

E-LEARNING SYSTEM

BY

TAHIA MAHJABEN

ID: 151-15-4804

TAHIA EVA

ID: 151-15-4824

AND

NAEEM HASAN

ID: 151-15-4823

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

REZWANA SULTANA

Lecturer

Department of CSE
Daffodil International University

Co-Supervised By

HASNA HENA

Lecturer

Department of CSE
Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled “**E-learning System**”, submitted by Thahia Mahjaben, ID No: 151-15-4804, Tahia Eva, ID No: 151-15-4824 and Naeem Hasan, ID No: 151-15-4823 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on 26/11/2018.

BOARD OF EXAMINERS

Dr. Syed Akhter Hossain
Professor and Head

Department of CSE
Faculty of Science & Information Technology
Daffodil International University

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Faculty of Science & Information Technology
Daffodil International University

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Md. Zahid Hasan
Assistant Professor

Department of CSE
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Dr. Mohammad Shorif Uddin
Professor

Department of Computer Science and Engineering
Jahangirnagar University

External Examiner

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Rezwana Sultana, Lecturer, Department of CSE** Daffodil International University.

We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

Rezwana Sultana

Lecturer

Department of CSE

Daffodil International University

Co-Supervised by:

Most. Hasna Hena

Lecturer

Department of CSE

Daffodil International University

Submitted by:

Thahia Mahjaben

ID: 151-15-4804

Department of CSE

Daffodil International University

Naeem Hasan

ID: 151-15-4823

Department of CSE

Daffodil International University

Tahia Eva

ID: 151-15-4824

Department of CSE

Daffodil International University

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ABSTRACT

The drive of this project is to avail edifiers and students to interconnect more with no trouble and operatively. Conversation includes a description of a literature search, the purport of a literature review finding sources (especially for engineering) and a general strategy to avail conduct an efficient and productive literature search. Fundamentally, this system is a medium between edifiers and students to interconnect with each other that is conducted online. Furthermore, the intention of this system is to make available support in class activities by giving students the opportunities for further exploration, discussion, and exchange notions outside class while edifier can manage and upload lecture notes, presentation, images and other compulsory implements directly to the students.

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CHAPTER 1

Introduction

These days, technology has turned out to be a very consequential part of our customary life. So with this amplified desideratum for edifier adaptability, along with student physiognomies in the utilization of technologies has imperative implicative insinuations for the future of inculcation, training and competitiveness of scholastic institutions. In recent years, researchers have established a varied range of erudition correlated to electronic learning or e-learning. These progresses in the arena of edification has affected diverse elements and components; infrastructures, apparatuses, content-oriented applications, human-computer interactions, instructional issues, approaches and models, case studies and projects. This chapter briefly designates the overall notion of the development of e-learning system by denotes of Apache, PHP and MySQL. This chapter comprises objectives of the project, scope of work, quandary verbal expression and features of project afore composing the sites.

1.1 Introduction

E-learning is where the information is transported through electronic innovation. It helps us to find out about various points transported through a scope of advancements, for example, the PC based preparing, web, TV and videocassette introduction. In simple words, e-learning is a sort of remoteness learning [1]. Learning contraptions can be made accessible from the web or intranet by means of PC and guides and students can interconnect with one another utilizing email, messages or talk discussions. This view of augmentation in PC dependent on the preparation and training has been around for around 30 years.

Along these lines, it has turned into the preeminent method of preparing or learning as a joined methodology with classroom-based preparing.

1.2 Motivation

The reason for this project rose up from the growing need of make the learning (raised, flat supporting surface) via online more operative and with no trouble approached both by the students and teachers. In today's time learning and training openings are offered hugely through the internet and electronic media. But it is challenging to find a reliable source that'll make available us with the correct materials. Also, the communication system between teachers and students are not so peaceful. Therefore, we need a more unstoppable and with no trouble enterable system for students to make e-learning more operative.

1.3 Objective

The preeminent target of this task is to create a framework that can be utilized by students and instructors with no inconvenience by means of on the web. We endeavored to create a framework that is incited to peaceful dish by the two instructors and understudies. Our motivation is to fabricate an entire framework to deal with the manual undertakings like task, introduction, addresses and so forth.

1.4 Expected Outcome

The goal of an e-learning system is the “learning”. The foremost intention of this project is for the learners to learn, to acquire incipient cognizance and competencies, through the execution diverse structured cognition activities.

1. To make available a reliable interface between edifiers and students, where students don't requisite to peregrinate to every lecturer room just to make a simple discussion. In fact, this project emerges to upgrade and develop cognition process among the students.
2. To make available a medium where students will be able to download note, tutorial and lab work with no trouble.
3. To make available a medium where edifiers will be able to upload and download note, tutorial and lab work with no trouble.

4. To make available the system that will fortify in class activities by giving students opportunities for further exploration, discussion, and exchange notions outside classroom.

1.5 Report Layout

In this report, we discussed about the overall development project of e-learning system. In the first chapter we discussed about the perception of e-learning, the motivation for this project, the objectives, and the expected outcome of the project.

In the second chapter we discussed the background of e-learning, the works that has been done till now on this topic, comparative studies between related works, scope of the problems that is in the existing system and the challenges we faced while doing this project.

The third chapter consists the business process model that we build, the requirements that we collected from students and teachers, the use case model and a brief description of it, the logical data model and lastly the obligatory apparatuses to design the website.

Design specifications are discussed in the fourth chapter. In this chapter front-end design, back-end design, interaction design and ux and instigation requirements are discussed.

In the next chapter we talked about how the prompting of database, front-end design, interactions were done. Also we showed the test results.

Lastly we discussed the scope for further development for this project in the future.

CHAPTER 2

Background

The perception of e-learning is not very new to us. There have been a lot of development in the area of education over the last ten years. With the (act of something getting bigger, wider, etc.) of technology, we've found peaceful modes to learn. Now-a-days, online learning has become very popular as there are a difference/different version of websites offering online courses and trainings. But (even though there is the existence of) of their (many different kinds of people or things) and opportunities, it is very hard to find an acceptable one that offers easiest communication and learning for everyone. So our best purpose of this development project is to find an acceptable solution for both learners and teachers.

2.1 Introduction

“E-learning”, this term has only been occupied since 1999. The word was first utilized in a CBT systems seminar. Other words such as “virtual learning” or “online learning” has withal been utilized for this. However, the cerebration behind e-learning has been apperceived throughout history, and there is even evidence which suggests that early forms of e-learning subsisted as far back as the 19th century [2].

In the tardy 20th century, after the overview of computer and internet, e-learning apparatuses and distribution modes has incremented a lot. The first MAC in the 1980's made it probable for individuals to have computers in their abode, making it stress-free for them to learn about particular subjects and advance certain adeptness sets. In the following decade, online environments commenced to authentically thrive, with people gaining entree to a wealth of online information and e-learning opportunities.

In the 2000's, business owners commenced utilizing e-learning to train their employees. Incipient and experienced workers had the opportunity to expand their

industry cognizance and increment their adeptness sets. At home individuals were granted admittance to programs that offered them the facility to earn online degrees and enrich their lives through incremented erudition [3]. These days, e-learning is more popular than ever, with countless individuals realizing the welfares that virtual learning can offer.

2.2 Related Works

There are numerous e-learning locales discovered everywhere throughout the web. Be that as it may, the majority of them do not have the proficiency to make learning and imparting peaceful. Understudies gets confounded over the muddled utilization of these learning locales and frequently can't locate an acceptable method to learn. A portion of the best learning locales that are famous among understudies have been examined precisely.

Case study-1:

The most popular learning site around the world is google classroom. This website offers us a diversity of opportunities. We can learn by signing in and joining via a classroom code make available by the edifier. Students can submit their works here and ask questions by engendering a post or commenting on someone's post. Edifiers can engender a classroom for a categorical subject and make available course materials. Withal they can assign tasks to students.

But the quandary in this system is that students can only join the classroom if there is a classroom code make available and if the classroom engendered by the edifier emanates from a categorical sodality then the students outside that sodality can't join the class. The same quandary is faced by the edifiers.

Another quandary is the communication system which is not copacetic for the students. It is not possible for a student to only interconnect with the pedagogic and vice versa.

Case study-2:

Udemy is another online learning (raised, flat supporting surface) that offers anyone an opportunity to learn and teach. Unlike google classroom it doesn't restrict the teachers and students to use a code or to be involved with a clearly stated/particular association. However, these courses comes with a price. We can learn by watching videocassettes make available by the instructor. There is also articles related to the course and some downloadable useful things/valuable supplies make available.

The problem with this system is the students cannot interconnect with the instructor and also there is no way to show their work to their instructors for (careful examination of something). There is also no way to interconnect with other students or the opportunity to discuss topics. The instructors also have no opportunity to assign tasks or check the students works.

Case study-3:

Elearn is a learning site created for the students of Daffodil International University. This website is not user-friendly at all. Much like google classroom, teachers can open course and providing the code students can join the course. But there is no acceptable way to interconnect with the teacher and other students. Teachers can make available course materials, but not videocassette contents. The sign in process is also very complicated and rejects some less experienced students.

2.3 Comparative Studies

Despite the fact that the subsisting systems are quite good and offer apertures for some, the following quandaries have been observed:

1. Communication via these accommodations is intricate and sometimes a lesser amount of experienced users face troubles.
2. The cognition process and the quantity of substantial, updating and managing the contents are more arduous.

3. Do not make available dislocated studies where a component of students do not have the chance to attend classes every day.

4. These websites have more intricate systems and long-term communication between edifiers and students and their mutual communication as topical exchange of information is not make available accordingly.

2.3 Scope of the Problem

From the investigation of various learning destinations and necessity examination, we have figured out the degree for this venture as made reference to underneath.

1. The office to make accessible a wide range of computerized substance (learning materials, understudy confirmations) on the new framework.

2. To make accessible the opening to frame and deal with the learning projects and classes for educators.

3. To make accessible with some particular types of acquaintance for understudies with get a hang of the course they are going to join.

4. To build up different correspondence frames among educators and understudies.

5. To help in changing the framework interfaces and proposes for every client.

6. To help the understudies to control on-line learning execution (independently directed learning).

7. To make the earth calm to seek and look at the learning substance.

8. To make accessible the chance to relegate errands for instructors and submitting assignments for their review for understudies.

2.4 Challenges

In spite of the fact that e-Learning has numerous welfares for understudies and affiliations alike, it additionally has a few Constraints.

1. Approachability and information imperative:

Each e-Learning framework needs basic gear and a base dimension of PC information with the motivation behind executing the undertakings compulsory by the framework. An understudy who does not hold these abilities, or have course to these mechanical assemblies, can't prevail in an e-Learning program.

2. Inapt topics for e-Learning:

A few subjects that require corporal effort and practice, for example, sports and relational abilities, are not well-suited for e-Learning [4]. Be that as it may, e-Learning can be helpful to customary training for showing foundation and specialized data.

3. Constraint of understudies:

The adaptability and understudy focused topic of e-Learning require an abnormal state of understudy duty. An effective e-Learning understudy must be all around systematized, self-propelled, and have OK time administration aptitudes. What you escape an e-learning program is specifically identified with the measure of exertion you put in it.

CHAPTER 3

Requirement Specification

In the wake of gathering and dissecting the necessities, we set an expectation to go after the consummation of this task and began to plan the required models to construct an agreeable framework for all. In this part we talked about all the framework necessities that is expected to propel the venture.

3.1 Business Process Modeling

BPM alludes to make even procedures with the affiliation's key objectives; structuring and inciting process models; building up process evaluation frameworks that are subsidiary with associational objectives; and, illuminating and sorting out chiefs to achieve forms operatively (Bosilj-Vuksic et al., 2005) [5]. It finds out propagated revision of expert execution by dealing with the procedures and their segments: associational structure, arrangements, business rules, directions, HR, and ICT. The term is inconsistently used to allude to sundry robotization [7] endeavors, for example, work process frameworks. For this task we've pursued the model given beneath.

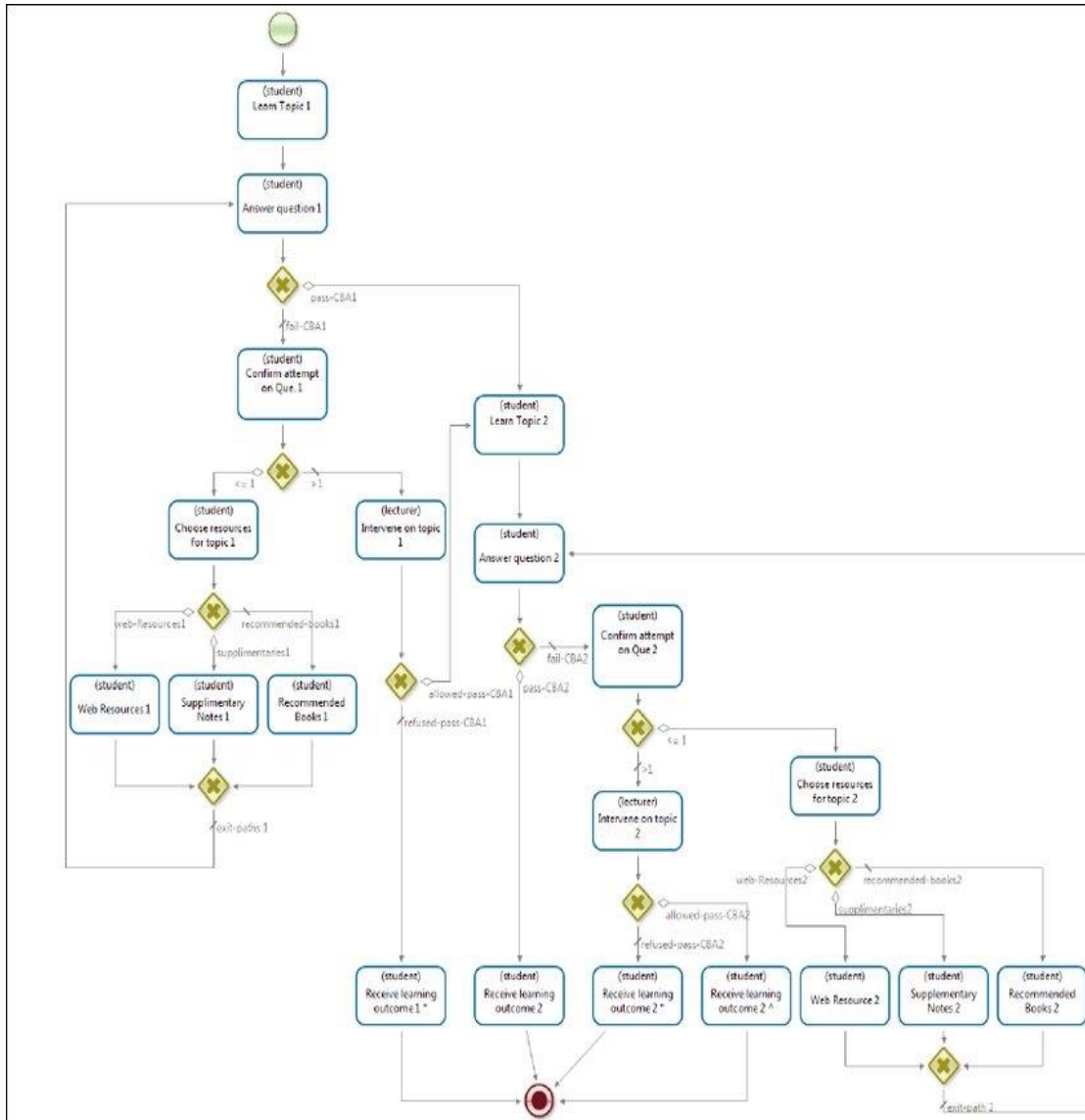


Figure 3.1.1: BPM diagram of an e-learning system

3.2 Requirement Collection and Analysis

System necessary things are what is required for a client to install the web computer program in their system and be used in a positive-thinking way without any (problems, delays, etc.). The plan/purpose of this is to get/help clients learn (or check) they have all required mechanical devices or equipment. With analysis there are some

goals for hardware, software and any other thing that would be the minimum extremely importunities to install the system.

3.3 Use Case Modeling and Description

A utilization case diagram designates the utilization essentialities of a system. It entails of avail cases, actors, sodality relationships and the system itself. A utilization case designates a list of actions that can be implemented between an actor and a system to achieve some particular goal. An actor is a person, sodality or a system that intermingles with our system.

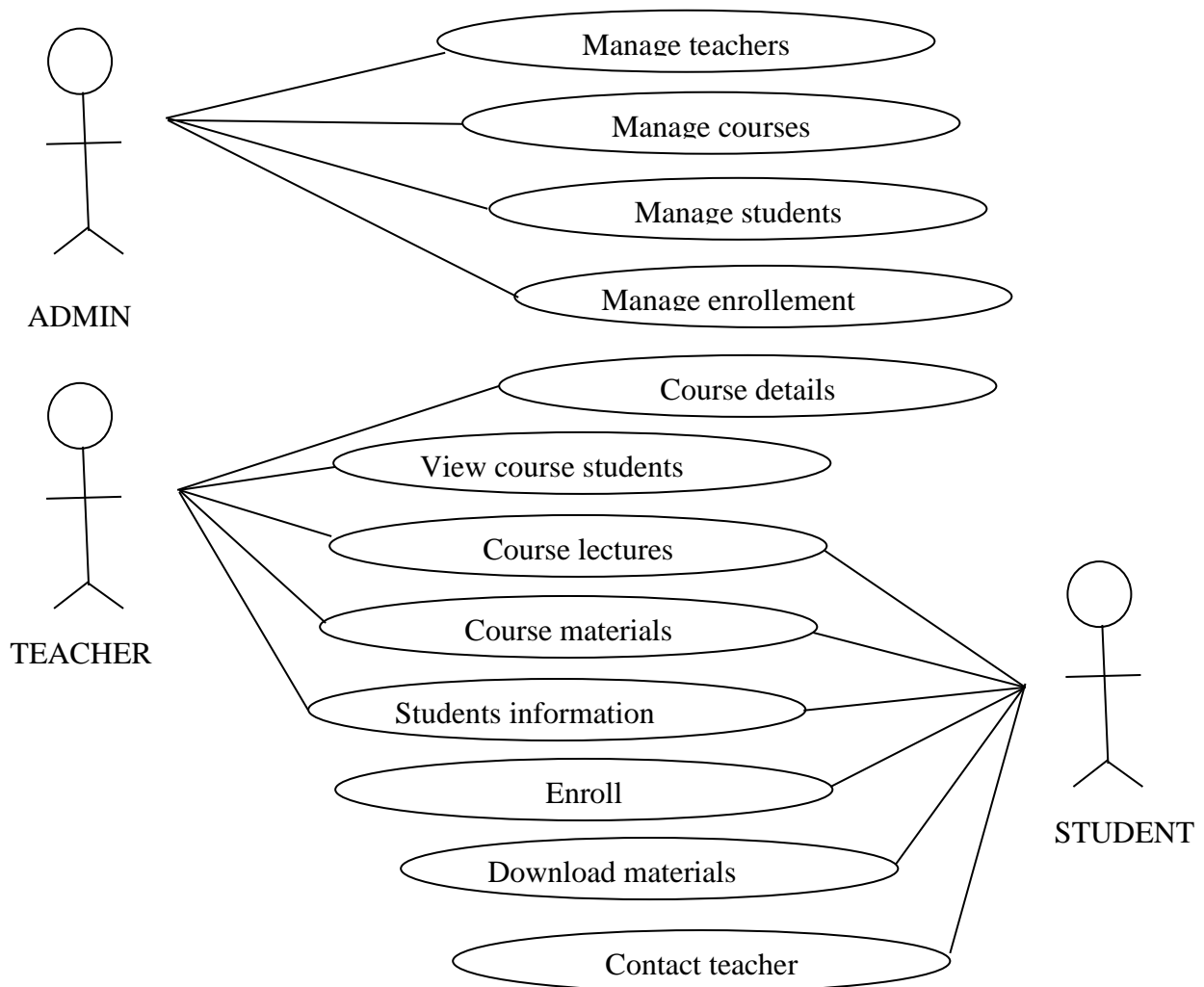


Figure 3.3.1: Use Case Diagram for e-learning system

The administrator can execute sundry functions on the system like integrate personnel to the system; i.e., sanction incipient people to entree the online training system. The administrator can augment incipient courses to the list of courses; augment incipient course categories to the list of categories. The administrator can allocate sanctions/revoke sanctions to/from personnel to increment/decrease their entree levels to the system [6]. The administrator can establish the system as per requisites; transmute the appearance of the pages like alignment etc.

The instructor of a course can execute many functions on the system close family to integrate/efface course materials to present courses, integrate/efface courses, enroll students into their courses, and eliminate enrolled students from courses. Grade any waiting for assignments for their course, give final grades to students afore the assignments are returned, test/evaluation of the past grades for the students who are/were enrolled into their courses.

The student can execute functions on the system like viewing the courses available from the list of courses, comprehensive a course into which he/she is enrolled into by the instructor. They can additionally view the grades of anterior courses which they concluded and submitted.

3.4 Logical Data Model

A database diagram illustrates the structure of the database to be engendered for the system to be built. It demonstrates the list of tables to be engendered along with their column values and the diverse relationships between the tables like peregrine keys and primary keys.

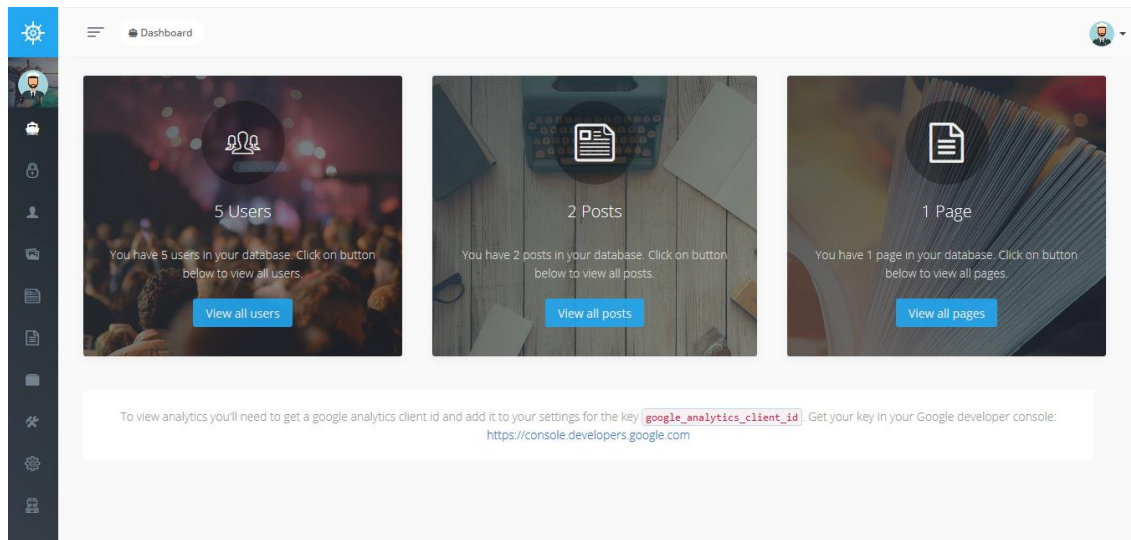


Figure-3.4.1: Design of the administrator's panel

Database outline for the tables which exchange with stacking all utilizer data other than the enlistments. These tables grasp individual specifics of the clients; i.e., data interrelated to their utilizer accounts and so forth.

The database structure for the job assignments to the clients. This exhibits every one of the tables intended to heap the job data of the considerable number of clients and specifics about every job endorsed in the framework.

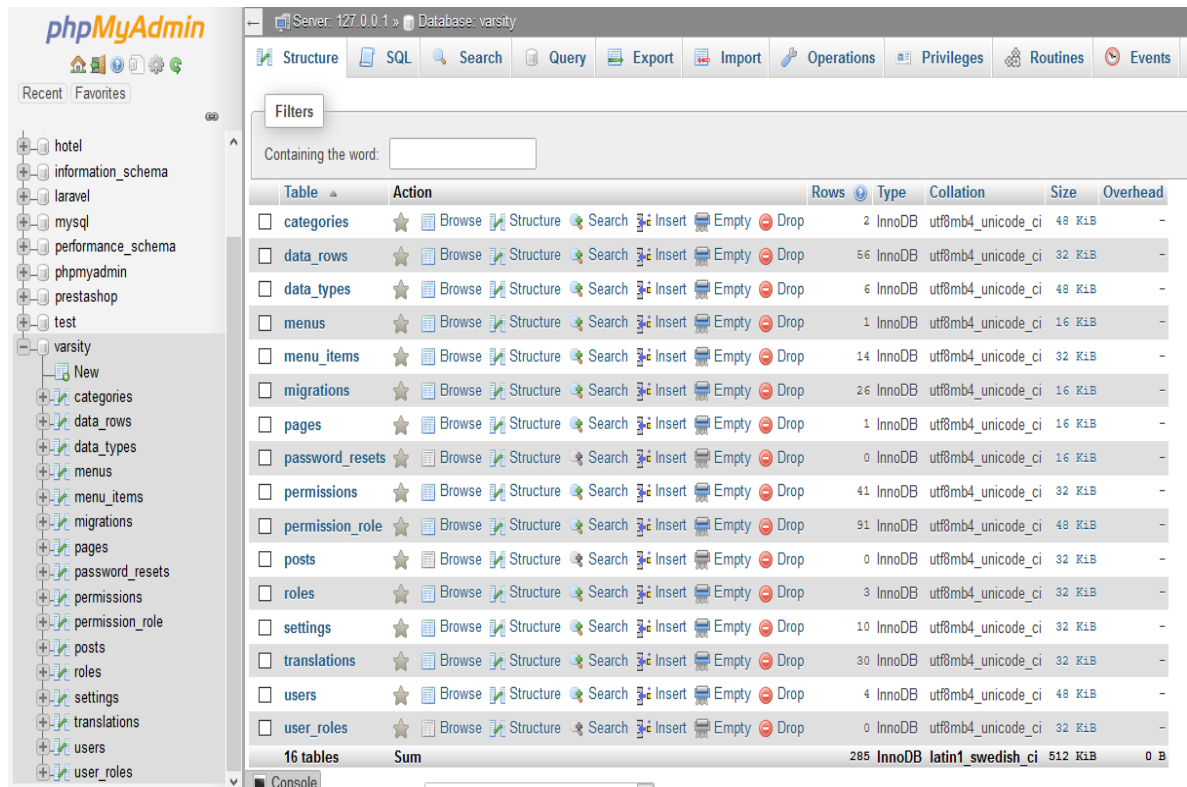


Figure 3.4.2: Database of the system

3.5 Design Requirements

The minimum necessities are as follows for this system.

Hardware requirements:

For this system we would require the apparatus mentioned below. We would require an Internet entree at 56k or overhead, Pentium(R) Dual-Core CPU, 512 MB RAM for windows XP/windows7/windows8 and last of all 20 GB HDD.

Software requirements:

To make this system we'd use PHP Version 5.2.6. My SQL will be acclimated to engender the database. To run the front end design Google Chrome & Mozilla Firefox (Browser must be Java and JavaScript enabled).

CHAPTER 4

Design Specification

To advance this project we've endeavored to make the design unpretentious and utilizer-cordial. Utilizing the simplest apparatuses and technology anyone can entree this system and effortlessly fixate on the obligatory desiderata of an individual.

4.1 Front-end Design

Front-end design is how the design of a web page in authenticity gets instigated on the web. The front cessation of a website is the fragment that users intermingle with. Everything that we optically discern when we're traversing around the Internet, from fonts and colors to dropdown menus and sliders, is a coalescence of HTML, CSS, and JavaScript being quantified by our computer's browser. For this project, we've used HTML, CSS, and JavaScript to code the website.

4.2 Back-end Design

The back terminus of a website comprises of a server, an application, and a database. A back-end is compulsory to build and foremost procure the technology that powers those components which, together, facilitate the utilizer-facing side of the website to even subsist in the first place. To advance this project we've used laravel framework.

4.3 Interaction Design and UX

Utilizer experience (UX) design is the route of engendering products that make available consequential and consequential experiences to users. This comprises the design of the entire process of procuring and integrating the product, including phases of branding, design, usability, and utility.

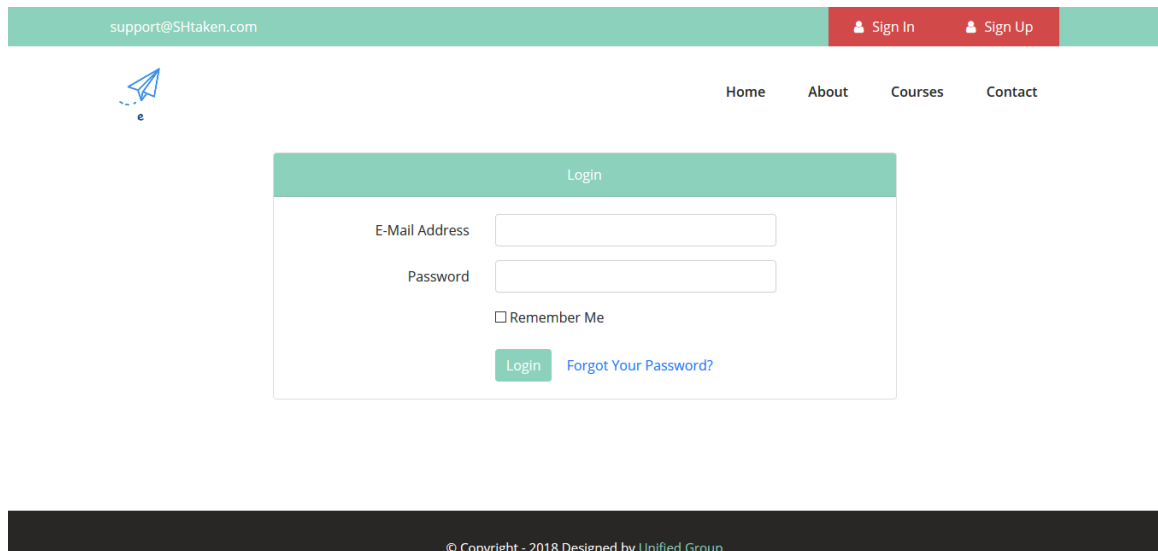


Figure 4.3.1: Log-in page of e-learning system

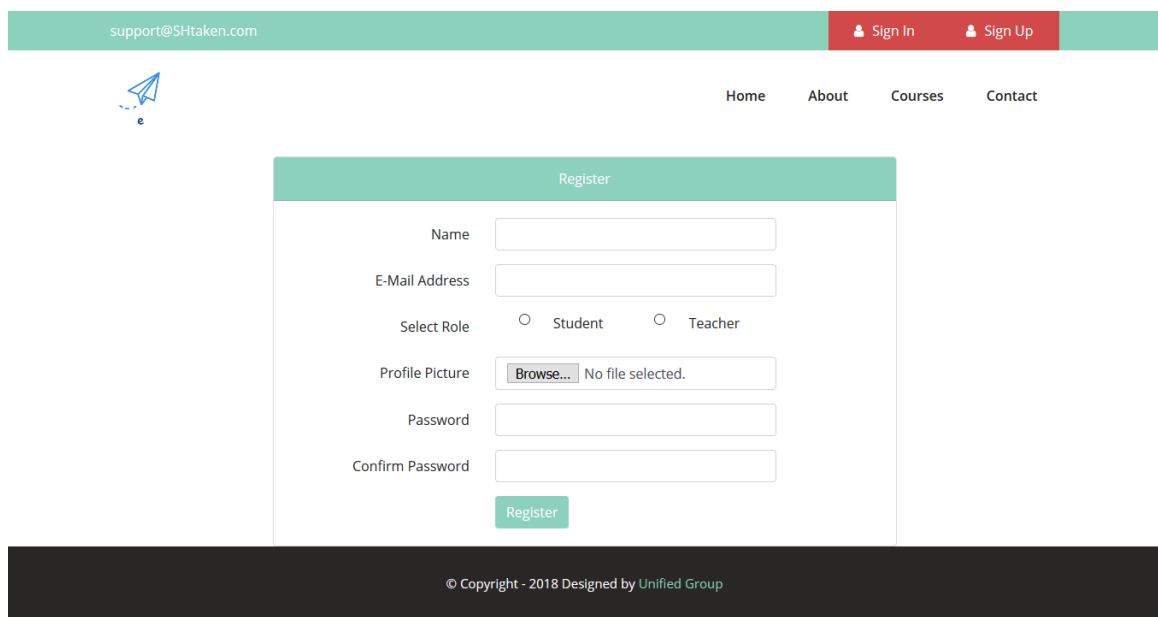


Figure 4.3.2: Register page of e-learning system

4.4 Implementation Requirements

While the design and modelling of a cognition progression is accomplished utilizing BPMN elements, the instigation is predicated on JPDL XML descriptive language. The JPDL version of our demonstrated customized learning path is situated in JBoss JBPM runtime engine; where it can be entree/invoked by all the e-learning actors that were demarcated in the BPMN swim lanes (learners and lecturer). We've used HTML and CSS to instigate the design.

Chapter 5

Implementation and Testing

After the erection of the initial working version, for instructors and administrators a course of how to utilize the system was systematized, so that they could self-reliantly perpetuate with its expansion. The system upgrading was instigated through a few iterations through which some potentials were upgraded and errors redressed. The examination was consummated with all three prognosticated levels of users (administrators, instructors and users/students).

5.1 Implementation of Database

With the intention of making the server, application, and database interconnect with each other, we've used server-side language PHP to compose the application, and apparatus MySQL to find, preserve, or change data and avail it back to the utilizer in front-end code.

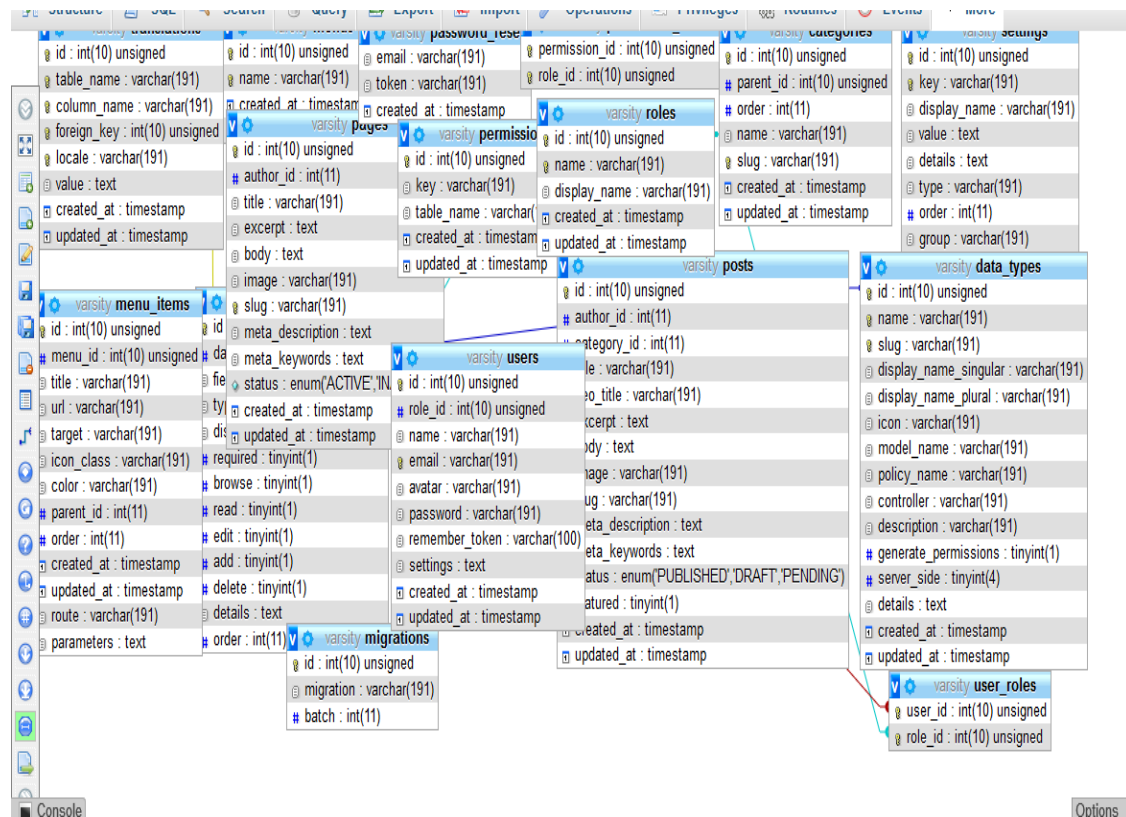
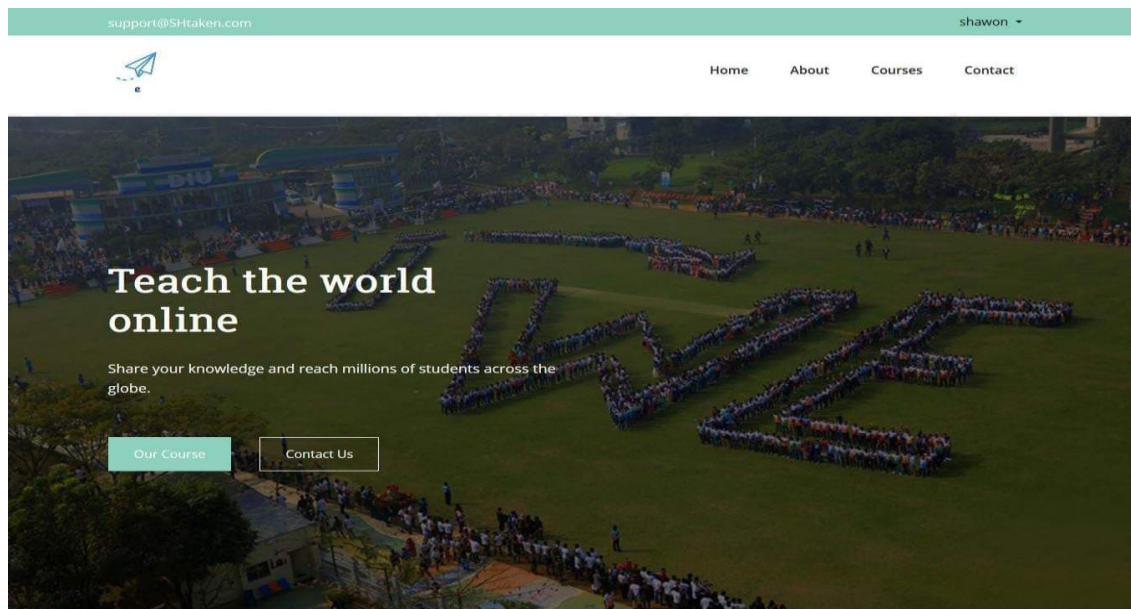


Figure 5.1.1: Implementation of database of the e-learning system

5.2 Implementation of Front-end Design

So as to execute those intents, we've to adept at three foremost languages: HTML, CSS, and JavaScript programming. Supplemental with fluency in these languages, we've looked-for to be habituated with Bootstrap framework which warranted great-looking content no matter the contrivance, and libraries like jQuery and LESS, which package code into a more expedient, time-preserving form.



Our Popular Courses



Figure-5.2.1: Front-end design of the website.

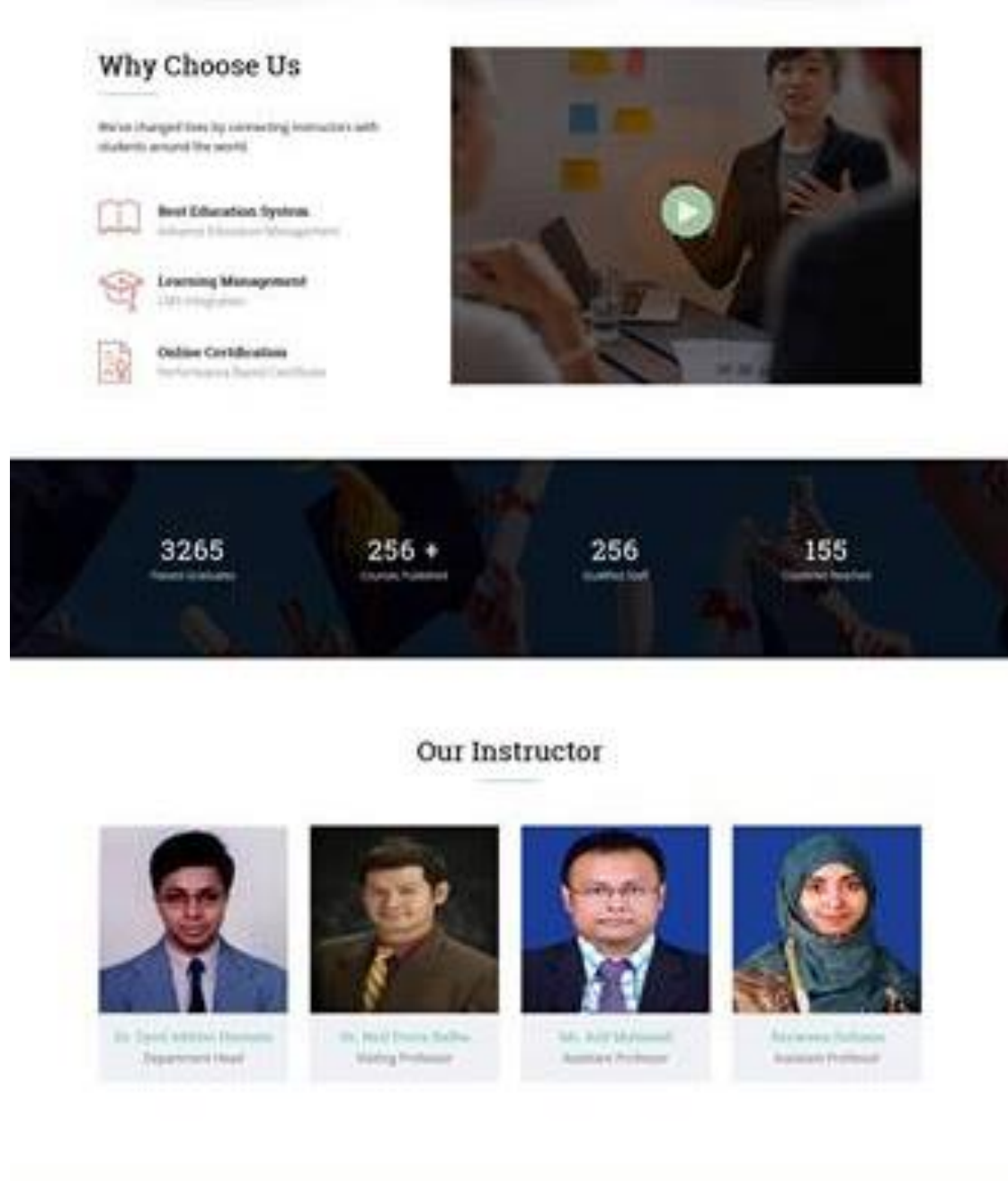


Figure 5.2.2: Front-end design of the website

5.3 Implementation of Interactions

After the first recapitulation of functional aptitudes examination, the system was dispensed experimentally. What trailed was note taking of the users (instructors and students) through some casual conversations and discussions. It is imperative to stress

their experience in functioning with homogeneous systems as simplicity was one of the most imperative tasks in the system formation. The examined students along with their own valuation are unseasoned in work with commensurable systems and typically they encounter them for the first time. The groups of question on the substratum of which the eminence of the made system were assessed are:

1. The handler's contentment with the system
2. The regularity of the system use and
3. Handler's estimation whether the system avails in edifying

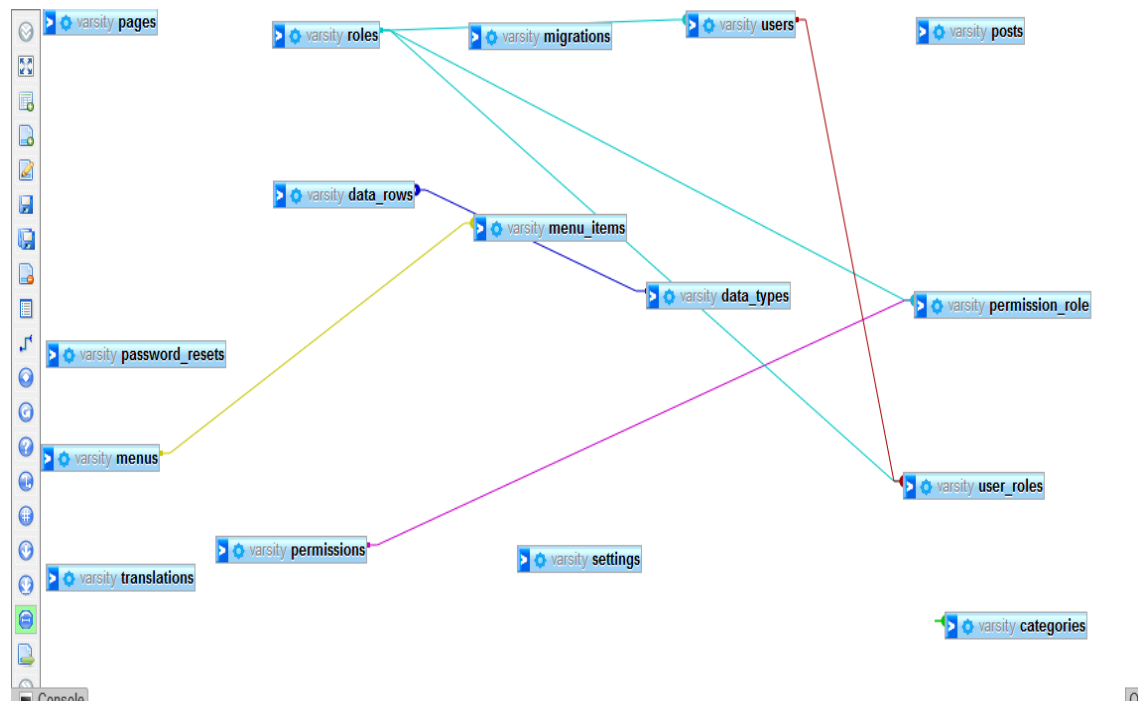


Figure 5.3.1: Implementation of interactions

5.4 Testing Implementation

The contributors in testing are customarily assessing the designed system positively, where the best valuation is given to the visual looks and to the total aptitudes of the system. What is predominantly slaking is the system intricacy assessment as 74 % of the defendants judged the system as simple to utilize, and for 26% it was ascetically intricate. The defendants are mostly assessing the designed system positively, where the best valuation is given to the visual looks and to the total aptitudes of the system. What is predominantly slaking is the system intricacy calculation as 74% of the defendants assessed the system as unpretentious to utilize, and for 24% it was judiciously involute.

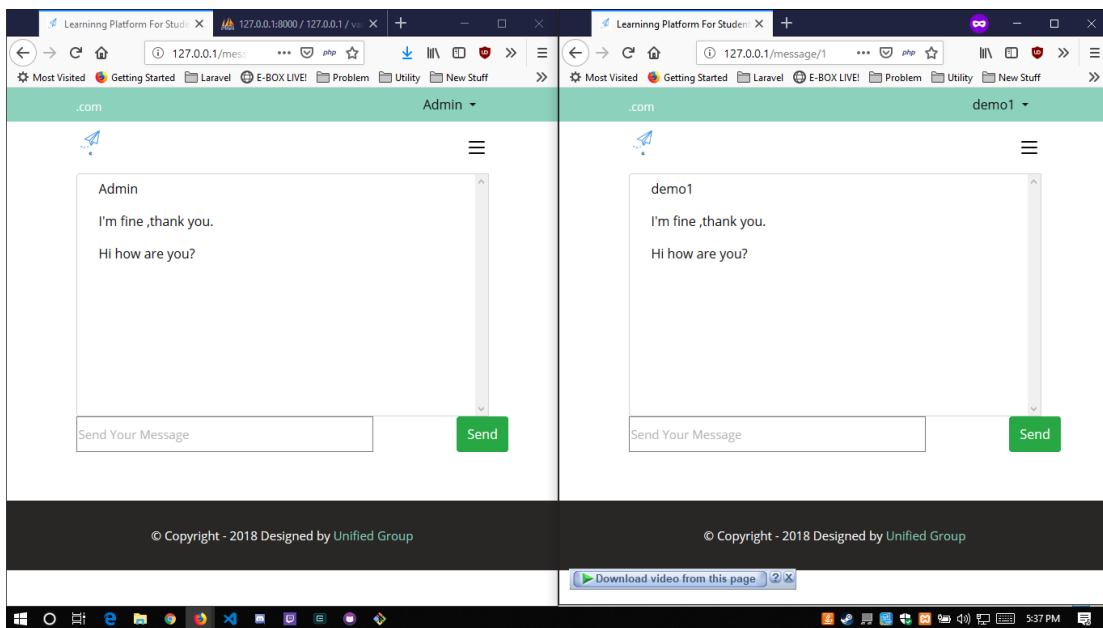


Figure-5.4.1: Testing interactions between users

5.5 Test Results and Reports

The system functionality valuation and the aptitude for its use in learning are presented by the results in Figure 9. So we can optically discern that the system is broadly utilized in cognizance progression. Proximately all the handlers during edifying execution and sovereign learning were utilizing the system for of the content (100%) and in learning (90%). A little less instigation refers to the utilization of system communication aptitudes (62%) and self-cognizance patterned (71%).

It is incentivizing to consider the results presenting how these have availed to students in their work. They solidly evaluated that this system availed them in learning, but that some of its concrete features had not wholly satiated their prospects. So we can determine that the project has conveyed some positive results, but alternatively the further progression of system's functional aptitudes is paramount.

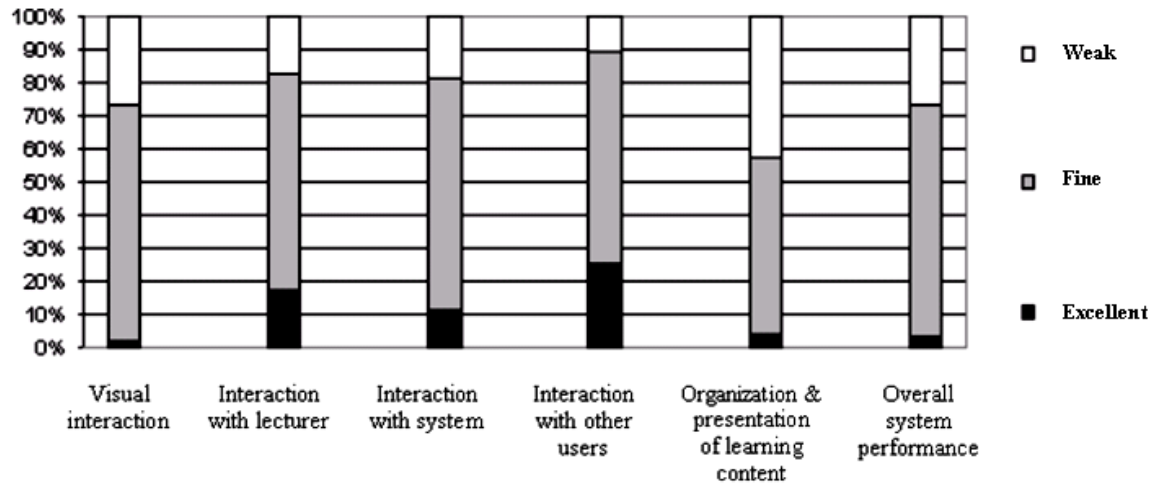


Figure 5.5.1: Participants' satisfaction with the e-learning system features

CHAPTER 6

Conclusion and Future Scope

It has been a great preference to be given a chance to work on this project. We have highly educated a lot about learning management systems, their structure, features and working. Working on this project has specified us an understanding of the working of stored dealings and roles in SQL Server, coordinating (many different kinds of people or things) (computer files full of information) in SQL etc. We have increased our knowledge on the set of standards for web based learning systems, also well-educated ourselves on how to create courses in format. The data which we have gained while working on this project would aid us in our future work involving these technologies.

6.1 Discussion and Conclusion

This project interchanges all the training from the classroom to the internet making it with no trouble enterable by the users. It (shortens/changes from gas to liquid) the heavy load on the students taking the courses. On this system, any recruits can login, view their current course enrollments and take courses. Instructors can open quickly flows along with their training needs; they can also break up and move away the assignments and keep informed the final score for the course enrollment, give (reactions or responses to something/helpful returned information) to the students on their execution.

The examinations presented that the system, when working with 30 users, does not have happiness-causing (by meeting a need or reaching a goal) execution or what we prescribe to weak hardware system base.

What is also very stimulating, but involves longer period of following and fair/not interestedness, is examining the differences/different versions in relation teacher-student, and student's relationship to the learning (development or increase over time/series of events or things) in which the attendant will not be a not

moving/powerless listener any more but also a (something that comes before) his education. In this plan it is expected/looked ahead to a new part/face of communication between teacher and students or students among themselves.

6.2 Scope for Further Advancements

Our involvement in the framework use in instructing outlines that enthusiasm for e-learning is straightforwardly habituated by the ICT premium. Despite the way that likewise with the clients that are induced to ICT can happen the immersion of realizing which is down and out of collaboration with individuals. It is reasonable that the learning procedure and information transmission is substantially more diverse than simply displaying certainties. Learning by the machine bolster is unquestionably asocial and comprise of characterized human needs. Be that as it may, regardless e-learning framework and separation learning as a course of action of information transmission will progress valuable and particularly in the individual learning bearing. Fulfillment proportions of the chaperons will be a conclusive achievement measure. Inspecting the quality and clients' fulfillment appeared in this paper, gives explanation behind being idealistic and to proceed with utilizing such frameworks. Learning and the type of its acknowledgment will additionally pursue the mechanical patterns so we can expect the further increment of use and some new types of its impelling, however for the present the innovation does not have control for dropping the classroom learning.

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Appendices

Appendix A: Project Reflection

HTML: Hypertext Markup Language

CSS: Cascading Style Sheets

LMS: Learning Management System

PHP: Hypertext Preprocessor

SQL: Structured Query Language

LESS: Leaner Style Sheets

XML: Extensible Markup Language

UX: User Experience

BPMN: Business Process Modeling Notation

Appendix B: Related Diagrams

Diagram

BPM Diagram

Use Case Diagram

Database Diagram for User Information

Database Diagram for User Role Information

Database Diagram for Course Information

Database Diagram for User Enrollment Information