DESIGN AND IMPLEMENTATION OF AN

SYSTEM

PRESENTED BY

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INTRODUCTION

- Education is usually perceived as the method whereby we have students in a classroom receiving lessons from a Teacher but with the help of information technology through the internet, learning can now be achieved without necessarily having a teacher right in front of a student.
- E-learning is one of the tools that emerged from information technology and has been integrated in many universities education programs, shifting from the traditional way of education to electronic environment in which a student can access and make use of information anywhere and at any convenient time.

PROBLEM STATEMENT

- Students' inability to grasp key ideas and concepts.
- Too much focus on presentation, little time left for practice.
- Lack of motivational push.

NOTE: This method of education is therefore a danger to the student as this will only make the student unqualified for the career industry.

AIM AND OBJECTIVES

AIM

The aim of this project is to develop an e-learning system that will improvise on the manual, large class learning techniques used in teaching Computer Science

OBJECTIVES

The objectives of this project are as follows;

- To design an e-learning system with various multimedia features.
- To integrate concurrent access features in the system
- To create a database for easy retrieval, storage and maintenance of student records as well as sharing of data between users.
- To make the training process easier for the trainer as well.

LITERATURE REVIEW

- **Origin**

The origins of the term e-learning is not certain, although it is suggested that the term most likely originated during the 1980's but the term "e-learning" has been in existence since 1999 where it was first used at a CBT systems seminar.

- **Types of E-learning**

Source: (Hrastinski, 2008)

When, Why, and How to Use Asynchronous vs. Synchronous E-Learning

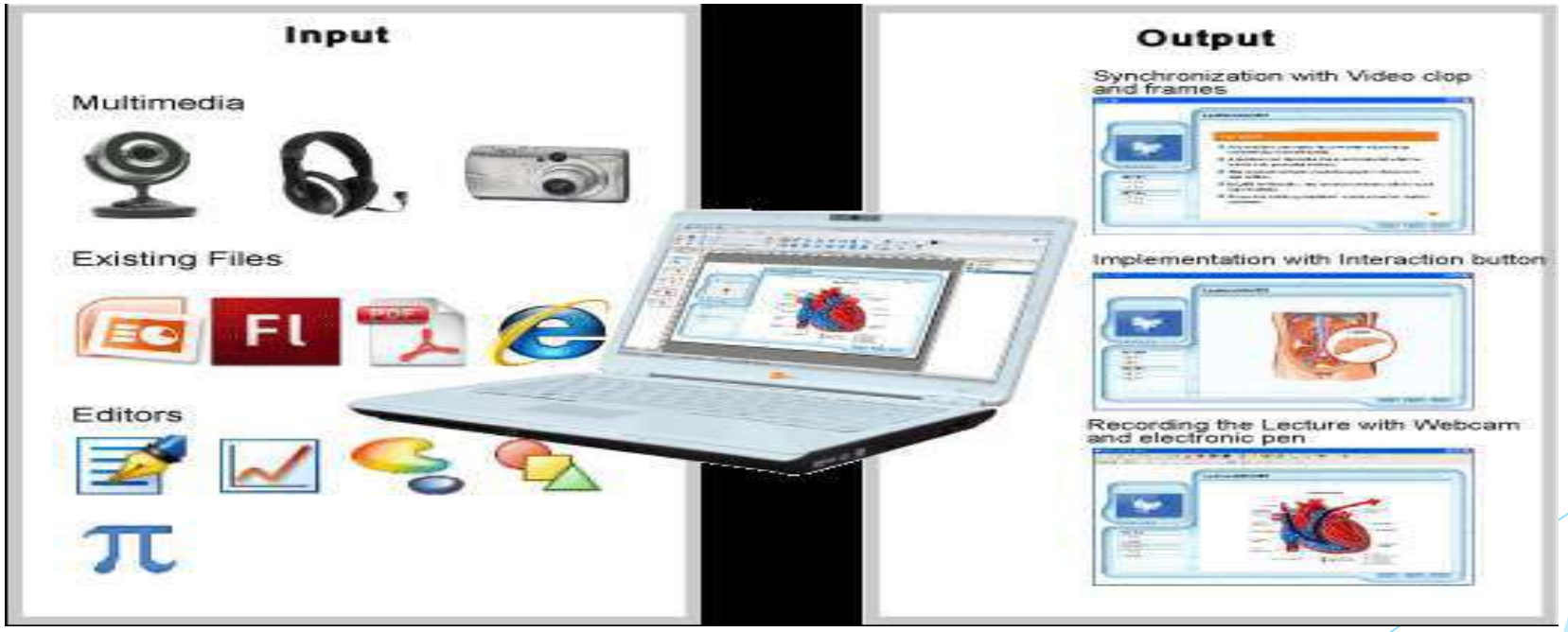
	Asynchronous E-Learning	Synchronous E-Learning
When?	■ Reflecting on complex issues ■ When synchronous meetings cannot be scheduled because of work, family, and other commitments	■ Discussing less complex issues ■ Getting acquainted ■ Planning tasks
Why?	■ Students have more time to reflect because the sender does not expect an immediate answer.	■ Students become more committed and motivated because a quick response is expected.
How?	■ Use asynchronous means such as e-mail, discussion boards, and blogs.	■ Use synchronous means such as videoconferencing, instant messaging and chat, and complement with face-to-face meetings.
Examples	■ Students expected to reflect individually on course topics may be asked to maintain a blog. ■ Students expected to share reflections regarding course topics and critically assess their peers' ideas may be asked to participate in online discussions on a discussion board.	■ Students expected to work in groups may be advised to use instant messaging as support for getting to know each other, exchanging ideas, and planning tasks. ■ A teacher who wants to present concepts from the literature in a simplified way might give an online lecture by videoconferencing.

