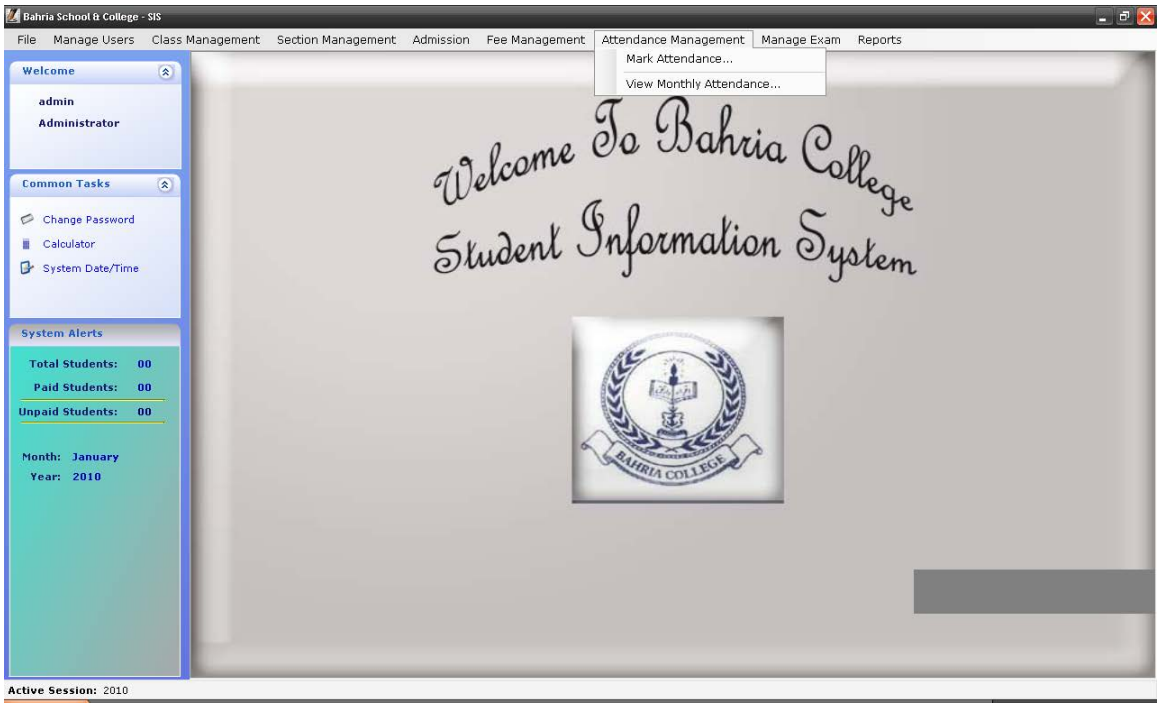


Figure A.44 Attendance Management

Attendance management offers the user to mark the attendance of students class-wise. And also displays the attendance.

A.8.1. Mark Attendance

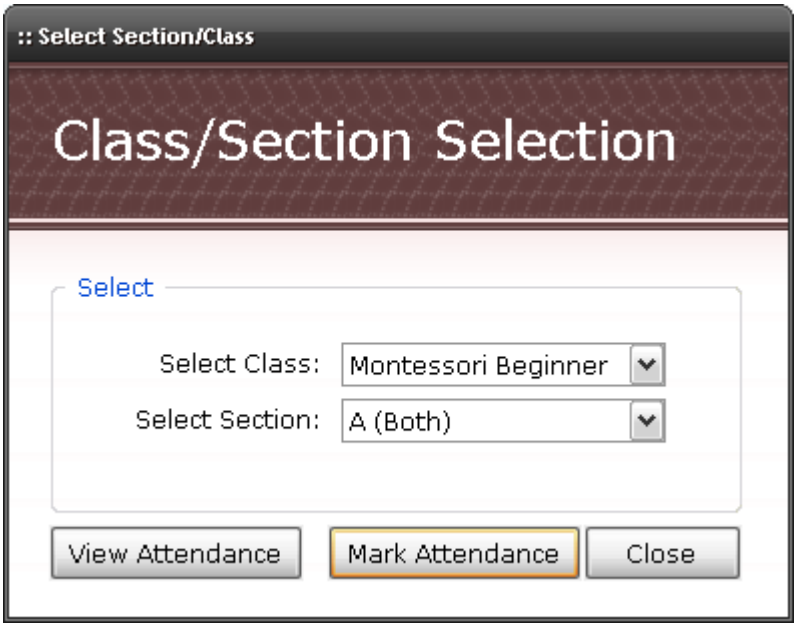


Figure A.45 Mark Attendance

The user will first select the class and section for which he wants to mark attendance. On clicking Mark Attendance button the user will be taken to a new for m where he will mark the attendance of the students of a particular class.

