Team Name : SUST__NOOBs!

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BRIEF EXPLANATION & DOCUMENTATION

PROBLEM IDENTIFICATION:

In these lockdown days, all classes are taken online. Usually teachers provide study materials and class links to Class Representatives through personal email or through google classroom. Then CR delivers those messages to his classmates using social platforms like Facebook or What's app. As these study materials are not stored in an organized way, it becomes very hard to find specific lectures or materials. As it is not possible for all students to join the classes, it becomes a big problem for them. Furthermore, it is only possible to cover the theory part through video conferencing which leaves the practical part fully untouched. Thus, we are trying to provide a web based application which will be able to solve these problems.

THREATS AND RISKS:

A loss of an asset is caused by the realization of threats or risks. All threats /risks are realized through the medium of vulnerability. The major threats and as follows:

1. Inability to provide full hands on experience : It is almost impossible to gain the same laboratory based knowledge using an online platform as it would have been if the student had been present in the laboratory physically.

2. Integrity Violation : An unauthorized party accessing and tempering with an asset used in the E-Learning system.

3. Confidentiality violation : An unauthorized party gaining access of the assets present in the E-Learning system.

4. Denial of Service : Prevention of legitimate access rights by disrupting traffic during the transaction among the users of E-Learning system.

5. Traffic analysis: Leakage of information by abusing communication channels.

IDEA FORMALIZATION:

Existing platforms are not capable of providing any system for teachers and students for storing class links, materials, assignments etc in a categorized way. As well as, existing platforms failed to provide hands on laboratory based experience. Our website will be able to provide all the attributes needed to maintain a class and so our target audience are teachers & students.

IMPLEMENTATION PLAN:

On our system any university can open their branch, where university admin can add their departments and it's offered courses. Teachers, students will first register their account under their university. Teachers can create rooms from their departments' available courses, while students will be able to enroll in those rooms that are listed under their university. Teachers can create sections inside rooms and post specific items under those sections. There will also be a system where lab topics specific simulation type contents will be available.

Website backend:

It will be implemented using:

a. Django

b. Django-Channels

c. PostgreSQL

Website Frontend:

It will be implemented using:

a. ReactJS

b. React-Bootstrap, Material UI

c. Moment

d. Axios

For Simulation:

It will be implemented using.

a. Unity 3D

WORK PROGRESS

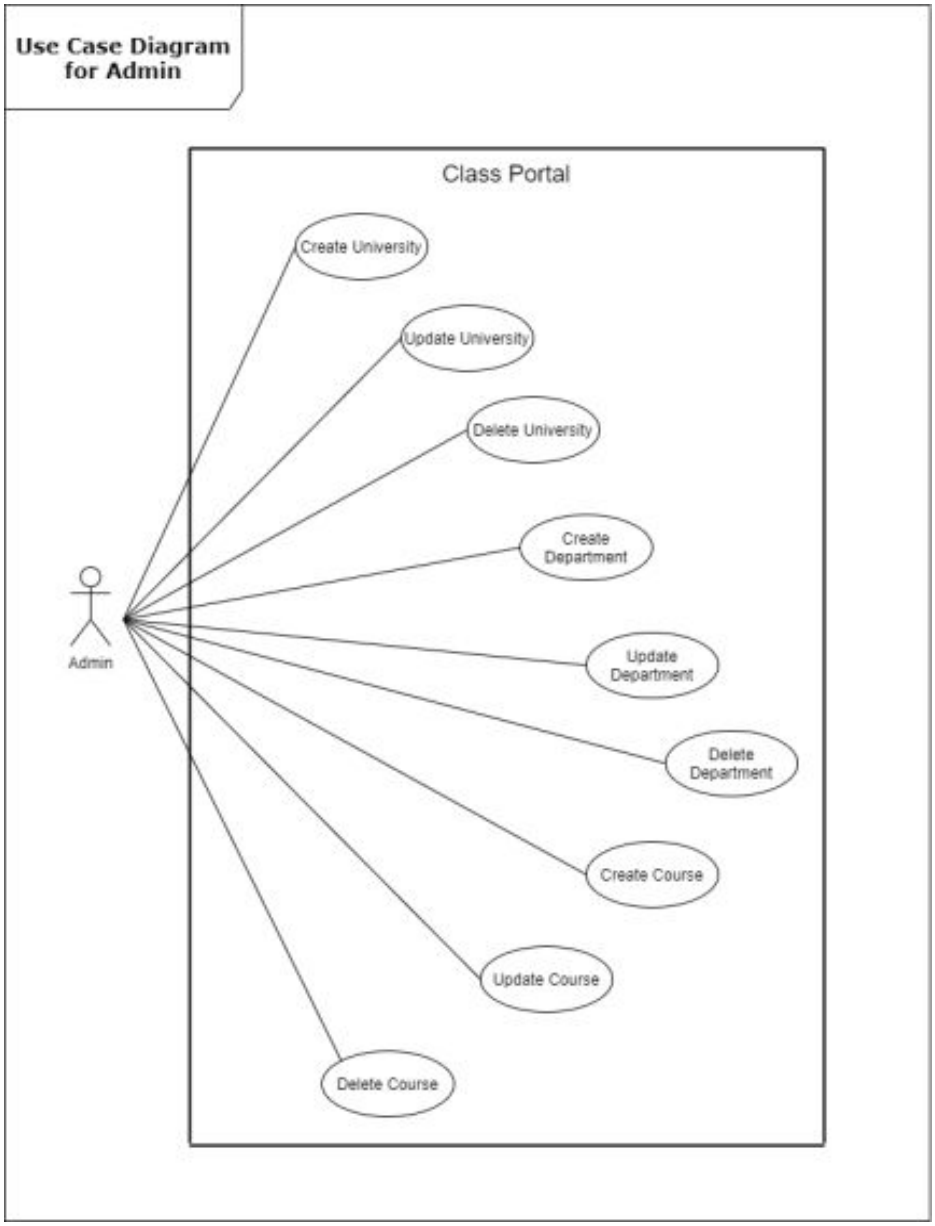
So far, we have created a website which provides these features:

