Students Performance Prediction In Online Courses

Submitted By

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Abstract

The student success rate in an online course can be related to their performance at the previous session in addition to the level of engagement. Insufficient attention has been paid by literature to evaluate whether student performance and engagement in the prior assessments could affect student achievement in the next assessments. In this project, two predictive models have been designed namely students' assessments grades and final students' performance. The models can be used to detect the factors that influence students' learning achievement in MOOCs. Regression analysis is implemented for estimation of students' assessment scores. The student past and current activities in addition to past performance are employed to predict student outcome. Supervised machine learning method has been utilized to predict long-term student performance.

Literature Survey

In this study, we performed a systematic literature review of student performance prediction studies in three different databases between 2010 and 2020. The results are presented as percentages by categorizing them as either model, dataset, validation, evaluation, or aims. The common points and differences in the studies are determined, and critical gaps and possible remedies are presented. The results and identified gaps could be eliminated with standardized evaluation and validation strategies. It is determined that student performance prediction studies should be more frequently focused on deep learning models in the future. Finally, the problems that can be solved using a global dataset created by a global education information consortium, as well as its advantages, are presented.

Existing System

Now the predictions are done manually. The details are collected from the students manually through various processes and the performance rate of the student will be predicted by the corresponding authority that needs a lot of time and effort.

Disadvantages

- Takes lot of effort
- Time consuming
- Result can be inaccurate

Proposed System

The proposed system handles with the student individual mark that include 10th, 12th mark and there semester mark. The prediction of the system has the following task:

Case 1: The student who have secured below 50 percentage in their 10th and 12th .

Case 2: The student who have failed in internal.

Case 3: The student having less attendance percentage / irregular.

On the above three cases if any one is achieved, then the student may not complete his/her degree successfully. By this scenario the system has been implemented.

Advantages

- Gives accurate result
- Takes only less time to predict the result
- No manual predictions are needed

STUDENTS PERFORMANCE PREDICTION USING MACHINE LEARNING

MODULE DESCRIPTION

In this project, there are 4 modules as following

i. Admin
ii. HOD
iii. Teacher
iv. Student

ADMIN

Here the admin verifies the student profiles and manages the HOD registration processes. Admin first login to the system using their username and password. If it is invalid then an error message is shown. After login, the admin can view the request to add HOD at the time of registration. Then the admin adds HOD details after the verification. Admin can view the details of teachers and students.

HOD

The HOD can register themselves with their personal information such as name, department, email id etc. HOD can login to the system using their username and password. If it is invalid, then an error message will be displayed. HOD can view student details, can verify the details of teacher. HOD can assign the assignments for the students.

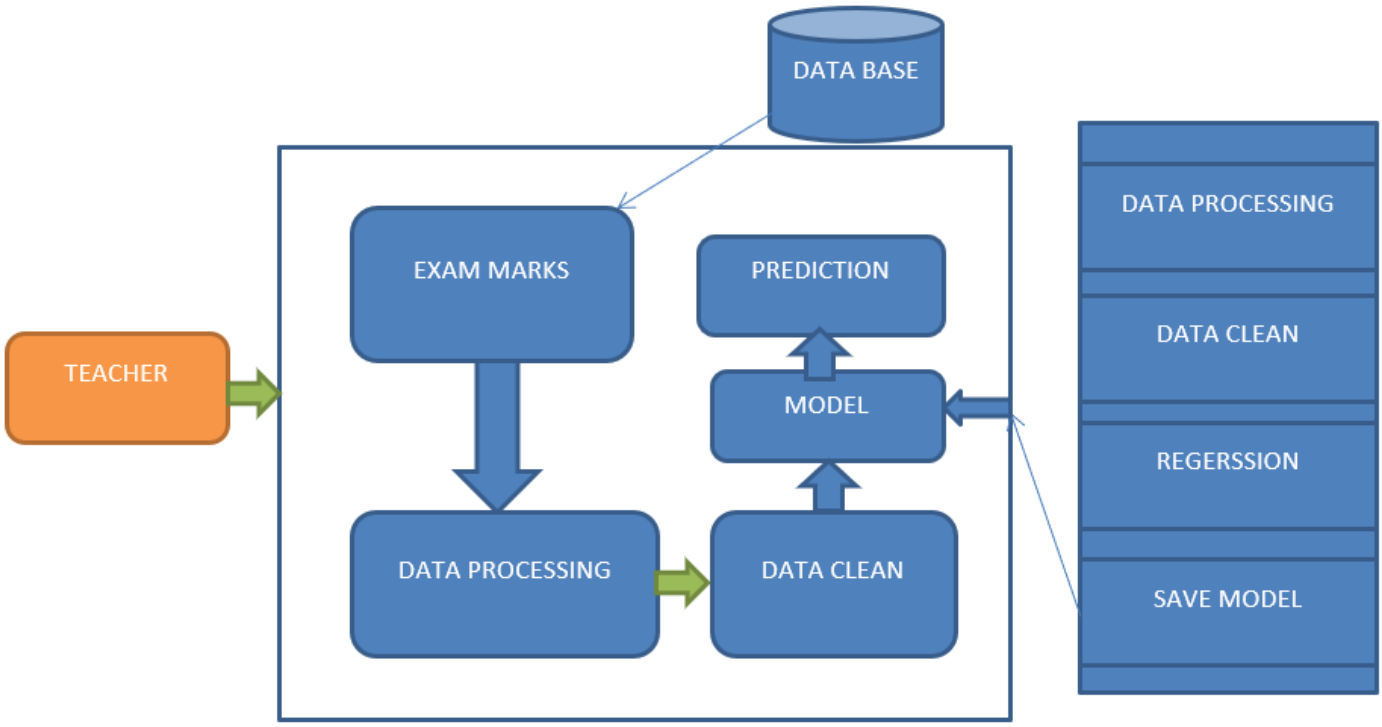
TEACHER

Teachers can register themselves with their personal information such as name, department, emailed etc. Teacher can login to the system using their username and password. If it is invalid, then an error message will be displayed. Otherwise, teacher can view the student details, they can upload study materials, question papers and notes. They can also send class link and they can view the predictions about student’s performance. They can also view the assignments submitted by the students.

