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AL-HUSON UNIVERSITY COLLEGE

ELECTRICAL AND ELECTRONIC ENGINEERING DEPARTMENT

Graduation Project (1 or 2)

Tech Bullet (Digital Library)

By:

Mohammad Hamad

Mazen Taha

Supervised By:

Dr. Ashraf Abdel-Karim Abu-Ein

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DECLARATION

We hereby certify that this material, which we now submit for assessment on the programme of study leading to the award of Bachelor of Science in Communication and software engineering is entirely our own work, that we have exercised reasonable care to ensure that the work is original, and does not to the best of our knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of our work.

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ABSTRACT

In these days the online learning become an Inevitable fact due to the huge impact of coivd-19, paperless services and the evolution of learning technologies. Many students do their study and work online and they have some difficulties with finding resources and existence a lot of places to search in which costs them time and efforts. In this project we will create a website gathering all information and sources of knowledge. This website help students in their study by providing Digital Library which includes (exams , quizzes , announcement, slides , textbooks) with dynamic and flexible User Interface(UI) using modern version of technologies in this field which allows the students to get the information in easy way and to test their knowledge.

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 The History Of Web Browser

A web browser is a software application for retrieving, presenting and traversing information resources on the World Wide Web. It further provides for the capture or input of information which may be returned to the presenting system, then stored or processed as necessary. The method of accessing a particular page or content is achieved by entering its address, known as a Uniform Resource Identifier or URI. This may be a web page, image, video, or other piece of content.[1] Hyperlinks present in resources enable users easily to navigate their browsers to related resources. A web browser can also be defined as an application software or program designed to enable users to access, retrieve and view documents and other resources on the Internet.

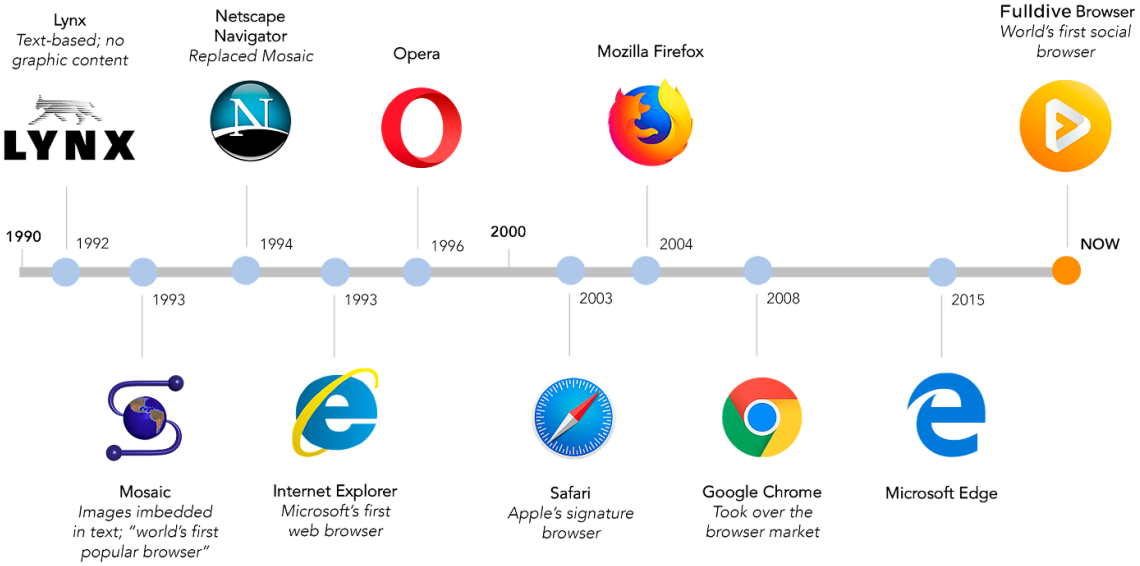

Fig 1.1: browsers history.

1.1.2 History Of Web

The World Wide Web ("WWW" or "The Web") is a global information medium which users can access via computers connected to the Internet. The term is often mistakenly used as a synonym for the Internet itself, but the Web is a service that operates over the Internet, just as email and Usenet also do. The history of the Internet dates back significantly further than that of the World Wide Web.

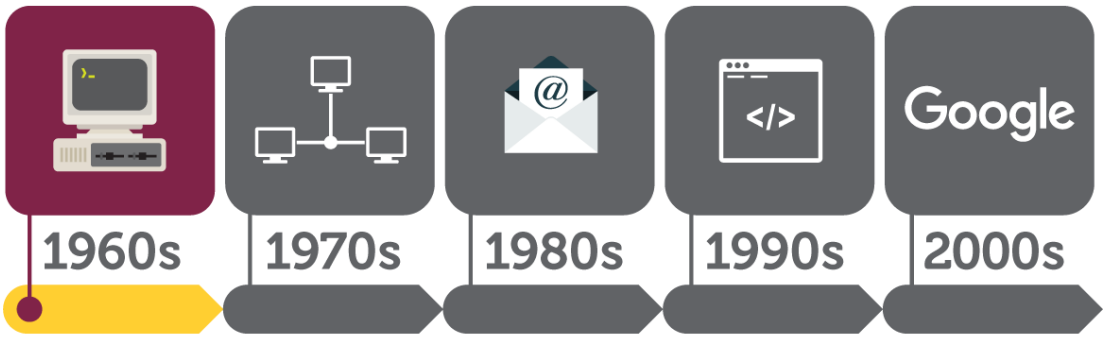

Fig 1.2: history of web

1.1.3 Early Libraries

The history of libraries began with the ever first efforts to organize collections of documents. Topics of interest include accessibility of the collection, acquisition of materials, arrangement and finding tools, the book trade, the influence of the physical properties of the different writing materials, language distribution, role in education, rates of literacy, budgets, staffing, libraries for specially targeted audiences, architectural merit, patterns of usage, and the role of libraries in a nation's cultural heritage, and the role of government, church or private sponsorship. Since the 1960s, issues of computerization and digitization have arisen changed the walls of the Libraries. It is cardinal for most Libraries to move with change in order to remain competitive or relevant like any other sector.

The Great Library of Alexandria in Alexandria, Egypt, was one of the largest and most significant libraries of the ancient world.[2]

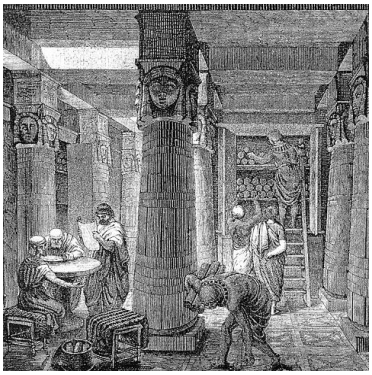

Fig 1.3: Great Library of Alexandria

1.1.4 Revolution Of Libraries

A digital library, also called an online library, an internet library, a digital repository, or a digital collection is an online database of digital objects that can include text, still images, audio, video, digital documents, or other digital media formats or a library accessible through the internet. Objects can consist of digitized content like print or photographs, as well as originally produced digital content like word processor files or social media posts. In addition to storing content, digital libraries provide means for organizing, searching, and retrieving the content contained in the collection.

The most famous digital library in the world:

1. World Digital Library: A source for manuscripts, rare books, films, maps and more in multilingual format.

2. Universal Digital Library: A collection of one million books.

3. Project Gutenberg: More than 33,000 e-books to read and download.

4. Bartleby: An immense collection of books for consultation, including fiction, essay, and poetry.
5. ibiblio: E-books, magazines, academic essays, software, music and radio.
6. Google Books: More than 100,000 books for consultation, download or on-line purchase.
7. Internet Archive: The largest digital library for downloading e-books and audio-books for free.
8. Open Library: More than one million e-books of classic literature to download.

Fig 1.4: World Digital Library

1.2 WEB SITE TECHNOLOGIES AND FRAMEWORKS

1.2.1 HyperText Markup Language (HTML)

HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behavior (JavaScript).[3]

"Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.[3]

HTML uses "markup" to annotate text, images, and other content for display in a Web browser. HTML markup includes special "elements" such as <head>, <title>, <body>, <header>, <footer>, <article>, <section>, <p>, , , <img>, <aside>, <audio>, <canvas>, <datalist>, <details>, <embed>, <nav>, <output>, <progress>, <video>, <ul>, <ol>, <li> and many others.[3]

An HTML element is set off from other text in a document by "tags", which consist of the element name surrounded by "<" and ">". The name of an element inside a tag is case insensitive. That is, it can be written in uppercase, lowercase, or a mixture. For example, the <title> tag can be written as <Title>, <TITLE>, or in any other way.[3]

```
<!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>Tech Bullet</title>
    <link rel="stylesheet" href="project bau.css" />
    <script src="project bau.js" defer></script>
  </head>
```

Fig 1.5: Basic Html Code

1.2.2 Cascading Style Sheets (CSS)

Is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.[4] CSS is designed to enable the separation of presentation and content, including layout, colours, and fonts.[5] The name cascading comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable. In addition to HTML, other markup languages support the use of CSS including XHTML, plain XML, SVG, and XUL.

Use:

Before CSS, nearly all presentational attributes of HTML documents were contained within the HTML markup. All font colors, background styles, element alignments, borders and sizes had to be explicitly described, often repeatedly, within the HTML. CSS lets authors move much of that information to another file, the style sheet, resulting in considerably simpler HTML.

Frameworks:

CSS frameworks are pre-prepared libraries that are meant to allow for easier, more standards-compliant styling of web pages using the Cascading Style Sheets language. CSS frameworks include Blueprint, Bootstrap, Foundation and Materialize.

Browser support:

Each web browser uses a layout engine to render web pages, and support for CSS functionality is not consistent between them. Because browsers do not parse CSS perfectly, multiple coding techniques have been developed to target specific browsers with workarounds (commonly known as CSS hacks or CSS filters).

```
1  *{
2      padding: 0;
3      margin: 0;
4      box-sizing: border-box;
5  }
6  body{
7      font-family: 'Poppins', sans-serif;
8  }
9
```

Fig 1.6: Basic CSS Code

1.2.3 JavaScript (JS)

Often abbreviated as JS, is a programming language that conforms to the ECMAScript specification.[6] JavaScript is high-level, often just-in-time compiled and multi-paradigm. It has dynamic typing, prototype-based object-orientation and first-class

functions. Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web.[7]

Website client-side usage:

JavaScript is the dominant client-side scripting language of the Web, with 97% of websites using it for this purpose.[8] Scripts are embedded in or included from HTML documents and interact with the DOM. All major web browsers have a built-in JavaScript engine that executes the code on the user's device.

Other usage:

The use of JavaScript has expanded beyond its web browser roots. JavaScript engines are now embedded in a variety of other software systems, both for server-side website deployments and non-browser applications. Initial attempts at promoting server-side JavaScript usage were Netscape Enterprise Server and Microsoft's Internet Information Services,[9][10] but they were small niches. Server-side usage eventually started to grow in the late 2000s, with the creation of Node.js and other approaches.[11]

```
const gettingInfo = () => {
  movTit = movTitinp.value;
  imgUrl = imgUrlInp.value;

  if (
    parseInt(movRatInp.value) < 1 ||
    parseInt(movRatInp.value) > 5 ||
    parseInt(movRatInp.value) == NaN
  ) {
    alert("the rate must be bettwen 1 and 5");
    return 0;
  } else {
    movRat = parseInt(movRatInp.value);
  }
};
```

Fig 1.7: Simple JS Code

1.2.4 Hypertext Preprocessor (PHP)

PHP is a general-purpose scripting language geared toward web development.[12] It became at first created through Danish-Canadian programmer Rasmus Lerdorf in 1994.[13] The PHP reference implementation is now produced through The PHP Group.[14] PHP at first stood for Personal Home Page[13], however it now stands for the PHP: Hypertext Preprocessor.[15] W3Techs reports that, as of April 2021, PHP is used by 79.2% of all the websites whose server-side programming language we know.[16] PHP includes various free and open-source libraries in its source distribution, or uses them in resulting PHP binary builds. PHP is fundamentally an Internet-aware system with built-in modules for accessing File Transfer Protocol (FTP) servers and many database servers, including PostgreSQL, MySQL, Microsoft SQL Server, SQLite, LDAP servers, and others. In this project we will use MySQL as a database and Laravel framework for backend.

```php
<?php
class CreateTasksTable extends Migration
{



    public function up()
    {
        Schema::create('tasks', function (Blueprint $table) {
            $table->increments('id');
            $table->string('name');
            $table->timestamps();
        });
    }


    public function down()
    {
        Schema::drop('tasks');
    }
}
```

