

IMPLEMENTATION OF A WEB-BASED SECURE AUCTION SYSTEM

BY

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**PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF COMPUTER
SCIENCE, FACULTY OF PHYSICAL SCIENCES, UNIVERSITY OF BENIN IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
BACHELOR OF SCIENCE (BS.C) (HONS) DEGREE in COMPUTER SCIENCE**

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CERTIFICATION

This is to certify that this project work was carried out by **ABRAHAM CHRISTIAN GODWIN** with matriculation number **MAT NO: PSC1707396**, under my supervision and it is adequate in scope and content for the award of Bachelor of science degree in computer science of the University of Benin, Benin city under my supervision.

.....
MR. Oliomogbe S. O. P.
(Project Supervisor)

.....
Date

APPROVAL

This project report is hereby approved in partial fulfillment of the requirement for the award of the University of Benin Bachelor of Science (B. Sc.) degree in Computer Science.

.....
Prof. (Mrs.) A. O. Egwali
(Head of Department)

.....
Date

DEDICATION

This project work is dedicated to God Almighty, for providence, guidance, and grace in seeing me through this study; I give Him all the glory. I also dedicate this project to my parents Mr. Iriaremien Abraham (Late) and Mrs. Abraham Faith for without them, I would not have come this far.

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ABSTRACT

Online Auction management system is a web-based application which will help users to buy or sell item; they can trade anything they want by posting adverts. This application developed will allow students of the University of Benin to post their products for auction; bidder can register and can bid for any available product.

The system was developed using HTML, CSS, JavaScript, and PHP for the program. The system provides some basic features, a friendly GUI, easy registration and bidding processes, etc. With the new system, students can easily auction items and sell to the highest bidder, this will bridge the gap between students that have items to sell and companies looking for used but in good condition items to buy.

CHAPTER ONE.

INTRODUCTION

1.1 BACKGROUND OF STUDY

In Nigeria, the organized career guidance started in 1959 at St. Theresas College. Oke Ado in Ibadan by some Reverend Sisters, out of concern for the product of their school students (Oye and Obi, 2012). Afterwards, the vocational career guidance services spread to other secondary schools outside Ibadan and across the entire Nigeria. Career Selection is one of many important choice a student will have to make in determining, his/her future plans. Some people thinks a student personal qualities, such as interests and aptitudes or what the student value are key factors in choosing a career (kerka, 2010). But some career counsellors recommend identifying our personal characteristics and matching them with compatible course in tertiary institutions to make our career. For example, a student who is excellent at mathematics and enjoys challenges and tasks associated with the mathematical field might explore math related course or occupation such as engineering or accounting counselling program in schools. Other counsellors believe that a student family and socio-economic background really matter when it comes to making his/her careers selection (Stebleton, 2007). still others believed that perception of who a student is. or his/her self-concept have influence on the career choice he/she makes (Hewitt. 2010). The choice of career has been a serious problem among secondary student in Nigeria. Many secondary students have the idea that they would be

able to work in a public or private establishment as soon they complete their tertiary education. Some have plans to become lawyers, engineers, medical doctor, scientist, and accountant and so on, how the young students of today meets the problem of tomorrow will depend on the amount of success they make in planning for that tomorrow. And Planning for tomorrow itself, is primarily the responsibility of the parents, teachers, and school's guidance counsellors. According to (Hooley, 2012), career choice is influenced by multiple factors including - Personality, Interest, Self-Concept, Cultural identity. Globalization. Socialization. Role model, and Finance. While according to (Bandura. Barbaranelli, Caprara, and Pastorcili. 2008), for each student undertaking a career, the process is influenced by various factors including - the context in which the live in, their personal aptitude, social contact, and education attainment in secondary school. (Hewitt, 200) argues that most students are influenced by career favored by their parent, whereas other follow the career that their educational choice have set for them. Several decides to follow career of their interest and passion irrespective of how much or little they will turn to while other decide on the career that have very promising income (Stebbleton. 2007).

In general, the first factor in choosing a career is the environment factors that influence student's career choice. Students tend to choose career that is directory linked to the surrounding environment and try as much as possible to solve existing challenges in the surrounding (Splaver. 2000). A student who

have lived their entire life on an island will mostly likely choose a career dealing with the environment around them which is mostly to do with water, or alternatively choose to have nothing to do with the island. Possibly someone in the student's environment has made a significant impact or impression, can motivate the student to choose a certain career (Hewitt, 2010). Also media influence also play a role in the process of career choices among students, a student may see some prominent media personalities on television who may have influenced the student to either make or alter a similar career choice to those personalities, or sometimes parents demands that student assume the family business (Splaver, 2000).

The second factor in career choice is personality. Some career demand that you have the personality to match the qualities of the occupation (Bassili, 2008). Opportunity is the third factor that has shaped career choices for students. The issue of poverty has played an important determining role in the opportunities available to all (Hewitt, 2010).

To aid student in career selection or selection of tertiary study course. The Guidance program was introduced and has become an integral part of the overall education system, with the basic assumption that all students need direction in their personal planning, educational planning and choice of course. It has become the instructional responsibility of the guidance and counselor, administrator and staff of the school to provide the students the specific knowledge and skills required to address the needs.

The stages where much work is carried out on counselling a students is in secondary schools, this is a stage when a child is grown to be able to understand maturely and when the child's attitude is fully studied in line with academic performance. (Fitzj. 2010). stated that though there are many careers to choose from, individuals without guidance and counselling on future career choice decisions can be limited in their career options, especially if they are not prepared for the requirement of the workplace underestimate their capabilities, or are unaware of the range of workplace opportunities that can broaden their career options.

The guidance center helps the students understand their strength and limitations and to enable them to adjust to their social and emotional life to the fullest. It offers the following service which is given by the guidance personnel: individual counseling and administration of intelligence test (IQ). An important aspect of a guidance program is the fact that some student need special assistance in dealing with developmental problems and immediate crisis. With this. teachers and other staffs who are in direct contact with the students require assistance that can best be provided by a guidance program. Guidance program moreover is based on the belief that all students, including those with challenging needs have the right to benefit from effective instruction to ensure optimal development.

The manual system of career guidance is being phased out, it's quite tedious, time consuming, less efficient, more prone to error and inaccurate in

comparison to computerized system. A manual based system will see information recorded and kept in different ways such as in files in the paper form. While a computer based information system will see data stored on various computer programs including on database, word documents, excel and so on. With the above problem, my research proposed a system called Career Selection System (CSS). This research work is geared towards selecting the proper and right career for secondary students.

1.2 MOTIVATION

Career selection among students has been a very challenging decision to make and only a few students gets this decision right. This project work is to develop a career selection software for student to aid them choose the better and right career for them with a view of creating awareness of the use of computer in career counselling with due consideration of technology advancement.

1.3 STATEMENT OF PROBLEM.

The survey done by (Oye and Obi. 2012) affirms that some principals in secondary schools have the false impression that a school can function effectively and profitably without a career counsellor. This false impression leads to the poor allocation of funds by the school authority for career counsellors to facilitate their work effectively (David, 2013).

Also the number of students involved in counselling arc very enormous and few counsellors in the counselling department cannot handle the job effectively (Abolarinwa, 2008).

1.4 AIMS/OBJECTIVES

The main aim of the project is streamlined toward the design and implementation of career system.

To achieve this, the following objectives are stated:

- A. Ascertain level of acceptance of career solution.
- B. Design a career selection system.
- C. Implementing the system.

1.5 SCOPE OF STUDY

The study covers the design and implementation of career selection system for secondary schools.

1.6 SIGNIFICANCE OF STUDY

It is hoped that this project will assist secondary schools counsellors to always direct secondary students in their best career area with happiness and also relief the counsellors, the stress of using his/her brain to store information about different student in large number also each students area if interest he/she is fit for. The productivity of the counsellors will be increased because the system can save their time.

1.7 METHODOLOGY

The population of this study consisted of all Senior Secondary Three (SS3) students for ten (10) schools. Using the stratified sample technique, a sample of 200 SS3 students for 10 schools was randomly selected for this study. 20 students were selected from each school. While the design of the software

will be implemented using the JAVA programming language and using MySQL for the database.

1.8 LIMITATIONS OF STUDY

The major limitations identified in the course of this research work are as follows:

A. There are many secondary schools in primitive/rural areas that have little or no technological facilities in the school. Implementing this system in such a situation would be a problem

B. There may also be a staff in the school who do not have the knowledge on proper usage of computer. If such staff works in the guidance and counselling unit it would be cumbersome for him/her to operate the computerized system.

CHAPTER TWO

LITERATURE REVIEW

2.1 CONCEPT OF CAREER CHOICE

According to (Popoola, 2004), career is defined as a job or profession for which one undergoes regulated education and training over a period of time and which one intends to follow for the whole of one's life. When expert talk about career choice, they are usually referring to someone deciding what he/she wants to do to make a living (Dawn, 2013). A career choice is the process of determining a field of leaning that requires certain knowledge and skills, acquired through a specific educational program which results in a certificate or degree attesting to your accomplishment (Power, 2013). Since the average person works 45-50 years in his or her lifetime, finding a satisfying career and not a job is very important. Career choice has therefore become a complex task today as one has not only to make the career planning hut also to do an exhaustive career research before making career choice so as to adjust with the evolving social-economic conditions (Wattles, 2009). However most students who arc in secondary schools do not have accurate information about occupational opportunities to help them make the appropriate career choices. Also students that have not been exposed to any form of career counselling ha e the tendency to choose the wrong career. According to Agarwala (2008), number of career option available to a certain individuals depend upon individual and external factors. Individual factors consist of education, family

background, attitudes, while external factors include labour market, state of the economy etc.

In Nigeria, every year, senior secondary school students make their career choices before setting for their final Senior Secondary Certificate Examination (SSCE). The result of the final examination determines who joins tertiary institutions since admission into various careers are determined by the grades obtained from the SSCE. When these students are then admitted to these tertiary institutions, based on the career choice that they had made, some of these students drop out of school without graduating, others performs very poorly while some of them enter into occupation that are totally different from the ones that they had chosen or envisaged of. This is the indication that the students may have been pressured by their parents to choose what their parents desired simply to please them (Taylor, 2004), while some just choose what their friends had chosen or they go after the career or their mentors or favorite media personalities. In sight of these wrong career choice made by students over the years, career education was introduced and according to Alutu (2004) career choice should be initiated as early as the nursery school years through the primary, secondary and the tertiary school level.

