

## Appendix A - Financial Summary up to year 2005

*Year ended March 2005*

*Rs '000 (in Thousands)*

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>OPERATING INCOME</b>	35880	46707	50792	60924	60278	59868	64172	69851	82831	93185	90990	91022	118141
<b>NON OPERATING INCOME</b>	4176	7210	10035	15770	17618	16724	19274	22921	33365	35689	29046	23631	29044
<b>TOTAL INCOME</b>	40056	53917	60827	76694	77896	76592	83446	92772	116196	128874	120036	114653	147185
<b>LESS: TOTAL EXPENDITURE</b>	32593	35781	40834	50278	57689	59450	61275	67618	75515	82005	87596	100788	134783
<b>NET PROFIT</b>	7463	18136	19993	26416	20207	17142	22171	25154	40681	46869	32440	13865	12402
<b>OPERATING PROFIT/(LOSS)</b>	3287	10926	9958	10646	2589	418	2897	2233	7316	11180	3394	-9766	-16642

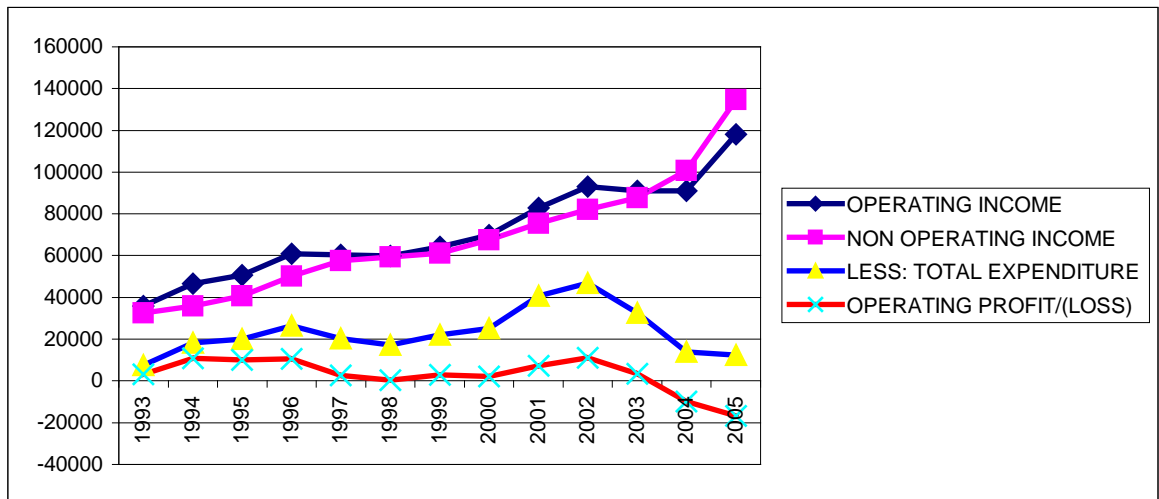
**Table A.1- Financial Summary**

## SWOT Analysis

<b>Strength</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Government ownership</li> <li>• Experienced lecture panel (Internal/ External)</li> <li>• Nearly four decades experience in the industry</li> <li>• High reputation built up over a long period.</li> <li>• Fully equipped building</li> <li>• Excellent location in Colombo (Torrington - Colombo 7)</li> <li>• Facilities (Complete library, Cafeteria, Car park, 15 AC lecture halls, Multimedia projectors for each lecture hall, 8 Computer Labs)</li> <li>• An auditorium which can accommodate about 300 students at a time</li> <li>• 3 branches out of Colombo (ie: Kandy, Galle and Kurunegala)</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to reduce cost</li> <li>• No proper computerized systems for student matters except storing students' first time marks in an Access database.</li> <li>• Duplicating of work</li> <li>• Inefficiency of the support staff</li> <li>• No proper course evaluation method</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Increasing demand for NIBM certificate, Diploma, Higher Diploma and Degree qualifications.</li> <li>• Many outstation students attend lectures at Colombo</li> <li>• Recognition of BSc (MIS) degree by national universities for their postgraduate courses. (University of Moratuwa admits students who completed the above degree at NIBM for their MSc (IT) course.)</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing no of competitors in Colombo</li> <li>• Competitive prizes offered by competing institutes.</li> <li>• High advertising</li> <li>• Quality service</li> <li>• Degree awarding status by some institutes. Eg: Sri Lanka Institute of Technology (SLITT)</li> </ul>

**Table A.2 – SWOT Analysis Chart**

## Appendix B - Income Expenditure & Net Profit @ NIBM

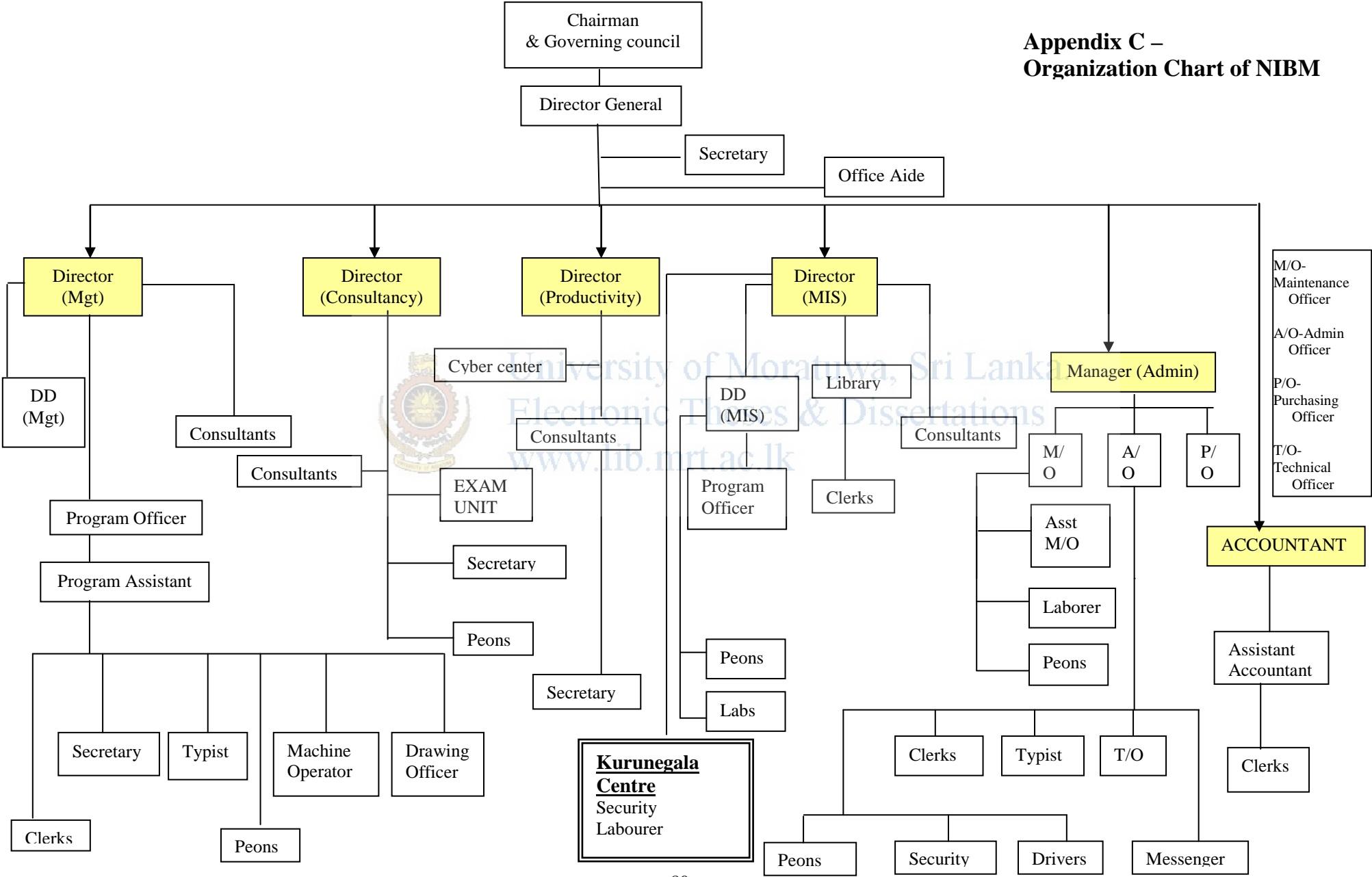


**Figure B.1 – Financial Analysis**



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**Appendix C –  
Organization Chart of NIBM**



## Appendix D – Test Cases

**Test case 3:** Assignment submitting process

**Usage** : For submitting assignments Online

Test Item	Input	Expected Output	Actual Output
Assignment submission	Click <i>Submit</i> button	Display error message	Same
	Enter assignment numbers and submit (Submission date is not expired)	Assignment submission is successful	Same
	Enter assignment numbers and submit (Submission date is expired)	Assignment submission is unsuccessful	Same
	Click <i>Cancel</i> button	Clear text boxes	Same

**Test case 4:** Request letters

**Usage** : For requesting letters by participants under various courses

Test Item	Input	Expected Output	Actual Output
Requesting letters	Click <i>Submit</i> button	Display error message	Same
	Select course type, but not the letter type	Display error message	Same
	Select letter type, but not the course type	Display error message	Same
	Select course and letter type	Letter request is successful	Same
	Click <i>Cancel</i> button	Clear text boxes	Same

**Test case 5:** Exam details

**Usage** : To find exam details for different courses

Test Item	Input	Expected Output	Actual Output
Select course	Click <i>OK</i> button	Display error message	Same
	Select course type	Display exam details	Same

**Test case 6:** Create a new course

**Usage** : New course details are added to the database by the administrator

Test Item	Input	Expected Output	Actual Output
Create course	Click <i>OK</i> button without all the details	Display error message	Same
	Click <i>Cancel</i> button	Clear all form details	Same
	Enter all compulsory details	Course creation successful	Same

**Test case 7:** Update/ Edit course details

**Usage** : Existing course details are updated by the course administrator

Test Item	Input	Expected Output	Actual Output
Course name	Click <i>OK</i> button without selecting the course	Display error message	Same
	Click <i>update</i> button	Update database	Same

**Test case 8:** Edit student details

**Usage** : Existing student details are updated by the course administrator

Test Item	Input	Expected Output	Actual Output
Course name	Click <i>OK</i> button without selecting the course	Display error message	Same
	Click <i>update</i> button	Update database	Same

**Test case 9:** Backup database

**Usage** : All tables in the MYSQL database named NIBM is copied to a folder in the hard disk.

Test Item	Input	Expected Output	Actual Output
Backup Database	Click <i>Backup</i> option of the administrator menu before creating a folder C:\BackupDB	Display error message	Same
	Click <i>Backup</i> option of the administrator menu before after creating a folder C:\BackupDB	Copy all tables	Same