STUDENTS

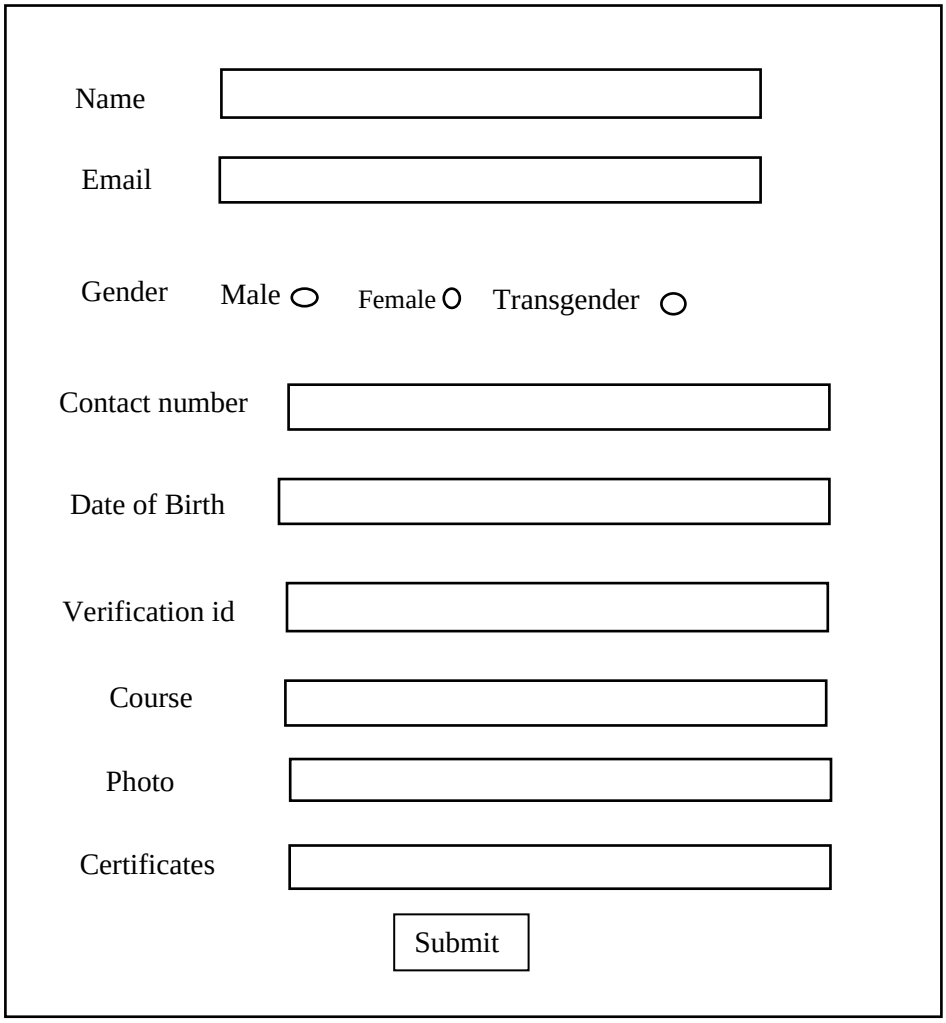
Students can register themselves with their personal information such as name, department, emailed etc. Teacher can login to the system using their username and password. If it is invalid, then an error message will be displayed. Students can attend class using the class link send by the teacher. Students can upload the assignments and can view the notes uploaded by the teacher. They can also send emails to teachers.

