**Title: An Interactive Elearning Platform for Learners**

Group Name: **Technotuners**

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Github Link: <https://github.com/Nikitharaoo/TECHNOTUNERS>

Trello Link: <https://trello.com/invite/b/IdSNN2Lw/670a4820409ad24f9022d31d9073f806/technotuners>

## INTRODUCTION

Elearning is an education which is administered through the use of the internet on a computer or any client application that can access the internet. It is an internet resource enabled to access skills and knowledge where people can visit and use to learn from. It includes all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process. This often involves both out-of-classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum.

E-learning has the potential to transform how and when students, whether young or employed, will do his education. Learning will become more integrated with work and will use shorter, more modular, just-in-time delivery systems and cheap for delivery. By leveraging workplace technologies, e-learning is bridging the gap between learning and work. Workers can integrate learning into work more effectively because they use the same tools and technology for learning as they use for work. Both employers and employees recognize that e-learning will diminish the narrowing gap between work and home, and between work and learning. E-learning is an option to any organisation looking to improve the skills and capacity of its employees. With the rapid change in all types of working environments, especially medical and healthcare environments, there is a constant need to rapidly train and retrain people in new technologies, products, and services found within the environment. There is also a constant and unrelenting need for appropriate management and leveraging of the knowledge base so that it is readily available and accessible to all stakeholders within the workplace environment.

## Project Proposal

Over the last two years since Covid19 started, most of the learning institutions were not ready for this and they ended up halting their schooling activities. This has resulted in many invention of using internets and instructors to support their courses in three primary ways:

* To enhance the delivery of lectures
* To enhance communication between instructors and students, and among students
* To provide asynchronous access to course materials

To overcome this issue and allow institutions to always be ready, the proposal will focus on developing an application that can allow lectures to post their content or videos on a platform where students can get these contents. The E-learning platform to be developed can be broken down into the following modalities:

* Individualised self-paced online e-learning where an individual learner accesses learning materials online;
* Individualised self-paced offline e-learning where an individual learner accesses learning materials offline.
* Synchronous group-based e-learning where a group of learners work together in real time via intranet or Internet.
* Asynchronous group-based e-learning where a group of learners work together through the Internet or intranet but their interactions are not done in real time.

The main goal of the project is to overcome some of the issues encountered by learners and lecturers when they interact through the classroom environment. Some of the issues and objectives that the project research will be trying to solve include the following.

* To be able to reduce the cost incurred by both parties i.e. travelling and upkeep expenses for course work that is mostly theological and can be done through virtual studies and assessment.
* To allow learners to learn within their pace and convenience.
* To enable learners access to much content and team discussion through online groups.
* To enhance resource sharing (in form of class notes, video resources and links)
* To provide more efficient class-attendance-tracking
* To reduce the rate of student dropout

## Reason For the Proposal

As it is a requirement for students to create a project during their course of study. This is a proposal for a school project which aims at enhancing the way teachers do administer their content to students and how to keep track of these records of tutorials for future usage.

## Requirements of the Proposed System

#### Functional Requirements

* It should deter students with fee balances from learning units for that semester but allow them to access materials and recorded sessions of previous ones.
* It should track a student’s attendance of classes and should give a report on which students do not qualify to sit for final examinations based on this.
* It should have chat functionality (i.e. students are able to chat publicly- group chat or privately, with the lecturer during a session).
* It should record all sessions and make these available to students
* For coding-related units, it should allow a lecturer to type code on an interface from which students can copy.
* It should automatically enrol a student to the respective units for each semester.

#### Non-functional Requirements

#### Fast Loading Web Pages

All the pages on the learning site should render onto the screen in an interval of time such as to yield pleasant user experience. The pages on which live broadcasts are made or on which videos are played should load in the time a text web page does so. This may be achieved by expanding the hardware capabilities of the school’s website-hosting facilities.

##### Search Engine Optimization

The site should be such that all its pages can be searched for and found quickly using popular internet surfing tools (e.g. Google, Yahoo, Amazon). This is achieved by ensuring all pages are implemented following HTML guidelines. All text should be within HTML tags. All other guidelines with regard to SEO should be followed during the system’s implementation.

