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Cleverly

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Disclaimer

Yahia Mansour and Ahmad Muhannad have written this report as requirements for Bachelor's degree in Computer Engineering Department. No one modifies or corrects it because it will be evaluated by professors at An-Najah National University. It is worth mentioning that An-Najah National University does not have any responsibility for any word in this report.

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Abstract

We are always looking for an application or site to learn the things we want. For that... we present to you an application and a website (Cleverly) that helps you in learning, as well as teaching what you know in any field you master, for free or for profit from it, in an easy way, and many services that you can get.

Chapter 1

Introduction

When people have the opportunity to show their creativity in their field and transfer it to others, they often get creative when they find the opportunity to show their skills and teach them to others, and this is what it provides (Cleverly) to its users by allowing them to teach others and also learn from others.

1.1 Problem Statement

Some people have skills in certain fields, but they cannot benefit other people because no platform helps them in that. Also, it is difficult to find some platforms available for self-learning easily, or they may be difficult to use or paid. That is why we made it (Cleverly) to help him spread what he learned or learn what is new in a good, clear, and easy-to-use way.

1.2 Objectives

It helps to spread what you know or learn what is new in a good, clear, and easy-to-use manner.

1.3 Scope of the work

1. **Create accounts:** Create accounts for each user.
2. **Search Feature:** Users can search for any course or category they want, open it, and view it.
3. **Search filters:** They can search for any course or the name of a specific page that has more than one course.
4. **Upload videos:** Videos for each course can be uploaded and watched.
5. **Quizzes:** Each course owner can make his quizzes for any course he owns.
6. **Profit:** They can make a paid course and get a profit from the one who offers it.

7. **Live broadcast:** They can arrange direct meetings and book appointments for that.

1.4 Significance

People who seek to develop themselves, spread their vast knowledge to other people, or profit by spreading their knowledge can use (Cleverly) to do all of that.

Chapter 2

Constraints and Earlier Coursework

2.1 Constraints Limitations

Building a comprehensive application with all of the requested features takes a lot of time that we didn't have, since it takes time to learn the relevant technologies, pick concepts and design the user interface. All of the necessary elements and features have been established to finish this project and it will be enhanced in the future. We also lacked some educational materials that we needed to solve the challenges we were facing.

2.2 Earlier Coursework

- Database Design Management course:
This platform's database is entirely made on MongoDB (Structured Query Language). Database design principles and crucial concepts like dependencies, keys, and indexes were also covered in this course.
- Distributed operating system course:
This course helps student to understand the idea of APIs. So the whole back-end built as an API, and the front-end call this APIs.
- Critical Thinking & Scientific Research course:
In order to finish this course, students were taught how to read scientific publications and how to produce research papers using current technologies such as latex.
- Web Development course:
the courses focused on the programming languages required to accomplish the project, such as **HTML5, CSS3, JavaScript, React Js, Flutter, bootstrap, and Node Js.**
- Software Engineering course:
All of the principles and approaches covered in this course, such as software requirements, architecture, and user acceptability, have been shown to be effective and helpful, and they were implemented in this project.

Chapter 3

Literature Review

As previously stated, (Cleverly) aims to learn and teach others through the services it provides to its users. However, it was not the first; there are numerous websites that perform the same function, such as:

3.1 Udemy

The Udemy platform provides a set of tools that help users create training courses in order to earn money in several ways. real time; Udemy focused its attention on university students, as it worked on adopting courses related to improving the student's skills and the thing that he must master. There are some courses on the platform that eventually enable the viewer to obtain a technical certificate that is considered in some developed countries.[Udemy].

Advantages

1. Courses can be followed on all electronic devices, from computers to phones.
2. Cheap or symbolic prices for courses, most of which do not exceed 200 USD.
3. The possibility of a full refund of fees in the first thirty days for any reason the student wants.

Disadvantages

1. If you are seeking to enroll in educational courses to obtain a certificate and attach it to your resume, in most cases the Udemy platform certificates will not serve you. Because in the end, it is not an educational institution recognized around the world.

3.2 Coursera

Angi is a local business directory website that allows its users to submit more comprehensive reviews of companies than Yelp. Users can grade a company in report-card style (on a scale of A to F, with A being the best and F being the worst) on five categories: price, quality, responsiveness, punctuality, and professionalism. [angi].

Advantages

1. The content of courses and discipline.
2. Download courses and listen to them at any time.

Disadvantages

1. In some courses, you may need to be familiar with some of the basic parts of the field, or even you will need basic requirements to understand the topics of the course or specialization, but do not worry, on the page of each course you will find it alerting you if you need prerequisites or not.
2. The other big drawback of the Coursera platform is that not only are the certificates paid, but also that many course exams require the purchase of the course in order to allow access to and use of it, and this may reduce the benefit from many courses and specializations.
3. If you are going to pay for each course separately, you will need a large fortune, especially given the standard of living in Arab countries, but do not worry about this, as you can always look at the content without having to pay a single cent, or if you want these courses, you can subscribe to Coursera Plus for 399 USD annually.

3.3 What enhancements did Cleverly bring?

What distinguishes our application is ease of use, simple interfaces for the user, and some other features such as scheduling dates for online lessons meetings, which are for paid courses, features for uploading videos, the possibility of making quizzes in each course, and ease of searching for courses and following them.