**Test case 10:** Edit exam details

**Usage** : Existing exam details are updated by the course administrator

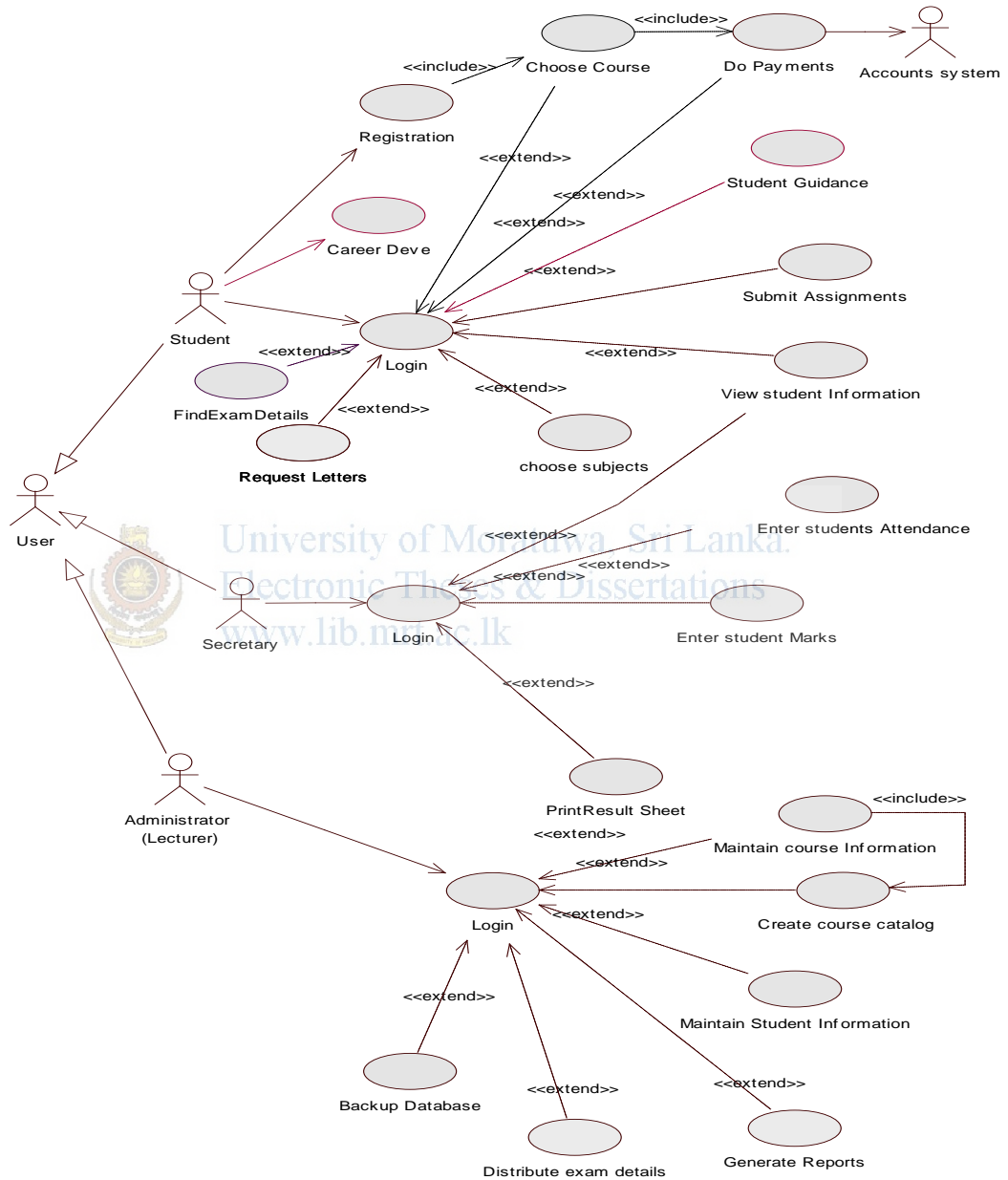
<b>Test Item</b>	<b>Input</b>	<b>Expected Output</b>	<b>Actual Output</b>
Course name	Click <i>OK</i> button without selecting the course	Display error message	Same
	Click <i>update</i> button	Update exam details	Same



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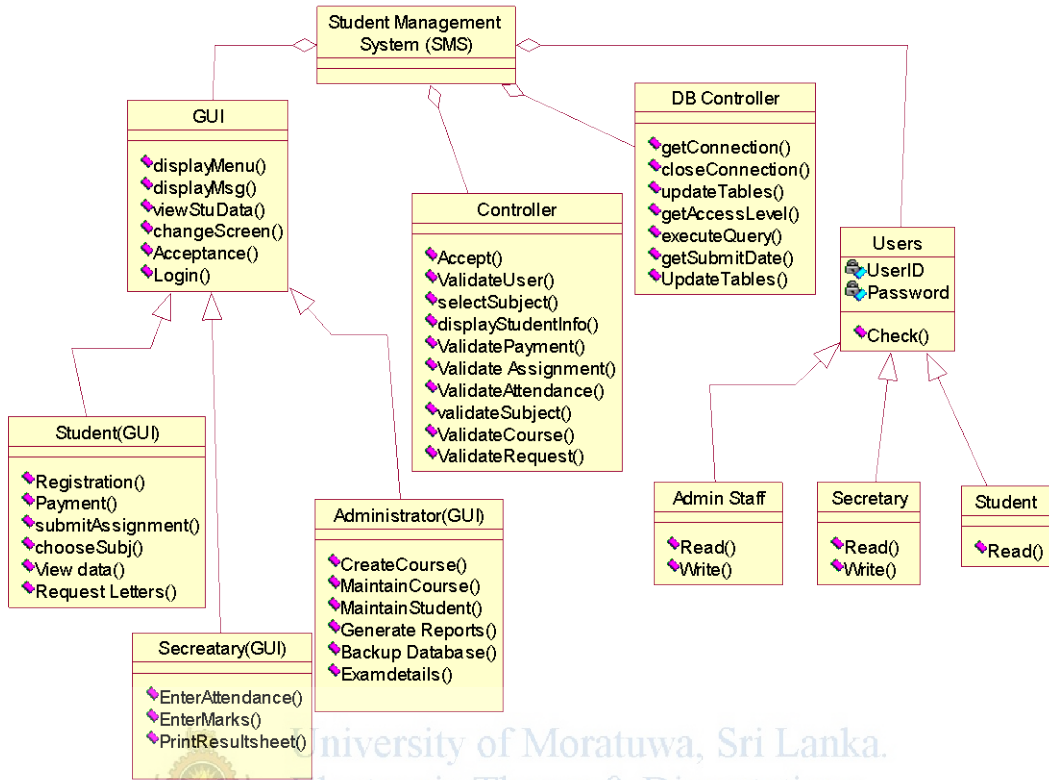
# Appendix E – UML Diagrams

