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SCHOOL OF COMPUTING AND INFORMATICS

COURSE: BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

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PROJECT TITLE: CAREER & ATTACHMENT LINKING SYSTEM

This project proposal is submitted partially fulfillment of the requirement for the Meru University of Science and Methodology award of bachelor of science in information technology.

# **DECLARATION**

This research project is my original work prepared with no other than the indicated support and has not been presented by anyone

Student Name………………………………………………… Reg No …………………………

Sign ………………………………………….. Date …………………………………………….

Supervisor ……………………………………… Sign ……………………………………………

# **ACKNOWLEDGEMENT**

Though it is neither possible nor practical to thank everyone who has assisted us

In the course of writing this research proposal, minimal acknowledgment is inevitable.

First and foremost, I thank the Almighty God for granting me this opportunity to

effectively come up with a comprehensive research proposal.

Secondly, I warrant a special recognition to our esteemed supervisor, Mr. Mwenda Gichuru (MUST). He granted me the opportunity to work on this task which I duly worked on.

Finally, the research wishes to absolve all individuals mentioned herein for any error,

omission or commission and therefore the research remains solely responsible.

# **ABSTRACT**

In the evolving landscape of higher education, students in universities and colleges encounter significant challenges as they transition from classroom learning to practical, real-world experiences through internships or attachments. This transition represents a critical juncture in their educational journey, allowing them to apply theoretical knowledge in tangible settings. However, these students grapple with the complexities of securing suitable attachment opportunities. They face limited access to organizations, the absence of a centralized platform, and the mismatch between students' aspirations and available options. This abstract encapsulates the essence of the Career & Attachment Linking System, a transformative solution designed to address these multifaceted challenges. This comprehensive platform is engineered to streamline the attachment placement process, ensuring that students and organizations seamlessly connect and collaborate. By bridging the gap between education and industry, this innovative system not only benefits students but also empowers educational institutions to better prepare graduates for their careers, contributing to economic growth and advancements in the educational sector.

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# **CHAPTER ONE: INTRODUCTION**

## **Overview**

The journey from classroom learning to practical internships and attachments is a critical transition for students in universities and colleges. This juncture marks the intersection of academic knowledge with the real world, where theory transforms into practice. However, this educational shift is not without its challenges. Students often grapple with the daunting task of securing valuable attachment opportunities. These challenges are further compounded by the absence of a centralized platform for connecting students with opportunities and the difficulty of securing placements that align with their career goals.In recognition of these complex challenges, this research embarks on the development of a Career & Attachment Linking System. This innovative platform is designed to streamline the attachment placement process, making it more accessible and efficient for students to connect with organizations. It features a user-friendly design, tools for effective communication, robust data security measures, and a means for students to share their learning experiences. The ultimate goal is to empower students to find attachment opportunities that align with their career goals while also aiding educational institutions in bridging the gap between academic knowledge and practical industry experience.

## **Background of the Study**

Students in universities and colleges go through a crucial shift from classroom learning to practical internships and attachments. This shift is where their academic knowledge meets the real world, but it's not without its challenges. Students often struggle to find valuable attachment opportunities, there's no central place to look for them, and it's hard to secure placements that match their career goals. To address these complex challenges, this research is developing a pioneering Career & Attachment Linking System. This platform aims to streamline the attachment placement process, making it easier for students to connect with organizations. It will have a user-friendly design, tools for effective communication, robust data security, and a way for students to share what they've learned. The ultimate goal is to empower students to find meaningful attachment opportunities that align with their goals and help educational institutions bridge the gap between academics and the working world. This research aims to enhance individual career development and advance the educational sector as a whole.

## **1.2 Problem Statement**

In the current educational landscape, students encounter some challenges transitioning from theoretical learning to practical experience through internships or attachments. Existing systems struggle to provide suitable opportunities, leading to difficulty in securing placements, an absence of centralized platforms for connections, and mismatches between students' aspirations and available options.

To address these complexities, a proposed solution emerges in the form of a Career & Attachment Linking System. This innovative platform aims to simplify the attachment process by leveraging technology to streamline opportunity acquisition for students. By centralizing opportunities and aligning them with students' career aspirations, this system promises to bridge the gap between education and industry needs, facilitating a smoother transition into professional roles.

## **Objectives**

### **1.3.1 General Objective**

The main objective of this research is to develop a Career & Attachment Linking System.

### **1.3.2 Specific Objectives**

1. Develop a user-friendly interface for the Career & Attachment Linking System.
2. Facilitate seamless communication between students and organizations within the platform.
3. Ensure basic data privacy and security measures within the system.
4. Assess and improve the usability of the system based on user feedback.

## **1.5 Research Questions**

1. How can an intuitive user interface be designed for our Career & Attachment Linking System to ensure user-friendliness and accessibility?
2. What tools and technologies should be incorporated to facilitate efficient communication between students and organizations within the system, streamlining the interaction process?
3. What measures and technologies should be employed to guarantee the data privacy and security of user information within the Career Attachment Platform, fostering trust and confidence?
4. How can user feedback be systematically harnessed to continuously enhance the system, creating a dynamic and user-centric platform?

## **1.6 Significance of the Study**

This research holds considerable significance for various reasons. Firstly, it aims to enhance student opportunities by providing a centralized platform that streamlines the attachment placement process. As a result, a more extensive student population can access relevant and meaningful attachment opportunities, thereby aligning their academic and career aspirations. Secondly, the proposed system has the potential to serve as a model for other educational institutions, extending its benefits to students across the educational sector. Thirdly, the research contributes to the crucial issue of graduate unemployment by preparing students for their careers more effectively, thereby supporting economic growth. Finally, this study introduces innovative, technology-driven solutions to address real-world challenges in the educational sector, fostering a culture of innovation and progress.

## **1.7 Scope of the Study**

The study's scope is comprehensive, focusing on the design and development of the Career &Attachment Linking System, which aims to facilitate attachment placements for students in universities. This scope encompasses various key elements, including the technical aspects of platform development, such as user interface design, database management, and communication tools. Furthermore, the study explores the user experience through rigorous usability testing and feedback collection. It also considers the potential for cross-institutional collaboration, allowing multiple schools to benefit from the system. Additionally, industry integration is a significant component, offering more attachment opportunities and aligning the platform with industry needs. The system's design factors in global scalability, envisioning its potential use by students from various institutions, nationally and globally. To ensure inclusivity and accessibility, the platform will be designed to cater to a diverse range of students. Lastly, the study not only focuses on system development but also includes considerations for sustainable deployment and scalability, ensuring the system's long-term effectiveness and positive impact on the university community and beyond.

# **CHAPTER TWO: LITERATURE REVIEW**

## **2.0 Overview**

This chapter explores the significance of practical experience, the challenges encountered by students, and existing systems and solutions designed to bridge this crucial gap. Furthermore, it delves into the role of educational institutions and their collaboration with industries, setting the stage for the introduction of the proposed Career & Attachment Linking System.

## **2.1 The Transition from Education to Practical Experience**

Practical experience, notably through internships and attachments, holds a significant role in bridging the often-substantial gap between the theoretical knowledge acquired in the classroom and its application in the actual work (Dondofema et al., 2020). These experiential opportunities serve as a critical component of the educational journey, offering several key benefits to students. It contributes significantly to skill development, serves as a vital element of career preparation allowing students to make informed career decisions and finally it improves students' employability. Graduates with a robust background in practical applications of their knowledge tend to be more attractive to employers, as they often possess the skills and confidence needed to excel in their roles.(Spanjaard et al., 2018).

Despite its significance in education, students encounter challenges as they make this transition (Dasmani, 2011). These challenges often present substantial barriers to securing meaningful attachment opportunities and include limited access to these opportunities and the existence of a significant mismatch between the opportunities available and the career aspirations of students. This mismatch poses a significant challenge, as it can lead to disillusionment among students and hinder the development of a clear and coherent career path. Understanding these challenges is crucial, as they provide the context in which the proposed Career & Attachment Linking System aims to operate, offering solutions to address these obstacles and enhance the overall transition experience for students.

## **2.2 Existing Systems and Solutions**

One approach to addressing the challenges faced by students during their transition from education to practical experience is the development of centralized platforms designed to facilitate attachment placement (Matsika & Zhou, 2021). These platforms act as intermediaries, connecting students with attachment opportunities offered by various organizations. A review of these centralized systems reveals their potential in streamlining the attachment process for students. This subsection assesses the structure and functioning of such platforms and examines their effectiveness in addressing the challenges identified earlier

Communication tools and features embedded within attachment systems play a pivotal role in shaping the overall experience of students. This system will use various tools and functionalities incorporated into attachment platforms, such as messaging systems, notifications, and matching algorithms. It explores the impact of these tools on user experience, focusing on their role in facilitating efficient communication in the system (Simin Ghavifekr et al., 2015).

Data privacy and security explores into the critical aspects of data protection within existing platforms. It discusses the importance of safeguarding user information and maintaining the confidentiality of attachment-related data (Hawamleh, 2020). By evaluating the measures and technologies employed by these systems to protect sensitive information, we can assess their commitment to ensuring data privacy and security. The system will explore in use of different techniques like encryption and secure communication, user authentication and access control to ensure data is protected from unauthorized access.