2.2 CAREER EDUCATION

The definition of career education by OECD and the World Bank: “Career education refers to services and activities intended to assist individual of any age and at any point throughout their life, to make educational, training and

occupational choices and to manage their career”. Such services may be found in schools. The term career education is used to include those educational experiences and services provided at the elementary, secondary, post-secondary and adult levels, which help people to make more intelligent career choice and to advance in their chosen fields (Salami, 2000). The purpose of career education is to help students understand themselves, investigate and weigh up career options and develop the necessary knowledge they will need for their career choice. Career exploration begins in the secondary school. The career education at secondary school is grouped into two parts; the career educators in Junior Secondary School (JSS) and Senior Secondary School (SSS). At JSS level a programme called Career Orientation is prepared for the student. This program gives the students the realistic picture of themselves and world. While at the SSS level a programme called Career Preparation is prepared for the students. This program provide advance specific occupational training for specific occupation to meet the specific needs of the individual, by splitting the student into different department (Science, Social Science and Art according to the student educational competence.

2.3 ROLE OF SCHOOL TOWARDS STUDENT’S CAREER CHOICE

The first career question every student ask himself or herself is ‘what will he/she becomes after completing school?’, there are many things a student can become after completing his/her schooling. The Senior Secondary School (SSS) is thus the most crucial stage with which the student’s mind is gradually being

shaped to face the challenges of the transition to adulthood. At this stage it is imperative the student is exposed to a variety of career responsibility amongst themselves by the school.

Research work done by Ubana (2008) affirms that most secondary schools in Nigeria has a negative views about career guidance programmes, and school administrators has done little or nothing of having a career guidance counsellors for their students, These school administrators tends to forget that if the students are not well counselled about their career choices the students tend to have faulty career selection, and the problem of subject selection may arise, which may prompt the students to end up doing the job that are not in the least related to their aptitude. To guide the students, it is very important for school administrators to have positive views about career guidance and also create an office for the career guidance counsellors and arrange counselling activities in the time table. School administrators should also recommend competent individuals for the job of career counselling. So that through the office of the career guidance counsellor, the counsellor(s) could do the following

- a) Establish and coordinate the career guidance programmes
- b) Define objectives of the school career guidance programme for the benefit of the school administrator, parents and students.
- c) 1-leip to disseminate career information to the students.
- d) Supervising the building and maintenance of students' cumulative records.

- e) Provide relevant data for the placement of students in the transition from junior to senior secondary school.
- f) Assisting parent in relating student's interest, attitudes and abilities to current educational, occupational opportunities and requirements.
- g) Knowing the students educational and vocational weakness and strength
- h) Provides career counselling service to the students regarding their educational, vocational and personal social concern

2.4 IMPORTANCE OF CAREER GUIDANCE IN NIGERIA SCHOOLING SYSTEM.

Ipage, (1983) opined that career guidance with Nigeria complies a parental style of steering the child towards behaviours or decision deemed to be his/her good. Olayinka, (1985) is of the opinion that career guidance is a programme that provides services to individuals students based upon their needs and understanding of their immediate environment factor of the student and the unique features of the student. Omoegun and Buraimoh, (2013) state that the choice of a caner has become more complex in this modern time for the following reasons;

- a) Nigeria is a developing country with serious economic problem resulting to unemployment in various categories of occupation
- b) The development in science and technology has led to new careers of which most students are not aware.

- c) Many students lack competence to assess themselves for a realistic choice of career.
- d) Information about various occupations does not readily get to those students who are contemplating the choice of career.
- e) Parents, sometimes out of ignorance force careers on their children which become a problem or serves as a temporary setback for the children.
- 1) The peer group has a great deal of influence on youth career choice. Many students choose career simply because their friends have chosen such.
- g) Inability of some students to keep their career choice flexible has led to delays in getting admission and frustrations in meeting the requirement for the career of their choice.

In a developing country like Nigeria, career guidance is needed as a vital tool for developing students. Career guidance at secondary schools in Nigeria is of great importance to reduce the problem of unemployment, students choosing wrong careers, ignorance of a particular career etc. to the minimal. Also making right career choice would keep student relevant in the scheme of things in an emerging economy like Nigeria.

2.5 BASIC ISSUE TI-IAT AFFECT STUDENTS CAREER CHOICES

A. Self-knowledge

Beside education qualification some personality factors should necessarily be considered in career choice. A student should relate his/her personal attitude to his/her choice of career. Career education or counselling can

modify a student attitude towards a career to a large extent but the students self-knowledge is an important determinant. A student may have all it takes to be a medical doctor but may not be able to stand the site of blood or corpse, such student may opt for engineering or environmental discipline. Also a student with good educational qualification may have personal health problem like asthma, which may make the student not go for pharmacy for fear of drugs with irritating odour. The knowledge of one's personal abilities, attitudes or dispositions should guide one's choice of career.

B. Knowledge of the career

One thing that facilitates right choice of career is the knowledge of the career. This may be rudimentary but it is necessary. It is indeed believed that secondary school students lack adequate information about occupations, careers and work activities (Anigbogu, 2003). It is therefore important that the student are given the knowledge about any career or work activity they want to venture in. For instance for a student to be a lawyer, besides having the educational qualification and natural quantities of wisdom, intelligence and brilliance, the student must be a diligent indefatigable worker and the student must refrain from fraudulent or dubious act and must be a genuine forerunner of Justice and equity. Also to be a teacher or lecturer the student must be a diligent, patient, sociable and humane.

C. Parental constraints

Parents serve as a major influence in their children's career development and career decision-making. Parents want their children to find happiness and success in life and one factor which influences happiness and success is career choice. Research also indicates that when students feel supported and loved by their parents, they have more confidence in their own ability to research careers and to choose a career that would be interesting and exciting. This is important because studies show that students who feel competent regarding career decision-making, tend to make more satisfying career choice later in life (Keller. 2004): Parents influence the level of education their children achieve, the knowledge they have about work and different occupations, the beliefs and attitudes they have to working, and the motivation they have to succeed. Most of this is learned by the students unconsciously from the parents. Middleton and Loughead (1993) talked of how parents can be an important and positive influence in decisions affecting a student's career development. Though they also warned that over- involvement in the decision-making process can undermine parental effect as a positive source of influence. Excessive parental control regarding students' career decision- making results in negative outcomes (Nucci. 1996). Parents should be cautioned against imposing their own goals in their children or seeing their child's accomplishments as a reflection on themselves. So while parents should show genuine interest and support for their children career plans, they must allow the child to discover

who they are on their own. Some students fear the disapproval of their parents if they pursue a career in art/drama or music as opposed to a practical high-earning occupation such as law or medicine. If parents make it clear that they have no specific expectations for their child's career, he/she will feel free to explore greater variety of professions, choosing one based on their own preferences rather than those of their parents. Parents should also guard against shooting down ideas their children may have about their future careers. If they react negatively, it may shut down the whole exploration process. Parents need to keep the lines of communication open, and encourage their child to gather as much information as possible on their career interest areas. Parents must recognize that their role is simply to act as a facilitator in their child's career journey and allowing independent career choices for the child.

D. Finance

Parent's, guardian's financial status influences student's choice of career. In choosing a career, the student must consider the duration and cost of education necessary for preparing for the career. Some programmes are more expensive than others. Programmes like Medicine and Surgery, Law and Engineering take more years and demand very expensive books and material. Without Government intervention in the form of loans, bursaries and scholarships the consideration of parental or guardians financial position affects choice of career made by students.

However, the purpose of education is to make the individual develop his various faculties that will make him useful to himself and the society, but wrong choice of career by any form of problems generate frustration in a work place. It could also lead to loss of employment sense of uselessness or worthlessness and feeling of rejection and grief (Anigbogu, 2003). Uba (1997) emphasized that when the right career choice is not made, the results are job dissatisfaction failure to make a success in a career and desire to change job. When the right job is taken or right career is chosen, the student matches on without future regrets, enjoys a sense of personal fulfilment, sense of achievement and a sense of self-actualization.

E. Benefits

Further studies showed that most secondary school leavers in Nigeria make poor career decisions because of their unrealistic vocational aspirations. It is reported that students select occupation mainly because of the salaries, positions, glamour and prestige attached to them (Salami, 1997). For instance, students prefer medicine, engineering, law, banking, architecture and pharmacy as professions they intend to enter into after graduating from secondary school without adequate knowledge of what it take to succeed and achieve in those occupational (Salami, 2000). It is therefore important that secondary school career counsellor help students make satisfying educational and occupational career decisions.

F. Subject Combination

Since subject combination have direct influence or hearing on student's future career, it should not be left alone for students. It is necessary to assist the students in choosing the right subject for a career. Student who are left unguarded are prone to choose subjects which are not directly related to their future career.

G. Economic and Political Condition of the Country:

Due to economic depression experienced in Nigeria today most individuals engaged in multiple jobs. Some individuals own part time private business as well as government job. Again, due to our economy that changed from agriculture to oil, most students seek careers in the oil field for them to secure jobs in oil companies to earn better pay.

H. Peer Groups' Pressure or Influence:

According to Obanewa (1994) Peer groups are usually made up of playmates, friends or people within the same age bracket. They serve as confidants to their members. In most cases they belong to same social clubs where they share the same values and ideals. While, Topping (1989) say may educators considered peer groups to be an effective and powerful instructional strategy that can be used to develop academic as well as social skills in peer group. Most students in peer groups who are confused or are not guided in their career path. tend to go after careers that a or some fellow peer group member is going for² undermining their skills. background, reasoning, vacation and educational capabilities in that career field.

I. Teachers' Influence:

A teacher is the central point of leaning in a classroom. This is because he/she decides whether the subjects will be of interest to the students or not. A student may like a particular subject very well but because of the poor teaching method of the teacher such a student may lose interest for such subject. and go for careers that doesn't encompass that particular subjects. Also a students may have close relationship with a teacher, that student may likely want to go after the career of that teacher he or she likes or the teacher may advice such student to go after a particular career without fully assessing such student vocational, educational, and reasoning abilities.

2.6 COMPUTER ASSISTED CAREER SELECTION SYSTEM.

Wooler and Lewis, (2000) define computer assisted career selection system as a group of activities delivered by computer, designed to assist with one or more steps of the career planning process. While Ballantine (1997) argued that computer assisted career counselling is the use of computers in educational career guidance. Ballantine further suggested that when students are faced with the prospect of having to make an important educational or career decision, many students look for career or educational information and professional guidance. Students making educational decisions might access brochures or request materials, also students considering a possible career path might access information about the task involved in the career or might research the employment outlook for that particular career. Furthermore, some students

seek the guidance of trained career counsellors and psychologist as they grapple with making their career decisions. More and more, students are turning to their computers and internet for both information and guidance.

