WEB BASED LEARNING HUB FOR
EMPOWERING EDUCATION IN THE
DIGITAL ERA

PROJECT REPORT

Submitted by

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Under the guidance of

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ABSTRACT

As the world runs on new development and new smart technologies, everything is going smart and easy way to human life. The main goal is to develop a web application on digital educational platform for to connect with student using different ways. Web application on digital educational platform involves a wide range of activities, designed for improving the application student and staff performance. As to make smarter, in the application HTML, CSS & JavaScript language are used as frontend & My SQL is used for backend to develop the web application. In the main connection point, you can view about mission and vision. The faculties’ details and facilities
of the department are also listed. Then the Occasion posting page is there, here the administrator can post the occasion which is coordinated by the association. Then the login page will be in the first interface. By using it, login into the page and choose any one of the options listed. Then, the archive or material transfer/refreshes in the application. Here the subject related archives are additionally transferred and the staff individuals can see the transferred reports.

CHAPTER 1
INTRODUCTION

1.1 OVERVIEW

As the world runs on new development and new smart technologies, everything is going smart and easy way to human life. The main goal is to develop a web application on empowering education in the digital era for to connect with student using different ways. Web application on empowering education in the digital era involves a wide range of activities, designed for improving the application student and staff performance. Its aim is to bring out the best in an application to ensure self-development, positive communication, and leadership skills and to ability to make education smart together. As to make smarter, in the application HTML, CSS & JavaScript language are used as frontend & My SQL is used for backend to develop the web application.

In the main connection point, that can view about mission and vision. The faculties’ details and facilities of the department are also listed. Then the Occasion posting page is there, here the administrator can post the occasion which is coordinated by the association. Then the login page will be in the first interface. By using it, login into the page and choose any one of the options listed. Then the interface of a video and audio call where a simple method for cooperating one another and on secure the data. It is an easy to use and to utilize this interface the video call. Then, the archive or material transfer/refreshes in the application. Here the subject related archives are additionally transferred and the staff individuals can see the transferred reports.

1.2 EXISTING SYSTEM

Shows educators and trainers how to adapt teaching methods and materials to make use of the Internet. Including a framework showing how to apply Internet technology progressively as skills and confidence grow, the project demonstrates the route from adapting materials to developing a virtual course. Nowadays, when people are not having time to visit an institute. Therefore, the software is designed to provide the education through Internet. The project “E – LEARNING” helps the common world in any field they are to get the knowledge what they want even sitting at their places. This helps them to spare time in their busy schedule and save their time during transportation.
1.3 PROPOSED SYSTEM

Education through the internet, network and a computer is E-learning. This helps in network enabled transfer of skills and knowledge. E-learning refers to use of electronic applications and processes to learn. This is a web based application which can be hosted in the website of any training institute. The students will be able to register online, read the course material and write online exam. Certificates also will be issued online.

The objectives of this project are

- To provide distance learning
- To make it convenient for people who have other commitments
- Cost reduction
- Reduced paper work
- Computer evaluated tests

CHAPTER 2 LITERATURE REVIEW

2.1 LITERATURE REVIEW

Title: Web-Based Education: Learning from Experience
Author: Anil Aggarwal
Publication: July 1, 2002

Abstract:

Web-based education (WBE) and training is growing by leaps and bounds, and the market is expected to reach almost 28.6 billion by the year 2006 (IDC, 2001). Technological advancements and student demands have necessitated a shift from a “brick and mortar” synchronous environment to a “click and learn” asynchronous environment. Students are demanding anytime, anyplace accessibility, and universities are obliging by bringing education to students.

Title: Learning Web App Development
Author: Semmy Purewal
Publication: 2014

Abstract:

The fundamental of web application development by building a simple database- backend app from scratch, using HTML, JavaScript, and other open source tools. To create a user Interface, write a server, build client-server communication, and use a cloud-based service to deploy the application.