a. User authentication and login.
b. REST API for communication between front-end and back-end.

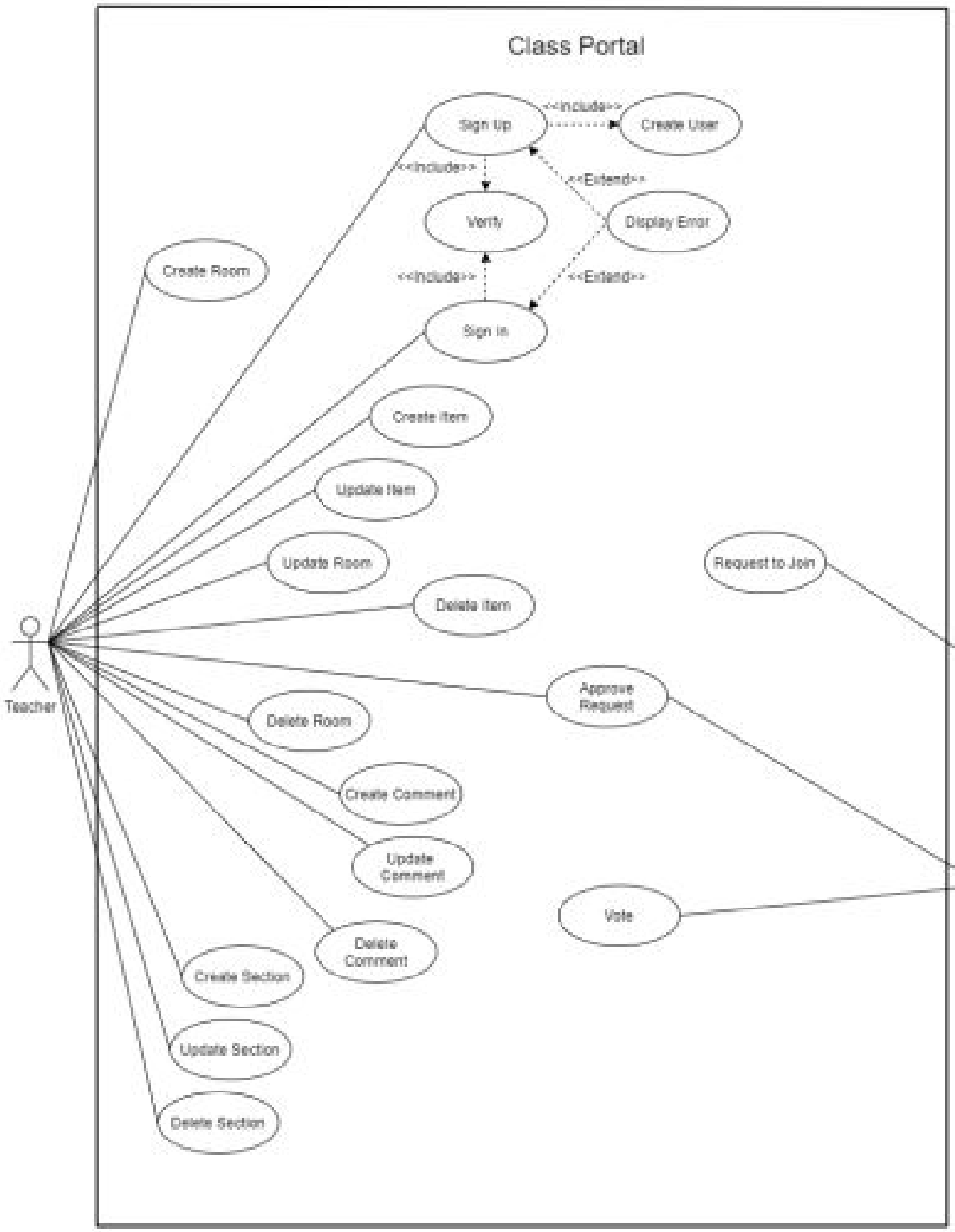
c. Design the whole database schema.
d. Create front-end.

