

# **Analysis of EduNation – The Education Portal Project**

## **Abstract**

The outbreak of the global pandemic has changed our lives drastically. Education being one of the most important aspects of our lives has been affected a lot. Students who are in their high school often face difficulties in choosing their college for further studies. That's why we bring to you, EduNation, the online education portal which would show you some of the top colleges in any field of your choice. A form would collect the details of the student and his/her stream preference and present a list of top universities or colleges along with their rating, website link and other details. Students and parents can also post their reviews and comments about different universities and colleges. On logging in/signing up, students can also maintain a priority list which contains a list of colleges which they would like to apply for. Specialized premium features are available to the user on logging in and creating an account with the website.

**Keywords:** Education, web development, design layout, functionality, analysis, implementation, education portal

## **1. Introduction**

21<sup>st</sup> century has been evolving nearly every day and has been demanding for development and enhancement in advanced sciences and researches. All of this can be productively fulfilled if the youngsters of the society get access to some of the best and top-notch educational institutes across the world pertaining to their field. However, there's an ocean of institutes and colleges which are available making it difficult for the aspirants to choose the best one [1]. EduNation is meant for every college aspirant who wishes to gain access to the information pertaining to some of the best universities and colleges from all around the world and to prioritize and sort them out according to their wish list. Our project has a number of features involved which help the user to access the resources on our website with ease and work towards their goal. The project has been developed with a number of languages keeping in mind the efficiency and control hierarchy of EduNation.

## **2. Purpose of Study and Motivation**

This project has been carried out with the aim of developing our coding skills with regards to Internet Web Programming and to help the educational aspirants in our society, to uplift them and bring them to the forefront with respect to knowledge aspects. In order to develop a strong and sturdy foundation for web programming, we have made use of all the necessary languages and tools like PHP, MySQL, JavaScript, etc. Ajax and JQuery have also been incorporated in all those places which require a quick and fast response from the server side and smooth rendering towards the client side. MySQL database has been used for storing the details of the user and their valid credentials. The server-side and client-side scripting have been propagated with consistency and integrity to ensure a fully functional and highly efficient project implementation [2].

### 3. Literature Survey

Education and educational Institutes, being one of the core necessities in the current world, there are plethora of educational websites and online portals for the same. We have done a thorough research and compared and contrasted the different websites which are available and have extracted a few common features from them. Along with this we have also incorporated some new and exciting feature which we haven't seen in any of the exiting website like the prioritizing list. We have gone through numerous types of websites which are similar to our topic. Few of the websites had the option to post reviews and comments [1]. Remaining few websites showed the college/universities based on one country alone. So, we have developed a website which is inclusive of all the existing features and have added the new striking feature of the priority list page. This feature would help the user to maintain a detailed record of all the universities and colleges which he/she has prioritized. All these features put together gives EduNation a professional and classy touch and also ensures that the user can easily and comfortably use the resources which have been provided. Also, we have kept in mind a number of designing paradigms like Architectural Style, Design Principles, UI Characteristics, etc. and have selected the best possible one in each of them. The architectural style is a very specific solution to a particular software, which typically focuses on how to organize the code created for the software. It focuses on creating the layers and modules of the software and allowing an appropriate interaction between the various modules for giving the right results upon implementation. On comparison with other educational resources and contents and after a thorough study, layered architecture is the optimal architectural style which involves high level of software encapsulation in term of modularity and functionality. EduNation is one such software application which definitely needs encapsulation and modular paradigms for efficiency and better performance.

### 4. Modules and Functionalities in EduNation

In order to ensure a smooth workflow with respect to the design paradigms and coding aspects, we have divided the project into a number of modules which are elucidated below [3].

Sign Up: The user needs to sign-up to access the contents of the application if he/she is using it for the first time. The entered credentials are stored in the database and are modified each time the user wishes to modify his/her account details. Once the sign-up process is over, the user can login with the above validated credentials.

Login: If the user has already signed-up, he/she can directly proceed to the login page. The user is required to fill in the valid credentials. If the password and username match with the credentials stored in the database, the user is granted access. If not, the user has to repeat the same process to validate his/her account. If the number of trials exceeds a particular limit, the account will be blocked and can be activated on request.

Top Universities: After logging into the account, the user has to fill in a form with their details and their preferred course. This is validated and verified. If the entered credentials are verified and

authentic, the user is then redirected to another page which contains a list of the top-notch universities and colleges in his/her respective fields. The links of the official websites of the colleges are provided and the user can directly get access pertaining to the admission and entrance exam procedures of each college.

