Collaborative Online Learning

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Abstract: We are implemented the Educational web Application for engineering students. In our website we are trying to merge all the Educational materials in one website. This website will going to reduce the students overhead to find the services like online learning through tutorials, videos, download the e-book, find out university question papers, and new technology related information through whats_new, blog and we will also going to add new features that provide stress relief activity like quiz. It will help user to get all things together, so user time will not get wasted to find various services at various sites.

Keywords: E-learning, MD5, Pattern matching, Blogs, Online quiz, recommendation, compiler, RSS Feed API..

I.   INTRODUCTION

In today's world young generation more attached to the digital world, according to research more than 60% of students use to do study by using internet. For study purpose most of the students need to visit various website such as YouTube, W3school, Stupid Sid, Stack Overflow etc. which take lot of time and efforts to find the required material. So we are creating a web application i.e. "Collaborative online learning" to make all these study material available on a single platform.

Presently, it is generally thought that new technologies can firmly help in education. In young ages especially, children can use the vast interactivity of new media, and expand their skills, knowledge, perception of the world, under their parents monitoring. Though traditional education cannot be replaced, but in this era of fast technological advance and minimization of distance through the use of the Internet, everyone must be equipped with basic knowledge in technology, as well as use it as a medium to reach a particular goal.

The aim of this web application is to develop an e-learning system that will improvise on the manual, class learning techniques used in teaching Computer Science, And to create a web application that will provide all study material available on a single platform with good graphical user interface.. In this web application we are providing one common search option that will fetch the data from database using pattern matching algorithm. To get the news about latest technology we are using "RSS Feed API" that will help user to be in touch with current technology.

II.   RELATED WORK

According to the website, which implies the availability of and easy access to knowledge-based products among peoples worldwide. Successful web-based products developed for markets in different ways. By managing the user's experience with familiar structures and processes, as well as the user's Preferences and expectations, the user interface and information visualization designer can achieve compelling forms that enable the user interface to be more usable and acceptable. Therefore, in this literature review, this research will explore and discover the explanation and definition of E Learning, localization and cultural dimensions according to the previous researches. Explain that the letter "e" in e-learning stands for the "electronic", e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline.

A. Literature survey
1)   Research paper on "Interactive News Feed Extraction System" by "Prerna", "Sanjay Singh" and "Rajesh Singh" ,"Monika Jena" [1]

They are written in this paper that a challenge that many website owners face is how to supply continuously fresh content for new and repeat visitors to peruse. It can be a very time-consuming task to manually upload regular updates. Fortunately, there is an easy way to showcase free, readily available news content on a wide variety of topics.

In our project we are examine a quick and effective method of incorporating RSS (Really Simple Syndication) coding in order to add news content to any site with only technology related news only directly fetch from goggle news.

So, now that we have a better understanding about RSS and what it can do, let's move on to finding out how to incorporate the correct coding into a website in order to gain the noted benefits.

2) In this research paper"A Comparative Study on String Matching Algorithms of Biological Sequences" by "Pandiselvam.P", "Marimuthu.T" and "Lawrance.R". [2]

They are written in this paper that String matching is a technique to discover pattern from the specified input string. String matching algorithms are used to find the matches between the pattern and specified string. For example Let U is an alphabet; the basics of U are called symbols or characters.

In this paper we have understood the pattern matching algorithm works but we are implemented the pattern matching based on keyword which match the in the database and display.

3) In this research paper -The video recommendation system based on DBN by Cui Hong Liang,[3]

They are written in this paper that the video recommendation system provides users with suitable video for users to choose, which is an effective way to get a higher user satisfaction and user stickiness. Therefore, video websites pay much attention to it, as well as scholars. The existing recommendation algorithms are fused machine learning algorithms to video recommendation system. Such as some studies the SVM algorithm combined with a recommendation algorithm based on content, or uses the BP neural network combined with collaborative filtering algorithm, to improve the algorithm accuracy.

4) In this research paper Query Construction Patterns in PHP by David Anderson, Mark Hills [4]

They are written in this paper that they focus specifically on how developers create queries that are then used with the original MySQL API library. Based on a collection of open-source PHP applications, our initial results show that many of these queries are created according to a small collection of query construction patterns.

