

Extensible Web Platform for University Academic Discussions

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Abstract:

The idea behind building forums for academic discussions is to promote collaboration and make everyday growth of students seamless and as painless as possible. The reasons why such forums are not popular in universities include content moderation, lack of specificity and discovery and lack of technical resources to deploy and customize the forums. We propose a readymade web-app platform model that provides an easy-to-use plugin and extension system to radically extend the functionality of forums to suit the needs of the administrators. It will be ready to deploy easily with specific features for academics related discussions so that users can use them to interact with each other. In the reference implementation, we demonstrate how they can be used to build forums for reviews exchange, share cabs and autorickshaws, and general-purpose discussions. The forums we built have been tested with VIT students to positive feedback from more than 80% of students.

Keywords — Web Forums, Academia, Plugins, Extensions

I. INTRODUCTION

University life is one of the most influential periods of a person's life. It is at this time that individuals make decisions that impact the course of their careers and lives. Therefore, it is essential that we make the lives of those involved in the university ecosystem as enriching as possible.

There is an acute need for guidance counselling and mentorship from experienced individuals in Indian universities. Students and faculty alike flock to external websites that promise to provide results but are often led astray. The situation is similar in VIT which is what motivated us to build a platform for users to discuss anything and everything with each other.

Our answer was to build VIT Exchange Portal. VIT Exchange Portal is a web application that will allow VIT students to interact with each other. The application shall be helpful for a variety of purposes. It consists of mainly three forums: Reviews exchange forum, Discussions forum and Cab sharing forum.

VIT exchange portal simplifies information exchange for students of VIT by giving them a single, virtual doorway. At this portal, students can ask various doubts which they seek answers to. It will act as a common platform for staying updated regarding the activities going on in the college. VIT exchange portal is a one-stop-solution for exchange where students can ask questions, participate in discussions and stay updated.

II. LITERATURE SURVEY

[1] Applying authorship analysis to extremist-group Web forum messages – A Abbasi, H Chen

The speed, omnipresence, and potential secrecy of Internet media - email, Web destinations, and Internet gatherings - make them perfect correspondence channels for aggressor gatherings and psychological oppressor associations. Breaking down Web content has in this way turn out to be progressively essential to the knowledge and security offices that screen these gatherings. Origin investigation can help this action via naturally

removing etymological highlights from online messages and assessing expressive points of interest for examples of fear-based oppressor correspondence. In any case, creation investigation strategies are established in work with scholarly messages, which contrast essentially from online correspondence. To investigate these issues, we changed a current system for breaking down online origin and connected it to Arabic and English Web gathering messages related with known radical gatherings. We built up an extraordinary multilingual model - the arrangement of calculations and related highlights - to recognize Arabic messages, designing this model for the dialect's one of a kind attributes. Besides, we joined an intricate message extraction part to permit the utilization of a more far reaching set of highlights custom fitted particularly toward online messages. Assessing the semantic highlights of Web messages and contrasting them with known written work styles offers the insight group an apparatus for distinguishing examples of fear monger correspondence.

[2] Effects of Social Network on Students' Performance: A Web-Based Forum Study in Taiwan – HL Yang, JH Tang

This examination explores the impacts of informal communities on understudies' execution in online training which utilizes organizing as an assistant mode for upgrading customary eye to eye instruction or separation training. Utilizing information from a 40-understudy course on Advanced Management Information Systems (AMIS), we experimentally tried how interpersonal organizations (agreeable, prompting, and antagonistic) identified with understudies' execution. To begin with, prompting system factors are decidedly identified with understudy execution both in the class and on the gathering. Ill-disposed factors are contrarily connected with all understudies' execution. Second, prompting and ill-disposed system factors are great determinants for general scholastic execution; notwithstanding, ill-disposed system factors are not compelling on understudies' execution on the gathering. Companionship organize factors are not determinants of understudies' execution.

Suggestions for the outcomes are additionally talked about.

[3] Technology and Education Online Discussion Forums: It's in the Response – S Markel

This article is a subjective examination concerning the utilization of discourse gatherings in electronic course conveyance. The creator has shown graduate level instructor training courses with this innovation for a long time, is presently engaged with the organization of a few projects re-conceptualized for the web and offers thus lessons learned.

[4] Student Interactions in Online Discussion Forum: Empirical Research from 'Media Richness Theory' Perspective – M S Balaji

The present investigation adds to the comprehension of the viability of online discourse discussion in understudy learning. A theoretical model in light of 'hypothesis of internet learning' and 'media extravagance hypothesis' was proposed and observationally tried. We broaden the present comprehension of media extravagance hypothesis to recommend that utilization of various media can improve the correspondence setting and saw learning. Various levelled relapse was connected to examine the connections between forerunner components, collaboration and saw learning. The outcomes demonstrate that the apparent abundance of online discourse gathering has noteworthy beneficial outcome on understudy cooperation and connection, and realizing, when utilized alongside conventional classroom address. Ramifications of these discoveries are examined as they give imperative rules to administration teachers.

