International Islamic University Chittagong

Course Code : CSE-3640

Course Title : Software Development 2 Lab

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Project Title : Virtual Classroom

Project: Virtual Classroom

Introduction: The project 'Virtual Classroom' is a web application for class and examination management like google classroom.

The main objective of the project is to manage classes and exams via online where teachers can share their class and exam resources as all kinds of file formats(pdf ,video ,images etc.) and student can access the resources and also can submit their answer papers during online examinations as like as google classroom.

It is fully web based and can be hosted on internet. It is so easy to manage and all features are so simple to use.

Literature Survey:

The 'Virtual Classroom' is a new platform to continue academic classes and exams via online. Due to some situations like pandemic, attending to classes physically is not possible. Here, our project will address the problem and has brought a new solution. We can conduct classes and exams via our online system where teacher can share their teaching resources and can take exams also. On the other hand, students can access the resources and also can attend in exam via online. As a result, we can finish our courses and exams in time. Otherwise, we would need huge time to complete our degree if there is no online system like Virtual Classroom.

Requirements:

Functional Requirements

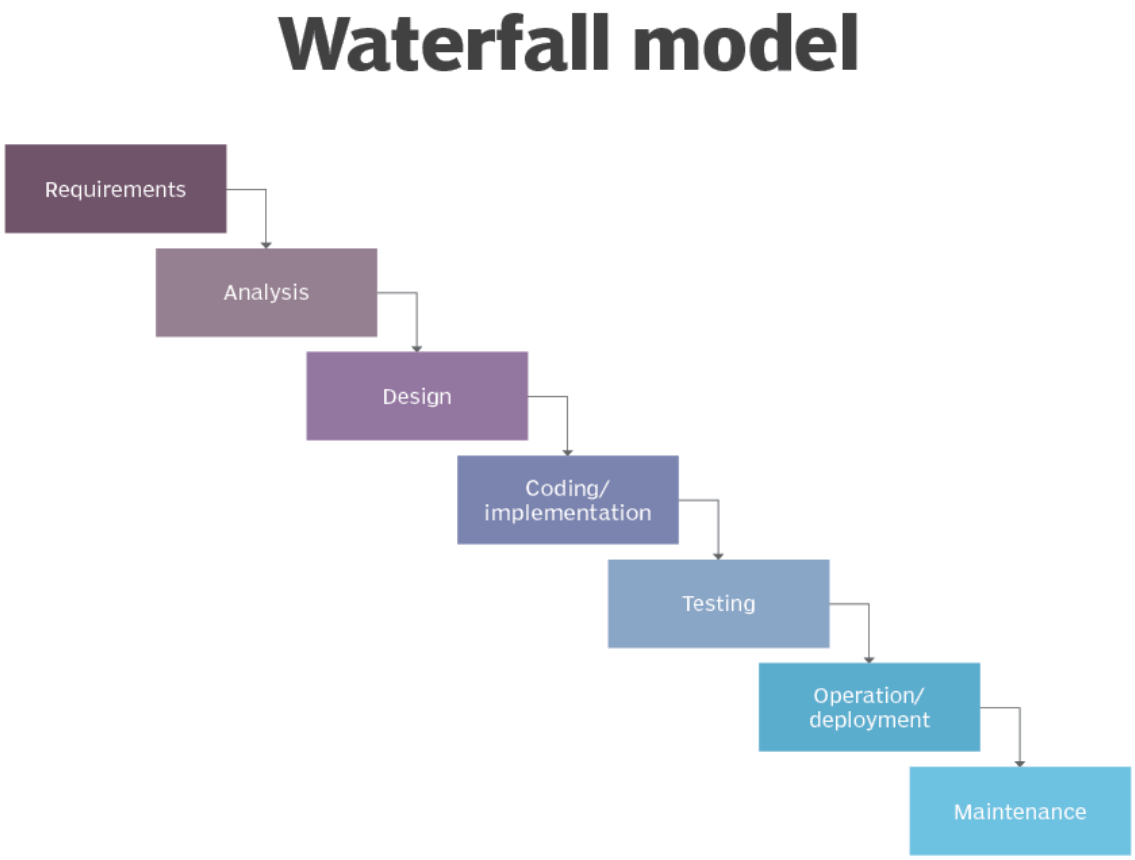
1. A login and registration interface should be provided for user authentication.
2. To gain access to class materials and resources,the students should be provided such functionality.
3. For participating in online exams,the system should enable students functionally.
4. The system should enable the teachers functionally to share class materials and question papers.
5. Course add features should be available for teachers section functionally.
6. Class assignment or any class work submission deadline feature should be available on the system.
7. Multiple exams at the same time should be handled by the system.
8. Examination paper evaluation features should be provided on the system for teachers.
9. Grade declaration sections should be provided on the system for a particular teacher.
10. Profile update features should be enabled functionally for all users.
11. Grading for all submission should be provided for teachers
12. Students should be enabled to see their obtained grade in their submitted works.
13. Total remaining due of assignments should be shown to the students as alert for all courses.
14. Private comments section under any submission should be provided for teacher and students in the system.
15. Teachers should be enabled functionally to change their class background.
16. Teachers and students should be provided a people section to see the enrolled students of the class.
17. Students should provide enroll section to enroll a new course in the system.