## Figure E1-Use case Diagram

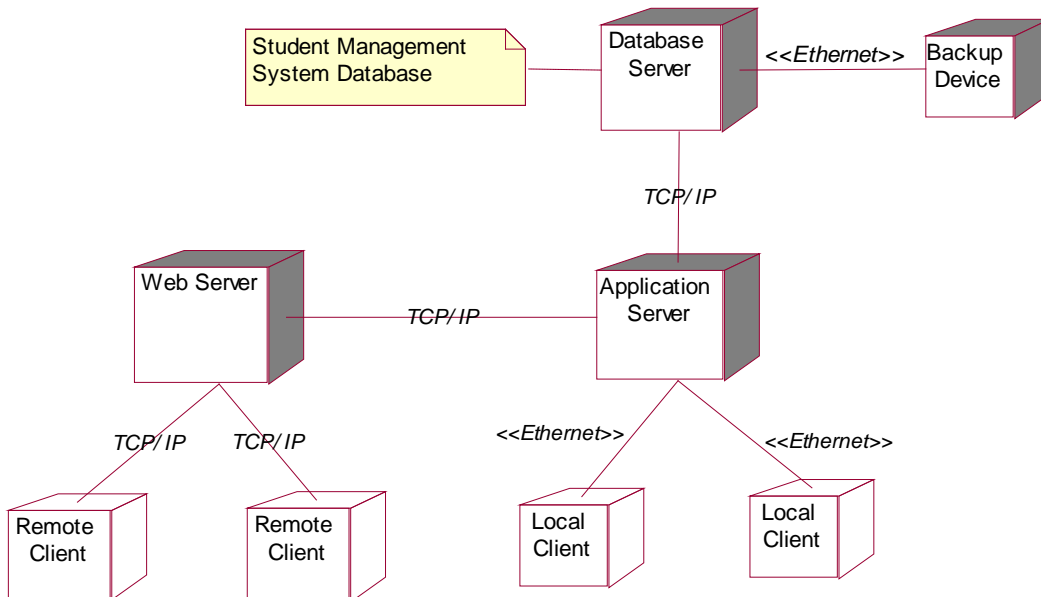




**Figure E2-Class Diagram**

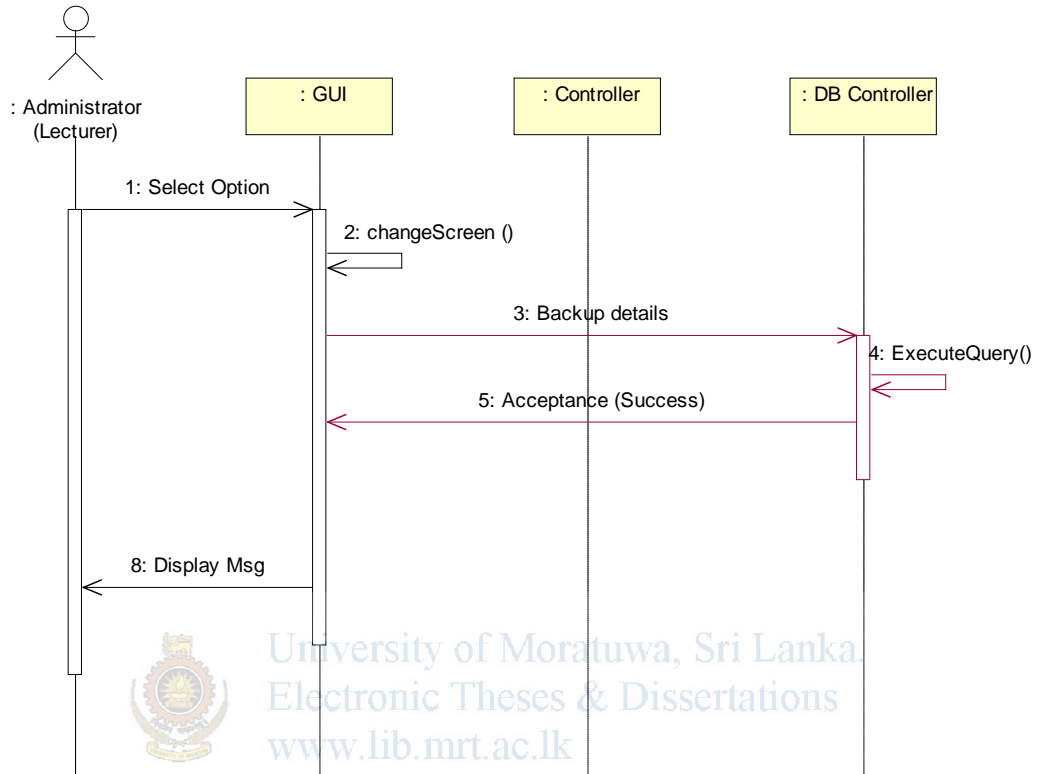


**Figure E3-Deployment Diagram**

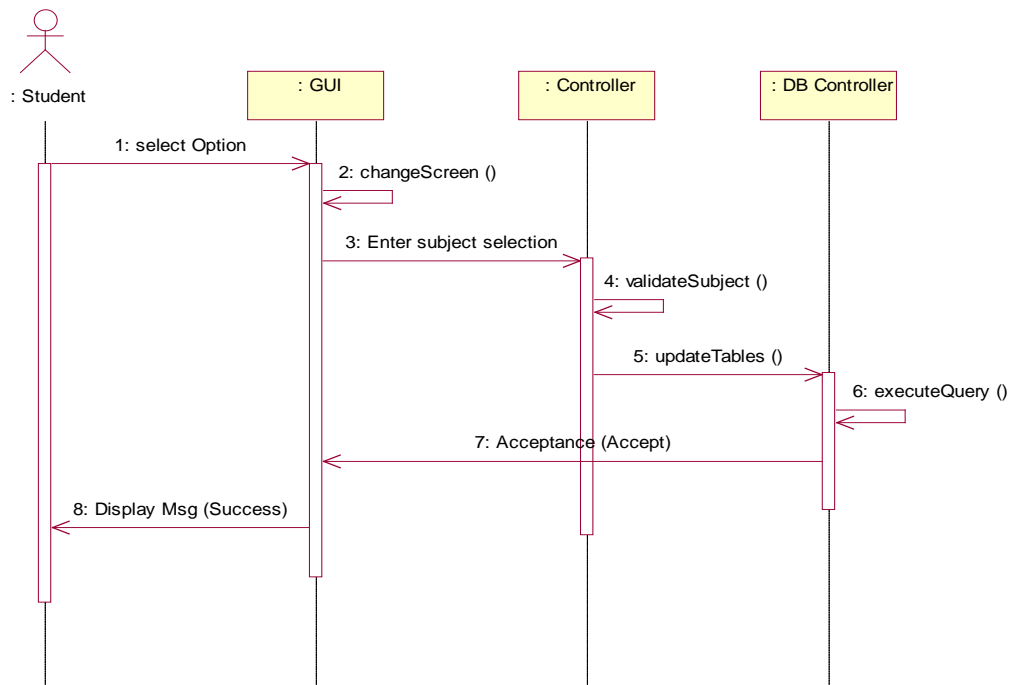


**Figure E4-Sequence Diagrams**

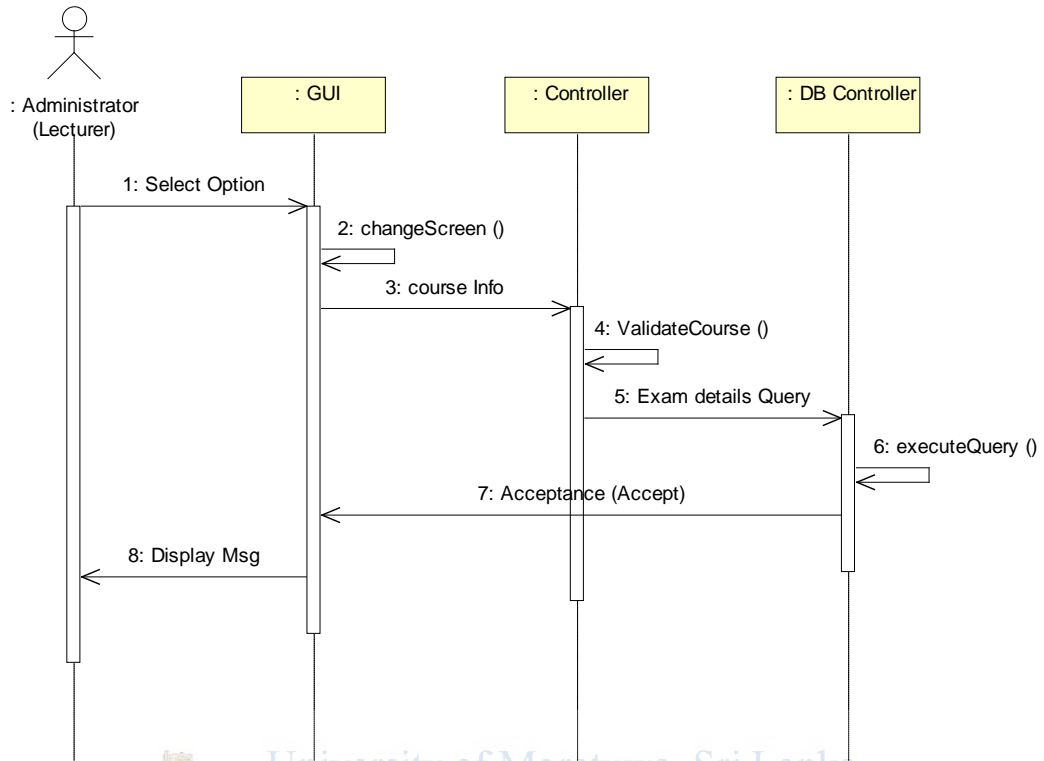
**1. Backup Database**



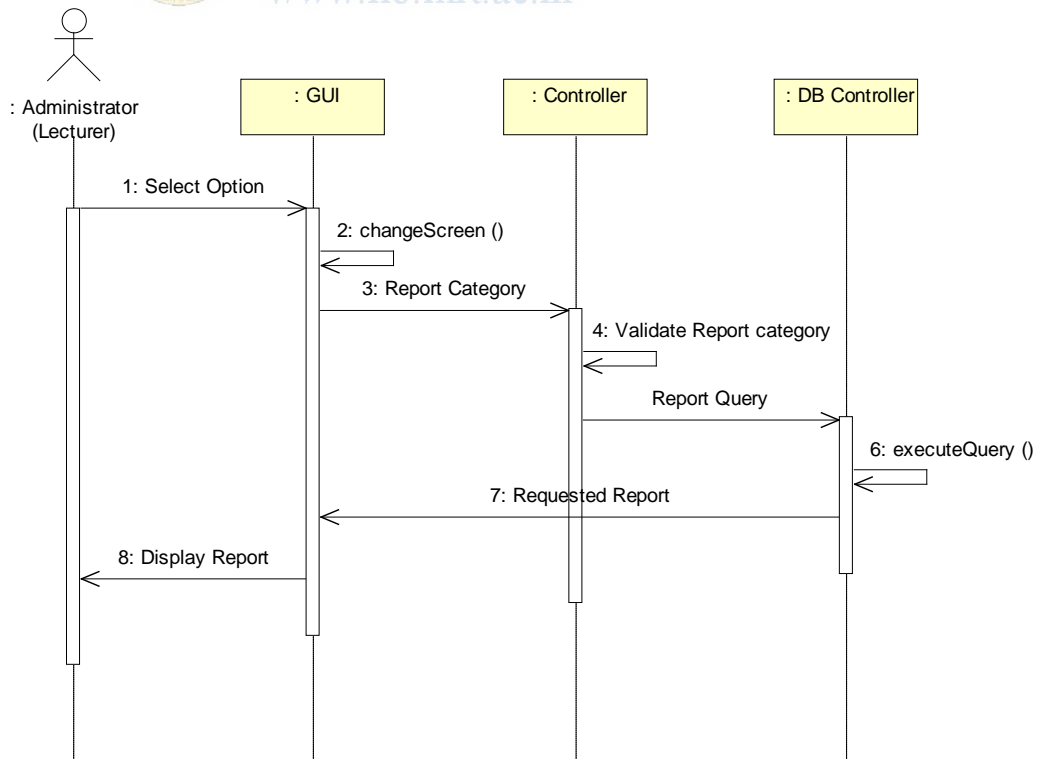