Today, computer assisted career counselling takes three primary forms: Computerized career assessment, Electronic source of career and educational information, and Comprehensive CACO system (Harris, 2015).

A. Computerized Career Assessment

In an effort to help students understand their educational and career interests, skills, and values, career counsellors will often administer career assessment inventories. Result from the inventories can be used to help students identify their career path, confirm existing choices, or narrow the number of career alternatives considered. Several benefits can be realized when administering career assessment via computer. Students can be provided with a reliable interpretations and recommendation of any career path based on the student responses and computer adaptive testing (CAT) (Bartram, 1997).

B. Online Source of Education and Career Information.

The use of computer to provide education and career information was first realized by the Department of Labour in the 1960s (Bloom. 1997). Today. Universities. College of Educations, Polytechnics are free to publish information on the internet. When compared to traditional printing methods, the internet offers several benefits. Information can be updated on a regular basis and published almost immediately. Electronically delivered material can be

quickly indexed and cross-referenced and text-based materials can be easily searched by end users (Brown. 2003).

C. Computer-Assisted Career Guidance Systems.

Computer-assisted career guidance system is a term used to describe a computer application that combines career assessment, career information, and career guidance into one integrated system. Computer-assisted career guidance have been available since the 1970s and have evolved to take advantage of new computer technologies (e.g., personal computer, internet) (Harris, 2015). Computer-assisted career guidance systems are effective at promoting career development and decision making for students.

2.7 EVOLUTION OF COMPUTER ASSISTED CAREER SELECTION SYSTEM.

Computer assisted career selection system allows a student to go through basic steps in the vocational decision-making process using a computer (Muroyamma, 2014). Some early computer assisted career selection established in the 1960s were: Tiedemann (Harvard)-Information System for Vocational Decisions (ISVD), Katz (ETS)-System for Interactive Guidance Information (SIGI), Harris (Willowbrook High School)-Computerized Vocational Information System (CVIS), Impelleteri (Penn State)-Computer Occupational Information System (COIS). etc. These early computer assisted career selection systems can offer a prescribed sequence of activities, store an ongoing user record, they are taught decision-making process and they are also based on career development theory. But now there are more advanced computer assisted career selection systems, which are: DISCOVER, SIGI-PLUS, CHOICES AND

PROSPECT. These modern computer assisted career selection systems are equipped with basic features essential for making career or vocational choices for students, such as a self-understanding test, occupational information database, and career-planning tools. Muroyamma, (2012) stated in his research work that computer assisted career selection system are best reliable when combined with counsellors. Tie further went on to give some reasons, which are: some student do not profit from the use of technology because of learning or personality style, students mask other problems under the rubric of career concerns and he also said that research indicates that the most effective intervention is a combination of technology and counsellor support. With the computer assisted career selection system, counsellor can determine readiness of the students for a career path, expand the interpretation of assessments, assist students to identify values that guide decision making, provide motivation and emotional support to the students and suggest creative alternatives (Harris, 2000).

2.8 EXPERT SYSTEMS FOR CAREER SELECTION.

Below are some present expert system used in educational sector, useful for students and career counsellors for taking career related decisions.

A. iAdvice

iAdvice is a Career Advisory expert system designed by Chathra Hendahwa et al. to guide students in higher education to determine their career paths and to select their course subjects to be in-line with their career goals

(Hendahcwa et. al. 2006). The system consist of three components which are: Knowledge base, inference Engine and User Interface. This expert system uses features such as reasoning ability providing explanations, alternative solutions, uncertainty forward chaining, backward chaining and rule based inference in designing expert system. This system is divided into two main subsystems i.e. career known subsystem and career unknown subsystem. The first subsystem provides advice to students who has specific career goal and second subsystem provides advice to students who is unclear about career objectives. Past examination performance, student preferences and skills, industry alignment with subjects, are the main factors considered by a human expert in providing career guidance.

B. PAS

Post Graduate Advisor Expert System (PAS) was proposed and developed by Al-ghamdi et. al. for advising post graduate students of computer science major to select suitable course during their PG programme. This system developed using WXpython language and Access Database. PAS consists of four components which are: DB, Processing unit, user interface and scheduler. Present system is desktop system and author aim to make a statistically study on pas to determine precision of the system in producing decent plans (Al-gharndi et. al. 2012).

C. CPSRS

Career Path Selection Recommendation System (CPSRS) was proposed and developed by Razak, Hashirn, Noor, Hazwam, and Halirn. The system was developed using fuzzy logic technique. CPSRS was designed for providing direction and guidance of suitable career selection to students, factors considered for career selection are student's strengths, skills and personality, interest, past academic records. The use of fuzzy logic approach helps students by giving career recommendations based on career test. They used fuzzy Associate Memory (FAM) as fuzzy inference because FAM will contain the knowledge from an expert that is believe to be able to reach nearly any sort of control objectives (Razak, Hashirn, Moor, Hazwam, and Halirn, 2014).

D. CACGS

Computer Assisted Career Guidance System (CACGS) is a career system which will help students from secondary to post-secondary students. It is an intervention and various print and media-based support resources that are used within schools to assist students in making career decisions (Adawiyah and Ismail, 2006).

E. CGM — (Career Guidance Model)

Winston and Lawrence developed expert system model (CGM) for African high school students. Survey was carried out by them to estimate the level of professional satisfaction with the task and nature of their career and also determine what career practices are carried out in Kenyan high school. It was found out that approximately 90% of public high school students in Kenya were

not getting reasonable career guidance due to limited resources and time. The proposed model consists of three sections, personality analysis, decision making regarding selecting specific job category (simulation of activity), and scholastic aptitude testing (SAT) for evaluating student's cognitive ability. The proposed system was designed using visual basic and access (Winston and Lawrence, 2000).

F. CMS — (Career Master System)

Balogun and Thompson presents development of career master system for career counsellors to assist students in selecting the right discipline for secondary school leaving students of Nigeria who have problems with their choice of careers as they intend to study at tertiary institutions of their choice. This career master system implemented using visual basic. This system is designed for counsellors, and the system recommendation were based on parameters like ability, skills, intelligent quotient, interests, parents and friends influence, preferences, parent Occupation and hobbies, past academic performance. For development of this career master system, the authors considers four databases subject. study. pass and course. The authors make sure that the system recommendations are correlated with counsellor recommendations. The system provide the desktop for the counsellor to enhance the duty of choosing the best and most appropriate discipline for students. (T3alogun. Thompson and State, 2009).

G. RULE BASED DECISION SUPPORT SYSTEM

Muhammad Zaheer, et al. presents the design and development of a proposed rule based decision support system that helps student in selecting the best suitable course and career decision while seeking admission into tertiary institutions. They designed the model using visual basic for testing and measuring the student's capabilities like intelligence, understanding, comprehension, mathematical concepts, his/her past academic records, and intelligence level. They divided the tests into two parts one for testing capabilities and abilities and another for testing intelligence. This decision support system identify the most suitable career for the student based on his abilities and capabilities extracted from the test module results. (Aslem and Khan, 2011).

2.9 STRENGTH OF COMPUTER ASSISTED CAREER SELECTION SYSTEM.

Computer assisted career selection system offer several advantages over off-line career interventions. These advantages are;

A. The system organize and present information and guidance activities in one convenient place, therefore reducing the amount of time school career counsellors would spend compiling and organizing these task

B. Students feel comfortable working on computers and understand the ways in which information is delivered via technology therefore making computer an appropriate intervention medium (Bobek, 2003).

C. The system assessment tools allow results to be shared immediately with students.

D. The systems' guidance activities may be stored in user accounts thereby creating a method to monitor students' progress. This information may be used to inform future career development activities. It could also be shared with others, such as teachers and parents, who play a prominent role in students career aspirations (Jlciwig, 2008).

E. It has the capability to assist career counsellors turn data into information (Katz, 1998).

F. Help student's understand their own career/academic aspirations.

G. Guide student on the right career choice.

H. Help students develop positive attitude towards work and learning

2.10 LIMITATIONS OF COMPUTER ASSISTED CAREER SELECTION SYSTEM

Some limitations of the computer assisted career selection s stem are:

A. Systems are limited in the type, quantity, and quality of information presented to students based on what information has been programmed and uploaded into the system (Snipes and McDaniels. 1981).

B. For some students the quantity of information may be overwhelming and contribute to confusion about career and educational related decisions.

C. Lack of counsellor intervention when it may be needed. Bobek (2003) recommends school career counselors help to students who are to interface with

the computer assisted career selection system, such as exploring a specified number of occupations.

D. Counsellor who do not have full knowledge on how to use a computer system (Katz, 1998).

E. Lack of competent computer systems in schools.

2.11 DESIGN APPROACH OF CAREER SELECTION SYSTEM.

In developing this application, the Object-Oriented Design Approach was adopted which is an evolutionary and iterative process that encompasses abstractions of the systems attributes and behavior using necessary tools such as Unified Modeling Language (UML). Like structured programming in legacy systems, Object-Oriented Programming (OOP) is used to manage the complexity of software systems. However, OOP technology provides several advantages to applications. OOP applications are easier to maintain, have more reusable components and are more scalable.

2.12 PROGRAMMING LANGUAGES THAT CAN BE USED FOR IMPLEMENTATION.

Below are some programming language that support OOP and can be used for implementing object oriented designs.

A. PUP and MySQL

The implementation of the system will use XAMMP Technology which has PHP and MySQL as part of the system. PHP programming language and MySQL offers lots of benefits that help the application to customize operations

running on a server, PHP will present the system in a real and fascination manner for the students and more importantly, it is robust for simple users. PHP as a programming language is increasingly being used in server technology. It is also a programming language model that is organized by objects and actions, data and logic. A good benefit of using P1W is that it can interact with many different database languages. P1W is a dynamically typed language. this means there are no hard rules on how to build features.

B. Visual Basic And Access

Visual basic is regarded as the third generation event-driven programming language. Visual basic programming language allows programmers to create software interface and codes in an easy to use graphical environment Visual basic is the combination of different components that are used on forms having specific attributes and actions with the help of those components. Compared to other languages, visual basic may be slower though, yet it is flexible and it can be said that things that are difficult in other languages are comparatively easier in visual basic programming language. With the release of version 4, Visual Basic added support for classes and class modules and in the process became an object-oriented programming language. One of the most important things to be considered with regard to programming in Visual Basic is that the structure of VB is designed in a way that allows programmers to create executable code Exe files. It enables programmers to develop programs that can be used as front end to databases.

