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# Designed Development of Shadow Program System

**Upasana Ameta[1], Jain Dheeraj Kailash[2], Dilkhush Shrotriya[3], Hema Jangid[4]**

Assistant Professor, Computer Science and Engineering, Geetanjali Institute of Technical Studies, Udaipur, India[1]

UG Scholar, Computer Science and Engineering, Geetanjali Institute of Technical Studies, Udaipur, India[2,3,4]

**Abstract**: Employability of graduates is one of the indicators being assessed by Higher Education Institutions (HEIs) to find out whether the quality of education they provide is suitable to the needs of the industry. This study was conducted to develop an alumni tracing system designed to allow the University to purposely trace its alumni using the internet. The system can be used as tool in finding out important information about them like their employment status and in identifying which skills are essentials in their present work. This information in return can help the HEI determines the improvement that they need to do with the existing curriculum. It can also generate comprehensive reports which are necessary for planning, program implementation and any decision-making purposes.

**Keywords*:*** Alumni, Alumni Tracking, Curriculum, Employment, Higher Education Institutions, Online Alumni Tracking.

## I. INTRODUCTION

Higher learning institutions (HEIs) must maintain close supervision among their students to ensure that they are getting adequate preparation to guarantee stable employment and to pass national board examination. This could also help assess the usefulness of the academic programs offering of the HEIs. According to Quitevis, et al. (2019), tracer study results could help assess the usefulness of the programs as well as their effectiveness, and eventually its success or failure [1]. In fact, Commission on Higher Education (CHED) has been firmon its stand that part of the moral responsibilities of HEIs is to know the whereabouts of their alumni - the kind of employment they have, their success and difficulties while seeking for jobs and while on-the-job. They are very rich groups of unemployed or underemployed in the Philippines were college graduates. Incompetency and the lack of skills for jobs available were often the reasons for graduates' failure to land jobs. Bernabe also reported what UP President Pascual stressed that youth unemployment was alarming and the pressures of globalization were compelling HEIs to produce graduates that were ―business-ready or graduates who could be readily employed right after graduation which relieved the industry of providing the initial training for its recruits.

The reasons above motivated the researchers to design and develop an online system that could help HEIs to trace the whereabouts of its graduates in all of its academic program offerings. It was in September 2019 when the researchers made a bold decision to do alumni sources of information which can help improve the HEIs' market relevance to address the following job-related problems (cited by Garcia, 2016): Imbalance between the supply of and demand for higher education graduates in the Philippines (Daguay and Padua, 2001) and mismatch between the level of competencies gained by graduates of HEIs and the expectations of industry resulting to unemployment (DOLE Report, 2008) [2].

The same situations prevailed in later years. An article of Bernabe published in Philippine Daily Inquirer on October 28, 2013 reported a World Bank study in 2011 which found that tertiary education failed to meet its potential because HEIs were operating as ―disconnected individual institutions, rather than as parts of a larger ecosystem that included employers and companies [3].
In 2012, unemployment rate was placed at16 percent in the second quarter of 2012, albeit lower than the 16.6 percent recorded in the same periodin2011, and the largest tracking system as part of the academic requirements of the student-researcher involved in this study. It was made possible through the involvement of all program deans and other stakeholders of the HEI where this study was initially conducted.

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## II. LITERATURE SURVEY

There have major research works performed in the area. Rajendran, Sasikumar & B, Haritha & T, Borshiya & Kamali, Marzieh. (2020). Alumni Info-Com Management with Distinct Classification of Data. International Research Journal of Multidisciplinary Technovation. 2. 42-50. 10.34256/irjmt2057. The Alumni Info-Com Management System is able to manage alumni data of a college and provide easy access to the same. Prajkta Dodake , Rugved Shinde , Makarand Kakad , Shital Ghodke, T. R. Shinde, 2022, Alumni Management System Solution to Alumni Database, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 11, Issue 05 (May 2022). The alumni will also be interested to maintain relations with their institutions. Alumni can communicate to the students regarding job opportunities and the students can share the department technology activities to the alumni. R. S, H. P. B and U. A, "Alumni Management and Networking System," 2023 2nd International Conference on Advancements in Electrical, Electronics, Communication, Computing and Automation (ICAECA), Coimbatore, India, 2023, pp. 1-5, doi: 10.1109/ICAECA56562.2023.10200060. The Alumni Management and Networking System aims to address the challenges of alumni disconnection and facilitate effective communication and engagement between educational institutions and their alumni.

