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Learning Buddy: The E-Learning Application

[1]Dr. Anita K. Morey, [2]Simran Gupta, [3]Neha Malghe, [4]Mrunali Mane
[1]Asst. Prof., [2]Student, [3]Student, [4]Student
[1]Information Technology Department,
[1]Usha Mittal Institute of Technology, SNDTWU, Mumbai, India

Abstract: Since we have experienced the lock-down situation due to deadly disease like corona, we need to continue the education through different online platforms. The E-Learning is one of the best platforms for the distance education. In E-learning education teacher sits at home which may be far away or outside the home they can conduct a lecture and teach their students. Through the E-Learning education teachers and students can share their ideas and the difficulties in understanding any topic. In the era of online education due to technology changes, teaching related documents, notes can be sent from any place to any other place within a minute. Even though we go through the offline learning, sharing of the learning material and notes is mandatory task for all teachers and students. Hence in this paper, we proposed a "Learning Buddy: The E-Learning Application" for sharing the notes, assignments between teacher and students of a specific class, for online as well as offline teaching learning method. In the E-Learning Application, we have facilities for a teacher who is teaching to different classes similarly students studding multiple subjects in a semester is considered. The proposed application is providing the customized way for teacher and students according to their changes of subjects in different semester. In the today's scenario of online teaching-learning, the proposed application provides a variety of educational resources and multimedia presentations to promote efficient learning.

IndexTerms **- LMS- Learning Management System, Faculty, Students, Branch, Subject, Assignment, Notice.**

I. INTRODUCTION

In the modern world, the internet serves every task. Online systems and internet resources are becoming more and more common and are starting to influence human behavior. E-learning is now need for all learning situations. E-learning refers to a formal teaching-based learning method that also uses electronic resources. Computers and the Internet are the cornerstones of e-learning, whether education happens in a classroom or not. The transfer of knowledge and skills through a network is referred to as e-learning. Numerous winners have received schooling at the same time or on separate occasions. E-learning is a method for learning that takes use of electronic resources. E-learning is primarily centered on using computers and the Internet, while education can also take place in or outside of formal classroom settings. The transmission of education to many receivers at once or at various times is known as e-learning, which is also known as a network enabled transfer of skills and knowledge. Earlier, it was not fully recognized since it was thought that this method lacked the human component necessary for learning. However, it is accepted now by the majority due to the quick advancements in technology and learning methods. Computer systems were the catalyst for this transformation, and as time goes on and we grow more reliant on smartphones, tablets, etc., these technological advancements are now integral to classroom learning. Electronic instructional resources like optical discs or pen drives are progressively replacing books in the classroom. The Internet is available anywhere, anytime, and around the clock, and may also be used to disseminate knowledge. With the aid of books and lectures, it is undoubtedly vital to advance the idea of non-electronic education but it is also crucial to recognize the value and efficiency of technology-based learning. It was formerly thought that what was seen and heard in moving photographs or films was easily recalled and connected to by the human brain. Additionally, it has been found that using graphics and retaining students' attention assist the brain remembered knowledge for longer. Agriculture, medical, education, services, business, and government institutions are among the industries embracing the idea of e-learning, which aids in a country's advancement. It is also essential to advance the idea of traditional education through books and lectures; the value and efficacy of technology-based learning cannot be undervalued or ignored. The notion holds that the human brain is capable of quickly remembering and connecting information heard and seen in moving visuals or movies. The brain is proven to recall sights for extended lengths of time besides keeping attention. A few industries, including agriculture, medicine, education, services, business, and government institutions, are embracing the concept of e-learning, which promotes national growth. It was not acknowledged and widely believed that this system lacked the human component necessary for learning.

II. LITERATURE SURVEY

The authors, Ava Chikurteva, Nina Spasova, and Denis Chikurtev in their paper [1] examined the application of e-learning in the education system in the conditions of social isolation caused by the COVID-19 pandemic. The possibilities and challenges in the implementation of e-learning were researched. Some of the most used platforms for e-learning had discussed. These platforms had considered, and both their benefits and drawbacks had noted. Based on the result of the study, the challenges for the future development and successful use of e-learning are defined [1].