There are four major categories of users of an e-learning system which includes;

- Students
- Instructors
- Authors
- System developers

LITERATURE REVIEW

- The tools includes chat rooms, discussion groups, online bulletin boards, and e-mail support access to instructors, but they all essentially pertain to asynchronous mode of learning. The most sophisticated and the most interactive environments provide tools for synchronous mode of training and learning, with instructor(s) organizing and guiding learning/training sessions in real time.
- In addition to Internet Web sites, supporting tools include audio and/or video-conferencing, Internet telephony, or even two-way live broadcasts to students in a classroom (Devedzic, 2015)



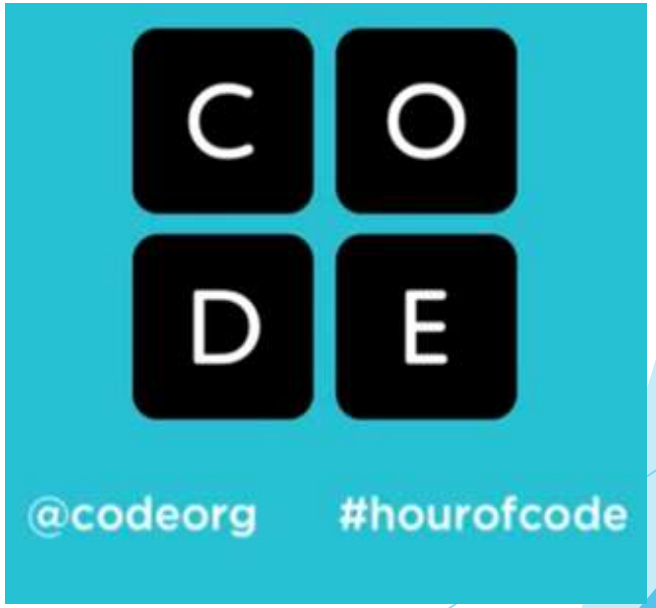
AUTHORING TOOLS

LITERATURE REVIEW

E-learning constraints
Source: (The eLearning African Report, 2012)

Rank	Constraining factor	%	The country most likely to identify this as a constraint	The country least likely to identify this as a constraint
1	Bandwidth is limited	17	Zambia	Kenya
2	Financial resources are lacking	11	Zambia	Nigeria
2	Human resource capacity is inadequate	11	South Africa	Tanzania
2	Electricity is limited	11	Nigeria	South Africa
5	Appropriate training is lacking	8	Kenya	Uganda
6	Appropriate hardware is lacking	7	Tanzania	Ghana
7	Lack of trained teachers	6	South Africa	Nigeria
8	Appropriate software is lacking	6	Tanzania	Ghana
8	Political will is lacking	4	Nigeria	Uganda
8	Corruption and theft of resources	4	Uganda	Zambia
11	Lack of good quality educational content	4	Tanzania	Nigeria
12	Pressure of poverty	3	Kenya	Uganda
12	Sustainability is not prioritised	3	Kenya	Tanzania
12	Leadership is lacking	3	Nigeria	Uganda
15	Instability and lack of security	1	South Africa	Zambia
15	Other factors	1	N/A	N/A