All these researches miss a major concept of managing the communication between alumni and user. The proposed system gives a provision to user to schedule a meeting with their interested alumni according to their availability and connect with them. Also, the proposed system provides an integrated platform to seek out to alumni, explore details about various alumni and connect with them.

## III. CONCEPTUAL FRAMEWORK

The October 2020-2021 graduates, the more recent graduates, were prioritized in the implementation of the proposed alumni tracking system because they were the ones who could provide more reliable recollections of their college education or experiences and more realistic Information on their biographical and educational profiles as well as the their employability in terms of job search methods, waiting time, employment status and monthly salaries.

Figure 1 below shows the research paradigm of the study.

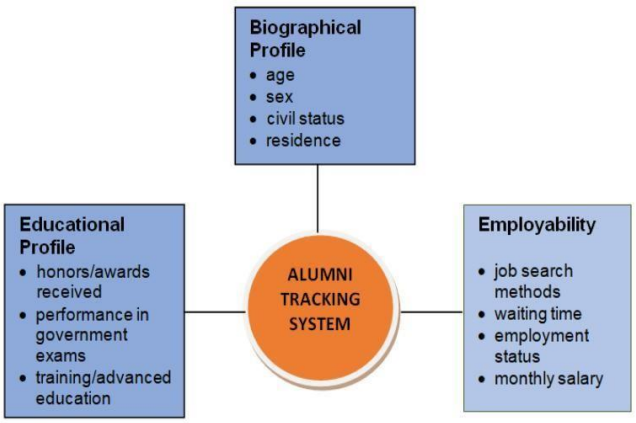


Fig. 1 Research Paradigm

## IV. PROBLEM STATEMENT

This study generally aimed to design and develop an online alumni tracing application. Specifically, this study sought answers regarding the similarities and differences of the existing alumni tracing system and the one being proposed in this study. It also tried to find out ways on documenting the requirements of the system in terms of hardware and software and creating blueprints of the proposed online alumni tracking system.

## V. METHODOLOGY

### *A.* Research Design

The developmental research design was used in this study. It involves situations in which the product- development process is analysed and described, and the final product is evaluated [4]. This study aims to develop a system that is designed to assist HEIs in tracking its graduates.

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*B.* Respondents

The respondents of this study were composed of 10 college deans and program chairpersons from one state university in Nueva Ecija, Philippines. The purposive sampling procedure was used in selecting them. They were chosen on the basis of ability to provide information needed in the development of the proposed system.

## VI. EXISTING SYSTEM VS. PROPOSED SYSTEM

At present, the University under survey uses the traditional manual systemin tracing its alumni. This activity is spearheaded by the Alumni Office which is under the umbrella of Office of Student Affairs (OSA). Generally, tracing of alumni is done per college. Every college is regularly conducting homecoming activities as a means of getting in touch with their alumni and in trying to see the relevance of the curriculum in the industry where they are working. Other means to collect data is through the use of Google form especially to those graduates who are working abroad. House to house method of data gathering is also employed to gather data.

The proposed system on the other hand, is designed and developed to automate the gathering of alumni information. The alumni tracking application is a web- based system that is accessible to all alumni. It can also be used as a website/medium for graduates and their respective college alumni coordinators to stay in touch with each other. Important data from the alumni are solicited through this platform. These data, particularly on their employment, can be used as bases in making strategic decisions, i.e. curriculum revision, research agenda preparation, potential extension activities among others. The website can be accessed using a mobile device through which college graduates can update their current employment status and other information. All the collected data shall be stored in a server.

## VII. SYSTEM REQUIREMENTS

*A.* Hardware

The researchers made used of devices capable of connecting the system to the internet. Listed below is the hardware requirement in order for the system to be used efficiently and effectively.

TABLE I CONFIGURATION

| SUPPORTED PLATFORMS | | |
|---|---|---|
| Windows 7 – 32/ 64bit<br>Windows 8 – 32 bit/ 64bit<br>Windows 10 – 32 bit/ 64bit<br>Linux – 32 bit/ 64 bit | | |
| COMPONENT | MINIMUM | RECOMMENDED |
| RAM | 4 GB | 8 GB2 |
| Processor | IntelCore 2 DuoAMDA6 | IntelCore i3 AMDA8 |
| Graphics Display | Built-In | |
| Hard DiskSpace | 250GB | 1TB+ |

It is can also be installed on any mobile devices like Android orIOS, with atleast2GB of memory.