The authors, A. Zaguia, D. Ameyed and Y. Daadaa, in their paper [2] focuses on the development of a hybrid e-Learning cloud system that combines the National Institute of Standards and Technology (NIST) architecture and various contexts aware computing such as User context, system context, and environment context that can quickly adjust to any environment change is expected. They were viewed traditional e-Learning architectures and their limitations and then proposed a hybrid cloud computing architecture to offer resources efficiently to all learning stakeholders and improve the education system quality at an affordable cost [2].

In the review paper [3], Bareq Raad Raheem, M. Amirullah Khan have shown the significance role of e-learning in COVID -19 crisis. The technology has been playing a great role during the crisis. E-learning technology have enabled students to study from home. This study has reviewed the concept of e-learning, features of e-learning and the role of it in English language teaching and learning. Finally, the authors have shown the role of e-learning in COVID-19 crises [3].

In the article [4], author discusses the relevance of adopting cloud environments for all institutes and students, emphasizing its potential benefits and possibilities in terms of design.

In the paper [5], authors described various e-learning systems designed and developed by individuals, Institutions, or universities to support learning process. E-learning platforms are then described. This paper also discusses various Massive Open Online Course (MOOC) platforms available on Internet and shows a comparative summary of their features [5].

III. PROPOSED METHODOLOGY

The proposed E-Learning Application includes three different modules as Student, Learner, Faculty and Admin module. These modules individually perform their assigned tasks.

In the Learner module, a student of the specific institute is registered and added as learner by the admin of the E-Learning Application.

A learner can perform many activities such as: Register in the application, login into the application, forget password, learn using application, submit assignments, keep self-notes, view Timetable, view Notice. The details of these activities are as follows:

Learner - The learner is the student of the specific Institute. Admin registers the learners as authorized students of the institution. A learner can perform various activities in Learner module.

Register: Students can register themselves by filling the registration form with the mandatory credentials like email id, temporary password, user type, branch, etc.

If the user is a student, then admin adds the details of the students like semester, year to create the student account. Once the student account is created by the admin, student receives an email asking to reset the temporary password of their account. This password reset option is used to provide the extra security to the user account. if the user does not change the temporary password to the new or permanent password then the user will be unable to login into the system. That means change of the temporary password is mandatory without that user cannot login into the application.

Learner Login: The learner can log into the system with authenticated email id and password provided by the admin.

Forget password: Learners can get their password in case they forget it by using forgot password functionality. the student needs to provide their email id then on that email id. Reset password mail is being sent to the given email id so the student can reset the password using that link.

Learn: When the Student logs in to the application, they get the subjects according to their branch, year, and semester. By clicking the subjects, they will get the notes uploaded for that subject by respective faculty. Using the notes available in the E-Learning application for semester, students can learn the subject.

Submit Assignment: Student can submit their Assignment/Experiment by selecting the assignment option in the application. There is the option of delete by which student can delete the submitted assignment and can resubmit the assignment if any correction needed.

Self-Note: Students can keep a note in the application if they want to keep their extra notes regarding study.

View Timetable: Student can view the Timetable of their class. The student's timetable is with respect to their branch, semester, and year.

View Notice: Students can view the Notice from college.

Faculty

Upload Assignments/Experiment: Students can see assignments uploaded by faculty. The students can solve the assignment and upload it within the submission deadline. While uploading the assignments faculty needs to fill in the information about the assignment such as assignment no, Assignment name or Aim of the lab experiments, Subject, Year, and Branch further this information is used to sort the assignments using subject. At the time of uploading Assignment Faculty needs to provide Due Date to submit the Assignment after end of the Due date Student will be not able to submit the Assignment.

View Assignment/Experiment: Faculty can see Information about assignments uploaded by themselves for students of different years and branches. Faculty can see the responses of the assignment submitted by students. Faculty can do the assessment of the assignment submitted by the students by clicking on that assignment information.

Add Notes: When uploading notes faculty must upload the files which are in .pdf format only.

View Uploaded Notes: Faculty can see uploaded notes by them for different branches and different year students.

View Timetable: Faculty can view their Timetable.