C. C - Programming Language.

C is a middle level programming language developed by Dennis Ritchie during the early 1970s while working at AT&T Bell labs in USA. As a middle language. C combines the features of both high level and low level languages. It can be used for low-level programming, such as scripting for drivers and kernels and it also supports functions of high level programming languages. C is also a structured Programming language which allows a complex program to be broken into simpler programs called functions. It also allows free movement of data across these functions, and C language has a rich library which provides a number of built-in functions. it also offers dynamic memory allocation.

D. C++

The origin of C++ dates back to 1979 when Bjarne Stroustrup, also an employee of Bell AT&T, started working on language C with classes. It is a general-purpose programming. It has imperative object-oriented and generic programming features, while also providing facilities for low-level memory manipulation. C++ is a highly portable language and is often the language of choice for multiple-device, multi-platform application development. C++ is an object-oriented programming language and it includes classes, inheritance, polymorphism, data abstraction and encapsulation. C++ also has a rich function library, exception handling, and function overloading which are not possible in C programming language.

E. Java

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, specifically designed to have as few implementation dependencies as possible. It is intended to let application developers write once, run anywhere” (WORA), meaning that compiled Java code can run on all platforms that support java without the need for recompilation. Java applications are typically compiled to byte-code that can run on any java virtual machine (JVM) regardless of computer architecture. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

Java language derives is a key pillar in Android and open source mobile operating system. Although Android, built on the Linux Kernel, is written largely in C, the Android SDK uses the Java Language as the basis for Android applications. The byte-code language supported by the Android SDK is incompatible with java byte-code and runs on its own virtual machine.

2.13 SOFTWARE DEVELOPMENT PROCESS

In the software development process, the Top-down and Bottom-up approaches play a key role. Top-down approaches emphasize planning and a complete understanding of the system. It is inherent that no coding can begin until a sufficient level of detail has been reached in the design of at least some part of the system. Top down approaches are implemented by attaching the stubs in place of the module. This, however, delays testing of the ultimate functional units of a system until significant design is complete. Bottom-up

emphasizes coding and early testing, which can begin as soon as the first module has been specified. This approach, however, runs the risk that modules may be coded without having a clear idea of how they link to other parts of the system, and that such linking may not be as easy as first thought. Re-usability of code is one of the main benefits of the bottom-up approach. But Top-down methods were favored in software engineering until data.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

At this stage, analysis was carried out to study the performance and effectiveness of the current system. This work employs the top-down approach in its design. Here activities are divided into sub-divisions which can be handled separately and which are related logically to one another.

3.1 OBSERVATION

The following observations were made:

- A. The process of collecting information is tedious.
- B. The record keeping system is poor. Losses of vital records have been reported in the past consequently which always lead to career counsellors applying guess work in trying to guide students in their career selection. Besides, protecting the file system from unauthorized access is a problem that has defied solution.
- C. The process of report generation is inefficient. Sometimes vital reports have been delayed.
- D. Some students who are nervous or afraid to socialize, may or will not discuss their career problem with the career counsellor.
- E. The system also suffers from a very time-consuming retrieval of student information for academic purposes.

3.2 DETAILED ANALYSIS OF THE PRESENT SYSTEM.

In face of the unprecedented pace of changes worldwide with the advent of information technology and explosive growth of knowledge, our educational system aims to develop student's knowledge, adaptability, creativity, independent thinking and life-long learning capabilities so that they can be better prepared to make informed and responsible choices and thus be able to make the best of the opportunities ahead. Towards this end, most secondary schools in Nigeria adhere to the methodology of employing a staff(s) for the office of career counsellor, who will provide counselling in education, career, and personal domains to the students. He/she also assist the students to achieve greater self-awareness, develop a life/work direction, increase understanding of learning and work opportunities and become self-directed in learning, work and transition.

The career counsellor prepares a career guidance program for the students. This program incorporates two (2) sub-programs, which are; educational and vocational guidance program. The educational guidance program is concerned with all those activities that are related to the students' adjustment to his educational environment. There are three components of educational guidance. The first component relates to developing a favorable setting for the individual's education. This involves giving assistance to the new students to adjust to the new school, new teachers, new subjects and new regulations because these can be overwhelming to some students.

The second component of educational guidance service is concerned with recognition of individual difference and their relation to educational achievement. This means giving assistance to students to enable them to become aware of their abilities, special needs, interest and limitations. They are able to understand themselves and how their particular potentialities may be developed.

The third component of educational guidance relates to curriculum choices. A student with many abilities and interests may have difficulty in deciding which subjects will not be most meaningful for him/her in the long run. Therefore, such a student need assistance in understanding the relationship of his curricula choices to his career objectives.

Career guidance is primarily focused on helping a student answer the following question: “what career he/she will engage in?” with hundreds of new career available today because of the fast moving development in science and technology and international relations, coupled with a high rate of unemployment, the need for career guidance is critical. A student may face a conflict between his interests and his abilities. Therefore, career guidance is concerned with helping students understand the world of work and understanding themselves in relation to the world of work. It is also concerned with assembling information about many common occupations and less familiar jobs and recognizing the occupation in which they may find satisfaction and develop the fullest potential.

3.3 OBJECTIVES OF CURRENT SYSTEM

The existing system i.e. the manual career guidance counsellor system for secondary schools has some objectives which it aims to achieve, that irrespective of their abilities, orientations and level of study, students will be able to:

- A. Understand their own career/academic aspirations
- B. Develop positive attitudes toward work and learning
- C. Make career decisions in accordance with their interest, abilities, and orientations.
- D. Make responsible choices on their learning, career goals, and other aspects leading to a meaningful life.
- E. Adapt and manage the transition from school to work and
- F. Better prepared for actualizing individuals' potential through pursuit of their personal/career goals.

3.4 STRUCTURE OF EXISTING SYSTEM

The structure of the present system, which is the manual career guidance counselling system is represented in Figure below. This structure make it possible for the career counsellor to interrelate with each entity in the structure and information are also retrieved and delivered to the appropriate entity(s) involved.

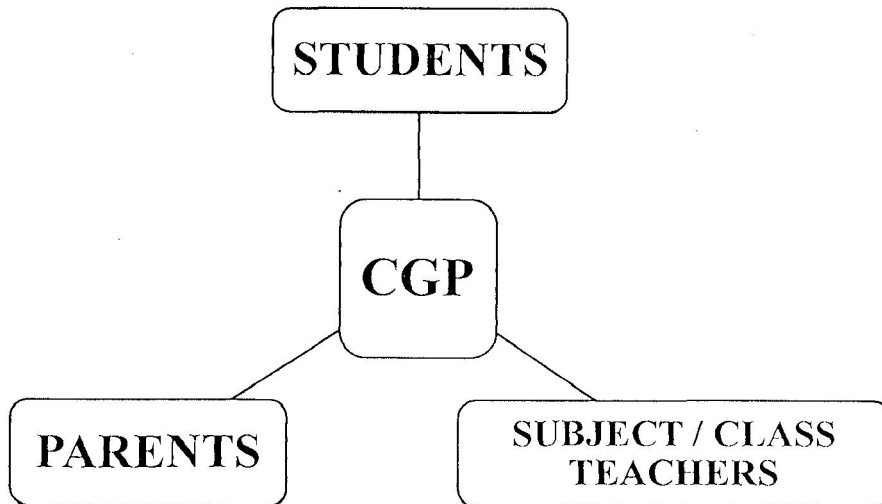


Figure 1: Structure of the Manual Career Guidance System.

3.4.1 Areas of Responsibility of the CGP

Career guidance personnel's has an important role to play in student's whole-person development. given the vital need to cater for diverse student learning abilities/aptitudes, the flexibility of subject choices, and the inclusion of career related experiences. The key areas of responsibilities of the CGP are shown in the figure below

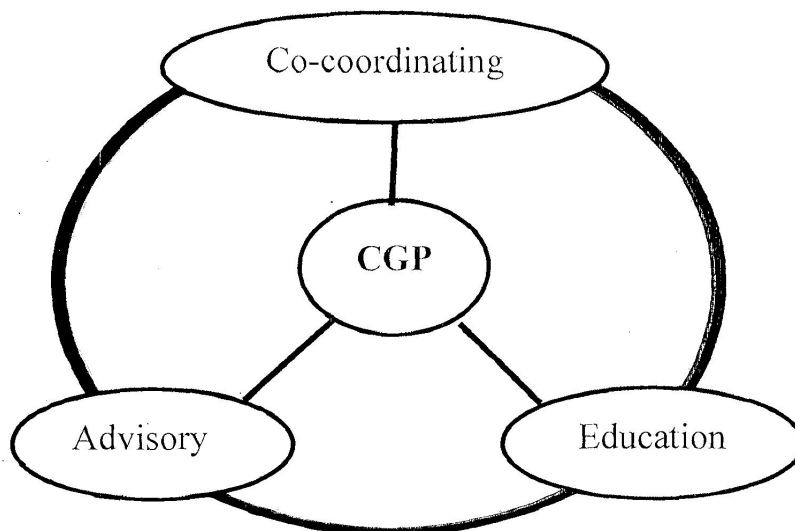


Figure 2: Area of Responsibility of the CGP.

A. Co-ordination:

The COP collect, update and disseminate effectively all kinds of career information to support students, parents, and teachers in career guidance and selection services (e.g. in the formulation of senior secondary subject option plan) and also to forge strong partnership with parents, teachers, and students.

B. Advisory:

The COP advice students individually and in groups, identify their career development problems and needs and coach them to find, develop and review their personal plans and career goals. They also advice students in their career related experiences and develop appropriate work attitude.

C. Education:

The COP draws up a relevant and timely career guidance programmes for the students, conduct career assessment and helps the students in subject selection according to each student capability.