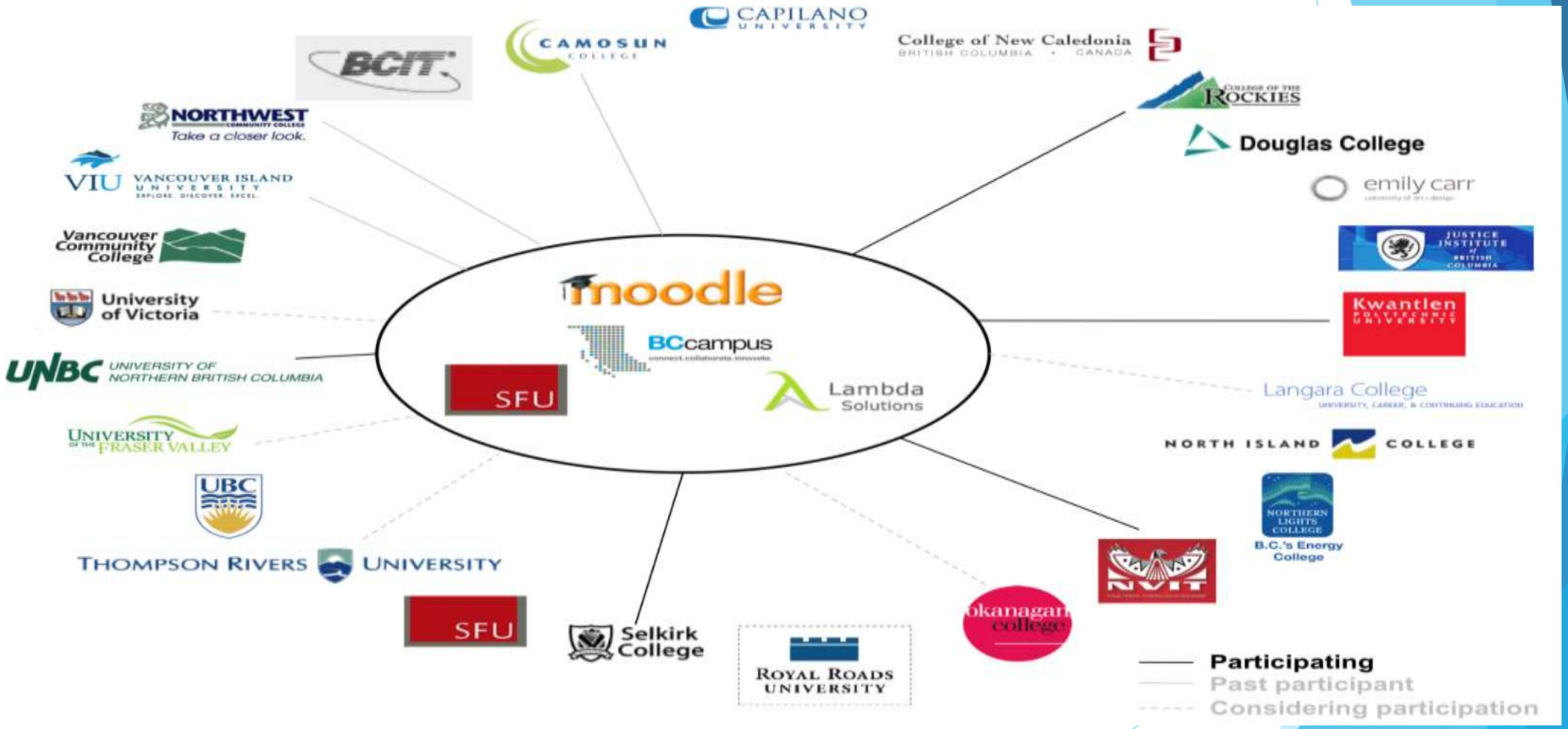
REVIEW OF RELATED WORK



REVIEW OF RELATED WORK

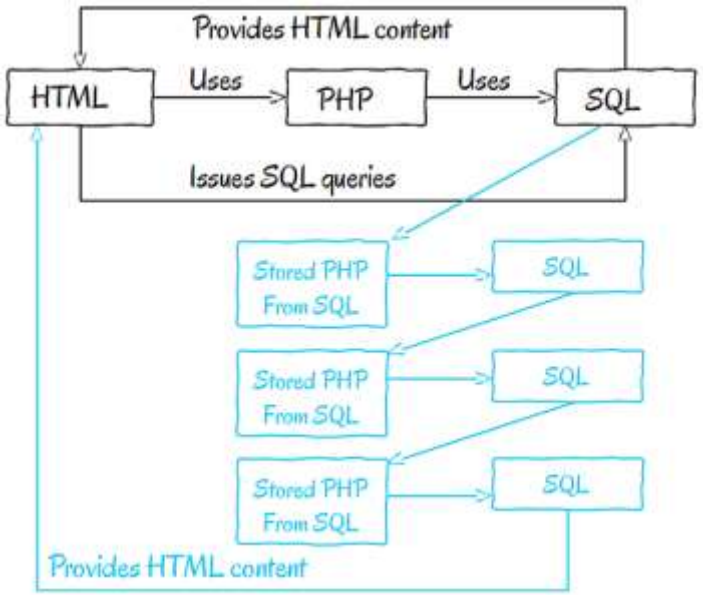
- W3Schools is optimized for learning, testing, and training. Examples might be simplified to improve reading and basic understanding. Tutorials, references, and examples are constantly reviewed to avoid errors.
- Coursera provides universal access to the world's best education, partnering with top universities and organizations to offer courses for anyone to take, for free.
- Code. Org is based on the idea that every student in every school should have the opportunity to learn computer science
- Tutorialspoint makes available an Online Lab where you can create your programs in more than 80 programming languages, compile, execute and share them over the web, which provides you remarkable learning experience at a cost of just an internet connection.