*B.* Software

The following programs were utilized in designing and developing the proposed system:

- **Hypertext Markup Language (HTML) 5.0 or higher:** This scripting language is used to add paragraphs, headings, images and links to the webpage [5]. In this study, this is very useful tool in designing the interface of the software including its hyperlinks.

- **Notepad++:** A software that is used to edit the source code [6]. In this study, this is used as the main source code editor in designing and developing the alumni tracing system.

- **PHP (Hypertext Pre-processor):** An HTML- embedded scripting language and interpreter [7]. It is used to develop the proposed system by connecting it to the database.

- **PhpMyAdmin:** It is used to perform different tasks such as managing databases, tables, columns, relations, indexes, users, and users' permission [8].

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- **JavaScript:** It is used in the development of the proposed website for the purpose of validation. In addition, it also supports external applications like PDF documents. It can also load content into a document whenever the user requires it without even reloading the entire page [9]. Generally, this software is used in the proposed system to make the web pages functional.

- **Bootstrap:** It is a free front-end framework for faster system and ext and easier web development. It includes HTML and CSS. The researchers also prepared level 0 data flow-based design templates for typography, forms, buttons, tables, navigation, modals, and image carousels and so on [10]. It also includes optional JavaScript plug-ins and also gives the ability to easily create responsive designs.

- **JSON:** It is used as syntax for storing and exchanging data. It is written with JavaScript object notation [11]. This software is used to create the dashboard which shows the survey statistics through graph presentations.

- **Ajax (Asynchronous Java Script and XML):** It is a technique for accessing web servers from a web page. It allows web page to be updated asynchronously by exchanging data with a web server behind the scenes [12]. This means that it is possible to update parts of a web page, without reloading the whole page. It also helps PHP to execute all the programs connected to it.

- **Font Awesome:** It is a font and icon toolkit based on CSS and LESS. Font Awesome has a 20% market share among those websites which use third-party font scripts on their platform [13]. This is used by the developers to enhance the appearance of the icons, pictures and font colours.

## VIII. REQUIRED DOCUMENTATION

The researchers decided to create a system that can help the university to track its alumni easily and to secure the information solicited from them. They thought that this system can provide innovative way for the university to communicate with its graduates. They also added some special features like SMS notification to encourage alumni to regularly update their information. Diagrams presented below are used as blueprints in designing and developing the system.

The figure below shows the context level data flow diagram (DFD) used by the researchers as guide in designing and developing the alumni tracking system.

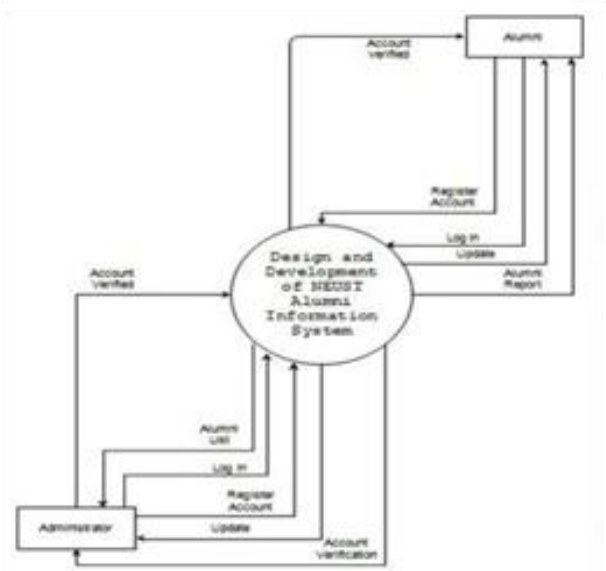


Fig. 2 Context level DFD

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Specifically, figure 2 is used by the researchers to define and clarify the boundaries of the proposed system and it also identifies the flows of information between the system are broken down into sub-processes. Level 1 DFDs also identify data stores that are used by the major processes.