## **2.3 Bridging the Gap Between Education and Industry**

The role of educational institutions in the career development of students is multifaceted and crucial. This subsection examines the various ways in which educational institutions contribute to the preparation of students for their future careers (V. Vijaya Lakshmi Et Al., & TJPRC, 2018). It explores into the best practices employed by these institutions in areas such as curriculum design, career counseling, and fostering the skills needed for successful transitions to the workforce. By exploring the efforts and strategies employed by educational institutions to guide students effectively, we gain insights into the means by which they bridge the gap between education and industry, setting the stage for the proposed Career & Attachment Linking System's integration into this educational ecosystem.

Collaboration between educational institutions and industries is a dynamic and evolving partnership that significantly impacts students' practical experience and their readiness for the workforce (Thang Quyet NGUYEN & Hoa Thi Thu NGUYEN, 2020). In this subsection, we delve into the intricate interplay between these two entities in facilitating practical experience opportunities for students. It explores the collaborative efforts undertaken to bridge the gap between education and industry and assesses the benefits of aligning educational programs with the evolving needs of industries. By exploring how these collaborations contribute to workforce readiness, we gain an understanding of the symbiotic relationship between educational institutions and industries, which the proposed Career & Attachment Linking System aims to facilitate and strengthen.

### **2.4 Conclusion**

In summary, this chapter underscores the pivotal role of practical experience, like internships and attachments, in bridging theoretical learning with real-world application, offering students invaluable skill development and career preparation. Despite its significance, challenges persist, such as limited access and mismatched opportunities. Centralized platforms and robust communication tools, aim to streamline attachment placements, with data privacy being a critical concern. Educational institutions play a vital role in guiding students toward successful careers by incorporating best practices in curriculum design, career counseling, and industry engagement. Collaborative efforts between educational institutions and industries are crucial in preparing graduates for the workforce, aligning educational programs with industry needs.

# **CHAPTER THREE: METHODOLOGY**

## **3.0 Overview**

In this chapter, the methodology employed for the development and implementation of the Career & Attachment Linking System is outlined. The systematic approach covers the research design, population and sampling, data collection methods, development tools, system development methodology, system design, data processing and analysis, and ethical considerations.

## **3.1 Research design**

The research design will employ a mixed-method approach, combining both qualitative and quantitative methodologies. Qualitative methods such as interviews, focus groups, and document analysis will explore deeply into user perspectives and assess the system's usability for the Career & Attachment Linking System. Quantitative surveys will gather structured data from a specific group of students, supplementing the qualitative insights. By utilizing this mixed-method approach, the aim is to achieve a comprehensive understanding of user experiences and conduct a thorough assessment of the system across public universities in Kenya. Qualitative methods ensure a detailed exploration of perspectives, while surveys provide numerical data, contributing to a holistic evaluation of the system's effectiveness and user perceptions.

## **3.2 Population & Sampling**

### **3.2.1 Population**

The population for this study encompasses all students, academic advisors, and organizational representatives from the public universities in Kenya. The estimated total student population in these universities is approximately 489,000 individuals. This broad population represents the diverse stakeholders who will provide insights into the Career & Attachment Linking System's development and usage.

### **3.2.2 Sampling**

Sampling will involve a subset of this extensive population to ensure manageable and insightful data collection. Random sampling methods will be employed to select representative groups of students, advisors, and organizational representatives from various universities. This sampling approach aims to gather diverse perspectives and experiences regarding the Career & Attachment Linking System while ensuring the feasibility of data collection within the study's scope and resources.

## **3.3 Data Collection Methods**

This study uses various methods like interviews, focus groups, surveys, and document analysis that ensure a comprehensive understanding of the Career & Attachment Linking System. Interviews will be conducted with students, academic advisors, and organizational representatives, facilitating in-depth exploration of their perspectives, experiences, and expectations concerning the system. Focus groups bring students together for discussions to encourage interaction and uncover shared perceptions and usability insights. Surveys, distributed among a specific student subset, will provide structured questionnaires to gather quantitative data on system usage, preferences, and feedback. The document analysis will review relevant materials to complement insights obtained from interviews, focus groups, and surveys.

## **3.4 Development Tools & Materials**

The development of the Career & Attachment Linking System involves a combination of hardware and software tools. For hardware, the system will utilize standard computing equipment, including desktops or laptops with adequate processing power and memory to support development tasks. Additionally, a stable internet connection will be essential for accessing resources and testing the system's online functionalities.

In terms of software, the system will be developed using visual studio editor that supports HTML, CSS, PHP, JavaScript, and MySQL within the XAMPP environment. HTML will drive the front-end interface design, while CSS enhances the visual presentation, styling, and layout of the system, ensuring an appealing user experience. PHP, a server-side scripting language, will enable dynamic functionalities, ensuring seamless communication among system components.