Non-Functional Requirements

1. The response times of the system should be as fast as possible.

2. The system should be fully secured.
3. The system should be feasible and strong.
4. The system should be simple to interact with users easily.

MODEL



Waterfall Model: WATERFALL MODEL is a sequential model that divides software development into pre-defined phases. Each phase must be completed before the next phase can begin with no overlap between the phases. Each phase is designed for performing specific activity during the SDLC phase.Here requirements are clear from beginning.

Why we choosed the model: Basically, we followed google classroom to build our project.So, all requirements were known and clear to us for the project.And there was no uncertain requirement in later.So we choosed waterfall model for our project.Our project don't require risk management because all requirements were clear and predictive.

Feasibility Study

Feasibility Study in Software engineering is a study to evaluate feasibility of a proposed project or system. As the name suggests feasibility study is the feasibility analysis or it is a measure of the software product in terms of how much beneficial product development will be for the organization in a practical point of view.

Types of Feasibility Study :
The feasibility study mainly concentrates on below five mentioned areas. Among these Economic Feasibility Study is most important part of the feasibility analysis and Legal Feasibility Study is less considered feasibility analysis.

Technical Feasibility –
Virtual class project is a complete web based application. The main tools and technologies are associated with Virtual class project are -

- HTML
- CSS
- Bootstrap
- Javascript
- Node JS
- Express JS
- Mongo db

Each of the technologies are freely available and technical skills required are manageable. Time limitations of the product development and the ease of implementing using these technologies are synchronized.
Initially the website will be hosted in a free web hosting space. But for later implementation will be hosted in a paid hosting space with a sufficient bandwidth. Bandwidth required for this project is low as it does not incorporate a lot of multimedia aspects.

From these it's clear that the project is Technically feasible.

Financial Feasibility –

Being a web application it will have an associated hosting cost. Since the system doesn't consist of a lot of multimedia data transfer, bandwidth required for the the application is low.
The system will follow the freeware software standards. No cost will be charged from the potential customers. Bug fixes and maintaining tasks will have an additional cost. At the initial stage the market will be local universities and higher education institutions.
Besides the associated costs, there will be many benefits for the customers.

From these it's clear that the project is financially feasible.