REVIEW OF EXISTING SYSTEM



METHODOLOGY

- It makes use of a CMS (Content Management System) technologies to store course contents, test results and student records.

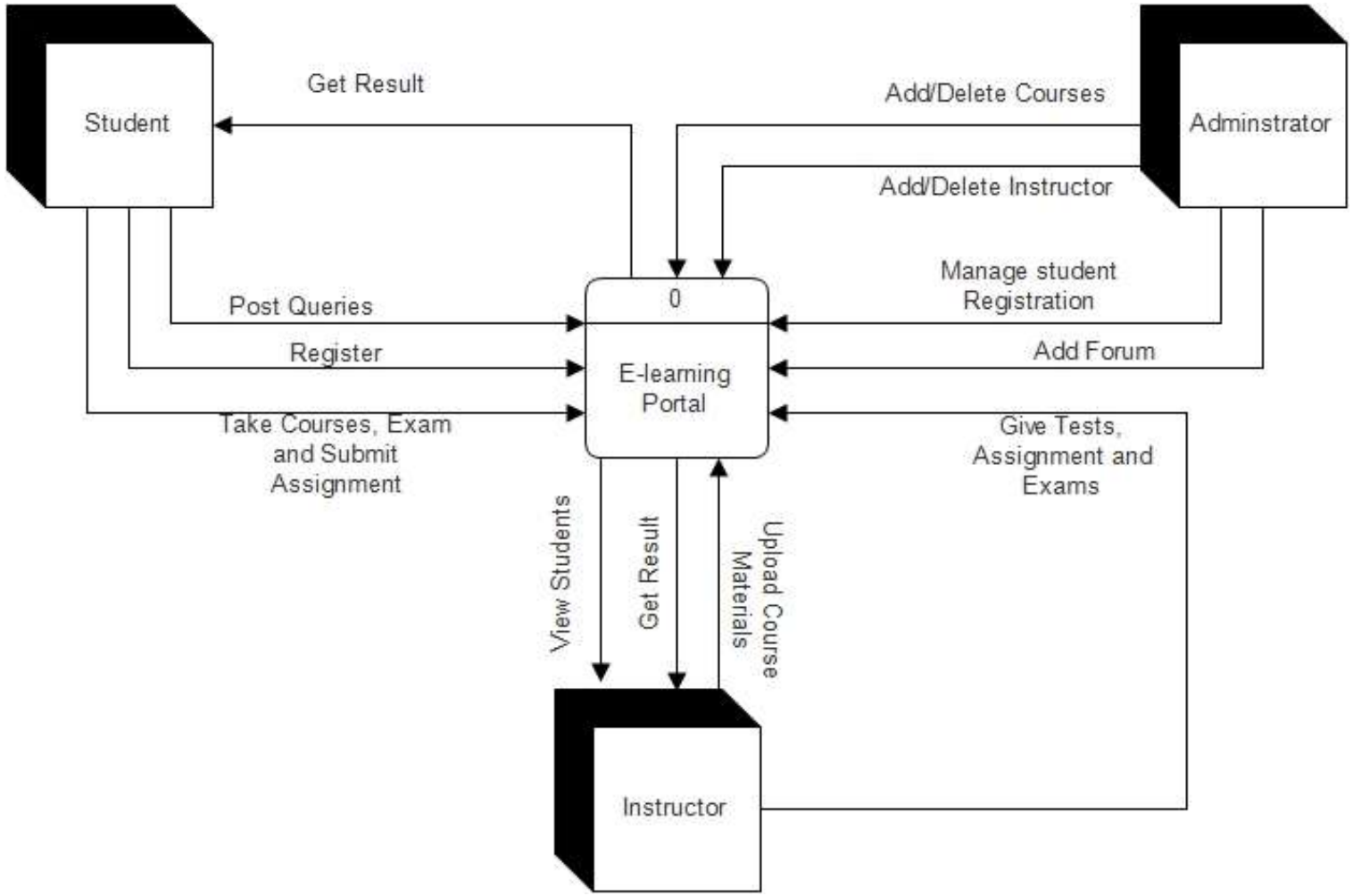


- The server side technology to be adopted is PHP which is a scripting language in which a user generates a request to a server (SQL Server), the server analyses this request and generates a response back as HTML code through the web browser to the client. This scripting language is used so as to ease integration within mark-up language and because of its capability to generate dynamic HTML.

- The client-side technology to integrate is JavaScript which will generate the events directly on the web browser. This is adopted so as to reduce the time needed for the server's interrogation and response delay and to create visual a functional effect similar to desktop applications.

- The interface design will be a core, integrated component of the overall design of on-line units and it will also be determined by how people learn and the tasks they need to perform.