5) Keyword Search in Information Retrieval and Relational Database System: Two Class View [5]

They are written in this paper that information Retrieval and web search domain revolves around search and retrieve Methodologies .keyword search has been most popular and easy to used technique.

III. EXISTING SYSTEM

We have many educational websites which provide different educational materials like W3school.com which provides tutorial for programming language such as HTML, PHP,CSS and it includes some theory and syntax about topics, they also provide compiler to test user code . Stack Overflow provide the two-way communication in which user who have question related to particular topic which user can ask on that blog then people who have account on that site they will provide solution for that problem. Another example is Stupid-sid which provides question paper and syllabus as per different university.

This all website provides different study material in a single type like you tube provide only videos but not theoretical content, W3school provides only theory, syntax and compilation section not videos, for example if a user want to search for particular topic then user need to visit various websites so its time consuming and for different content user need to switch from one website to another.

B. Comparison of websites:

Factors	Different Websites		
	Collaborative online learning	*W3school*	*Tutorial point*
Tutorial	YES	YES	YES
Video	YES	NO	YES

Question Paper	YES	NO	NO
Blog	YES	YES	NO
EBook	YES	NO	NO

IV. ARCHITECTURE OF SYSTEM

We are implementing a web application that provides online learning facility for engineering students. In our system we are working on various modules like Tutorial, videos, EBook's, Question papers, Blog, What's new, Quiz. It will help user to get all things together, so user's time will not get wasted to find.
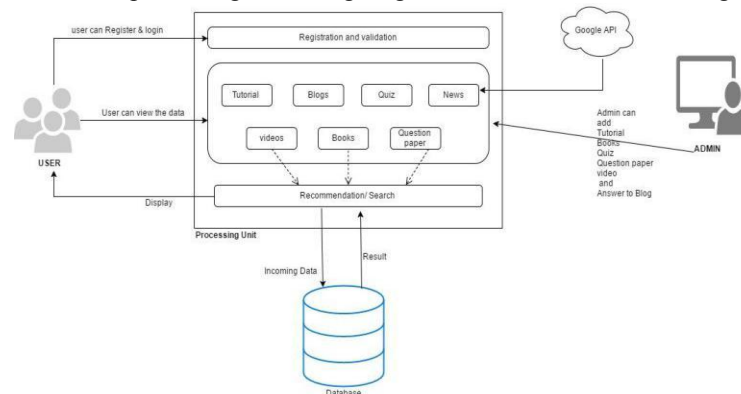
C. Modules

The template is designed so that author affiliations are not repeated each time for multiple authors of the same affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization). This template was designed for two affiliations.

1) Registration module: -

Basically we have two types of user, one of them is Admin which have all the rights and another type of user can be the student. The new user can register to web application by clicking on Registration button and then he/she can fill the required basic identification information just like name, address, mobile no., email-id, two secret questions. The normal user can set profile pic and password to their account so security can be maintained. We have used MD5 algorithm which generate 128 bit of message digest for encryption to achieve authentication. We have one facility if a user forgot his password then he can set new password using those two secret questions whose answer was stored in the database. The admin can see the all the users profile. As the new user register his/her entry will be shown at the admin dashboard.

a) One-way Encryption (Login Module)

Very few databases offer data encryption, so the developer must encrypt passwords before sending them to the database. One-way encryption is perhaps the safest way of storing and protecting passwords, and it is very widely used in the computer world. One-way encryption means that a password gets encrypted and cannot be decrypted again. So you have to remember the password, because you will not be able to recover it.

Every encryption method uses an algorithm, basically a blueprint of how the encryption works. Algorithms that achieve one-way encryption are called hashing algorithms, and they work by taking a string (for example, John Doe) and then creating a unique fingerprint (if you like) from it. [6] PHP offers a hashing algorithm called MD5, which basically takes a string and returns a 128-bit fingerprint of it. To my knowledge, the MD5 algorithm has not been broken yet, because it would take a long time and some formidable computing power. Also, creating two inputs (or more) with the same fingerprints is would be very difficult.

