



COLLEGE OF COMPUTING AND INFORMATION SCIENCES

**INTELLIGENT EMPLOYMENT CONNECT:
DEVELOPING AN AI-POWERED JOB
SEARCH AND MATCHING PLATFORM FOR
OPTIMAL JOB-SEEKER-EMPLOYER
ALIGNMENT**

by GROUP 15

**DEPARTMENT OF COMPUTER SCIENCE SCHOOL OF
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1 INTRODUCTION

1.1 Background

In the current job market, the large issue of unemployment still persists as a formidable challenge for many individuals in Uganda after their studies. Statistics show that this problem has been on a rise for years now in Uganda with the unemployment rate being 1.91% in 2013 and now 10 years after (2023) being 4.38% [11]. A significant contributing factor to this challenge is the widespread lack of awareness among job seekers regarding the many job opportunities available to them [1][2][3]. This information gap often results in missed connections between skilled individuals and suitable positions, exacerbating unemployment and fostering conditions of underemployment. In today's dynamic job market, the challenge of limited awareness about available job opportunities, leads to unemployment or underemployment. High levels of unemployment and underemployment, highlight the need for innovative solutions to connect job seekers with available positions in different business organizations[4].

Advances in artificial intelligence (AI) and machine learning have enabled the development of sophisticated algorithms capable of analyzing datasets and making intelligent recommendations[12][13][14][15][16][17][18]. The background of this idea is rooted in the need for more efficient and effective job matching, leveraging AI and data analysis to reduce unemployment rates, and improving the overall job search and hiring experience for both job seekers and employers. In this complex and dynamic environment, it is evident that traditional approaches to job searching and matching are no longer sufficient. The introduction of innovative technologies, particularly artificial intelligence and machine learning, presents a promising avenue for addressing the intricate layers of the unemployment challenge in Uganda.

By comprehensively understanding the dimensions of unemployment, the proposed AI-powered job search and matching platform seeks to provide a holistic solution that transcends current boundaries and influences a positive change in the Ugandan job market.

1.2 Problem Statement

In the face of a continually evolving job market, a pressing challenge persists where a significant portion of job seekers remains unaware of suitable job opportunities, consequently contributing to high and continually increasing levels of unemployment and underemployment. The inadequacies in traditional job search methods and already existing job searching technological measures in Uganda, necessitate the need for better job search platforms. To address this issue, we propose the development of an AI-powered job search and matching platform. This platform aims to harness the capabilities of artificial intelligence and machine learning to analyze the job seekers' resumes and provide intelligent job recommendations. The problem at hand is the inefficiency and ineffectiveness of current job matching processes, and our goal is to mitigate

unemployment rates by enhancing the job search and hiring experience for both job seekers and employers.

Further analysis reveals that traditional hiring processes in Uganda often rely on manual resume screening, which can be time-consuming and prone to biases. Additionally, the lack of a centralized and intelligent system for job matching exacerbates the challenge, leading to mismatches between job seekers and available positions. This problem is further compounded by the dynamic nature of the job market, where traditional methods struggle to keep pace with rapidly changing skill requirements.

Moreover, the ongoing technological advancements and globalization have led to an increased demand for specific skill sets, making it crucial for job seekers to stay informed about the evolving job landscape. The current job search platforms in Uganda lack the sophistication needed to provide real-time and accurate information about job openings, hindering the ability of both job seekers and employers to make informed decisions.

In light of these challenges, the proposed AI-powered job search and matching platform aims to revolutionize the job market in Uganda by introducing an intelligent, data-driven approach that not only matches job seekers with suitable positions but also addresses the broader issues of skill gaps and market dynamics. By leveraging AI algorithms, the platform seeks to create a more transparent, efficient, and fair job market that benefits both employers and job seekers.

1.3 Objectives

1.3.1 Main objective

To develop a Job Search and Matching Web Application powered by artificial intelligence (AI) to bridge the gap between the job seekers and the available employment opportunities and connect job seekers with suitable job openings from different organizations and recruiters.

1.3.2 Other objectives

To improve awareness of the available job openings in the market for the job seekers

To ease the recruitment process of new employees by the employers from various organizations/companies.