SYSTEM ARCHITECTURE

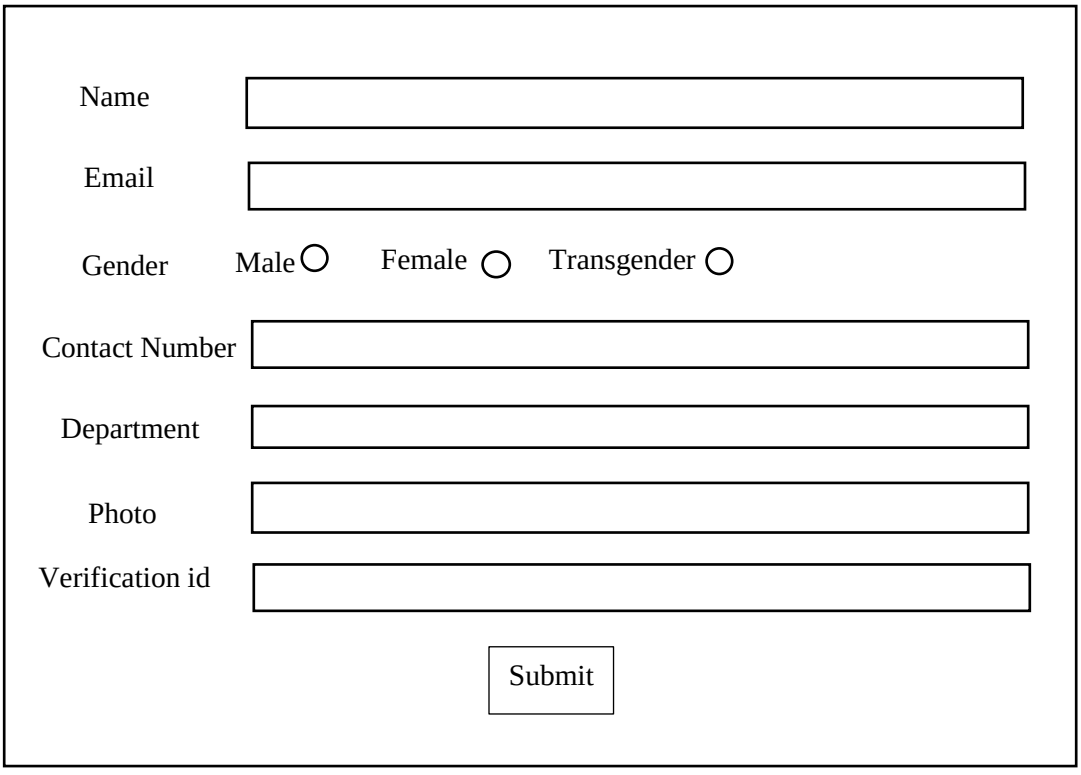


FORM DESIGN

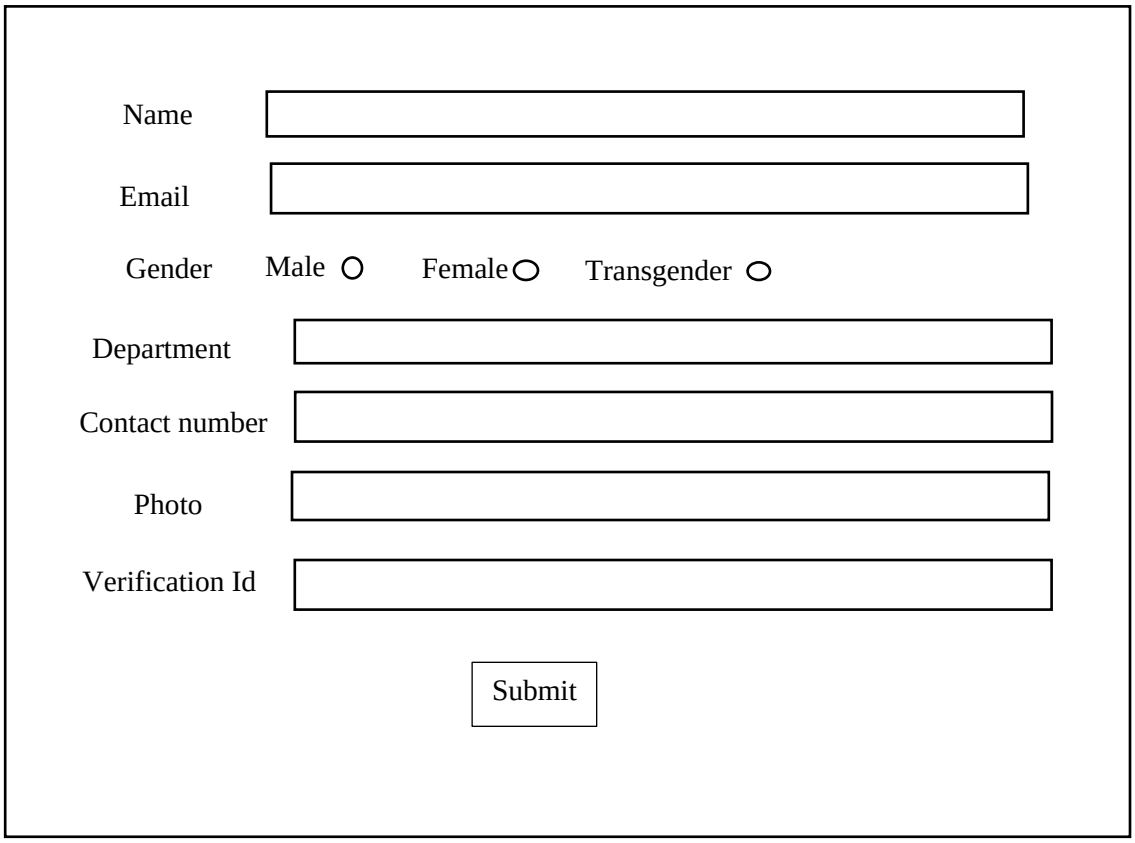
STUDENT REGISTRATION



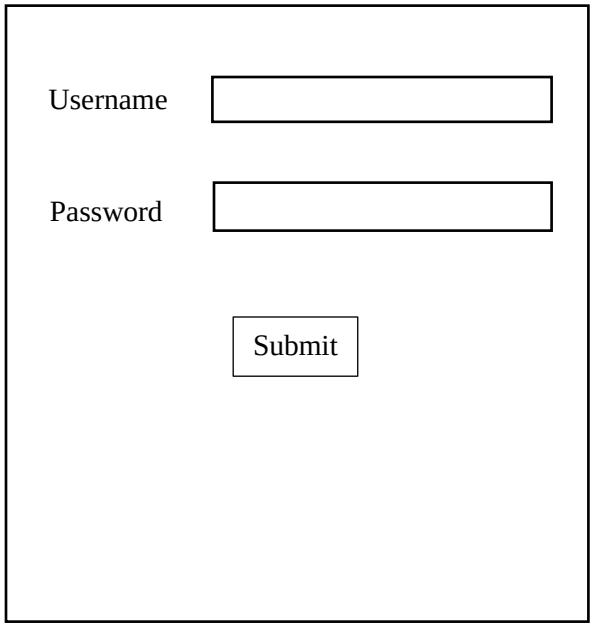
TEACHER REGISTRATION



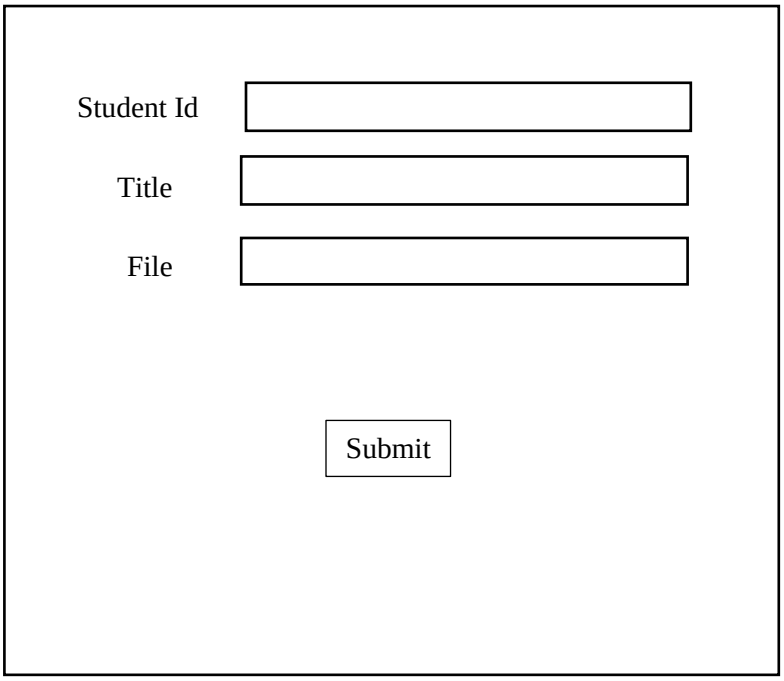
HOD REGISTRATION



LOGIN



ASSIGNMENT



NOTES

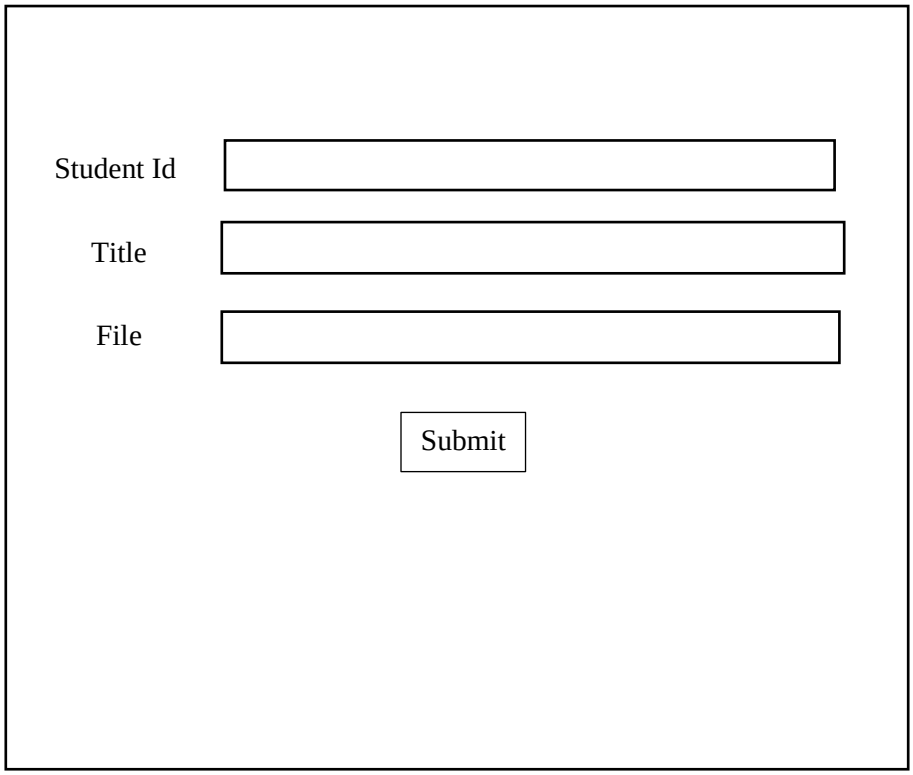


TABLE DESIGN

Student table

Name	Type	Description
Id	Int	Id number
Username	Varchar	Username
Password	Varchar	Password
Course	Varchar	Course name
Gender	Varchar	Gender
DOB	Varchar	Date of birth
Name	Varchar	Student name
Email	Varchar	Email id
Contact	Varchar	Contact number
Upload	Varchar	Student photo
Ver_id	Varchar	Verification id
Certificate	Varchar	certifications

HOD

Name	Type	Description
Id	Int	Id
Username	Varchar	Username
Password	Varchar	Password
Name	Varchar	Name
Email	Varchar	Email id
Contact	Varchar	Contact number
Dep	Varchar	Department
upload	Varchar	Photo upload
Ver_id	Varchar	Verification id

Admin table

Name	Type	Description
Id	Int	Id
Username	Varchar	Username
Password	Varchar	Password

Teacher table

Name	Type	Description
Id	Int	Id
Username	Varchar	Username
Password	Varchar	Password
Name	Varchar	Name
Contact	Varchar	Contact number
Upload	Varchar	Photo upload
Email	Varchar	Email id
Dep	Varchar	Department
Ver_id	Varchar	Verification id