THE PROPOSED SYSTEM



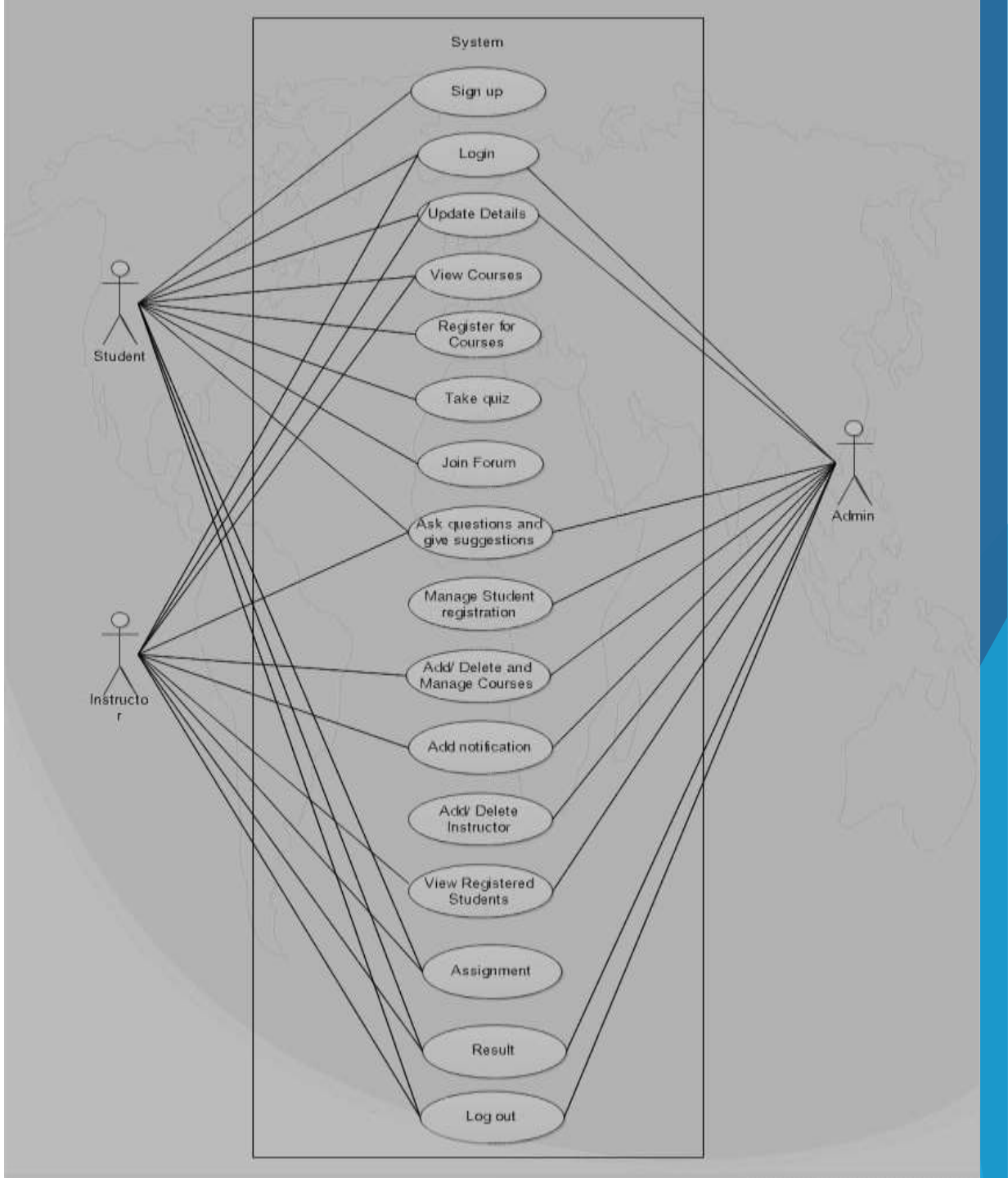
CONTEXT FLOW DIAGRAM

THE PROPOSED SYSTEM

The Overall Use Case Diagram

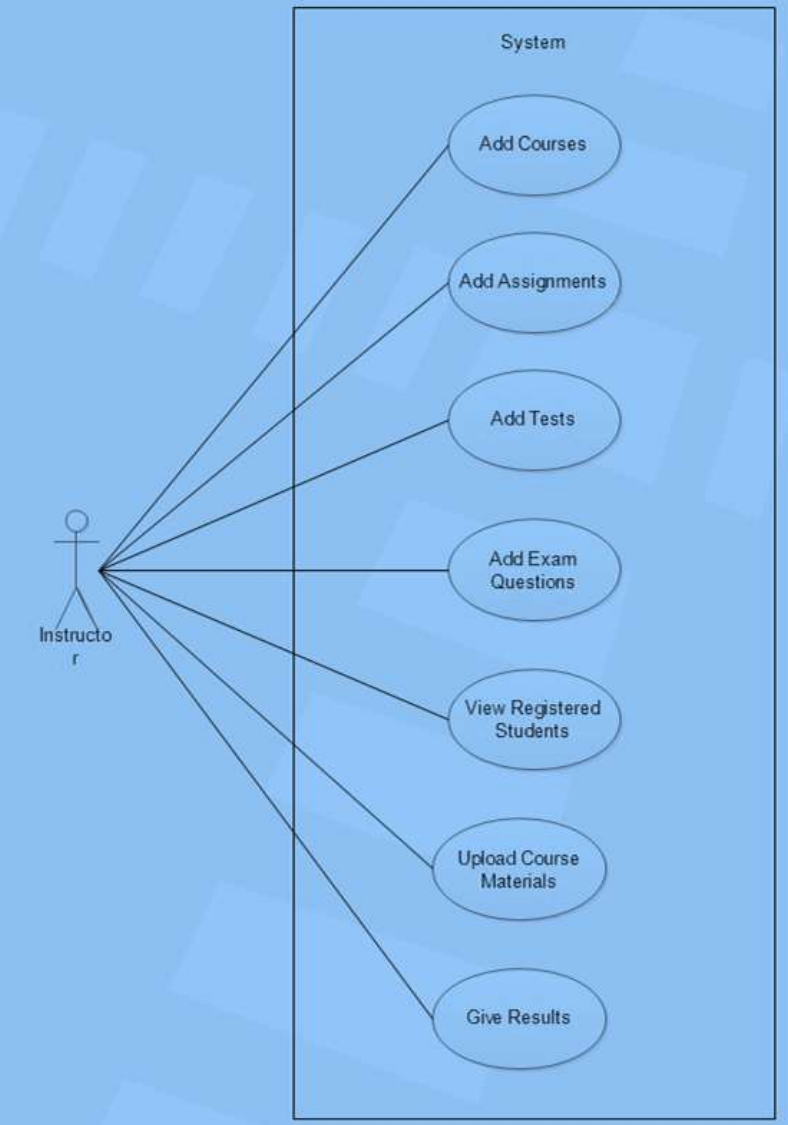
- Actors are;