**2. Choose Subjects**



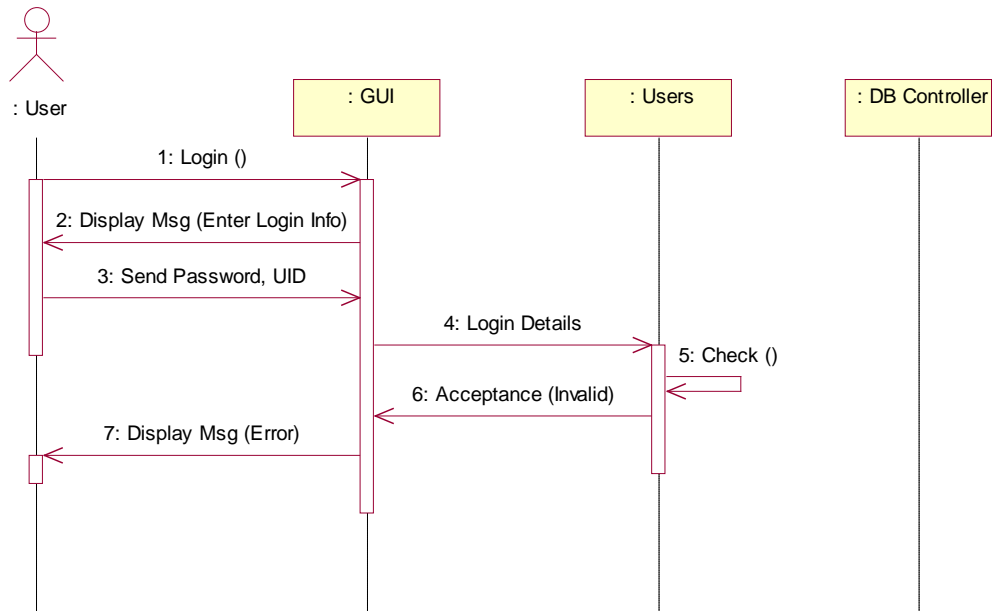
### 3. Distribute Exam Details



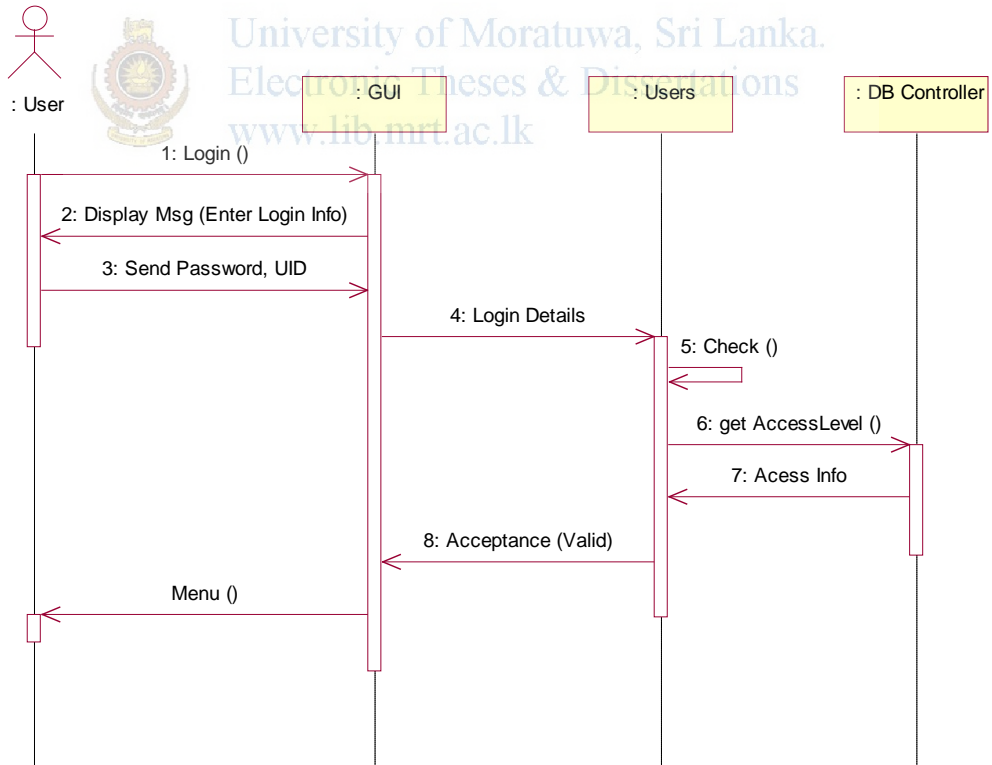
### 4) Generate Reports



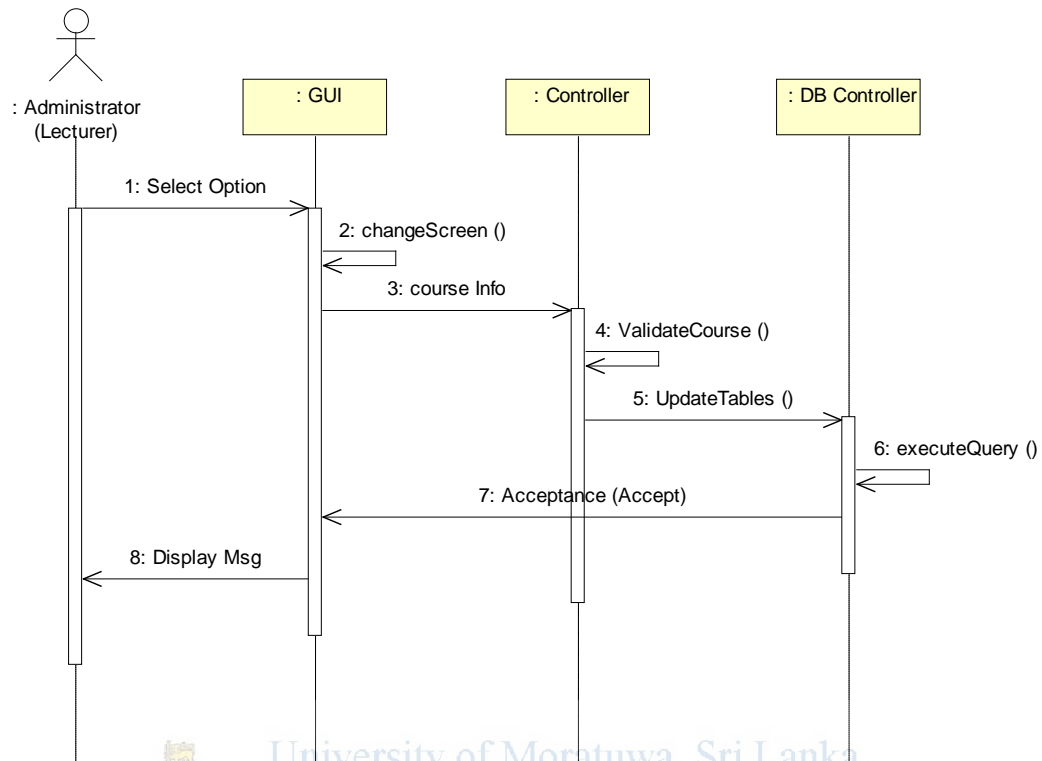
### 5) Login (Invalid)



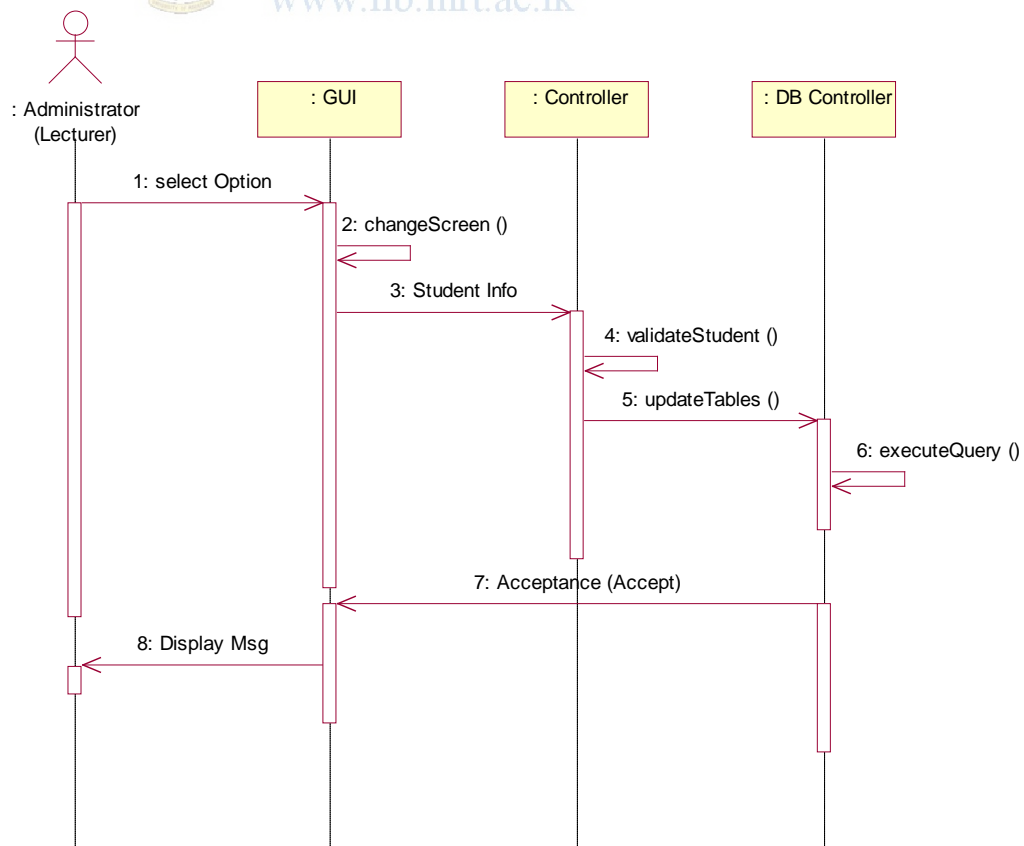
### 6) Login (Valid)