Assignment

Name	Type	Description
Id	Int	Id number
Studid	Varchar	Student id
Title	Varchar	Title name
File	Varchar	File path name

Notes

Name	Type	Description
Id	Int	Id number
Studid	Varchar	Student id
Title	Varchar	Title name
File	Varchar	File path name

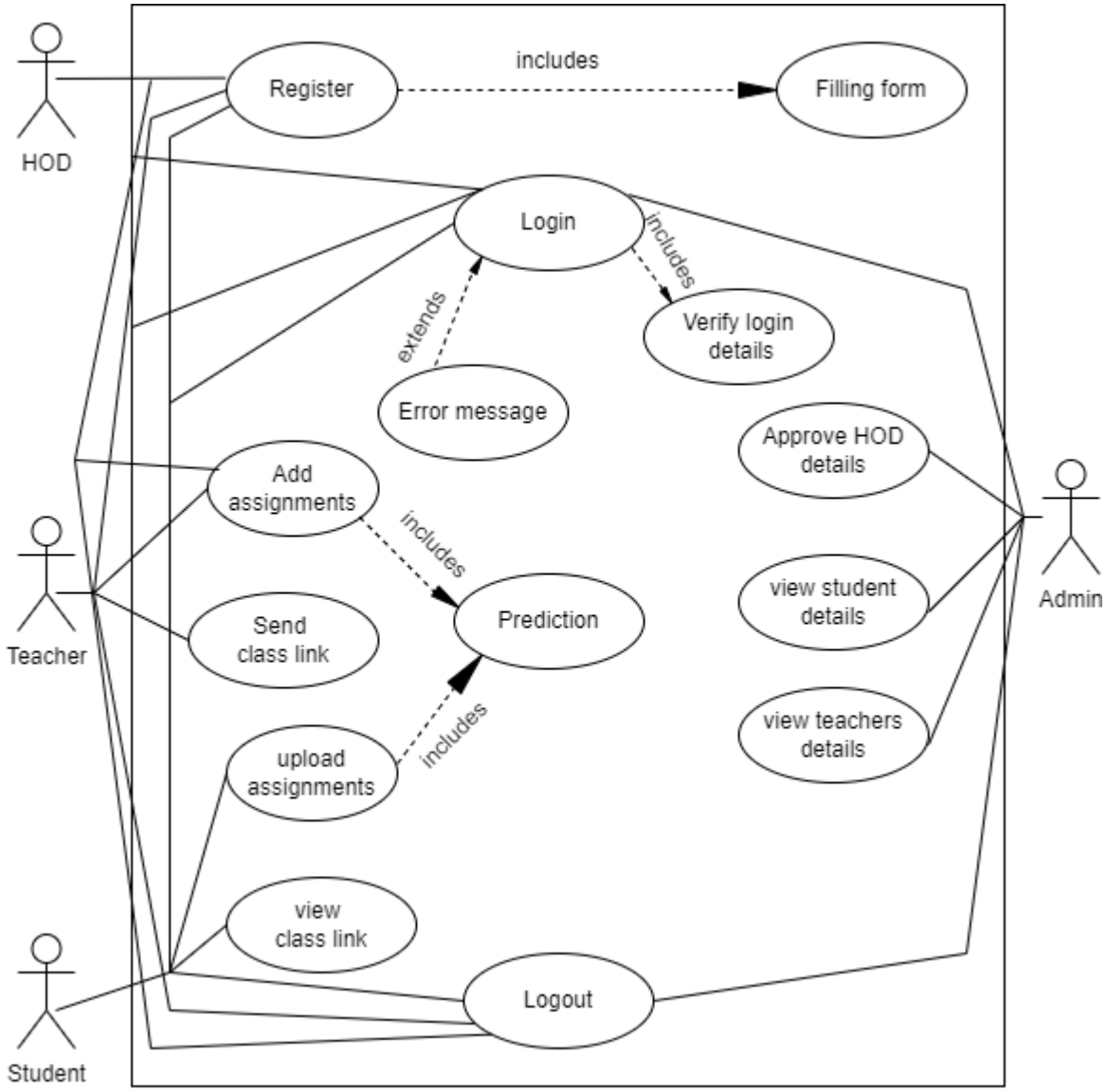
Prediction table

Name	Type	Description
Id	Int	Id number
Studid	Varchar	Student id
Prediction	Varchar	Prediction
Date	Varchar	Date