*Posting Reviews and Comments:* The inputs, comments, reviews, ratings and feed-backs posted by the user on a certain college, course or website help us improvise their experience while using this real-time application. They need to open up the review page, fill the name of the college they like to comment on, give the star rating and any opinions or comments on the same.

*Prioritizing and ranking their Wishlist:* The user can take notes and write down their preferred colleges in their desired order by heading over to the “prioritize” tab. The user is required to enter the particular text/content which he/she would like to take down and they’re then presented in the form of sticky notes. These virtual sticky notes can be used by the user to arrange his/her preferred colleges as per their priority. The details are saved even if the user logs out of the account.

*Logout:* Once the user has finished surfing through the universities, brochures and other resources available on the website, they can logout. However, the content which they prefer should stay even after log out, would be logged and recorded and would be made available to them during their next session.

## **5. Design Principles and Structural Layout**

Our website is an educational assistance which has distinct layers of different processing aspects. In order to facilitate this, we have adopted the 4-layered architecture [4]

*User interaction layer:* This layer acts as the interface between the user and software processing layers. This is the layer that interacts with users through forms, menus, reviews, comments etc. in an interactive and responsive manner. It is the most visible layer of the application and defines the outlook of our project.

*Functionality layer:* This is the layer that presents the functions, methods, and procedures of the system based on the business rules layer. It determines how the dynamic and responsive menus work, how the buttons work, and how the system navigates through screens, how the reviews and comments are posted, how the chat platform works and so on.

*Application core layer:* This server contains the main modules, code definitions, and basic interpretations of the application. Programmers work in this layer most of the time.

*Database layer:* This layer contains the tables, indexes, and data managed by the application. Searches and insert/delete/update operations are executed here with the help of MySQL database. The credentials, user details, contents and resources to be displayed are all maintained and updated in the database in this layer.

As specified above, our project also adheres to the principles of

**Abstraction-** All programming related contents are hidden from the user and stored securely with the backend configuration.

**Functional Independence –** The modules which have been developed are further divided into sub-modules and very few of them are interdependent on each other.

