Software Requirements Specification

for

Parents-Teachers Interaction App

Version <1.0>

Prepared by

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Project Owner: Akhila Ma'am

Course: CS4097D Object Oriented Systems Laboratory

Date: Nov 01, 2022

1 Introduction

In the school life of every student, parents and teachers play an important role and their interaction becomes an important part in the growth and development of every student. Teachers and parents need to work hand in hand. That's why the concept of **Parents Teachers Meeting** in all of the schools is there. An article in IndiaToday.in describes How parents and teachers can work together for the best learning experience for students[a]. But with the changing lifestyles, that conventional way can be questioned and can definitely be automated via software to serve the purpose in a better way to adapt to the changing lifestyles. Our project **Parents Teachers Interaction App** is focused on serving this purpose of interaction between parents and teachers in a better way.

1.1 Document Purpose

This document contains the software requirements of the version 1.0 of the **Parents Teachers Interaction App.**

1.2 Product Scope

Goal:

This product aims at improving the interaction between the parents and the teachers to ensure better growth of the students in the school environment.

Objective:

To create a product which can be used by the parents and the teachers to interact about the growth of the student. Use of this product will ensure that the parents will be able to get the latest updates about the child's academic performance and they'll be able to check the remarks given by the teachers for their children.

Benefits:

1. Parent's access to academic records of their children.
2. Frequent communication between parents and teachers can be done.
3. Teachers can convey some message to the parents at the time they're updating student's marks in the system.
4. Reduce the teacher and parents workload and save time and efforts.
5. Parents can easily get all the updates about their child anytime, anywhere.
6. Helps in boosting the academic atmosphere of the school.

Current Scope:

1. We are creating this version of the product considering that there are only 5 standards in the school i.e. 1st to 5th standard.
2. Each standard will have a maximum of 10 students.
3. Each parent has only one child studying in this school.
4. There are a total of 5 teachers and each teacher teaches only one subject.

5. The time table of the school is static.
6. We're conducting only 4 exams in a year i.e. UT-1[3], Half Yearly, UT-2[4], Final exams.

1.3 Definitions, Acronyms and Abbreviations

1. PTM: Parents-Teachers Meeting
2. PTIA: Parents-Teachers Interaction App
3. UT-1: First Unit Test
4. UT-2: Second Unit Test

1.4 Document Conventions

- Use Arial font size 11 for normal text.
- Use Time font for headings and subheadings.
- Headings and subheadings should be bold.
- Use italics for comments.
- Document text should be single spaced and maintain the 1" margins throughout the document.

1.5 References and Acknowledgments

Acknowledgement :

Our team of three has done our best possible to make this project. However, it would not have been possible without the kind support and help of many individuals. Our team would like to take this moment to extend our sincere gratitude to all of them.

We feel privileged to get a chance to undergo training at **National Institute Of Technology, Calicut.**

We are thankful to **Dr. Anu Mary Chako** for her guidance and constant supervision as well as for providing necessary information regarding the project and also for her support in completing the project. Her constant guidance and willingness to share her vast knowledge made us understand this project and its manifestations in great depths and helped us to complete the assigned tasks on time.

We would like to appreciate the YouTube channel, MyCodeSpace[b] for providing lecture videos to learn Java swing in an easy way.

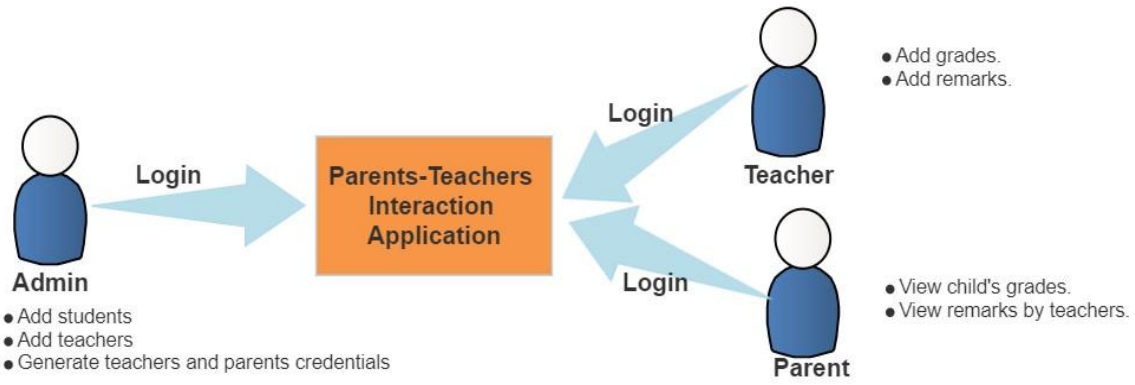
Our heartfelt thanks and appreciation also goes to our colleagues in developing the project and people who have willingly helped us with their abilities.

References:

a. How teachers and parents need to work together for the best learning experience
b. *https://www.youtube.com/watch?v=EF3yvfmAJIs&list=PLBpH5WxSM4d1hX8CRJw_q838KNCM2DVJZ*

2 Overall Description

2.1 Product Overview



General Diagram of Parents-Teachers Interaction Application

Schooling is a very important aspect of every human being's life. Good schooling can determine a lot of things for any student. It can help lay the foundation of any student's career and success in life.

In many schools, teachers are even made responsible for a lot of manual administrative activities of the school. If these tasks could be automated, teachers could better utilize their time and energy in nurturing and helping students.

There is a lot of gap between parents and teachers interaction in the conventional way of schooling methods which is not good for students' growth.

This application focuses on parents-teachers interaction where parents can view the academic record of their students. Teachers can send feedback to the parents regarding the academic progress or if there is any scope of improvement for their children.

Many times, students hide their academic records from their parents. In the traditional way, teachers handover the answer scripts to the students and ask them to show it to their parents. Some students show it to their parents and some don't. But the teacher has no option other than only assuming that the parents saw the answer scripts. This problem can be eliminated by using a centralized system where teachers can upload the academic records and parents can directly check that. It will make things transparent.

Most of the time, teachers are not able to frequently convey the student's progress to their parents. They only get the chance to do that in PTMs. For example, If a teacher conducts a test of a chapter and the student performs poorly in one of the sections of the chapter, then the teacher may want to convey this information to the parents so that they can help their children work on that particular section of the chapter better. It will be very helpful to ensure that the student works and gets better in the weaker sections. And this problem can also be solved using our system where teachers can add remarks for a particular test and the parents can read it and work on it.

2.2 Product Functionality

- Login portal for admin, teachers and parents.
- An admin can add the newly admitted student and teacher details.
- A teacher can add the academic record of the students.
- A teacher can send feedback to the parent regarding the academic progress of the student.
- Parents can view the academic progress of the students as well as the remarks sent by the teacher.

3 Specific Requirements

3.1 Functional Requirements

This system helps in reducing communication gaps between faculty and parents regarding students' academic progress. This system exists to simplify information tracking for parents, teachers and administrative staff.

F1. The application will keep the record of the grades of the students.

F2. Admin can login and add the information about the students, parents and teachers.

F3. Admin will generate the credentials for parents and teachers.

F4. Teachers can login to view and add the grades of their students.

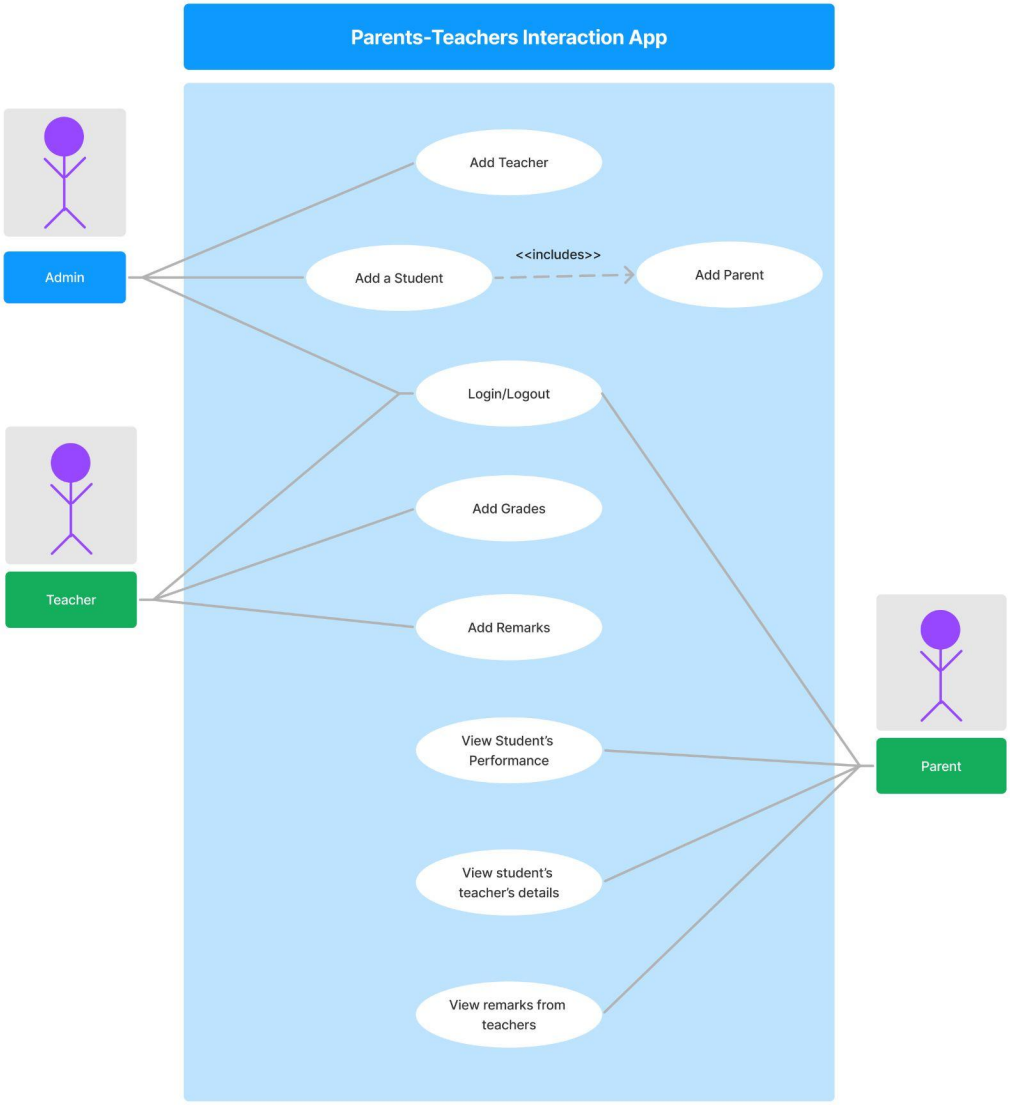
F5. Teachers can add remarks for the parents.

F6. Parents can login to view all the current academic details of their child.

F7. Parents will get all the information about the subjects and the respective teachers who teach that subject to their child.

F8. Parents can view remarks given by the teacher in the respective test.

3.2 Use Case Model



Use case #1 - Add Teacher

Purpose: Add teachers and provide credentials to teachers.
Requirements Traceability - F2
Actors: Admin.

Use case #2 - Add a student

Purpose**:** Add a student and provide credentials to parents.
Requirements Traceability - F2
Actors: Admin.

Use case #3 - Login/Logout

Purpose**:** User should be able to login/logout to/of the system
Requirements Traceability - F2, F4, F6
Actors: Admin, Parents, Teachers.

Use case #4 - Add grades

Purpose**:** Adding grades of the students.
Requirements Traceability - F4
Actors: Teacher.