3.5 ANALYSIS OF THE PROPOSED SYSTEM.

The Career Selection System (CSS) is an automated career selection and information application for secondary students. It is an expert system that aids secondary students and career counsellors to carry out career guidance and selection. The system also keep the students career records for easy retrieval, modification and update. The career selection system (CSS) provides the following functions:

A. Provides the users with a graphic user interface input.

B. Fast access, modification, update and retrieval of career and educational records of each user.

C. Users get instant, almost real time career results.

B. Provide aid or guide for career counsellors in secondary schools.

The proposed career selection system (CSS) is made up of two major sections:

A. Front end: which includes the interface design and the logical design using JAVA programming language due to its high object oriented programming advantage (OOP). The front end view of the proposed system is given pictorially in the figure below:

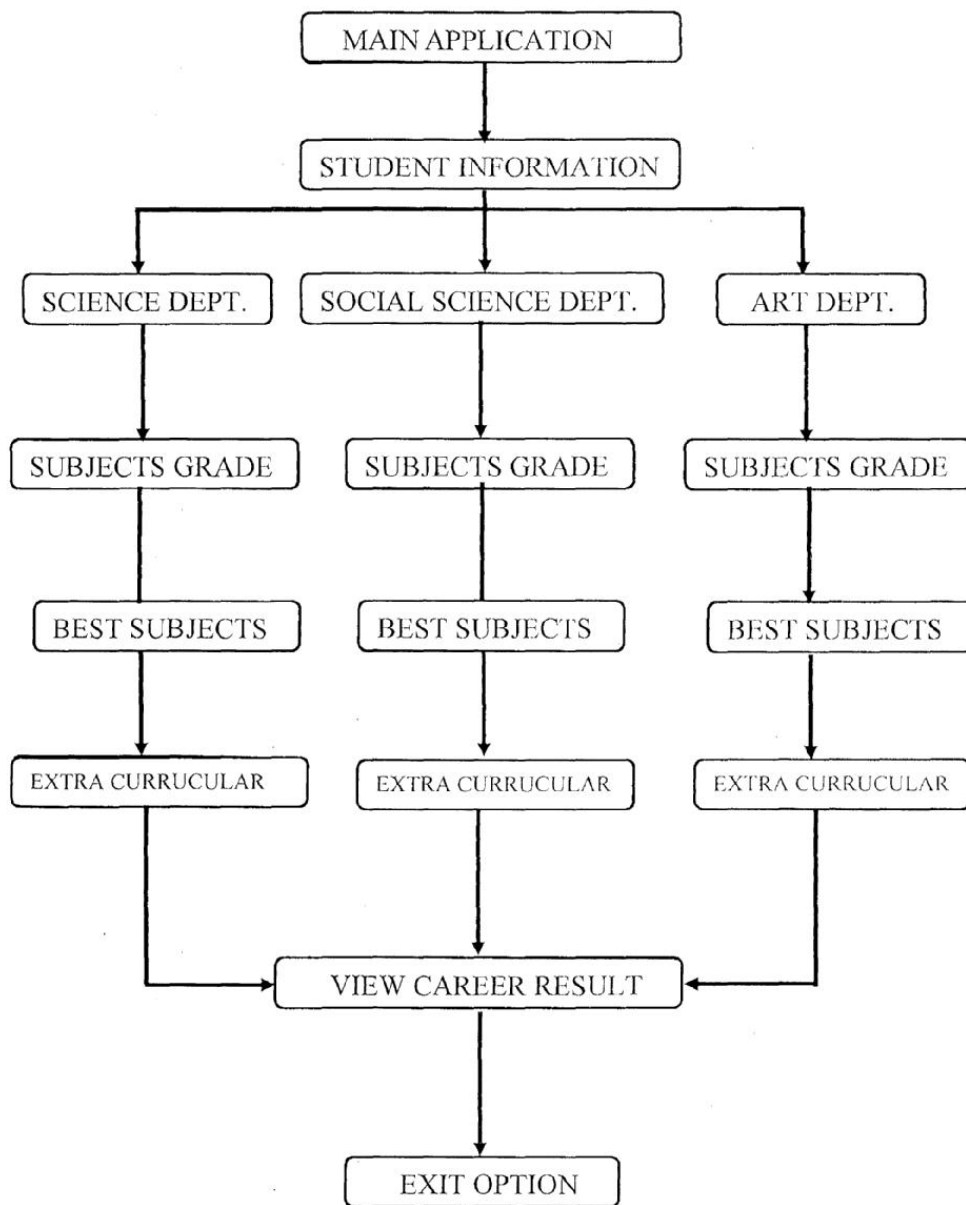


Figure 3: Front End of the Proposed System.

B. Back end (database design): which includes the database design of the system and schema design where each students' information (first and last names, gender, date of birth, email, department grades, best subjects, extra-curricular activities, and recommended course) will be stored for future

references and easier retrieval. The implementation of the database will use XAMMP Technology which has MySQL as part of the system. MySQL offers lots of benefits that help application to customize operations running on a server.

3.5.1 AIM AND OBJECTIVES OF PROPOSED SYSTEM

The new system, which is computerized, has so many benefits that will obviate the problems inherent in the current system. The need of this new system cannot be over emphasized as it aimed at achieving the following objectives:

1. Accuracy of Computation: Measures of accuracy will be achieved since the computer system will maintain stability in response to students or career counsellors request based on assessment and making accurate calculations.
2. Reduced Use of Paper: Computerization gives room for production of a very neat job. The vast volume of paper which is used in keeping/storing information will no longer be indeed
3. Reduction of Cost: The computerized system will reduce the cost of operation of constant production of forms and register for keeping or storing student's information.
4. Quick Retrieval of Information: The computerized career selection system will create room for fast retrieval of information, which is an advantage over the manual career selection system.

5. Report Generation: The computerized career selection system (CSS) eliminates the problem of delayed report generation created by the manual career selection system. The new system generate reports almost in real time.
6. Accuracy: with this new system handles the students' data with upmost accuracy, not providing room for mismanagement of students' information.
7. Flexibility: The computerized career selection system makes students information to be accessible at any time, unlike the manual career selection system that make access of information tedious.
8. Speed Optimization: The new propose system will eliminate the problem of time wasting in getting the information of a particular students and selecting a particular right career for that student, which is an advantage over the manual system.
9. Error Handling: With the proposed career selection system, humar error due to bias or emotional attachment in selecting a right career is greatly reduced, because of the flexibility of the proposed computerized system.
10. Aid for Career Counsellors: The use of the system aid the career counsellor in providing the right information to students, and it also ease the problem of information gathering about a particular student usually encountered by career counsellors.

3.6 DESIGN OF THE PROPOSED SYSTEM

The process of software design involves the detailed specification of data objects, output to be provided, input data to be captured, storage format, system

interface and finally specification of various data manipulation procedures, which should be implemented as codes. The data objects include the type of data used in the application and their descriptions. These student's data would be stored in the student database.

In the analysis of this project, the UML (unified modeling language) is being used. This is an important tool in system development, it enables system developer create blue print that capture the vision of the new system in an easy to understand way. UML is a standard modeling language with its methodology based on object oriented analysis and design. It consist of a number of graphical elements that combines to form diagrams. These diagrams present multiple views of a system. It's important to note that UML model describes what a system is supposed to do. Some commonly user terms in UML includes:

A. Class Diagram: These are diagrams that shows how classes relate to each other. They provide representation that the developer can work from. The class diagram also illustrate data models for information systems, create detailed charts that focus on the programming code needed to implement the described structure, and also help in the understanding of the general overview of the application's schematics. They are very important during analysis.

B. Use Cases: It is a collection of system behavior from the user's standpoint. It describes how a system looks to its user. It is a technique of gathering system requirement. It consists of an actor and the use case. It is crucial in the analysis

phase of system development because it describes how a user will use the system.

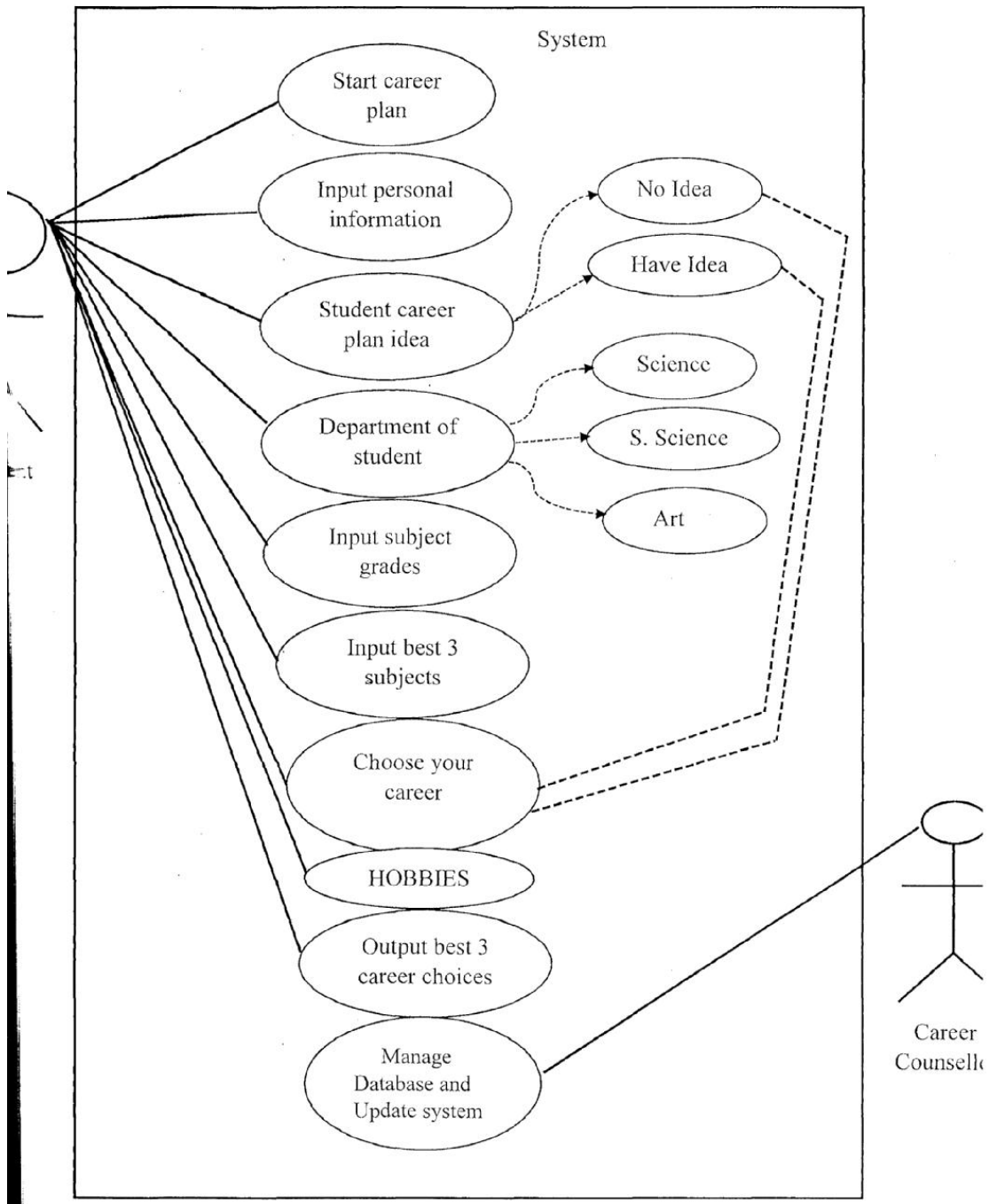
C. Actor: Represents whoever or whatever (person, machine, or other) interact with the system. The actor is not part of the system itself and represent anyone or anything that must interact with the system to input information to the system and receive information from the system.