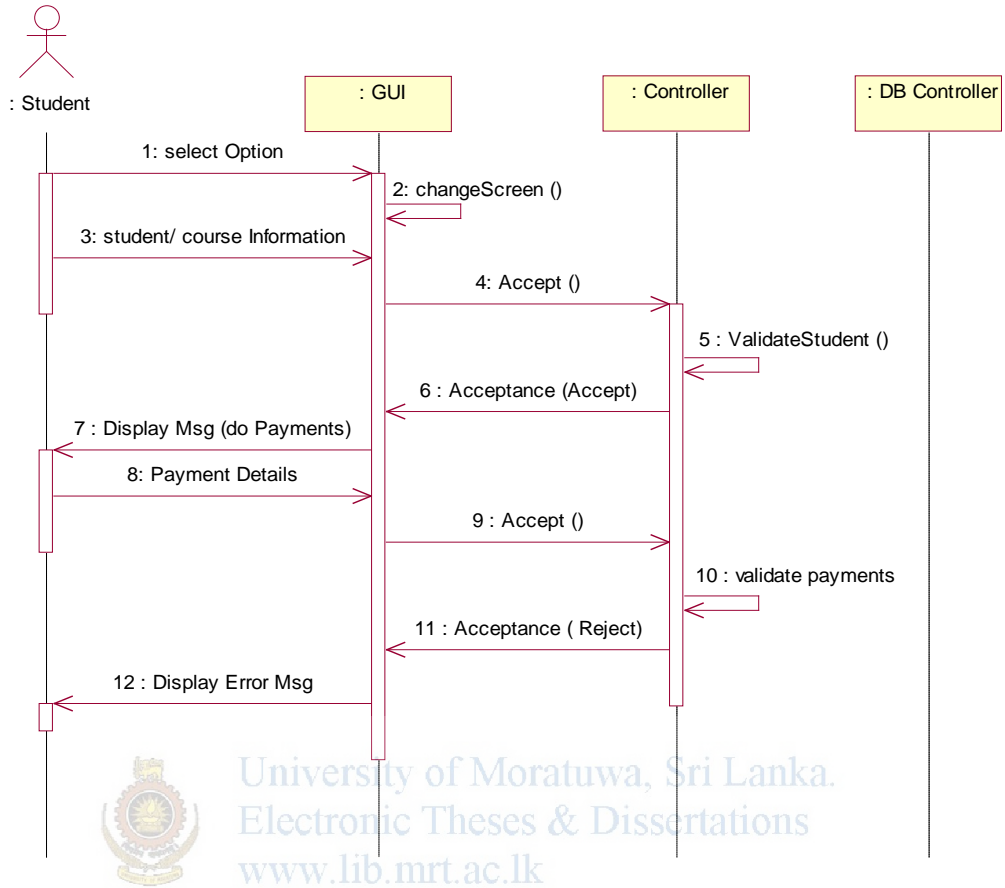
## 7) Maintain Course



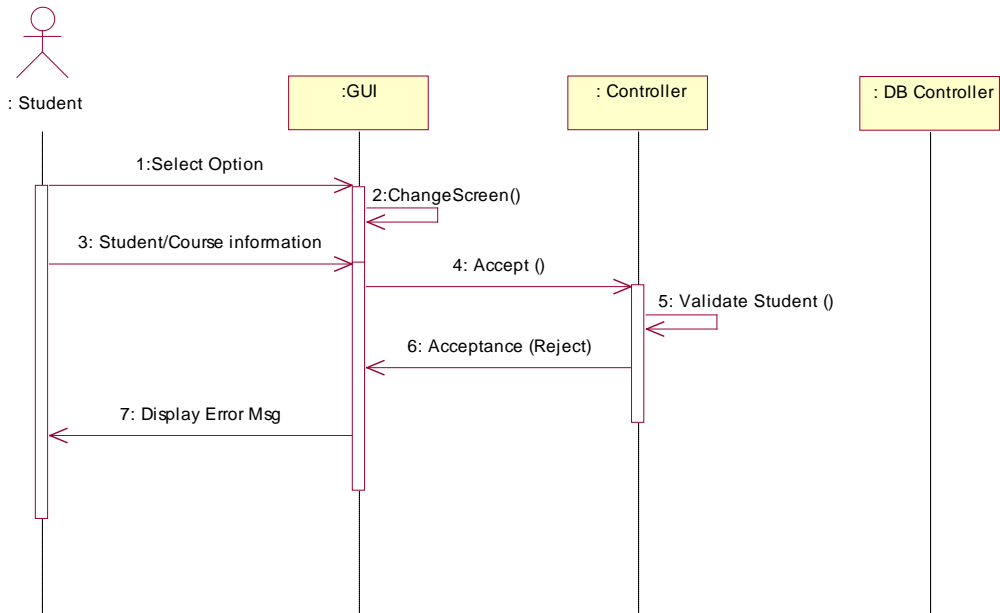
## 8) Maintain Student



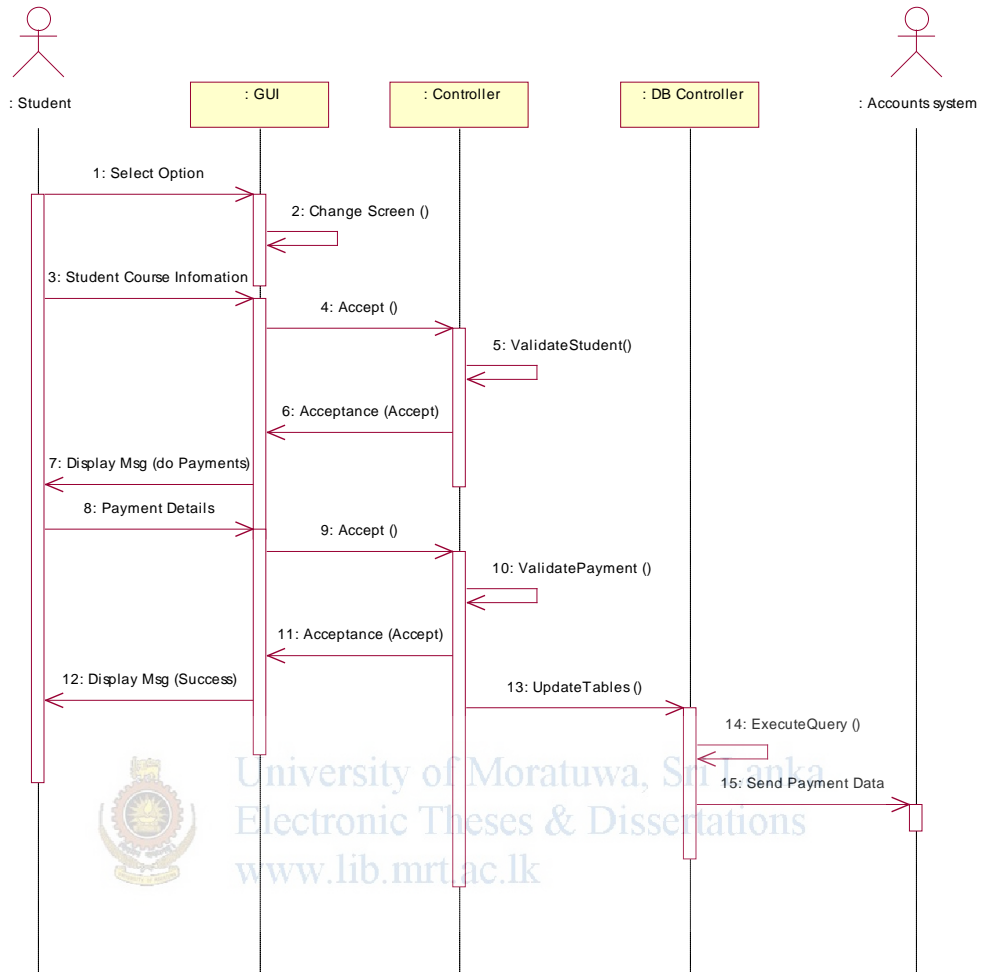
### 9) Payment Invalid



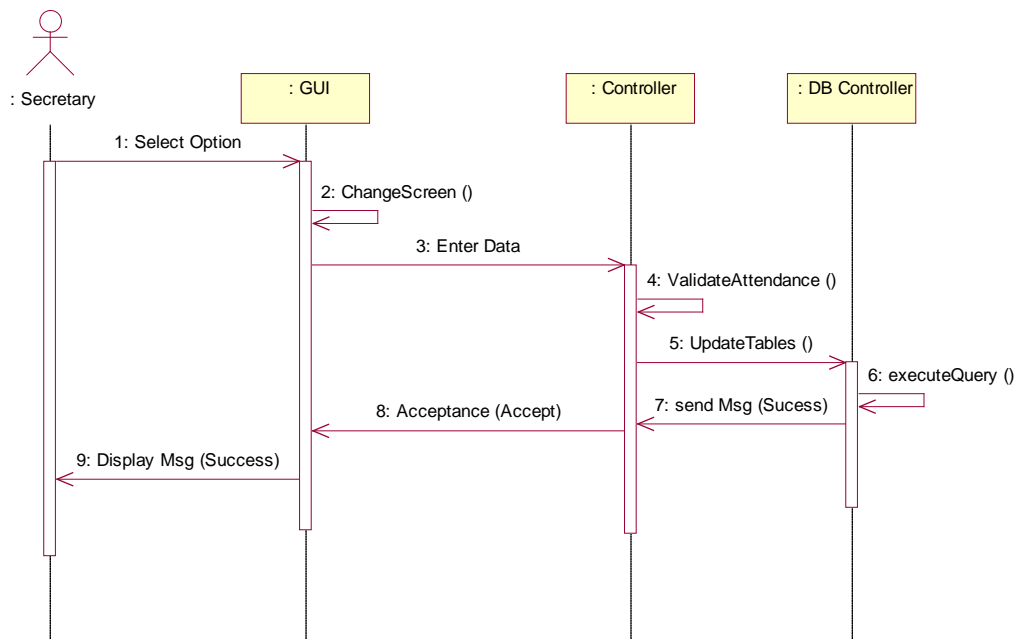
### 10) Registration – Invalid



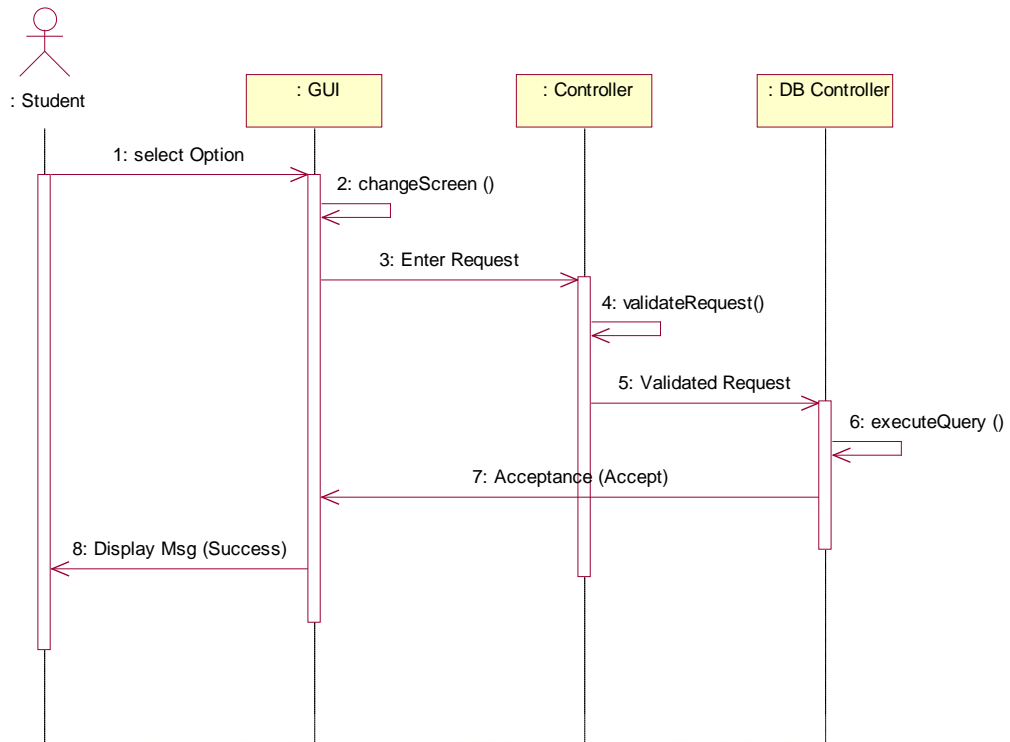
## 11) Registration



## 12) Student Attendance



### 13) Request Letters



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### 14) Submit Assignments [lib.mrt.ac.lk](http://lib.mrt.ac.lk)

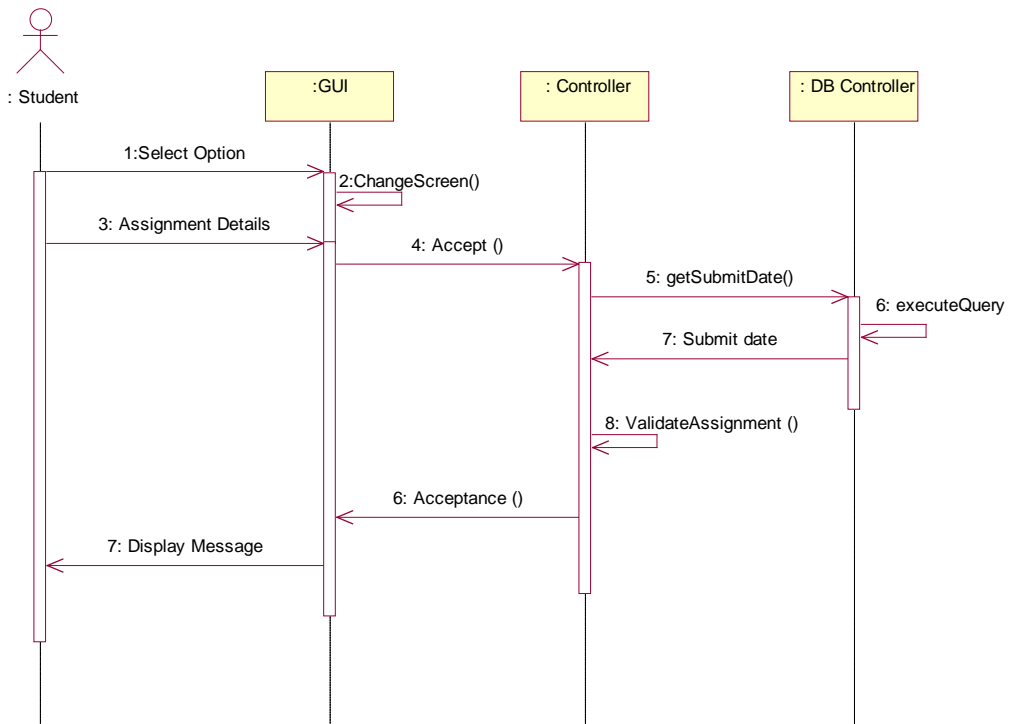
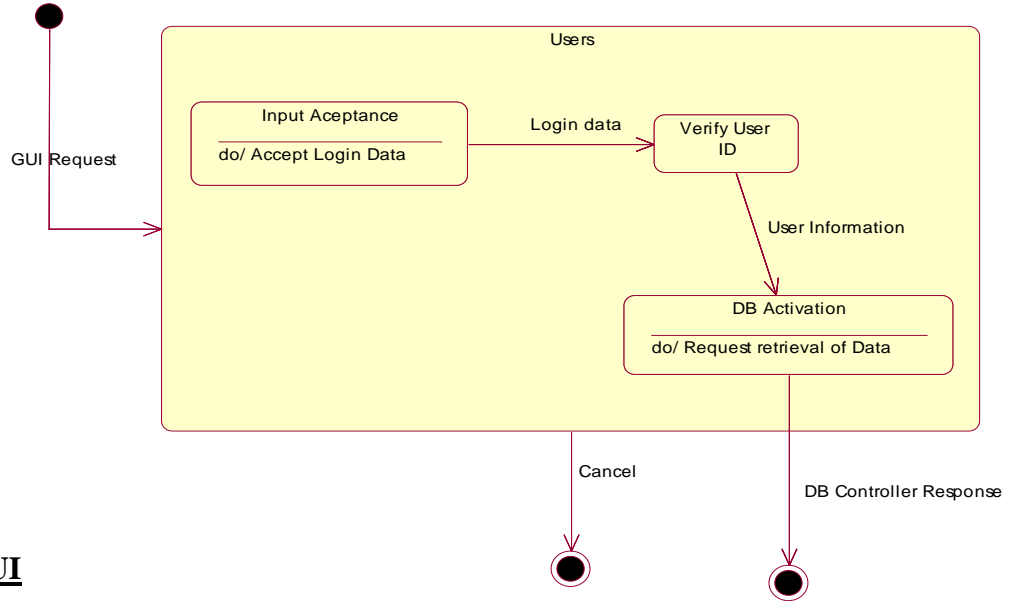