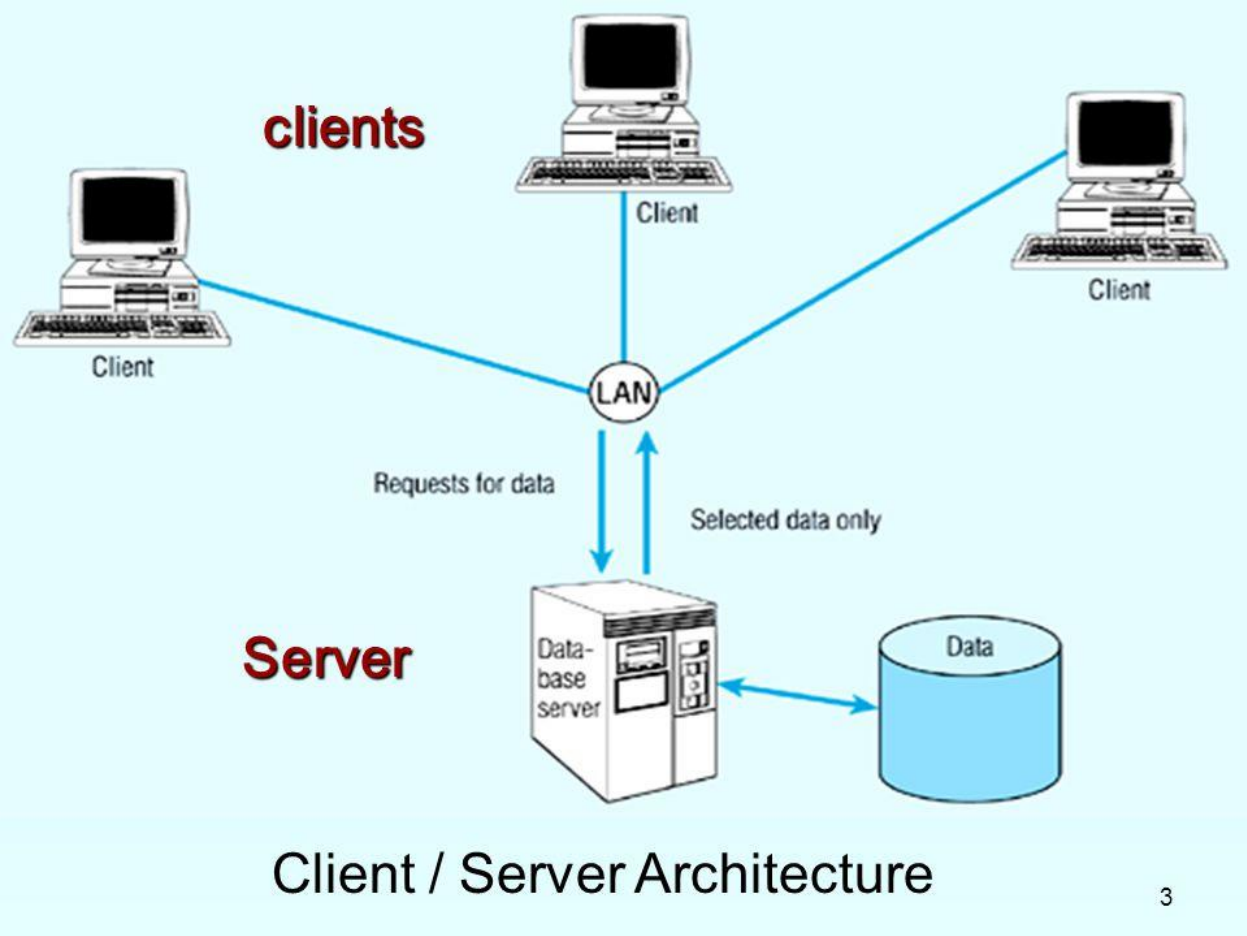
Operational Feasibility –
This project is supporting graphical user interface. Hence operating the project is so simple. Even a person who has a little knowledge of computers or mobile can easily handle this well. There is no need for trained operators.

Legal Feasibility –
Virtual class is freely available development tools and provides the system as an open source system. Only the maintenance cost will be charged from the potential customers. In this project we maintain all types of social law and use non copyrighted material so the project is legally feasible.