Fig 1.8: Simple PHP Code

1.2.5 Laravel

Laravel is a free, open-source[17] PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symfony. Some of the features of Laravel are a modular packaging system with a dedicated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic sugar.[18][19].

Chapter Two

2 PROPLEM STATEMENT AND RELATED WORK

2.1 REVOLUTION OF ONLINE LEARNING

In the past students used to spend a lot of time and effort searching for resources. They seek for information from a different places that might be close in the same area or thousands of mile away. To get good reference they have to look after all of them which is something now we do in just a simple click in there homes. There are a lot of benefits of online learning some of them:

1. E-learning saves time and money:

   With online learning, your learners can access content anywhere and anytime. They don't need to take time out from their jobs to attend classes. E-learning is also cost-effective companies save a substantial amount on the travel and accommodation costs of both learners and instructors, as well as the venue and materials This cost effectiveness also helps in enhancing the profitability of an organization. Also, when you are studying at your own place, you are relieved from paying for travel expenses.

2. E-learning leads to better retention:

   Modern learners prefer bite-sized, interactive content. They would rather watch a video or listen to a podcast than read through pages of a manual. E-learning tools enable learning designers to make content interactive. The more engaging the content is, the better the learners remember information. If they enjoy learning, they can able to recall and apply the concepts at work.

3. E-learning is consistent:

   In face-to-face sessions, every instructor has his or her own method of teaching. Each varies in approach and style and is susceptible to mistakes. You can eliminate these issues with e-learning. Online learning provides consistent and standardized

training every time. Each learner goes through the same experience regardless of when and where he or she takes the course.

4. E-learning offers personalization:

Each learner has unique preferences and learning goals. E-learning makes it possible to cater to individual needs. It allows learners to choose their learning path and navigate at their own pace. When they decide what to learn and when, they remain invested in the course

5. Offers Access to Updated Content:

A prime benefit of learning online is that it makes sure that you are in synchronization with modern learners. This enables the learner to access updated content whenever they want it.

Fig 2.1: Flexibility Access.

2.2 RELEATED WORKS

There are not a lot of platforms in our college provide what we trying to do. We tried some of the platforms and we faced a lot of technical and critical issues. As a students we don't prefer using these platform due to these issues. In this section we will discuss the problems and we will try to solve them in our project.

Some of these issues:

1. Not Responsive : Responsive Web design is one of the most important term and it is the approach that suggests that design and development should respond to the user's behavior and environment based on screen size, platform and orientation.

2. Poor UI : Inconsistency of interface elements and colors There is repetition in these elements without adding interest or nice appearance.

3. Poor User Experience(UX) : UX is a design process whose objective is to design a system that offers a great experience to its users. Thus UX embraces the theories of a number of disciplines such as user interface design, usability, accessibility, information architecture, and Human Computer Interaction.

4. No Updates : in these platforms there is no update in the content, data and information. These platform suffers from too old used technologies and design.

5. Not Enough Content : There is lack in the information and content, also these content is not clear to read and it presented in low quality images.

6. Access Issues : there are two main problems that are critical one of them that you cant access the data directly without any requests, for example if you have an exam tomorrow you should wait to be approved access this make it useless source. The other one is when the slide may be deleted or not found.