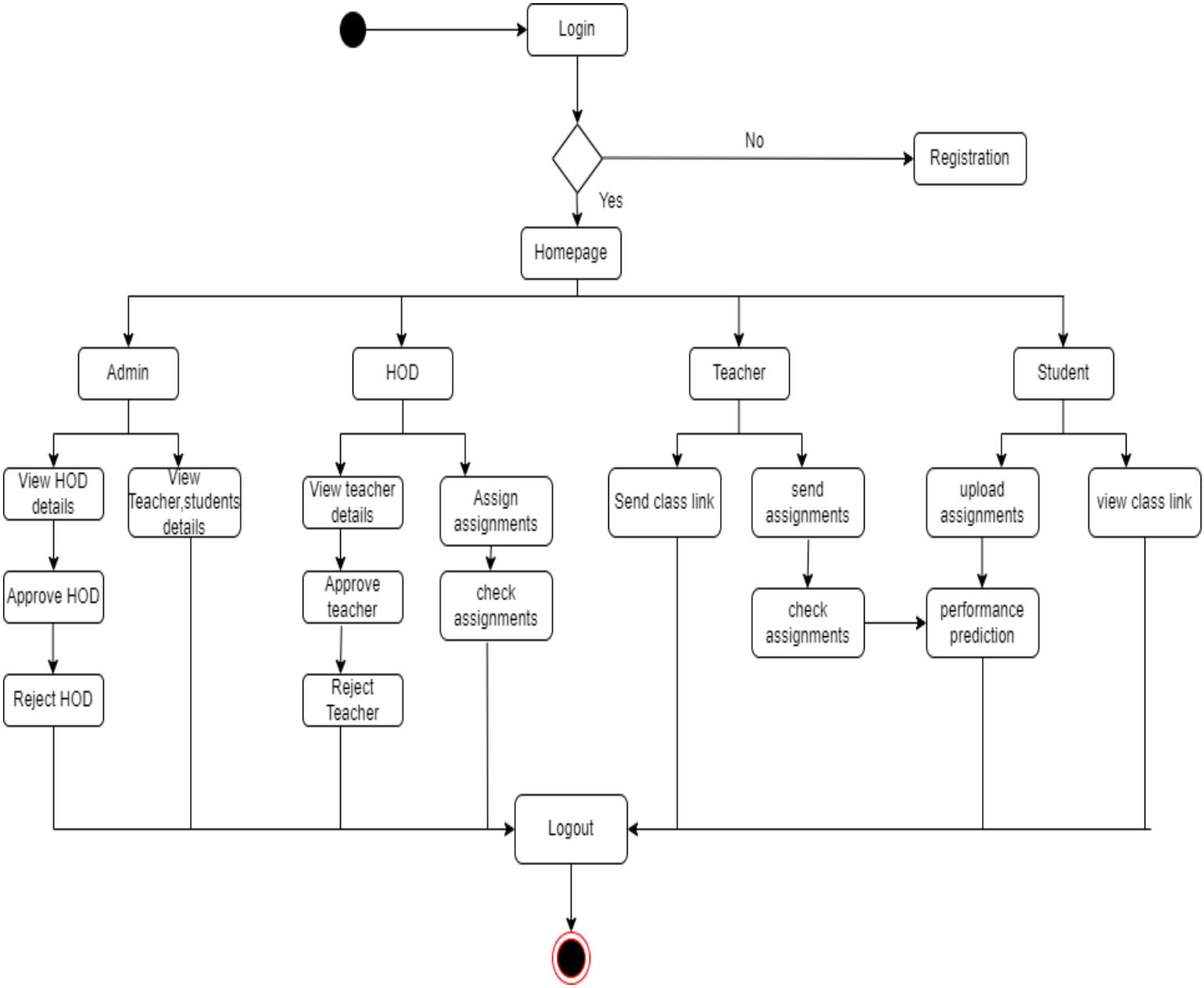
STUDENT PERFORMANCE PREDICTION USING MACHINE LEARNING

UML DIAGRAMS

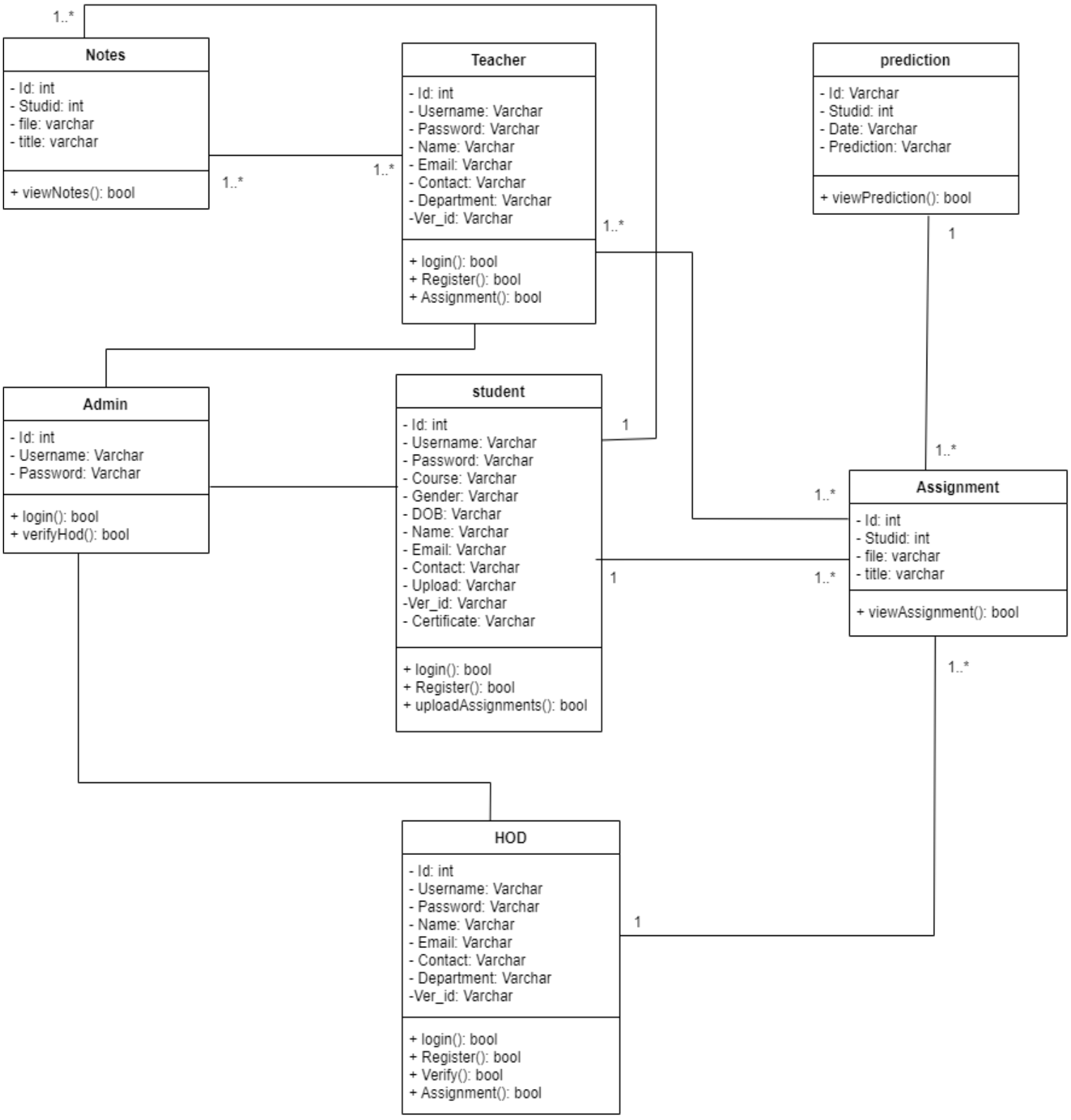
USECASE DIAGRAM



ACTIVITY DIAGRAM



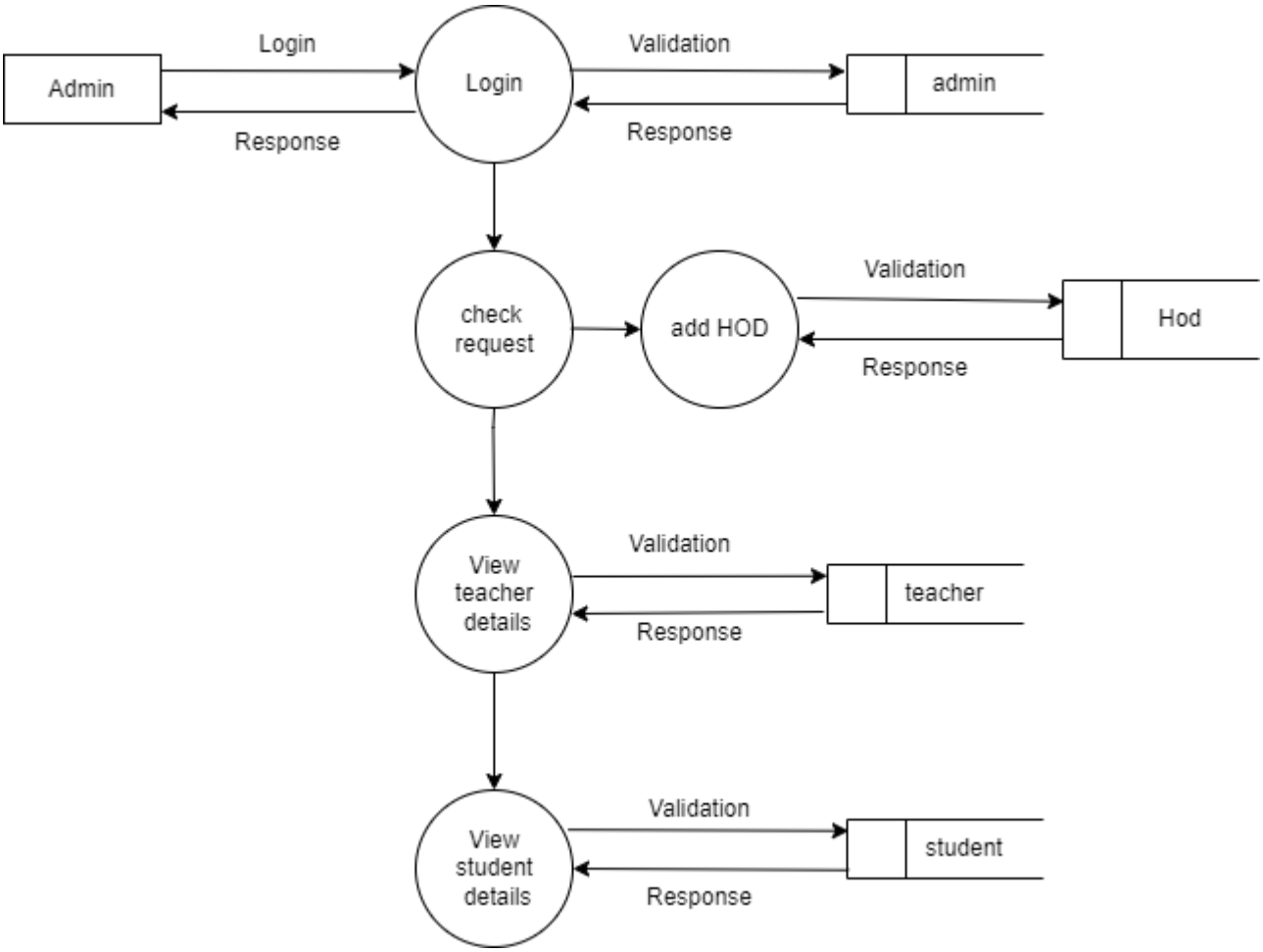
CLASS DIAGRAM



DATA FLOW DIAGRAM

Level 0:

Level 1:



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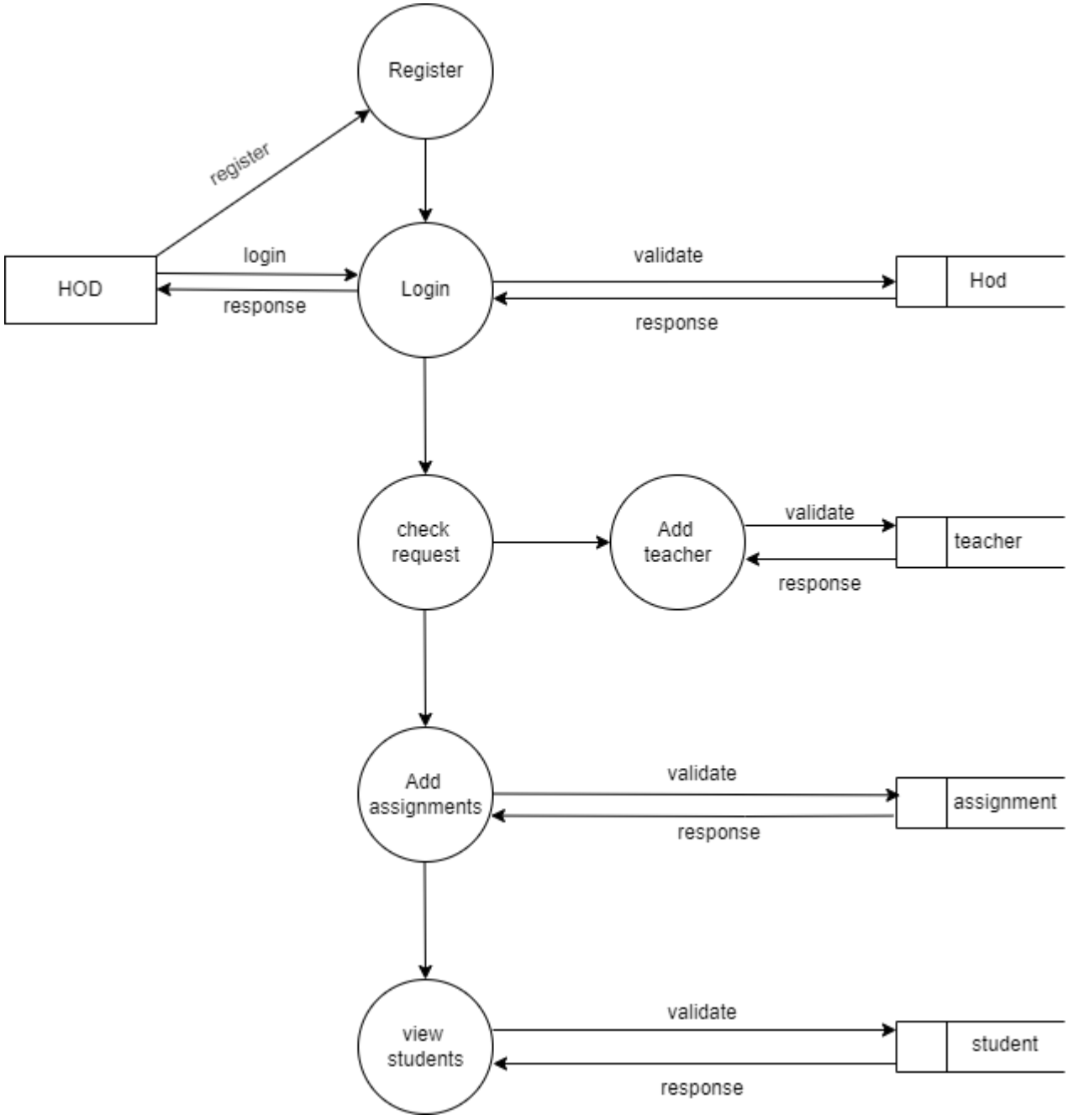
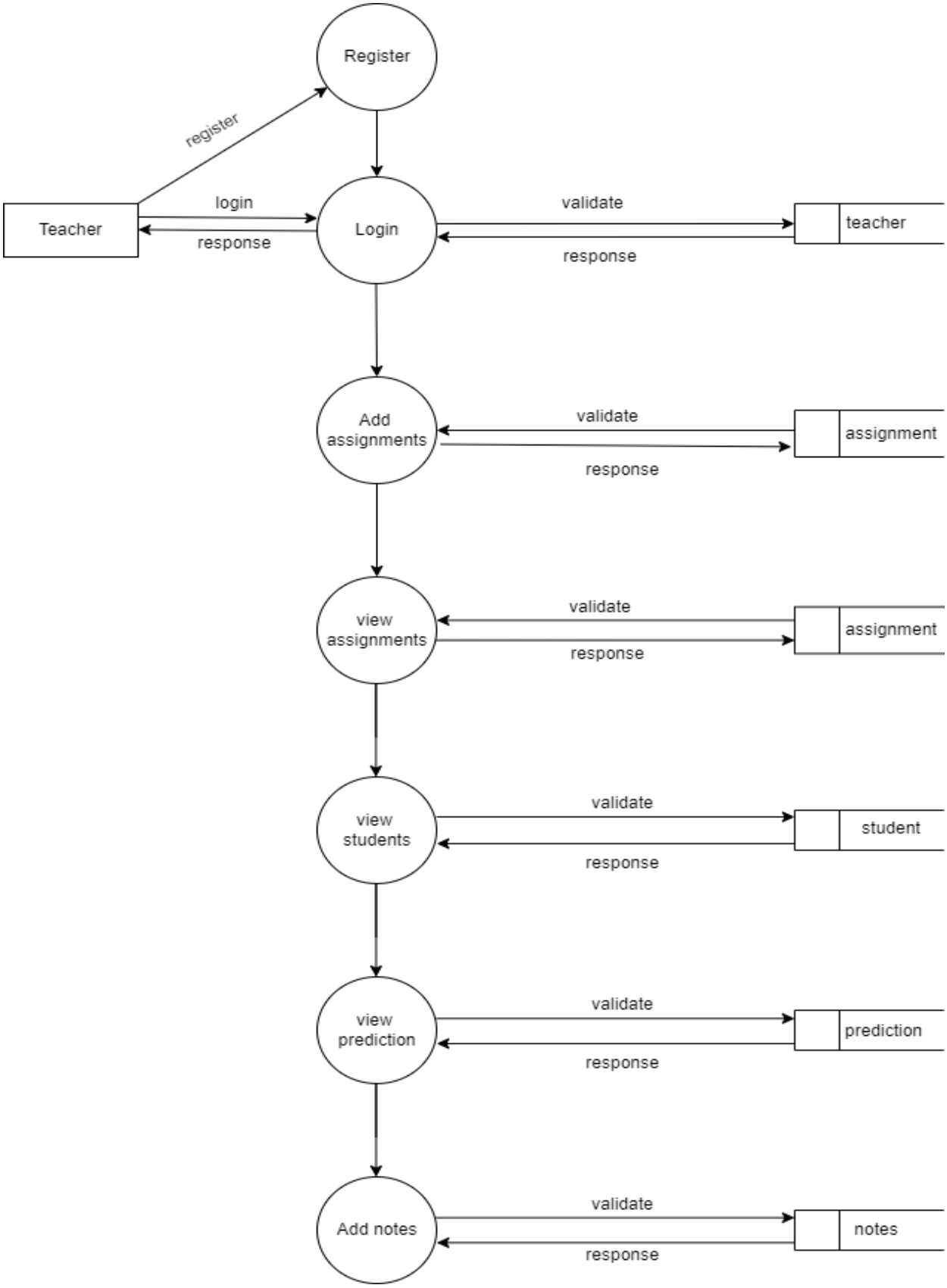
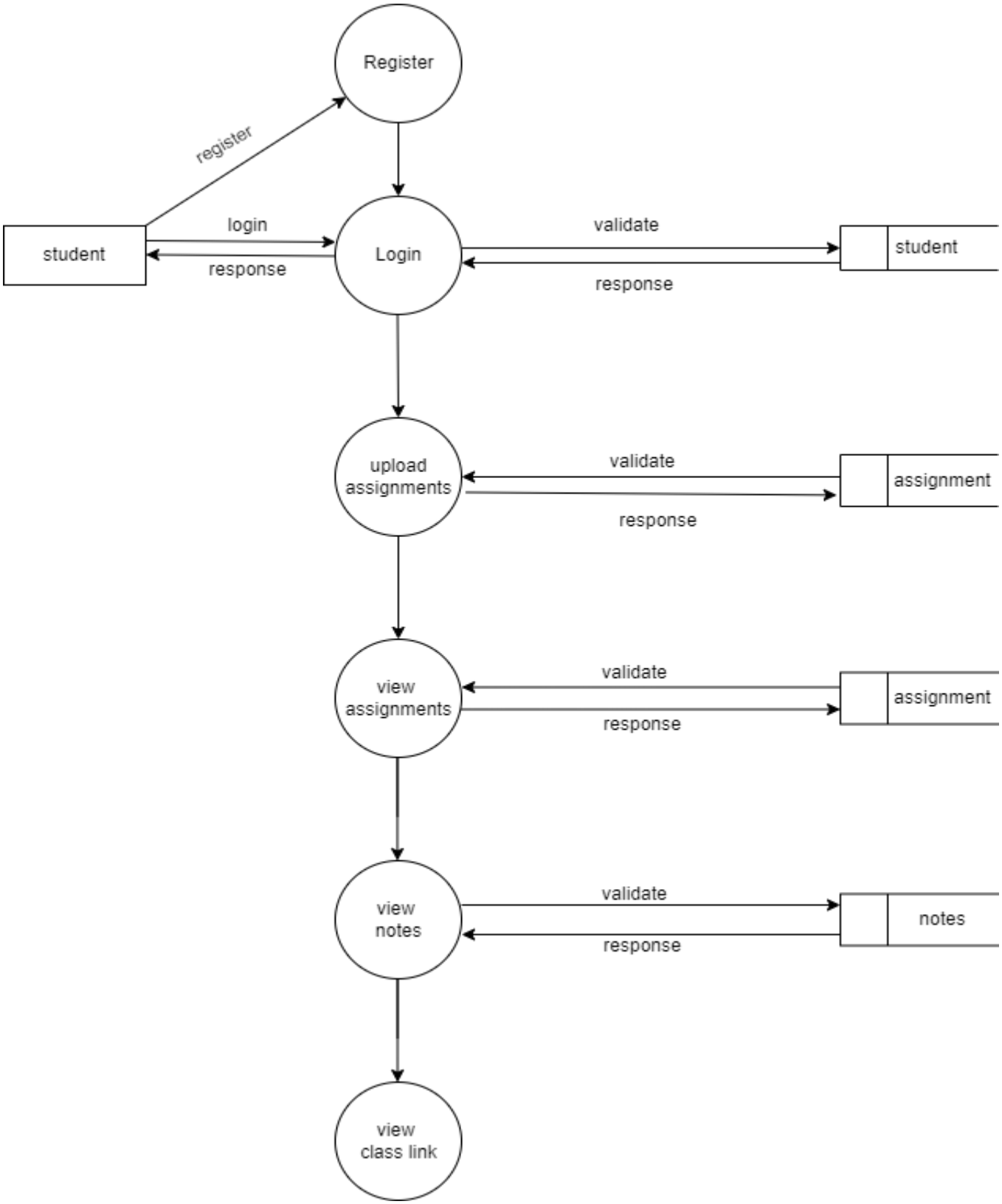

Register
register
HOD
login
response
Login
validate
response
Hod
check request
Add teacher
validate
response
teacher
Add assignments
validate
response
assignment
view students
validate
response
student

