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# DEVELOPING ANDROID AND WEB-BASE APPLICATION FOR ENTREPRENEURSHIP CENTRE

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## Abstract

The day-to-day Android operating system in the electronics market has become increasingly popular, especially in the smartphone market. It is open source and preferred by researchers because some of the development tools are free. Android and web-based problem solver is a medium used to rate the performance of students and their capability in tackling related problems, such as searching for relevant information on their need. Moreover, web-based problem solving had some factors that influenced it teaching and learning activities, which include learning materials, intelligent quality; learning strategies; learning facility; instruction strategy and social-economic. The objective is to design an Android web application that solves problems related to Entrepreneurship centres. The research also investigates, analyse, and evaluates the state of arts that are currently present to solve related educational problems and provide a remedy. The methodology used in this research work is custom methodology which divides the project into phases and each phase has a particular task to accomplish. The result obtained has satisfied the objectives based on the test results.

***Keyworks: Android, web-based application, entrepreneurship centre, Information system.***

# 1.0 Introduction

Android, one of the mobile market leaders, has to a billion apps on the Google Play Store. It's a Linux-based, open-source mobile operating system developed by the Open Handset Alliance, which is managed by Google to develop applications for Android, Linux devices (Sokolova, 2017). The day-to-day Android operating system in the electronics market has become increasingly popular, especially in the smartphone market. It is open source and preferred by researchers due to the fact that some of the development tools are free (Li, 2014). This has been a great source of inspiration for using the Android system for researchers. In addition, it allows developers to use a very suitable hardware platform for less effort to realize their ideas. That's why the number of researchers working on it has improved the further development of Android (Butler, 2011 and Shabtai, 2010). Along with these developments, hardware and application forms have seriously changed the way education, learning, information access and information are presented. Although most of these hardware and applications have not been developed to provide educational-instructional support, education and training environments have been influenced by these developments. Practices used in education and training environments have contributed to their own purposes according to each new technology and have made use of them as much as possible (Arslan, 2015). Mobile devices such as laptops, personal digital assistants and mobile phones have become a learning tool with great potential both in classrooms and outdoors (Sonmez, 2010 and Sung, 2016). In this context, the use of mobile devices in learning environments can be seen as a factor that can increase the efficiency in the learning-teaching process. In this process, mobile learning environments are expected to be developed in order to successfully achieve the educational integration of mobile learning technologies and mobile applications (Sonmez, 2014). However, the development of mobile application software is weak and the methodologies deemed relevant to the progress of such mobile applications are not sufficient. There is still a shortage of research methods and at the same time lack of understanding and analysis of the concerns and difficulties that may arise in the mobile application development process (Kumar, 2016).

## 1.2 Entrepreneurship

Different authors define entrepreneurship in different ways, but all of them portray that entrepreneurship is the ability to acquire a new skill to be able to substance yourself. Anumnue (2014) view it as an act of pursuing skills of how things are done in areal context for self-development. However, Olurunde and Kayode (2014) define it as an essential act of exploiting opportunities that are available in the environment. Again, Igwe et al., (2012) define it as machine igniting innovation, employment generation and increase economic growth of a nation.

Owenvbiugie (2011) viewed entrepreneurship as the ability and willingness of persons to acquire opportunities within an environment and to be able to start and run a personal enterprise successfully based on the opportunity identified. Ezeani and Ugwu view it as an individual's capability to fit ideas into action or reality and help youth with creative and self-reliant skills in whatever they are doing to sustain themselves. Muhtur (2013), Nowduri (2014) and Davidson, White and Taylor (2012) opined that entrepreneurship is the act of bringing creativity and innovative ideas together to cope with management and organizational skills, to associate people, funds and resources to meet the basic needs of people to increase the wealth of a nation. This marked lack of universal and generally accepted definition, but does not lessen the reality that entrepreneurs is possessed unique features which include 'a capacity for innovation'.

Entrepreneurial skill is the competencies which enable an entrepreneur to be successful around specialization. However, Entrepreneurship ability is a task of several skills, which are acquired to qualify a person to be an entrepreneur. These skills include creative skills; innovative skills; managerial skills; Analytical skills; marketing; communicative skill and career skills; knowledge (business-related knowledge such as ICT knowledge); attitudes (compassion for needs and values and awareness) and personality variables (Motivation and achievement) (Anumnu, 2014)

## 1.3 Entrepreneurship Information System

Entrepreneurs are gradually using and seeking Information Technology (IT) knowledge and skills. However, IT Knowledge is becoming more entrepreneurial, as firms' top managers focused on it as a priority and are reserved for entrepreneurs. The increased focus on entrepreneurship and the need for entrepreneurial skills has been given proper and due concern in Polytechnic and universities in Nigeria; over 1000 colleges, Polytechnics and universities currently offered a minimum of one entrepreneurship course, in fact, entrepreneurship skills become mandatory at all levels in higher institutions in Nigeria.

The entrepreneurial networks focus on either network structure or network flow (slotte-kockk and Coviello, 2010) and which did not capture the multiplicity role in the function of the entrepreneur network. The structure perspective addresses the question of 'who a part of the network or the actors is.

Bliemel, McCarthy and Maine (2014) developed a conceptual model of an entrepreneurial network that aligned with a network multiplicity that consists of the actors, resource and activity layers and their interconnectivity. Moreover, due to the layers of multiple actors, resources and activity the framework model is inclusive of dyadic and multiplicity networks all in Hakansson's model. Hakensson's model was

extended by Bliemel, McCarthy and Maine's and integrated some components like structure perspective and flow of elements.

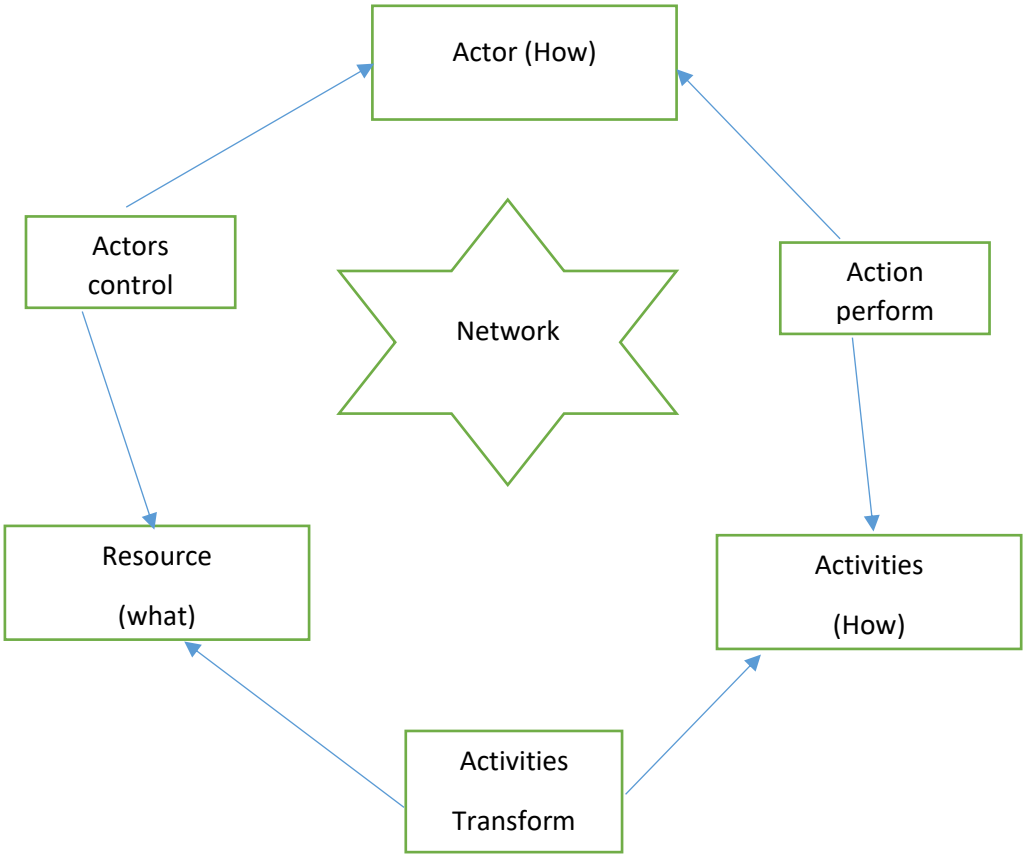



Figure 3: A conceptual model of entrepreneurial network

The concept of entrepreneurship such as innovation and that entrepreneurs need IT related skills to store relevant information about its programme, it would be wise and proper to understand and adopt the IT skills to manage and organise the activities of entrepreneurship. Moreover, Anumnu (2014) added that the reason for fitting IT service is to assist in organizing the scheme and provide up-to-date information about the participant in future.

## 1.4 Dynamic Websites

Dynamic websites are pages from the web which are generated in real-time. The web pages are scripting code such as PHP, JAVA and ASP scripts, which can be used to develop and accessed a dynamic website; the webserver assent the codes parsed from the webpage and produce the result in the front end through the browser eg, HTML. Sowjanya, Deepika and Srinivas (2013) opined that dynamic Web applications are designed using server-side scripting languages like JSP, PHP, ASP or client-side languages for static web

pages such as (HTML and CSS) and the two can be combined together to develop dynamic web contents. In contrast, Nagpal *et al*. (2014) contended that dynamic websites, are designing an approach that is viewed at the front end of the user program and the back end is designed using scripting languages. Moreover, dynamic web pages allow users to make choices from different cognitive principles to gain access to a website and satisfied its usability, accessibility, and functionality. However, Usability has become the bottleneck for website designers.

## 1.5 Web-Based Problem Solving

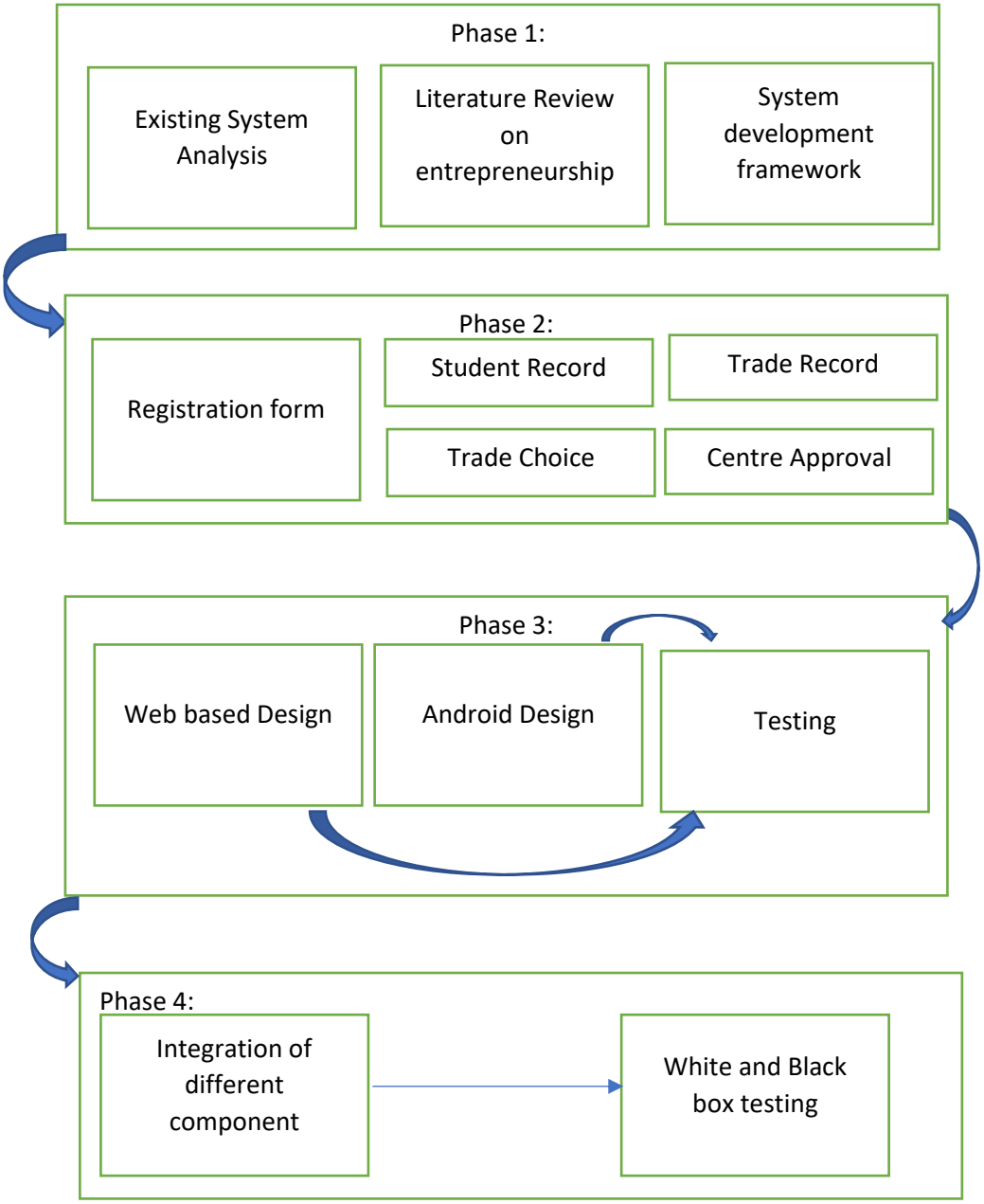
There are several benefits associated with the World Wide Web (WWW) in today's activities, which include: the proximity of information, diversification of data and ease of accessing data anywhere around the globe. *Hwang et al.* (2014) opined that people that faced challenges on how to solve a problem mostly use the internet as a convenient and effective medium of communication. The web-based problem solver is a medium used to rate the performance of students and their capability in tackling related problems, such as searching for relevant information on their need. Moreover, web-based problem solving had some factors that influenced it teaching and learning activities, which include learning materials, intelligent quality; learning strategies; learning facility; instruction strategy and social-economic. Kuo, Chen and Hwang (2014) argued that the key challenges that are considered among these factors are learning and instruction strategies. Subsequently, Hwang *et al.* (2014) argued that students are most likely to fail their assessment if they are not properly trained on how to search information from the web. Moreover, the ICT tool is one of the most inspiring and vital problems of learning, which enable web-based problem-solving performance (Kuo, Chen and Hwang, 2014).

## 1.6 Methodology

The methodology for the project is carried using a custom methodology which divides the project into four (4) phases:

- Phase 1: Requirement Gathering (Existing System, Literature Review on Android and Responsive web design, and System Development Software and Framework),
- Phase 2: System Design,
- Phase 3: Implementation of the Design (Writing Code), and
- Phase 4: Design Testing. Figure shows the detail of the project flow.

figure 2: Custom phase



## II. SYSTEM IMPLEMENTATION

The result of the system is carried into the backend system which shows the architecture of the system and the front-end of the system which shows the interface of the web application of the system.

### A. System Backend

Android and Web-based application for entrepreneurship centre is proposed with three segments which not only synchronizing the database but also validate the transaction. The segment represents the entrepreneurship centre provider and the admin of the system which is the Director or any other person assigned. Even though there are only two coordinator provider that becomes the participate in the platform, other facilitators provider can also use the system without having to be a segment. Eventually, all providers must be registering into the system before able to use the module within the system. Database is also used in the project to store registration, trade choice, system login and other necessary details. Putting registration in Centralized database is caused by MSQL server requires transaction fees to writes data into the database.

### B. System Frontend

To interact with the user, the system must provide an interface for the user to interact with. In the project, the system's interface is developed for web-based application and converted into android application which will be reflected in the browser and responsible in nature. The system divides the user by three roles, Admin, students, and Instructor, which have different features on the system. In the system, there are two categories: Registered and Unregistered. An unregistered participant or student cannot access the features in the system role and required to register into the system first. The admin has the authority to approve or reject the application, while centre has the features for submitting Registration form and registering student. Figure 4 and 23 shows the interface for the system's main module.


Fig 4: Home page

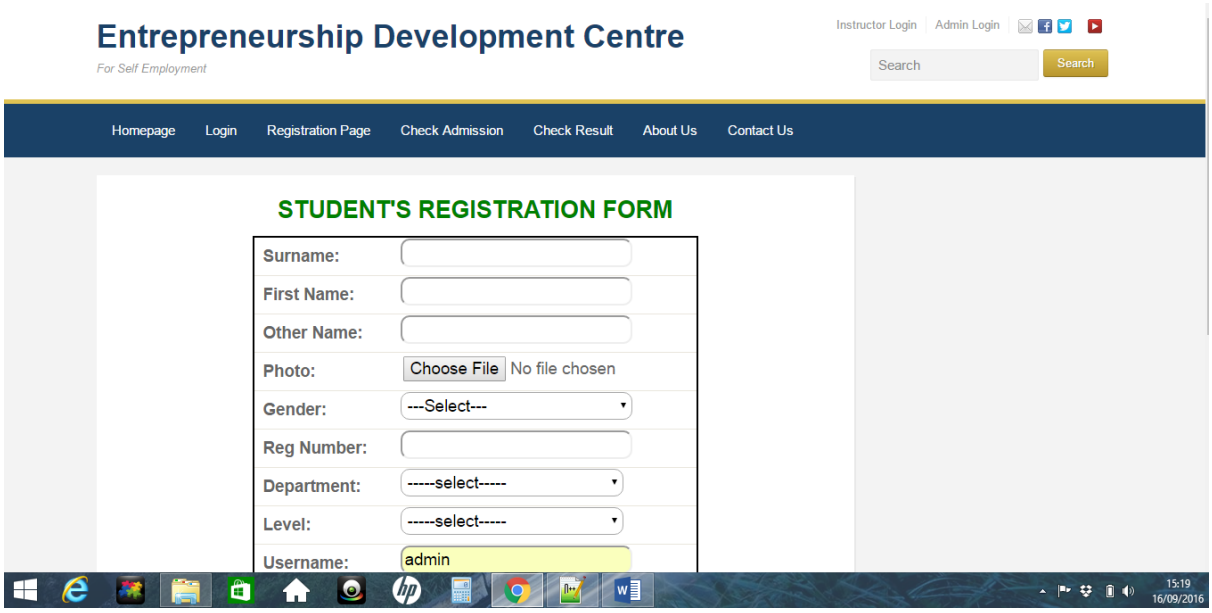



Fig 5: Student's Registration form

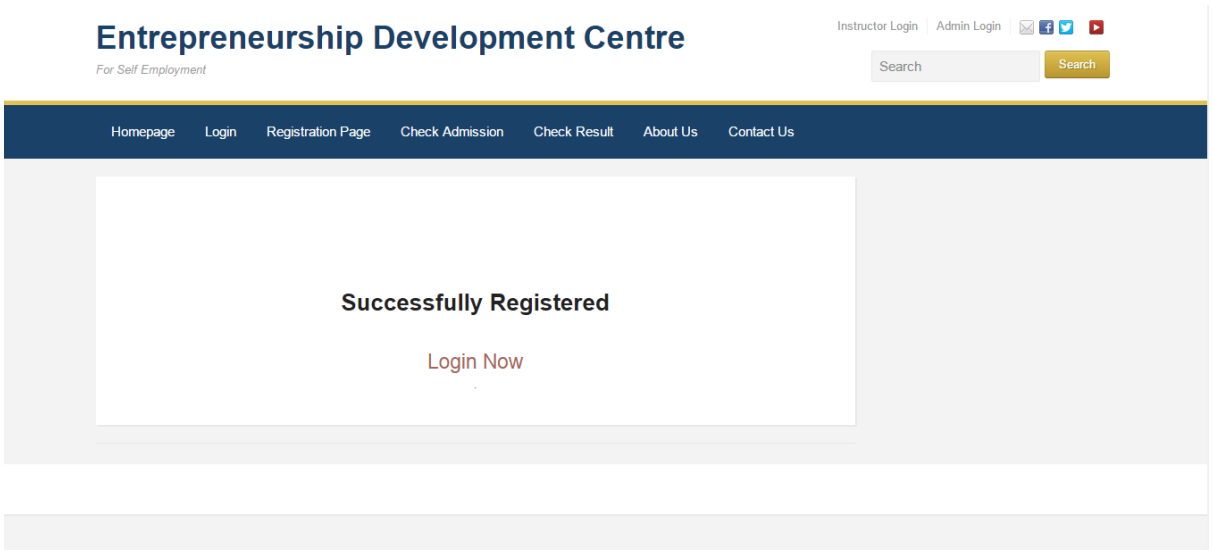



Fig 6: Student Registration confirmation

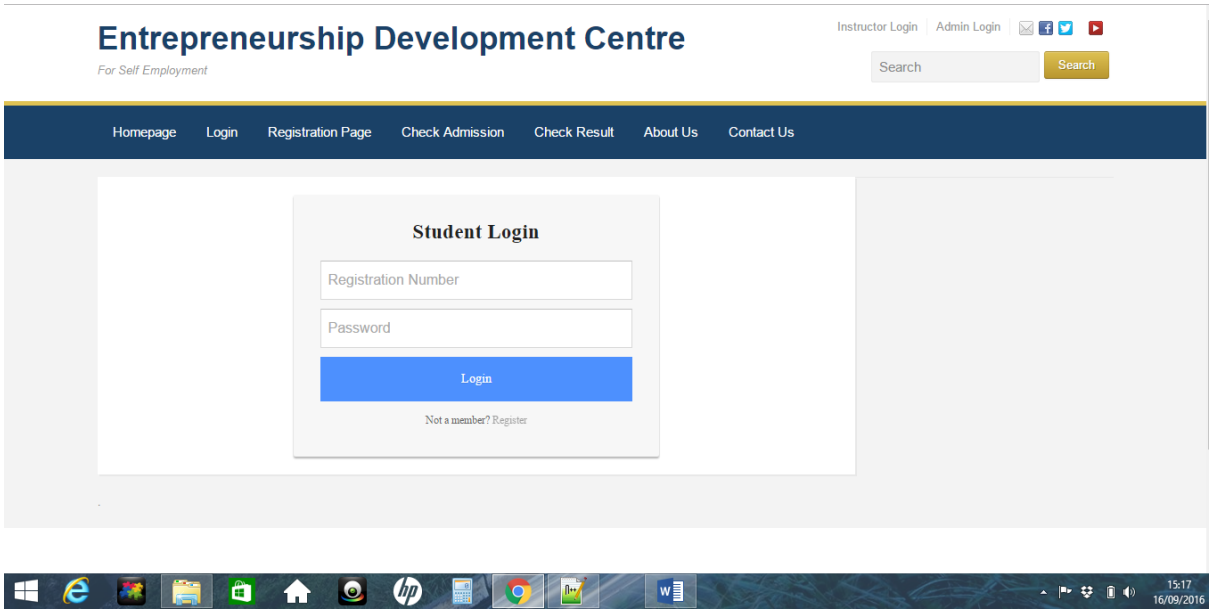



Fig 7: Student's Login page

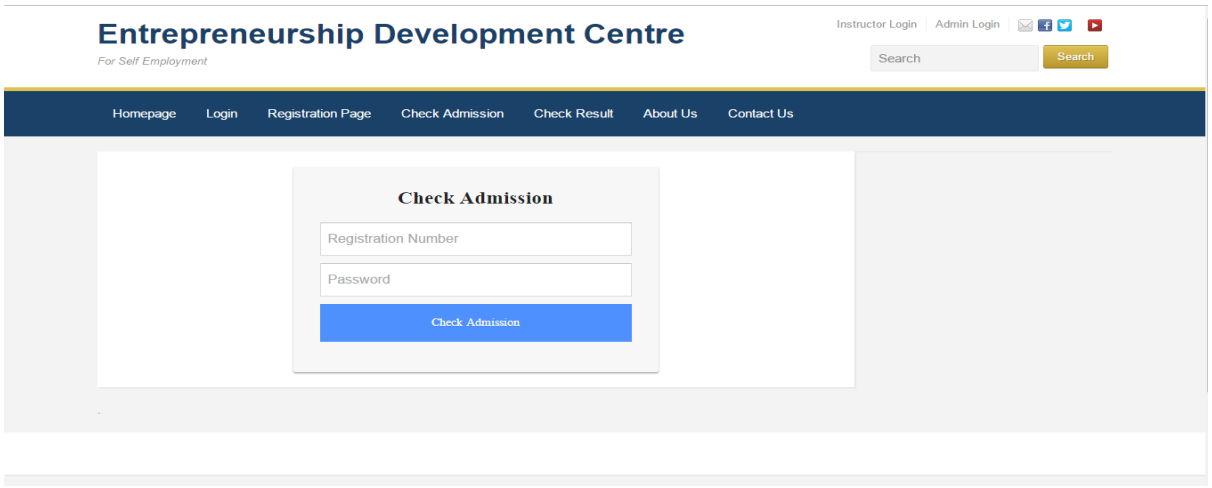



Fig 8: student's Checking Admission form

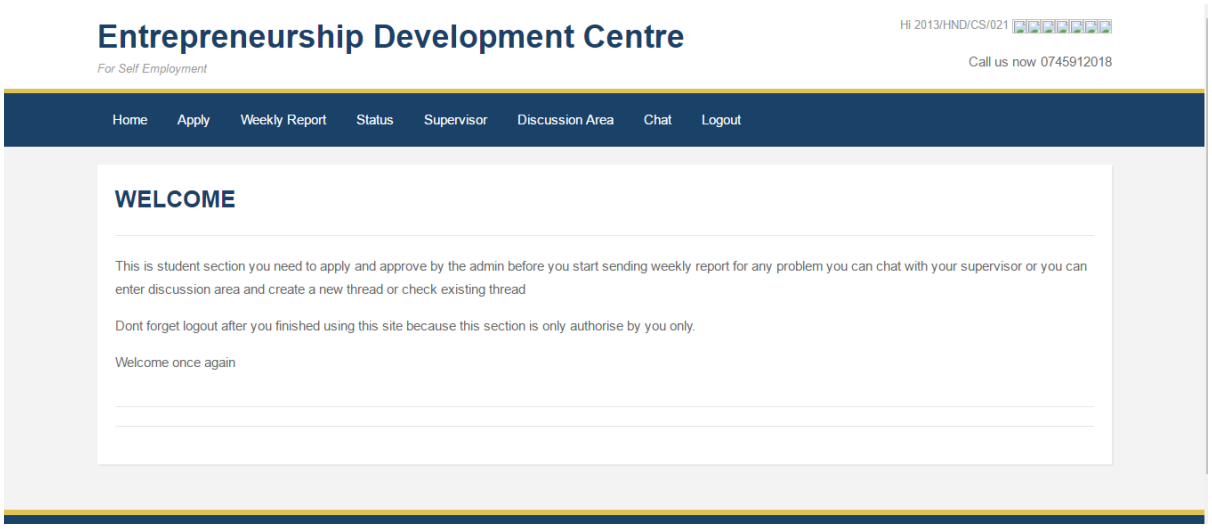



Fig 9: Student's Home page

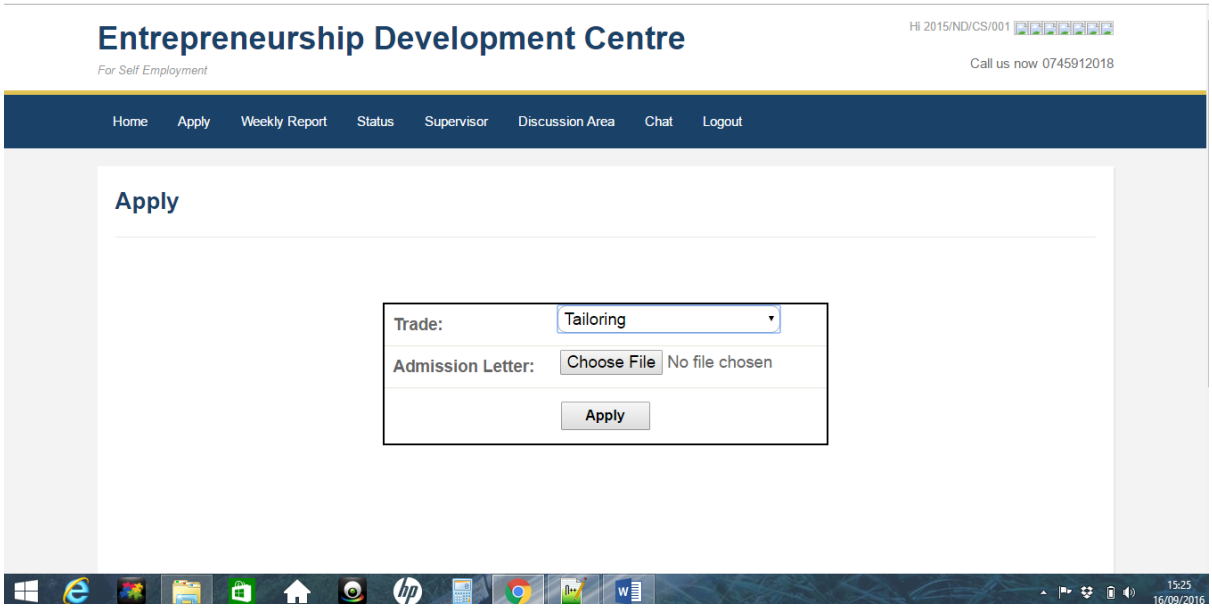



Fig 10: Applying trade

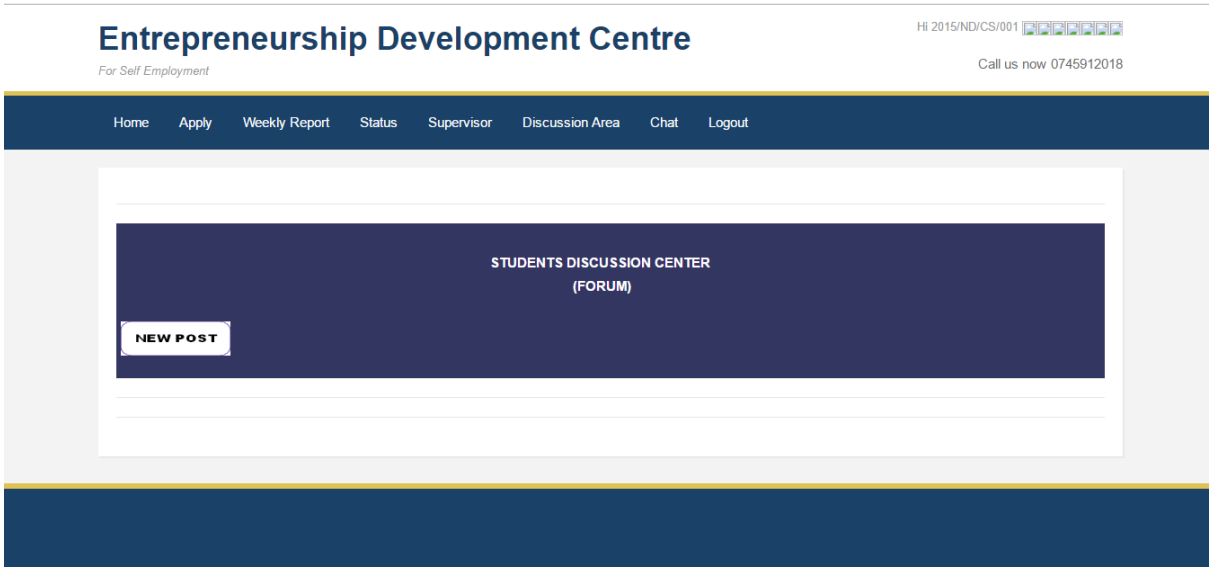



Fig 11: Discussion center

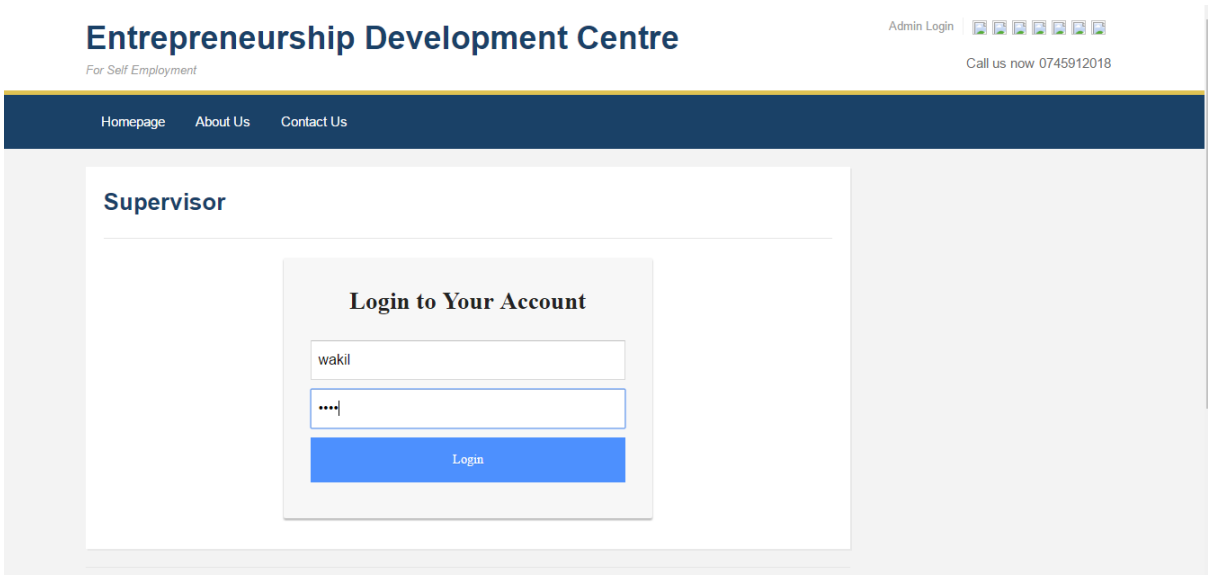



Fig 12: Instructor Login form

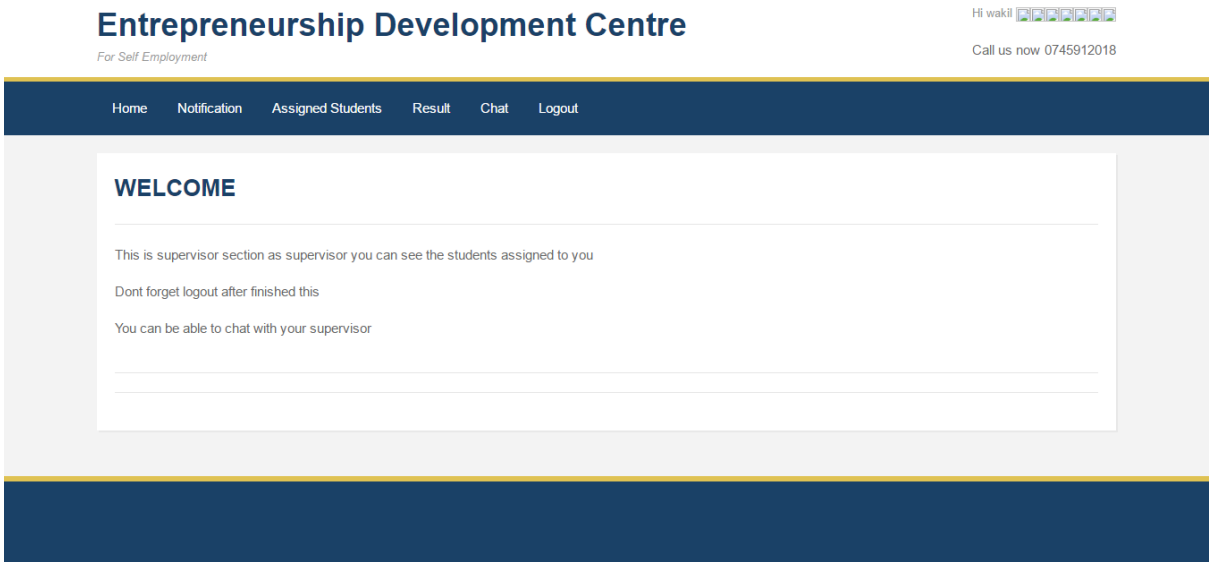



Fig 13: Instructor Home page

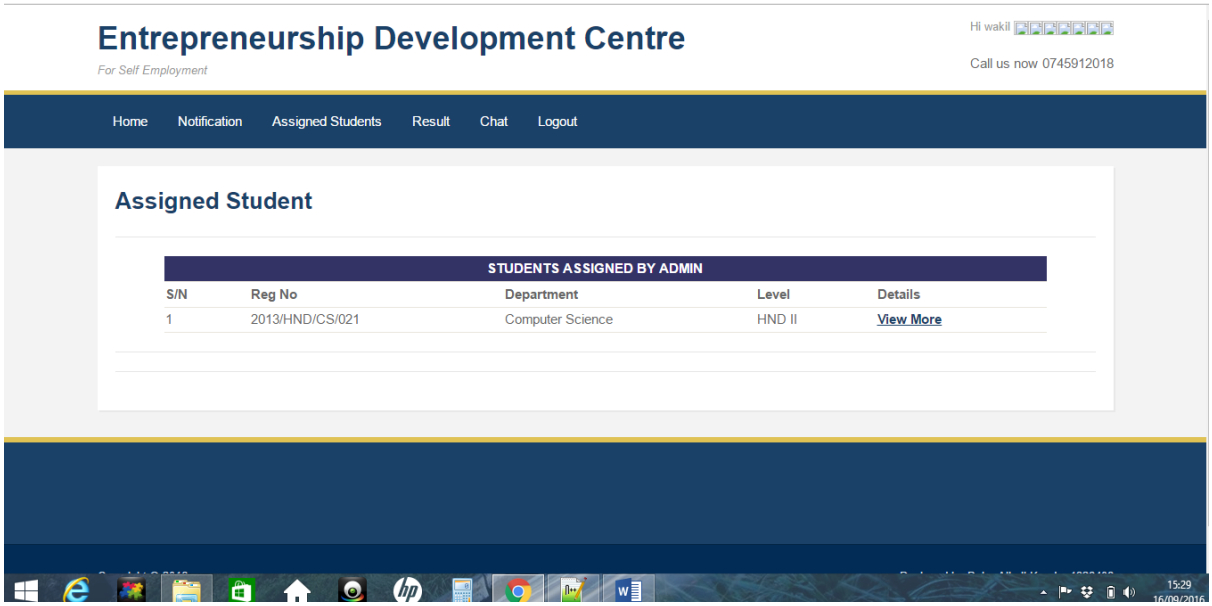



Fig 14: Instructor assigned student.

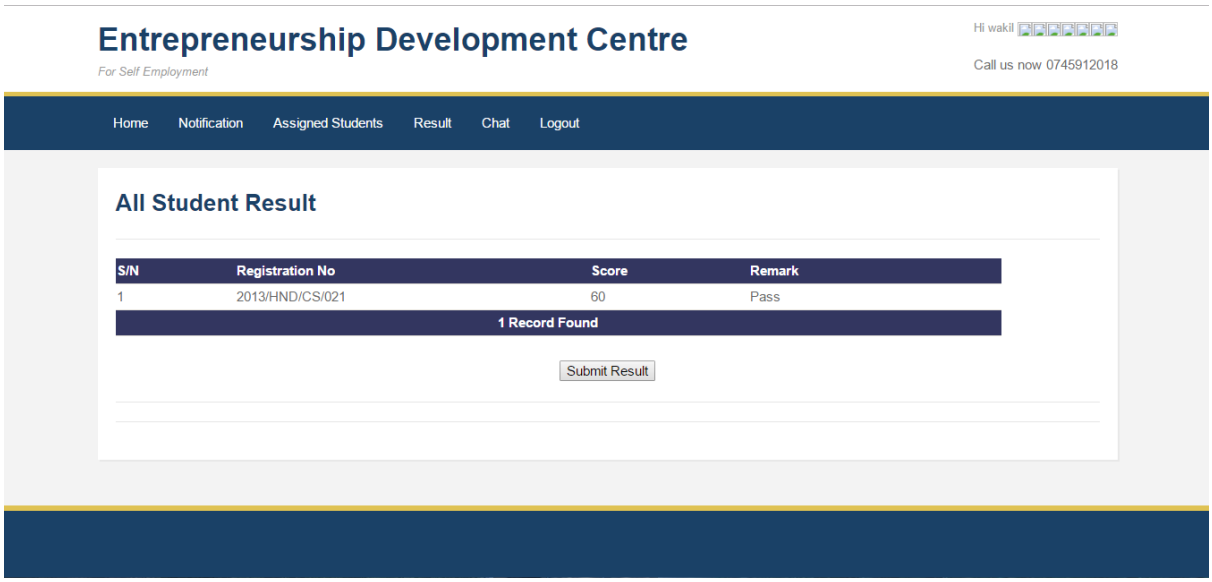



Fig 15: Instructor's Student result

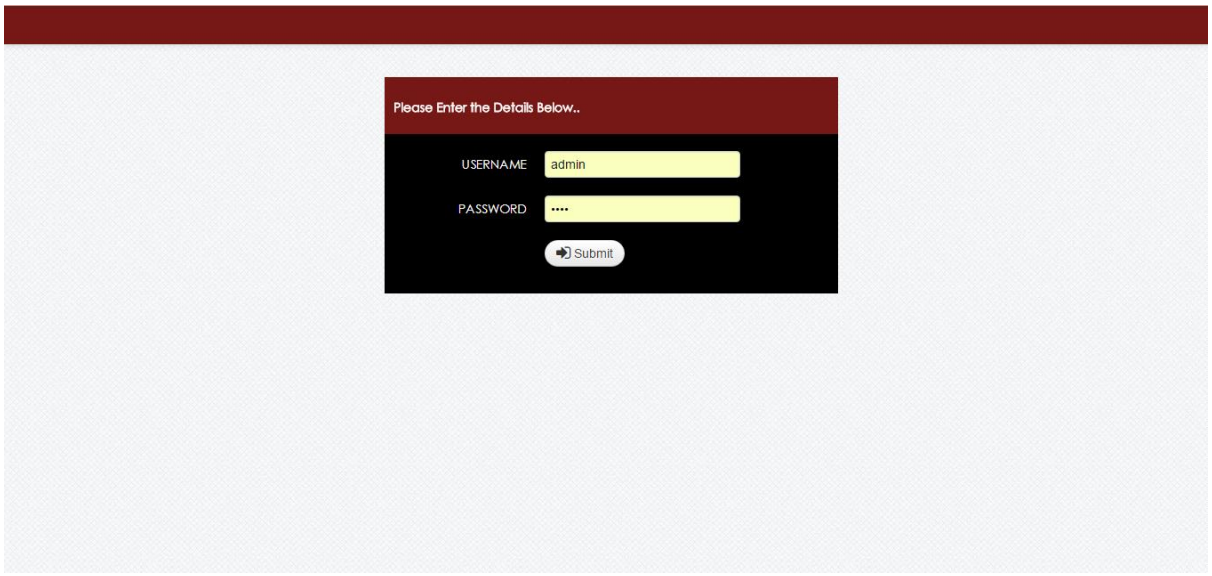



Fig 16: Admin login page

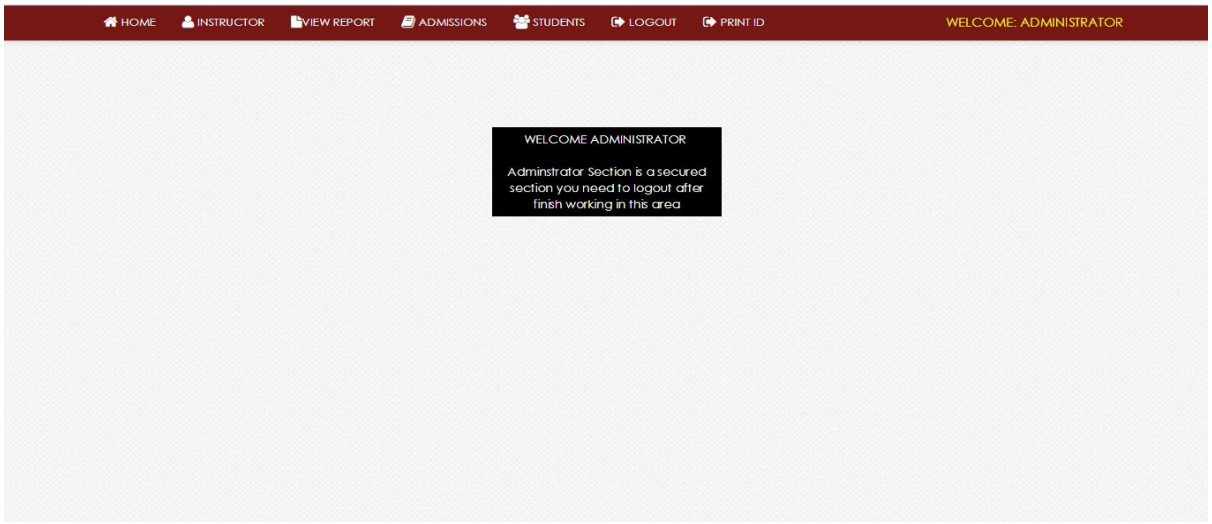



Fig 17: Admin Home page

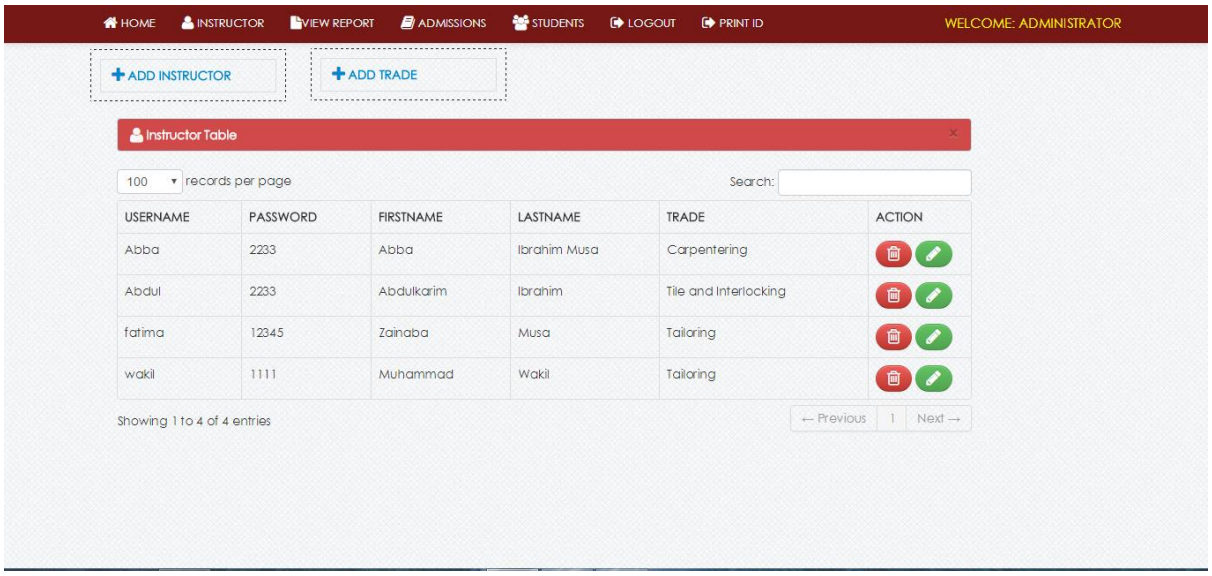



Fig 18: Add instructor and Trade page

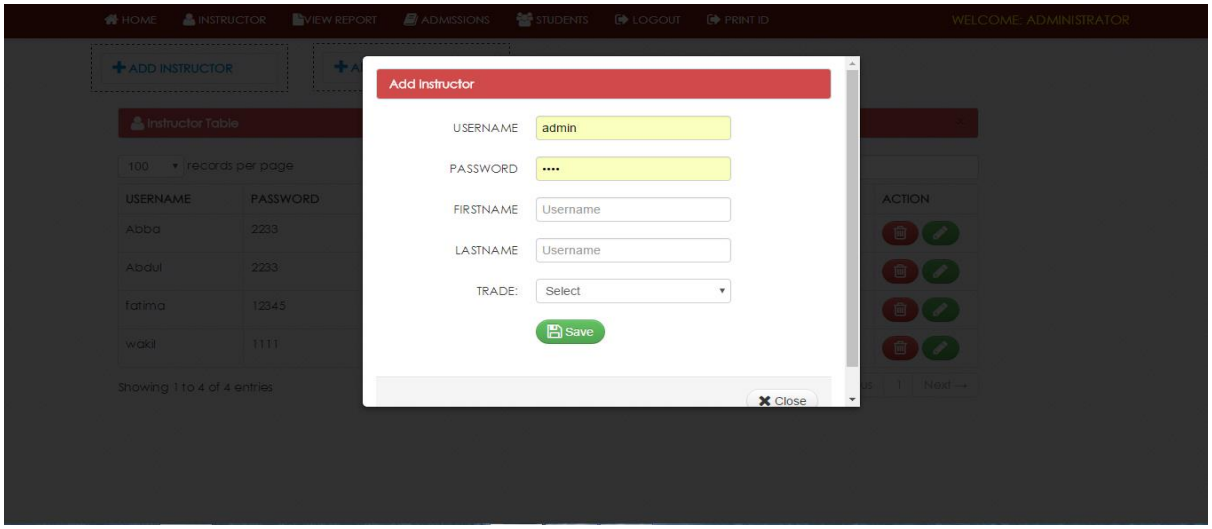



Fig 19: Add instructor page.

