

# Design and Development of a Filtration Tool for an Online Job Recruitment Portal

Ayangbekun, Oluwafemi J.<sup>1</sup>, Yusuf, Maryam O.<sup>2</sup>

<sup>1</sup> Department of Information Systems  
University of Cape Town  
South Africa  
phemmyc@yahoo.com

<sup>2</sup> Department of Information Technology  
Crescent University Abeokuta, Nigeria  
Maryamaderewa@gmail.com

**Abstract:** *Online recruitment provides a number of benefits such as reducing advertising cost, unlimited access to job adverts, sophisticated management tools and easier interaction between advertiser and jobseekers. But with every system that has merits, it also has its demerits. The demerit for this system is majorly that, the system does not distinguish between qualified and unqualified job applications sent to the advertiser which clusters the advertisers profile or mail depending on where the application is to be received. The aim of this study is to ensure that the system contains a filtration tool which is an online test that contains questions from the graduate management admission test, in other to distinguish the qualified from the unqualified applications and determine the eligibility of the jobseeker for that position and to provide a common profile for jobseekers such as a basic curriculum vitae CV to make the short listing process easier for the advertisers rather than looking through thousands of CVs with different format.*

*The work included the design of an online job recruitment portal, where PHP, HTML, Java Script, CSS and MySQL are the programming language used to develop the system. Hence, the system is a web based application that links job seekers to job adverts of their choice and allows them to apply for the position(s). Therefore if the test is passed, job seekers application will be sent to the advertiser for short listing and the advertiser then picks the preferred candidate for the position.*

**Keywords:** Application, Advertiser, Filtration, Short listing.

## 1. Introduction

An online job recruitment portal is a web application in information technology that deals with making the recruitment process seamless and effective. This study is of interest because, it reduces high unemployment rate by advertising as many job positions offered by registered recruiters, making jobs accessible to job seekers, making it cost effective for recruiters to advertise jobs and bringing together the two parties (advertisers, job seekers) which makes it easy to apply for job positions and easier to shortlist qualified candidates over the internet.

This study is one with many areas of development such as dealing with over flooding of unqualified CVs, where some job seekers apply for job positions that they are not qualified for. Leaving the recruiters to deal with a number of irrelevant and unqualified CVs, This can be highly reduced if an online test that contains questions from the graduate management admission test (GMAT) is introduced upon application for a job position, and a unique CV inputted in the job seeker's profile that gets general information from the job seekers about his/her qualification, previous work, years of experience in the

job seekers field and so on which makes it easier for the advertiser.

Online recruitment is also known as E-recruitment, [9] and [4] stated that an electronic recruitment involves selection of prospective candidates applying for a job via the Internet (external) and Intranet (internal). Using this method, candidates who are applying for an advertised position forward their CV and a covering letter electronically to the advertiser's platform on the portal. The CVs are retrieved by the advertiser and screened among other CVs received from different candidates and sources [3]. One of the main advantages of electronic recruiting methods is accessibility to candidates as anyone from anywhere can apply for an advertised job. This implies that the system is available for both parties 24 hours a day and 7 days a week.

Online recruitment is regarded as a new application in information technology and "one of the most recent methods to recruiting personnel" [8]. Online Recruitment not only streamlines the processing of potential job seeker's data, but it is also useful in the recruiting process. It is effective and quick, therefore it is in vogue in most countries and used increasingly by advertisers. E-Recruiting has various documented benefits, In this regard [7] said "First, it has changed the recruiting

process from a 'batch mode' to a more efficient 'continuous mode' and has reduced hiring costs by about 87% as compared to traditional recruiting through newspapers and magazines”.

## 2. Literature Review

Historically, it is believed that recruiting started way back in Egypt, Greece and Rome through the way in which people wrote things down about themselves to give a potential employer, initiating the concept of a CV. However the birth of modern recruitment, and recruitment as we know it, began in the 1940's as a result of WWII (World War II). The calling of soldiers to war left gaps in the work-place and a solution was born by the employment agency [5]. Now, with the advent of technology such as the World Wide Web which became in existence around the mid 1990's including databases of candidates, recruiters were treated to the use of online classifieds and job advertising as well as online databases.

Although the internet has been around for decades, internet recruitment only became popular less than a decade ago. In fact we can attribute a lot of the success of the e-recruiting today to one man Jeff Taloy, the CEO of Monster.com. Before it became a world renowned success, the idea of Monster.com came to Taylor in a dream that was developed into a simple job board in 1994” [2].

Today, it is very difficult for many recruiters and candidates to imagine a recruitment landscape that does not have the Internet at its heart, given the current status of online recruitment as almost the default means of recruiting staff. Agencies like Webrecruit (<http://www.webrecruit.co.uk>) make extensive use of the World Wide Web in their services, and yet, it all essentially began as recently as the early 1990s [6]. By the end of 1994, Monster.com and Jobserve.com had become operational for job seekers and employers in the US and UK respectively, and the number of sites soon multiplied as the Internet boomed in popularity over the ensuing years.

The principles behind online recruitment bore much resemblance to those commonly cited now and included enabling job seekers to easily look for jobs in any geographical area, as well as the speed and efficiency of the application process. By the 2000s, it was clear that online recruitment sites were becoming more diverse, particularly with the arrival of such 'Web 2.0' elements as blogs and social media. It may have been 1997 when the site widely regarded as the first social network – Six Degrees – was launched, but the following decade marked the veritable onslaught, with LinkedIn, MySpace and Facebook all being launched and expanding the options available to Human Resource managers” [6].

2006 saw the foundation of Twitter, followed by Google+ in 2011. Social media is now a fundamental part of the staff recruitment landscape, since through social media recruiters can gather more personal information about the candidates involved. Companies that embraced social media in their recruitment soon found themselves with an advantage over the competition, engaging more actively with job seekers – especially passive candidates [6].

Although the success of social media recruitment in recent years can be explained by many factors, including its ability to provide long-term results and its usefulness in the building of talent pools, it is in many ways simply the fact that it so well

represents the aforementioned online recruitment principles of speed and efficiency that has made all the difference.

## 3. Development Modules

The recruitment portal will be designed to provide the functionalities of automated employment for the job seekers by the advertisers, online test, easy CV uploads and downloads with some special functionalities like connection to the database, unique CV sequencing and an online test with questions from the graduate management test (GMAT).

It will contain the following modules for development:

### 3.1 Admin Module

This module manages the jobs available on the portal, the Database of all crucial information so that the admin personnel can create job categories, upload online test questions manually using comma separated values format, choose the number of questions per job category, time the questions per job category, post job vacancies, and also ensures that a job seeker cannot apply for a job more than twice (figure 1).

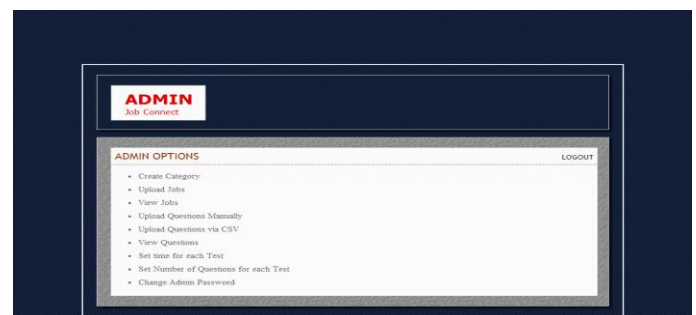


Figure 1: Admin Module

### 3.2 Job Seekers Module

This module contains information about the Job Seekers, their personal and contact profile, educational background and work experience inclusive of a unique and unified way to write their CVs to ensure all the needed information are captured. This module also selects what positions fit their qualification inclusive of an online test before final submission of CV as an application for a job opening (figure 2).

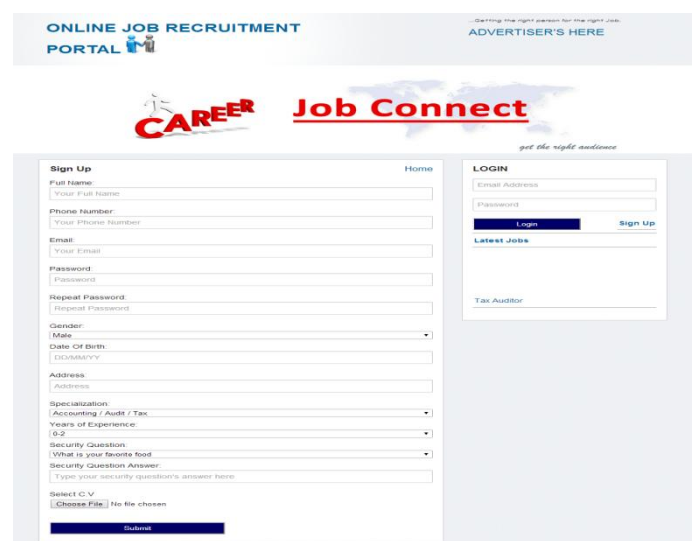


Figure 2: Job Seekers Module

### 3.3 Advertisers Module

With this module (figure 3), Recruiters login thereby providing an avenue for them to advertise job openings, view job seekers

CV's , view job seekers profile and view test scores for easy short listing of qualified candidate.