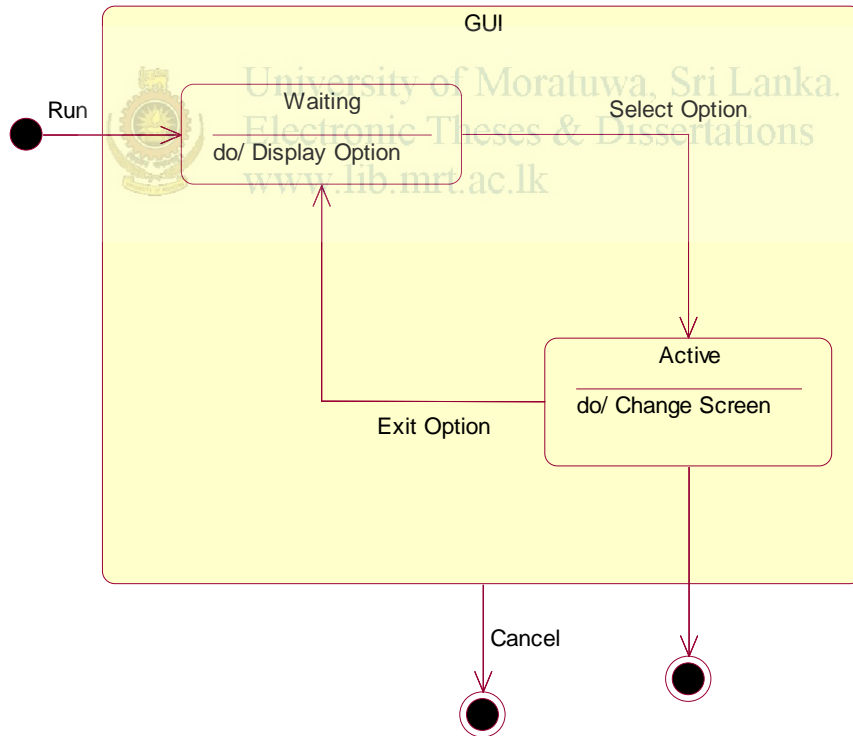


Figure E5-State Chart Diagrams

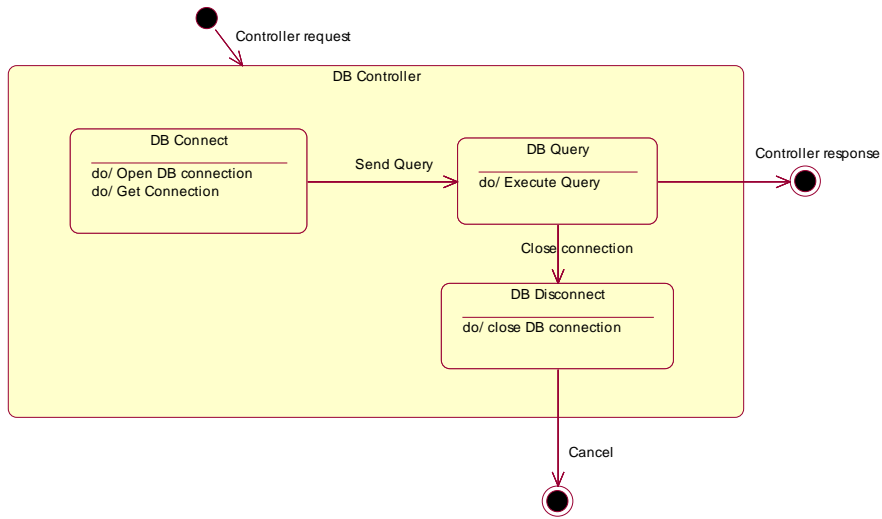
1) Users



2) GUI



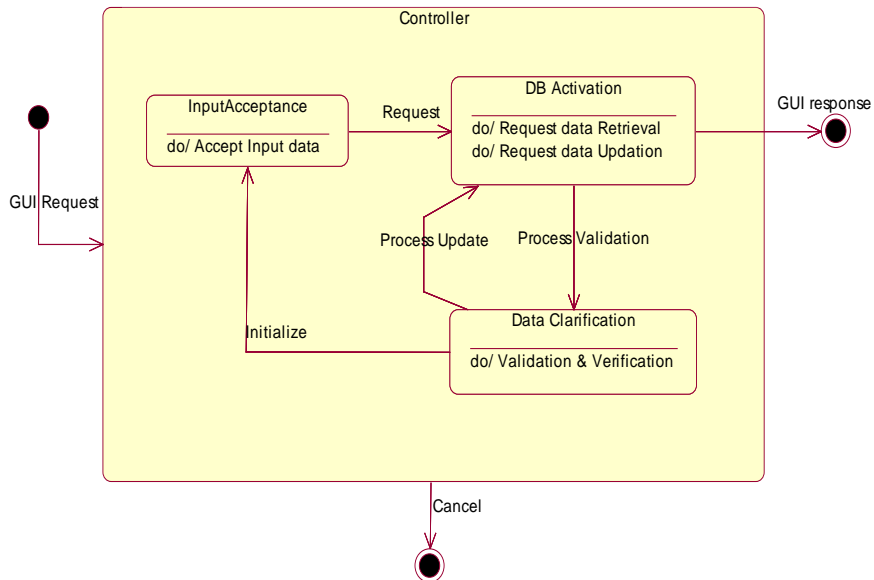
### 3) DB Controller



### 4) Controller



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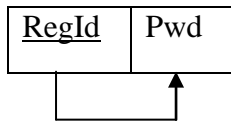




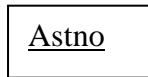
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## Appendix F - Database Schema

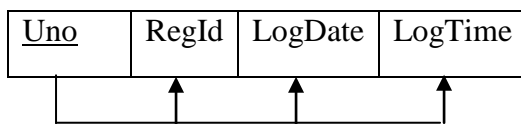
1. **Account**



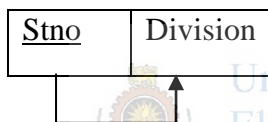
2. **Admin**



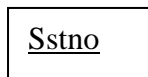
3. **User**



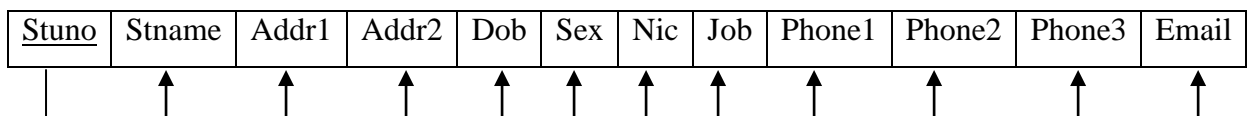
4. **Staff**



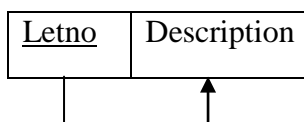
5. **Secretary**



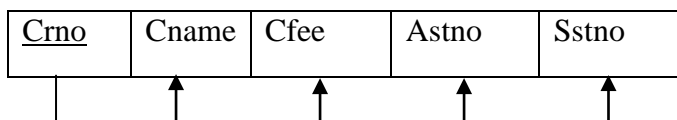
6. **Student**



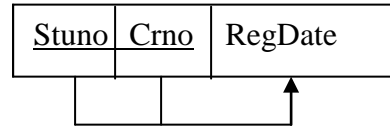
7. **Letters**



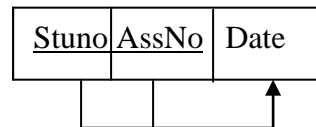
8. **Course**



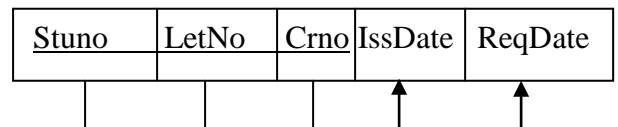
9. **Register**



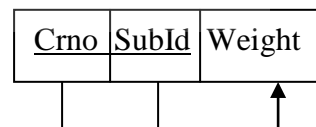
10. **Submit**



11. **Request\_Issue**

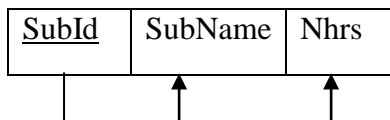


12. **Weight**

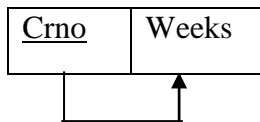


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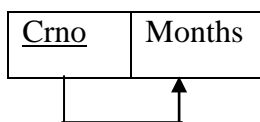
13. **Subject**



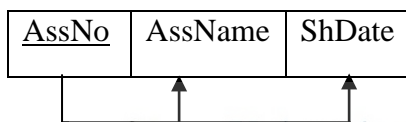
14. **PartTime**



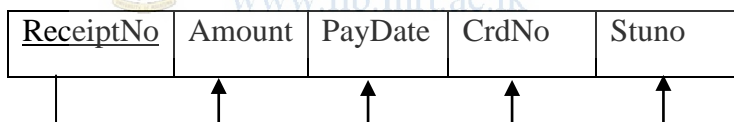
15. **FullTime**



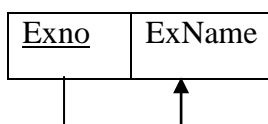
16. **Assignment**



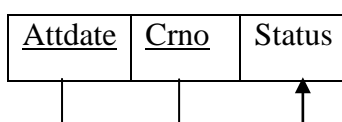
17. **Payment**



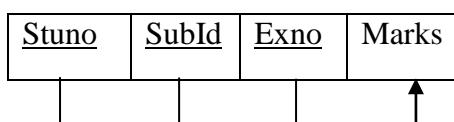
18. **Exam**



19. **Attendance (Week Entity)**



20. **Grade**



## Physical Schema

### 1) Table Name: Account

**Description:** Store login Account details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
RegId	Int (6)	Registration Id	Primary Key-Not Null
Pwd	Varchar(10)	Password	Not Null

### 2) Table Name: Admin

**Description:** Store administrator details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Astno	Int (6)	Administrator staff No	Primary Key-Not Null

### 3) Table Name: User

**Description:** Store User details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Uno	Int (6)	User No	Primary Key-Not Null
RegId	Int (6)	Registration Id	Foreign Key References Admin table- Not Null
LogDate	Date	Login Date	
LogTime	Time	Login Time	

### 4) Table Name: Staff

**Description:** Store Staff details (*Common to Administrator & Secretary*)

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stno	Int (6)	Staff No	Primary Key-Not Null
Division	Varchar (10)	Division attached	

### 5) Table Name: Secretary

**Description:** Store Secretary details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Sstno	Int (6)	Secretary Staff No	Primary Key-Not Null

6) **Table Name:** Student

**Description:** Store Student (Participant) details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stuno	Int (6)	Student no	Primary Key-Not Null
Sstname	Varchar (60)	Student name	
Addr1	Varchar (60)	Address line1	
Addr2	Varchar (60)	Address line2	
Dob	Date	Date of birth	
Sex	Char (1)	Gender	M or F
Nic	Varchar (10)	National ID no	
Job	Varchar (40)	Occupation	
Phone1	Varchar (10)	Home phone	
Phone2	Varchar (10)	Work phone	
Phone3	Varchar (10)	Mobile	
Email	Varchar (20)		xxxx@xxx.xx

7) **Table Name:** Letters

**Description:** Store details of letters issue

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Letno	Varchar(5)	Letter No	Primary Key-Not Null
Description	Varchar (20)		

8) **Table Name:** Course

**Description:** Store course details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Crno	Varchar(5)	Course No	Primary Key-Not Null
Cname	Varchar(20)	Course name	
Cfee	Float	Course fee	Unsigned
Astno	Int(6)		Foreign Key References Admin table-Not Null
Sstno	Int(6)		Foreign Key References Secretary table-Not Null
Division	Varchar(15)		

9) **Table Name:** Register

**Description:** Store students' registration details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stuno	Int(6)	Student No	Primary Key-references student table- Not Null
Crno	Varchar(5)	Course no	Primary Key-references course table- Not Null
Regdate	Date	Registration date	

10) **Table Name:** Submit

**Description:** Store Assignment submit details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stuno	Int(6)	Student No	Primary Key-references student table- Not Null
Assno	Varchar(5)	Assignment no	Primary Key-references assignment table-Not Null
Date	Date	Submission date	

11) **Table Name:** Request\_Issue

**Description:** Store Request & Issue letters details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stuno	Int(6)	Student No	Primary Key-references student table- Not Null
Crno	Varchar(5)	Course No	Primary Key-references course table- Not Null
LetNo	Varchar(5)	Letter no	Primary Key-references letters table- Not Null
ReqDate	Date	Letter Request date	
IssDate	Date	Letter Issue Date	