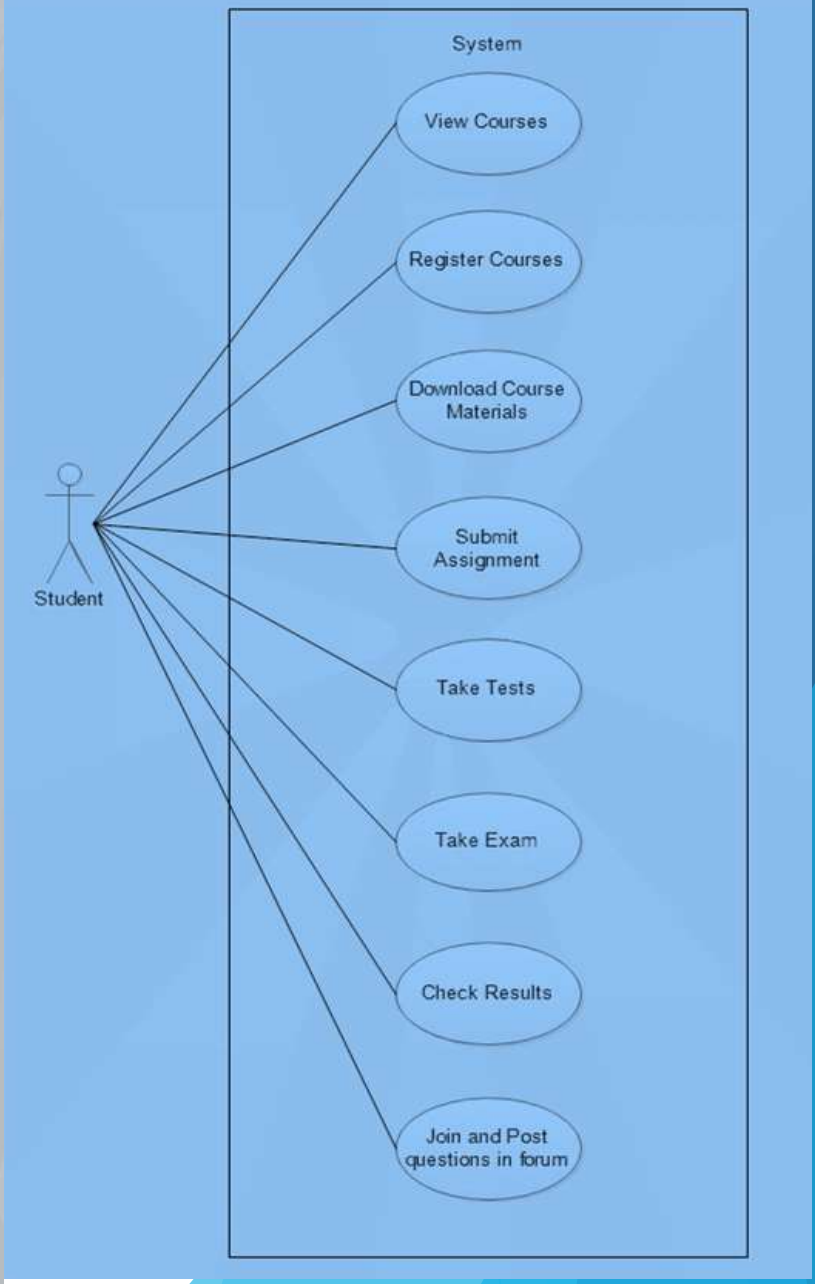
1. Administrator: Manages and coordinates all the activities of the system
2. Student: Accesses the system for learning
3. Instructor: Provides resources to be used y the student