Title: Web based intelligent E-learning system: Technologies and Applications
Author: Zongmin Ma
Publication: 2006

Abstract:

Online learning refers to instruction that is delivered electronically through various multimedia and Internet platforms and applications. It is used interchangeably with other terms such as web-based learning, e-learning, computer-assisted instruction, and Internet-based learning.
Title: Progressive Web Application Development by Example: Develop Fast, Reliable, and Engaging User Experiences for the Web

Author: Chris Love

Publication: 2018 Abstract:

A progressive web app (PWA) is an app that's built using web platform technologies, but that provides a user experience like that of a platform-specific app. Like a website, aPWA can run on multiple platforms and devices from a single codebase.

Title: Web Application Security: Exploitation and Countermeasures for Modern Web Applications

Author: Andrew Hoffman

Publication: 2020 Abstract:

Web exploitation is the process of exploiting vulnerabilities in web-based applications to gain access to sensitive data or control over the app. Attackers can exploit these vulnerabilities to take over the entire app, steal sensitive data, or use the app to launch attacks on other systems.

Title: Real-Time Web Application Development

Author: Rami Vemula

Publication: 2017 Abstract:

Real-Time Applications are applications that operate within an immediate time frame; sensing, analyzing, acting on streaming data as it happens. Examples: Facebook, Twitter, implemented in social networking, search and news sites

CHAPTER 3
SYSTEM AND SPECIFICATION

3.1 HARDWARE CONFIGURATION

3.1.1 MINIMUM REQUIREMENTS

- PROCESSOR: PENTIUM II CLASS, 450MHZ
- RAM: 8GB
- HARD DISK DRIVE: 500GB
- VIDEO: 800X600, 256 COLORS
- CD-ROM: REQUIRED

3.2 SOFTWARE SPECIFICATION

- OPERATING SYSTEM: WINDOWS FAMILY
• WEB DESIGNING LANGUAGES : HTML, CSS, JS
• SCRIPTS : JAVASCRIPT
• SOFTWARE ENVIRONMENT : VISUAL STUDIO
• LOCALHOST : XAMPP

3.3 VISUAL STUDIO CODE

Visual studio is an integrated development environment (ide) from Microsoft. It is used to develop computer programs including websites, web apps, web services and mobile apps. Visual studio uses Microsoft software development platforms such as windows API, windows forms, windows presentation foundation, windows store and Microsoft Silverlight. It can produce both native code and managed code. Visual studio includes a code editor supporting intellisense (the code completion component) as well as code refactoring. The integrated debugger works as both a source-level debugger and as a machine-level debugger.

Visual studio also includes a number of other features that make it a powerful ide, including:

• A graphical user interface (gui) designer for creating and editing guis
• A project system for managing code, resources, and other files
• A test runner for running unit tests and integration tests
• A source control integration for managing code changes
• A profiler for identifying performance bottlenecks
• A deployment system for deploying applications to production environments

Working visual studio:

Visual studio is a complex application, but the basic workflow is as follows:

• Create a new project or open an existing project.
• Write code in the code editor.
• Debug the code using the integrated debugger.
• Build the project into an executable file.
• Deploy the executable file to a production environment.

Visual studio provides a number of features to help developers with each of these steps. For example, intellisense can help developers to write code quickly and accurately. The debugger can help developers to find and fix bugs in their code. And the build and deployment systems can help developers to get their applications to production quickly and easily.
3.4 XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. It is used to create a local web server for web development and testing. XAMPP is available for Windows, macOS, and Linux operating systems. The name XAMPP is a portmanteau of the words "X" (cross-platform), "Apache", "MySQL", "MariaDB", "PHP", and "Perl". XAMPP is a popular choice for web developers because it is easy to install and use, and it provides all of the necessary components for developing web applications.

Here are some of the benefits of using XAMPP:

- It is free and open-source.
- It is cross-platform, so it can be used on Windows, macOS, and Linux operating systems.
- It is easy to install and use.
- It provides all of the necessary components for developing web applications.
- It is a good way to test web applications before deploying them to a live server.

Here are some of the uses of XAMPP:

- Developing and testing web applications.
- Running local websites.
- Learning web development.
- Creating a local development environment for a team of developers.
- Hosting a personal website or blog.
- Setting up a local wiki or other web-based application.
CHAPTER 4
SYSTEM DESIGN AND DEVELOPMENT

4.1 SYSTEM DESIGN

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering. Systems design is therefore the process of defining and developing systems to satisfy the specified requirements of the user.

4.2 INPUT DESIGN

Input design is the process of developing and implementing methods for users to enter data into a computer system. It involves determining the types of data needed, the input devices that will be used, and the format in which the data will be entered. The goal of input design is to make it easy and efficient for users to enter data accurately. This is important because inaccurate or incomplete data can lead to errors in the system’s output. Input design is a critical part of the system development process. It should be done in consultation with users to ensure that the system meets their needs. Here are some key principles of input design:

- **Clarity**: The input process should be clear and easy to understand. Users should know what data is needed and how to enter it correctly.
- **Efficiency**: The input process should be efficient. Users should be able to enter data quickly and easily.
- **Security**: The input process should be secure to protect users’ data from unauthorized access.
4.3 OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the users and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system’s relationship to help user decision-making.

4.4 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity. The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data. In the relational model these are the tables and views. In an object database the entities and relationships map directly to object classes and named relationships.

The process of doing database design generally consists of a number of steps which will be carried out by the database designer. Usually, the designer must: Determine the data to be stored in the database, determine the relationships between the different data elements. Superimpose a logical structure upon the data on the basis of these relationships.

4.5 SYSTEM DEVELOPMENT

In the last few years the volume of educational contents is increased significantly and many students lack the motivation to study using these classic textbooks. Therefore, the e-learning content should be visually pleasing and attractive to the students. The application of the gamification of the e-learning materials is also increasing rapidly. One of the problems in designing visually enhanced e-learning material is choosing relevant pictures for enhancing the textual contents. A significant amount of the learning material is text based and a large number of photos should be selected to visualize these material. The design process for e-learning courses is investigated significantly in the literature. Proposed visualization based on graphic clusters for 3D modeling in medical e-learning courses.

4.5.1 E-LEARNING

In the last few years the volume of educational contents is increased significantly and many students lack the motivation to study using these classic textbooks. Therefore, the e-learning content should be visually pleasing and attractive to the students. The application of the gamification of the e-learning materials is also increasing rapidly. One of the problems in designing visually enhanced e-learning material is choosing relevant pictures for enhancing the textual contents. A significant amount of the learning material is text based and a large number of photos should be selected to visualize these material. The design process for e-learning courses is investigated significantly in the literature. Gorgan
et al. proposed a visualization based on graphic clusters for 3D modelling in medical e-learning courses. Investigated the interactive e-learning materials for the effective education. Designed a novel interface with dimensional morphing capability for dynamic evaluation in the e-learning context.

4.5.2 ONLINE NOTES SHARING MODULE

This module consists of notes that are being uploaded by the admin. The students can able to view the notes online and can download the notes.

4.5.3 ONLINE CLASS MODULE

This module consists of a webpage to organise the online class or meetings. This module is similar to the google meet we can able to share the screen, camera, etc., The students can able to join using the room number provided by the admin.

4.5.4 REGISTRATION MODULE

This module consist of registering the participant details in order to login. The existing percipient can directly login along with use rid and password and view the course details. If it is new participant they should register their details with user id and password. The details of participant will be maintained by the database.

CHAPTER 5
IMPLEMENTATION AND TESTING

5.1 IMPLEMENTATION

Implementation in projects is the phase in which the project plan is put into action to deliver the project's objectives. This involves coordinating resources, executing tasks, and managing risks to ensure that the project stays on track and meets its goals. Implementation is typically the longest and most complex phase of a project, as it involves the actual work of creating the project's deliverables. It is also the most critical phase, as it is when the project manager and team must ensure that the project is delivered on time, on budget, and to the required quality standards.