View Notice: Faculty can view their Notices here.

Add Course: Faculty can add available course to their account as each year each faculty teaches different subjects. Faculty can see their allotted subject by clicking on courses option in the faculty module. Then by clicking courses label faculty can select course to themselves for a class. Faculty needs to fill options like Branch, Course name, Academic Year, and Course type which can be practical or theory in this way faculty can add new courses to them.

Admin

Admin Login: Admin can login into the System using its own credentials like email address and password.

New User Register: Admin can Register New Users like Faculty and Students by completely filling in the mandatory credentials like email id, temporary password, user type, Branch, etc. If the user is a Student, then fields like Semester, year etc., by providing such details admin can log in to the system. As soon as Admin created an account for the user, the user will receive an email asking to reset the temporary password. if the user does not change the temporary password to the new or permanent password then the user will be unable to login into the system.

Upload Timetable: The admin can post schedules for students and faculties. By entering information such as Branch, Semester, and Year, the Admin may upload the schedule. There, in the application, the respective will receive their respective Timetable. Faculty administrators just need to choose the PDF schedule to upload. Note: The schedule must be in PDF format.

Upload Notice: The admin can upload notices for both professors and students. For this, the administrator must compose the notification's body, provide the date, and indicate whether the message is intended for students or professors. If the user is a student, the administrator must provide information about the learner who will get the notice, such as their year, semester, and branch.

Courses: The administrator can check the courses that are currently offered and if an additional course is being introduced, they can easily add it by selecting the add new course option. Administrators can add new courses by filling out the required fields. Mandatory data like Course name, Branch, Semester, and Year are included in details.

Branch: If a new branch is established in the institute, it can get included to the system by selecting the choice to add a new Branch. Administrators can do both view branches and add new branches.

Promote Students: Promoting Students is a functionality provided by Learning Buddy which includes automatically updating the user profile by updating their education qualification. for example, if the user is in first semester, then by using promote student's functionality admin can promote the student from first semester to second semester.

Users: Admin can View the list of all registered Users. Admin can delete the users just by selecting the user and clicking on the delete button.

IV. Results and Discussion

Finally, the existing online platforms such as Google Classroom and Moodle are popular and used by many users. These platforms have their own advantages and disadvantages. Google Classroom is simpler and easier to use, however Moodle provides more customization choices and a broader variety of capabilities. Moodle is better suited for higher education institutions and business training programs, whereas Google Classroom is best suited for K-12 schools. In conclusion, Google Classroom and Moodle are both great learning management systems for managing educational courses and improving student involvement and performance. Learning buddy can be used for specific schools or institutions whereas Google classroom can be used for multiple schools or institutions.

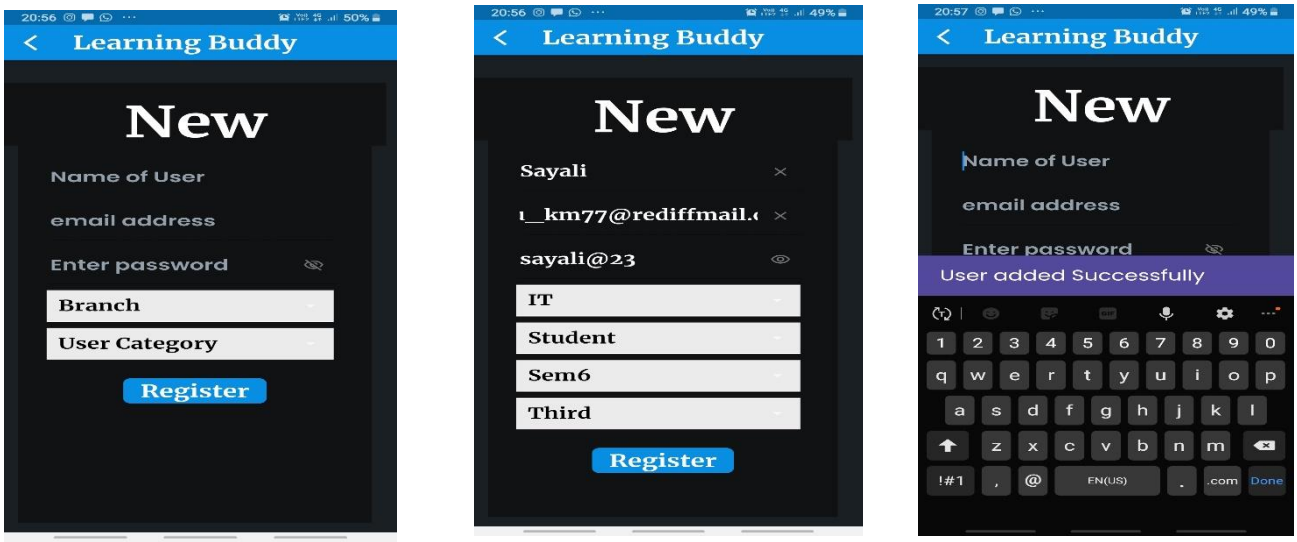
Learning Buddy provides facility for institutions to upload the notice so the users such as Faculties and Student can see them in the application. Learning Buddy allows students to prepare their self-notes and save them into the system which is provided by the Google classroom and Moodle. Google Classroom does not require any password to login it is sync with the google account but with Moodle when user get registered into the system at that time admin has access to the user account because admin have passwords of the users which may create loopholes to the system. Learning buddy does not allow user to login with temporary password. Learning Buddy also allows the Institutes to upload the Timetable so the respective users can see them into the System.