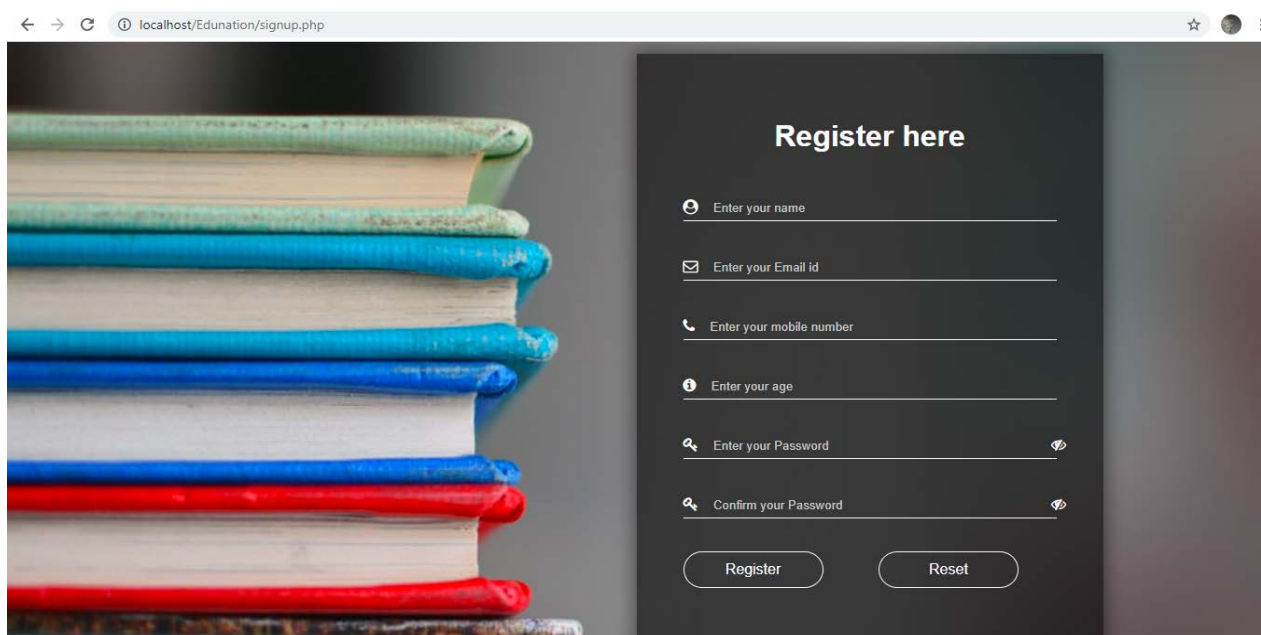
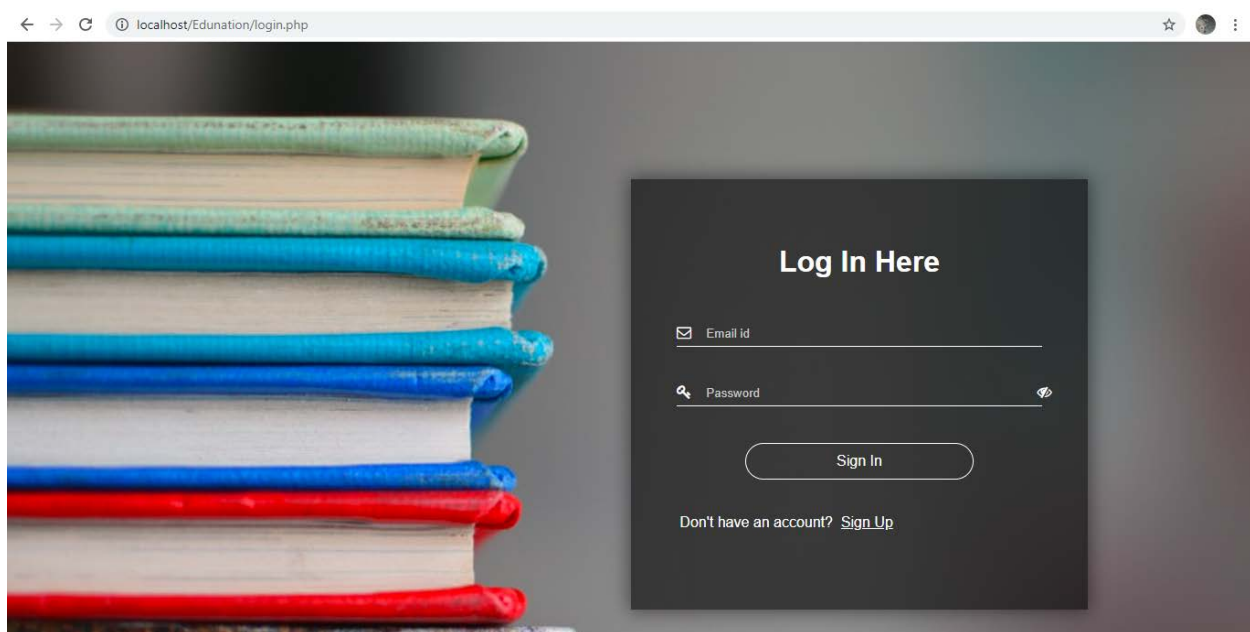
**Coupling-** Two modules that are tightly coupled are strongly dependent on each other. However, two modules that are loosely coupled are not dependent on each other. In order to maintain a good and efficient design for our project, we have tried to reduce all sorts of coupling and interdependence of modules among each other. External Coupling and data coupling have been used for processing the user credentials and to validate them. However, stamp coupling, control coupling, common coupling, content coupling, etc. have been avoided.

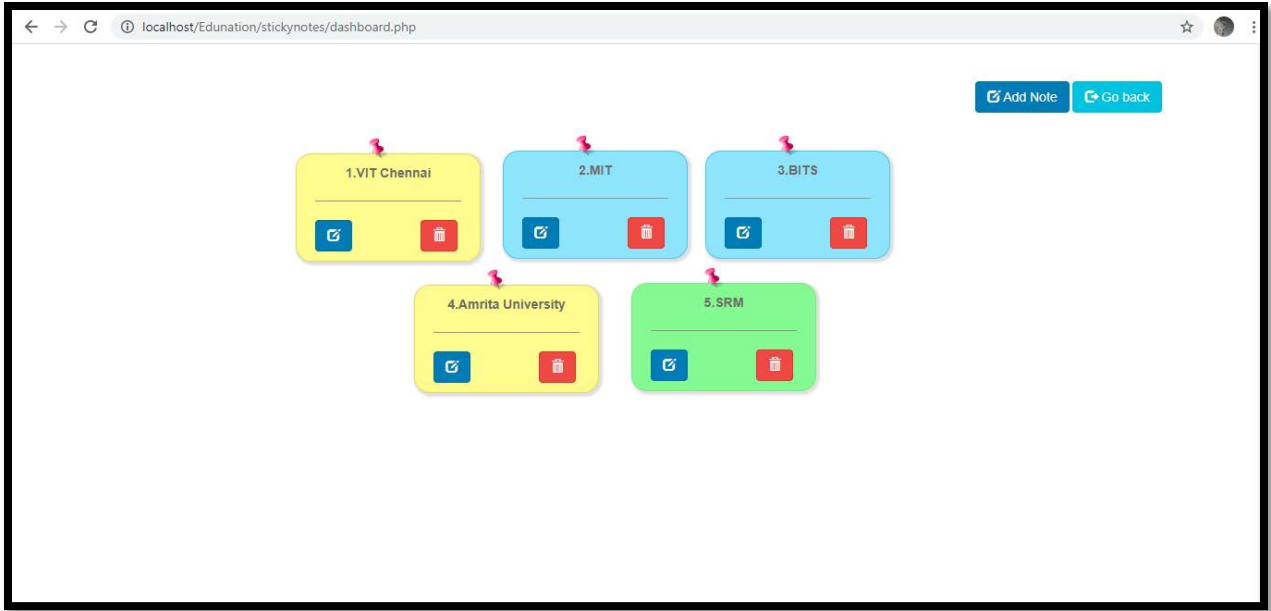
**Cohesion:** In computer programming, cohesion defines to the degree to which the elements of a module belong together. Thus, cohesion measures the strength of relationships between pieces of functionality within a given module. EduNation has made use of logically cohesive modules (as few elements of the module perform a similar operation – input, error handling, etc.) and coincidental cohesion (where modules have elements which are loosely coupled).