- Choose a programming framework. There are many popular programming frameworks that you can use to build an e-learning website, such as ASP.NET Core, Django, and Laravel. Each framework has its own advantages and disadvantages, so it's important to choose one that is well-suited to your needs and experience level.
- Create a new project in Visual Studio Code. Once you have chosen a programming framework, you can create a new project in Visual Studio Code. To do this, open Visual Studio Code and select File > New > Folder. Then, navigate to the folder where you want to save your project and select Create.
- Install the necessary extensions. Visual Studio Code has a wide range of extensions that can help you
with web development. Some useful extensions for building an e-learning website include:

- HTML, CSS, and JavaScript IntelliSense: This extension provides IntelliSense support for HTML, CSS, and JavaScript.
- Debugger for Chrome: This extension allows you to debug your JavaScript code in the Chrome browser.
- REST Client: This extension allows you to send and receive HTTP requests.
- Create your website's structure. Once you have installed the necessary extensions, you can start creating your website's structure. This includes creating folders for your website's pages, images, and other resources.
- Implement your website's features. Next, can start implementing your website's features. This includes creating pages for website's notes, online class, complaints, event posting.

5.2 TESTING

Testing is the most important phase in the software development activity. In software development life cycle (SDLC), the main aim of the testing process is the quality the developed software is tested against attaining the required functionality and performance. During the testing process the software is worked with some particular test case and the output of the test cases are analyzed whether the software working according to the expectations or not. The success of the testing process in determining the error is mostly depends upon the test case criteria, for testing any software need to have a description of the expected behaviour of the system and method of determining whether the observed behaviour confirmed to the expected behaviour. Requirement testing is one of the kind where testing is done before the commencement of the project. Before commencing the project, requirements listed out by the client are checked for its feasibility.

5.3 SYSTEM TESTING

System testing is a level of testing that validates the complete and fully integrated software product. The purpose of a system test is to evaluate the end-to-end system specifications. Usually, the software is only one element of a larger computer-based system. Ultimately, the software is interfaced with other software/hardware systems. System testing is actually a series of different tests whose sole purpose is to exercise the full computer-based system.

5.4 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is
functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

5.5 VALIDATING TESTING

The process of evaluating software during the development process or at the end of the development process to determine whether it satisfies specified business requirements. Validation Testing ensures that the product actually meets the client's needs. It can also be defined as to demonstrate that the product fulfills its intended use when deployed on appropriate environment.

<table>
<thead>
<tr>
<th>INPUT</th>
<th>DESCRIPTION</th>
<th>TESTCASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login details</td>
<td>The user must give login details</td>
<td>Pass</td>
</tr>
<tr>
<td>Notes Sharing</td>
<td>notes that are being uploaded by the staff and viewed by the students</td>
<td>Pass</td>
</tr>
<tr>
<td>Complaints</td>
<td>The user can upload the complains</td>
<td>Pass</td>
</tr>
<tr>
<td>Online Class</td>
<td>The users can join the online class</td>
<td>Pass</td>
</tr>
<tr>
<td>Screen sharing</td>
<td>The users can share their screen</td>
<td>Pass</td>
</tr>
</tbody>
</table>

CHAPTER 6 CODING AND OUTPUT
6.1 CODING

```php
<?PHP
    INCLUDE('DATABASE/DATABASE.PHP'); SESSION_START();
    IF(EMPTY($_SESSION['USERID']) || $_SESSION['USERNAME'] == '')
    { HEADER("LOCATION:LOGIN.PHP"); DIE();
    }
?>

<!DOCTYPE HTML>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="shortcut icon" href="ASSERTS/IMG/WEBIMG/SMALLLOGO.PNG"/>
    <title>INFORMATION TECHNOLOGY</title>
    <!-- BOOTSTRAP V4 -->
    <link rel="stylesheet" href="ASSERTS/BOOTSTRAP/CSS/BOOTSTRAP.CSS">
    <!-- CUSTOM CSS -->
    <link rel="stylesheet" href="ASSERTS/CUSTOM/NAVBAR.CSS">
    <link rel="stylesheet" href="CSS/SWIPER-BUNDLE.MIN.CSS">
    <!-- CSS -->
    <link rel="stylesheet" href="CSS/STYLE.CSS">
</head>
<body>
    <!-- NAVBAR -->
    <div class="container-fluid pl-0 pr-0 fixed-top">
        <nav class="navbar navbar-expand-lg navbar-dark navbar-dark pl-1 pr-1">
            <a class="navbar-brand" href="INDEX.PHP">
                <img src="ASSERTS/IMG/WEBIMG/SMALLLOGO.PNG"/>
            </a>
            <!-- NAVBAR BRAND -->
        </nav>
    </div>
</body>
</html>
```
WELCOME TO INFORMATION TECHNOLOGY
THE DEPARTMENT OF INFORMATION TECHNOLOGY WAS ESTABLISHED IN THE YEAR 2006 WITH A VIEW TO DEVELOP QUALITY ENGINEERS TO MEET THE CURRENT TRENDS IN THE EMERGING WORLD OF IT.