12) **Table Name:** Weight

**Description:** Store Subjects weights of different courses

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Crno	Varchar(5)	Course No	Primary Key-references course table- Not Null
SubId	Varchar(5)	Subject Id	Primary Key-references subject table- Not Null
Weight	Int(2)	Subject Weight	

13) **Table Name:** Subject

**Description:** Store Subject details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
SubId	Varchar(5)	Subject Id	Primary Key- Not Null
SubName	Varchar(50)	Subject name	Not Null
Nhrs	Tinyint(2)	No hours allocated	Unsigned

14) **Table Name:** PartTime

**Description:** Store part time course details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Crno	Varchar(5)	Course No	Primary Key- Not Null
Weeks	Tinyint(2)	Duration in Weeks	Unsigned -Not Null

15) **Table Name:** FullTime

**Description:** Store full time course details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Crno	Varchar(5)	Course No	Primary Key- Not Null
Months	Tinyint(2)	Duration in Months	Unsigned -Not Null

16) **Table Name:** Assignment

**Description:** Store assignment details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Assno	Varchar(5)	Assignment No	Primary Key- Not Null
AssName	Varchar(20)	Assignment name	Not Null
ShDate	Date	Scheduled date	

17) **Table Name:** Payment

**Description:** Store payment details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
ReceiptNo	Int(10)	Receipt No	Primary Key-Not Null
Amount	Float	Amount paid	Not Null
PayDate	Date		
CrNo	Varchar(16)	Credit card No	
Stuno	Int(6)	Student No	Not Null – References Student table

18) **Table Name:** Exam

**Description:** Store exam details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Exno	Varchar(10)	Exam No	Primary Key- Not Null
ExName	Varchar(50)	Exam Name	Not Null

19) **Table Name:** Attendance

**Description:** Store student attendance details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Attdate	Date	Attendance date	Primary Key- Not Null
CrNo	Varchar(5)	Course no	Primary key – References course table - Not Null
Status	Tinyint(1)	1-Present/ 0-Absent	Unsigned, stores only 1 or 0

20) **Table Name:** Grade

**Description:** Store student marks details

<u>Field Name</u>	<u>Data Type</u>	<u>Description</u>	<u>Constraints</u>
Stuno	Int (6)	Student no	Primary Key- Not Null-References student table
SubId	Varchar(5)	Subject Id	Primary key – References subject table - Not Null
Exno	Varchar(10)	Exam No	Primary key – References exam table - Not Null
Marks	Tinyint(2)		Unsigned



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## Appendix G – Usability Evaluation Questionnaire

1. Contact Information

First Name:

Last Name:

Address 1:

Address 2:

Phone :

Email :

2. How long have you been associated with NIBM :

3. What is your current position with this organization:

4. What is your experience with Web Applications :

- Never used
- Seen but not used
- Used A few times
- Used extensively
- Other

5. What is your user category?

- Student
- Course Director
- Course Secretary
- System Administrator

6. In general how would you rate the following aspects of the web application?

	Needs Improvement (1)	Fair (2)	Good (3)	Works well (4)
Visual design / layout	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uploading/ Mail Facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Page labels / Command names	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Page instructions / Inline help	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Error messages are helpful	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General ease of use	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of learning and using	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Applicability	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guiding user through steps	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reading characters on the screen	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use of inconsistent terms throughout system	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer always informs about its progress	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performing tasks is straightforward	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designed for all levels of users	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accomplish tasks more quickly	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current performance can be improved	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Productivity can be improved	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generate Payment calculations/ Receipts	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Credit Card verifications	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security features	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Usability Redesign Needed

Minor Redesign	Average Redesign	Major Redesign	Don't Know
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Which browser do you use the most?

- Internet Explorer
- Netscape Navigator
- Other, please specify

## User Evaluation

Functionality	User 1	User 2	User 3	User 4	User 5	User 6	User 7	User 8	User 9	User 10	Avg Satisfaction	Avg %	User Comment
Visual design / layout	4	4	3	4	2	4	2	4	2	4	3	75	Good
Uploading/ Mail Facilities	3	3	4	4	3	4	3	3	3	4	3	75	Good
Page labels / Command names	1	2	1	3	2	3	2	2	2	2	2	50	Fair
Page instructions / Inline help	1	1	2	2	2	1	1	2	2	1	2	50	Fair
Error messages are helpful	3	4	3	3	4	3	3	3	3	4	3	75	Good
General ease of use	3	3	2	3	1	3	2	3	2	3	3	75	Good
Ease of learning and using	2	4	3	4	2	4	2	2	2	4	3	75	Good
Applicability	3	3	4	3	3	3	3	3	3	3	3	75	Good
Guiding user through steps	2	1	1	1	2	2	1	1	2	2	2	50	Fair
Reading characters on the screen	3	3	2	1	3	1	3	3	3	3	3	75	Good
Use of inconsistent terms throughout system	2	4	1	4	2	4	2	2	2	4	3	75	Good
Computer always informs about it's progress	1	2	2	1	2	1	3	1	2	1	2	50	Fair
Performing tasks is straightforward	2	4	3	2	3	2	3	2	3	2	3	75	Good
Designed for all levels of users	3	4	4	1	4	1	4	3	4	1	3	75	Good
Accomplish tasks more quickly	4	3	3	2	4	2	4	4	4	2	3	75	Good
Current performance can be improved	3	3	2	3	3	3	3	3	3	3	3	75	Good

Productivity can be improved	2	2	3	4	3	4	3	2	3	4	<b>3</b>	<b>75</b>	Good
Generating Payment Receipts	4	3	3	3	4	3	3	3	3	2	<b>3</b>	<b>75</b>	Good
Credit Card verifications	4	4	4	4	4	4	4	4	4	4	<b>4</b>	<b>100</b>	Works well
Security features	3	3	3	2	3	3	3	3	3	2	<b>3</b>	<b>75</b>	Good

**Table G-1 - Summarized User Response**



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# Appendix H – Software Requirement Specification (SRS)

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## 1. Introduction

This document provides a comprehensive description of the Software Requirement Specification (SRS) for the *Student Management System* of the NIBM.

The National Institute of Business Management (NIBM) with its legacy of 35 years in the business of training and development has a vision to become the best management education institute in Sri Lanka. With the intent of aligning the business process of NIBM towards its vision, a web based student management system has been defined for implementation. One of the strategies identified in this process is to enhance the administrative, student registrations, payments and introduce controls processes within NIBM.

With an intent to use information technology (IT) as a tool to support its strategies, NIBM aims to implement a Web based Student Management System that would introduce integrity, transparency, efficiency and effectiveness in its administrative process and provide accurate, timely information to the Management, Lecturers and Students. With the current process involved and the mounting frustrations and complaints from students, faculty and support staff there is an urgent need to develop the NIBM's online student management system.

In this context, I am taking into consideration the strategies specified in the corporate plan, reviewed its newly designed procedure manuals and conducted an in depth study



and documented its user requirements that will enable NIBM to procure the most appropriate system that would cater to its needs in Student management.

## **Approach and Methodology**

The following information gathering techniques were used by me, to acquire an in-depth understanding of the business process at NIBM.

- Extensive discussions with the staff in each of the divisions.
- Walkthroughs of actual operations with the staff and the customers.
- Perusal of documents and reports available.

With this acquired knowledge, together with the key users of the NIBM, I have developed this User Requirements Definition document that spells out the information and transaction processing needs of NIBM, based on the detailed study.

### **1.1. Purpose of the requirements document**

To increase the efficiency and productivity of the student related activities and to minimize the human errors and drawbacks. The institute student registration system is unable to cope with the high volume of telephone calls received at registration time. Among others, busy signals and long distance charges are inherent problems of the telephone registration system. At present students who reside at remote locations feel difficult to have contacts with the institute, as they need to present them selves personally at the institute for any kind of a work. An online student registration system needs to be developed to overcome these problems. In addition, students in NIBM, out NIBM, in country, out of the country can easily and inexpensively take advantage of many of the services provided by the program office, which today require users/ participants to be in NIBM during business hours. The expected audience of this document includes faculty members, software developer, students and support staff.

### **1.2. Scope of the Project**

The project consists mainly two parts. That is Administrator Part & Customer Part. Among the faculty a senior member should act as the administrator. The System is used to register students online with login & password information, based on application details the system generates emails to selected students informing their Student ID & to register to the respective course (identified by CRN) by paying through the online credit card payment system. Students can log in and can do the payments through credit card. Once the course starts the attendance details & relevant course information are need to be entered by the course secretary under the supervision of the administrator. The system should generate an email if a student's attendance gets close to the cutoff point (80%). Students can view their attendance details by logging to the system. Lectures can look at the summary of attendance. This system benefits for lecturers, students, support staff and parents.

### 1.3. Glossary

NIBM	-	National Institute of Business Management
Administrator	-	Faculty member in charge of Student Management System
CRN	-	Course Registration Number (Primary key used by NIBM to identify courses)
SMS	-	Student Management System (this system)
UNO	-	User No (8 digit primary key identifying a user inside the organization.)
REGID	-	Registration ID (6 digit primary key to identify a user inside the System.)
DBA	-	Database Administrator

### 1.4. References

References can obtain from the following personnel.

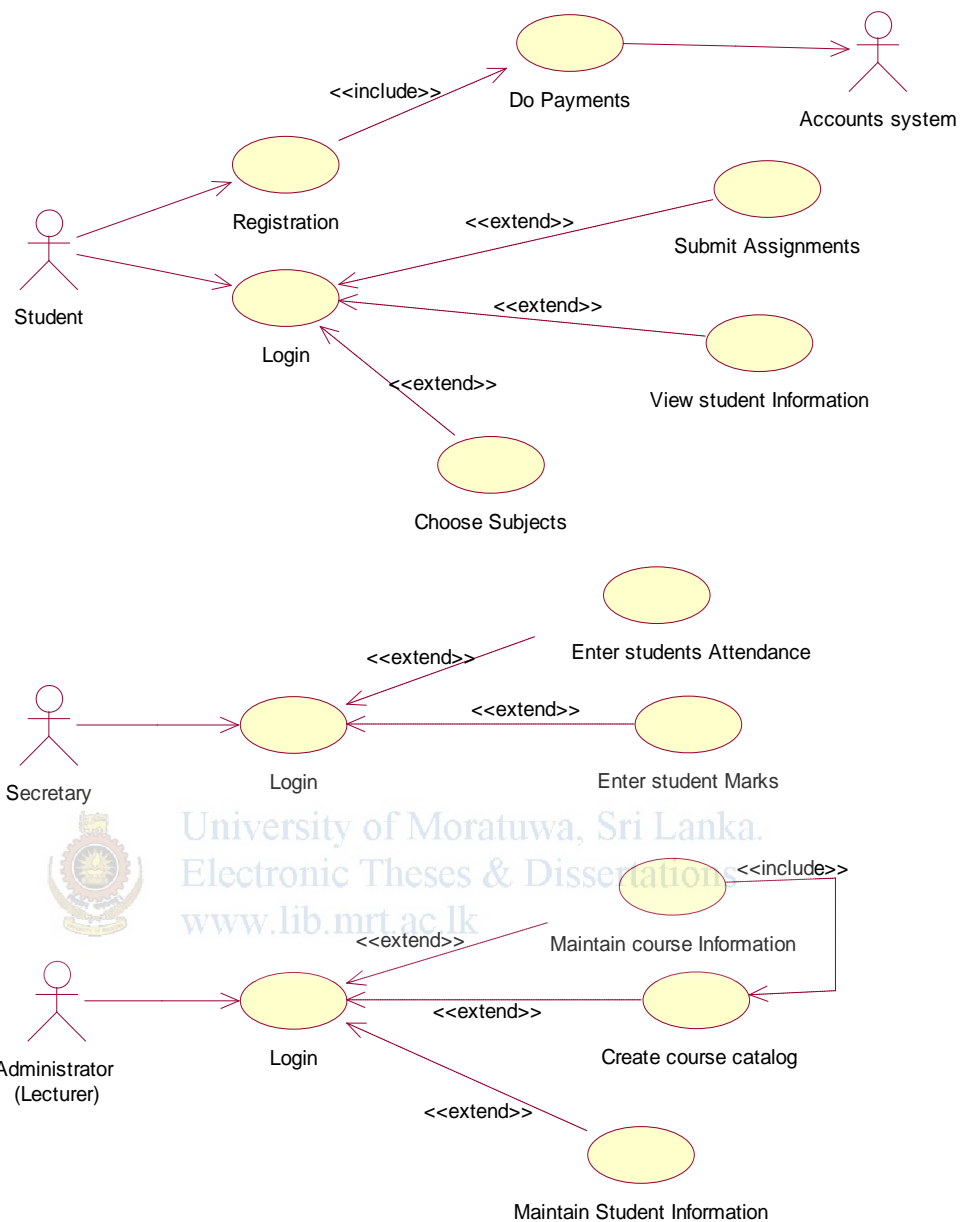
Division	Designation
Finance	Accountant
Administration	Manager
Management Information System	Director Secretary
Management Development	Director Secretary

### 1.5. Overview

This document contains two additional chapters. The first is designed to be understandable to the faculty members. It lists all the functions performed by the system and the constraints under which it is to operate. The other chapter describes the specification requirements (Functional & Non functional) organized by user class.