[5] Asynchronous discussion forums: success factors, outcomes, assessments, and limitations – M Andresen

Web based learning has been blossoming over the previous decade with one of the more well-known methods of leading web based picking up being the offbeat online courses. Inside the nonconcurrent online course, the offbeat discourse gathering replaces the up close and personal cooperation of the customary classroom, yet is this

type of dialog ready to upgrade the learning procedure? This paper audits the writing with respect to nonconcurrent dialog gatherings finding that that the offbeat talk discussion can produce the basic measurements of learning found in the conventional classroom, yet it has its confinements.

III. PROPOSED WORK

The following diagram shows the architecture for the proposed system –

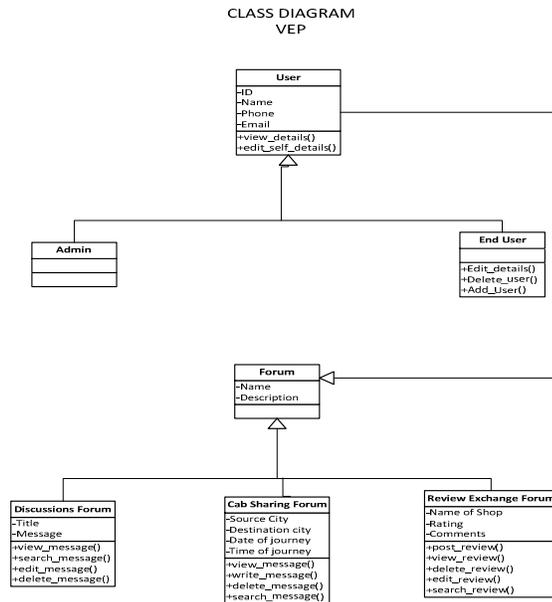


Fig. 1 Architecture Diagram

The software requirements to run these forums are any modern web browser such as – IE, Edge, Chrome, Safari or Firefox on both computers and smartphones. The hardware required to run the website is also not much. Systems with a 2G net connectivity, 512MHz processor, and 256MB of RAM can run the web app well. The system has been designed with the following specifications in mind –

- i. more than 95% reliability, i.e., the functionality of the components will be accurate more than 95% of the time,
- ii. more than 95% system availability, i.e., the system should not be unreachable (barring network issues) more than 95% of the time.

iii. extensible system, i.e., the app must be easy to customize and extend in functionality. In our implementation, we extended the functionality by adding dedicated forums for reviews exchange and cab sharing.

iv. testable system, i.e., the source code should have unit tests and integration tests to make sure the various modules are testable.

The following diagram shows the data flow in the proposed system –

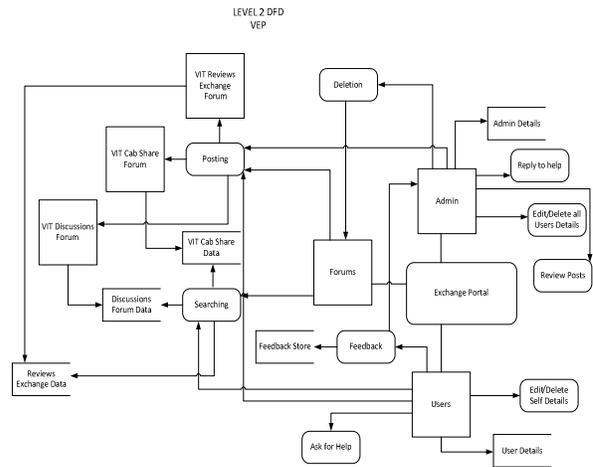


Fig. 2 Data Flow Diagram (Level 2)

The proposed system includes 3 types of dedicated forums that are extensions over the original forum –

- i. a reviews exchange forum – this forum is dedicated to post reviews of products and places in and around the campus.
- ii. a cab sharing forum – this forum is dedicated to pool cabs and autorickshaws while going from one place to another. This is useful in a big place like VIT because at the end of every semester lots of people hire cabs to take them to the nearest airport in Chennai by spending a lot of money. If people are going in a group, they can split the money, but if people are travelling alone, it becomes very expensive. These forums offer an organized way to plan trips.
- iii. discussion forums – this is the main forum where students and faculty alike can discuss things with each other. There are threads for senior-junior interaction, clubs and chapters promotions, academic discussions, career and placement counselling threads and many student-initiated discussions.

The system provides account confidentiality by encrypting all the passwords with a salt and a SHA-1 hash. There is functionality to recover forgotten passwords via an email link. The website has responsive design so that it can render correctly on

both mobile and computers. All form fields are validated server-side and client-side to provide protection against XSS attacks. The system supports setting roles for various users so that they can behave as moderators or administrators.

The system also provides a plugin system so that functionality of the existing system can be enhanced. In the reference implementation, we designed 2 plugins. One provides a content filter functionality to site administrators. The plugin scans all posted messages and removes messages that contain obscene and vulgar language and those that promote hate speech. The other integrates with VIT's plagiarism checker so that when someone uploads technical reports to the site, they can ask the plugin to check for plagiarism and the result will automatically be displayed along with the documents uploaded.