A.8.1.1. Daily Attendance

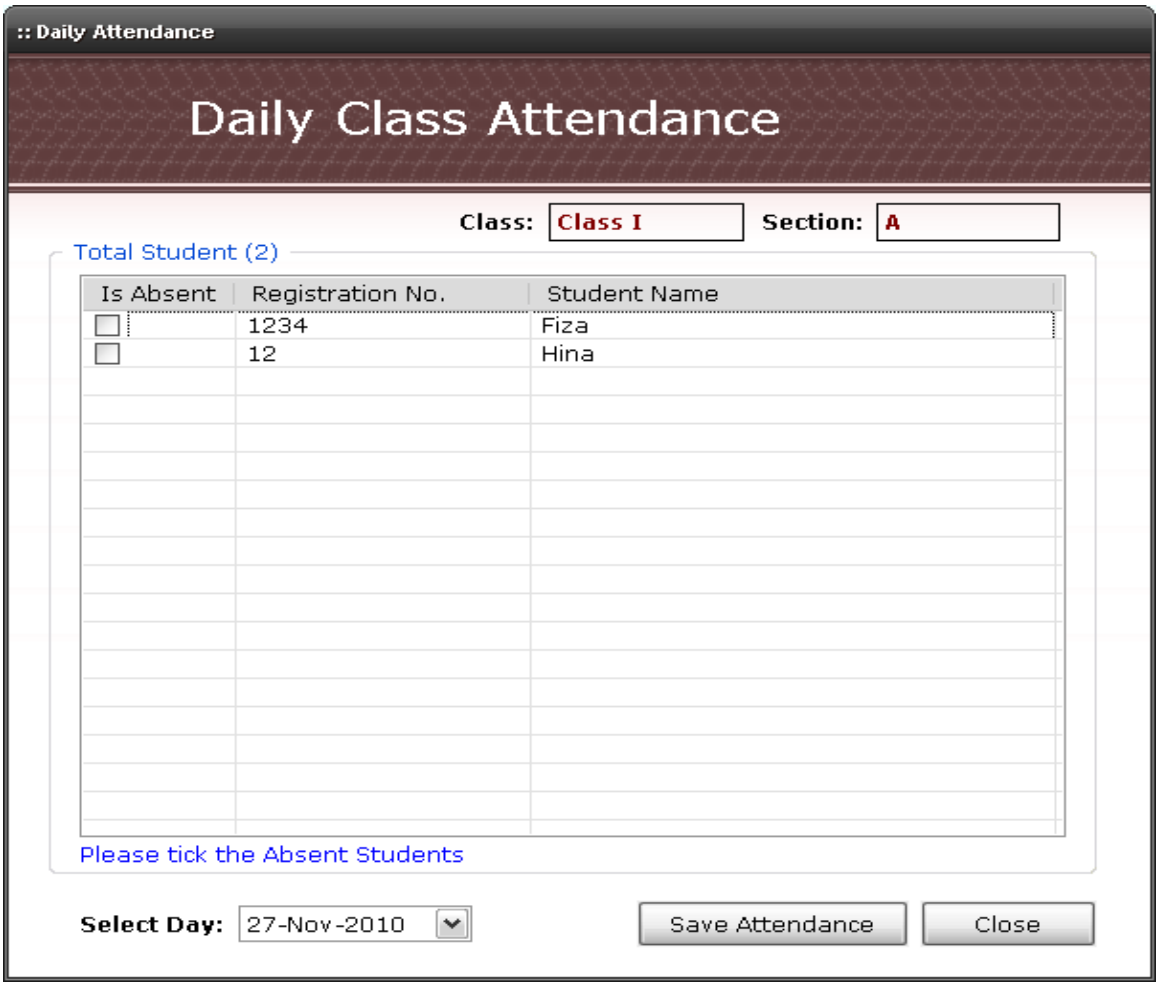


Figure A.46 Daily Attendance

The Mark Attendance button will take user to this form where user can mark the students.

- If user clicks on the checkbox, student will be marked as absent.
- If user doesn't click on the checkbox, student will be marked as present.

Note:

- User is not allowed to mark attendance of a student if it has already been marked for that particular date.
- User cannot mark attendance for weekends (i.e. holidays).

