

# DEVELOPING AN INTERACTIVE STUDENT RECRUITMENT PORTAL FOR UNIVERSITY-INDUSTRY COOPERATION IN NIGERIA

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## Abstract

Institutions of higher learning provide the pool of professional expertise that the industry thrives on. Therefore, there is the need to facilitate a platform that will provide students a ready access to available vacancies in the industry. This platform will also facilitate the recruitment of the most qualified candidate for vacant positions. This paper reports the design and implementation of a web-based interactive portal for students' recruitment. The system enables cooperate organisations in Nigeria to publicly advertise their vacancies for interested students to apply online. Based on different job requirements, the system facilitates on-line assessment and selection of the most qualified candidates for job and internship placements. A preliminary evaluation of the interactive recruitment portal reveals that its features are standard and suitable for viable university-industry cooperation.

**Keywords:** Web-based information system, University-Industry Cooperation, On-line interaction, e-assessment

## 1.0 INTRODUCTION

In the last few years, the manner of recruiting new personnel has changed drastically. Although the basic recruitment perception remains the same, the technology used has had a remarkable impact on how recruitment process is accomplished [1]. According to [2] recruitment involves the set of practices and activities undertaken by an organization in order to identify and draw prospective employees[2].

Organizations employ different strategies to find qualified candidates like posting on newspaper, using Internet, posting on billboards, and recruiting on campuses. Previously, organizations relied on only the manual method of recruiting candidates and conducting examinations and interviews for them, which could be time consuming. In the last decade, the use of internet has significantly changed the face of human resource recruitment and the ways organizations think about the recruiting methods [3]. This recent change in the way of doing recruitment started during the mid-90s, particularly, Edgley in [4] stated that "the recruitment industry's future is on the net". Recruiting the right employees can be difficult at times, but the rewards of a well-constructed strategy are vast, because efficient recruiting is the foundation upon which any talent management programme is built [5].

There are different strategies that industries have adopted in reaching and selecting competent candidates for their job opportunities. One of the strategies is Campus recruitment; where the recruitment process is conducted within educational institutions or in a common place to provide jobs to students in the stage of completing a program, and to select students who are eligible for internship programmes. Employers from diverse industries visit campuses at least once every year for recruitment purposes, which are carried out manually. This manual approach posed some avoidable problems, which include inadequacy of keeping recruitment information and activities, which is paper-based, travelling risk for industry team to visit the institutions, manual method of conducting aptitude test, which might not be objective, and inadequate follow-up on the recruitment status of applicants. Therefore, in order to avoid these limitations some institutions have adopted the online recruitment process.

Online recruitment also known as e-recruitment is the type of recruitment that is carried out on the web. Over the years, technology has helped in advancing the recruitment process. E-recruitment has been described as the selection of potential candidates applying for a job through the Internet (external) and Intranet (internal) [6]. The Internet first appeared as a recruiting tool in the mid-1990s

and was hailed by the popular media as the driver behind a “recruiting revolution” due to the benefits it could bring to recruiters. Companies now rely on e-recruitment in order to attract the right candidate, have a larger applicant pool available, as well as save time and money. Both companies and applicants find the approach cheaper, faster, and potentially more effective.

Some universities have adopted the idea of e-recruitment to automate their campus recruitment programmes and have developed a website where different industries can post their vacancies, which students in the school can view and apply for. Example is the Liberal Arts Career Services site owned and managed by the University of Texas [7]. Also we have the Smart Recruitment Manager. Smart Recruitment Manager is a highly configurable, scalable and user friendly web-based applicant recruitment management system [8]. Most schools make use of a recruiting job posting service like NACElinkto[9] to manage their campus and on-site recruiting program. The NACElink network is the result of an alliance among the National Association of Colleges and Employers, Direct Employers Association, and Simplicity Corporation, which is a national recruiting network serving the needs of colleges, employers and job candidates in [9]. HuskyCareerLink [10] is a web based recruiting system, which allows the Center for Career Development of to manage many of the recruiting related activities offered to students. None of these platforms belong to the Nigerian context. Also, none of the aforementioned platforms has made a provision for online aptitude test, meaning that they may largely employ the manual process of conducting aptitude test. This scenario presents existing gaps that need to be filled as far the implementation of university online recruitment portal is concerned.

## **2. GOAL OF THE STUDY**

The aim of this study is to develop an interactive student recruitment portal (ISRP) for University-Industry cooperation in Nigeria. Interactive Student Recruitment Portal (ISRP) is a system is developed to bridge the gap of lack of a web portal that engenders active University-Industry cooperation in Nigeria. The portal will help the institutions to store personnel needs profile of the companies that wants to recruit and the record of the candidates who are eligible to submit application for such the recruitment process. By so doing, the portal will serve as a platform for companies to advertise job vacancies and enable the student to easily gain access to vacancies and be able to apply. The portal also provides opportunity for online assessments of students with instant feedback on their performance. The key objective of this system is to serve as a common meeting point for students and industry players where the applicants find their dream job opportunity and corporate organisations find the right human resources to promote their business.

## **3.0 METHODOLOGY**

The methodology used for this work was based on implementation-based research whereby we identified requirements, formulated a design for the system, implemented a software prototype and evaluated the developed software.

The requirements of the ISRP system which elicited using approaches such as interview, and observation include the following:

1) provide a database application to support recruitment process; 2) create a registration module for intending candidates and employers; 3) create platform to place and view advertisement for job vacancies; 4) provide functionalities to view recruitment status; and 5) have a module for online aptitude test, which are not available in most of the existing online recruitment platforms. Also, key non-functional requirements such as user-friendliness, usability, security and reliability are required.

The design of ISRP system was done by using some formal design models of the Unified Modelling Language (UML). These include use cases, sequence diagrams, class diagrams and component diagrams. The system was implemented as a web-based application and makes use of the following tools: MySQL is used as a database management system. HTML is used to design the front end of the application, which will provide user-friendly interface, and also creates ability to view recruitment status. PHP (Hypertext Processor) is a web-technology for dynamic content on web pages, and also acts as a link between the client and the server in the client/server architecture of this system. PHP is used to provide functionalities to upload and write online examination and also view the recruitment status.

## 4.0 Implementation Details and RESULT

This section provides insight on some of the details of the design and implementation activities that was undertaken in this research. Some of these details are presented in the subsequent subsections

### 4.1 Requirement specification in Use Case

A use case diagram depicts graphically the interactions between the system, the external system and the user. It defines the users of the system and the way the user would possibly interact with the system. There are three major expected users of the system. Table 1 describes the system users. Fig. 1 shows the interactions to be carried out by the student with the system. Fig. 2 depicts the typical interaction of a company with the system and also the interaction of the administrator with the system.

**Table 1: description of the system users**

Actor	Description
Student	The students are the main clients of the system and they view job vacancies and apply for them, they also view their recruitment status
Employer	The employers are also very important. They are responsible for posting job vacancies on the site and selecting qualified candidates
Administrator	The administrator ensures that the right people are using the system and at the right time. They ensure that no unauthorized users have access to the system.

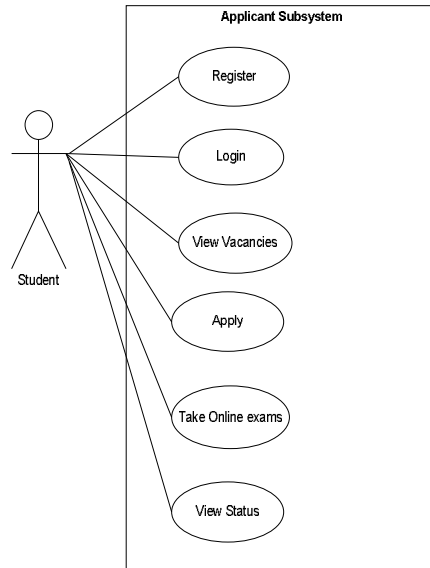


Fig. 1: Use case showing the student user

#### 4.1.2 Students use case description

**Brief Description:** This shows how a student interacts with the system.

**Actor and Interfaces:** The actor is the student who applies for job vacancies available.

**Pre-Conditions:** Students must have provided personal information in the registration phase, also a correct login details.

**Successful Condition:** The students logs in and have access to the system

**Failed condition:** The system flags an error message if wrong log in credentials are provided.

The system does not successfully register a student if all the necessary information are not provided.

**Trigger:** The student's credentials is provided to the system for verification

**Basic Flow:**

1. The student registers into the system if he/she is a new user
2. The student logs into the system
3. The student views the available job vacancies.
4. The student applies for job
5. Participate in online exams.
6. The student logs out and is redirected back to the index page of the website.

**Post-Conditions:** A notification message is given to show if the student is qualified or not.

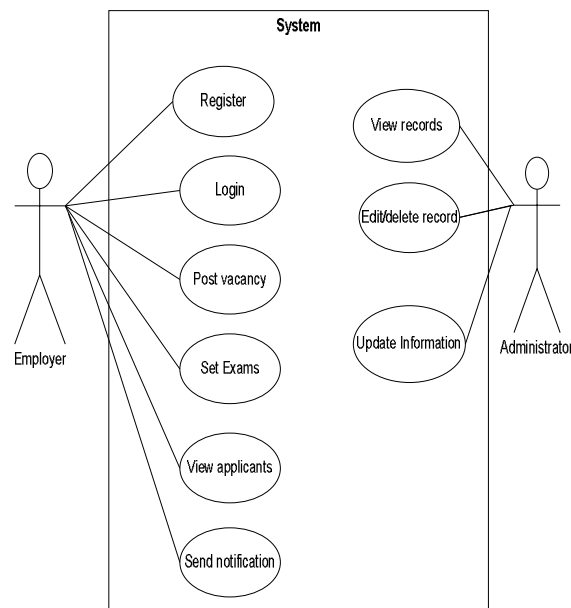


Fig. 2: Use diagram showing Employer and Administrator

#### 4.1.3 Employers use case description

**Brief Description:** This shows how an employer interacts with the system

**Actor and Interfaces:** The actor is the employer that post job vacancies for students to apply.

**Pre-Conditions:** The user must provide correct login details

**Successful Condition:** The employer logs into the system upon providing a correct login detail

**Failed condition:** The system flags in an error message if the login details are wrong

**Trigger:** The employer's credentials is provided to the system for verification

**Basic Flow:**

1. The employer registers into the system
2. Logs into the system and post job vacancies.
3. The employer checks for the students that have applied.

4. The employer uploads an online test for the students that have applied.
5. The employer selects qualified candidates.
6. The employer logs out and is redirected back to the index page of the website.

**Post-Conditions:** A notification message is given to show success in the approval of the system.

#### 4.1.4 Employers use case description

**Brief Description:** It describes the way the administrator controls the information in the system

**Actor and Interfaces:** In this case the actor is the administrator which serves as the controller and also manages the system.

**Pre-Conditions:** The user must provide correct login details

**Successful Condition:** The administrator logs into the system upon providing the correct login details

**Failed condition:** The system flags an error message if the user provide the wrong **Trigger:** The administrator's credentials is provided to the system for verification

**Basic Flow:**

1. The administrator logs in
2. Upon logging into the website, he views the system users and edit information.
3. The user logs out and is redirected back to the index page of the website

**Post-Conditions:** If the use case was successful, a notification message is given to show success of the transaction.

## 4.2 Sequence Diagram

The sequence diagram, which is an interaction diagram shows the sequence of messages flowing from one object to another. This diagram is from interaction and execution perspectives. It provides a visual representation of sequence of calls in the system to perform specific functions. Fig. 3 and Fig. 4 show the sequence diagram for the employer user and the student user respectively.

