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Assignment # 3

Object Oriented Software Engineering

Topic – **Software Requirement Specification**

&

Software Design Document

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Section: S

Abstract

Our project explains about the student management. This project mainly explains the various actions related to student details. This project shows some ease in adding, editing and deleting the student details. It also provides a less time-consuming process for viewing, adding, editing and deleting the marks of the students.

Our Project Includes:

1- Student Registration
2- Subject Allocation
3- Degree selection
4- Semester wise selection.
5- Examination marks entry
6- Displaying semester wise result.

Table of Contents

Introduction

1–1 Purpose

The purpose of SRS is to outline both functional and non-functional requirements of under constructing product. The purpose of this SRS document is to provide a detailed overview of our software product, its parameters and goals. This document describes the project's target audience and its user interface, hardware and software requirements. It defines how our client, team and audience see the product and its functionality. Nonetheless, it helps any designer and developer to assist in software development life cycle processes.

1–2 Document Conventions

SRS	Software Requirement Specifications
DBMS	Database Management System
SIS	Student Information System
SDLC	Software Development Life Cycle
SQL	Structured Query Language

1–3 Intended Audience and Reading Suggestions

These specifications are written for developers, managers and users. In the section 1 introduction is given after that overall description of SRS is described. In next section interface requirements are narrated. In fourth section system features are described. At the end non-functional requirements and other requirements are written.

1–4 Product Scope

This product will manage the Student Info. It will prepare transcript, manage Attendance and make to upload marks of Students. It will improve the SIS and will increase the Productivity of the Admin staff. It should be noted that while the suggested strategy incorporates the use of various hardware components, the primary focus of the presented SRS relates to the constituent software elements.

1–5 References

- SRS & SDD by the Group Students of The University of Lahore’s software Department

Overall Description

2–1 Product Perspective

Student Management System is software which is helpful for students as well as the school authorities. In the current system all the activities are done manually. It is very time consuming and costly. Our Student Management System deals with the various activities related to the students.

There are mainly 3 modules in this software

- User module
- Student Module
- Mark management Module.

In the Software we can register as a user and user has of two types, student and administrator. Administrator has the power to add new user and can edit and delete a user. A student can register as user and can add edit and delete his profile. The administrator can add edit and delete marks for the student. All the users can see the marks.

2–2 product Function

- Student Module:
  - Grade query
  - Check Attendance
  - Enrolment of Course
  - Teacher Course Allocation
  - Course Drop & Withdraw with mobile code Authentication