Use case #5 - Add remarks

Purpose**:** Adding remarks for the students.
Requirements Traceability - F5
Actors: Teacher.

Use case #6 - View Students' Performance

Purpose**:** To view academic progress of the child.
Requirements Traceability - F6
Actors: Parents.

Use case #7 - View student's teacher's details

Purpose**:** To view the faculties who teach the student.
Requirements Traceability - F7
Actors: Parents.

Use case #8 - View teacher's remarks

Purpose**:** To view the remarks given by the teachers.
Requirements Traceability - F8
Actors: Parents.

Design Document

for

Parents-Teachers Interaction Application

Version 1.0

Prepared by Team 20:
(Based on SRS Version 1.0 prepared by Team 20)

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Project Owner: Akhila V.H

Course: Object Oriented System Laboratory
Date: November 14, 2022

Glossary

PTIA	Parents-Teacher Interaction App
DOB	Date Of Birth
UT-1	First Unit Test
UT-2	Second Unit Test

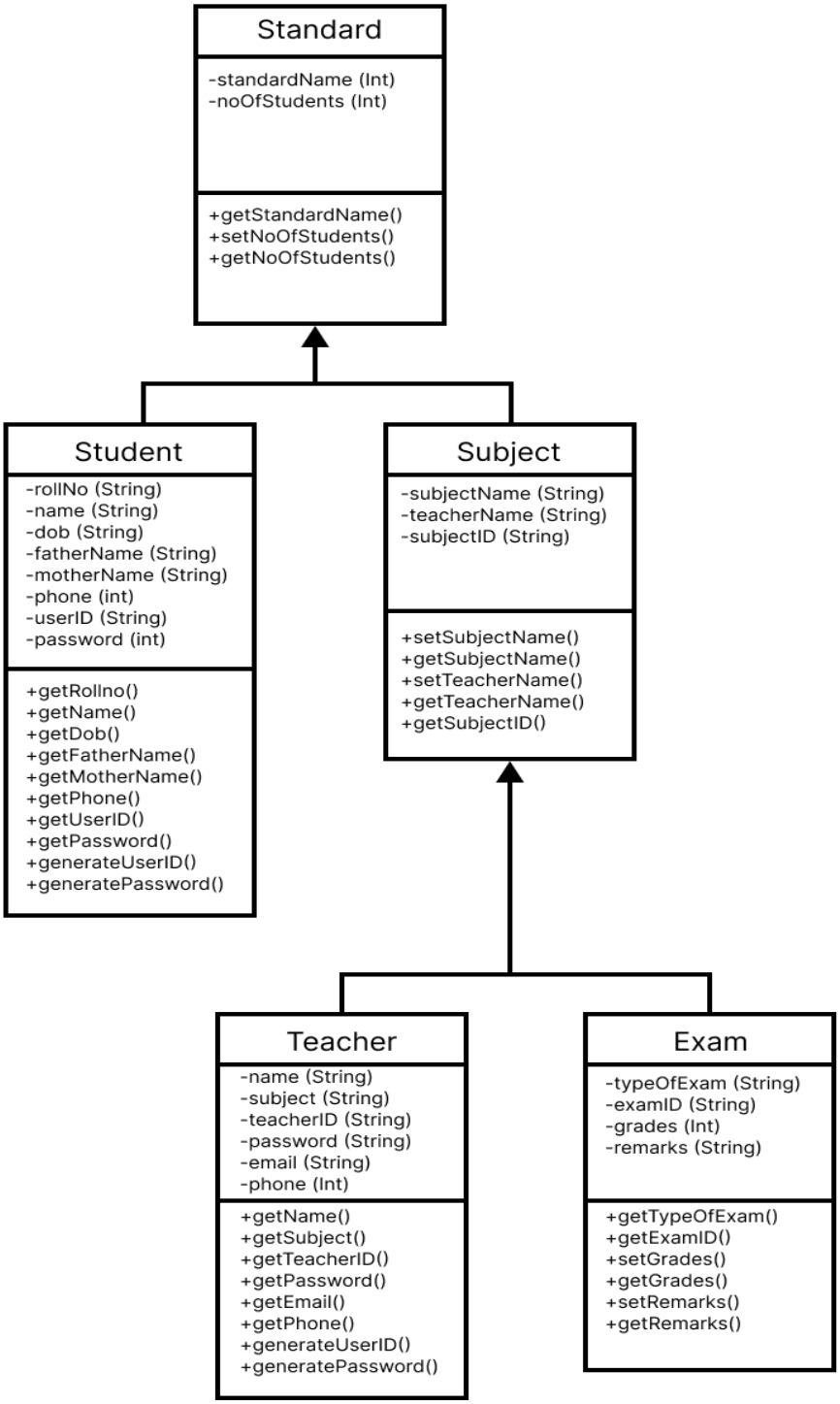
Table of contents

1. Detailed Design through UML diagrams

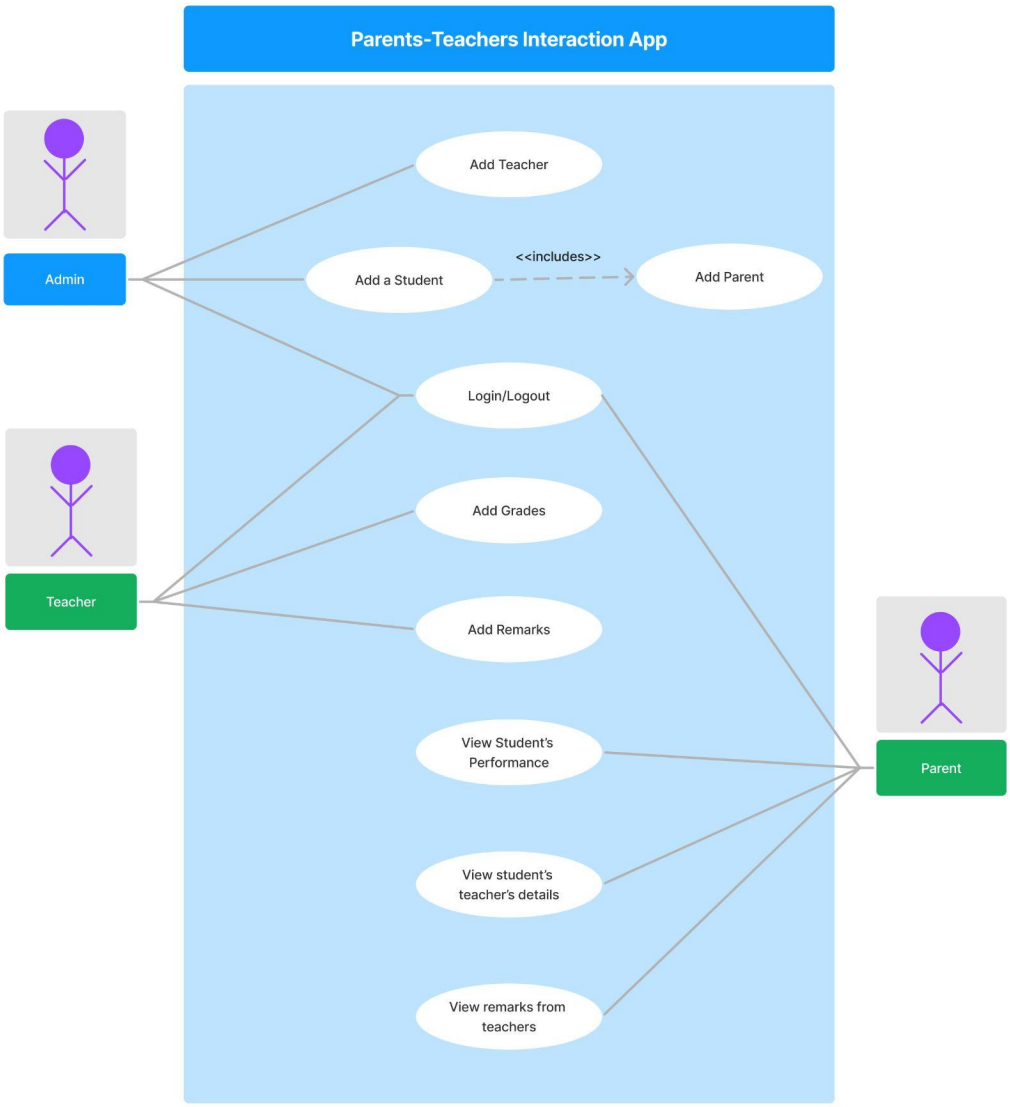
1.1 System model using Class Diagram

Class Diagram in the Unified Modelling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods) and the relationships among classes.