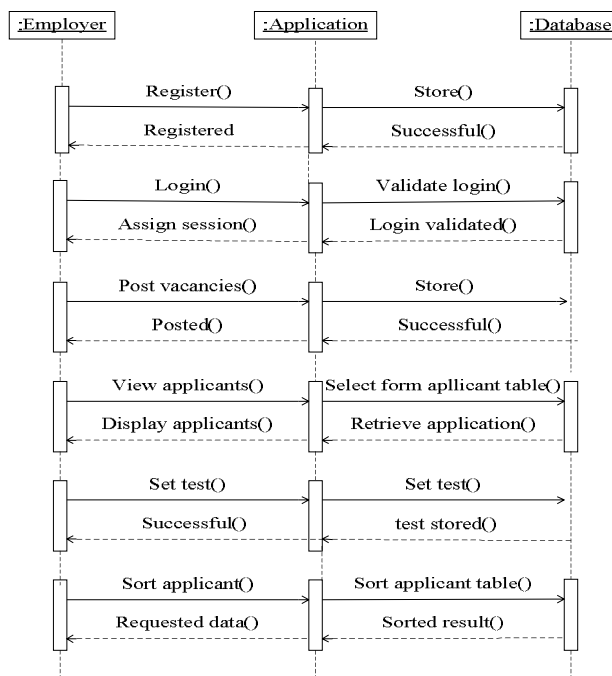


Fig. 3 : Sequence Diagram for employer user

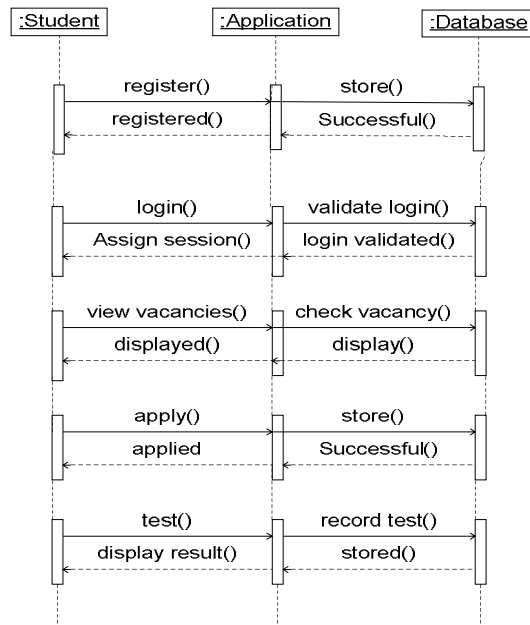


Fig. 4: Sequence Diagram for employer user

#### 4.5 Program Modules and Interfaces

The ISRP system has different modules among which are: the General home page, which gives access for users to log into the system. The system has different registration pages for all the users. It has student home page which opens when a student logs in. From this page students can view vacancies, view applications, messages and also edit their biodata. Once a student is done he/she can log out and return to the index page. Also, there is employers homepage, this page opens when an employer logs in successfully. From this page the employer can post job offers, track applications, send message and also set exams. There is online test page; on this page the employer can either choose to upload or set the questions and can choose the maximum number of questions he wants, once it is submitted the students that have applied for the job can access and write the test. The Vacancy page appears on the student page, a student that logs into the system can view the job offers and apply for the one jobs. After applying, it will lead to the examination page. Also, the applicants can view their status as qualified, unqualified or incomplete application from the application status page. The specific message from employers to a student can be received on the message page. Some of the pages are shown in Fig. 5 - Fig. 8.