2) Upload Data:-

The admin can upload the study related data in the form of books and video. Admin can upload the books in the database, while uploading the book Admin need to use 3 parameters title, description, keyword which shows the book related information. In same way videos can be uploaded which also uses the same parameters to store it in database. We also insert the question papers of theory subjects which also has the same attributes. The admin can see the no. of views of books and videos and admin have the rights to delete the book based on the no. of views. Special button is provided at the admin dashboard for deleting data from database.

3) Search Data: -

We have common search bar for finding the data. The user may search the data by using the topic name at the common search bar. The Processing unit takes that topic name and compares it with the database record using Pattern matching algorithm to provide the required output to user.

The pattern matching algorithm given below:-

Algorithm: Pattern Matching

Step 1: Initialize the input variables:
        N = length of the text.

        M = length of the pattern.

        U = Prefix-function of pattern (p). Q = number of characters matched.
Step 2: Define the variables:

   Q=0, the beginning of the match.

Step 3: Compares the first character of the pattern with first character of text.

        If match is not found, substitute the value of U [Q] to Q. If match is found then increment the value of Q by 1.

Step 4: Check whether all the pattern elements are matched with the text element.

If not, repeat the search process.

If yes, repeat the number of shifts taken by the pattern. Step 5: Look for the next match.
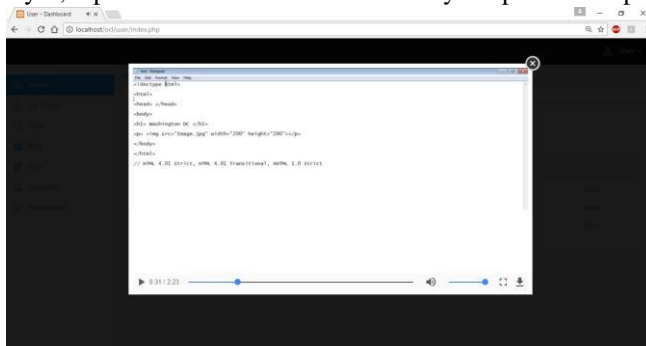
4) Blog :-

It is a two way communication in which user can asked about any query to the admin and admin gives reply to the user as per users query. This process involves following operation:

Step 1: start

Step 2: User Login (User Name, Password)

Step 3: User Dashboard

Step 4: select blog tab.

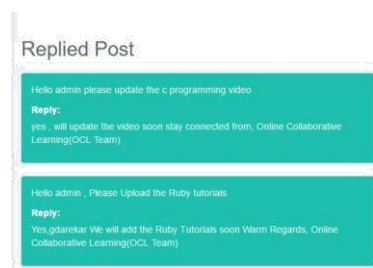Step 5: write question and click on post.

Step 6: request send to Admin and user (question, user id)

       Store in database.

Step 7: Admin Login

Step 8: Admin add answer to question

Step 9: stop

User just need to login. After login user will get dashboard on that user need to select blog tab. Then user need to add question and click on post so request of question get send to admin. When admin will login, then admin will get the question so admin will provide answer to that specific question in admin panel.

5) Recommendation: -
       In recommendation process our system will recommend the videos, books and question paper as per the user last search. Means assume users last search was "database" then that word we are storing in system as a keyword and after that system will try to find any match in the database, query fire on Title, Description and Keyword so if it get any match it will show that match as recommendation.

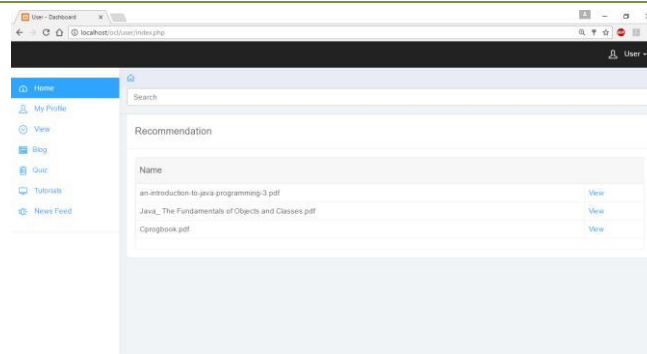It performs the operation as a follows,

Step1: Start

Step2: Search word store as a keyword.