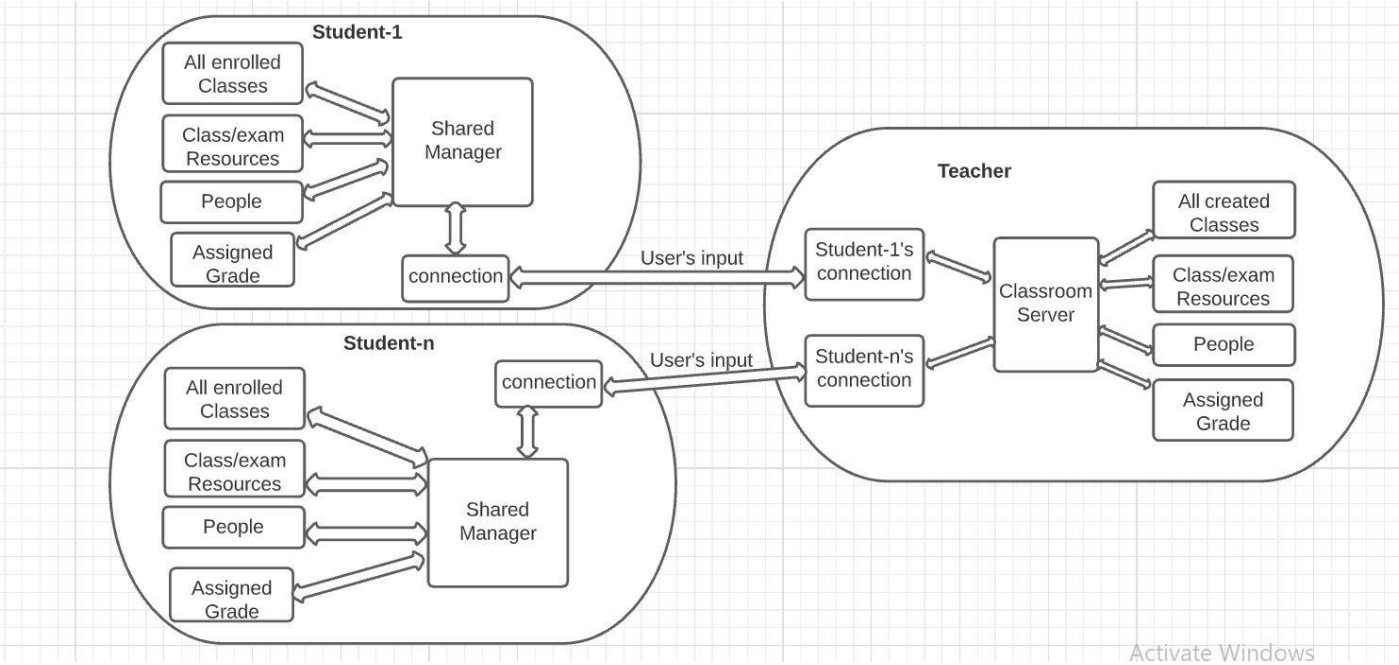
Schedule Feasibility –
The project should be completed in six months. With two people working the project can easily be completed in time.

So the project is schedully feasible.

Client-Server Architecture:



System Architecture of Virtual Classroom:



DFD

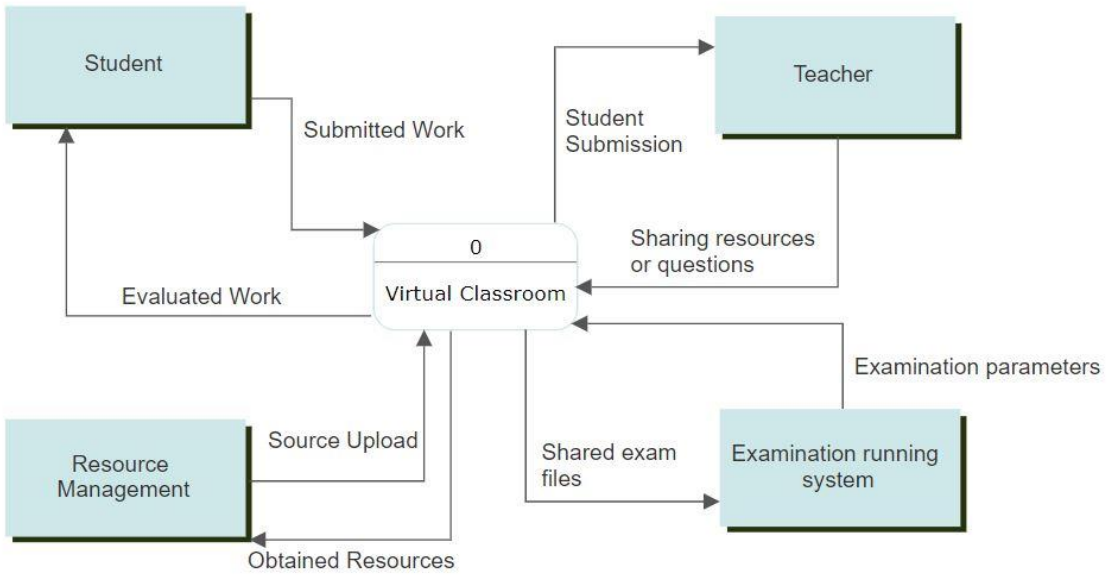


Fig:Context Diagram for Virtual Classroom

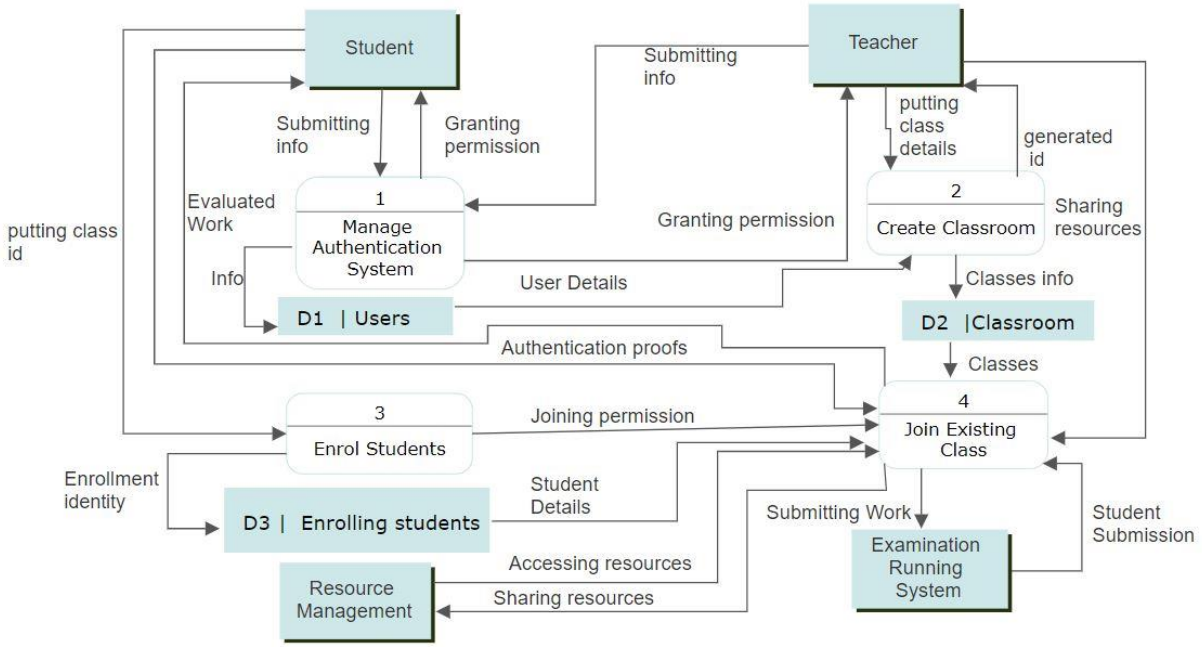