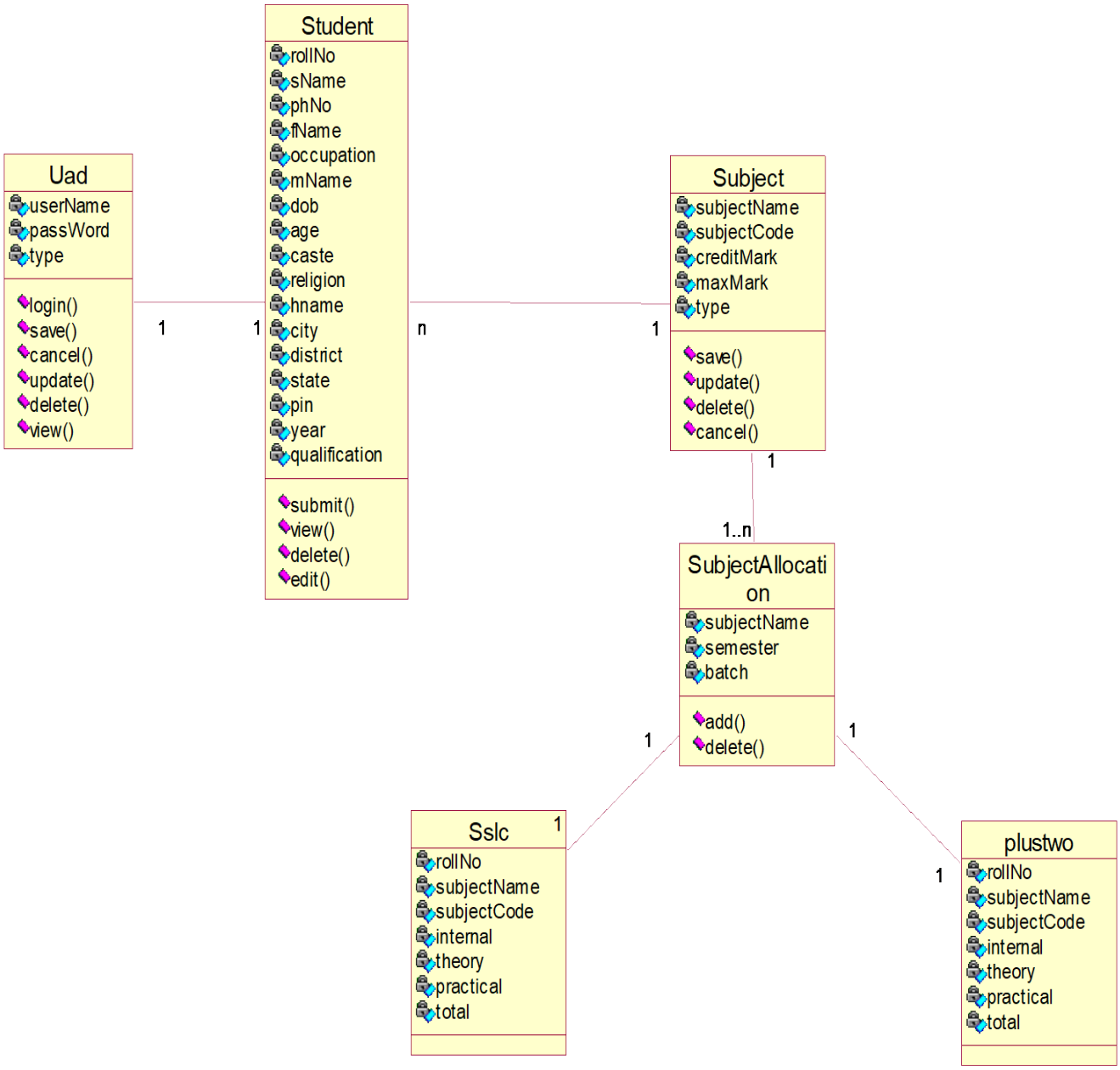
- Teacher Module:
  - Mark Attendance
  - Upload Grade / Exam Details
  - Request for Course Allocation
  - Login with Authentication by both Gmail & Mobile Code