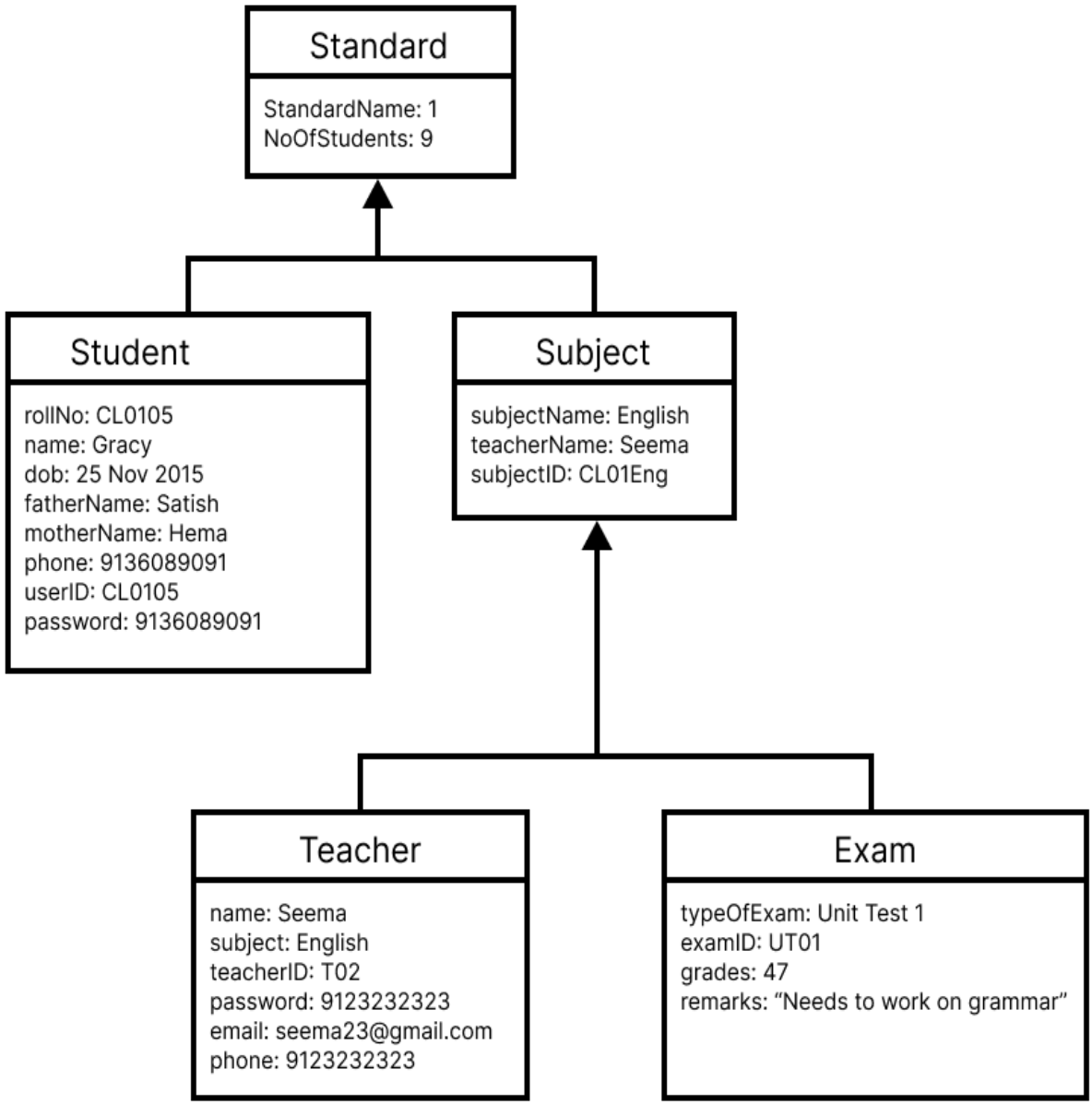
1.1.1 Class Diagram


Standard
-standardName (Int)
-noOfStudents (Int)
+getStandardName()
+setNoOfStudents()
+getNoOfStudents()
Student
-rollNo (String)
-name (String)
-dob (String)
-fatherName (String)
-motherName (String)
-phone (int)
-userID (String)
-password (int)
+getRollno()
+getName()
+getDob()
+getFatherName()
+getMotherName()
+getPhone()
+getUserID()
+getPassword()
+generateUserID()
+generatePassword()
Subject
-subjectName (String)
-teacherName (String)
-subjectID (String)
+setSubjectName()
+getSubjectName()
+setTeacherName()
+getTeacherName()
+getSubjectID()
Teacher
-name (String)
-subject (String)
-teacherID (String)
-password (String)
-email (String)
-phone (Int)
+getName()
+getSubject()
+getTeacherID()
+getPassword()
+getEmail()
+getPhone()
+generateUserID()
+generatePassword()
Exam
-typeOfExam (String)
-examID (String)
-grades (Int)
-remarks (String)
+getTypeOfExam()
+getExamID()
+setGrades()
+getGrades()
+setRemarks()
+getRemarks()

1.2 Responsibilities - Use Case Diagram



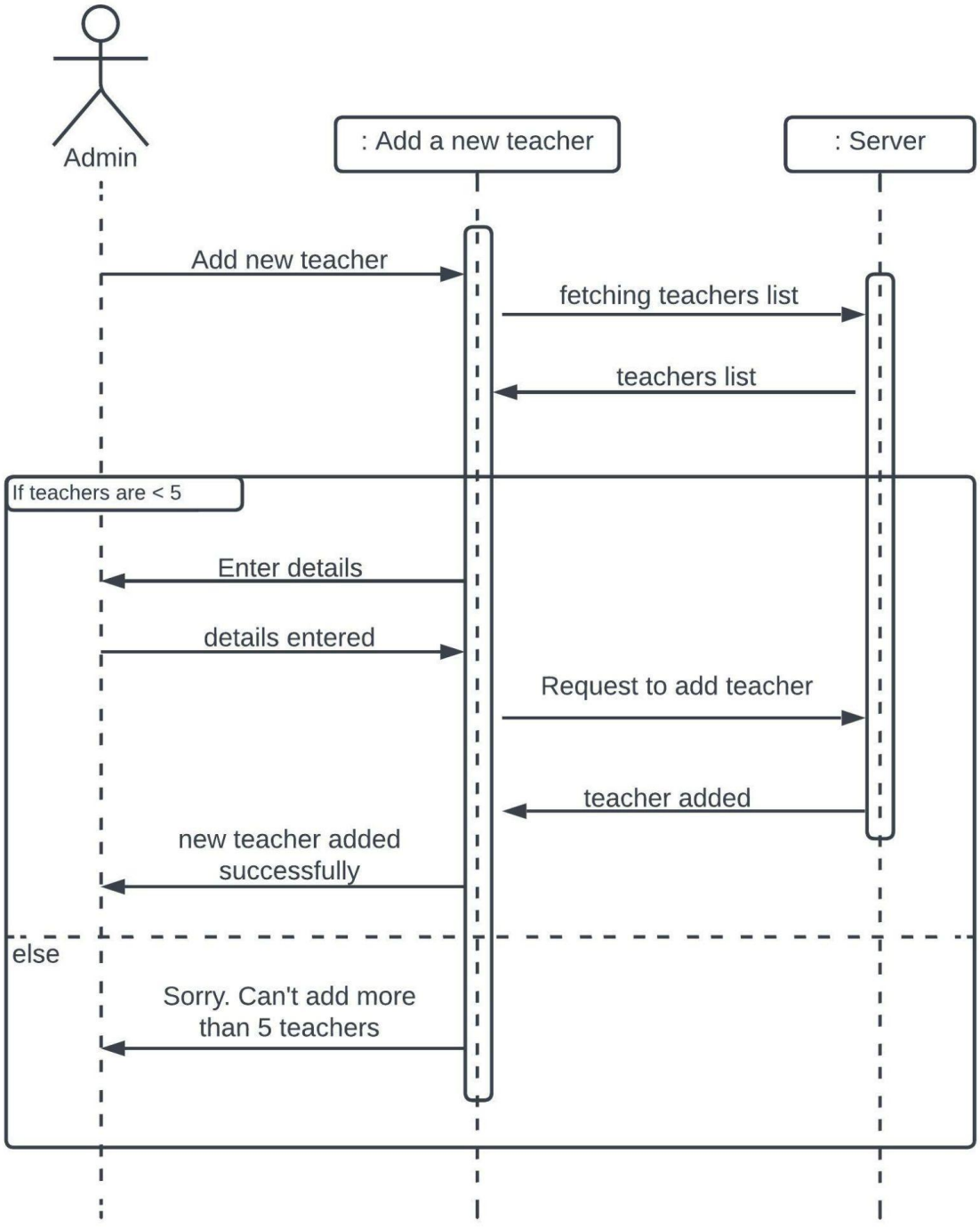
1.3 Static snapshot of the system - Object Diagram



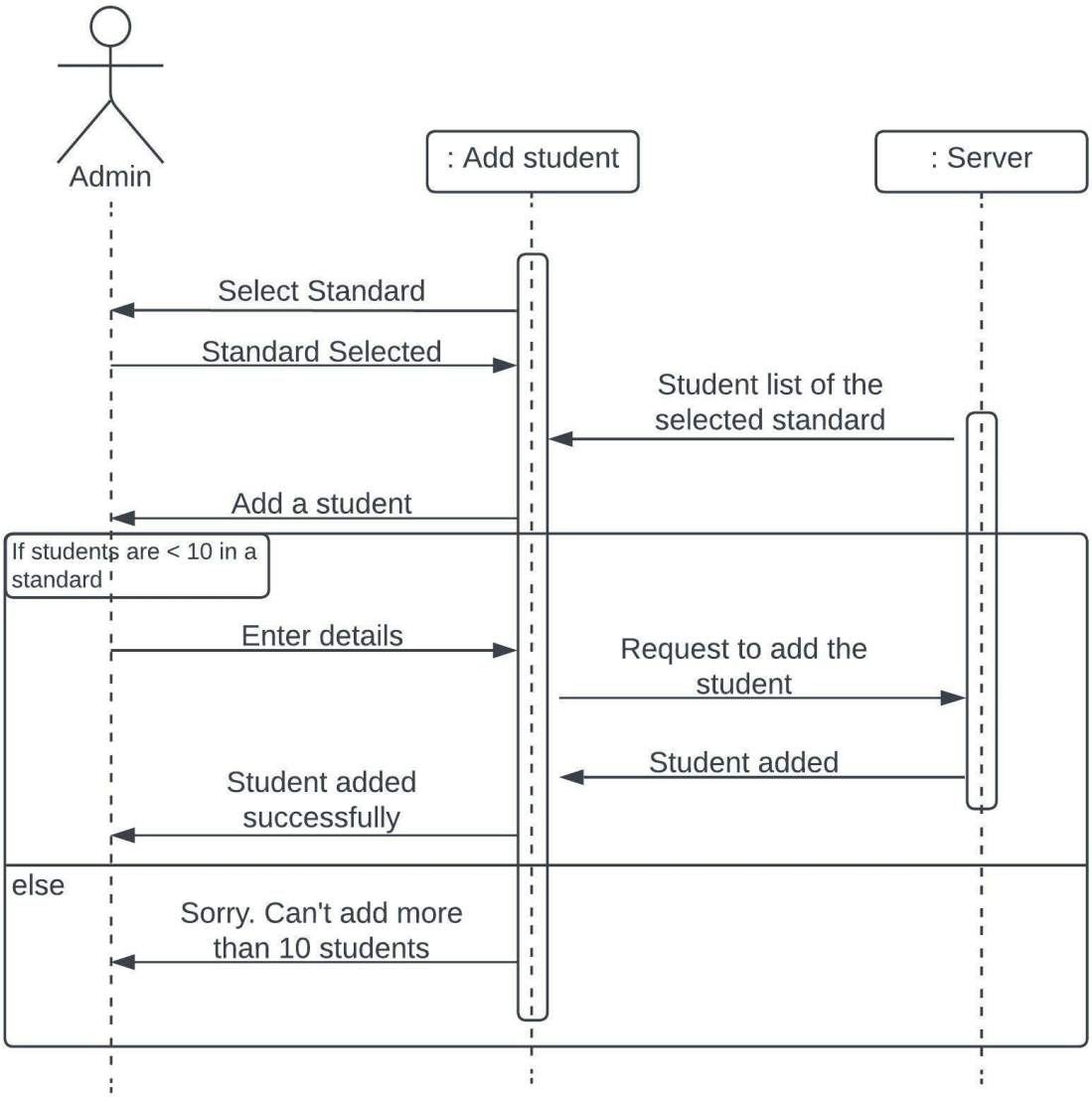
1.4 System Interactions through Sequence Diagrams

Sequence diagrams are interaction diagrams that show the sequence of messages exchanged by the set of objects performing a certain task. A sequence diagram shows, as parallel vertical lines (lifeline), different processes or objects that live simultaneously, and as horizontal arrows, the messages exchanged between them, in the order in which they occur.