We will try to enhance these problems by providing :

1. Responsive Web design (we will show it later in methodology chapter).

2. Nice UI that have consistency of interface elements and colors such as in Fig 2.2

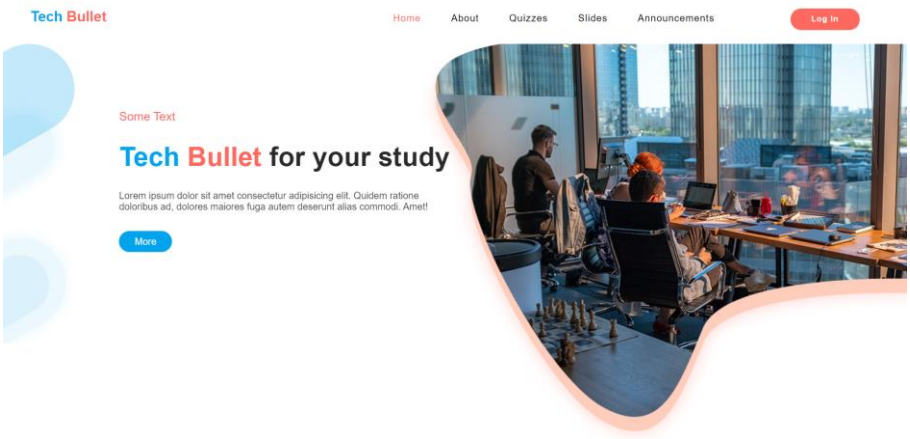

Fig 2.2: Our Project UI.

3. Smooth UX : easy to access all the features of the website.

4. Updated : we will collaborate with teachers and fresh students to keep this website alive and updated .

5. Accessible : we will make an accessible website that anyone can benefit from it.

We will provide main features that is not existed in other platforms such as:

1. Quizzes and Exams : we will provide real quizzes and exams that simulate the collage electronic exams with nice UI and smooth UX (we will show the structure of build in methodology chapter)

2. Official Announcements : we will collaborate with the teachers to give their announcement via this platform.

3. Register/Login system : we will allow students to be able to register in the website to be part of the procedure and share their works

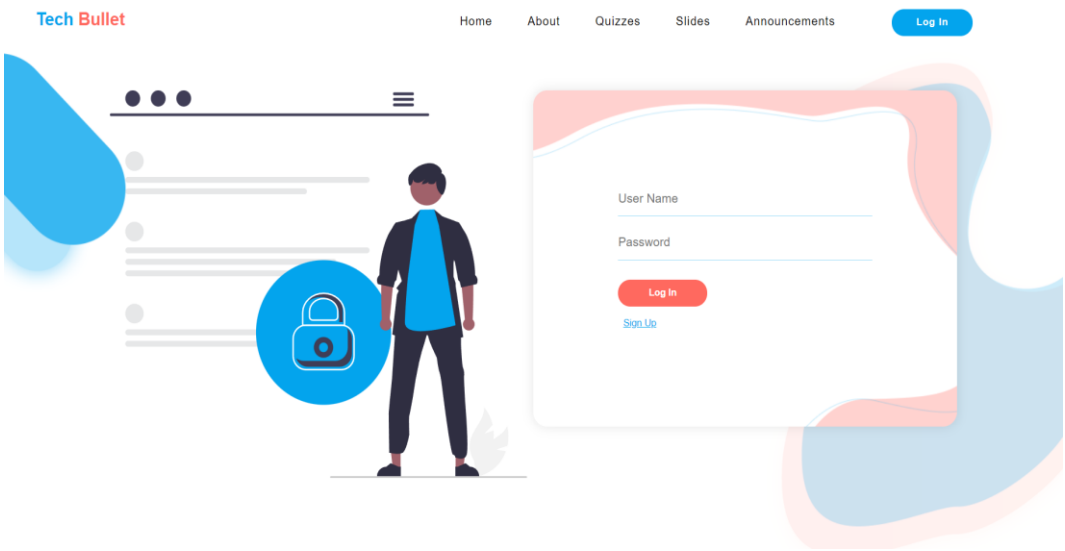

Fig 2.3 : Login/Register page

CONCLUSION

Many students in our college suffering from finding study materials and places to look at. In this project we will try to create a website that provide some new features in our college and solve some of the problems that student may facing in their study. We will try to provide responsive website with smooth UX and nice UI with quizzes service. We will ensure that the content is updated and accessible to all students and managed by reliable staff. We expect the help of students to make their contributions for our platform community to help students as possible in all levels or grades. We will use the latest versions of each technology. We will try to make all of these points in the next project.

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