To shorten the amount of time taken for job seekers looking for available employment opportunities.

To provide a personalized experience to the job seekers by making recommendations specifically tailored to their fields.

1.4 Scope

1.4.1 Conceptual scope

The AI-Powered Job Search and Matching Platform aims to create a comprehensive solution for addressing unemployment. The scope of this project encompasses the development of a web application that not only serves as a job search platform but also utilizes advanced algorithms to intelligently match job seekers with suitable employment opportunities. The platform will focus on improving the overall job search and hiring experience for both job seekers and employers.

1.4.2 Geographical scope

The geographical scope of the proposed platform will be within the borders of Uganda.

1.5 Significance

The significance of the AI-Powered Job Search and Matching Platform lies in its potential to address the persistent issue of unemployment by introducing a modern and efficient approach to job matching. The project holds several key implications:

i) Providing personalized job recommendations: By providing job seekers with accurate and intelligent job recommendations, the platform ensures that job seekers are presented with relevant employment openings. The use of AI algorithms enhances the efficiency of the job matching process, connecting individuals with suitable employment opportunities more effectively.

ii) Improving Job Search Experience: The platform seeks to enhance the overall job search experience for both job seekers and employers. The user-friendly interface and advanced algorithms contribute to a more streamlined and effective process, reducing the time and effort required for job hunting and recruitment.

iii) Enhancing Awareness: The project aims to improve awareness among job seekers regarding available job openings in the market. By leveraging AI to analyze vast datasets, the platform ensures that users are informed about a wide range of employment options that match their skills and preferences.

iv) Adapting to Economic Changes: The adaptability of the platform is crucial, especially in the face of economic downturns or crises. During challenging times, such as the lockdowns during the COVID-19 pandemic, the platform can serve as a resilient tool to help individuals find employment opportunities despite the uncertainties in the job market.

2 LITERATURE REVIEW

The current state of employment in Uganda presents a substantial challenge with a widespread lack of job awareness among job seekers being one of the reasons leading to heightened levels of unemployment and underemployment.[1][2][3] This pressing issue underscores the need for innovative solutions to enhance the efficiency of job markets[4][5] and address the limitations of conventional job search methods. In navigating the dynamic job landscape, many individuals face difficulties in discovering available opportunities, especially during economic downturns. This literature review delves into the intricacies of this problem, aiming to illuminate the depth of the deficiency in job awareness creation solutions. By critically examining the existing knowledge, we seek to uncover the already come up with and currently being used platforms as well as how effective they have been. The gaps and limitations in current job search methods with or without leveraging AI technologies will be thoroughly examined, laying the groundwork for the proposed AI-powered job search and matching platform. This review not only identifies the problem but also seeks to provide a comprehensive understanding of the differences surrounding the lack of job awareness in contemporary employment scenarios as it job seekers who used the internet had a shorter duration of unemployment[8].

2.1 Related works

The issue of job seekers' limited awareness of available opportunities, as emphasized by Smith and Johnson [2], permeates the employment landscape. Their research underlines the profound impact of this awareness gap on employment rates, particularly accentuated during economic downturns. Job seekers predominantly rely on traditional methods like newspaper advertisements and online job boards, resulting in a fragmented and incomplete understanding of the dynamic job market. A considerable number of job seekers miss out on potential opportunities due to a lack of awareness, emphasizing the urgency for improved information dissemination strategies.[2]

2.2 Current Methods to Bridge the Gap

2.2.1 Online Job Portals

Jeremy Magruder[6] outlines how online job portals have evolved as a primary avenue for job seekers. The study finds 78% of seasoned job seekers used the internet to search for employment opportunities, versus only 64% of recent graduates. [6]. However, these platforms often fall short due to reliance on manual searches and simplistic keyword matching. In Germany and South Korea job

seekers who used the internet had a 7.1 and 12.7 percentage point higher probability, respectively, of being re-employed in the next 12 months.[8] The study highlights the imperative need for more sophisticated algorithms to augment the precision and accuracy of job recommendations, recognizing the evolving nature of the job market.[7] These results suggest that while the internet and job portals are helping job seekers find employment, the extent to which certain groups utilize these tools differs., signaling the need for enhanced technology-driven solutions.[6]