4.1 Screen Shots of the Learning Buddy Applications:

The "Learning Buddy", an E-Learning application starts with the welcome page as shown in figure 1. On this page login option is there, using the login option already register user can login to check his respective details as a student or faculty. If the admin has login into the application, he can view the options as shown in figure 2 such as Add Faculty, Add student, Timetable option, Notice option, add courses, add branch for new entries into the application database.

Figure 1: Learning Buddy welcome page

Figure 2: Admin options to add new entries



(a) Login details (b) College details (c) Personal details

Figure 3: Register new user into the application (a), (b), (c).

Table 1 show the comparison among Moodle, Google Classroom with our Learning Buddy application. While comparing we considered different parameters as shown in table 1. like open Guest Access, Create Class, Create Assignments, Record Grades, etc. From the comparison we observed that security point of view our Learning Buddy application is more secure than the Moodle and equal secure to the Google classroom. The Learning Buddy application is associated with one user separately, whereas Moodle can be assigned to groups and the Google Classroom can be assigned to individual or groups. Learning Buddy application do not save the work automatically in the Google Drive, whereas Google Classroom saves the work and Moodle do not save. The user Interface of Learning Buddy is easy to use as compare to the Moodle.

V. CONCLUSION

The project, "Learning Buddy: The E-Learning Application" is designed to set up the learning space for the users to reduce the burden of maintaining records of all the students, and save time to maintain the record manually. The E-Learning project maintenance task is easy. This project supports authentication to the user and reduces extra hard work, paper work, and time consumption. Database management and maintenance is also easy in Learning Buddy. Since Learning Buddy is the customize application for the institutes, compared to other E-Learning Platform Learning Buddy can be used commercially and can be used in universities and schools. It is useful in collecting the assignments from all the students at one platform and maintaining them is easily possible with Learning Buddy.

TABLE 1: COMPARISON OF DIFFERENT ONLINE PLATFORMS WITH LEARNING BUDDY

Features	Moodle	Google Classroom	Learning Buddy
Open Guest Access	Yes	No	No
Assign to Groups/Individual	Assign to groups	Assign to Individual or groups	Assign to Individual
Create Class	Yes	Yes	Yes
Record Grades	Yes	Yes	Yes
Provide Grade on Student Assignment	Yes	Yes	Yes
Has a Calendar	Yes	Yes	Yes
Create Assignments	Yes	Yes	Yes
Autosave work to Google Drive	No	Yes	No
User Interface	Difficult to understand	Easy to understand	Easy to understand

VI. FUTURE SCOPE

- Data Removing duplication handling.
- Document sharing between the users.
- Performance measurement of students.
- Automatic Quiz Generation.

- Attatedance management of students for lectures
- Project management for students' projects.

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