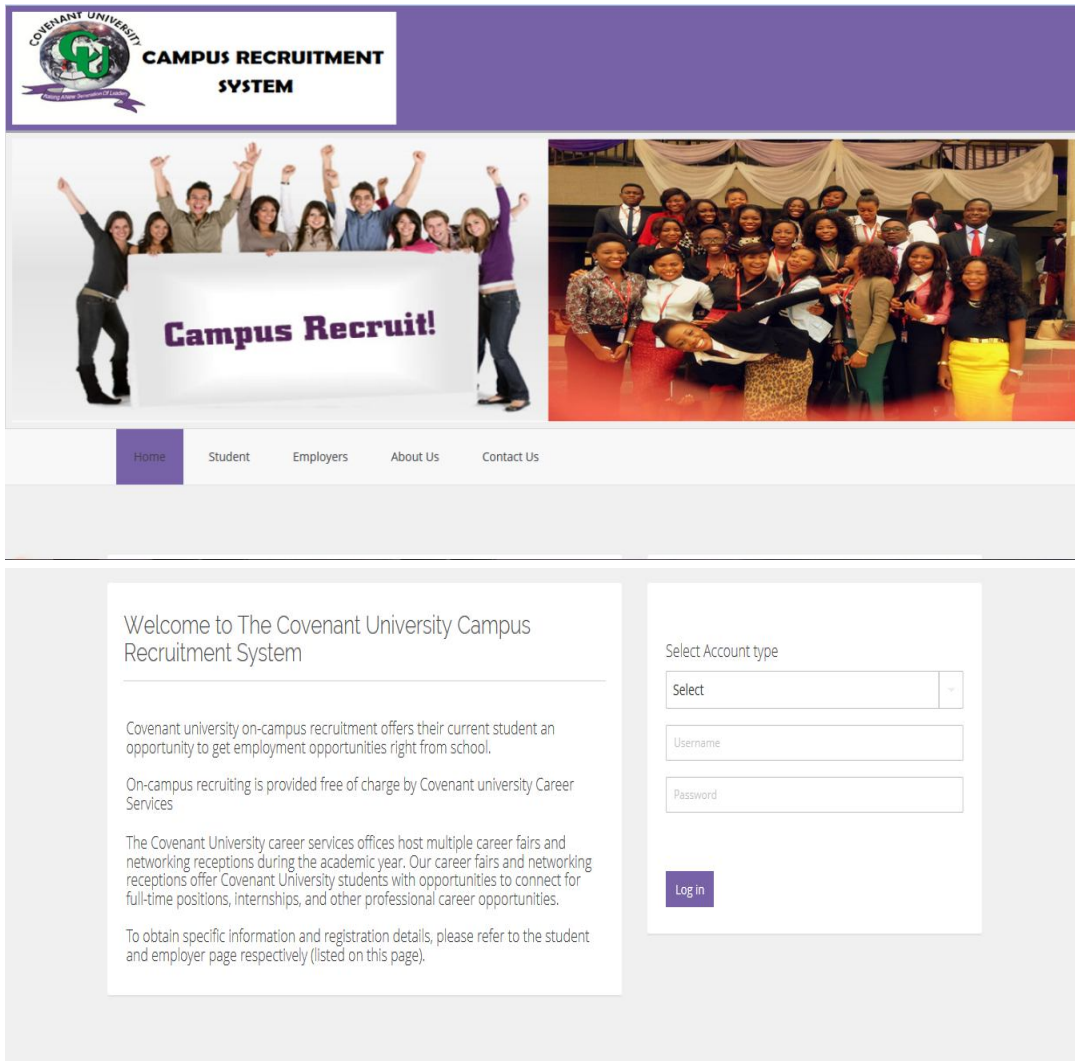


Fig. 5: Homepage of the system

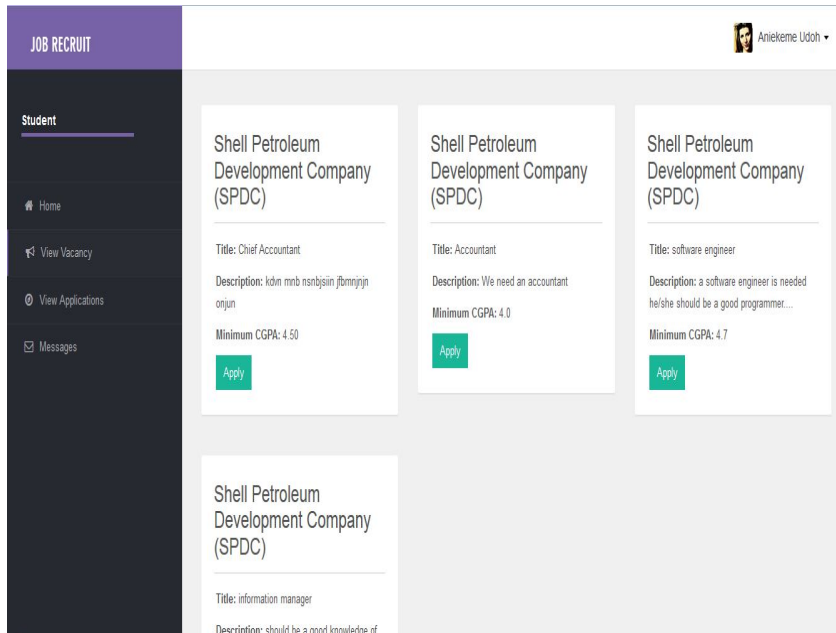


Fig. 6: View vacancy page

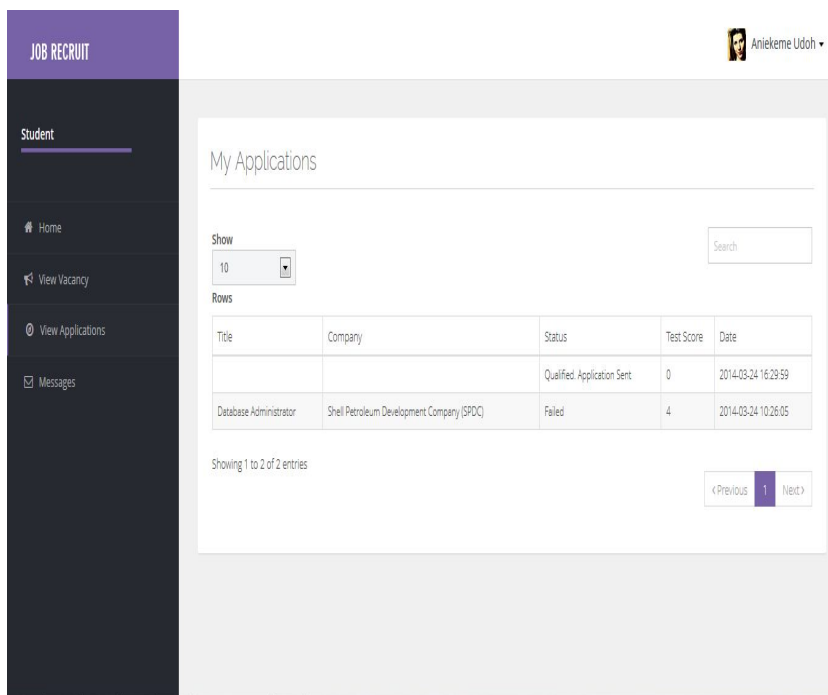


Fig. 7: View application page

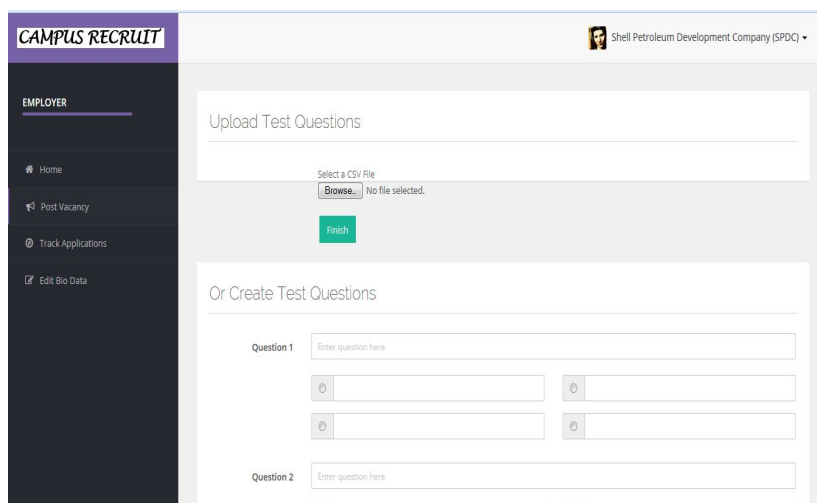


Fig. 8: Online test page

## 4.6 EVALUATION OF THE ISRP

A preliminary evaluation of interactive student recruitment portal (ISRP) was conducted by doing an analytical comparison of the ISRP with Three standard e-recruitment portal that were taken as gold standards. The evaluation procedure involved abstracting the key features of the gold standard portals and mapping them to those of the ISRP to see whether they exist or not. The result of the evaluation, which is shown in Table, reveals that the features of ISRP has 100% correlation with features that exist in the three e-recruitment portals used a gold standard. Also, ISRP provides online test which are not available in other sites. This result suggests that the ISRP is standard and suitable for viable student-industry collaboration.



**Table 2: Evaluation result**

S/No	Features	Nigeria LNG Recruitment Portal[a]	Nigerian Army eRecruitment Portal[b]	Nigerian Stock Exchange eRecruitment Portal[c]	Student Recruitment Portal For University-Industry Cooperation In Nigeria
1	log in	Yes	Yes	Yes	Yes
2	Registration	Yes	Yes	Yes	Yes
3	View Vacancies	Yes	Yes	Yes	Yes
4	view available applications	Yes	Yes	Yes	Yes
5	View profile message messages	No	No	No	Yes
6	edit bio data	Yes	Yes	Yes	Yes
7	post job offer	Yes	Yes	Yes	Yes
8	track applications	Yes	Yes	Yes	Yes
9	Write test	No	No	No	Yes
10	Upload CV	Yes	Yes	Yes	Yes

[a] <https://sws.nlng.com/e-recruitment/>

[b] <https://www.narecruitment.org/>

[c] <http://e-recruiter.ng/portal/nse>

## 5.0 CONCLUSION

The Interactive Student Recruitment Portal is a web-based system that has been developed to automate the recruitment activities on campus. It is intended to serve two main users; the students and the employers. With this system an employer can post job offers directly into the system which will be viewed by the students that have registered into the system. The students can apply for any job of their choice and they will be notified by the company based on their requirements. With this system, the traditional approach to recruitment on campus will be minimised as manual process will be handled by the system.

The portal can be integrated into a university website or be made to accommodate other institutions that may show interest. Other features can be added to the system like online interview. This system provides efficient and effective method of collecting and organizing information and recruitment activities. The use of Online Campus Recruitment System will greatly enhance the effectiveness, accuracy, speed, efficiency and convenience of its applicants and employers.

## 6.0 REFERENCES

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