- Admin Module:
  - Mark Teacher Attendance
  - Finalize the Student Result

2–3 User Classes and Characteristics

- Student
- Teacher
- Admin

Student, Teacher and Admin are only able to do their tasks from their logins



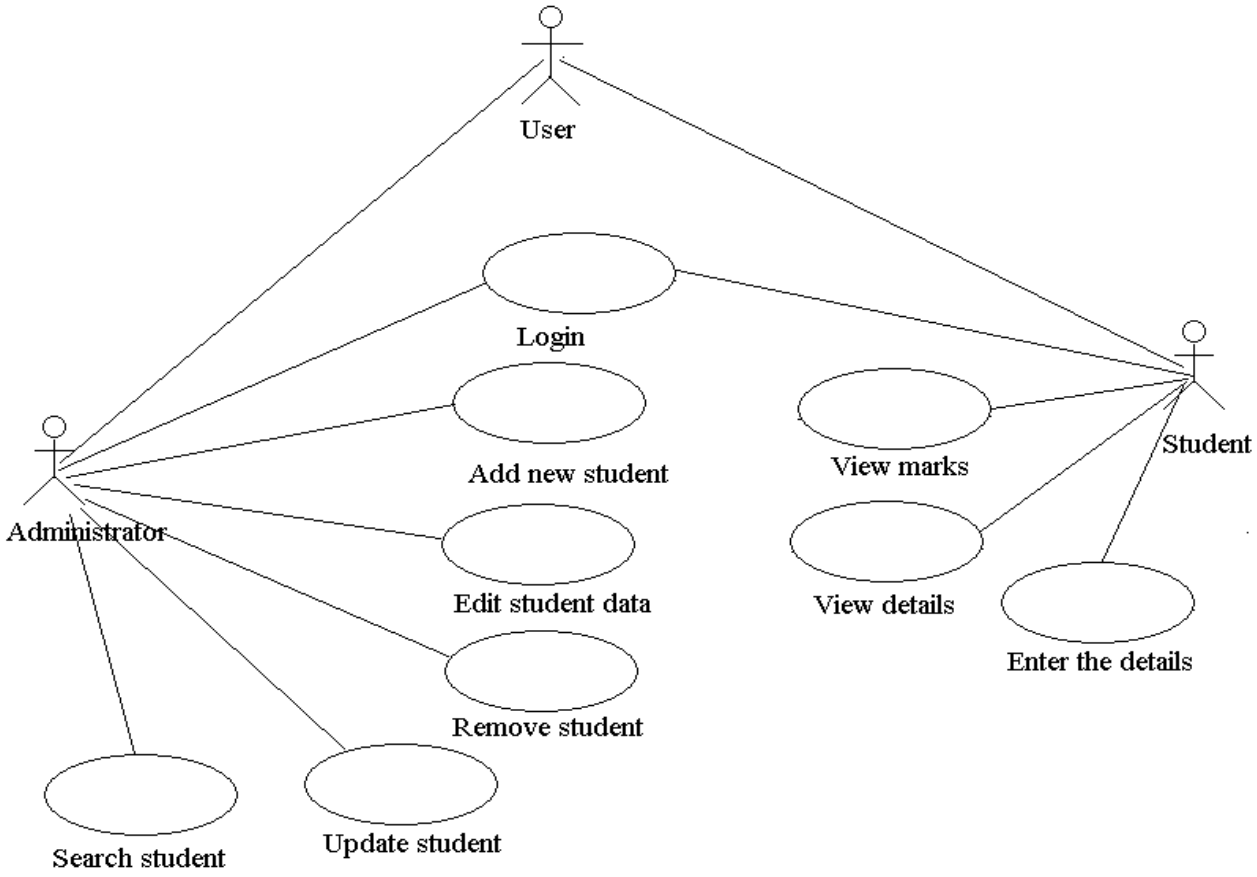
2–4 Operating Environment

This product will be used on windows operating system. This product will use oracle so system should be compatible for oracle.

2–5 Design and Implementation Constraints

Each UML diagram is designed to let developers and customers view a software system from a different perspective and in varying degrees of abstraction. UML diagrams commonly created in visual modeling tools include