Fig:Level-0 Data flow Diagram

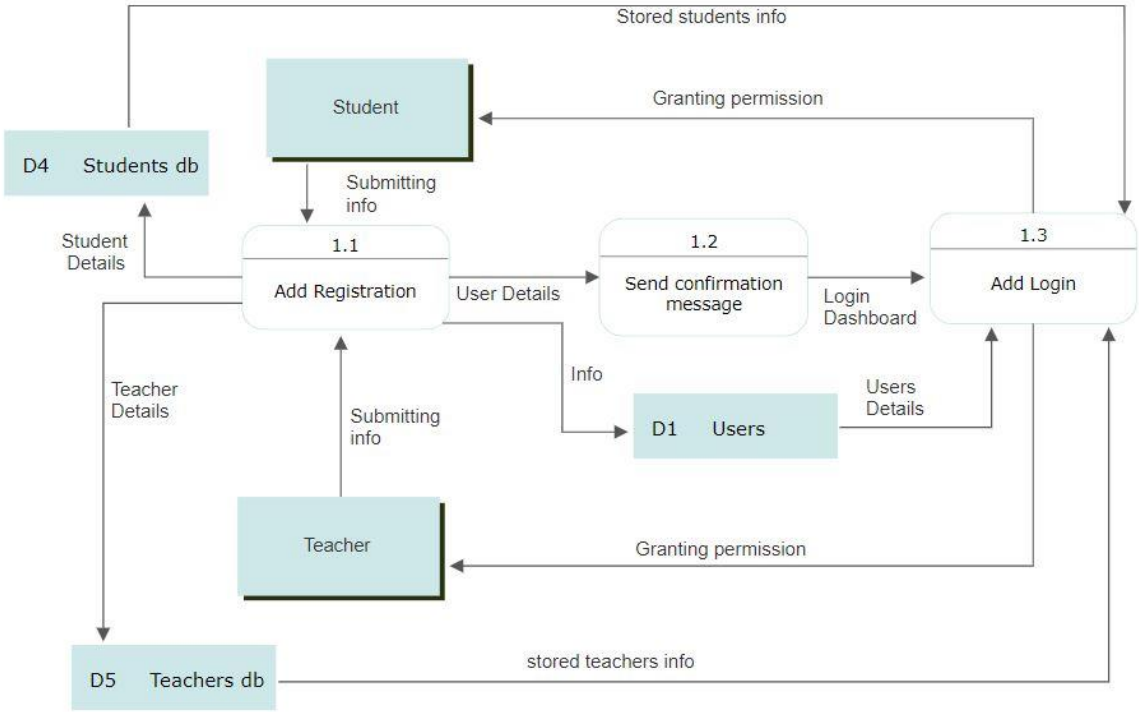


Fig:Level-1 DFD(expanding process 1)