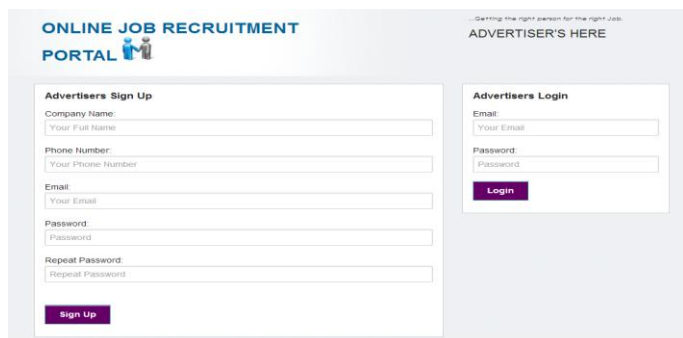


Figure 3: Advertisers Module

However, the roles attached to an Administrator, Advertisers and Job seekers based on the aforementioned modules includes to:

The roles are:

- **Register job seekers and advertisers:** The system allows job seekers and advertisers to register, such that they provide basic information such as name, email address, company's name, phone number, address, years of experience, specialization, gender and date of birth.
- **Advertise/post job vacancies:** Here, admin personnel and advertisers are able to advertise job openings but putting the job position, the minimum requirement for the position, the job description, the job category and the location of the job.
- **Update job categories:** The admin personnel is able to edit and delete job categories.
- **Upload and time questions:** Here the admin personnel is able to write out questions manually or automatically through comma separated values (CSV) in excel format and also set time for each job category.
- **Modify profile:** The job seeker is able to modify his/her profile with details that can be usable to the advertiser.
- **Apply for job vacancies:** The job seeker apply for job openings that interest him or meets his/her educational status
- **Take online test:** Before the application can finally be sent to the advertiser's, the job seeker has to take a test to determine if he/she meets the job requirement.
- **Shortlist candidate:** The advertiser is able to choose his preferred candidate that is ideal for the job position.

The software implementation is done using HTML and PHP programming language as the front end, CSS for styling the page, MySQL as the backend database, Java script for extra functionality like online test, timer and WAMP which serves as the server and act as a web server. However the operational analysis of the proposed system is shown in the system flow below (figure 4).

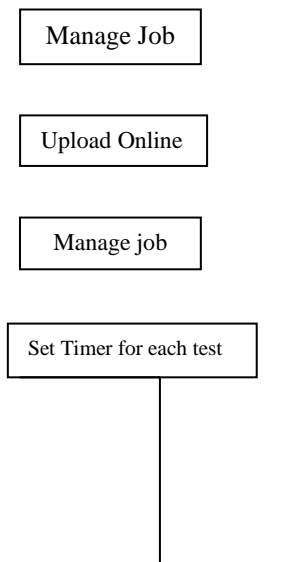


Figure 4: System Flowchart

#### 4. System Architecture

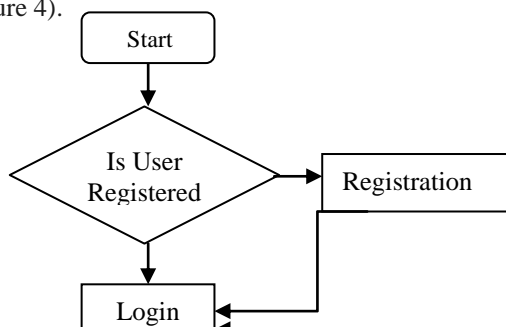
System architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures of the system.

The system consists of the following layers and components (figure 5);

**Web browser:** is a software application for retrieving, presenting and traversing information resources on the World Wide Web, here, the web browser is used to retrieve the web application after it might have been hosted to a server on the world wide web.

**Web server:** they are used to host web pages or websites. Every web server has an Internet Protocol (IP) address and possibly a domain name, the web application is being hosted locally using WAMP.

**Application Interface:** this layer describes the software application interface, the application interface was designed using PHP, HTML, MySQL, CSS, and Javascript.



**Presentation layer:** Occupies the top level and displays information related to the jobs available on a web application. This layer communicates with other layers by sending results to the browser. It deals with user interface of the system.