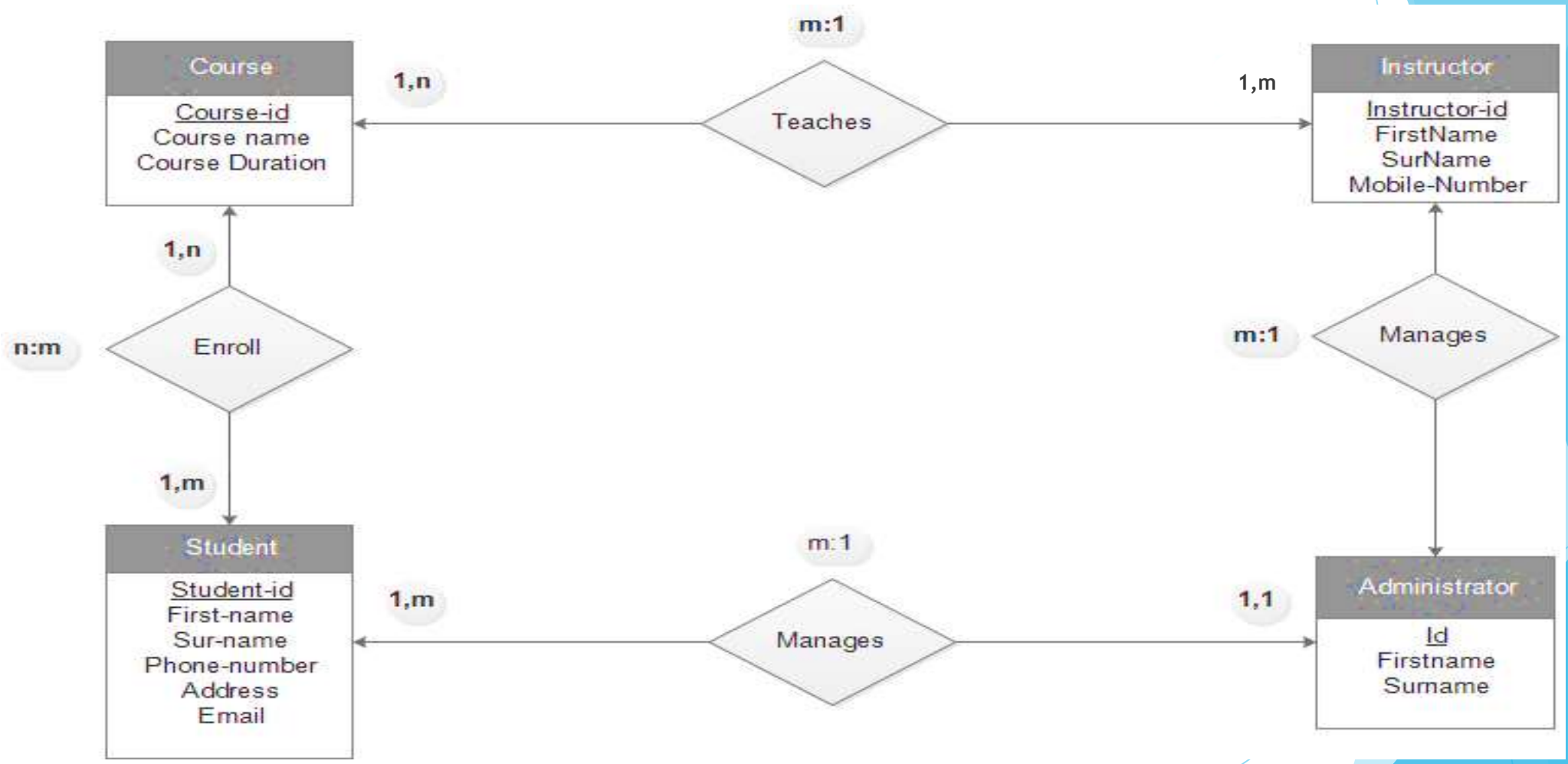
THE PROPOSED SYSTEM

- Individual Use Case Diagrams





THE PROPOSED SYSTEM



ENTITY RELATIONAL DIAGRAM

THE PROPOSED SYSTEM

FIELDS	DATATYPE	CHARACTER LENGTH	KEY
Student-id	Varchar	8	Primary key
First-name	Varchar	20	
Sur-name	Varchar	20	
Phone-number	Varchar	11	
E-mail	Varchar	30	
Username	Varchar	10	
Password	Varchar	10	
Course-id	Varchar	7	Foreign Key

Student Table

FIELDS	DATATYPE	CHARACTER LENGTH	KEY
Course-id	Varchar	8	Primary key
Course-name	Varchar	20	
Duration	Varchar	20	
Instructor-id	Varchar	8	Foreign Key

Course Table

RELATIONAL DIAGRAM

THE PROPOSED SYSTEM

FIELDS	DATATYPE	CHARACTER LENGTH	KEY
Instructor-id	Varchar	8	Primary key
FirstName	Varchar	20	
Surname	Varchar	20	
PhoneNumber	Varchar	8	
Username	Varchar	10	
Password	Varchar	10	
Student_id	Varchar	7	Foreign Key
Course_id	Varchar	8	Foreign Key

Instructor Table

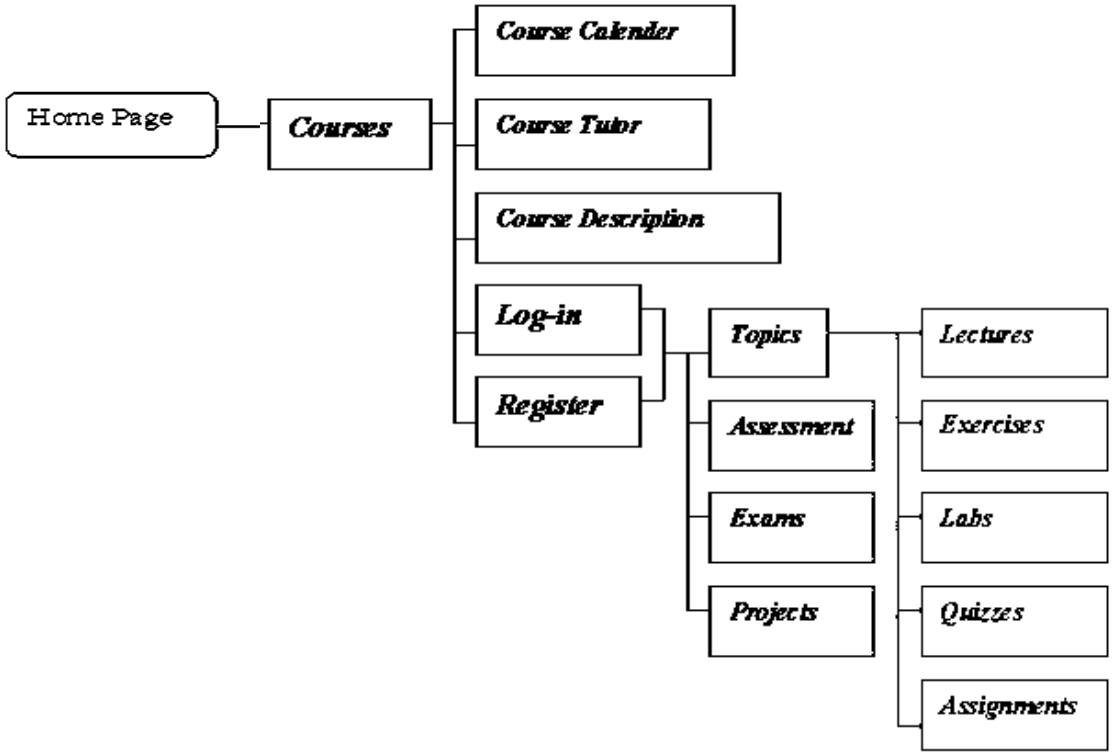
FIELDS	DATATYPE	CHARACTER LENGTH	KEY
Admin-id	Varchar	8	Primary key
First-name	Varchar	20	
Surname	Varchar	20	
Course-id	Varchar	8	Foreign Key
Instructor-id	Varchar	8	Foreign Key
Student-id	Varchar	8	Foreign Key

Administrator Table

RELATIONAL DIAGRAM

THE PROPOSED SYSTEM

SAMPLE SITE MAP FOR STUDENT



AUTHORING TOOLS

- **Course Authoring**

Web Course Builder

- **Website Authoring**

Dreamweaver, Notepad++

- **Media Editors**

Flash, Presenter One

- **Media Players and Viewers**

Examples of Media Player: QuickTIme Player, Windows Medial Player

Examples of Media Viewers: Flash, Adobe Reader, Microsoft Office Viewers

- **Browsers**

Internet Explorer, Mozilla, Google Chrome

CONCLUSION

- "Tell me and I forget; teach me and I may remember; involve me and I will learn" (Credited to Benjamin Franklin in 1980s)