D. Sequence Diagram: A sequence diagram is an interaction diagram. It deals with sequence of messages flowing from one object to another. The sequence diagram has two dimensions: the vertical dimension show the sequence of messages in the time order that they occur; the horizontal dimension shows the object instances to which the messages are sent.

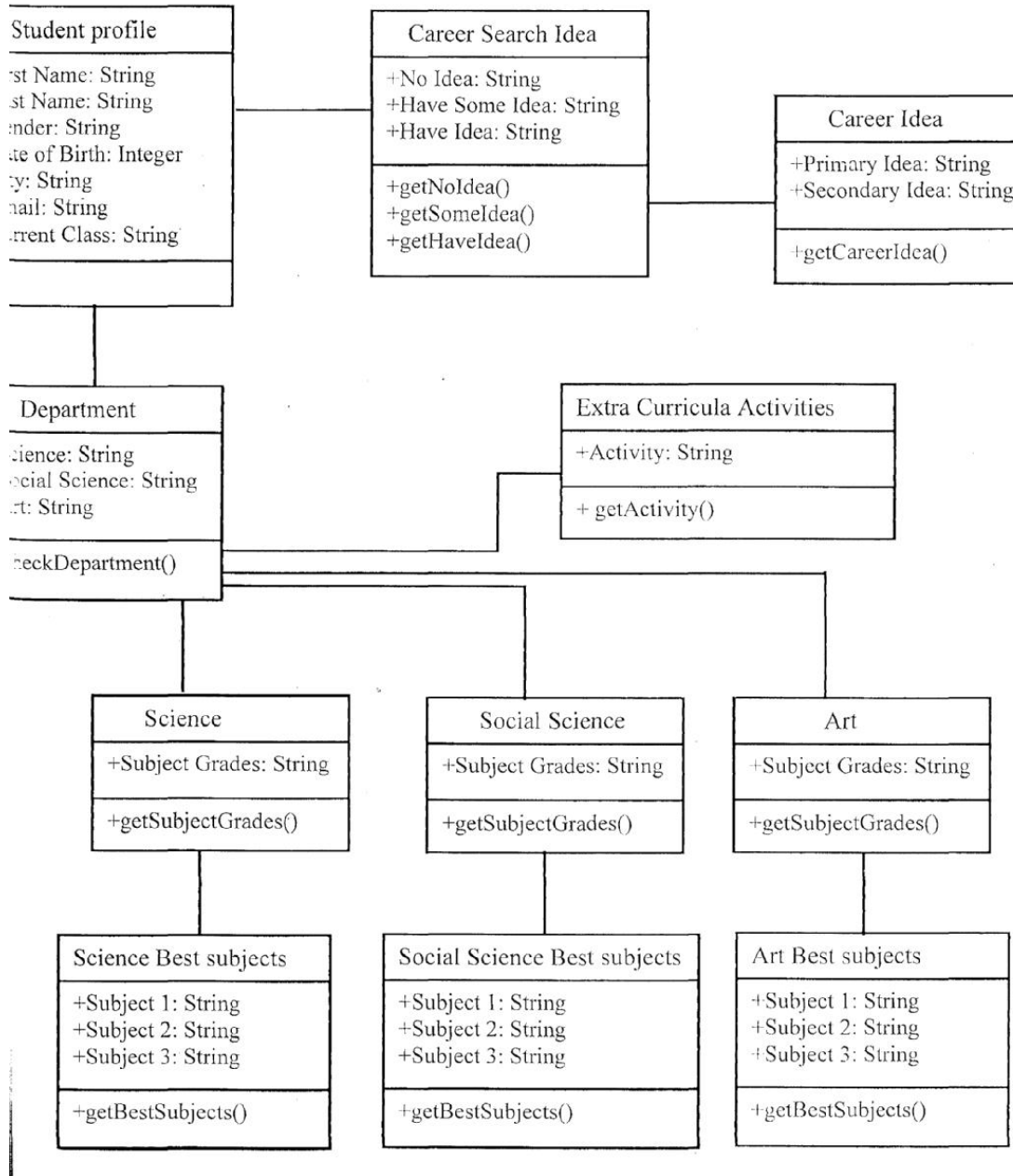
E. Relationship: This completes a system developer's knowledge about classes and how they are connected.

F. Activity Diagram: This is similar to a flow chart i.e. they both show steps, activities, as well as decision points and braches. It describes the flow of control in a system, the logic of an algorithm, the steps performed in a UML USC case, and it improve any process by clarifying complicated use cases. It can be sequential concurrent or branched.

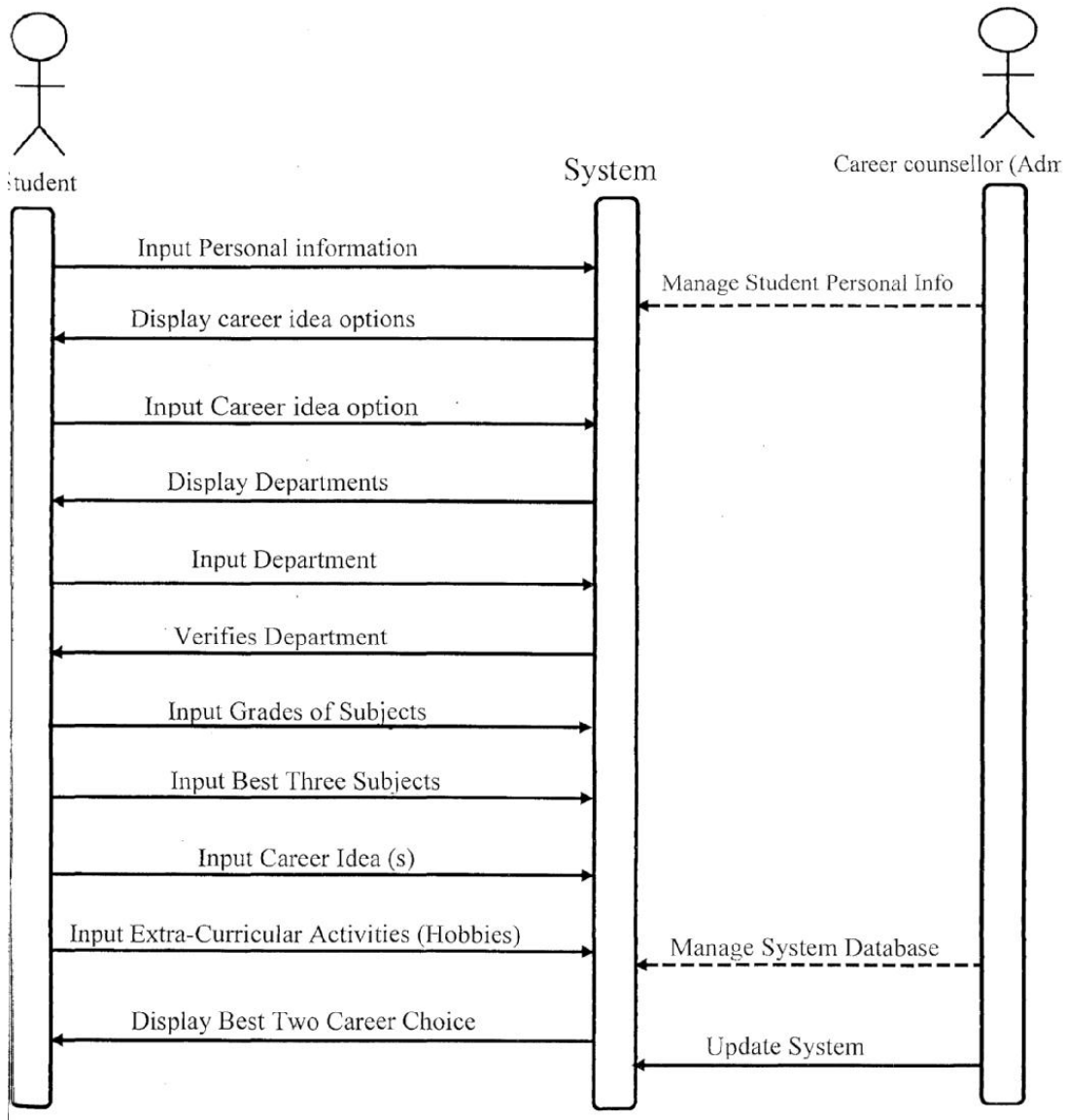
USE CASE OF PROPOSED SYSTEM



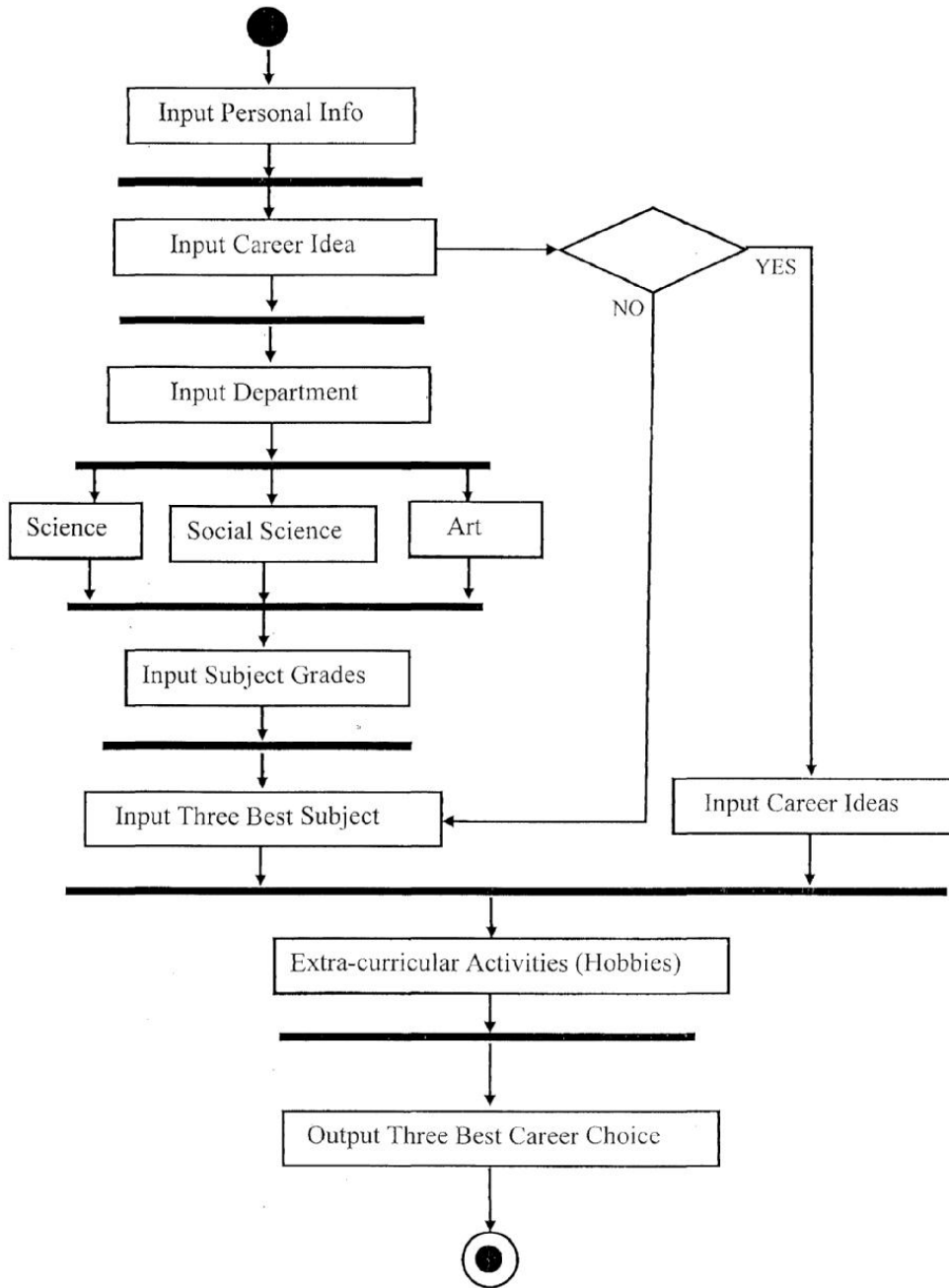
CLASS DIAGRAM FOR THE PROPOSED SYSTEM



SEQUENCE DIAGRAM FOR THE PROPOSED SYSTEM



ACTIVITY DIAGRAM FOR THE PROPOSED SYSTEM



3.6.1 INPUT DESIGN

In designing the program input, the forms were designed in such a way as to make it easy for the user to use. The input design approach considered the definition of the input (what data must be put in the system), the sources of the data (where the data comes from) and method of data capture (how to get the data into the system).

All data required by the new system are to be entered via the keyboard at authorized terminals. Verification of the data is carried out before input by a student this ensures that every data keyed— in agrees with what is contained in the source documents. The input was designed to ensure the following:

- i. Accuracy (Correctness)
- ii. Scheduling (having the data ready for processing on schedule)
- iii. Security (safety of the data)

The input design contain the following forms:

1. The Student Profile: This is the form in which each student must fill his/her personal information (first name, last name, gender, date of birth, city where he or she lives, email address and current class). In this form authentication and verification is placed on every field to ensure correctness of data entry.
2. Career Search Idea and Department: This is the form in which each student will input through a radio button his/her knowledge of which career to venture into after school. The form presents three options (student with no idea, student with an idea but are not sure about it, and student who are very sure about the

career he/she want to venture into) with a radio button, to ensure single selection only. Also in this form, student will also input which department (Science, Social Science or Art) he/she is.

3. Course Grade: In this form, the student inputs the grade he/she she gets in each subject.

4. Best Subjects: This is the form where the student will have to choose his/her best subject and how many percent he/she enjoys the subject.

5. Career idea: This form is only visible to students who choose that they have idea and not sure about their careers and are sure about their careers hut not to students who don't have idea about their career. In this form, the student are to input their primary and secondary career they think they want to venture into.

6. Extra-Curricular Activities (Hobbies): This is the form where the student will have to that extra-curricular activities he/she loves doing in spare time. This form helps the student to select a career that is connected with his/her special abilities or hobbies.

Below are some figures of the input designs:

The screenshot shows a web browser window with the CareerFits logo at the top. Below the logo is the heading "STUDENT PROFILE INFO" and the text "We want YOUR result to match YOUR career interest". The form contains several input fields: "First Name:" with a text box, "Last Name:" with a text box, "Gender:" with radio buttons for "Male" and "Female", "Date of Birth:" with three dropdown menus (day: "1", month: "January", year: "1950"), "City:" with a text box, "Email:" with a text box, and "Current Class:" with a dropdown menu showing "S.S.S.1". At the bottom of the form is a button labeled "Continue to next Page".

Figure 4: The Student Profile Form.

The screenshot shows a web browser window with the CareerFits logo at the top. Below the logo is the heading "What best describe your career search" followed by three radio button options: "I have NO idea", "I have SOME ideas but am not completely sure (Seeking Verification)", and "I know what career i want to venture into". Below this is the heading "What Department are you?" followed by three radio button options: "Science", "Social Science", and "Art". At the bottom of the form is a button labeled "BEGIN ASSESSMENT" and a link labeled "Previous Page".

Figure 5: Career Search Idea and Department Form.

CareerFits

COURSE GRADES
How well did you do in the following courses

ENGLISH	N/A	A	B	C	D	E	F
MATHEMATICS	N/A	A	B	C	D	E	F
AGRIC. SCIENCE	N/A	A	B	C	D	E	F
BIOLOGY	N/A	A	B	C	D	E	F
CHEMISTRY	N/A	A	B	C	D	E	F
ECONOMICS	N/A	A	B	C	D	E	F
FURTHER MATHS.	N/A	A	B	C	D	E	F
GEOGRAPHY	N/A	A	B	C	D	E	F
PHYSICS	N/A	A	B	C	D	E	F
TECH. DRAWING	N/A	A	B	C	D	E	F

Continue to Next Page

Figure 6: Course Grade Form.

CareerFits

EXTRA CURRICULAR ACTIVITIES
Select One Non-Course Activity that you are most likely to engage in during you free time

- Aviation
- Computer
- Computer Programming
- Computer Graphics/Games
- Construction/Building/Drawing
- Electrical/Electronics
- Mathematical Activities
- Medical Activities
- Mentoring/Teaching
- Outdoor Activities/Camping
- Technology Clubs
- Water Activites

Show Results

Figure 7: Extra-Curricular Activity Form.

3.6.2 OUTPUT DESIGN.

The reliability and acceptance of a system is determined by its output. For this project the output design is simple. Based on the inputs of the user, the system output two recommended careers in which the student due to his/her educational abilities can excel in. the output design can be represented pictorially below:

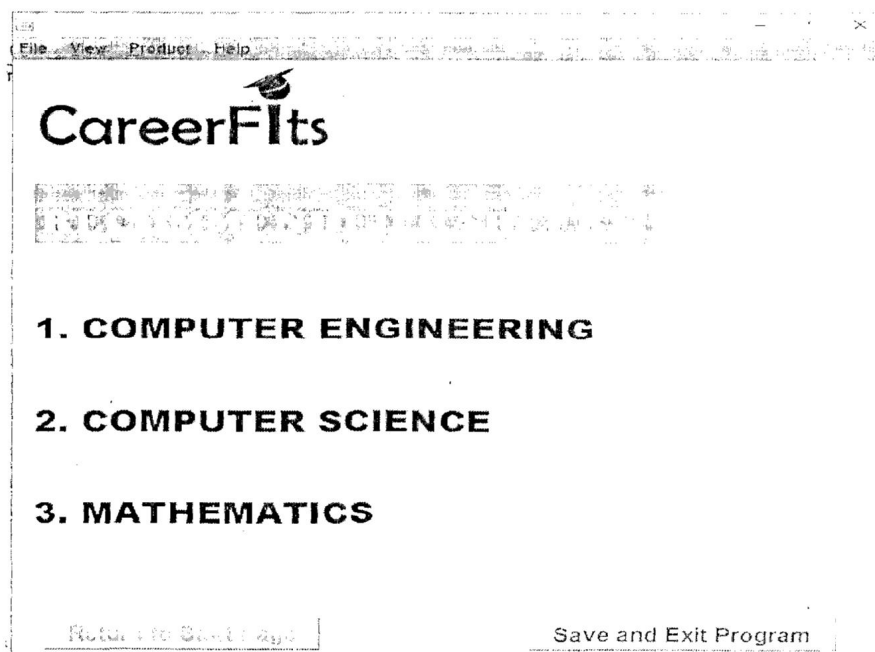


Figure 8: Recommended Careers Output Form.

CHAPTER FOUR

IMPLEMENTATION AND DOCUMENTATION

4.1 SYSTEM IMPLEMENTATION.

A beautifully design system may fail to meet its objectives, if it is not carefully implemented. System implementation follows the approval of the system proposals and its objectives, thus it is to arrive at a satisfactory, completed, and evaluated automated system. The implementation phase, which get the new system up and running is discussed under the following headings: The system requirement, program documentation, program design, choice of development tools etc. The system basically comprises of two important modules, maintenance and data process modules.

4.1.1 MAINTENANCE MODULE

This module is associated with the career counsellor department, this module deals with the addition of new careers to the system, updating and deletion of outdated careers, adding new improved information and criteria for old and new careers. This module is very important because it keeps the system up to date the current evolution of the world and it help student who are not up to date with the current changes done on old and new careers.

4.1.2 DATA PROCESS MODULE

This module is only accessible to career counsellors. In this module the activities performed by the career counsellor are, updating the student's personal ad educational information on the database, correction of wrong input

by students which can affect output correctness, insertion of new students, and deleting old students from the database.

4.2 DOCUMENTATION

The program interface was designed with Eclipse IDE for java developers, using commonly java codes, with XAMMP technology which has MySQL as part of the system as the database provider. The application is called Career Fits, and it is menu and button driven, having several form as interface. The application can work on system with current version of Windows and Macintosh operating system. In such system the XAMMP technology must be installed to enable the database services.

4.3 EXECUTING THE APPLICATION

To execute the application, it should have been installed on the system program files. After installation, the program files is located, on the program file the Career Fits folder is located and clicked on. When the application is clicked on the main form is displayed. The diagram of the main form is displayed in figure below. When the main form is displayed, all the student have to do is to click on the Start Your Career Plan button to start accessing the application.