**Application layer:** Also called business logic or logic layer, it controls application functionality by performing detailed processing, functionalities such as applying for jobs, taking the test, registering and login into the application.

**Data access layer:** Houses database servers where information is stored and retrieved. Data in this layer is kept independent of application servers or business logic.

**Database:** This is the layer that stores the data inputted or needed in the system, the database is used to store information for the advertiser, applicants and jobs.

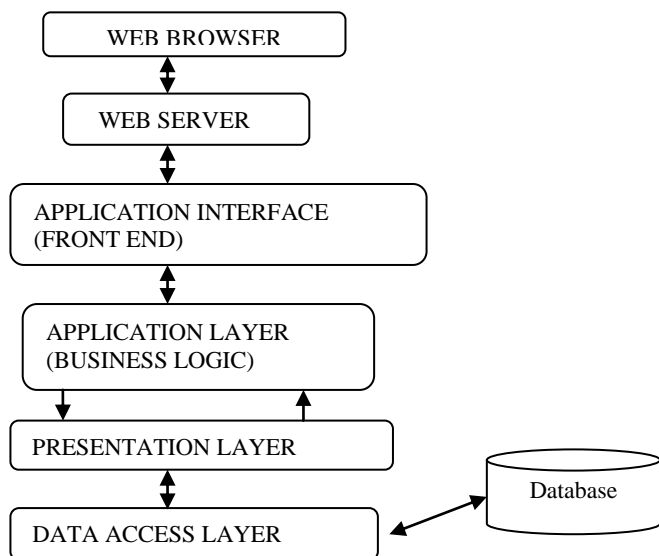


Figure 5: System Architecture

## 5. Application Interface

This section describes the application in the light of the high level users and the various tasks they can perform. The screenshots also display the output of the codes in PHP, HTML, CSS using Notepad++ integrated development environment and its interaction with MySQL database server. Few of the pages are described with respect to their workings.

### 5.1 Homepage

This page provides an overview of different modules such as the, latest jobs available which includes the ability to browse or search for jobs by category, jobs by locations, log in and sign up panel for new job seeker's to register and a link for advertiser as well (figure 6). Located at the right hand Footer of this page contains a link to FAQ (frequently asked questions), where lists of helpful questions are located.

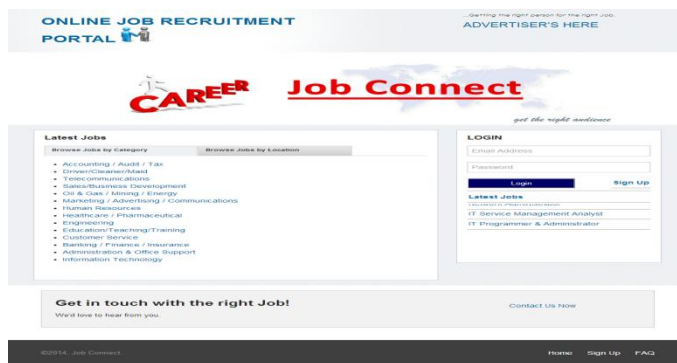


Figure 6: Homepage

### 5.2 Job Seekers Profile Page

The job seeker is able to view profile, edit their personal profile (figure 7), Based on the captured job seeker bio-data/earlier supplied information during their online registration phase. This may include information such as personal and contact information, educational background, work experience, references, update resume (CV) and so on. The job seeker is also able to view latest job adverts displayed on the page.

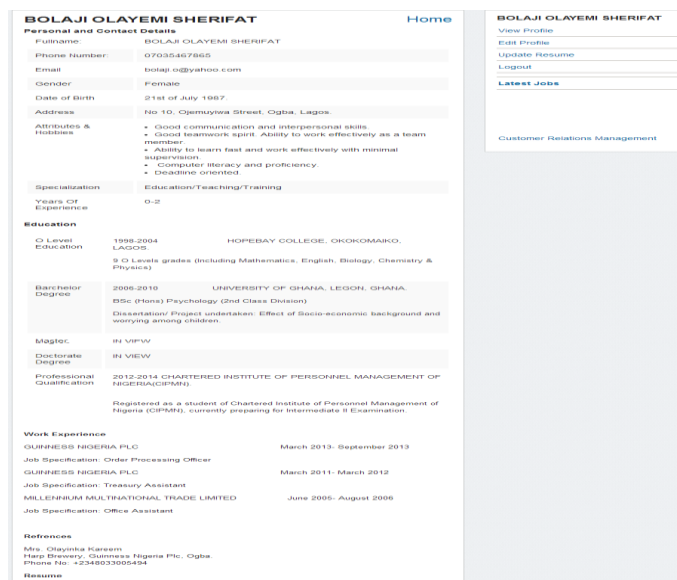


Figure 7: Job Seekers Profile Page

### 5.3 Advertisers Profile Page

Once the advertiser has been authenticated as a valid user of the system, the advertiser is able to view job openings advertised, view applications gotten for each job openings such that the advertiser is able to view the applicants CV and profile, post new job openings and logout from the system (figure 8).