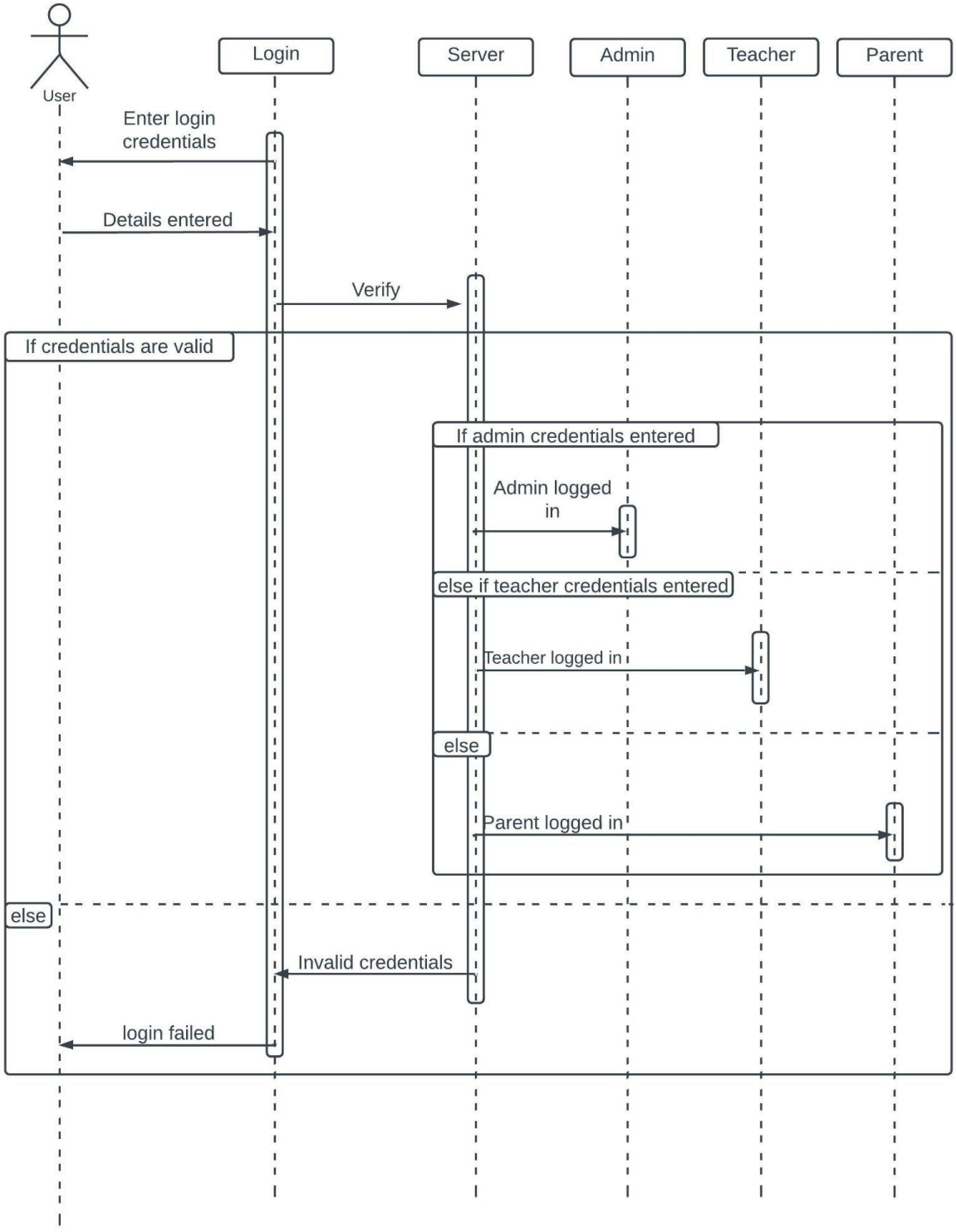
1.4.1 Add a teacher



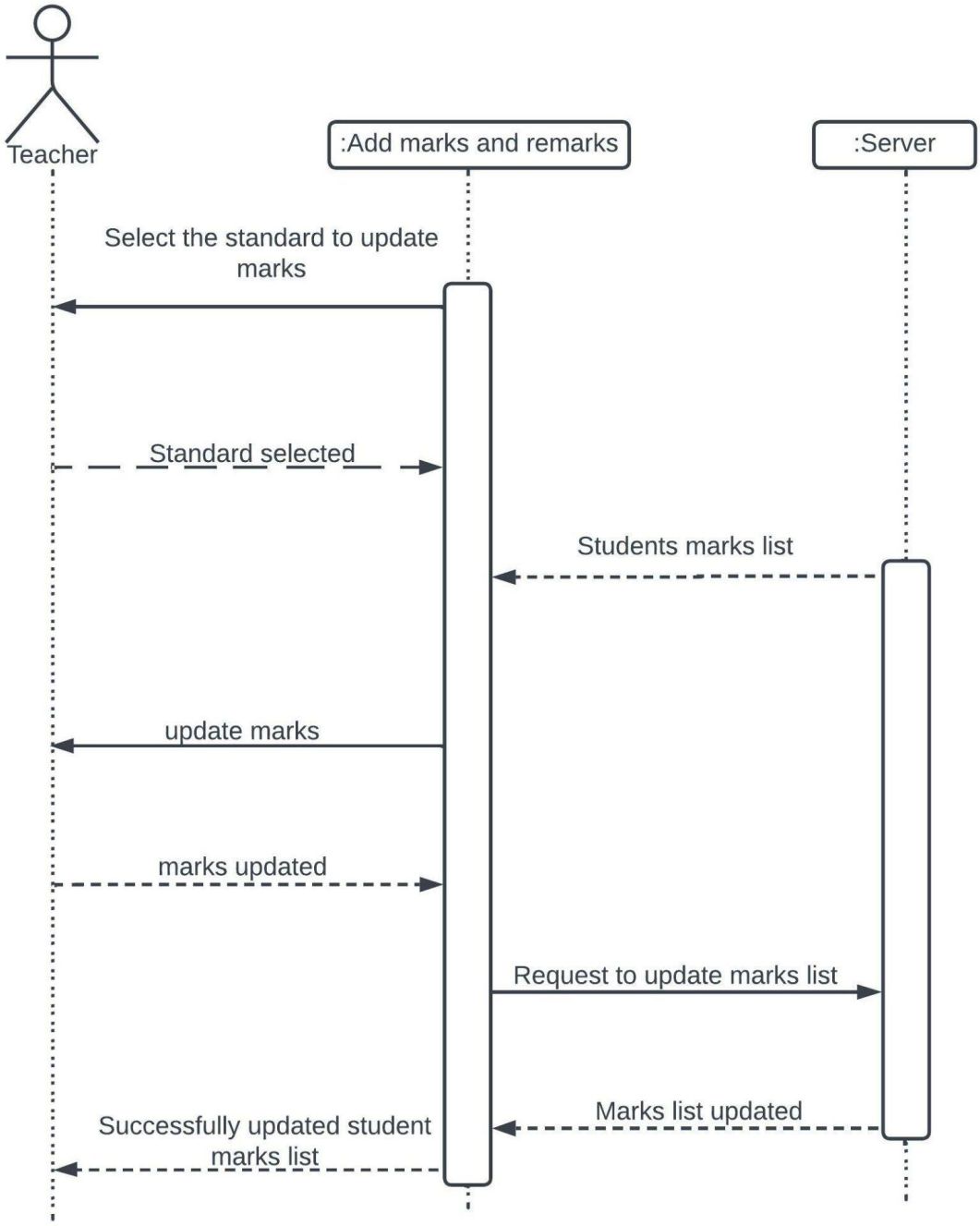
1.4.2 Add a student


Admin
: Add student
: Server
Select Standard
Standard Selected
Student list of the selected standard
Add a student
If students are < 10 in a standard
Enter details
Request to add the student
Student added
Student added successfully
else
Sorry. Can't add more than 10 students

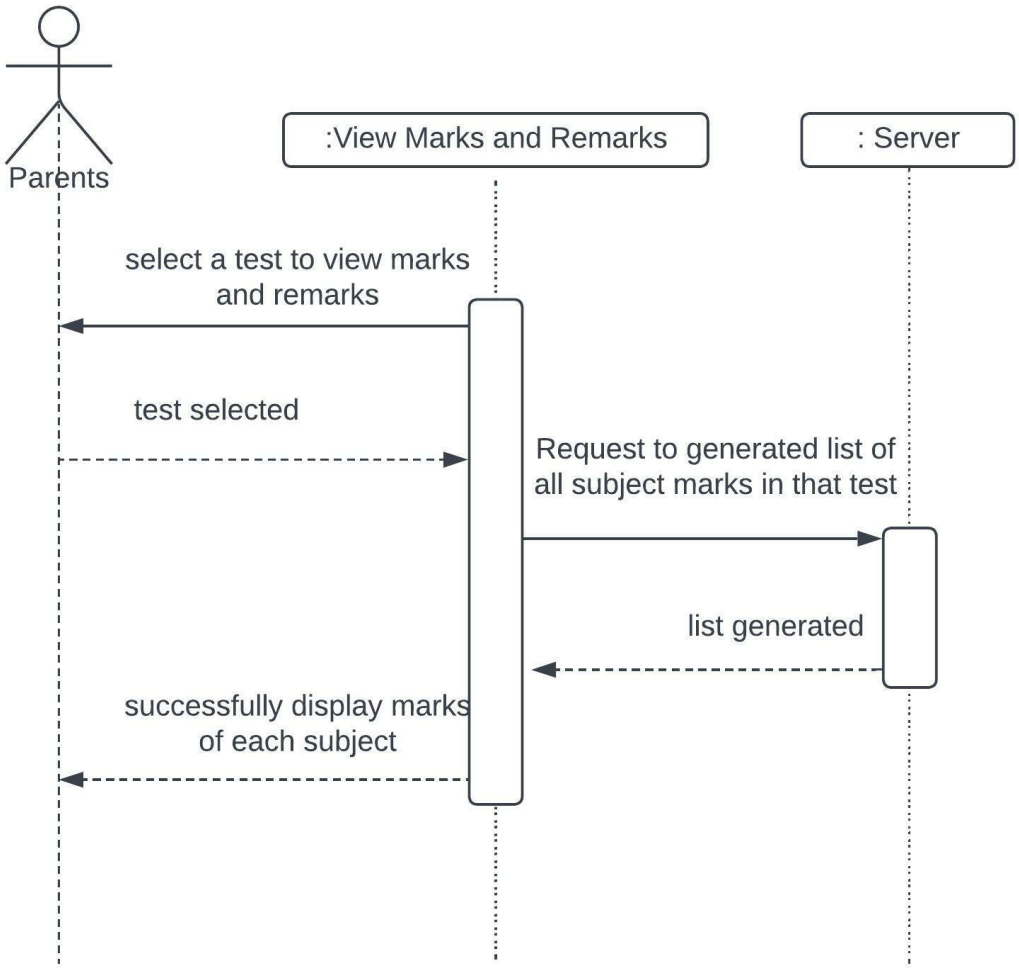
1.4.3 Login


User
Login
Server
Admin
Teacher
Parent
Enter login credentials
Details entered
Verify
If credentials are valid
If admin credentials entered
Admin logged in
else if teacher credentials entered
Teacher logged in
else
Parent logged in
else
Invalid credentials
login failed