The following diagram shows the use case scenarios for the proposed system –

USE CASE DIAGRAM:

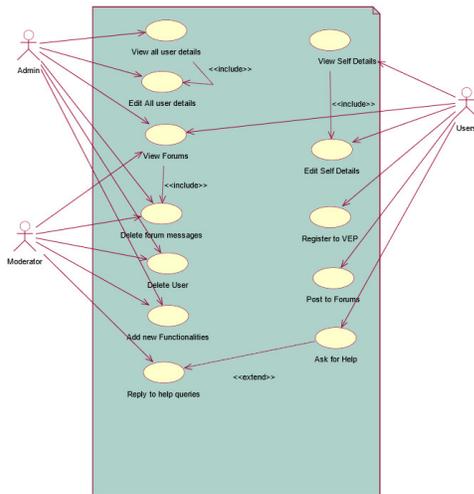


Fig. 3 Use Case Diagram

IV. RESULTS AND CONCLUSIONS

The proposed work was thoroughly tested and appropriate feedback was taken from the users of

the system in VIT which included both students and faculty. These discussion forums are just a start in the revolutionising of the way academic discussions are conducted in Indian universities. The platform will provide an immeasurable gain to students of all universities.

The following are some of the live screenshots from the proposed system –

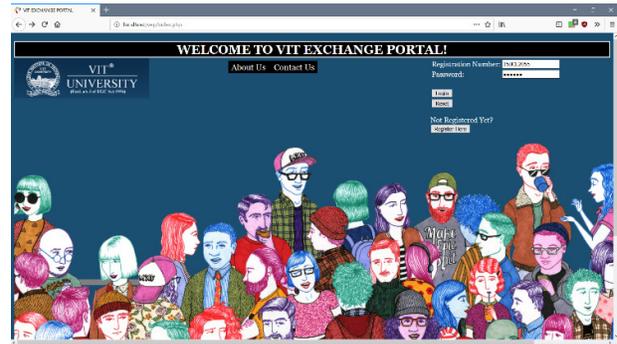


Fig. 4 Landing Page with Login and Registration

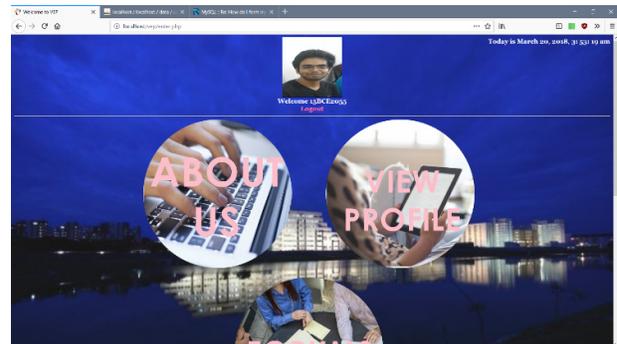


Fig. 5 Dashboard Page

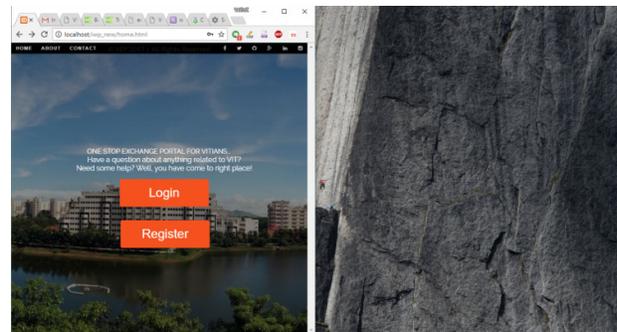


Fig. 4 Responsive design for both desktops and smartphones

The screenshots show the login page, landing page after the user logs in and the responsive design used in the system.

The system was tested by over 100 students and faculty in VIT. The feedback was very positive with 83% giving positive feedback, 14% giving neutral feedback with both positive and negative suggestions and 3% with negative feedback about the system.

Our proposed system is VIT Exchange Portal which provides VIT students an easy way to interact with others, get and give help to each other and make their lives at VIT more comfortable. People can know about nearby restaurants, shops, outlets, salons, movie theatres just sitting in their hostel rooms. They can rate and review various shops which will be helpful for other students. Expenses can be reduced if VIT student shares cab with other students. This Cab Sharing module eliminates the need of manually searching people going from same destination at the same date and thus it saves the precious time of students. The students can also discuss about any relevant topic in discussions forum. They can ask for help, notes or books. It is a miscellaneous forum which provides VIT students a way to interact with others. Hence, the exchange portal saves time, effort and cost. It can turn out to be greatly helpful to the present students and to the ones who will join the institute in future.

V. FUTURE WORK

The academic discussion forums have gone a long way in helping the students of VIT. There is much work that can be done to improve the current system. The first thing to be done is to package the platform as a repository or executable that can be readily setup by other universities. Currently, the plugins and extensions use private methods and involve modifying the source code. We would like to develop a more formal API that can interact with the system reliably and safely. The other important task is to design the user interface in such a way that it can be extended into multiple languages and make it more pleasing to look at. We also plan to make the web platform deployable easily on a TLS-enabled secure HTTPS connection.

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Finally, we would like to thank VIT for giving us an opportunity to build and test the system using the resources they have generously provided.

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