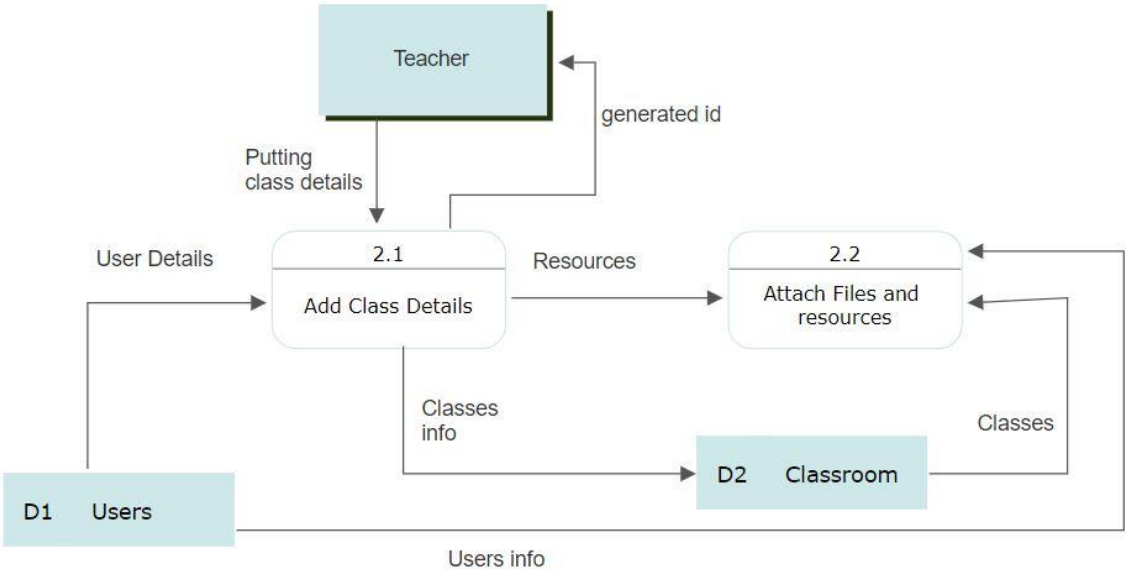


Fig:Level-1 DFD(expanding process 2)