1.4.4 Add marks and teacher’s remarks

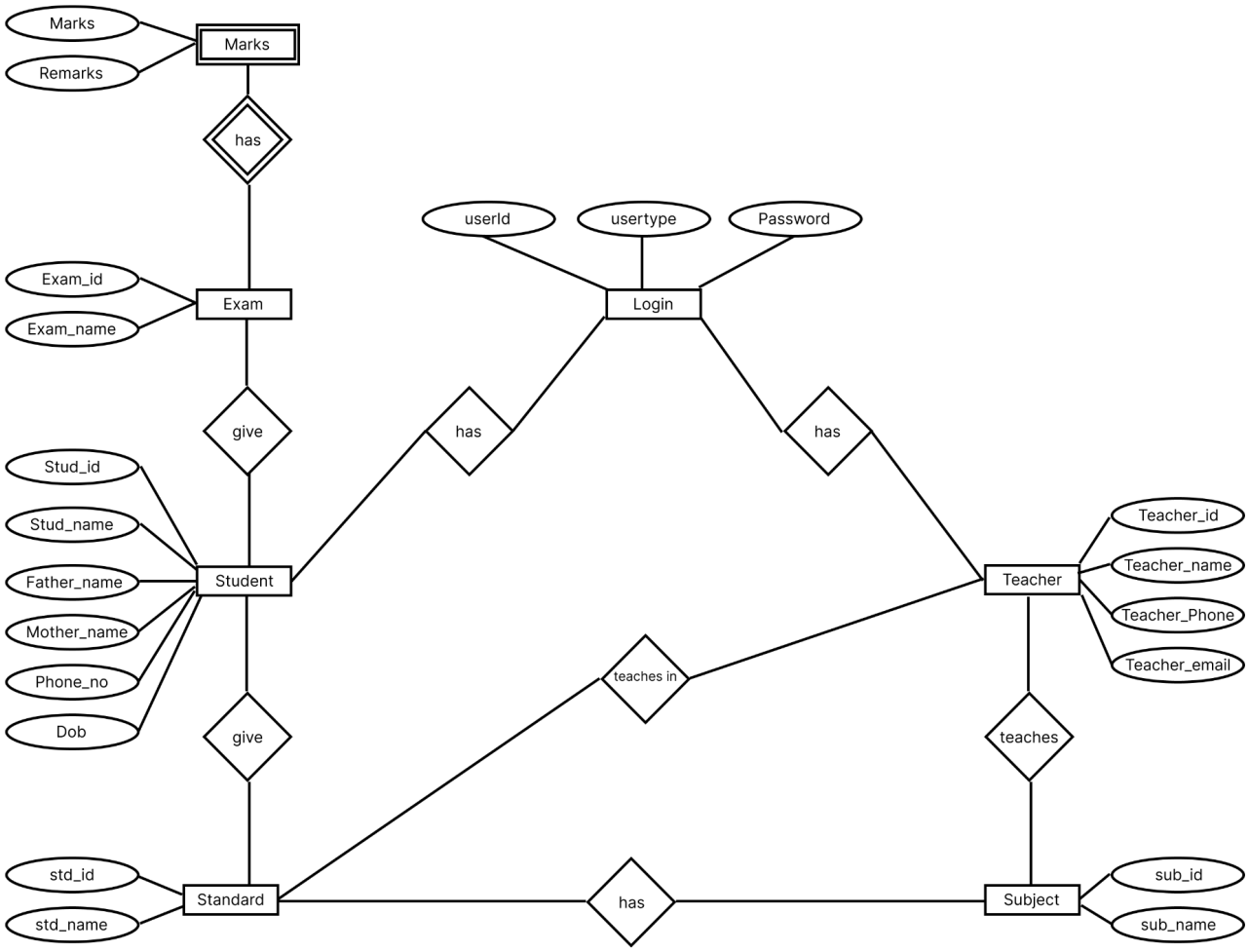


1.4.5 View marks and teacher's remarks



2. Database Design

2.1 ER Diagram

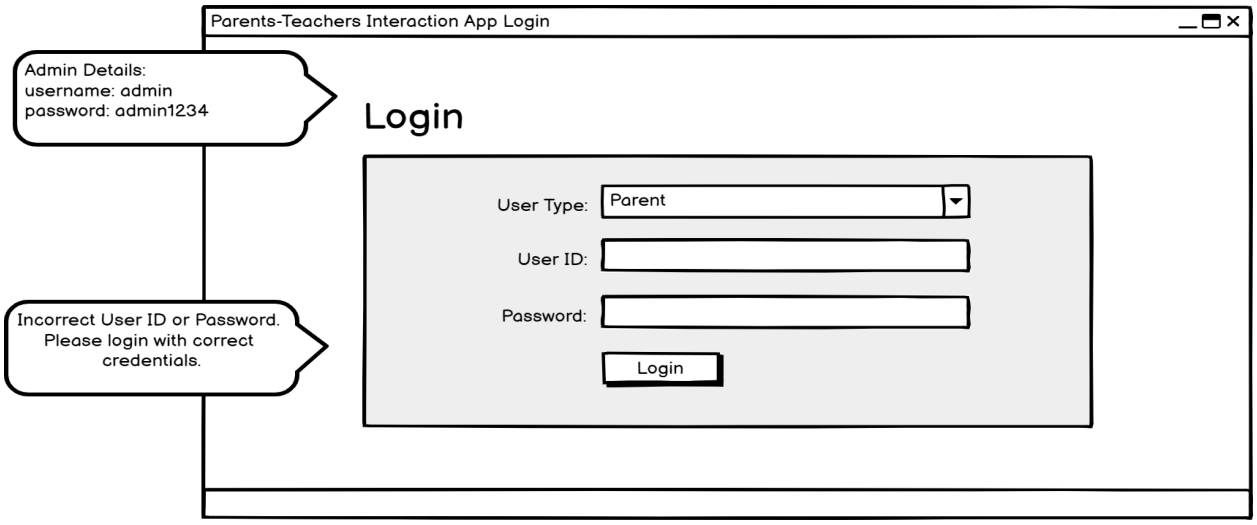


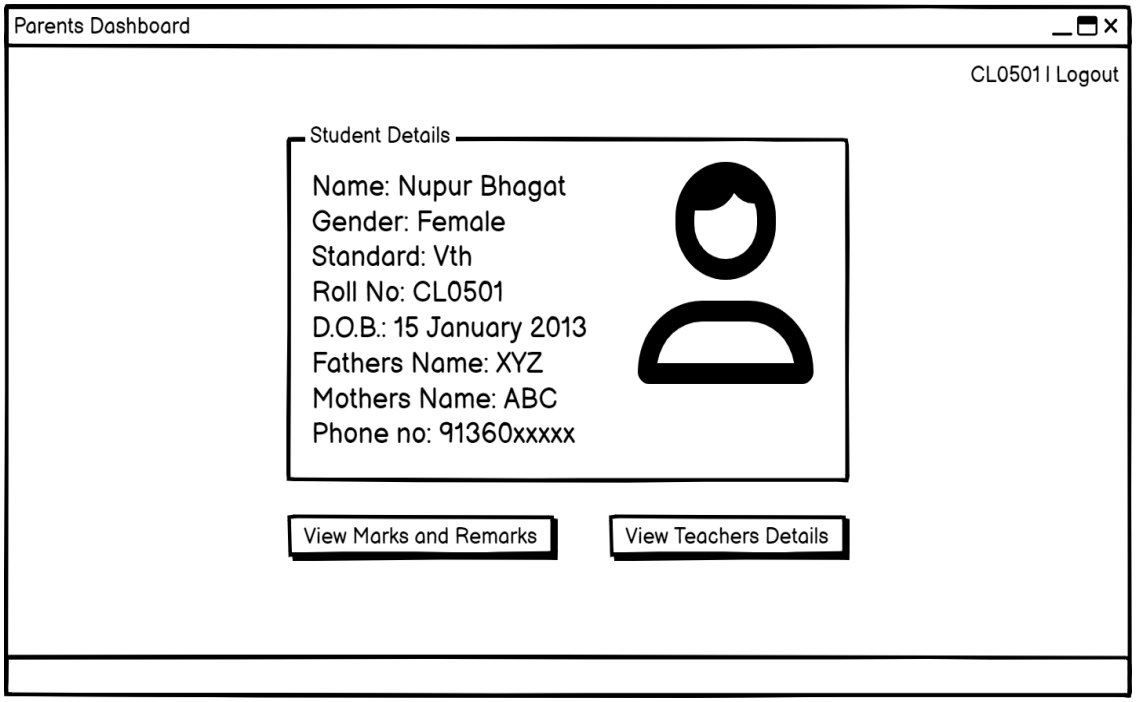
3. Implementation Plans

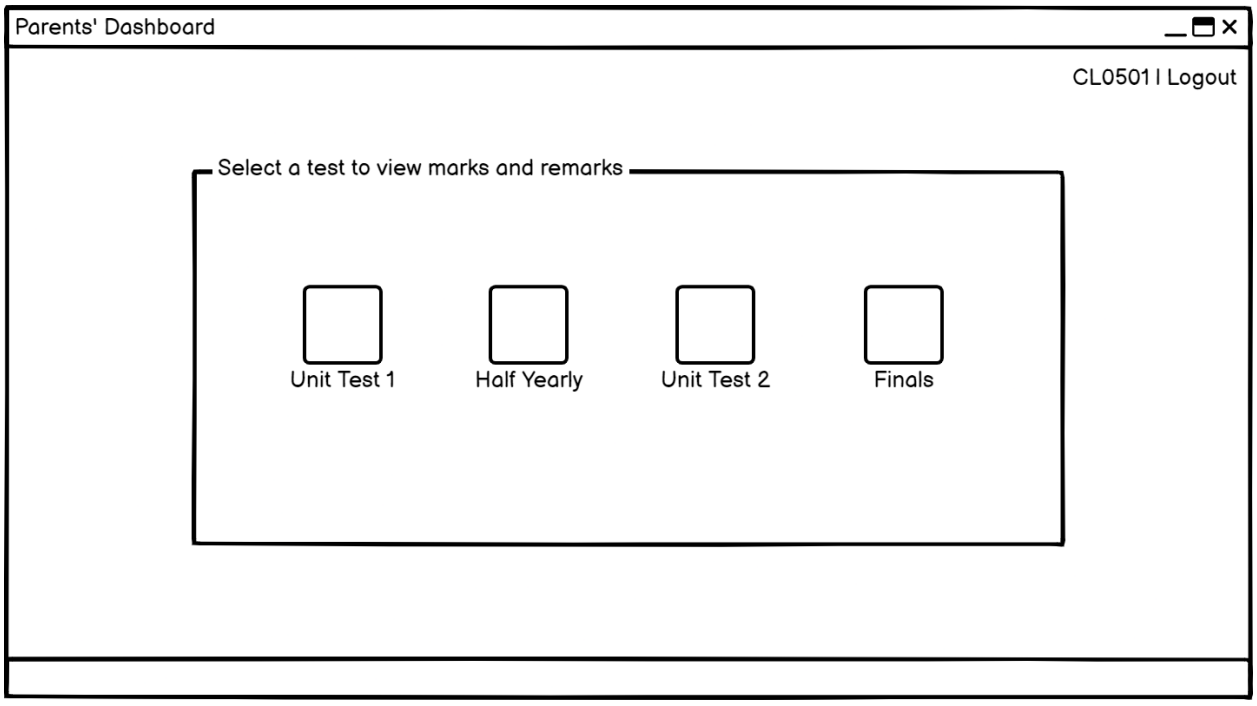
3.1 Technology Stack

This product is a desktop application. Java Swing is used for building the user interface, MySql is used for the database and JDBC driver is used to connect the user interface with the database.