A.8.2 View Monthly Attendance

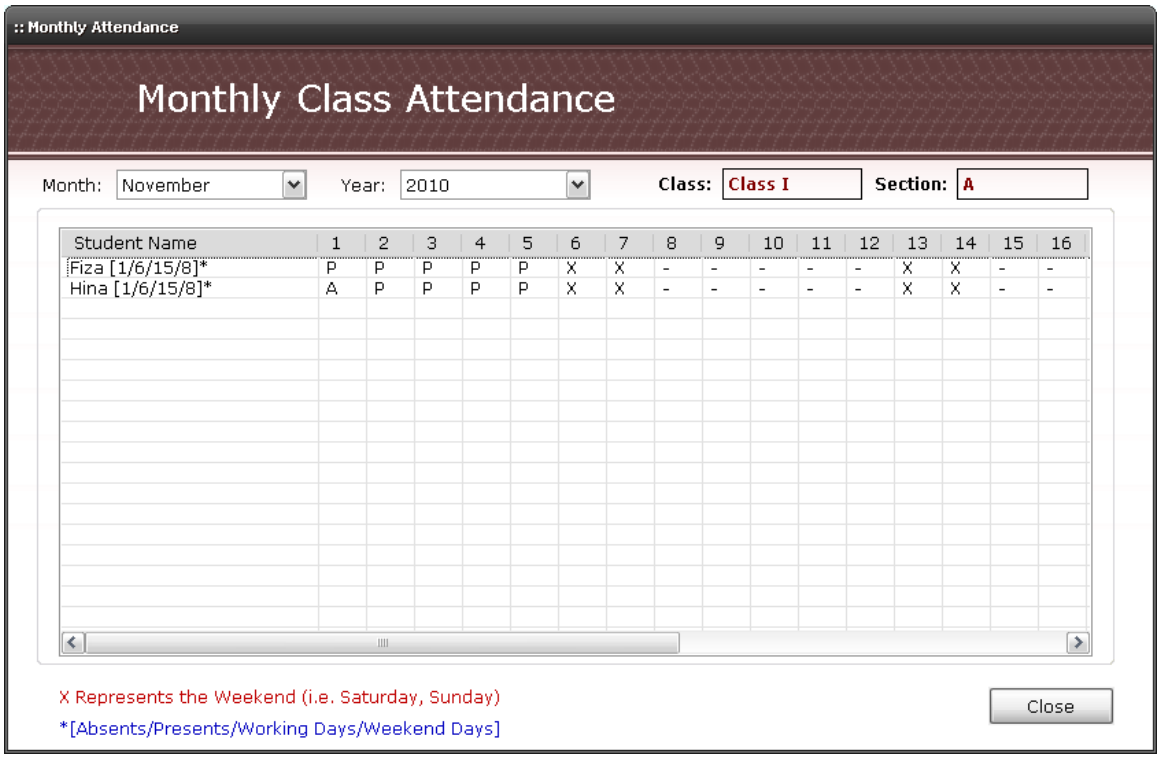


Figure A.47 View Monthly Attendance

This form displays the monthly class attendance of all the student of a particular class. Date is represented column-wise.

- A stands for absent.
- P stands for present.