## 2. Overall Description

For the systems analysis and design notations the Unified Modeling Language (UML) is used to implement a limited and functional prototype for the student management system. The prototype will be a working example of part of the system for demonstration and proof of concept purposes only. It will include web-based forms as an end user interface with the MYSQL database.

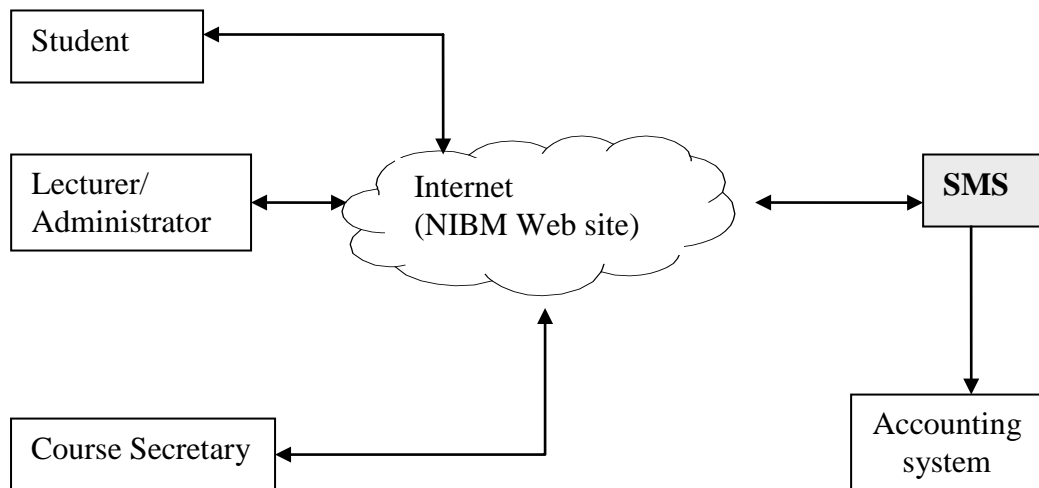


**Figure 1: Use Case Diagram**

## 2.1. Product perspective

Web based student management system is running inside the NIBM web site. There should be a link from the web site to access this system. A person that wants to use this facility should definitely have Internet access and other software to run web page. As this system contains very much confidential information it is required to keep the web server & other databases that support this application at the local site for easy access by the administrator.

The payments made by students should be able to access by the proposed accounting system as finally all the payments for each course under each division should be recorded at the Accounts division.



**Figure 2:** Block diagram showing the major interconnections

## 2.2 User Interface Specification

The anticipated users are faculty members at NIBM. They are familiar of using web interfaces and comfortable with the concept of a database and will need minimal training to utilize the access features to update persistent information about courses and other relevant information.

The system will have a standard windows type interface with menus, buttons and text boxes for communication.

## 3. Specific Requirements

### 3.1. User Requirements

- i. The student should be able to register to a course and do the payment online. This may reduce the manual work, increase customer satisfaction and reduce errors. This helps students who are employed and staying out of Colombo.
- ii. Any other financial system's files should be updated automatically.
- iii. As most of the students do not know their attendance details before the exam some times they disqualify to sit for the exam. The system should be able to inform the required students about their attendance. This process cannot be done manually as the no of students in some batches is quite large.

- iv. By having a SMS any body with access privileges can provide the required student information. The normal procedure is very much lengthy and the students have to wait 2-3 days to get a mark sheet.

### **3.2. System Requirements**

#### **1. Functional Requirements**

- i. System should store student results information E.g.: Student Number, Job Code, Program title, Subjects, Marks and Grade etc.
- ii. System should facilitate to update/ amend student, course information including attendance and marks for different modules.
- iii. System shall provide facilities to accept students' registration data.
- iv. System shall provide facilities to do online payments through credit cards. These details should be available to the proposed accounting system.
- v. A student should be able to choose/ modify subjects after registering with a course.
- vi. System should be able to facilitate to take backups of the database.
- vii. System should handle validating user inputs from the front end and from the back end database processing end. There should be data validating and error handling routines as part of the online student Management System.

#### **2. Non functional Requirements**

- i. The system should use MYSQL Database Management System, PHP, Java Script/ Java and HTML as other development software with APACHE web server. Operating system should be windows that can support MYSQL version used.
- ii. Following Network software and protocols are needed for the system to communicate. i.e: TCP/IP, HTTP, HTTPS, FTP
- iii. The program must be efficient. Within any operation, responses to an entry must be done within 15 seconds.
- iv. The user manual will include all instructions for correct use of the SMS.
- v. Need to be accessed by proposed Accounting system
- vi. The system should consist a password protected security system for unauthorized access control.

- vii. The system should be able to share the information through a Local Area Network.(Client Server architecture)
- viii. System users should have a 24\*7 access to telephone assistance for questions that are technical in nature, such as slow or sluggish system response time, incompatible browser features, application errors, system down time inquiries etc.
- ix. Programmers and application developers will have access to source code to address bugs or system enhancements as deemed necessary. Network administrator and DBA support is also required to maintain a 24\*7 system uptime.
- x. Must resolve locking issues and handle concurrent use of the system on a 24\*7 basis.
- xi. Valid license are required to run following software from third party vendors. i.e: Application development tools, To use Web server, Application server and database software in development and test.

### 3.3. Domain Requirements



i. As NIBM is a government organization it is very important to maintain the transparency in every activity and the accuracy. Therefore system audit trails are inherent part of all student related activities. All transaction records will capture what action was taken, when (time-stamp) the transaction occurred and who made the transaction.

ii. NIBM activities are governed by two types of auditors. ie: Internal & External auditors. Therefore it is very important to have system security and access level in the online system. There should be varying levels of system access and functional authority. Each student's access is limited to his/ her own registration records. Only authorized system administrator(s) has access to all student records.

We have reviewed the User Requirement Specification document and agree that they are as per our requirements.

.....  
Signature

.....  
Date

.....  
Name

.....  
Designation

## Appendix I – Project Charter


**NAME** : Rukshan Gemunu Manchanayake

**INDEX NO** : 4/10029

**EMAIL** : [rukshan@nibm.lk](mailto:rukshan@nibm.lk) OR [rmanchanayake@yahoo.com](mailto:rmanchanayake@yahoo.com)

### PROJECT TITLE

: Web based Student Management System

**SUMMARY** :  University of Moratuwa, Sri Lanka.  
This is a web-based system, which can handle student requirement from the time they register with the Institute and till they pass out all the examinations. It includes Registration, Course payments, Attendance monitoring by student and lecturers, Submit Assignments, Distribute Examination Details and Marks, Change of subjects/ course after registration and sending Emails to students about notices.

### SUPERVISORS:

**1. Name** : **Dr Ajith Madurapperuma**

Designation : Senior Lecturer

**2. Name** : **Mr L Ranathunga**

Designation : Lecturer

Organization : University of Moratuwa

Address : Faculty of Information Technology

Telephone : 4619771/2/3

## **Introduction**

National Institute of Business Management (NIBM) wishes to automate the application process and maintain complete student management system for Diploma, Degree and other certificate courses.

## **Problem Domain and Motivation**

Currently if a student wants to get register for a course, he/she has to submit the filled application to the course secretary. She may send the student to the cashier with a note and after doing the payment, the student should come back to the course secretary with the receipt.

In the current system student does not have any way of finding his attendance. Therefore till he registers for the exam he does not know about his attendance, which should be minimum 80%. Student has to visit to Institute to find Examination/ Assignment marks. This effect specially to BSc (MIS) students as most them are working currently.

## **Project Goals and Objectives**

The main goal is to make-work of the students & staff easy through a web based system. This leads the student to get up-to-date information about the divisions work and staff to track any student's information quickly.

## **Similar work & Relationship to the project**

The student management system can be linked with the existing web site of NIBM.

## **Scope of the project**

- Candidates submit applications online. They are requested submit a user name & password at that time.
- Selected candidates are informed through email to register by paying the course fee through the credit card online.
- Once the payments received by NIBM, the candidates are informed their registration number, user name and other relevant information.
- Once the course starts the attendance details are entered to the system by the course secretary. Students should be able to view their status by logging to the system. The system should also provide facilities for the lecturers and management to look at the summary of attendance.
- The system should generate an email message if a student's attendance is getting poor.

## **Deliverables**

- Web interface for students to Register, View attendance, View subjects, Pay online
- Web interface for staff (Lectures, course secretary)- Update/ View attendance of the student and enter Subject/ Assignment marks.



- Databases to store student data, payment data, attendance data, course information and course marks

### **Parameters for the measurement of success**

If possible (No Time limitations) it is very much necessary to implement all the above-mentioned deliverables and if the system uses by the respective target institute inside their web site then that is the success.

### **Risks and Risk Mitigation plan**

Following risks were identified in this web based Student Management System

- No User Involvement – There is no actual user involvement as this is a prototype. Therefore if the user requirements are not satisfied the system should modify later.
- Lack of Executive Management support – At the beginning of the project there is no much Management support but the support can receive once the project is going on and once they recognize the importance of the project and how much they have to spend if they try to outsource this work.
- No Clear Requirement statements

There is no Market risk as there is a specified client for this system. There is no Technology risk as the project can be develops with existing tools.

### **Client**

This system is designed to use as a Student Management System at the National Institute of Business management (NIBM). It is a requirement of the management to have this type of a system within the NIBM web site.

### **Tentative Project Schedule**

<b>Task Name</b>	<b>Duration</b>	<b>Start (mm/dd/yy)</b>	<b>Finish</b>
System Study	05d	Fri 7/8/05	Thu 7/14/05
Requirement Analysis	10d	Fri 7/15/05	Thu 7/28/05
Design	20d	Fri 7/29/05	Thu 8/25/05
Code & Unit testing	25d	Fri 8/26/05	Thu 9/29/05
Sub System Integration	20d	Fri 9/30/05	Thu 10/27/05
System Testing	20d	Fri 10/28/05	Thu 11/24/05
Documenting & Corrections	25d	Mon 11/25/05	Fri 12/29/05

(Durations are taken without considering weekends)

Student's Signature

Supervisor's Signature

Date:

Date:



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