3.2 User Interface Prototyping




Parents Dashboard
CL0501 I Logout
Student Details
Name: Nupur Bhagat
Gender: Female
Standard: Vth
Roll No: CL0501
D.O.B.: 15 January 2013
Fathers Name: XYZ
Mothers Name: ABC
Phone no: 91360xxxxx
View Marks and Remarks
View Teachers Details


Parents' Dashboard
CL0501 I Logout
Select a test to view marks and remarks
Unit Test 1
Half Yearly
Unit Test 2
Finals

Parents' Dashboard

CL0501 I Logout

Unit Test 1

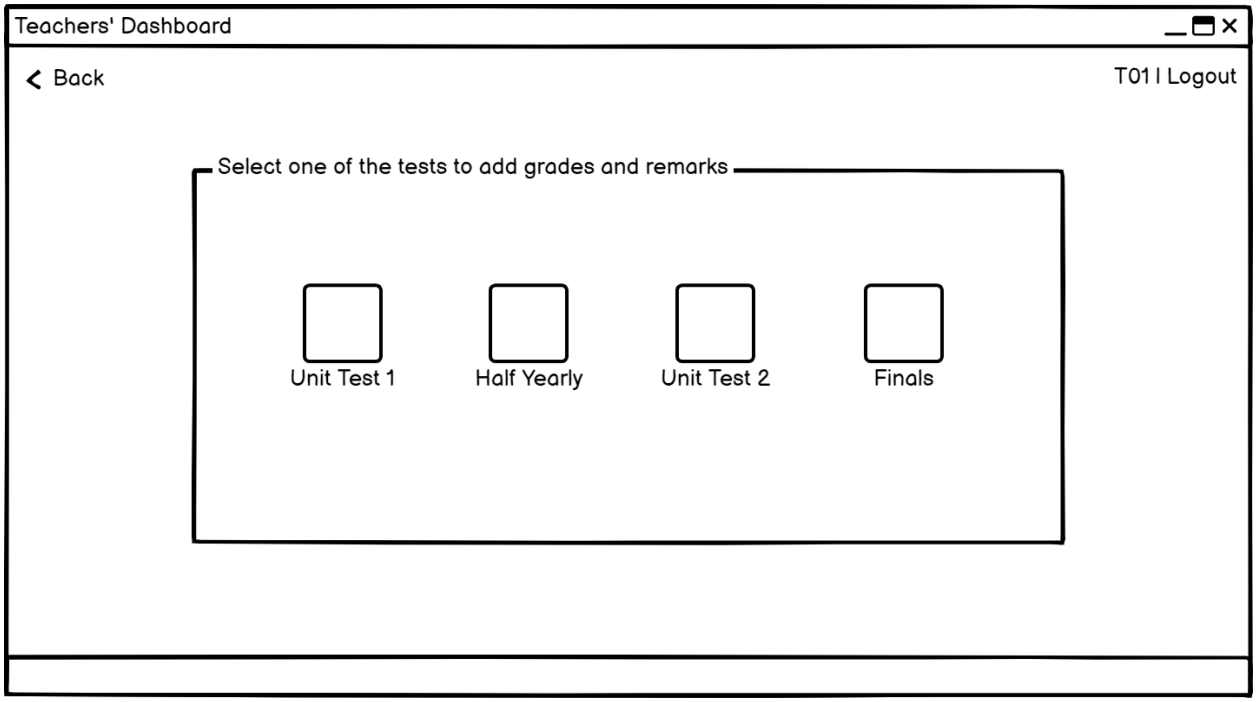
Subject Name	Faculty	Marks(50)	Remarks from Faculty
English	Seema Thakur	45	Doing well.
Hindi	Rekha	38	Unfocused in class
Maths	Nindia	18	Needs to work on algebra more
Science	Bhawna	35	Good student
Social Science	Sudha	48	Your child learns things like a parrot. I like it