A.9. Exam Management

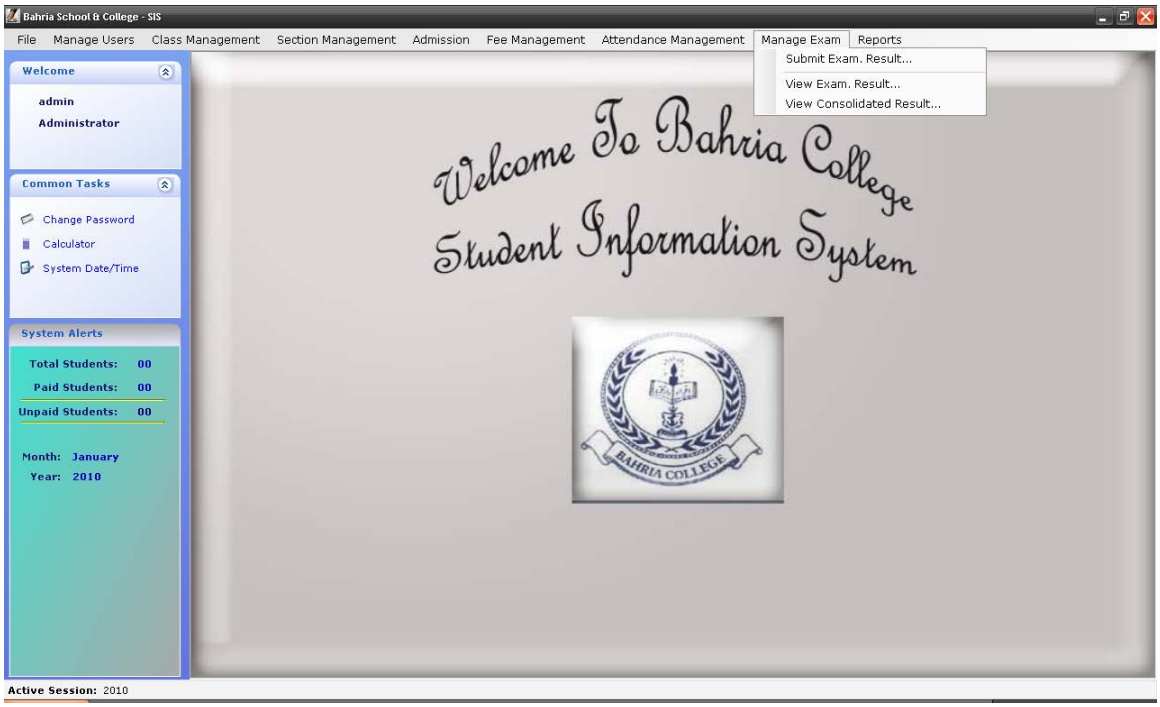


Figure A.48 Exam Management

This feature allows the user to manage the report cards of the students. Details for exams are entered class-wise. User can also edit and view the exam marks.

A.9.1. Exam Result Submission

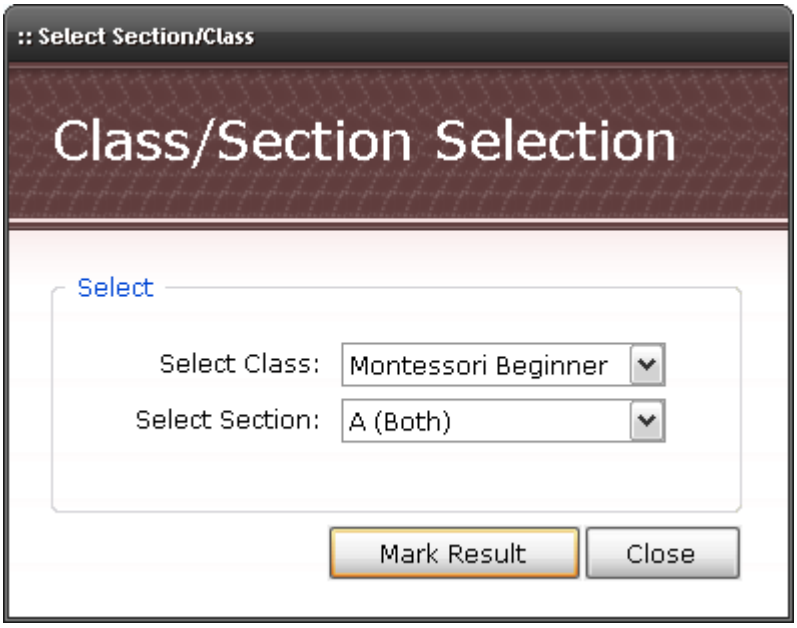


Figure A.49 Exam Result Submission

Before entering the result details, user is first asked to select class and section from the drop down menu.