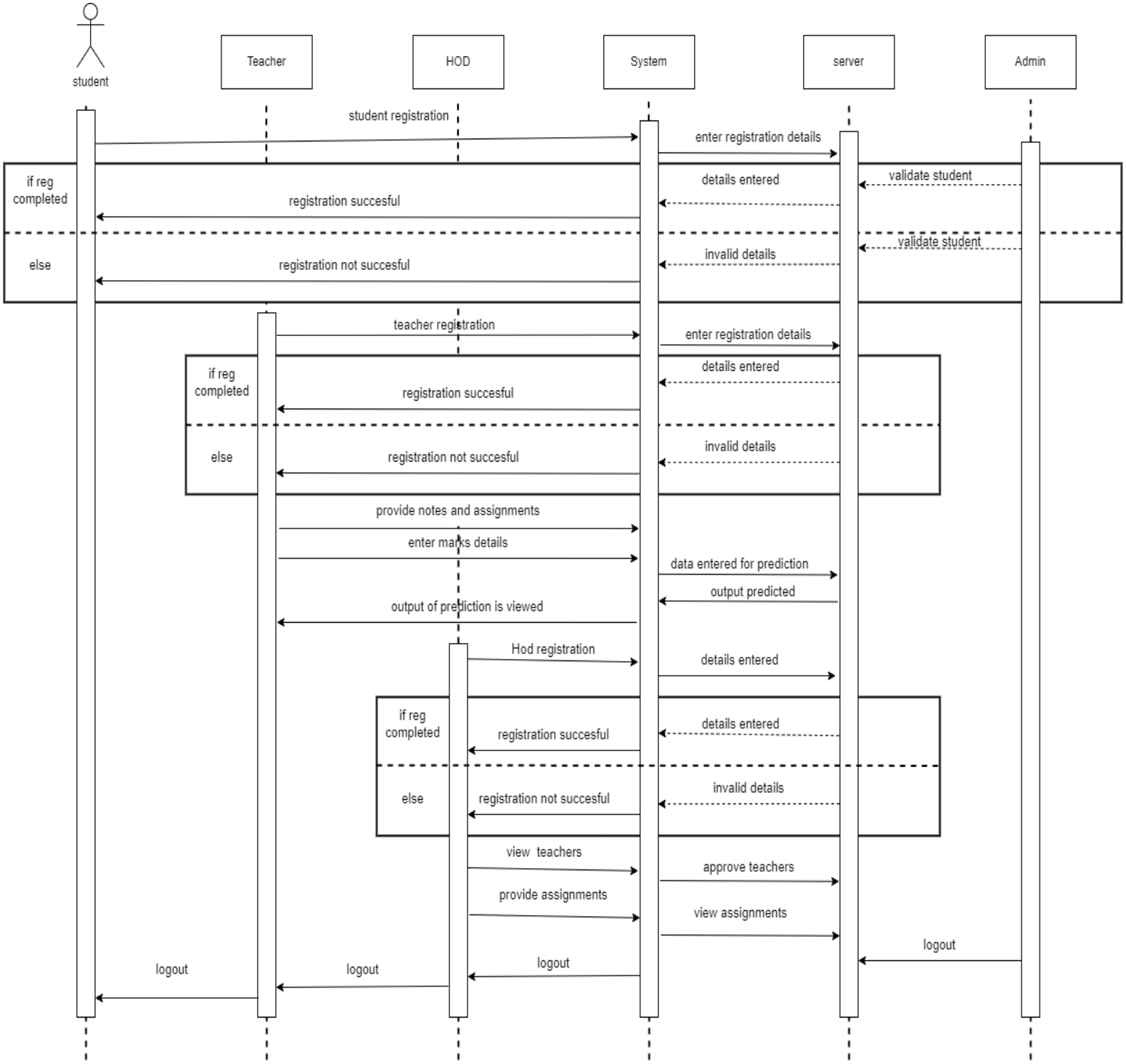
Level 3:


Register
register
Teacher
login
response
Login
validate
response
teacher
Add assignments
validate
response
assignment
view assignments
validate
response
assignment
view students
validate
response
student
view prediction
validate
response
prediction
Add notes
validate
response
notes

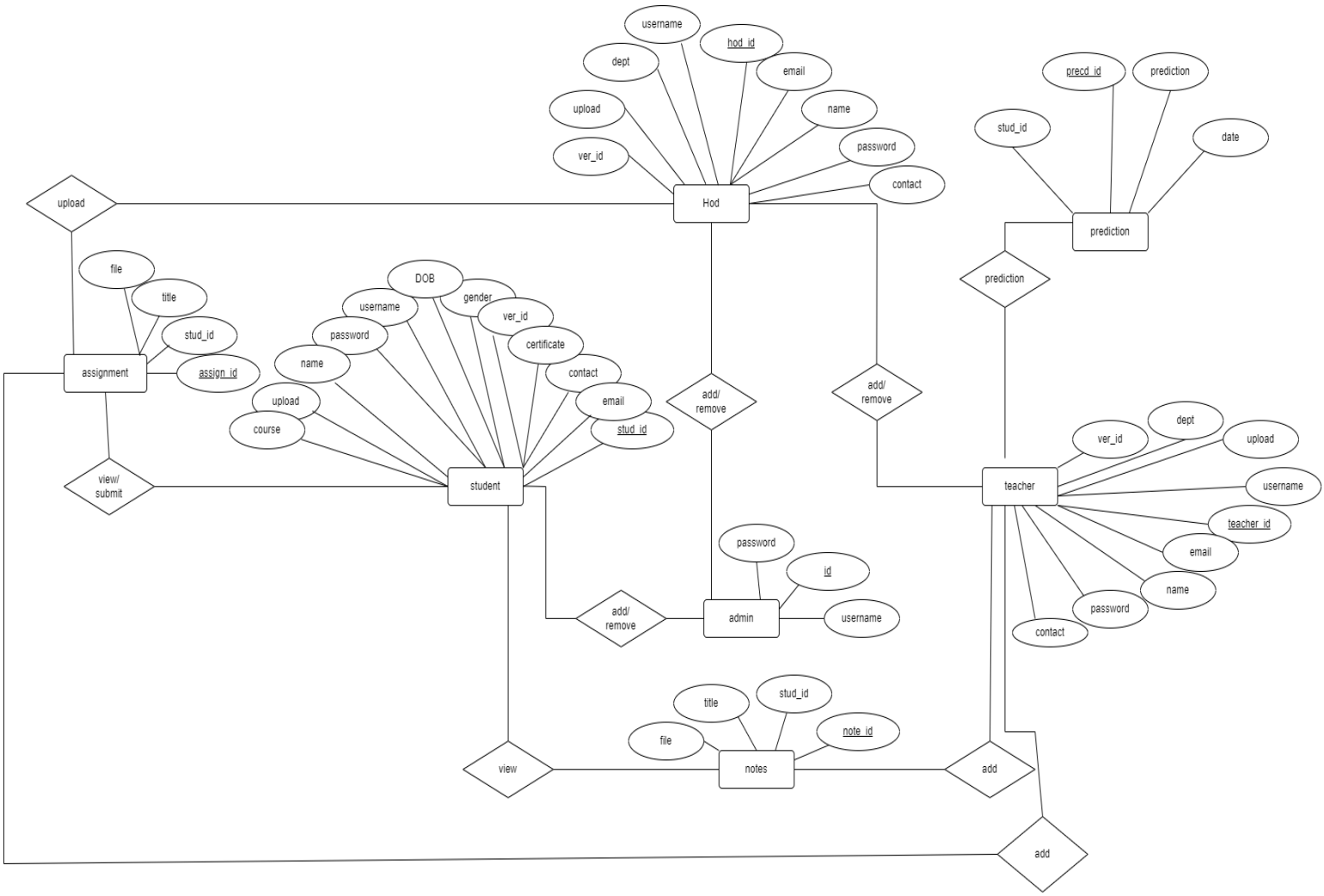
Level 4:


Register
register
student
login
response
Login
validate
response
student
upload
assignments
validate
response
assignment
view
assignments
validate
response
assignment
view
notes
validate
response
notes
view
class link

SEQUENCE DIAGRAM



ER DIAGRAM


username
hod_id
dept
email
upload
name
password
ver_id
contact
Hod
upload
file
title
stud_id
assign_id
assignment
view/
submit
DOB
gender
username
ver_id
password
certificate
name
contact
upload
email
course
stud_id
student
add/
remove
add/
remove
precd_id
prediction
stud_id
date
prediction
prediction
dept
ver_id
upload
username
teacher_id
email
name
password
contact
teacher
password
id
add/
remove
admin
username
title
stud_id
file
note_id
notes
view
add
add