##### Good User Interface

The use of colours, fonts and spacing should be such that all user interfaces in the system are pleasing to the user’s eyes. Navigation should be such that the principle of content awareness is as adhered to. A new user of the system should be able to utilise it without prior training.

##### Security

Only individuals authorised to access specific data should be allowed to do so.

Databases should be designed such that data integrity is maintained throughout the system.

##### Compatibility

The system should function in the most popular operating systems and in all modern browsers without fault. It should further work on different device categories (smartphones, laptops, desktops) and sub-categories.

##### Availability

The system should be accessible for 24 hours a day, 7 days in a week.

This rule should only be violated in case of a fault. Regular maintenance, however, should not cause the dropping of this standard.

##### Interactive Content

Developers should work with lecturers to creatively apply modern information available on learning methods to the system. With this regard, interactive videos and highly illustrated notes should be produced.

### User Requirements

The following are some of the activities that a user of the proposed system can perform.

* It should allow a student to sign up or sing in (for his/her account).
* It should allow a lecturer to post assignments and announcements.
* It should allow a student to submit an assignment.
* It should allow a lecturer to post online Random Assessment Tests. If multiple choice, it should mark the papers and store the marks for each student.
* It should allow a lecturer to post materials.
* It should allow students to post comments.
* It should allow a lecturer to submit the solutions to challenging CAT or RAT questions.
* It should allow a student to update his/her profile.
* It should allow students to host their own sessions (to support group work).

### System Requirements

* Google Chrome, Mozilla Firefox / Any modern browser (2017 versions & later – due to videos, JS)
* Windows / Linux OS
* High speed Internet connection (due to live classes)

### Development Tools

The system will be developed using python 3.10 and the latest version of django. Django will be used to handle the systems logic and database handling while UI will be implemented using HTML, CSS and JavaScript.

### Risk Management

As the project development is ongoing, some hindrance may occur and affect the development of the project. Some of the most expected risk that could affect the project continuation includes;

* Members absenteeism and failure to complete the tasks.
* Change of project on the midway.
* Resources availability issues or theft of computers holding the code structure for the project.

#### Risk Evaluation monitoring and Course of action

On evaluating a risk, it will be based on some metrics on how it affects the project. The metrics will be based on the likelihood of risk occurring and its consequence. The likelihood will either be often, frequent, moderate or rarely while consequence will either be high, low or average. The two will result in determining whether the risk is High, Moderate or Low which will allow selecting a course of action for the risk. High risk will be acted upon by all team members by having an immediate meeting for discussion on how to go over it.

### **Project Schedule**

Below is a Gantt chart that shows how the project plan will be executed until its completion.Graphical user interface, application, table, Excel

Description automatically generated

|  |  |
| --- | --- |
| eLearning Project Schedule | |
|  | Start Date |
| Proposal | 13-Sep |
| Literature Review on other systems | 20-Sep |
| Development tools gathering | 27-Sep |
| Base Project Structure | 4-Oct |
| Data base design | 11-Oct |
| GUI Implementation | 18-Oct |
| Logic Workflow and Implementation | 25-Oct |
| Integration of GUI and Logic | 1-Nov |
| Testing | 8-Nov |
| Verification of Requirements | 15-Nov |
| Deployment | 22-Nov |

*Figure 1. Project Gantt Chart showing its schedule*

Each team member’s role in the project

|  |  |
| --- | --- |
| Name | Role |
| Nikitha Rao | Project Management Lead |
| Sai Rukma Reddy | Requirements Lead |
| Sai Rukma Reddy, Jyothirmayee | Design Lead |
| Haritha, Sivani | Implementation Lead for front end |
| Umarani, Dheeraj | Implementation Lead for back end |
| Dheeraj, Haritha | Configuration Management Lead |
| Sivani, Nikitha Roa. | Testing Lead |
| Sai Krupanand, Umarani | Documentation Lead |
| Sai Krupanand, Nikitha Rao | Demo and presentation Lead |
| Jyothirmayee | System Administrator Lead |