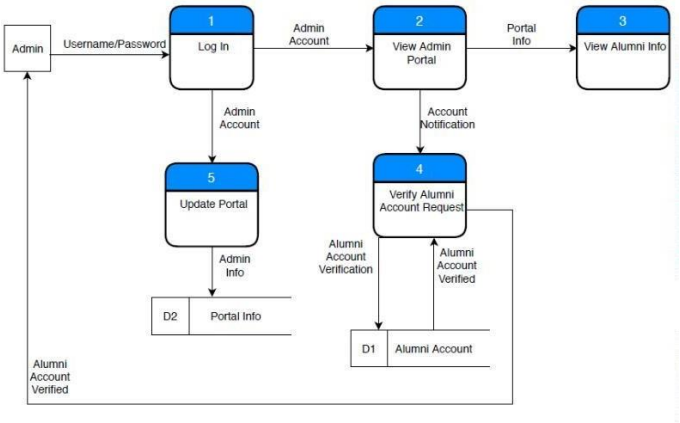


Fig. 3 Level 1 DFD for System Administrator

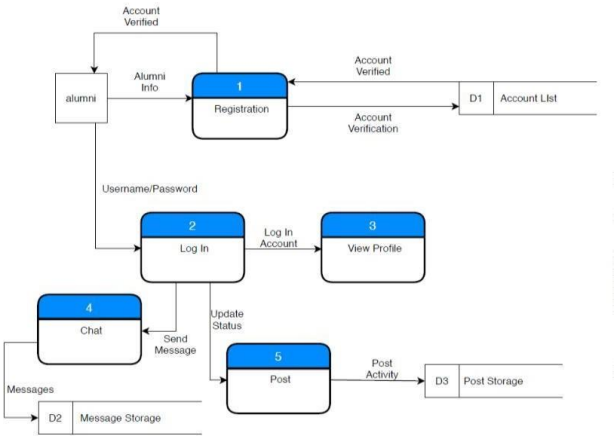


Fig. 4 Level 1 DFD for End-Users (Alumni)

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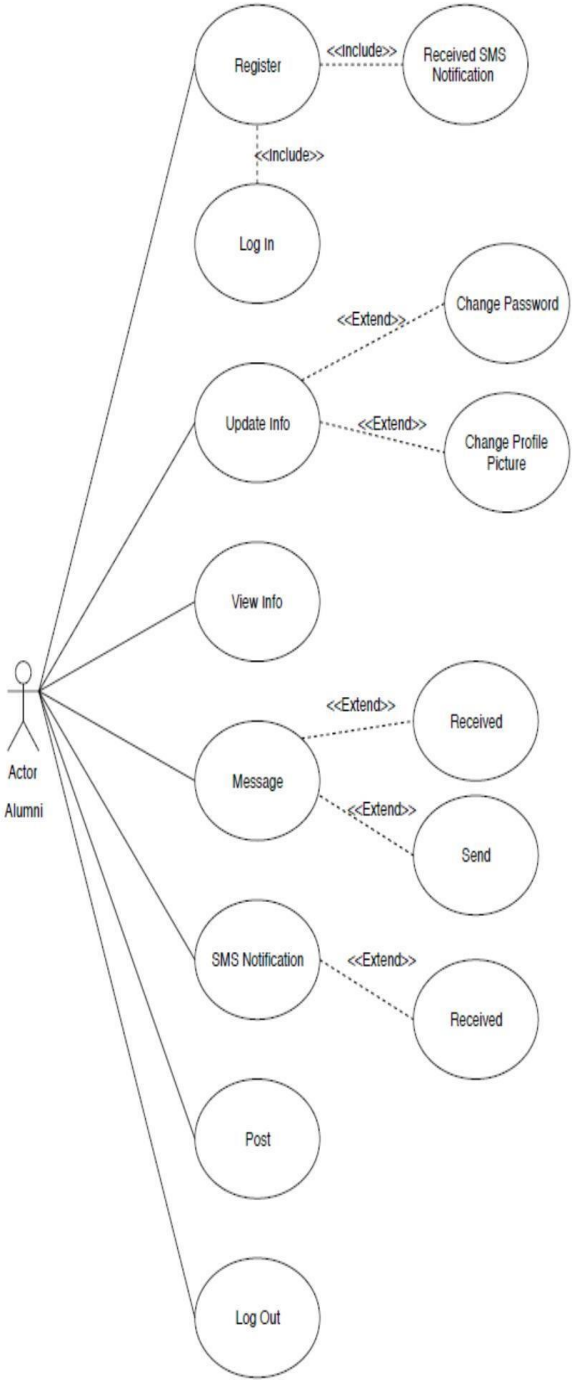