Documentation:

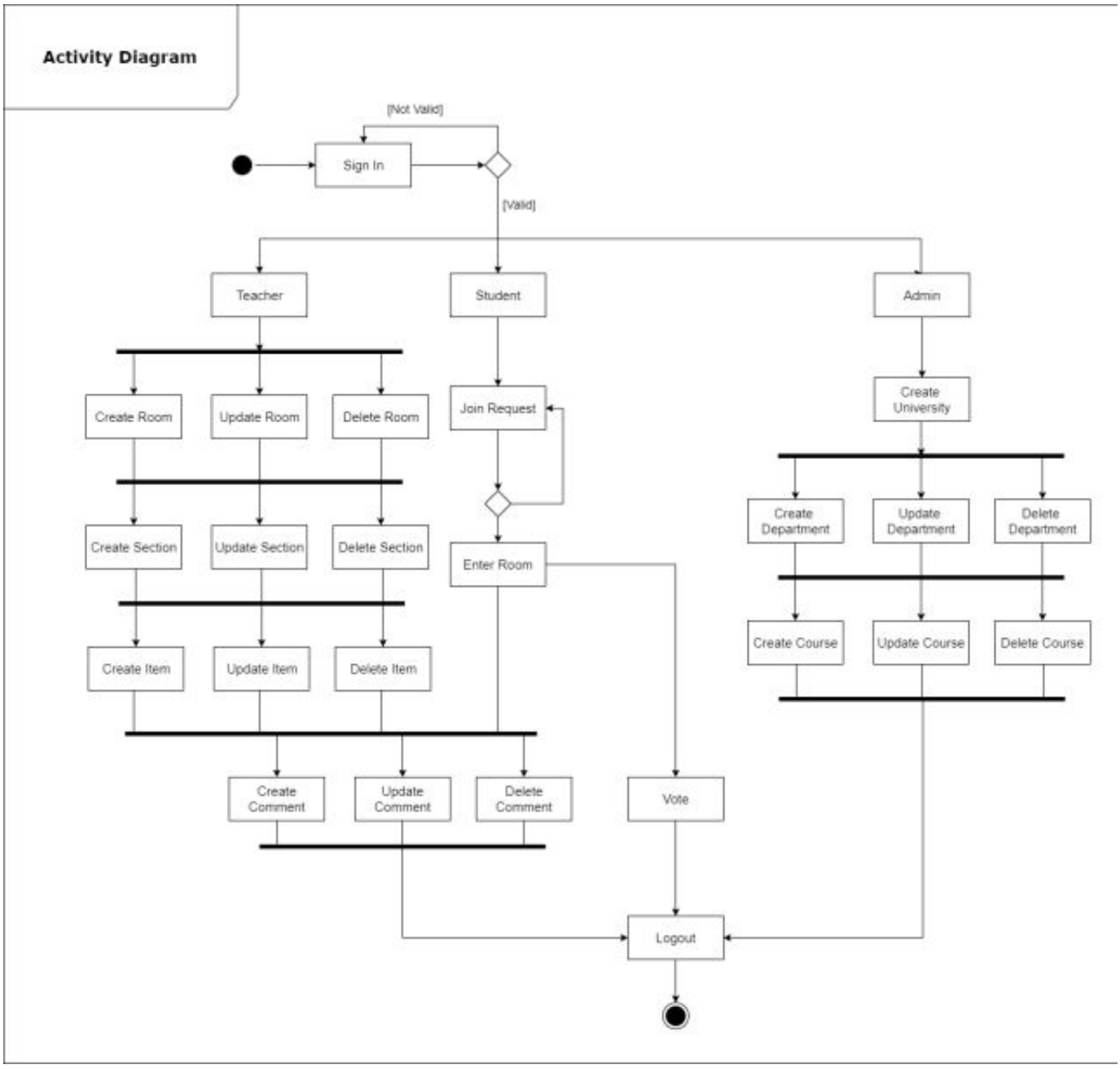
UseCase Diagram:



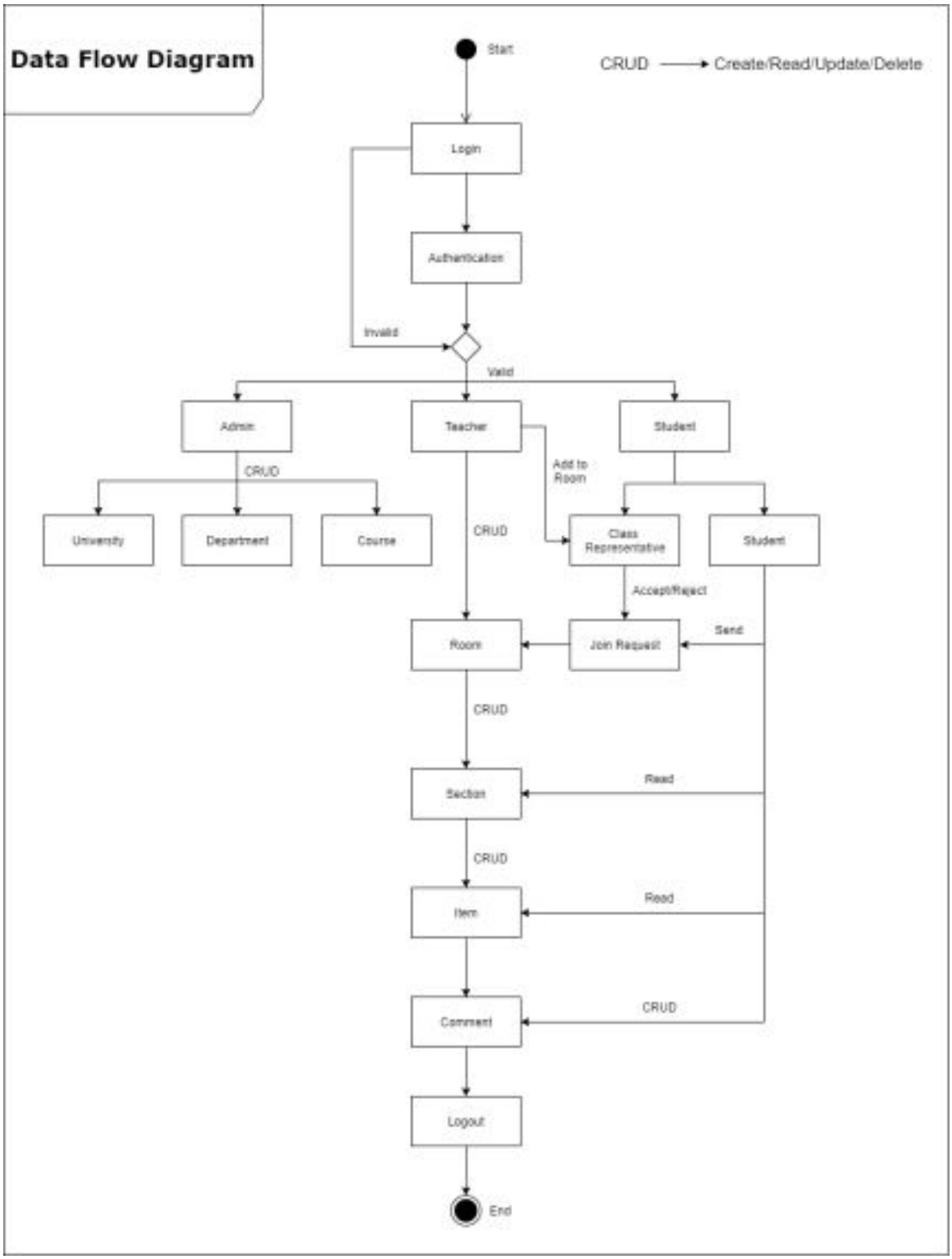
Use Case Diagram for Users



Activity Diagram:



Data Flow Diagram:



Architecture Diagram: