

## **CHAPTER ONE**

### **1.1 Background of the Study**

Learning is one of the very vital human activities that require concentration blended with interactivity, clear and distinct understanding of the facts been stated or discussed, high communication skills and techniques, attractive learning qualities such as colourful pictorial presentations of information among others. Nevertheless not all learning process is considered to be effective.

In recent years, various sectors such as entertainment, education, health and businesses are being dominated by mobile applications. The reason for this is that mobile computing is able to provide a tool for the user when and where it is needed irrespective of user movement, hence supporting location independence (Niroshinie, Seng and Wenny, 2019).

Exploring the powerful capabilities of multimedia and implementing it on teaching and learning processes via the production of learning material and products such as e-book, computer assisted learning (CAL), computer aided instruction (CAI), computer based training (CBT), internet based training among others would go a long way towards improving the advancement of the practical and theoretical knowledge of the students. With high quality content value of the e-learning products and the captivating multimedia features embedded in them, a student can easily, assimilate such knowledge (even in the absence of a teacher and the required physical environment) through repetitive accessing of the e-learning materials and following the animated instructions contained therein.

The advancement of computer technology has promoted the quality of mobile learning. The trend of recent communication technology is how to make good use of wireless equipment's to construct a ubiquitous communication environment which can improve performance of

traditional learning and create new learning activities or model for active learning. A wireless technology makes it possible to create an environment for a learner to obtain knowledge anytime and anywhere. Through wireless access, a student can access rich contents from the internet, search the knowledge by keyboard, interactively communicate with classmates or teacher, and participate in a mobile classroom anytime and anywhere.

With the increasing use of network computers, the Internet and advances in telecommunication technology, e-Learning has been widely recognized as a valuable tool for learning and training (Firouz, 2020). The traditional means of higher education has remained dominant in schools in some developing countries. With the significant growth of e-learning, teachers and students normally explore new ways of constructing knowledge (David, 2018). The current technology being heavily researched as an educational platform is the World Wide Web (WWW). The WWW which represents a platform for information storage and dissemination can be accessed in minimum time, and this is very important to the educational community. The fact is that the transition from digital divide society to a global village information society causes the traditional instructional model to be unable to cover the instructional needs of modern societies. The globe is faced with a transition from a static economy to a new knowledge driven economy. Population explosion and increasing admission request into schools in every region of the world brought greater constraints on the resources of several schools. For instance, there is problem of inadequate number of human and material resources to cater for the education of the large population. The population of school age citizen in most places has grown tremendously to the extent that only a small percentage can be offered admission (Akinyokun and Iwasokun, 2021). A new learning environment needs to be created which will provide autonomy and flexibility,

establish contacts and easy communication between centres of culture and knowledge, and facilitate easy access for all citizens of a knowledge based society (Jain, 2016).

Conventional classroom based teaching involves the delivery of course lectures by the lecturer in a particular place at a specific time. Hence it imposes a constraint of time and place on both the instructor and the student. Due to the human factor, the lecturer may not always be able to put the optimum effort towards preparing and delivering course models. Direct interaction with the student is not easy because of the large number of students needing attention.

The remedy to this situation seems to be the learning techniques that are based on modern technologies such as the Internet and WWW combined with traditional classroom teaching. One of the ways this can be achieved is through the use of virtual classrooms. A virtual classroom is an environment conducive for learning, which takes place in the cyberspace. It provides the tools that learners need and brings together educators and learners to share information and ideas. The virtual classroom is a special form of e-learning that finds relevant applications in enriching the conventional learning methods. Nagarajan and Wiselin (2020) opined that e-learning can be deployed using a wide range of technologies and media.

The virtual classroom has its roots in the study of computers in education such as computer-mediated instruction and multimedia as an instructional tool. These broad fields covered not only hypermedia, such as web-based hypertext, but also non-internet instructional software design ranging from media school surgery tutorials to interactive CD-ROM geography atlases. Many of the issues facing these virtual classrooms, such as evaluation of interface design, integration of computers into course design, and social issues of computing are highly relevant to the design and use of internet-based virtual classrooms.

Present technologies enable the creation of virtual classrooms using the Internet and its resources. For the educators and trainees, a benefit of the Internet as platform for virtual classroom is that the information that can be stored is almost limitless. One of the contributions of Virtual Classroom (VCR) is the access to high quality and flexible learning technologies (Jain, 2016). The information being electronically stored can be accessed or downloaded by learners at their own pace, thereby overriding the constraint of time and place experienced in classroom based learning. The involvement of the distance learning includes teaching using telecommunication tools, which transmit and receive numerous materials through data, voice, and video (Ssekakubo, Suleman, and Marsden, 2021). There is also an increased use of virtual classrooms (online presentations delivered live) as an online learning platform and classroom for a diverse set of education providers. In addition to virtual classroom environments, social networks have become an important part of e-learning (Nagarajan and Wiselin, 2020).

## **1.2 Statement of the Problem**

Conventional learning (classroom learning) is normally fairly structured. It requires learners meeting on a regular basis, at scheduled times on the same days each week. This limits flexibility with work and other activities. Learners generally must be in class to get the learning experience and to keep up with requirements. Unless your instructors record lectures, in-class instruction is not available after the class session is over. Students who struggle to focus may also find classrooms and cohorts distracting to their learning experience.

Furthermore, it is very obvious that students tend to concentrate basically on the departmental compendium, as a result, this gives them little knowledge of what is expected of them, thereby impedes their performance when tested through mid-term assessments or

examination. Hence, the problem centres on effective teaching and learning processes for the impacting and the advancement of the students' theoretical and practical knowledge.

### **1.3 Aim and Objective of the Study**

The aim of this study is to design and implement an e-learning platform in which the course materials are presented using the advantages of multimedia and hypermedia.

The objective of this study are;

- i. To create a system using Python programming Language to create an e-learning website.
- ii. To make the website accessible to student by hosting it with the help of a hosting provider service.
- iii. To use Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS) to develop the User Interface (UI).

### **1.4 Scope of the Study**

The design of an e-learning platform is a very broad field, but this research work focuses on the development of a platform where students of this great institution Ambrose Alli University, Ekpoma can easily access reference materials of the departmental compendium, can read, copy or print these materials. Also students can download or watch videos of lectures uploaded by the instructor. It also makes a provision for the students to assess themselves after each studied course (objective-based).

### **1.5 Significance of the Study**

Mobile learning provides the following significance, the provision of course content to off-campus students, the provision of feedback to off-campus students, the provision of student support services to off-campus students, links to the World Wide Web (www) and other resources, student-to-student interactivity, student to tutor and Institution interactivity.

## **1.6 Definition of Terms**

**Learning:** This is the act of acquiring new or modifying and reinforcing existing knowledge, behaviour, skills, values, or references and may involve synthesizing different types of information.

**E-Learning:** This can be defined as any dissemination of educational knowledge over the internet. It can be defined as the delivery of a learning, training or education program by electronic means.

**Conventional Learning:** This means having education in the four walls of a school.

**Mobile Learning:** The definition of mobile learning is still evolving and so there are many definitions in existence. Techno-centric defines mobile learning as learning that takes place with the aid of mobile devices.

**PYTHON:** A High Level Programming Language used in coding

**CAL:** This stands for computer Assisted learning. It is an application package that is designed to enable the user to learn a particular subject through the provision of tutorial that may or may not be accompanied by questions. CAL is popularly called tutorial software.

**CAI:** This is an abbreviation of computer aided instruction. It is an application package that is designed to enable the user to learn and/or get acquainted with a specific subject or an aspect of life.

**WWW (World Wide Web):** This is a format that we use to design website.

**Website:** It is information of a particular people, individual, state, country etc, made available to be seen or can download on the net.

**Login:** To connect to the server and make use of available information provided by the designer within some range of specification.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter focuses on previous reviews of the study topic by different authors. This includes the conceptual framework, theoretical review and empirical review.

#### **2.2 CONCEPTUAL FRAMEWORK**

E-learning literature identifies an ecology of concepts, from a bibliometric study were identified the most used concepts associated with the use of computers in learning contexts, e.g. computer assisted instruction (CAI), computer assisted learning (CAL), computer-based education (CBE), e-learning, learning management systems (LMS), self-directed learning (SDL), and massive open online courses (MOOC). All these concepts have two aspects in common: learning and computers; except the SDL concept, which derives from psychology, and does not necessarily apply to computer usage. These concepts are yet to be studied in scientific research, and stand in contrast to MOOCs. Nowadays, e-learning can also mean massive distribution of content and global classes for all the Internet users. E-learning studies can be focused on three principal dimensions: users, technology, and services (Mayer, & Moreno, 2020)

##### **2.2.1 Concepts of E-Learning**

E-Learning is imparting and facilitating knowledge on media, electronic devices like that on the Internet, CD-ROMs, and DVDs, streaming media etc. It has drifted the method of learning imparted to the students. Unlike conventional chalk and board style of schooling, eLearning makes giving and receiving simpler, prolific, and productive. Shortly, it is the method of teaching purely through technology. The word e-learning is used synonymously with virtual knowledge, online education, computer-based training, web-based knowledge, and networked

education. Whatever may be the explanation of e-learning, it is revamping the style traditional academia teaches and the learners grasp.

### **2.2.2 Purpose of E-Learning**

The idea of e-learning is to empower learners to absorb personal accomplishment, basic schooling or to obtain a degree certificate, without actually attending the school or university or any other academic institute. Another idea is to apply E-learning to all levels of schooling to ensure students grasp the lessons adequately. Psychologists believe that audio-visual method of teaching creates a disciplined learning environment and fosters effective student engagement in the class.

### **2.2.3 Types of E-learning**

E-Learning eventuates in many forms and at times is the blend of the following:

- Completely online – no vis-a-vis meetings
- Mixed Learning – A blend of online and direct communication
- Synchronous- the communication between the provider and receiver happen directly as in chat rooms, or video-audio conferencing.
- Asynchronous- The information is passed through forums, emails, wikis etc
- Self-study
- Web-based learning
- CD-ROMs
- Audio and Visuals

### **2.2.4 Advantages of E-Learning in Education**

The online learning style is best suited for all. This is a revolution in learning genre. The information, now, can be accessed, talked, absorbed and shared anywhere. E-Learning has made



education easy for everyone including office-goers, housewives etc without compromising much. E-Learning is effective and powerful. It makes information easy to grasp and absorb. It imparts enhanced ability to learn and implement among the learners. The Audio-Visuals help in remembering knowledge for a longer time. E-Learning let you be in sync with modern learners. This keeps you updated with the current trends. Traditional classrooms, have mischievous elements to disturb the class. Whereas, E-Learning provides expeditious delivery of lessons. There is no procrastinator in eLearning. It is a quick way of learning! Lectures can be taken at any time and any number of times. In traditional classes, revisions are not that easy. Unlike traditional learning, if you have missed any lesson, you can always have it online. E-Learning allows teachers a higher degree of coverage to deliver the content regularly. This ensures consistency in learning. E-Learning is cost-effective as this method quick and easy. Long training period, infrastructure, stationary, travel expense etc is reduced. It is a benefactor to those who feel nervous and disconnected in groups. It helps you learn without having to give up the comforts of the environment you are at ease with.

The total value of the textbook industry is \$7-\$10 billion, and the average college student spends close to \$1,200 per year on textbooks alone. Many students finance their textbook purchases from their student loans, and students who graduate with student loans are known to experience increased stress and depression. One big advantage of E-Learning is that it requires absolutely no textbooks from its students. All the learning materials can be accessed online, without restriction. Online learning materials can be retaken and updated an infinite amount of times, unlike textbooks which need to be reissued and re-bought once again when they become obsolete. Online learning cuts the learning time down by 25% to 60% compared to traditional classroom learning. Coupled with the advantages of self-paced E-Learning, this results in a

highly time-efficient learning solution both for the students and the teachers. In traditional learning institutions, making changes to school curriculums is a long and complicated process which is often avoided due to its complexity. However, in the case of E-Learning, lessons can be delivered and updated quickly and efficiently – sometimes within days. When used in conjunction with data-oriented E-Learning Analytics, these changes to the learning materials are not only based on theory but real evidence (Sander Tamm, 2021).

### **2.2.5 Impacts of E-Learning on Students**

Students who study online can plan their own time schedule, without having to make personal sacrifices in order to meet the class attendance requirements of teachers and traditional universities. The research has demonstrated that self-paced learning leads to increased student satisfaction and reduced stress, resulting in improved learning outcomes for everyone involved. Some of the advantages of self-paced learning include efficiency, effectiveness, convenience, scalability, and reusability. Student-centered learning (SCL), also referred to as learner-centered education, is a modern learning method which aims to put the students in the center of focus, rather than the teachers. The reason why I listed it as an advantage of E-Learning is that student-centered learning goes hand in hand with E-Learning. Online learning is fundamentally student-centered, due to the easy implementation of student discussion boards and peer grading systems. In fact, many of the 10 types of E-Learning largely revolve around the idea of student-centeredness. Both collaborative E-Learning and synchronous online learning promote student-to-student interaction. Being able to plan and design fully student-centered online learning environments is one of the greatest advantages that E-Learning has. The value of student-centeredness must not be understated. Due to simplified logistics and lowered travel costs, among other factors, learning institutions who utilize E-Learning can expect to save 50% to 70%

on overall training costs. How, exactly? Let's bring some real-life examples of e-learning to the table. The University of North Carolina in Charlotte (UNC) is an excellent example of cost-efficiency. UNC claims that they managed to save US\$5,000,000 in 2010 by focusing on e-learning rather than traditional classroom-based learning. Additionally, they saw an increased number of total students in their faculties. These savings came from the simple fact that they did not have to make investments into business premises to facilitate learning. Virtual classrooms have no need for physical lecture halls, which tend to get very costly. Another example of advantageous cost-efficiency in e-learning would have to be the Wisconsin-Madison University, which saved US\$172,000 solely due to savings in professors' time. E-Learning reduced the amount of overall time professors had to spend on learning sessions, and these time savings led to reduced monetary spending for the university. For educational institutions, the cost-effectiveness of E-Learning can also be advantageous when used together with classroom-based learning. This is known as blended learning, and it's an excellent alternative to those organizations who are not yet ready to fully move over to E-Learning. Cost-efficiency in E-Learning applies not only to educational institutions, but it also similarly applies to the students. For instance, E-Learning reduces all the costs associated with commuting, textbooks, and childcare. E-Learning takes into consideration the differences of individual learners, and it allows students to practice their own individual learning styles. In other words, students are not always required to pass all unwanted courses in a curriculum and they can choose specific topics of interest to them. All students have different learning styles and there will never be a one-size-fits-all type of solution which will match all students at once. That is why individualistic learning methods are some of the greatest advantages of E-Learning. For instance, one of the most innovative types of E-Learning, adaptive E-Learning, has the potential to be the most individualistic learning method ever made

if implemented correctly. To recap, adaptive E-Learning materials are designed to automatically change and adapt according to the knowledge, skills, and needs of each individual student.

**Customizable learning environments** Researchers found that employees working in environments without pictures, plants, souvenirs and other were 15% less productive than those working with said “distractions”. This also applies to the educational context – students who don’t have a desirable learning environment will feel its effects on their learning performance and mental health. This is where the problem arises – in traditional classrooms, the learning environments are predetermined by the educational institutions according to their preferences. In other words, the students rarely have any say in what their learning environment looks like. On the other hand, in the case of E-Learning, the students have total control of their learning environment. Those students who feel the benefits of a plant-filled environment can customize their E-Learning environment accordingly. And, those students who feel better in a minimalistic learning environment without any distractions can reap the benefits of such an E-Learning environment.

**Data is the new oil**, and E-Learning makes use of student data much more effectively than any other form of learning in history. That is because of E-Learning Analytics. E-Learning Analytics is the extraction of valuable information from online learning management systems, and it’s another one of the greatest benefits of E-Learning. With student data gained through E-Learning Analytics, educational institutions can improve their training materials and boost learning outcomes in various ways. For example, if we have data on student dropout rates, we can identify potential pitfalls in our learning materials and eliminate them. Afterward, we can gather new data and analyze whether our change was beneficial to our E-Learning outcomes or not. The value of data in education is immense, and its full potential is yet to be realized. In 2019, the EPI (Economic Policy Institute) educational economists wrote in their report that the shortage of

experienced teachers is “real, large, growing, and worse than we thought”. Moreover, the LPI (Learning Policy Institute) has also identified the problem of teacher scarcity on numerous occasions, describing it as “one of the most pressing issues facing policymakers”. The issue of teacher shortage will undoubtedly be difficult to solve, but the benefits of E-Learning in combating teacher scarcity could be vastly underestimated. To clarify, let’s make a comparison. Regular universities have an average of 16.5 students per staff member, while E-Learning courses compiled by one or two qualified and experienced teachers can be served to thousands, if not millions, of students. E-Learning could potentially eliminate the need for retaining the massive 3-million person teaching workforce used in the U.S today. Instead of focusing our efforts on recruiting more teachers, perhaps we should instead focus on enabling our highest quality teachers to deliver their materials to a broader range of students through E-Learning. (Nieuwenhuis, Knight, Postmes & Haslam, 2014).

### **2.3. THEORETICAL FRAMEWORK**

There are several theories that can help understand and explain the principles behind e-learning. Here are a few prominent ones:

1. **Constructivism:** This theory emphasizes the active participation of learners in constructing their own knowledge. In e-learning, this can be facilitated through interactive and collaborative activities, where learners engage in problem-solving and discovery-based learning.
2. **Connectivism:** This theory focuses on the idea that learning occurs in networks and that knowledge is distributed across various sources. In e-learning, this theory underscores the importance of making connections between different resources, including online communities and social media platforms, to enhance learning.

3. **Behaviorism:** This theory views learning as a process of conditioning, where learners respond to stimuli and receive positive or negative reinforcement. In e-learning, behaviorism can be applied through the use of quizzes, simulations, and rewards to encourage desired behaviors and outcomes.

4. **Cognitive Load Theory:** This theory explores how learners process information and aims to optimize instructional design to minimize cognitive overload. In e-learning, it suggests presenting information in manageable chunks, using multimedia elements effectively, and providing opportunities for reflection and application.

5. **Adult Learning Theory (Andragogy):** This theory focuses on the unique characteristics and needs of adult learners. It emphasizes self-directed learning, practicality, relevance, and experience-driven approaches. In e-learning, incorporating real-life scenarios, offering flexibility, and providing opportunities for self-assessment and reflection align with this theory.

It's important to note that these theories are not mutually exclusive, and many e-learning approaches may incorporate principles from multiple theories. The choice of theory depends on the specific context, learners' needs, and instructional goals.

## 2.4 EMPIRICAL REVIEW

**Multimedia principle:** Deeper learning is observed when words and relevant graphics are both presented than when words are presented alone (also called the multimedia effect). Simply put, the three most common elements in multimedia presentations are relevant graphics, audio narration, and explanatory text. Combining any two of these three elements works better than using just one or all three.

**Modality principle:** Deeper learning occurs when graphics are explained by audio narration instead of onscreen text. Exceptions have been observed when learners are familiar with the

content, are not native speakers of the narration language, or when only printed words appear on the screen, (Clark, Ruth & Mayer 2021). Generally speaking, audio narration leads to better learning than the same words presented as text on the screen. This is especially true for walking someone through graphics on the screen, and when the material to be learned is complex or the terminology being used is already understood by the student (otherwise see "pre-training"). One exception to this is when the learner will be using the information as a reference and will need to look back to it again and again.

**Coherence principle:** Avoid including graphics, music, narration, and other content that does not support the learning. This helps focus the learner on the content they need to learn, and minimizes cognitive load imposed on memory by irrelevant and possibly distracting content, (Clark, Ruth & Mayer 2021). The less learners know about the lesson content, the easier it is for them to get distracted by anything shown that is not directly relevant to the lesson. For learners with greater prior knowledge, however, some motivational imagery may increase their interest and learning effectiveness, .

**Contiguity principle:** Keep related pieces of information together. Deeper learning occurs when relevant text (for example, a label) is placed close to graphics, when spoken words and graphics are presented at the same time, and when feedback is presented next to the answer given by the learner, (Richard 2021).

**Segmenting principle:** Deeper learning occurs when content is broken into small chunks. Break down long lessons into several shorter lessons. Break down long text passages into multiple shorter ones.

**Signaling principle:** The use of visual, auditory, or temporal cues to draw attention to critical elements of the lesson. Common techniques include arrows, circles, highlighting or bolding text,

and pausing or vocal emphasis in narration, (Crooks, Cheon, & Flores, 2020). Ending lesson segments after the critical information has been given may also serve as a signalling cue.

**Learner control principle:** Deeper learning occurs when learners can control the rate at which they move forward through segmented content, (Moreno, 2017). Learners tend to do best when the narration stops after a short, meaningful segment of content is given and the learner has to click a "continue" button in order to start the next segment. Some research suggests not overwhelming the learner with too many control options, however. Giving just pause and play buttons may work better than giving pause, play, fast forward, reverse buttons. Also, high prior-knowledge learners may learn better when the lesson moves forward automatically, but they have a pause button that allows them to stop when they choose to do so.

**Personalization principle:** Deeper learning in multimedia lessons occur when learners experience a stronger social presence, as when a conversational script or learning agents are used. The effect is best seen when the tone of voice is casual, informal, and in a 1st person ("I" or "we") or 2nd person ("you") voice, (Kartal, 2020). For example, of the following two sentences, the second version conveys more of a casual, informal, conversational tone:

A. The learner should have the sense that someone is talking directly to them when they hear the narration.

B. Your learner should feel like someone is talking directly to them when they hear your narration.

Also, research suggests that using a polite tone of voice ("You may want to try multiplying both sides of the equation by 10.") leads to deeper learning for low prior knowledge learners than does a less polite, more directive tone of voice ("Multiply both sides of the equation



by 10."), but may impair deeper learning in high prior knowledge learners, (Wang, Johnson, & Collins, 2018). Finally, adding pedagogical agents (computer characters) can help if used to reinforce important content. For example, have the character narrate the lesson, point out critical features in on-screen graphics, or visually demonstrate concepts to the learner, (Moreno, Mayer, & Lester, 2020).

**Pre-training principle:** Deeper learning occurs when lessons present key concepts or vocabulary prior to presenting the processes or procedures related to those concepts. According to Mayer, Mathias, and Wetzell, (Mayer, Mathias, & Wetzell, 2022). "Before presenting a multimedia explanation, make sure learners visually recognize each major component, can name each component and can describe the major state changes of each component. In short, make sure learners build component models before presenting a cause-and-effect explanation of how a system works." However, others have noted that including pre-training content appears to be more important for low prior knowledge learners than for high prior knowledge learners.

**Redundancy principle:** Deeper learning occurs when lesson graphics are explained by audio narration alone rather than audio narration and on-screen text. This effect is stronger when the lesson is fast-paced and the words are familiar to the learners. Exceptions to this principle include: screens with no visuals, learners who are not native speakers of the course language, and placement of only a few key words on the screen (i.e., labelling critical elements of the graphic image).

**Expertise effect:** Instructional methods, such as those described above, that are helpful to domain novices or low prior knowledge learners may have no effect or may even depress learning in high prior knowledge learners.

## **CHAPTER THREE**

### **SYSTEM ANALYSIS AND DESIGN**

#### **3.1 Methodology:**

The Methodology adopted in designing this system is the waterfall model. The waterfall model is a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. It illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete. In this waterfall model, the phases do not overlap

**Data Collection:** The method of data collection in this research work is through observation.

The researcher observes and notice that with the classroom method of teaching students in higher institution can sometimes face difficult situations for instance, if there is an emergency or during strike that involves the closure of school, student will find it difficult to contact the lecturer or even receive lectures.

#### **3.2 Analysis of the Existing System**

The existing system of learning is the process where students come from their home to the classroom to receive lecture and also if there is any assignment, they also come to school to submit manually. This is a stressful situation such that even if the weather is not conducive they have no option but to make sure they be in school and this also is the case of the lecturer, they must be in classroom to teach the students.

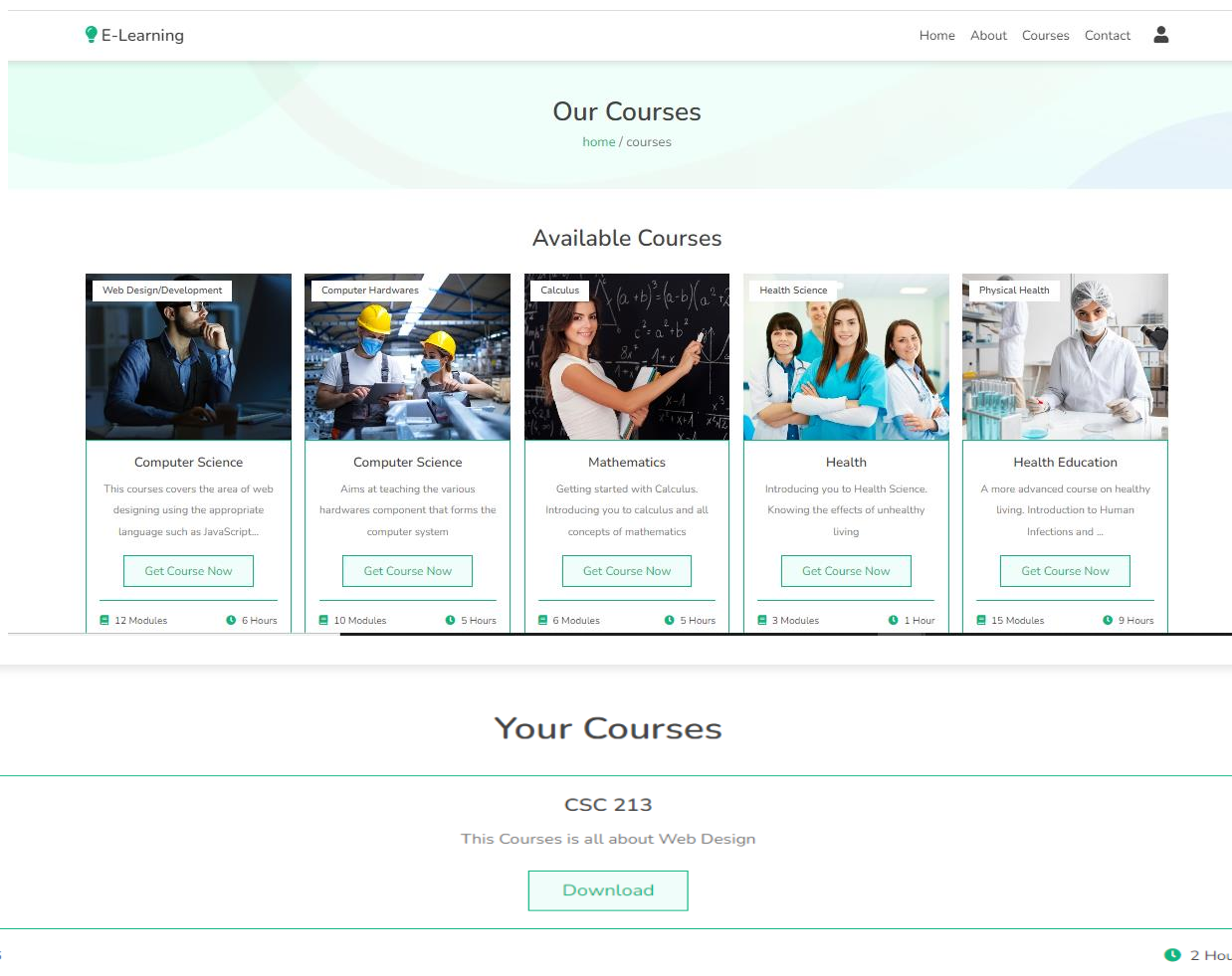
#### **3.3 Analysis of the Proposed System**

The proposed system is an online e-learning system, where students and lecturer will be able to login and access their dashboard. For the student, they will be able to get and submit their

assignment and also they will be able access courses which will be uploaded to their dashboard. While for the lecturers, they can upload course and score students base on their performance.

### 3.4 System Architecture

The system is simple and easy to use. It was built with python programming language along with Django framework. To use the platform, students have to register and login to their dashboard then they can access the courses available to them. The admin which is the lecturer can upload courses and even set assignment on their respective courses. All these function were implemented using python and Django framework.



**Fig 1. Student Module Outline**

## Change upload

HISTORY

Coursecode:

Title:

Description:

Module:

Time:

Delete

Save and add another

Save and continue editing

SAVE

## Select user to change

ADD USER +

 Search

Action:  Go 0 of 12 selected

<input type="checkbox"/>	USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
<input type="checkbox"/>	Debby	darby@gmail.com			✖
<input type="checkbox"/>	Gifty	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	User1	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	Wisdom	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	admin				✔
<input type="checkbox"/>	derbby	darby@gmail.com			✖
<input type="checkbox"/>	edu				✔
<input type="checkbox"/>	invest	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	mylove	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	teeruieruih	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	tessty	aramenkhosewisdom@gmail.com			✖
<input type="checkbox"/>	wid	aramenkhosewisdom@gmail.com			✖

## FILTER

By staff status

All  
Yes  
No

By superuser status

All  
Yes  
No

By active

All  
Yes  
No

Fig 2: Lecturer Module Outline

### 3.5 User Interface Design

The user interface which include the registration page, login page, the dashboard and the contact page was design using Hyper Text Mark-Up Language (HTML), Cascading Style Sheet (CSS), Bootstrap libraries and JavaScript. These are web tools used in creating a user responsive website.

#### 3.5.1 Navigation Bar

The components contained in the User Interface (UI) is the homepage and this contains the navigation bar that has menus in which lecturers and likewise the students can navigate through the website.



Home About Courses Contact Dashboard 

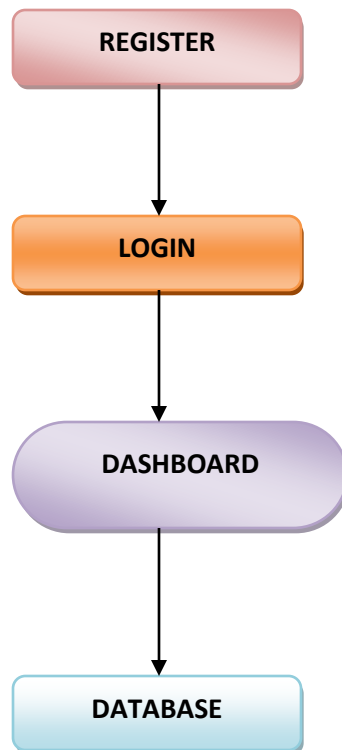
**Fig 3: Diagram representation of the Navigation Bar**

#### 3.5.3 Course Outline Page

The Course outline page displays the list of courses available to the student. Courses can only be available to student if the lecturer have uploaded the course and this is done through the data base. Also student can request for courses and if the request is approved by the lecturer the course will be uploaded to that particular student dashboard, which then the students can now download in pdf format into his/her device

### 3.6 Data Flow Diagram

The Data Flow Diagram shows the flow of information across the platform, how the navigation works from the user interface to the database. Below shows the diagram of the data flow.



**Fig 5: Data Flow of the Website**

### 3.7 Database Design

The database was design using Python Programming language and Django framework. The data administrators are able to receive messages sent from the user interface in the database and this function was implemented by python programming. The database design mode uses the SQLite as it is a very user friendly and easy to create database. Furthermore, the database also includes tables in which users request is being stored so that it can be later accessed by the administrators. The figure below shows the representation of the database design.

# Django administration

Username:

Password:

Log in

## Django administration

Site administration

AUTHENTICATION AND AUTHORIZATION		
Groups	<a href="#">+ Add</a>	<a href="#">Change</a>
Users	<a href="#">+ Add</a>	<a href="#">Change</a>
MYAPP		
Courses	<a href="#">+ Add</a>	<a href="#">Change</a>

Recent actions

My actions

edu

Course1

edu

Course1

edu

Course1

edu

Course1

edu

Course

Fig 6: The Database Diagram Representation

## CHAPTER FOUR

### SYSTEM IMPLEMENTATION AND INSTALLATION

#### 4.1 System Requirement

- **Hardware Requirement:** The hardware required to run the website is just a smart device, such as laptops, mobile phones.
- **Software Requirement:** A good browser (Chrome recommended) and a good internet connection.

#### 4.2 Output:

##### Home Page

The Home page of the system was designed in a very simple and easy way to understand.

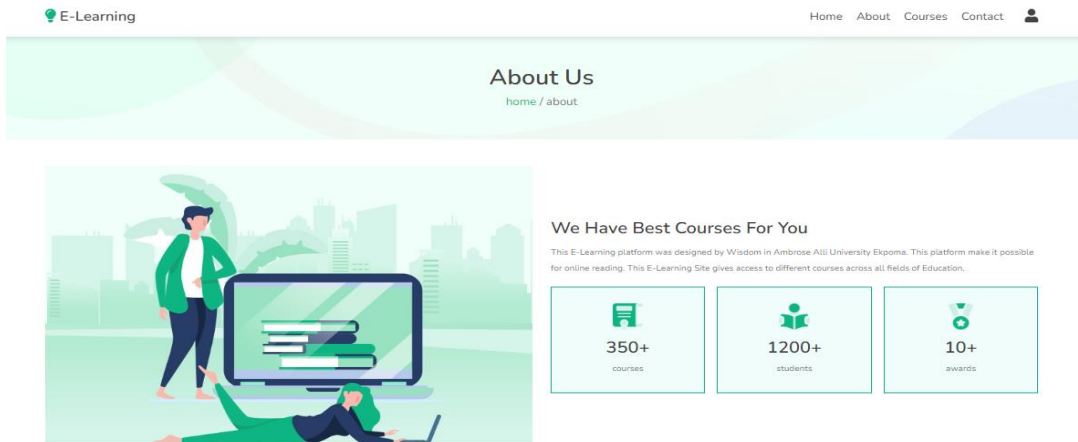
The home page consist of the navigation bars, the body and the footer.

Furthermore, the navigation consists of menus which includes; home, about, courses, contact and the login/logout icon. For students to access any course they have to register to the system.

#### 4.3 About Page

The about page contains info about the system, what it is about and how it works. It also contains students' reviews. It was designed with pure HTML and CSS for the styling and a little addition of JavaScript.

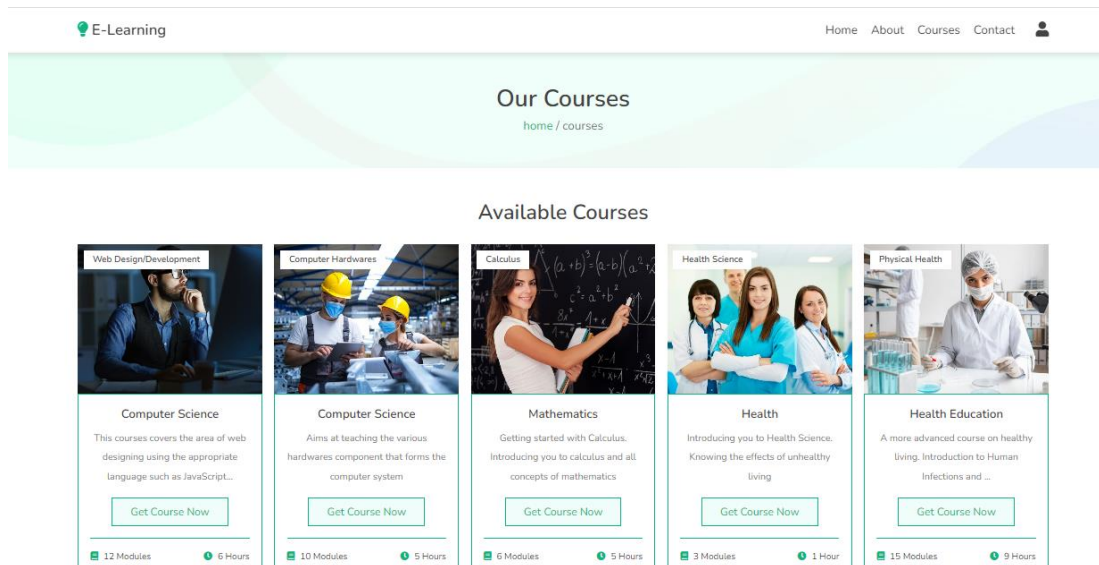




**Fig 3: The About Page:**

#### **4.4 Course Page**

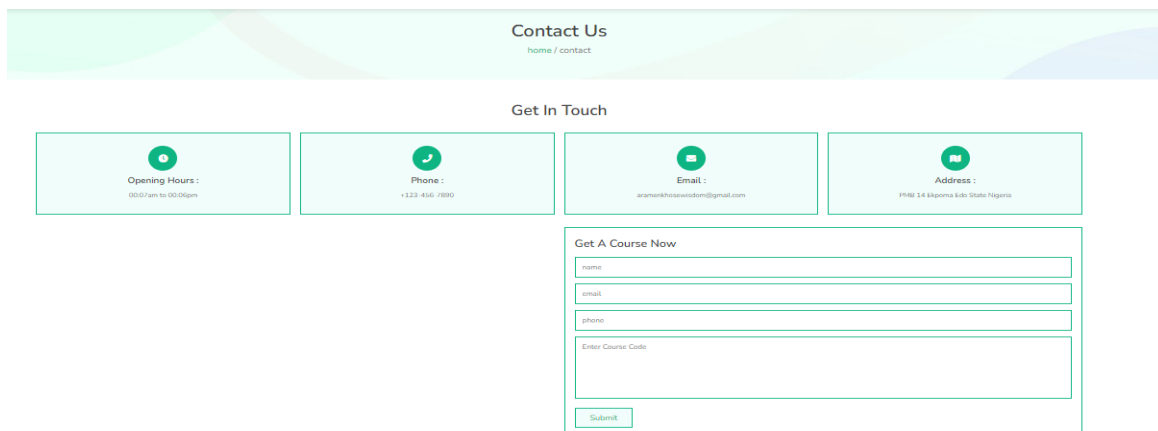
This is the page that actually contains the list of different course available to the students. The list of courses is automatically updated by the administrators. For this page to be accessed, students have to be registered on the platform. To get any course, clicking on the course of your choice the page will be redirected to the contact page, there you will be required to specify the course(s) you need. The administrators will receive your response and send a feed back to the student via the email provided as at when filling the contact. Note: All courses are to be paid for, the amount will be communicated to the student by the tutors or administrators.



**Fig 4: The Courses Page**

## 4.5 Contact Page

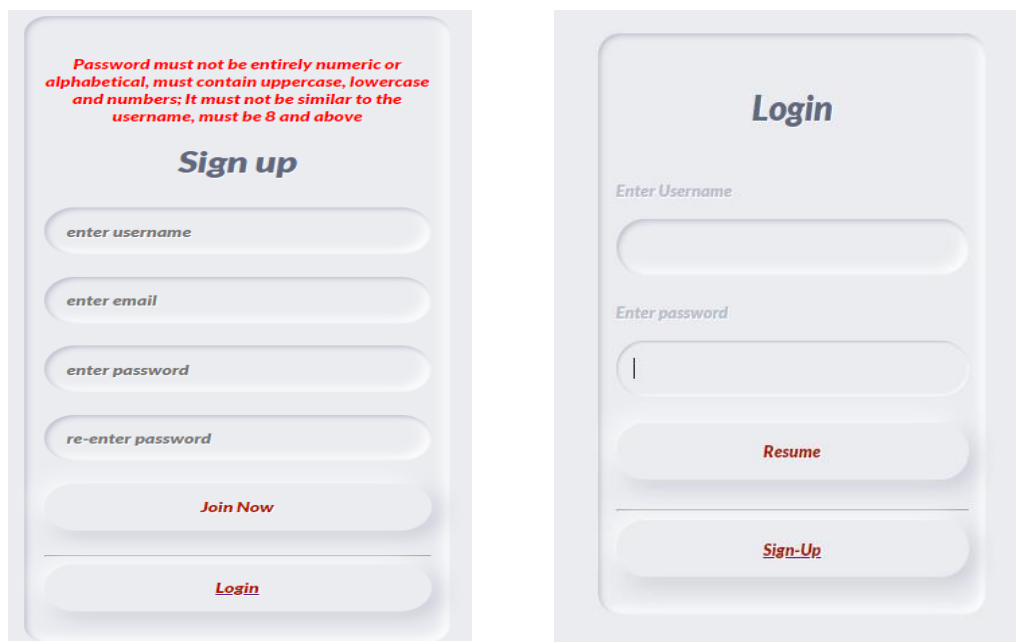
The contact page consist of an input form in which students enters their information such as name, email address, phone number and the course code in which he/she wants to get.



**Fig 5: The Contact Page**

## 4.6 Sign-Up/Login Page

The Sign-Up page is where users sign-up with their username, email address and also they will be required to create unique password in which they will be using to login consequently in order to access their courses. While the login page is the page being redirected to after users or students must have successfully create their account.



The image displays two side-by-side web forms. The left form is titled 'Sign up' and includes a red warning message at the top: 'Password must not be entirely numeric or alphabetical, must contain uppercase, lowercase and numbers; It must not be similar to the username, must be 8 and above'. Below the title are four input fields labeled 'enter username', 'enter email', 'enter password', and 're-enter password'. At the bottom are two buttons: 'Join Now' and 'Login'. The right form is titled 'Login' and has two input fields labeled 'Enter Username' and 'Enter password'. Below these are two buttons: 'Resume' and 'Sign-Up'.

**Fig 6: Sign-Up and Login Page**

## 4.7 Dashboard

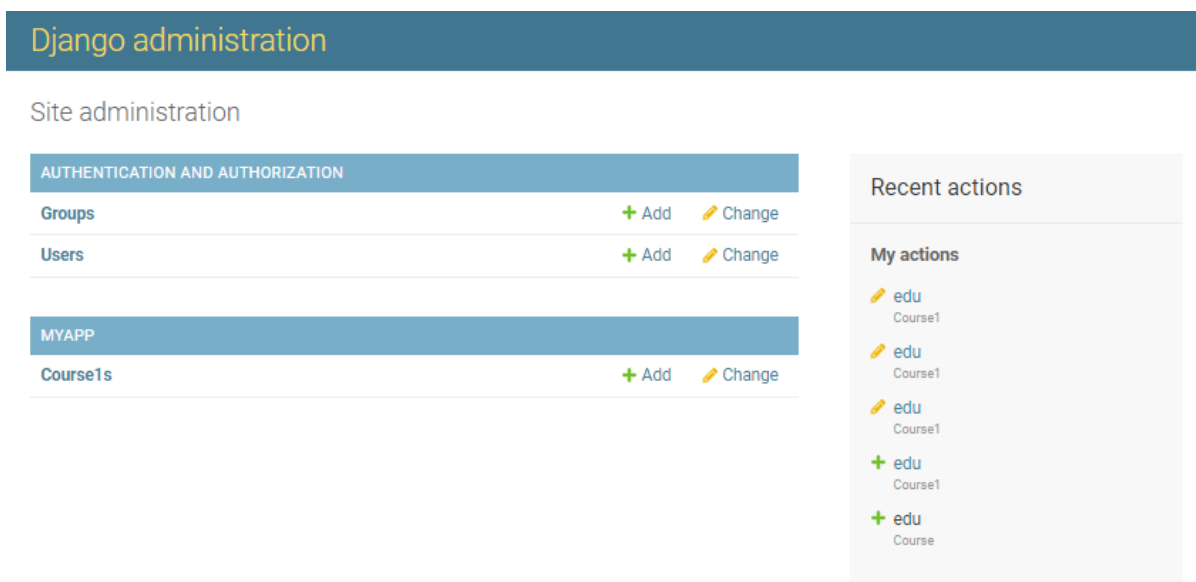
The Dashboard contains the list of courses being paid for. After payment and confirmation by the admin, the course paid for is uploaded to that user dashboard. If a user have not paid for any course, his/her dashboard will not contain any course as only users that have paid for a course can access and download that particular course.



**Fig 7: User's Dashboard**

## 4.8 DATABASE (ADMIN)

The database was created using Django framework. The database manages all the activities in the website. The administration only can login into the admin dashboard. the activities of the administrator includes updating of courses, registering of users, deletion of users etc. The admin can also oversee all payments and their respective identity.



**Fig**

#### **4.9 Testing and Documentation**

The system was built using high level programming language and it is very user friendly.

The User Interface (UI) was built with frontend languages and libraries such as bootstrap. When student have register, the data entered will be saved to the database which was built using Django framework and only the administrator can access the data. Uploading of courses to student dashboard is possible with python programming language. To upload courses, lecturer after login in to their dashboard generated by the administrator, click on the course tab and upload the course file which will then be available to the students on their dashboard. The file format accepted is pdf. Students as well as lecturers can log out from the platform using the logout button.

## **CHAPTER FIVE**

### **SUMMARY & CONCLUSION**

#### **5.1 SUMMARY**

The word e-learning is used as a synonym for online education. It is revamping the style of providing and receiving education. With a year of COVID-19 outbreak, e-learning has made its place firmly in the sector, transforming the education sector. The idea behind electronic learning is to empower learners to study without attending the school with better organisation and quality curricula. Psychologists also believe that this audio-visual form of learning is effective in engaging students. It is versatile and plenty to suit all learning methods. The Global Education Monitoring Report of 2020 by UNESCO indicates the significance of technology. The study shows that technology has considerable but largely unused potential to support inclusive education. E-learning is accessible to all and can reach even the remotest areas.

The way of learning has entirely transformed to impart students. Unlike conventional methods of teaching, eLearning has made learning easier, simpler and more effective. Technological developments have accelerated people's lifestyle on a variety of scales, including the aspects of teaching and learning. The Internet has become one of the most prominent media, opening the doors of endless opportunities for students around the world to access affordable education. The IT booming has created unlimited possibilities for high-quality education and training offering to the comfort of your home. The easy access to information and knowledge with a fewer cost has enabled everyone to deliver and adopt every kind of skill. Also, some successes would never have been possible without the innovations offered by technology.

## **5.2 CONCLUSION**

E-learning is here to stay. As computer ownership grows across the globe e-learning becomes increasingly viable and accessible. Internet connection speeds are increasing, and with that, opportunities for more multimedia training methods arise. With the immense improvement of mobile networks in the past few years and the increase in telecommuting, taking all the awesome features of e-learning on the road is a reality with smartphones and other portable devices. Technologies such as social media are also transforming education constantly.

## **5.3 RECOMMENDATION**

Based on the findings of the project, it is recommended that:

- Students should be mandated to take an online courses
- There should be assessment test at specific interval to test the knowledge of the student and also to determine how fast he or she is learning
- As a tutor pass out information to the students such as welcome them to your online course environment in ways that support them and let them know that you are committed to their continued success. Consider sending an email to students 1-2 weeks before the start of the semester to introduce yourself and to pass along any information they will need to be successful, including things like if/when there will be scheduled synchronous class meetings, info on the course textbook or any other materials they may need for the course, when the course will become available in Blackboard, etc. Consider also reaching out a few times before the course starts to include students who are just joining or checking in themselves. It also helps to post an announcement and send an email in case students only check in to one system.

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## APPENDIX

```
{% load static %}

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>E-Learning Project</title>

  <!-- font awesome cdn link -->
  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/5.15.4/css/all.min.css">

  <!-- swiper css link -->
  <link rel="stylesheet" href="https://unpkg.com/swiper@7/swiper-bundle.min.css">

  <!-- custom css file link -->
  <link rel="stylesheet" href="{% static 'css/style.css'%}">

</head>
<body>

<!-- header section starts -->

<header class="header">
  <a href="/" class="logo"> <i class="fas fa-lightbulb"></i> E-Learning </a>

  <nav class="navbar">
    <div id="close-navbar" class="fas fa-times"></div>
    <a href="/">home</a>
    <a href="/about/">about</a>
    <a href="/course/">courses</a>
    <a href="/contact/">contact</a>
    <a href="/dashboard/">Dashboard</a>

  </nav>
  {% if user.is_authenticated %}

  <div class="icons">
    <a href="/logout/"> <div id="account-btn" class="fas fa-user"></div></a>
    <div id="menu-btn" class="fas fa-bars"></div>
  </div>
```

```

{% else %}
  <div class="icons">
    <a href="/register/"> <div id="account-btn" class="fas fa-user"></div></a>
    <div id="menu-btn" class="fas fa-bars"></div>
  </div>
{% endif %}
</header>

<!-- account form section starts -->

<div class="account-form">

  <div id="close-form" class="fas fa-times"></div>

  <div class="buttons">
    <span class="btn active login-btn">login</span>
    <span class="btn register-btn">register</span>
  </div>

  <form class="login-form active" action="">
    <h3>login now</h3>
    <input type="email" placeholder="enter your email" class="box">
    <input type="password" placeholder="enter your password" class="box">
    <div class="flex">
      <input type="checkbox" name="" id="remember-me">
      <label for="remember-me">remember me</label>
      <a href="#">forgot password?</a>
    </div>
    <input type="submit" value="login now" class="btn">
  </form>

  <form class="register-form" action="">
    <h3>register now</h3>
    <input type="email" placeholder="enter your email" class="box">
    <input type="password" placeholder="enter your password" class="box">
    <input type="password" placeholder="confirm your password" class="box">
    <input type="submit" value="register now" class="btn">
  </form> -->

</div>
<!-- account form section ends -->

<!-- header section ends -->

<!-- home section starts -->

<section class="home">

```

```

<div class="swiper home-slider">

  <div class="swiper-wrapper">

    <section class="swiper-slide slide" style="background: url(../static/images/home-slide-1.jpg) no-repeat;">

      <div class="swiper-pagination"></div>

    </div>

  </section>

<!-- home section ends -->

<!-- subjects section starts -->

<section class="subjects">

  <h1 class="heading">our popular Courses</h1>

  <div class="box-container">

    <div class="box">
      
      <h3>Computer Hardwares</h3>
      <p>12 modules</p>
    </div>

    <div class="box">
      
      <h3>Programming</h3>
      <p>12 modules</p>
    </div>

    <div class="box">
      
      <h3>Simulation Techniques</h3>
      <p>12 modules</p>
    </div>

    <div class="box">
      
      <h3>Database Management</h3>
      <p>12 modules</p>
    </div>

    <div class="box">

```

```

        
        <h3>Computer Softwares</h3>
        <p>12 modules</p>
    </div>

    <div class="box">
        
        <h3>Information System</h3>
        <p>12 modules</p>
    </div>

</div>

</section>

<!-- subjects section ends -->

<!-- home courses slider section starts -->

<section class="home-courses">

    <h1 class="heading"> Updated Courses </h1>

    <div class="swiper home-courses-slider">

        <div class="swiper-wrapper">

            <div class="swiper-slide slide">
                <div class="image">
                    
                    <h3>web development</h3>
                </div>
                <div class="content">
                    <h3>web development</h3>
                    <p>Learn the Basics of Web Designa and Development. Updated to meet the objectives </p>
                    <a href="#" class="btn">read more</a>
                </div>
            </div>

            <div class="swiper-slide slide">
                <div class="image">
                    
                    <h3>Python Programming</h3>
                </div>
                <div class="content">
                    <h3>Python Programming</h3>
                    <p>Get started with the newly added Python Programming Language.</p>
                    <a href="#" class="btn">read more</a>
                </div>
            </div>
        </div>
    </div>
</section>

```

```

    </div>
</div>

<div class="swiper-slide slide">
  <div class="image">
    
    <h3>HTML & JAVASCRIPT</h3>
  </div>
  <div class="content">
    <h3>HTML & JAVASCRIPT</h3>
    <p>Educate yourself with the basics of Frontend Programing tools HTML & JavaScript</p>
    <a href="#" class="btn">read more</a>
  </div>
</div>

<!-- <div class="swiper-slide slide">
  <div class="image">
    
    <h3>web development</h3>
  </div>
  <div class="content">
    <h3>web development</h3>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Laborum, ratione?</p>
    <a href="#" class="btn">read more</a>
  </div>
</div>

<div class="swiper-slide slide">
  <div class="image">
    
    <h3>web development</h3>
  </div>
  <div class="content">
    <h3>web development</h3>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Laborum, ratione?</p>
    <a href="#" class="btn">read more</a>
  </div>
</div>

<div class="swiper-slide slide">
  <div class="image">
    
    <h3>web development</h3>
  </div>
  <div class="content">
    <h3>web development</h3>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Laborum, ratione?</p>
    <a href="#" class="btn">read more</a>
  </div>
</div>

```

```

        </div> -->
    </div>

</div>

</div>

</section>

{% endblock content %}
<!-- footer section starts -->
</body>
</html>
@import
url("https://fonts.googleapis.com/css2?family=Nunito:wght@200;300;400;500;600&display=swap");
* {
    font-family: 'Nunito', sans-serif;
    margin: 0;
    padding: 0;
    -webkit-box-sizing: border-box;
        box-sizing: border-box;
    outline: none;
    border: none;
    text-decoration: none;
    -webkit-transition: all .2s linear;
    transition: all .2s linear;

```