Fig. 5 Use Case Diagram– Administrator

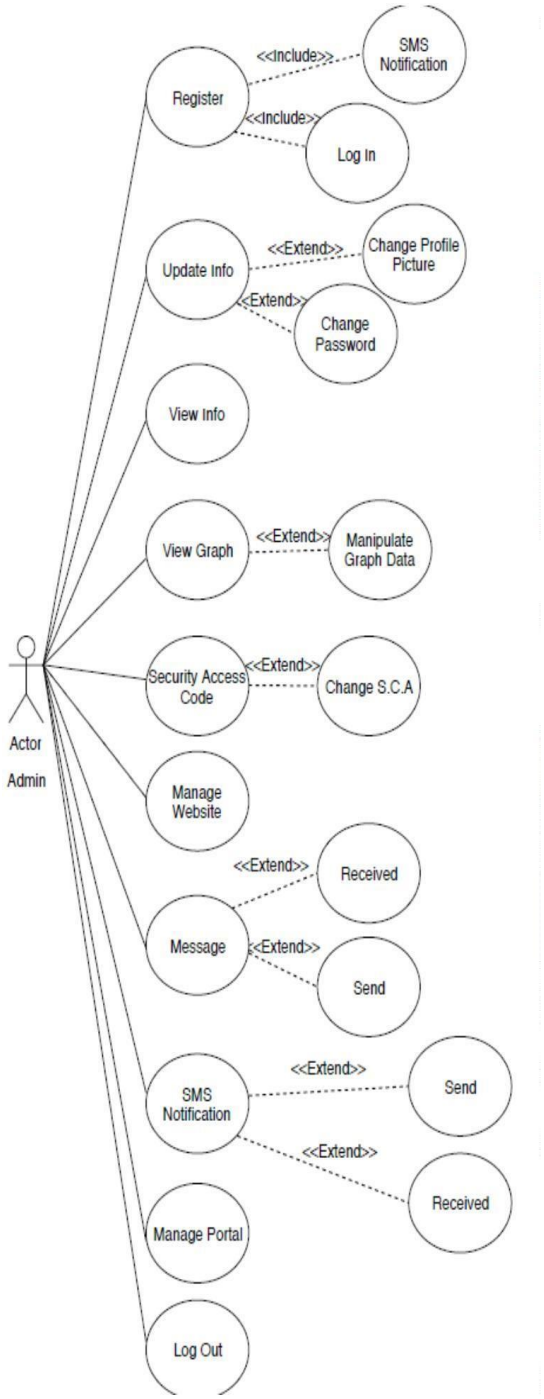


Fig. 6 Use Case Diagram– Alumni

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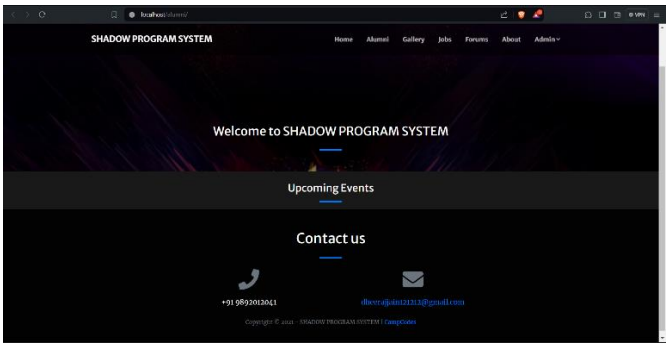
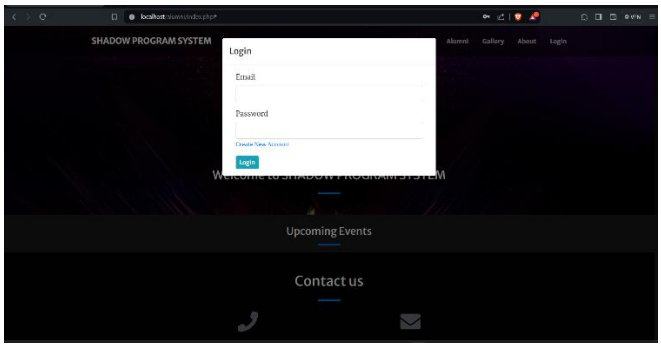
## IX. RESULTS