THE MISSION OF DEPARTMENT OF INFORMATION TECHNOLOGY IS TO PROVIDE CURRICULUM THAT FACILITATE STUDENT CENTERED AND LABORATORY BASED LEARNING ON INFORMATION TECHNOLOGIES THAT ARE:

- **M1:** RELEVANT TO THEIR LIVES AND CAREER
- **M2:** VALUABLE IN TERMS OF CONTENT AND COMPETENCIES
- **M3:** CONNECTED TO THE NEEDS OF INDUSTRY
THE DEPARTMENT OF INFORMATION TECHNOLOGY WAS ESTABLISHED IN THE YEAR 2006 WITH A VIEW TO DEVELOP QUALITY ENGINEERS TO MEET THE CURRENT TRENDS IN THE EMERGING WORLD OF IT.

STUDENTS TRANSFORMED TO SUCCEEDERS

FACULTIES

MR. A. KATHIRESAN
HOD

MS. G. PREETHI
LECTURER
<H1 ID=FACILITIES STYLE="COLOR: #F26522; TEXT-ALIGN: CENTER;"><BR><BR>FACILITIES</H1>

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  </A>
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</A>

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  </A>
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</A>

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  </A>
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</A>

  <A HREF="#FACILITIES" CLASS="CARD-ITEM">
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</A>

  <A HREF="#FACILITIES" CLASS="CARD-ITEM">
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6.2 OUTPUT

6.2.1 INDEX PAGE
6.2.2 ADMIN PAGE

Fig 6.2.2.1 Admin Index Page
Fig 6.2.2.2 Complaint View Page

Fig 6.2.2.3 View Circular Page
Fig 6.2.2.4 View Events Page

Fig 6.2.2.5 Post Events Page
6.2.3 STUDENTS PAGE
**Fig 6.2.3.1 Student Index Page**

**Fig 6.2.3.2 Circular View Page**

<table>
<thead>
<tr>
<th>File Name</th>
<th>File Description</th>
<th>Original Name</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>english</td>
<td>the best</td>
<td>File64ec63ca53cad83.46512134.project ideas.txt</td>
<td>View</td>
</tr>
<tr>
<td>english</td>
<td>the best wa</td>
<td>File64ec63da53cab82.2064888.project ideas.txt</td>
<td>Download</td>
</tr>
</tbody>
</table>

The Department of Information Technology was established in the year 2006 with a view to develop quality engineers to meet the current trends in the emerging world of IT.

**Mission**
The mission of the Department of Information Technology is to provide a curriculum that facilitates student centered and laboratory based learning on information technology that is:

- MI: Relevant to their lives and career.
- M2: Valuable in terms of content and competencies.
- M3: Connected to the needs of Industry.

**Vision**
The Department of Information Technology was established in the year 2006 with a view to develop quality engineers to meet the current trends in the emerging world of IT.
Fig 6.2.3.3 Event View Page

Fig 6.2.3.4 Online Class Page
In conclusion, the creation of a web-based learning hub marks a significant stride forward in democratizing education for the digital era. Through its accessible and flexible nature, the platform transcends geographical boundaries and time constraints, ensuring that education becomes more inclusive and readily available to learners worldwide. By offering personalized learning experiences, fostering collaboration, and leveraging the scalability of digital technology, the hub not only enhances individual learning outcomes but also drives broader societal advancement.

Moreover, its cost-effectiveness and adaptability make it a versatile tool for addressing various educational challenges, from expanding access to underserved communities to empowering lifelong learners and upskilling the workforce. Ultimately, the web-based learning hub represents a transformative force in education, paving the way for a more equitable, engaging, and impactful learning experience in the digital age.