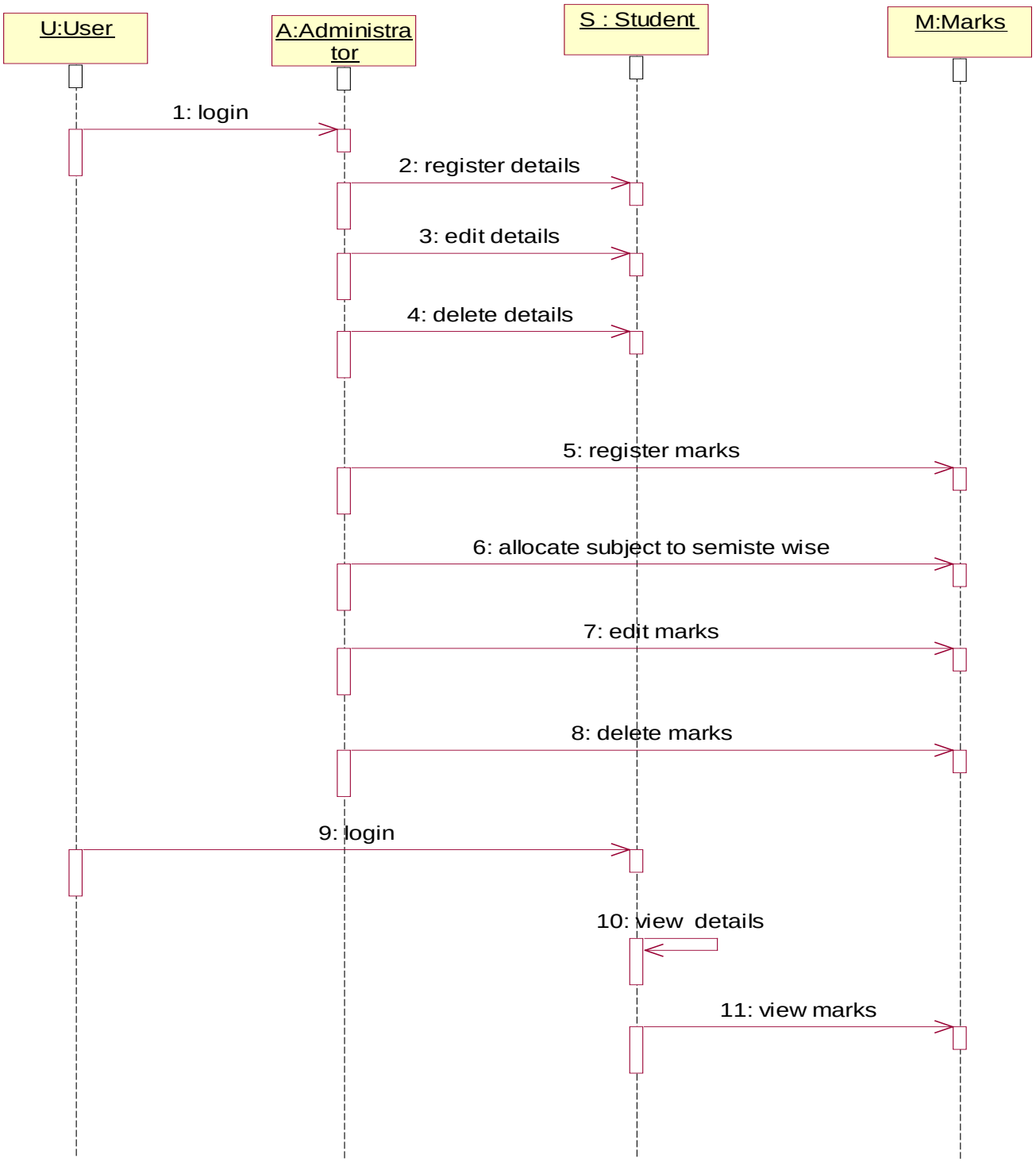
Use – Case for SIS



Its shows the relationship between the actors

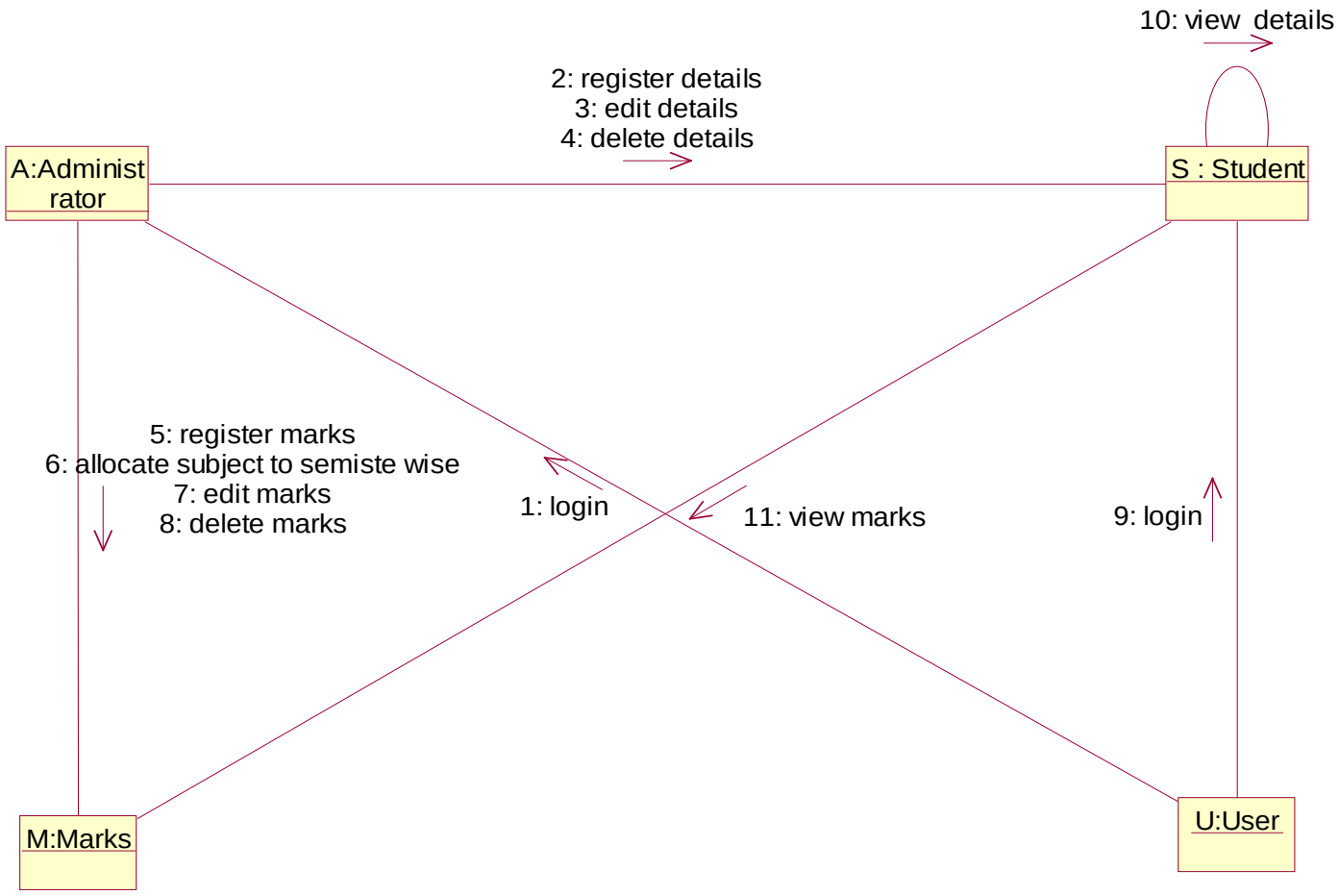
Sequence Diagram

Sequence Diagram displays the time sequence of the objects participating in the interaction. This consists of the vertical dimension (time) and horizontal dimension (different objects).



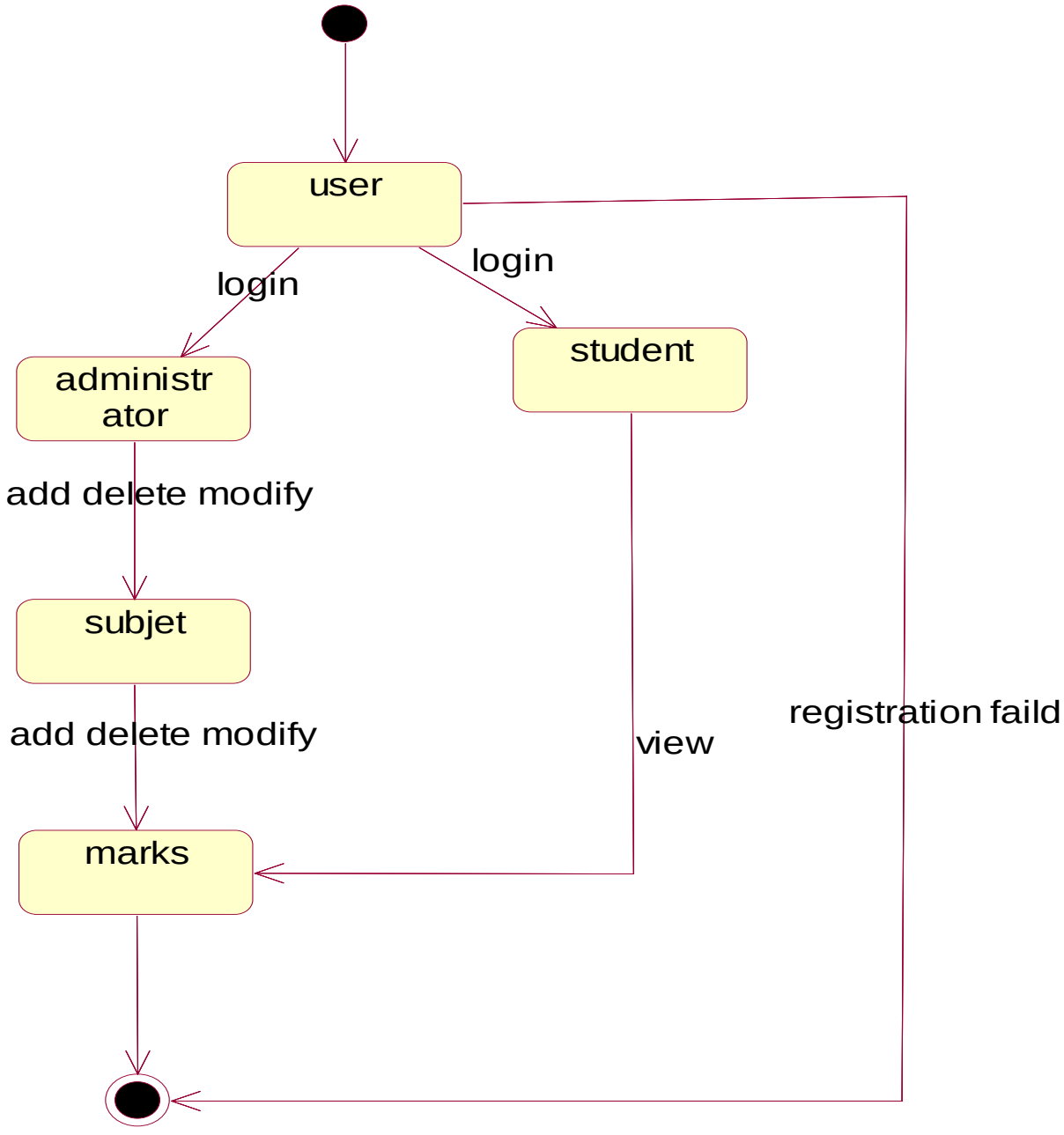
Collaboration Diagram

Collaboration Diagram displays an interaction organized around the objects and their links to one another. Numbers are used to show the sequence of messages.



Activity Diagram

Activity Diagram displays a special state diagram where most of the states are action states and most of the transitions are triggered by completion of the actions in the source states. This diagram focuses on flows driven by internal processing.



Nobody else can access system except the Authenticated User. Every user has its own access level to system. This product uses Web Services for its full functionality. So, the absence of Services can cause Respond issues because the redirection can't be proceeded without Database response.

2–6 User Documents

With the product following documents will be available:

- User manual
- Help
- On-line help

2–7 Assumptions and Dependencies

The SRS assumes that none of the constituent system components will be implemented as embedded applications. The implication is that the target hardware will provide a capacity for standalone program/application deployment and not require customized embedded firmware to be written.

External Interface Requirements

3–1 User Interfaces

Following are some major interfaces used in Software product:

- Home page (It contain three options for:)
  - Student
  - Teacher
  - Admin
- For checking Attendance
- For keeping Keep track of Student and Teacher Record
- For making secure attendance and result of the teacher
- For monthly print reports
- For daily print-out the attendance

3–2 Hardware Interfaces

There are two external hardware devices used by the SIS, each related to a user interface. These devices are the surface computers and the Website. All devices must be physically robust and immune to hacker's damage and load of database. The devices (with the possible exception of displays) must also have good software design, as they are to be used in place of normal Student, teachers and Administrators. The devices behave as 'terminals' in the sense that they never have a full system image, do need to back up the stored data.

3–3 Software Interfaces

The product uses the .Net core2 and java NetBeans (8.0) tool and back end SQL database. The product is compatible to at least windows XP or newer version operating system. The SIS will interface with DBMS that stores the information necessary for the SIS to operate. The Operations will be Performed will be stored in database. The DBMS must store all data such that it can be used for accountability, as well as sustainability. Admin's will always update the record.

3–4 Communication Interfaces

The product provides on-line help for users. An error message will be shown if an un-authorized penetration will be tried by any un-authorized individual. All devices it will interface with should contain standard Ethernet compatible, software accessible LAN cards to maintain communication between the server and the surface computers and the external payment system.

System Feature

4–1 Student Modules

4–1–1 Login
Student will have to login first to view its contents / home screen

4–1–2 Check Attendance
Student may check its attendance

4–1–3 View Marks
he / she may visit to their marks and view the Transcript

4–1–4 Withdraw Course
Courses that a Student enrolled, can be withdraw with a proper authentication

4–1–5 Enrol Course
A Student may be able to enrol courses regarding the specific semester

4–1–6 semester freeze
Semester can be freezes by the student with a proper authentication criterion

4–2 Teacher Modules

4–2–1 Login
Teacher will have to login first to view its contents / home screen

4–2–2 Upload Attendance
Teacher may upload its attendance

4–2–3 upload Marks
Teacher upload the student marks

4–3 Admin Modules

4–3–1 Login
Admin will have to login first to view its contents / home screen

4–3–2 Lock Attendance
Admin may lock the Teacher and Student attendance

4–3–3 Lock Marks
Admin may lock the result provided by the teacher and from this, it will produce the Transcript

4–3–4 Allocate Course
Courses can be allocated by the admin staff only.

Other Non – Functional Requirements

This section presents the identified non-functional requirements for the SIS. The subcategories of non-functional requirements given are performance, safety and security.

5–1 Performance Requirements

The product shall be capable of supporting an arbitrary number of operations under any circumstances.

5–2 Safety Requirements

The system shall be capable of restoring itself to its previous state in the event of failure (e.g. a system crash or power loss). The system shall be able to display a menu at all times.

5–3 Security Requirements

A user password used for tablet login must have a bit-strength of at least 64 bits. A user password used for SIS login must be changed. A user shall only be able to log into one system at any given instance of time.

5–4 Software Quality Attributes

Availability: Checking that the system always has something to function and always pop up error messages in case of component failure. In that case the error messages appear when something goes wrong so to prevail on availability problems.

Usability: Checking that the system is easy to handle and navigates in the most expected way with no delays. In that case the system program reacts accordingly and transverses quickly between its states.

Functionality: Checking that the system provides the right tools for editing question databases, creating session tests and analyzing the test sessions. In that case the tools that the Database editor provides the ones that provides that attribute.

5–5 Business Rules

Any element of the system will take no longer than 10-seconds to restart. A surface computer must not dismiss an engaged menu unless the User of the SIS requests it.

Other Requirements

Appendix A: Glossary

Here we list all the terminology that are used throughout the document:

SRS: Software Requirements Specification.
Connects: Links this requirement with another.
MySQL: A database handling language.
SIS: Student Information System
SDLC: Software development life cycle.

Appendix B: Analysis Model