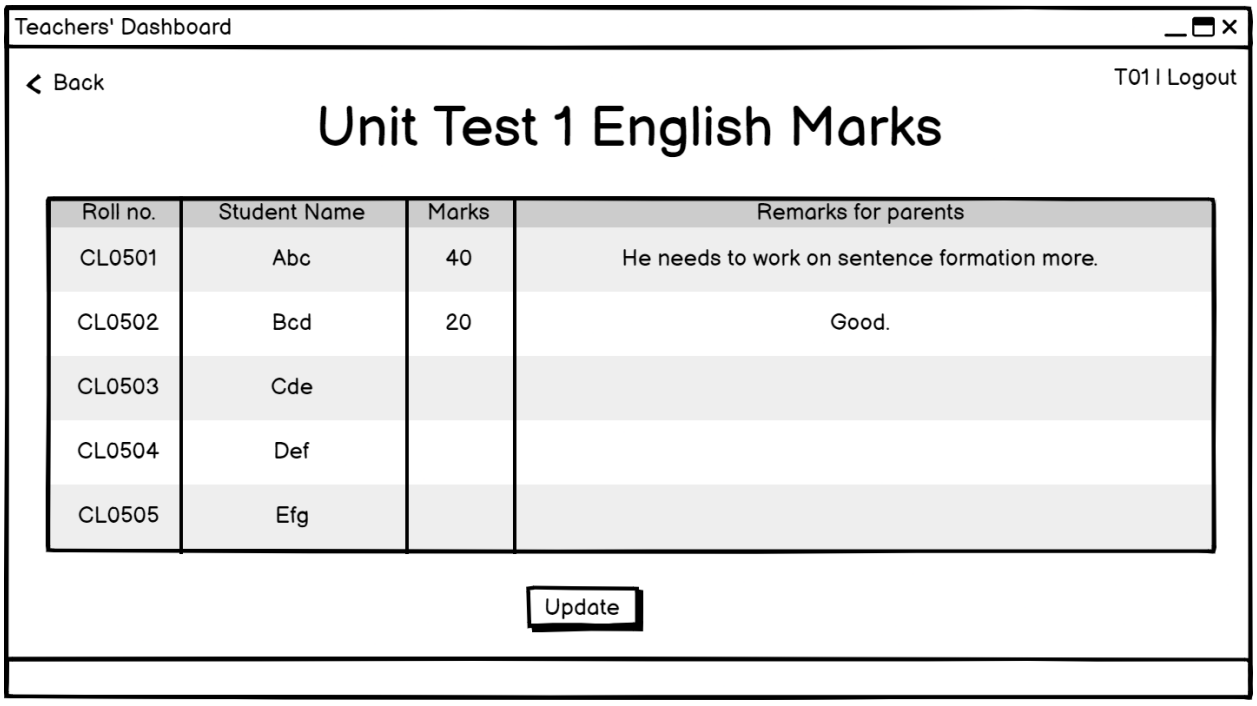
Parents' Dashboard

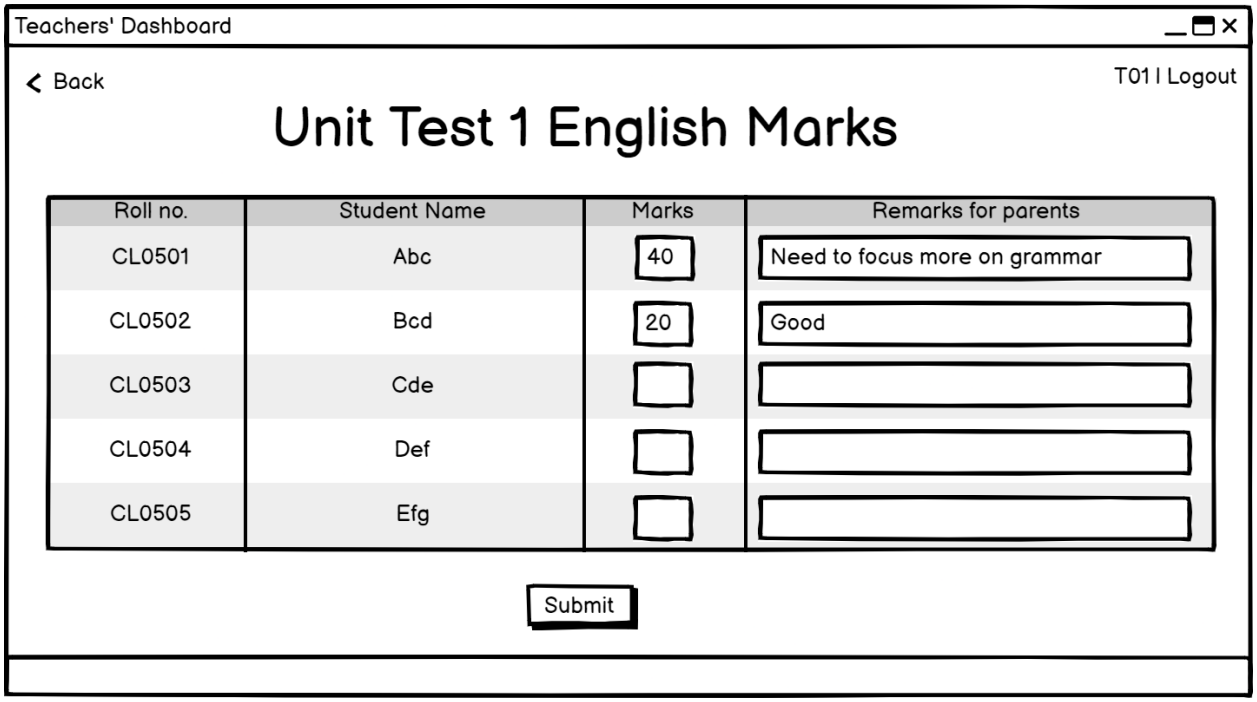
CL0501 I Logout

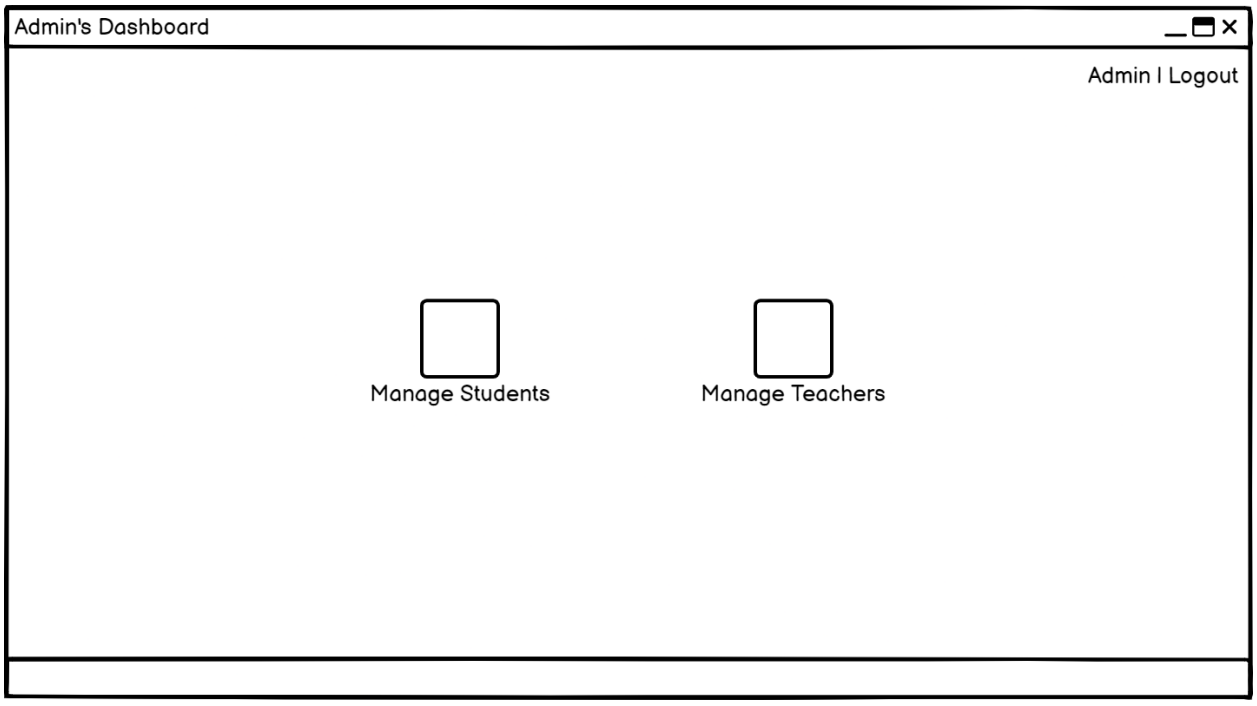
Teachers' Details

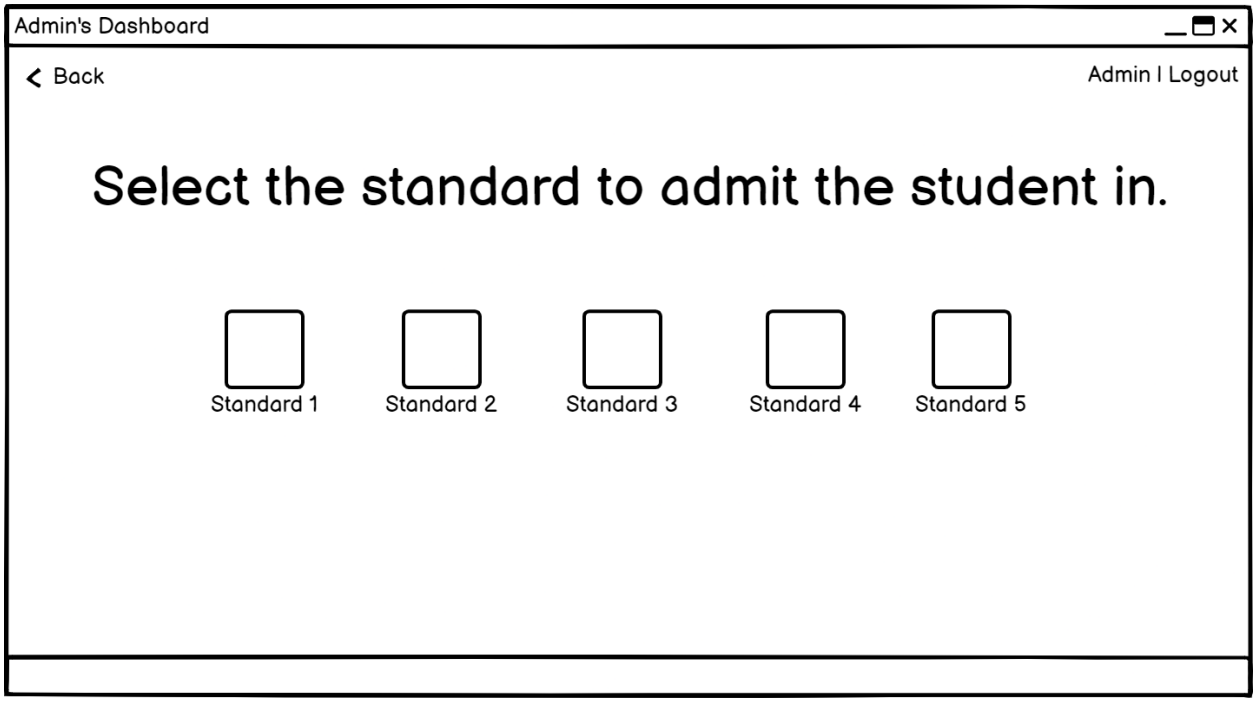
Subject Name	Faculty	Phone number	Email
English	Seema Thakur	91360xxxxx	teacherxxxx@gmail.com
Hindi	Rekha	91360xxxxx	teacherxxxx@gmail.com
Maths	Nindia	91360xxxxx	teacherxxxx@gmail.com
Science	Bhawna	91360xxxxx	teacherxxxx@gmail.com
Social Science	Sudha	91360xxxxx	teacherxxxx@gmail.com

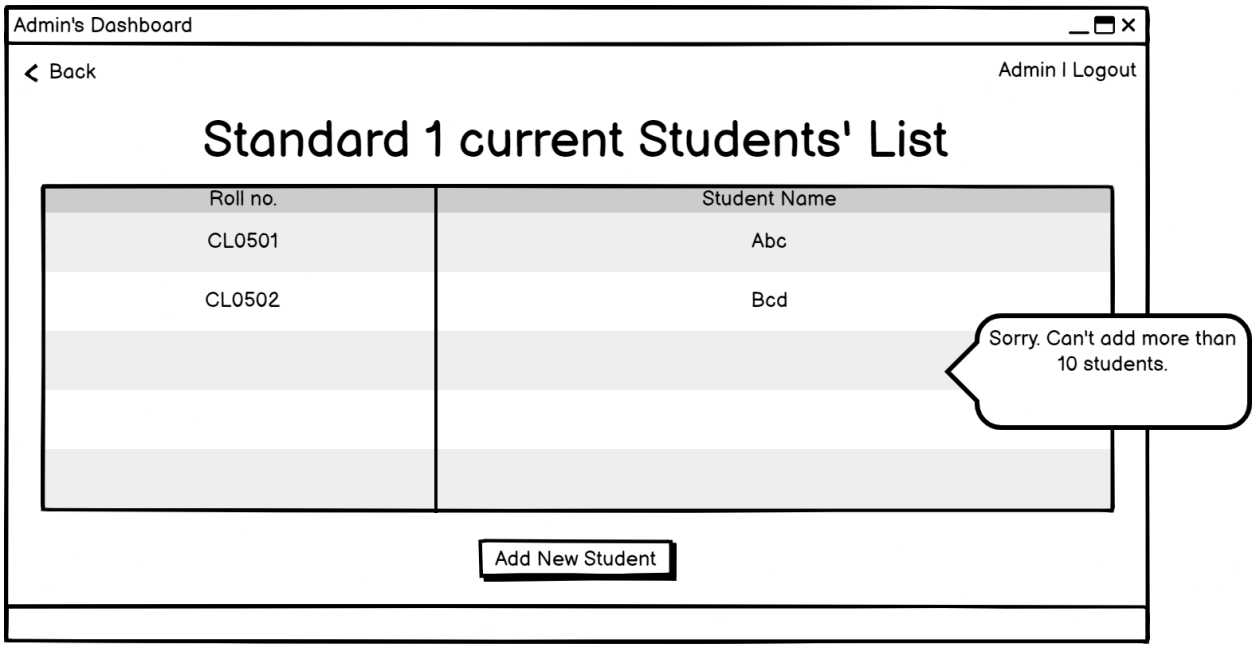

Teachers' Dashboard
Back
T01 I Logout
Select one of the tests to add grades and remarks
Unit Test 1
Half Yearly
Unit Test 2
Finals

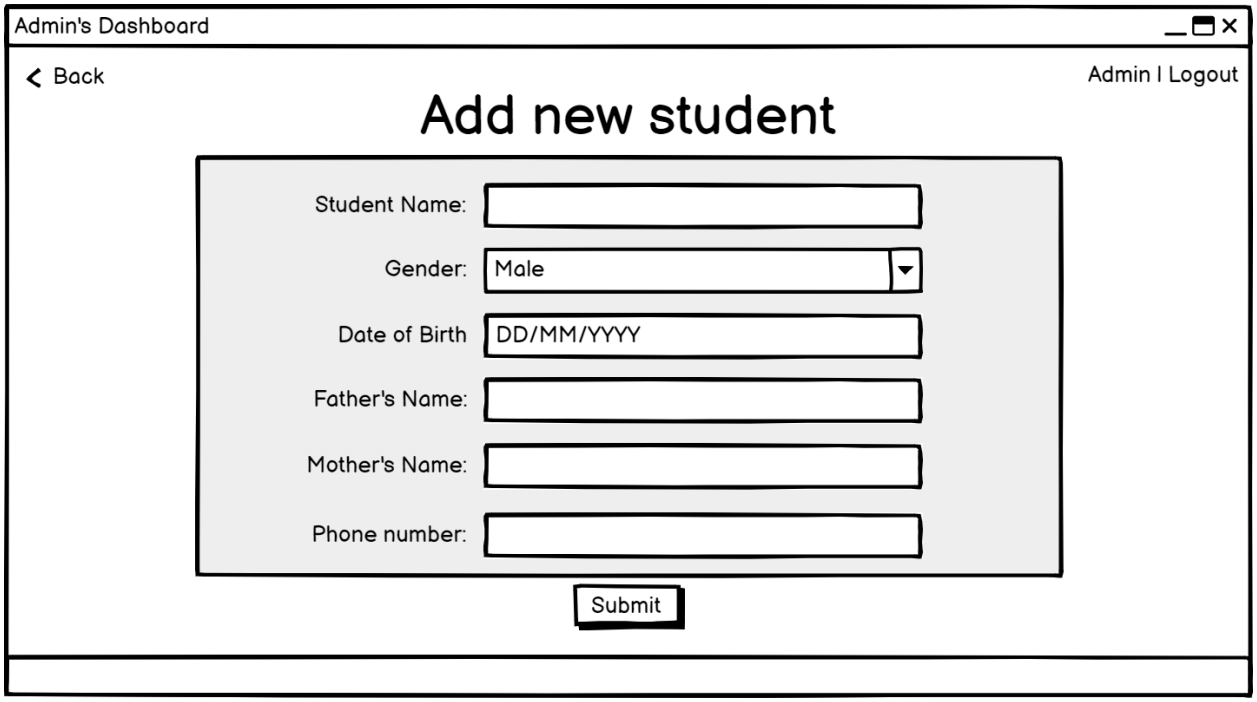

Teachers' Dashboard
Back
T01 I Logout
Unit Test 1 English Marks
Roll no.
Student Name
Marks
Remarks for parents
CL0501
Abc
40
He needs to work on sentence formation more.
CL0502
Bcd
20
Good.
CL0503
Cde
CL0504
Def
CL0505
Efg
Update

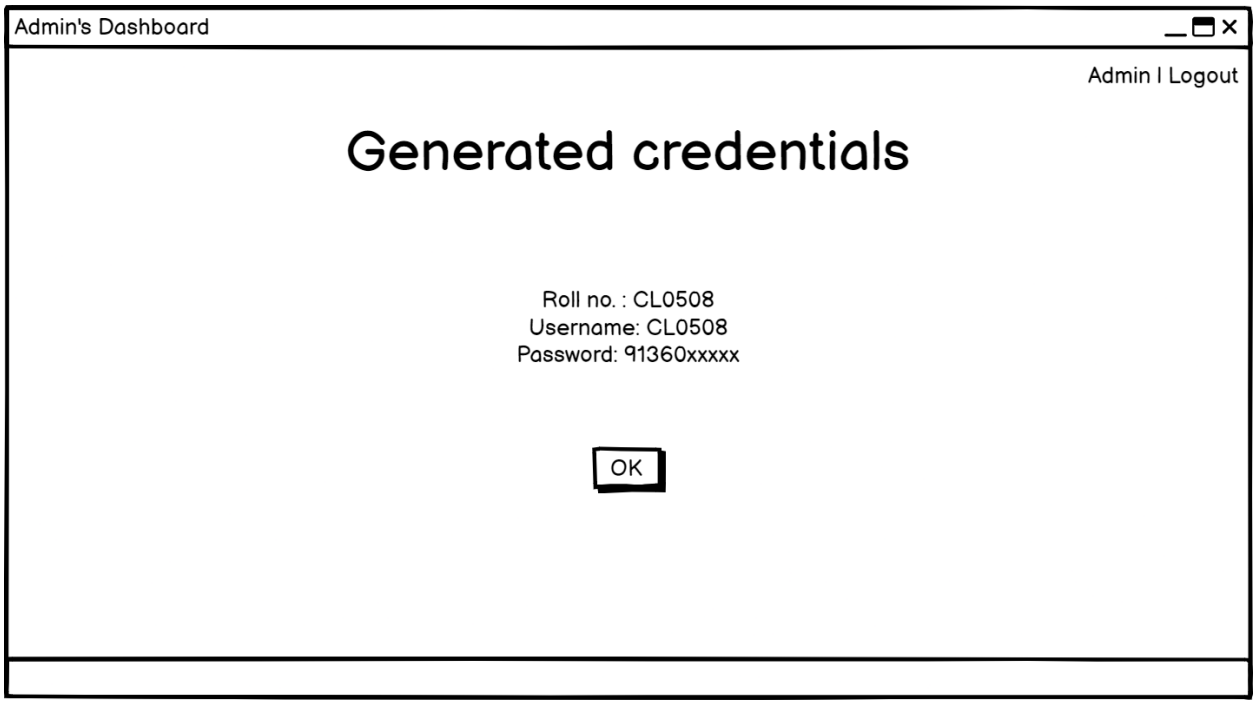

Teachers' Dashboard
Back
T01 I Logout
Unit Test 1 English Marks
Roll no.
Student Name
Marks
Remarks for parents
CL0501
Abc
40
Need to focus more on grammar
CL0502
Bcd
20
Good
CL0503
Cde
CL0504
Def
CL0505
Efg
Submit