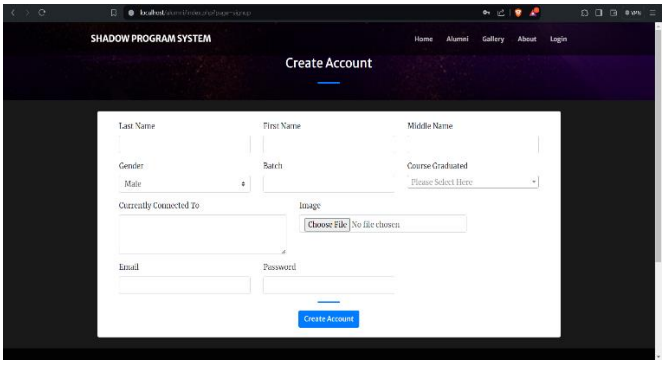
### ALUMNI PANEL



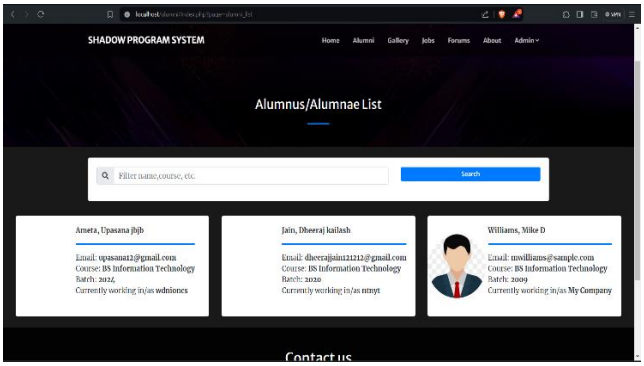

HOME PAGE



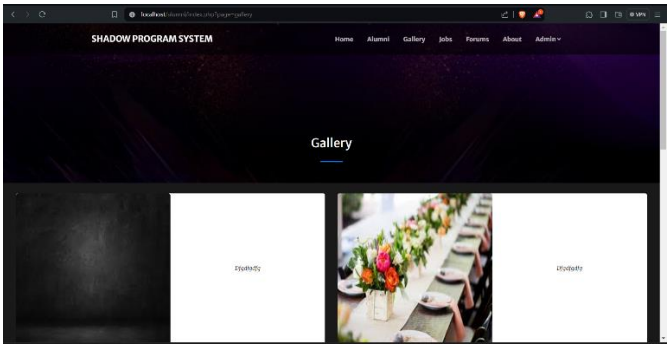

LOGIN PAGE



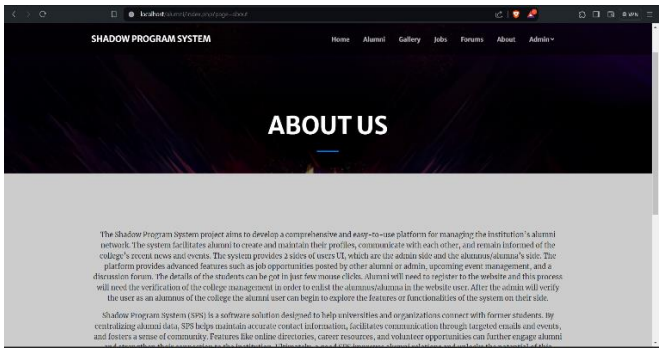

CREATING ACCOUNT PAGE



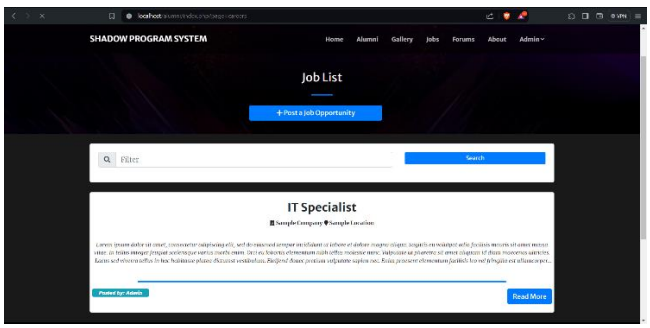

ALUMNI PAGE




GALLERY PAGE




ABOUT US PAGE




POSTED JOBS

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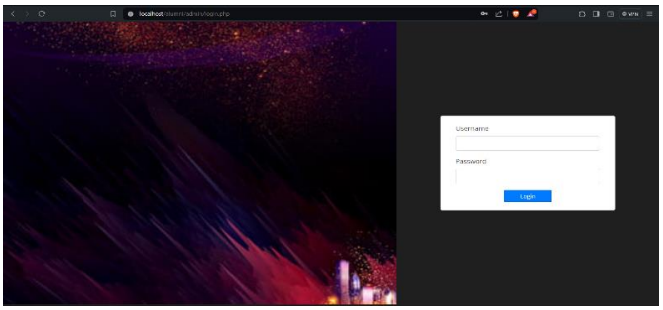
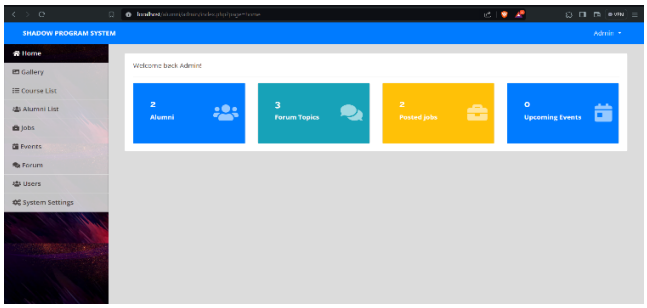
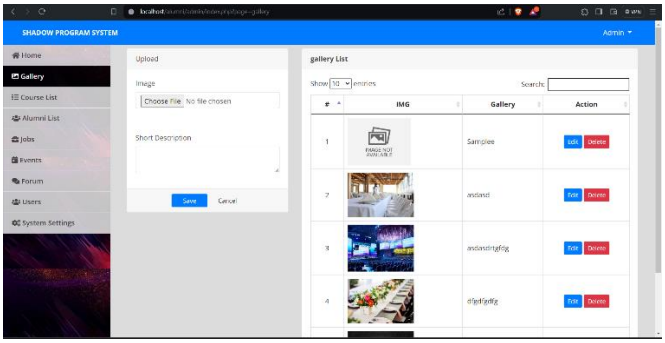
## ADMIN PANEL