MySQL will manage data storage, retrieval, and overall database management. JavaScript will be instrumental in enhancing interactivity and user experience on the system's front-end. XAMPP, functioning as the local development environment, integrates these technologies, enabling simultaneous testing and deployment during the system development phase.

## **3.5 System Development Methodology**

The system development will follow an iterative and agile methodology, allowing for continuous improvement and adaptation. Utilizing an iterative approach enables incremental enhancements based on user feedback and evolving requirements. Agile principles, such as frequent collaborations, flexibility, and responsiveness to change, will guide the development process. This methodology fosters a dynamic development environment, ensuring alignment with user needs and efficient system evolution.

## **3.6 System Design**

System design involves various tools and techniques to represent the architecture, components, and flow of a system. Here are some methods commonly used.

Flowcharts: use geometric shapes and arrows to represent processes, decisions, inputs, outputs, and the flow of control within a system. Ideal for representing the step-by-step flow of a process or algorithm.

Data Flow Diagrams (DFD): DFDs represent the flow of data within a system, representing processes, data stores, data flow, and external entities. Useful for understanding how data moves through a system and identifying data transformations.

Entity-Relationship Diagrams (ERD): ERDs represent the relationships between entities in a system, typically used in database design. Useful for visualizing the structure of a database and the relationships between different entities.

Wireframes: Description: Wireframes are simple, low-fidelity representations of a user interface, focusing on layout and structure without detailed design elements. Useful for planning the layout and structure of web pages or application screens.

The system design will use wireframe to represent an intuitive interface, emphasizing user-friendliness and accessibility. Design principles will focus on seamless navigation, clear communication, and an organized layout to optimize user experience. The architecture will ensure scalability, robustness, and compatibility across multiple devices, aiming for a responsive design. Emphasis will be placed on aligning system features with user requirements and industry standards to foster a cohesive and effective Career & Attachment Linking System.

Here is the wireframe diagram representation for the system.

|  |
| --- |
| LOGOUT  MESSAGING & NOTIFICATIONS  ANNAOUNCEMENTS  COMMUNICATION  SECURITY & PRIVACY  CHANGE PASSWORD  SETTING  PROFILE  AVAILABLE ORGANIZATIONS  APPLY  STUDENT  LOGIN  USERNAME  COURSE  PASSWORD  NOTICE BOARD  ORGANIZATIONS &INSTITUTIONS |

DASHBOARD

## **3.7 Data Processing & Analysis**

## **3.7.1 Data Processing**

Data processing will involve organizing and structuring information collected from interviews, focus groups, surveys, and document analysis. Qualitative data from interviews, focus groups, and document analysis will undergo thematic analysis to identify patterns and themes. Quantitative data from surveys will be analyzed using statistical techniques to derive numerical insights. The integration of qualitative and quantitative findings will provide a comprehensive understanding of user perspectives and system effectiveness.

### **3.7.2 Data Analysis**

Qualitative data analysis will focus on identifying recurring themes, patterns, and insights from interviews, focus groups, and document analysis. Thematic coding will categorize qualitative data, allowing for the identification of commonalities and differences in user experiences and preferences. Quantitative data from surveys will undergo statistical analysis to generate numerical summaries and identify trends or correlations, providing additional insights into system usage and perceptions among the sampled population. The combination of qualitative and quantitative analyses will offer a comprehensive understanding of the Career & Attachment Linking System's reception.

## **3.8 Ethical Considerations**

Ethical considerations will prioritize voluntary participation, informed consent, and confidentiality of participant information. Participants will be provided with clear information about the study's purpose and their rights. Anonymity and confidentiality measures will safeguard participants' identities and responses. The study will adhere to ethical guidelines and seek approval from relevant institutional review boards to ensure ethical integrity throughout the research process.

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# **APPEDIX**

**Cost/Budget**

|  |  |
| --- | --- |
| TASK | ESTIMATED COST |
| Hardware | 30000 |
| Software | 12000 |
| Networking & Connectivity | 5000 |
| Hosting & Cloud Services | 10000 |
| Project Management | 6000 |
| Documentation | 5000 |
|  |  |
|  |  |
| Total | 66000 |

**Gantt Chart**

(Gant chart from September 2023 to April 2024

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activities/Time | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Thur |
| Feasibility study |  |  |  |  |  |  |  |  |
| Introduction |  |  |  |  |  |  |  |  |
| Literature Review |  |  |  |  |  |  |  |  |
| Research Methodology |  |  |  |  |  |  |  |  |
| Design & Prototyping |  |  |  |  |  |  |  |  |
| Software Development |  |  |  |  |  |  |  |  |
| Software Testing |  |  |  |  |  |  |  |  |
| Implementation |  |  |  |  |  |  |  |  |