A.9.2. View Examination Result

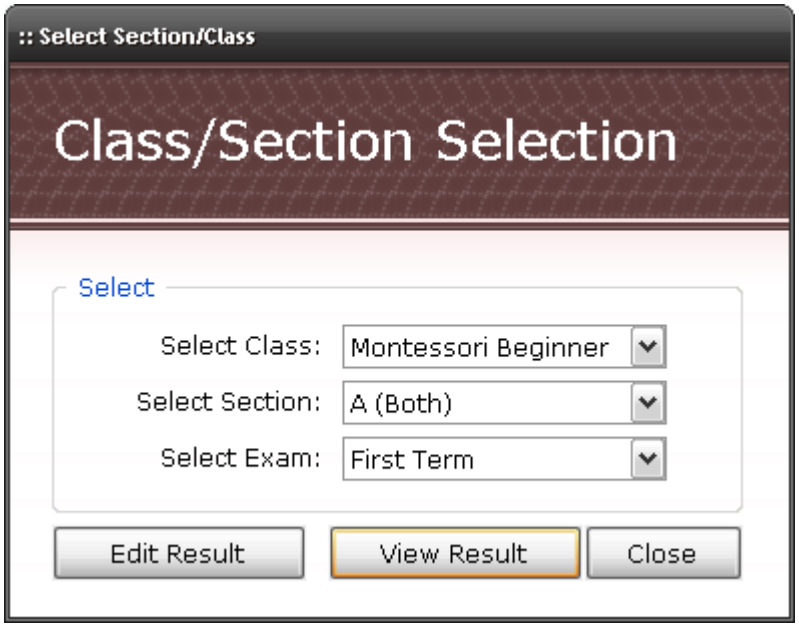


Figure A.50 View Examination Result

First of all, user must select the class, section and exam type/term to proceed further. In this form user is provided with this facility of viewing or editing the examination details

A.9.2.1. Examination Result

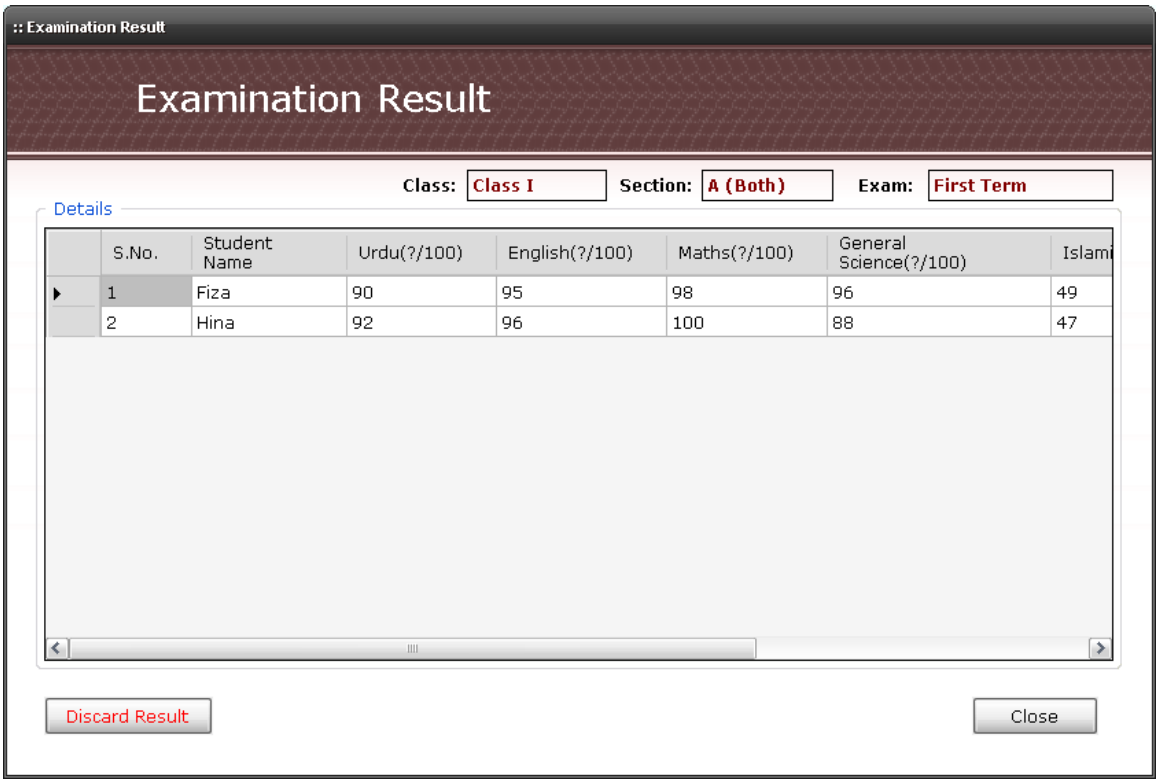


Figure A.51 Examination Result

A breakdown of result is displayed for every student of a particular class. Students are displayed row-wise and result of each student is displayed column-wise which basically hold names of the subjects.

- "Discard Result" button will permanently delete the entered marks of all the students of that particular class and term from the system.