Figure 8: Advertisers Profile Page



## 5.4 Sending Application (Notification Page)

On this page the job seeker sees any job opening of interest and applies, then a notification page (figure 9) comes up showing the job seeker that to complete the application a test must be taken, with the number of questions to be answered, the time limit and an authentication method to decide whether the user is who he claims to be. By answering the security question provided during registration.

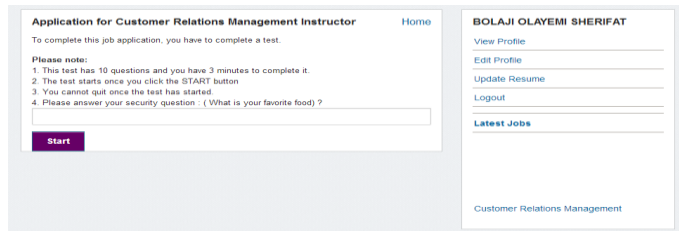


Figure 9: Notification Page

## 5.5 Online Test

This is the page where the job seeker takes a test (figure 10), that is timed to determine if his application will be sent to the advertiser or not. However, job seeker can take the same test twice but after that he is told that he cannot apply for the position based on the performance on the test.

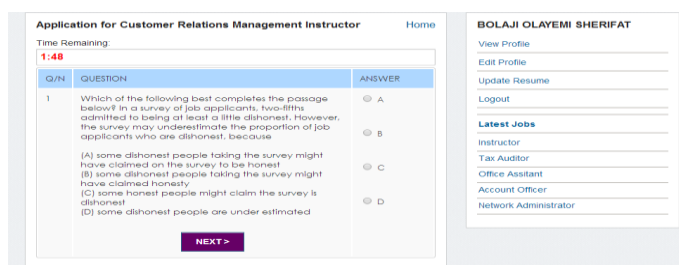


Figure 10: Online Test

## 5.6 Online Test Successful

Once the test has been completed, the job seekers application is sent to the advertiser if the test is passed, if not the application would not be sent to the advertiser and the job seeker has an option of either taking the test again or applying for another position of interest (figure 11).

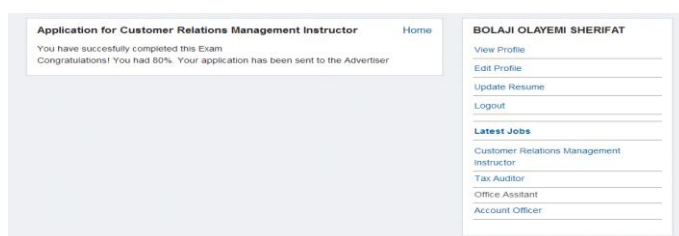


Figure 11: Online Test Successful

## 6. Conclusion

In the future, traditional methods of recruitment will become obsolete and future generations will probably primarily rely only on the online recruitment method. Companies and corporations are now using online recruitment as their main business tool; a tool through

which they can control the job market. Simplicity, stability and speed will be the three key features of online recruitment. There is definitely great potential in an online recruitment as evidenced by the emergence of international companies in this field, and with news papers entering into the online recruitment to offset their decline in paper advertising business" [1].

This report discussed the development of a web based application for online recruitment with an added functionality which is the online test to reduce the rate of unqualified CV. This hereby shows how an online recruitment is more competent than the traditional method of recruiting candidates.

## References

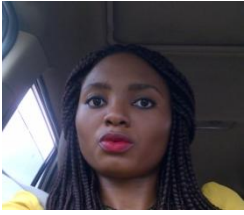
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## Author Profile



**Ayangbekun, Oluwafemi J** received his Bachelor of Technology (BTech) in Computer Engineering from Ladoko Akintola University of Technology Ogbomosho, Nigeria in 2003. He also obtained his Masters of Science (MSc) in

Computer Science from University of Ibadan, Nigeria in 2007. He is presently a PhD researcher in the department of Information Systems, University of Capetown, South Africa



**Yusuf Maryam** received her Bachelor of Science degree in Information Technology from Crescent University Abeokuta Ogun State Nigeria in 2014.