2.3 Recruitment Agencies

The role of traditional recruitment agencies in bridging the gap is explored by Venkateshwar, A., Agarwal, N., & Singhvee, N. [9]. Despite their significance, these agencies grapple with the efficient processing of voluminous resumes and job openings. The effectiveness and efficiency of the recruitment process will depend on perception of performance (of the selection process) in terms of the standard and quality of the process and efforts required to address the required performance both by the recruiter and candidate. [9] The manual nature of the matching process often leads to delays, and there is a call for leveraging available data more effectively to provide informed recommendations. employers have the tendency to use informal recruitment channels more often for jobs with high degree of discretion (i.e. managerial, professional, and specialists jobs (MPS)) than for jobs with low degree of discretion (i.e. administrative and supporting jobs). In addition, the type of information transmitted through employers' social contacts matters for their recruitment strategies. In particular, the reliable and trustworthy information from contacts with friends and family is more important for MPS jobs.[10]

2.4 Gaps in Current Methods

2.4.1 Lack of Interview Scheduling Functionality for Recruiters

One significant gap in the current job search methods is the absence of an integrated interview scheduling functionality for recruiters. Traditional recruitment processes often involve time-consuming back-and-forth communication between recruiters and candidates to coordinate interview schedules. This manual approach can lead to delays, miscommunication, and inefficiencies in the hiring process.

2.4.2 Absence of Instant Online Application within Job Portals

Another notable gap in existing job search methods is the lack of a seamless and instant online application process for job seekers within job portals. Many current platforms require users to navigate through multiple steps, external websites, or email applications, making the application process cumbersome and time-consuming.

2.4.3 Lack of Personalization

Jeremy Magruder[6] draws attention to a critical gap – the absence of personalized job recommendations in conventional approaches. Generic keyword matching fails to consider the nuanced preferences and skills of individual job seekers, resulting in mismatches and suboptimal job placements. [6]

2.5 Conclusion

In conclusion, this literature review illuminates the challenges stemming from the lack of job awareness and the limitations of current methods without AI. While current methods attempt to bridge the gap, significant limitations persist[9][8], as underscored by various sources. The lack of job awareness endures, and the manual nature of the matching processes contributes to inefficiencies and mismatches. These identified gaps serve as the impetus for the proposed AI-powered job search and matching platform, aiming to rectify deficiencies through advanced algorithms and personalized recommendations. The analysis emphasizes the imperative for a more sophisticated approach to job matching, one that considers the personalized preferences of job seekers and efficiently handles vast amounts of data. These findings form the rationale for the proposed AI-powered platform, seeking to mitigate unemployment by providing a more accurate, efficient, and personalized job search experience for both job seekers and employers.

3 METHODOLOGY

3.1 Algorithm Development and Integration

3.1.1 Data Collection

The primary sources of data for this project include resumes from job seekers and job descriptions from various organizations. Additionally, user feedback will be collected through surveys and interviews to understand user preferences, satisfaction levels, and areas for improvement.

The dataset for training our model will be obtained from Kaggle with relevant data regarding our topic of Job recommendation systems. We opt for Kaggle because they provide huge chunks of data about particular topic on interest that can be used to train the model properly without any bias.[32]

Efforts will be made to ensure the diversity and representativeness of the dataset

by actively reaching out to individuals across various industries, educational backgrounds, and experience levels. Strategies will be employed to minimize biases in the dataset and ensure that the platform’s recommendations are inclusive and relevant to a broad user base.

3.1.2 Data preprocessing

The obtained datasets will be cleaned using the common python libraries such as numpy which is fundamental for numerical computing in Python[25], scipy which provides algorithms for optimization, integration, interpolation, eigen-value problems, algebraic equations, differential equations, statistics and many other classes of problems[26], Scikit-learn which is a machine learning library that includes utilities for data preprocessing, such as scaling, encoding categorical variables, and handling missing values[28] and pandas which is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language.[27] after relevant visualizations have been made to ensure we only get the relevant features for our model. Data cleaning is a very vital process as it’s the most critical one in training a model because it ensures consistency in the output of the model and eliminates any errors or regarded as “bias” in Machine Learning process. It is the process of preparing data for analysis by removing or modifying data that is incorrect, incomplete, irrelevant, duplicated, or improperly formatted[29] Common data cleaning techniques include handling missing values in the datasets, removing or dealing with duplicates, and standardizing data formats for the model training and evaluation.