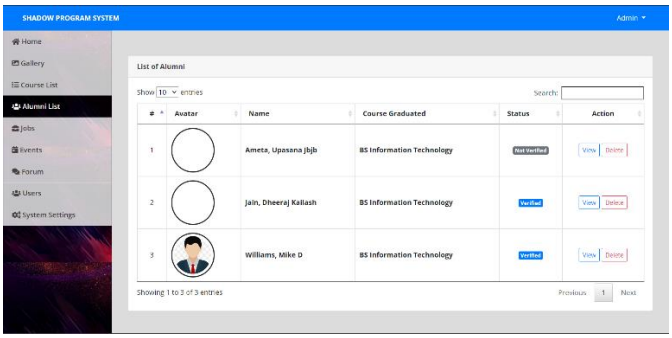
ADMIN LOGIN PAGE



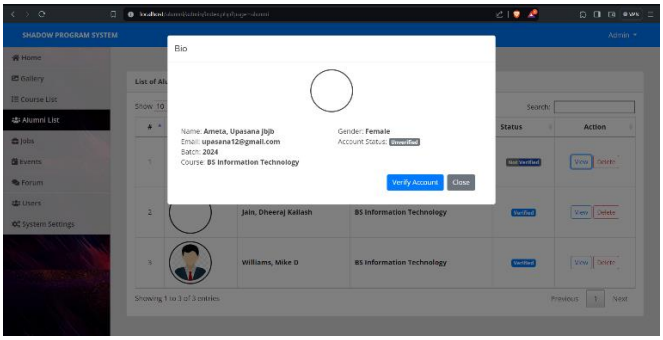
ADMIN DASHBOARD



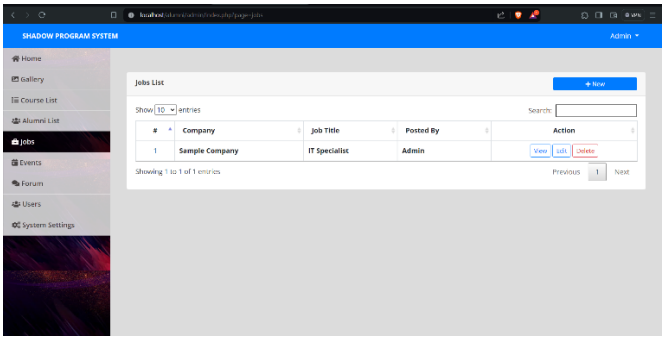
GALLERY IMAGES EDITING PAGE



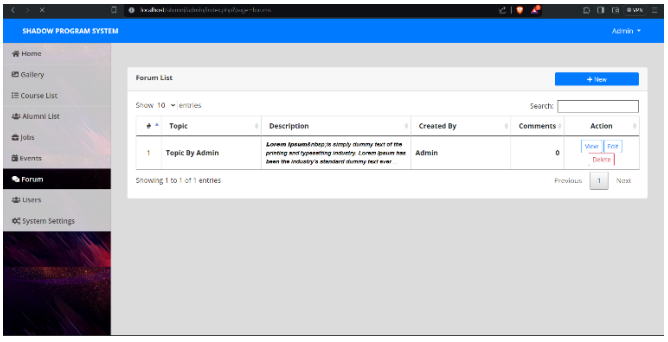
ALUMNI LIST



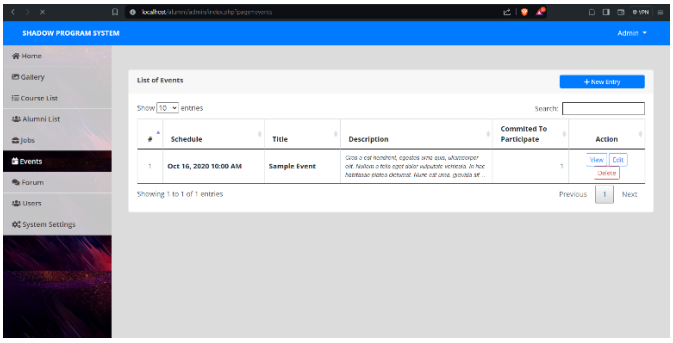
VERIFING ALUMNI ACCOUNTS



MANAGING JOBS POST



FORUMS EDITING PAGE



UPCOMING EVENTS PAGE

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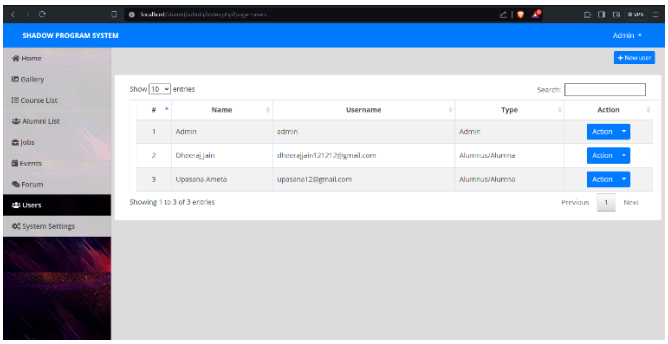
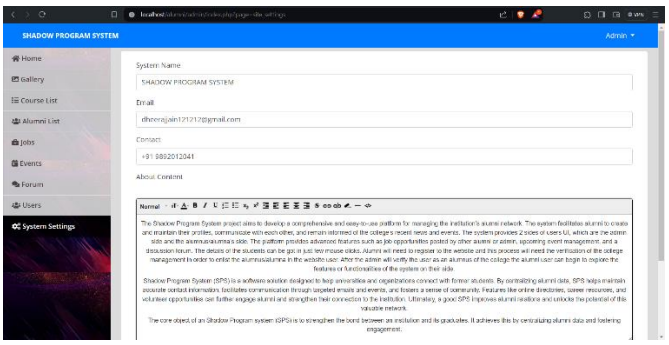



USERS




SYSTEM SETTING

## X. CONCLUSION

Admittedly, alumni are valuable assets of the institutions of higher education. Thus, the more alumni communication is in-tact the greater opportunities for feedback and knowledge development. An alumni portal facilitates the promotion of research, the exchange of experience, in addition to providing personal, professional and academic networking. The developers decided to create the Alumni Portal System to help the university to track the alumni and to gather their information thru online portal without hassle. Alumni can use their own mobile devices to register, monitor and update their current status. In view of the above, the developers would like to recommend that additional verification procedure be made to ensure that only bona fide alumni can register in the system. Main, innovations encompass the inclusion not only of the alumni, but also the current students to the alumni portal, therefore, the link with the university is strengthened from the beginning with a tendency to bolster the bond between the students (current and alumni) and the educational institution.

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