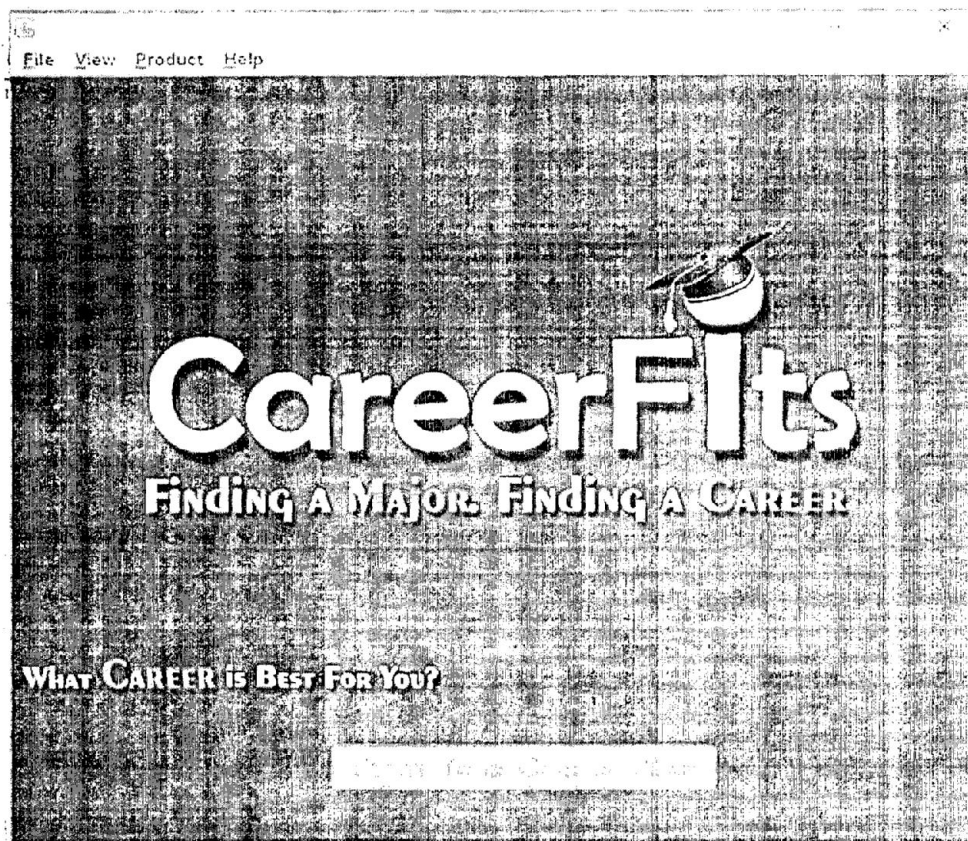


Figure 9: Main form of Career Fits.

4.4 SYSTEM REQUIREMENT

The application can be implemented on a computer system with some specific requirements. These requirements can be viewed in the following headings:

4.4.1 SOFTWARE REQUIREMENT

If the operating system installed on the computer system is Windows, the Windows version of operating system ranging from Window XP and above is preferable since it can support the XAMMP technology. While if the operating

system installed on the computer system is Macintosh the Mac OS x Tiger and above is preferable.

4.4.2 FUNCTIONAL REQUIREMENTS

The following will also be required for effective functioning of the system:

I. Uninterrupted Power Supply (U.P.S): This serves to guarantee protection against intermittent electric supply.

II. Sufficient RAM space: The computer system which the CarcerFits is being installed should have sufficient RAM space, to enable the application to run efficiently. Less RAM space in a computer system can hinder an application from achieving its full potential.

III. An Anti-virus software: It is important that an anti-virus application is installed on the computer system to protect the CareerFits application from virus that can limit the potential of the software.

IV. Authorized personnel: this personnel oversee all the proceeding of the software and gives advice where necessary.

4.5 PROGRAM DESIGN

The program design of the new system employs the modular programming paradigm, which breaks down the programming task into a number of small separable compiled components called modules (presented as forms). Each module can be tested as a unit and also as an integrated whole.

4.6 TESTING

Testing is the last stage in the software development and in present an interesting anomaly for the software engineer where he/she attempts to build a software from an abstract concept to a perceptible/tangible product. During testing, the engineer expose the software to real life scenarios by creating series of Test cases to discard preconceived notions of the “correctness” of software just developed and overcome a conflict of interest that occurs when error are uncovered. As a secondary benefit, testing demonstrates that the software functions appear to be working according to specification, that behavioral and performance requirements appear to have been met. Testing the software follows a certain process as shown below

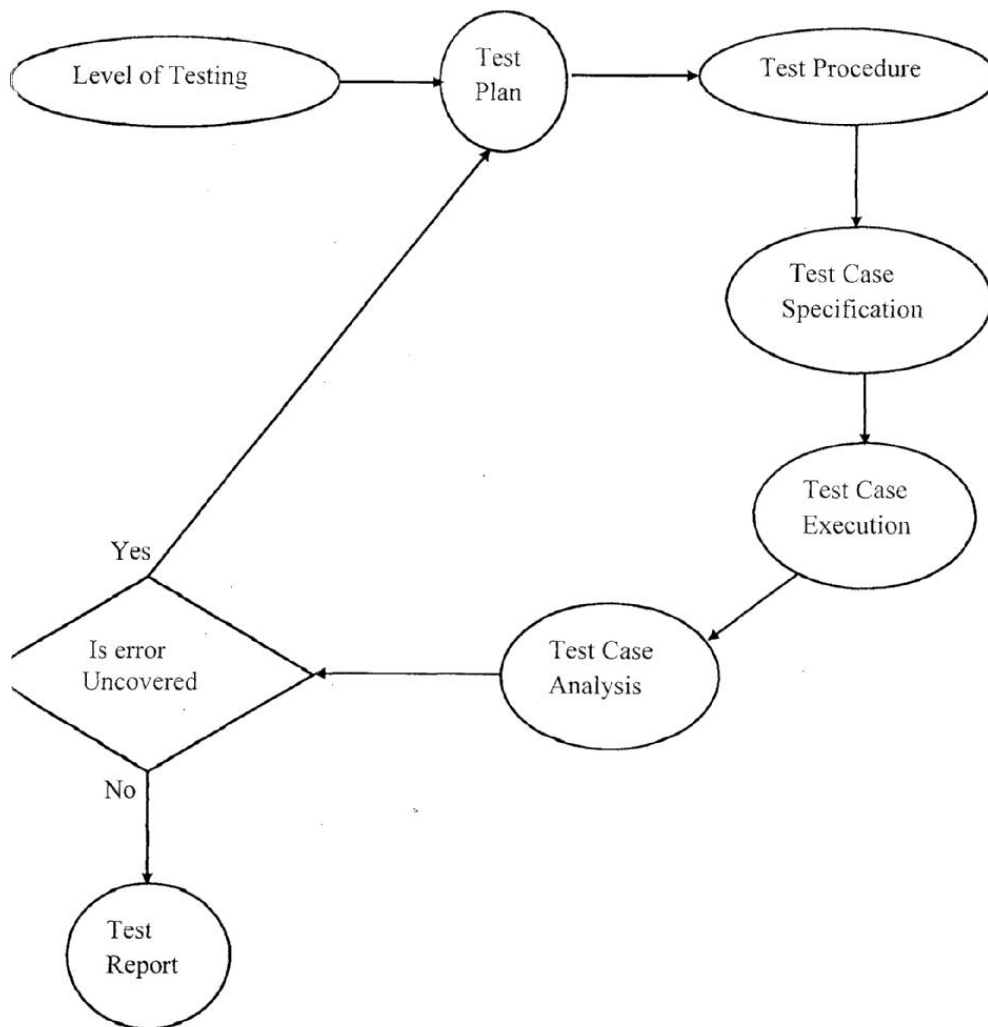


Figure 10: System Testing Process

4.6.1 UNIT TEST

Each unit of the new system individually using JUnit in order to identify errors, if the particular unit meets its user requirements and areas of further enhancement. Junit is a unit testing framework designed for Java Programming Language. Junit has played an important role in the development of test-driven

development frameworks. Junit is linked as a JAR at compile-time and can be used to write repeatable tests.

4.6.2 SYSTEM (INTEGRATION) TEST

This type test is where we try to know how well the various units works together. The entire system was tested (test run) in general in other to identify errors in units, if the system meets it user requirements, and area if further enhancement and development. We use the Arquillian testing tool to do the general system integration test. Arquillian is a highly innovative and extendible testing platform for JVM (Java Virtual Machine) that allows developers to easily create automated integration, functional and acceptance tests for java. Arquillian allow you to run test in the run- time so you don't have to manage the run-time from the test.

4.7 CHOICE OF DEVELOPMENT TOOLS

To ensure a standard object oriented program in its ramification, java programming language and XAMMP technology which has MySQL embedded in it was used.

CHAPTER FIVE

SUMMARY. RECOMMENDATION AND CONCLUSION

5.1 SUMMARY

Career assessment are tests that come in a variety of forms and rely on both quantitative qualitative methodologies. Career Assessment can help individual identify and better articulate their unique interests, values and skills. Career counsellors often administer career assessment to aid Secondary School students focus their search on careers that closely match their unique personal profile.

Having developed a computerized Career Selection system which has the capability of selecting careers for senior secondary school students (SS1-3). This system is dependent on the student educational and vocational ability, students' self-knowledge. students knowledge about his/her career want to go into and students' extra-curricular activities. The system is independent of parent's advice or influence, peer group pressure, environmental constraints, finance constraints, and teachers influence. With this system on board the major problem of Nigerian secondary school student in making the right and best career choice will be minimized and it will also check the problem of unemployment because the students will be well informed about their future beforehand.

The system can be deployed in any of the Nigerian secondary school with the office of the career counsellor for the best career selection and guidance for the senior secondary students.

5.2 RECOMMENDATION

Career counselling should be taken seriously in Nigeria, in which every secondary school must have an office of a career counsellor. Also counselling application should be online for easy accessibility by everybody, this will help them to be counselled online. As technology improves, different kind of changes occur and this changes brings about new and improved careers, putting this into consideration the researcher recommends a fast implementation of this software by secondary school career counsellors to enable them perform their work efficiently and keep the students informed.

5.3 CONCLUSION

An objective form of career selection is through guess work, parental and peer pressure, financial and environmental constraints. Now career selection can be done effectively using computer software. The software provides insightful and objective information about which career may be suitable for the user (student) on combination of interest, academic and vocational abilities and skills. Career selection and guidance counsellor is an essential in all secondary school. Every student needs to be properly guided and counselled to aid him/her select the best career in his/her own interest to develop a good future. Developing a computerized system for career selection will help improve the mode of career selection by making it easier more accurate and reducing stress involved.

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APPENDIX
(Program Flowchart)

PROGRAM FLOWCHART