Relevant information about the users (employees) will be collected through submission of a document normally called a CV (Curriculum Vitae) and may consist of skills of the user, experiences obtained by the user at any other work places, their education levels, any relevant certifications obtained, user interests, LinkedIn profiles and any other relevant social handles that would be relevant to their career boost. Users will as well be allowed to update their profiles in case they obtain any new skills and would like to obtain a job in that particular field.

3.1.3 Data Splitting and Training:

The dataset will be divided into three subsets - training, validation, and testing. The training set, comprising 80% of the data, will be used to train the model. The validation set will be employed during the training process to fine-tune the model and prevent overfitting. Finally, the testing set (20% of the data) will serve as an independent evaluation to assess the model’s generalization to unseen data.

3.1.4 Feature Engineering:

In feature engineering, the relevant attributes like skills, experiences, and education levels will be carefully processed. Text data will undergo techniques such as tokenization(which is the process of breaking down a text into individual units, known as tokens. These tokens can be words, phrases, sentences, or even paragraphs, depending on the level of granularity needed for analysis.), stemming(which is a technique where words are reduced to their root or base form by removing suffixes. The goal is to simplify words to their core meaning, even if the result is not a valid word.), or lemmatization(similar to stemming but involves reducing words to their base or dictionary form, known as a lemma. Unlike stemming, lemmatization ensures that the resulting word is a valid word.) to convert them into meaningful representations. Additionally, embedding methods like Word2Vec or TF-IDF may be applied to capture semantic relationships between words, enhancing the model's ability to understand the contextual significance of different features.

3.1.5 Feature Selection:

A comprehensive analysis of feature importance will be conducted to identify the most influential attributes. Techniques such as Recursive Feature Elimination (RFE) or feature importance from tree-based models will be utilized. This step aims to enhance model efficiency by focusing on the most relevant features, thereby reducing noise and computational complexity.

3.1.6 Cross-Validation:

To ensure the model's robustness and minimize the risk of over fitting, k-fold cross-validation will be implemented. This technique involves partitioning the dataset into 'k' folds and training the model 'k' times, with each fold serving as both a training and validation set. The average performance across all folds provides a more reliable estimate of the model's performance on unseen data.

3.1.7 Hyperparameter Tuning:

Fine-tuning of hyper parameters is crucial for optimizing the model's performance. Techniques like grid search or random search will be employed to explore different combinations of hyper parameters systematically. This process aims to identify the configuration that maximizes the model's accuracy and generalization to new data that has been provided to the algorithm.

3.1.8 Model Selection:

Given the nature of job recommendation, a content-based filtering algorithm will be chosen. Content-based filtering relies on analyzing the characteristics of items (in this case, job listings) and user preferences to make personalized suggestions. This approach is suitable for job recommendations as it aligns well

with the idea of matching user skills, experiences, and preferences with relevant job opportunities.

3.1.9 Content-Based Filtering Algorithm

This is a technique for recommending items based on similarities between the items' features and users' past preferences and is a very popular algorithm for recommendation systems because it's an effective one for a wide variety of applications. This algorithm tries to recommend items that are similar to those that a user liked in the past or what the user seems to be interested in.[20], Content-based filtering is a recommendation system technique that suggests items to users based on the features or characteristics of the items they have shown interest in or consumed in the past. and in our project, it is going to be used to recommend job postings based on their professions or areas of work they are interested in.[30] This algorithm is good for information retrieval but bad for multimedia.

Why we selected content-based filtering algorithm?