Chapter 4

Methodology

4.1 Used Technologies

4.1.1 ReactJS

ReactJS is a free and open-source front-end JavaScript framework for creating UI components-based user interfaces.[**react**] Meta (previously Facebook) and a community of individual developers and corporations manage it. React may be used as a foundation for single-page, mobile, or server-rendered apps.

Why ReactJS?

1. React provides a clean and simple syntax called JSX syntax, which is comparable to HTML but allows the developer to insert JavaScript code into the front-end design, giving them more control over the component.
2. Reusability, one of React's most powerful features is reusable components. In another meaning, reusing an existing component rather than creating it again from scratch.
3. It supports a huge number of free libraries that give ready components that may make the development process easier for the developer.
4. Fast rendering.

4.1.2 Flutter

Flutter is an SDK from Google dedicated to programming applications for smart phones operating on Android, IOS and Fuchsia (a new operating system from Google), as it focuses on the user and developer experience at the same time, and this is because it provides a comprehensive framework in the Dart language dedicated to drawing destinations with high quality and Original applications with excellent performance and at the same time gives the developer the tools that make him build complete applications in the least time.

Why Flutter?

1. Libraries are parts that you can reuse more than once in which application code is placed and to perform common functions.
2. The Complete Development Kit (SDK) Although it is a set of integrated tools, its concept expands to include much more than that, such as it contains libraries, APIs, and frameworks, and it provides what can be needed to build various applications, and this explains the possibility of developing applications that are suitable for with more than one platform at the same time.
3. One code for two platforms! Through filters, you can develop applications for Android and IOS with the same code without the need for new code, and this saves a lot of time, effort, and the need to learn more than one language.

4.1.3 Node Js

Node.js is a framework for programming many of its basic modules in the JavaScript language. It was developed by an American programmer living in Germany called Ryan Dahl and the super-phase joint, and the first launch of this pattern was in 2009. It is known that the language of JavaScript is the language of the client side, meaning that it is a language that works alongside the user and not in the server, but after Ryan Dahl developed this pattern (Node.js) that works with the Google V8 engine and many other libraries, the matter became more complicated than before and This framework has been transformed by working on the server like PHP, in other words, the Node.js has become a completely dynamic and dynamic Functionality framework, through which you can deal with databases and so on with ease.

Why Node Js?

1. Asynchronous and event-driven: All APIs of the Node.js library are asynchronous, that is, non-blocking. This means that a server based on Node.js never waits for the API to return data

All improvements and bug fixes are quicker and released on a regular interval so that you do not have to wait for ages to harness the latest developments.

Flexibility of Open-Source framework is another reason why ASP.NET Core is a preferred choice for developers.

2. Very fast Being built on Google Chrome's V8 JavaScript engine, the Node.js library is very fast in executing code.
3. Highly scalable Node.js uses a single-threaded model with iterating events. The event mechanism helps the server to respond in a non-blocking manner and makes the server highly scalable, unlike traditional servers that create limited threads to handle requests. Node.js uses a single-threaded program and the same program can serve more requests than traditional servers such as Apache HTTP Server.

4.1.4 MongoDB

It is NoSQL under the name MongoDB, that is, a database in which there is no relationship between tables, and it relies on saving data as BOSN documents, and this type is the most famous among the NoSQL family

Why MongoDB?

1. Full cloud-based developer data platform.
2. Flexible document schemes.
3. Widely supported and code-native data access.
4. Change-friendly design.
5. Simple installation.
6. Full technical support and documentation

4.1.5 Other technologies & tools

There are multiple other technologies used, including:

1. **React Router** is a tool for handling routes in a web app by utilizing dynamic routing that occurs when the app is rendering on the machine to create a single page application. [[reactrouter](#)]
2. **Visual Studio Code** , also commonly referred to as VS Code, is a source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.[[vscode](#)]
3. **Postman** is an API platform for building and using APIs. Postman simplifies each step of the API lifecycle and streamlines collaboration so you can create better APIs—faster.[[visualstudio](#)]
4. **GitHub**, is an Internet hosting service for software development and version control using Git. It provides the distributed version control of Git plus access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project [[github](#)]
5. **JWT** (JSON Web Token) is an open standard for exchanging security information between a client and a server, and is commonly used for user login authentication. [[jwt](#)]

4.2 Cleverly as Web application Mobile application

Chapter 5

Results & Discussion

5.1 Results

Cleverly is a platform with a website and a mobile app that allows users to perform the following:

1. Users can see profile pages for each other.
2. A person can do his own courses or watch other people's courses.
3. A person can earn from the courses.
4. A person can search for the courses he needs.
5. Paid online courses can be arranged and scheduled.
6. Quizzes can be made for each paid or free course.

5.2 Discussion

Cleverly most likely supplied the following:

1. Providing an easy-to-use platform regardless of their technical knowledge so they can register on the website easily.
2. Increasing the credibility between users and the site.

Chapter 6

Conclusion & Future Work

6.1 Conclusion

Cleverly it is an application and site for learning and spreading different sciences among people easily and simply, and it has various services for users

We had hoped to incorporate a modest set of minor features into the project, but it was omitted due to lack of time and focus on more important features; hopefully they will be added in the future

6.2 Future Work

There are various areas that Cleverly might improve, including:

1. Adding a certificate after completing the full course and performing the last quiz.
2. Adding other benefits related to the security.