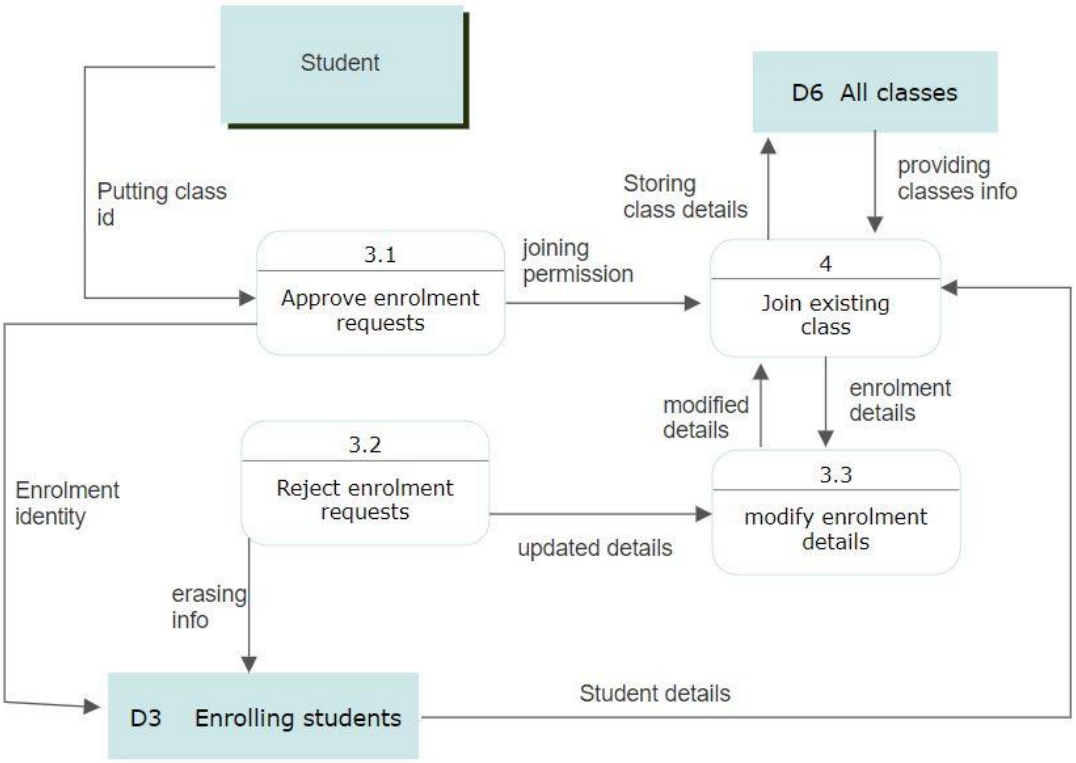
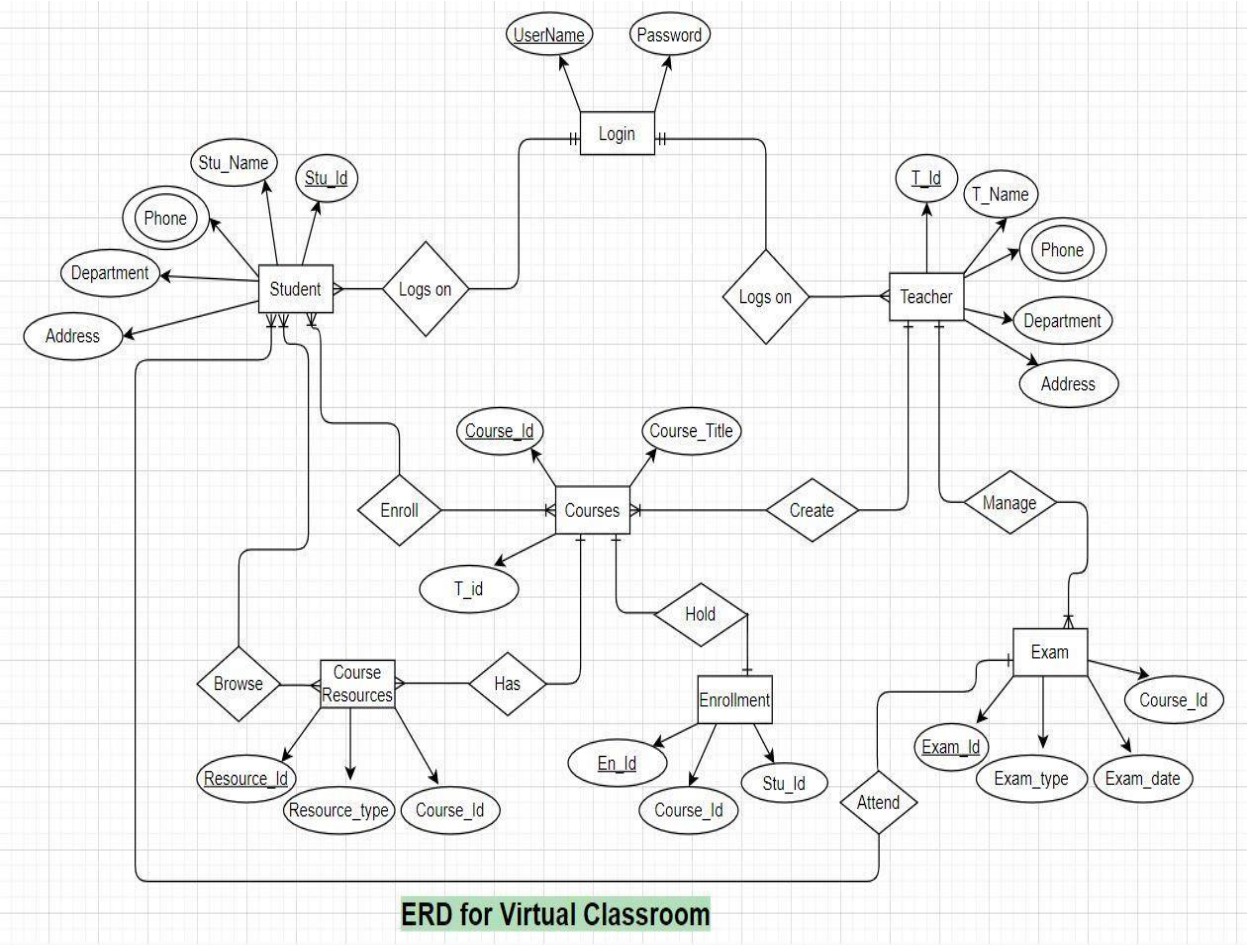


Fig:Level-1 DFD(expanding process 3)

ERD



ERD for Virtual Classroom