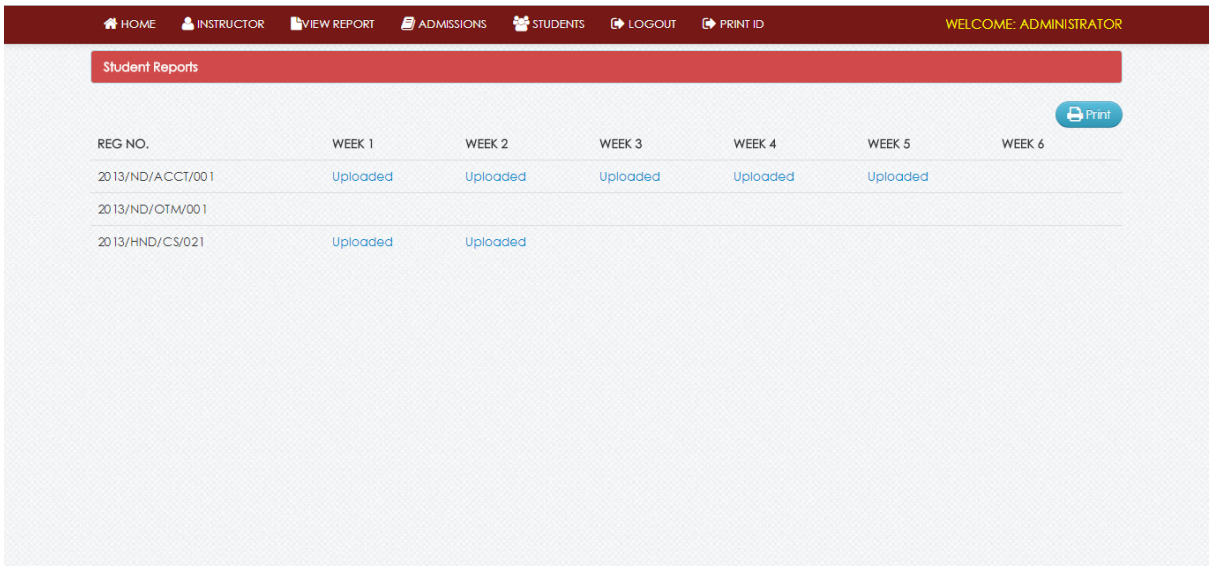



Fig 20: student weekly report

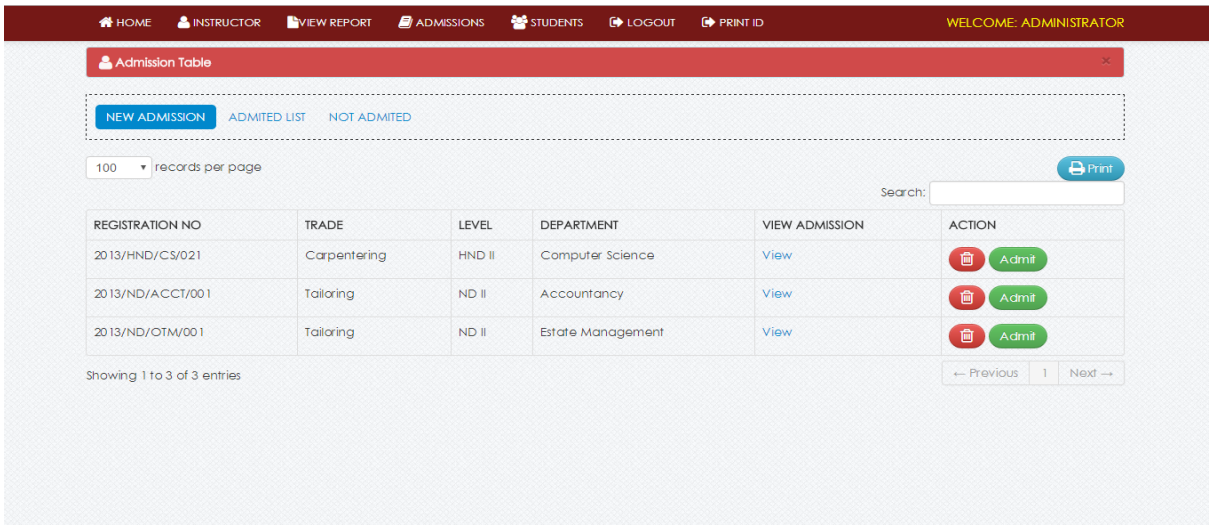



Fig 21: student new admission list

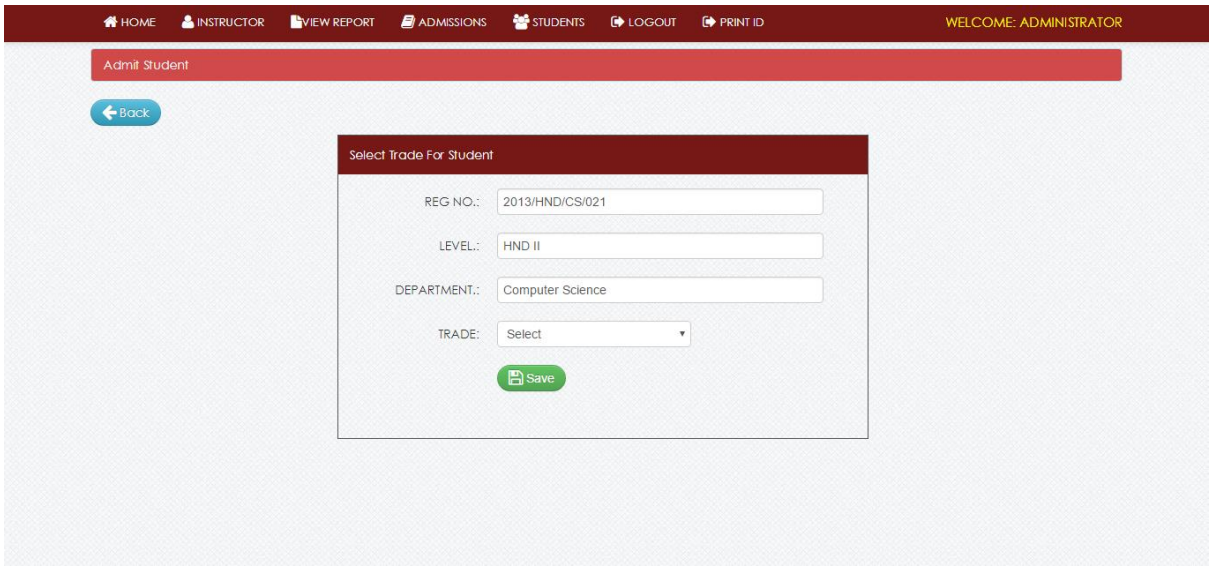



Fig 22: Admitting student page

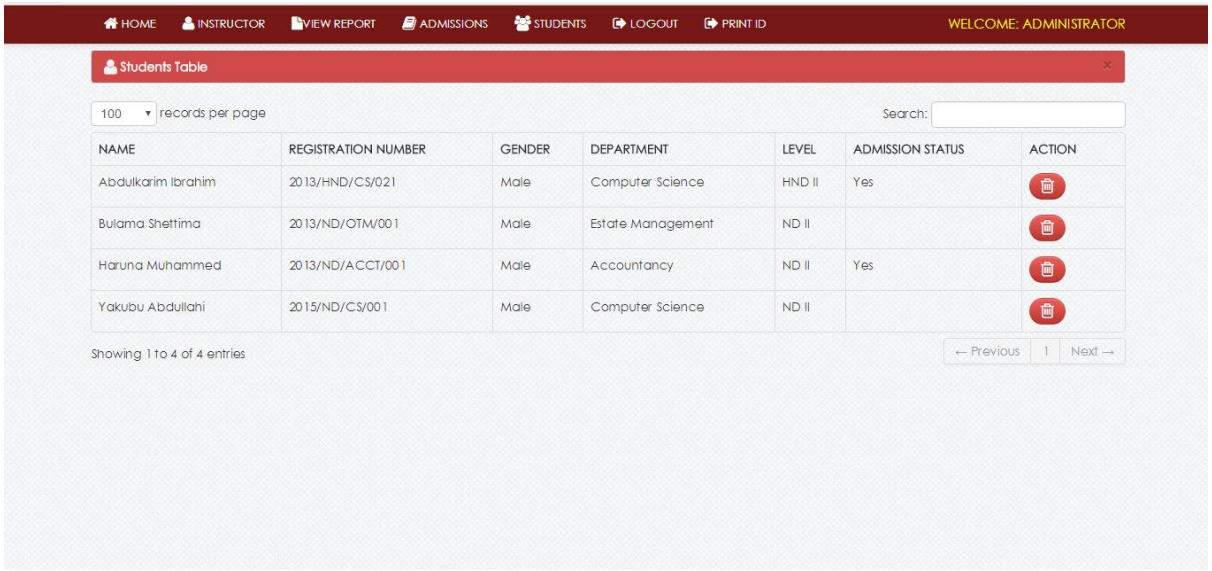



Fig 23: Comprehensive student list

| Testing | Input | Output |
|---|---|---|
| Login | User logged in with correct credentials. | Page is directed and passed Login form stage. |
| | User logged in with incorrect credentials. | Page is not redirected, and Login form is still presented. |
| Navigation. | User Navigate Menu base on clicking the link. | Page redirected as expected. |
| Submitting Registration Form. | User entered correct data type for the input. | Form is submitted and sent to the database |
| | User entered incorrect data type for the input. | Form is rejected. |
| Approving and rejecting application. | Admin click approve. | Applicant data is copied and send to a particular trade of his choose. |
| | Admin click Reject. | Applicant data keep up pending and will not allocate to any trade. |

## 1.7 Testing

Table 1: Black box testing for the Android Application

Table 1: White box testing for the Android Application

| Testing Case | Input | Expected Output | Output |
|---|---|---|---|
| Reading Account Address to Provide User with Assigned Interface | Accessing Web Application with Address Admin | After Loading, Page Redirected to Admin Interface | Page Redirected to the Admin Interface |
| | Accessing Web Application with Address different trades After Loading, | Page Redirected to trade Interface Page | Redirected to the trade Interface |
| | Accessing Web Application with Unregistered Applicant | After Loading, Page Redirected to Unregistered Applicant Interface | Page Redirected to the Unregistered Applicant Interface |

| | | | |
|---|---|---|---|
| Submission Application Form | Clicking Submit | Display Login Form | Login From Display |
| | Clicking Login and Submit application | Page Redirected to Registration Form | Application Form Displayed |
| | Clicking Login and Submitted applicant Registration | Submitting Applicant Form to the database Confirmation | Information Confirmation Window is displayed |
| Submission and registration of Trade | Click on trade and fill in necessary information and submit | After Successfully Submitting Form into the database, Page Redirected to trade | Form Redirected to trade Form Page and see number of participants in the trade |
| Functionality in Unregistered applicant Account | User accessing the system with Account listed as Unregistered applicant. | Displayed Page Without Any Features Except for Registration. | Page generated has no module except Registration. |

## 1.8 Conclusion

The development of the system has been successful in achieving Entrepreneurship centre system using Android and web technology. We use MSQL as intermediate communication to create connection between front end and database. Overall, the system's application can run as expected. The system is having a basic registration and trade data. Any additional functionalities can be added as future work for this system and might an open way to introduce more research on Android as a distributed system technology.

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