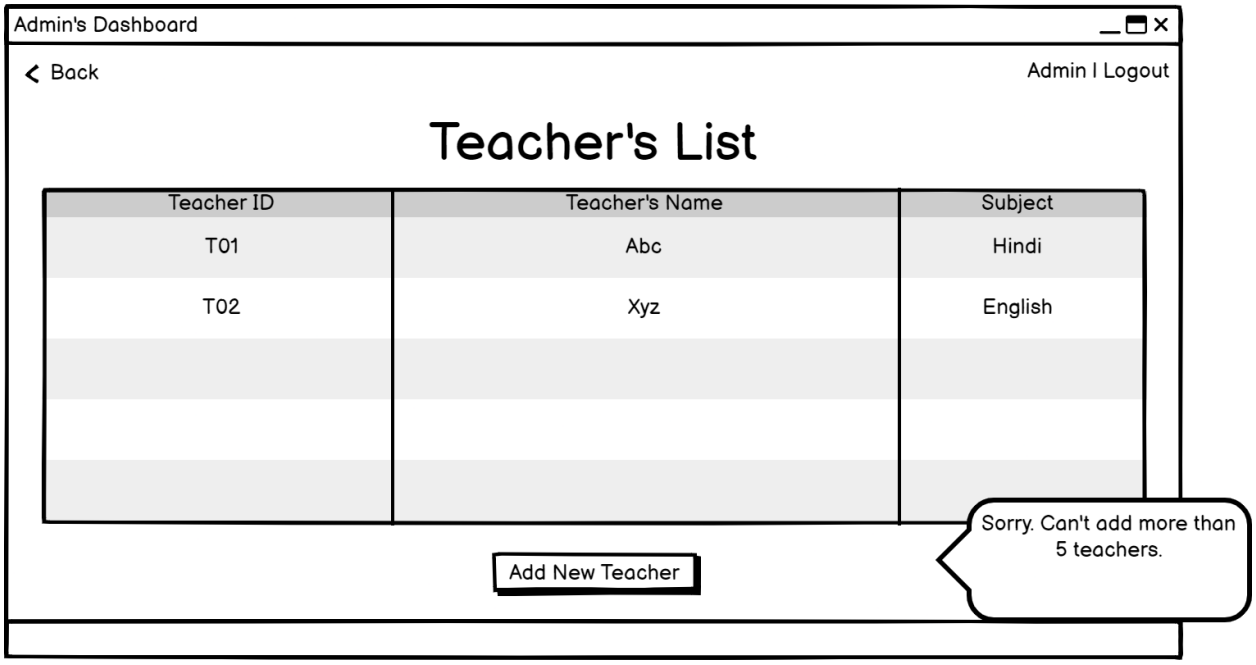

Admin's Dashboard
Admin I Logout
Manage Students
Manage Teachers

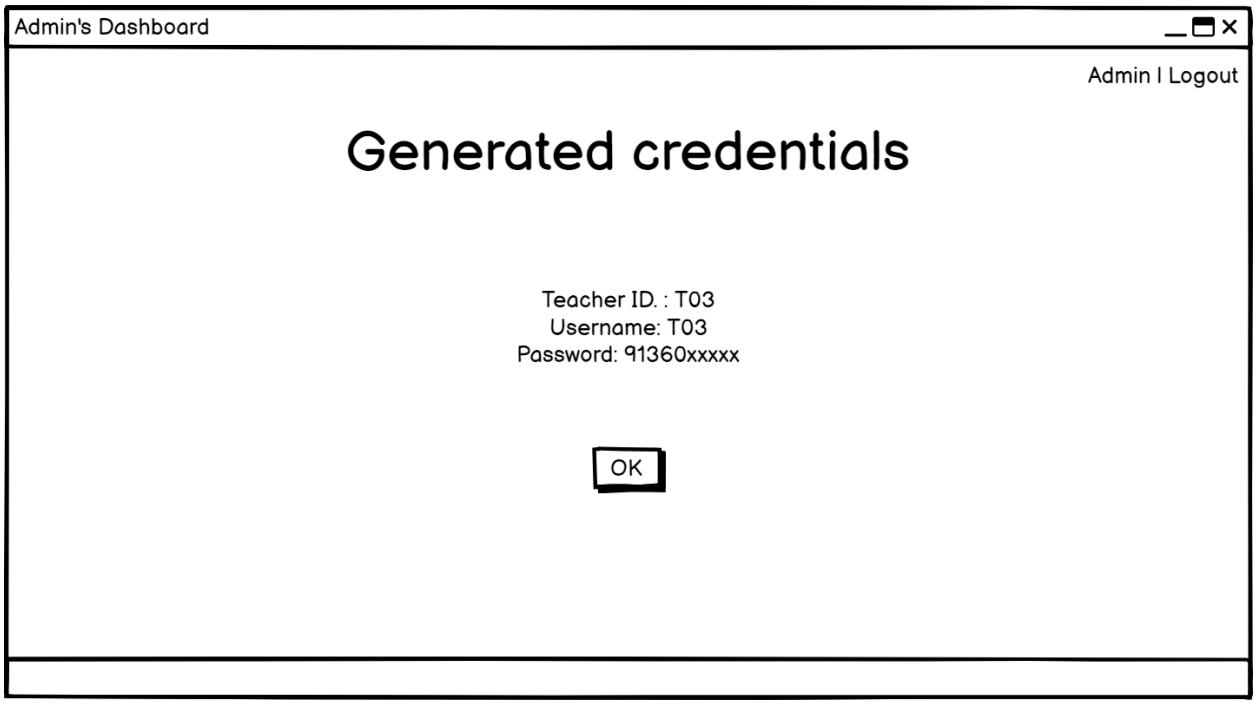

Admin's Dashboard
Back
Admin I Logout
Select the standard to admit the student in.
Standard 1
Standard 2
Standard 3
Standard 4
Standard 5


Admin's Dashboard
Back
Admin I Logout
Standard 1 current Students' List
Roll no.
Student Name
CL0501
Abc
CL0502
Bcd
Sorry. Can't add more than 10 students.
Add New Student


Admin's Dashboard
Back
Admin I Logout
Add new student
Student Name:
Gender:
Male
Date of Birth
DD/MM/YYYY
Father's Name:
Mother's Name:
Phone number:
Submit


Admin's Dashboard
Admin I Logout
Generated credentials
Roll no. : CL0508
Username: CL0508
Password: 91360xxxxx
OK


Admin's Dashboard
Back
Admin I Logout
Teacher's List
Teacher ID
Teacher's Name
Subject
T01
Abc
Hindi
T02
Xyz
English
Add New Teacher
Sorry. Can't add more than 5 teachers.


Admin's Dashboard
Admin I Logout
Generated credentials
Teacher ID. : T03
Username: T03
Password: 91360xxxxx
OK

4. Test Cases

4.1 Test Case #1 (T1)

Author: Nupur Bhagat

Test Condition: Check response when valid user id and password is entered.

Pre Condition: User must have the credentials.

Test Steps:
1. Open the homePage of the application.
2. Select the User type.
3. Enter the user id and password.
4. Click on the Login button.

Test Data:
User Type: Admin
User Id : admin
Password: admin123

Expected Result: Login should be successful.

Post Condition: User redirected to their dashboard.

4.2 Test Case #2 (T2)

Author: Nupur Bhagat

Test Condition: Check response when invalid user id and password is entered.

Pre Condition: Must have the credentials to login.

Test Steps:
1. Open the homePage of the application.
2. Select the user type.
3. Enter the user id and password.
4. Click on the login button.

Test Data:
User Type: Admin
User Id : admin
Password: admin123@

Expected Result: Incorrect user id or password. Please login with correct credentials.

Post Condition: An invalid credentials alert will be displayed.

4.3 Test Case #3 (T3)

Author: Komal Gupta

Test Condition: Add a teacher.

Pre Condition: Admin must be logged in.

Test Steps:
1. Click on the Manage teacher.
2. Teachers list will be displayed.
3. Click on the Add New teacher.
4. Enter all the teacher's details.
5. Click on the Submit button.
6. Login credentials of the new teacher generated and click on OK.

Test Data:
Name: Sudha
Subject : Social Science
Gender: Female
DOB: 23/04/1988
Phone No: 9878837324
Email: sudha12@gmail.com

Expected Result: Login credentials of new teacher generated.

Post Condition: New teacher successfully added. Teachers list is updated.

4.4 Test Case #4 (T4)

Author: Komal Gupta

Test Condition: Add a teacher(already added 5 teachers).

Pre Condition: Admin must be logged in.

Test Steps:
1. Click on the Manage Teacher.
2. Teachers list will be displayed.
3. Click on the Add New teacher.

Expected Result: No more teachers will be added.

Post Condition: Alert message(Sorry can't add more than 5 teachers) will be displayed.

4.5 Test Case #5 (T5)

Author: Komal Gupta

Test Condition: Add a Student.

Pre Condition: Admin must be logged in.

Test Steps:
1. Click on the manage Student.
2. Select the standard to admit the student in.
3. Current student list of that standard displayed.
4. Click on the Add New Student.
5. Enter all the Student's details.
6. Click on the Submit button.
7. Login credentials of the new Student generated and click on OK.

Test Data:
Name: Nupur Bhagat
Father's Name : Rahul Bahgat
Mother's Name : Piya Bhagat
Gender: Female
DOB: 23/04/2013
Phone No : 9878837343

Expected Result: Login credentials of new student generated.

Post Condition: New teacher successfully added. Student list is updated.

4.6 Test Case #6 (T6)

Author: Komal Gupta

Test Condition: Add a Student(already 10 students are present in that standard).

Pre Condition: Admin must be logged in.

Test Steps:

1. Click on the manage Student.
2. Select the standard to admit the student in.
3. Current student list of that standard displayed.
4. Click on the Add New Student.

Expected Result: No more students will be added.

Post Condition: Alert message(Sorry can't add more than 10 students) will be displayed.

4.7 Test Case #7 (T7)

Author: Deepak Yadav

Test Condition: Add grades of student.

Pre Condition: Teacher must be logged in.

Test Steps:

1. Select one of the Standard.
2. Select the type of test.
3. Current student's grades list of that test will be displayed.
4. Click on the Update.
5. Enter the Student's test marks and remarks.
6. Click on the Submit button.

Test Data:
Marks: 40
Remarks: Needed to focus more on grammar.

Expected Result: Added the student's grades and remarks.

Post Condition: Updated the student's grades and remarks list.

4.8 Test Case #8 (T8)

Author: Deepak Yadav

Test Condition: View Student's Performance.

Pre Condition: Parents must be logged in.

Test Steps:

1. Select view grades and remarks.
2. Select the type of test.
3. Current student's grades and remarks list of that test will be displayed.
4. Student's grades and remarks list of all subjects will be displayed.

Expected Result: Student's grades and remarks will be displayed.

Post Condition: Parents check their child's grades in each subject.

4.9 Test Case #9 (T9)

Author: Deepak Yadav

Test Condition: View Student's teachers' details.

Pre Condition: Parents must be logged in.

Test Steps:

1. Select view teachers details.
2. Detailed list of all teachers displayed.

Expected Result: All details of the teacher with respect to their subject will be displayed.

Post Condition: Parents can view the teachers of each subject.

References

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