## **6. UI Design and Characteristics**

- **Efficiency:** We have developed a project which is highly efficient, robust and sturdy by minimizing excessive memory load and allowing users to recover from their errors by including soft-deletes, reset, etc.
- **Theme and Color Selection:** We have incorporated a decent and classic color scheme which goes hand in hand with our projects motive and have ensured to use a color code and theme consistently and uniformly throughout the application.
- **Command Interfaces:** In order to reduce the operations to be performed by the user, we have reduced the possible command-line usage from the user and have incorporated a greater number of buttons, menus, and other interactive features.

## **7. Snapshots of EduNation**





1

Candidate Info

Name

Email

Age

Gender:

Male

Female

Other

2

Course Info

Engineering

▼

Confirm the course chosen

Enter course name

Apply

Take a look at some of the **Top Engineering Universities** from across the globe!

Id	College Name	Official Website	Location
1	MIT University	<a href="https://www.mit.edu/">https://www.mit.edu/</a>	USA
2	Stanford University	<a href="https://www.stanford.edu/">https://www.stanford.edu/</a>	USA
3	University of Cambridge	<a href="https://www.cam.ac.uk/">https://www.cam.ac.uk/</a>	UK
4	University of California, Berkeley	<a href="https://admissions.berkeley.edu/">https://admissions.berkeley.edu/</a>	USA
5	Nanyang Technological University	<a href="https://www.ntu.edu.sg/Pages/home.aspx">https://www.ntu.edu.sg/Pages/home.aspx</a>	Singapore
6	University of Oxford	<a href="https://www.ox.ac.uk/">https://www.ox.ac.uk/</a>	UK
7	Imperial College London	<a href="https://www.imperial.ac.uk/">https://www.imperial.ac.uk/</a>	UK

## 8. Conclusion

To conclude, we would like to add that the project EduNation has been completed successfully and has been tested with different testing techniques. The project is fully functional and is free of errors and bugs. Ajax, JQuery, PHP and MySQL have proved to be useful tools and support and complement the project in all ways possible. In relation to appearance, based on our research, the general public were usually disinclined to investigate websites that were text-heavy. They appreciated websites that offered a brief synopsis of information with hyperlinks to more detailed information. This enabled more detailed research to be conducted if required, as the user is not initially bombarded with information and we have imparted the same feature to our project too. Moreover, EduNation is an educational project which takes into account all the interests and feedbacks of the user, and has been created in a user-friendly manner.

## References

- [1] <https://www.topuniversities.com/>
- [2] [https://www.timeshighereducation.com/world-university-rankings/2020/world-ranking#!/page/0/length/25/sort\\_by/rank/sort\\_order/asc/cols/stats](https://www.timeshighereducation.com/world-university-rankings/2020/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats)
- [3] Understanding the ways in which design features of educational websites impact upon student learning outcomes in blended learning environments; David Kember, Carmel McNaught, Fanny C.Y. Chong, Paul Lam, K.F. Cheng, Elsevier, 2010
- [4] A Literature Survey: Towards A Framework For Evaluating Quality In Academic Websites; Kosgey, James Kiprop, Mindila, Agnes, Otieno, Calvins; International Journal of Computer Science Issues (IJCSI), 2016