Step3: perform match query operation on database.

Step4: Matching operation perform on keyword, title and description of Books, Video and Question paper

Step5: Match data will display as recommendation.

Stop6: Stop

6) Display Test Result: -

In Quiz section we are using the timer and output of test as a result in tabular form. In this section user need to start the test in this test we are providing random ten question from database so user will get some new question every time. In the test user will have only 3minutes to complete the test after that test will automatically get submitted.
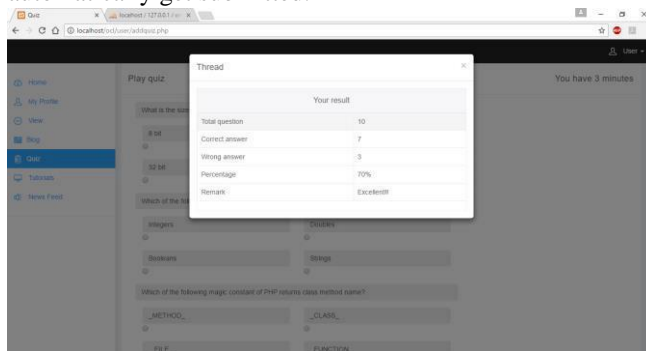
7) Code Execution:

In tutorial section we are providing the compiler for code execution, for HTML and CSS code execution, we are providing the compiler which perform the code execution locally in our system, but for JAVA code execution we are taking help of third party compiler.

In compilation process at left site box user need to write the code and after completion of code user will press the button of run then it will get run and will show the output at left box.

8) Rss feed:
a) Google Feed Api

Google has developed an exceedingly convenient method to display RSS feed data, via their Feed API feature. Using this technique, you can showcase any newsfeed by incorporating some simple JavaScript lines into a web page [7] To begin utilizing the Feed API, insert the following script into the Head section of your web page, beneath the Meta tag area and just in front of the closing Head tag:

```
<script type="text/javascript" src="https://www.google.com/jsapi"></script>
<script src="http://www.google.com/uds/solutions/dynamicfeed/gfdynamicfeedcontrol.js"
type="text/javascript"></script>

<style type="text/css">
@import url("http://www.google.com/uds/solutions/dynamicfeed/gfdynamicfeedcontrol.css");

#feedControl {
margin-top : 10px;
margin-left: auto;
margin-right: auto;
width : 440px;
font-size: 12px;
color: #9CADD0;
}
</style>
<script type="text/javascript">
function load() {
var feed ="http://feeds.bbci.co.uk/news/world/rss.xml";
new GFdynamicFeedControl(feed, "feedControl");

}
google.load("feeds", "1");
google.setOnLoadCallback(load);
</script>
```
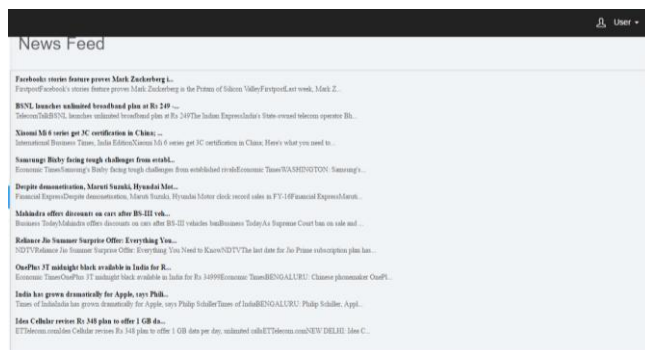
Then, insert the following code into the desired area of the web page:

```
<div id="body">
<div id="feedControl">Loading...</div>
</div>
```

After uploading the web page to the Internet, you should see the following addition

V. CONCLUSION

So we have implementing the website successfully provide the appropriate study material like Tutorials , Books , Videos , Blogs , Question paper , Quiz etc. Our website completely reduce the searching time and provides the fast responses to the user. And it is also providing the recommendation to improve the experience of learning that helps user to track what he/she did last time.

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