A.9.3. Display Consolidated Result

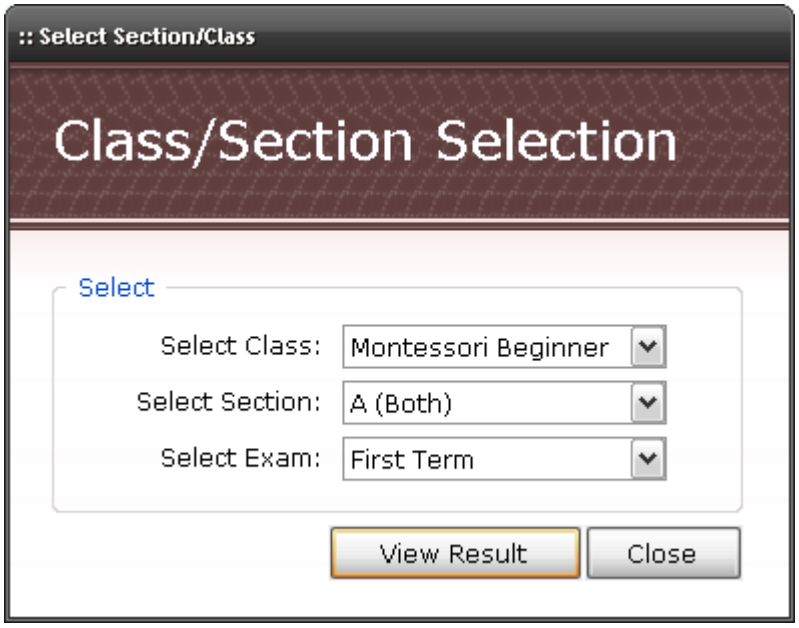
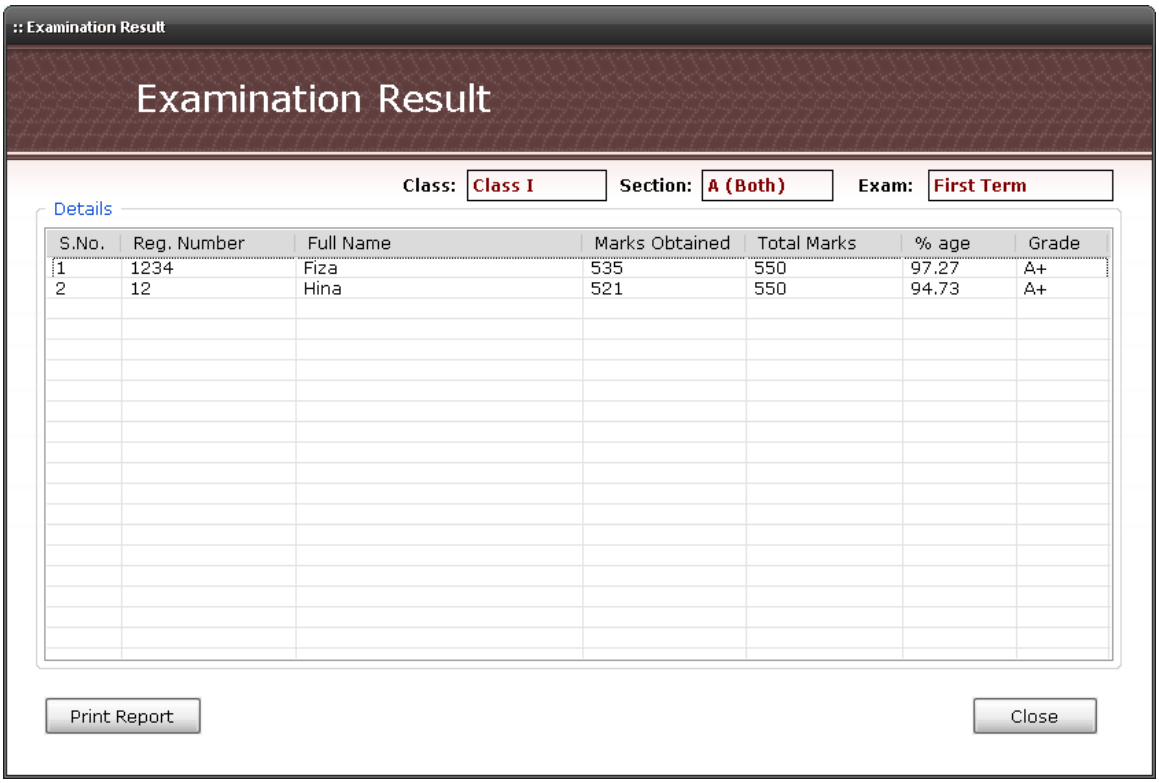


Figure A.52 Display Consolidated Result

Following form will be displayed after the user enters all the required fields and presses View Result button.



In this form, combined result of all the students of a particular class is displayed. Percentage and Grade is automatically calculated by the system. User is also provided with the facility of printing the exam report.

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