- No data from other users is required to start making recommendations. Content-based filtering relies solely on the features of items and the user's preferences. This means that recommendations can be generated for a new user without needing information about other users. This makes it suitable for scenarios where user data is sparse or when dealing with cold start problems.
- Recommendations are highly relevant to the user as used for a wide variety of applications including music, books, and products. Content-based filtering recommends items based on the specific features or attributes that a user has shown interest in. This makes the recommendations highly tailored to the individual user's preferences.
- Recommendations are transparent to the user and can be personalized to user based preferences. Content-based systems provide transparency in recommendations since the reasoning behind the suggestions is based on explicit features of items and the user's historical preferences. Users can understand why a particular item is recommended, as it aligns with their expressed preferences. The system can also adapt to changes in user preferences, allowing for a personalized and evolving recommendation experience.[21]
- The cold start problem is avoided. The cold start problem occurs when there is insufficient data about a new user or a new item in collaborative filtering systems. Content-based filtering avoids this problem since it can make recommendations for a new user by analyzing the features of items. This is especially advantageous in situations where there is a constant influx of new users or items.

- Content-based filtering systems are more straight-forward in that a user can delete previous history and update their interests. Users have control over their preferences and can easily update or modify their profiles in content-based systems. If a user wishes to change their preferences or delete their historical data, the system can adapt quickly by recalculating recommendations based on the updated user profile. This flexibility empowers users to have a dynamic and reflective system that aligns with their evolving interests.

Using the available datasets, we will implement the machine learning model in Python using Jupyter Notebooks. First the data will be cleaned and pre-processed. Then visualize the data and get some insights from it and carried out feature selection. The Recommendation System needs various features to be able to recommend a job or a candidate. The relevant columns are extracted. These categories are later matched with user inputs to measure similarity. Finally will build the model using content based filtering algorithm that will later be expected to perform the recommendations of the jobs to the users depending on their skills and areas of interests. User details and preferences are taken as input and the recommended jobs based on the input is displayed as output.

3.2 Platform Development

The web application will constitute of both the Front end which usually displays the User Interactive Interfaces and their navigation around and the application and the backend which is responsible for handling server-side logic and data processing. Separating the backend and frontend in a web application offers key advantages. It enhances modularity, scalability, and ease of maintenance by allowing independent development and updates. Code reusability is facilitated, and parallel development becomes feasible, enabling efficient collaboration among specialized teams. The flexibility to scale each layer independently optimizes resource allocation. This separation enhances security through well-defined APIs.

3.2.1 Programming paradigm

The programming paradigm chosen for the development of the AI-Powered Job Search and Matching Platform is Object-Oriented Programming (OOP). Object-Oriented Programming is a widely used paradigm that allows developers to structure their code in a way that mirrors real-world entities and their interactions. It revolves around the concept of "objects," which are instances of classes that encapsulate data and behavior.

Object-Oriented Programming (OOP) Principles of OOP The key principles of Object-Oriented Programming that will be employed in the development of the platform include:

i) **Encapsulation:** This principle involves bundling the data (attributes) and methods (functions) that operate on the data into a single unit called a

class. Encapsulation helps in organizing and hiding the internal details of how an object works, promoting modularity and reducing complexity.

ii) Inheritance: Inheritance allows a new class (subclass or derived class) to inherit attributes and methods from an existing class (base class or super-class). This promotes code reuse, as common functionalities can be defined in a base class and shared among multiple subclasses.

iii) Polymorphism: Polymorphism allows objects to be treated as instances of their parent class, enabling code to be written that can work with objects of various types. This concept is often implemented through method overloading and overriding, providing flexibility and extensibility in the code.

iv) Abstraction: Abstraction involves simplifying complex systems by modeling classes based on the essential properties and behaviors they share. It allows developers to focus on the high-level structure of the system while ignoring unnecessary details.

Advantages of Using OOP. The decision to adopt Object-Oriented Programming for the AI-Powered Job Search and Matching Platform is based on several advantages:

i) Modularity: OOP promotes modularity by encapsulating related functionalities into classes. This makes the code easier to understand, maintain, and update.

ii) Reusability: Inheritance facilitates code reuse, allowing common functionalities to be shared among different parts of the system. This reduces redundancy and promotes a more efficient development process.

iii) Flexibility: OOP provides flexibility through polymorphism, allowing developers to write code that can work with different types of objects. This adaptability is crucial for handling diverse data and user interactions in the job matching platform.

iv) Scalability: OOP supports the creation of scalable and extensible systems. As the platform evolves, new classes can be added, and existing ones can be modified or extended without disrupting the entire codebase.

Application of OOP in Platform Development

In the context of the AI-Powered Job Search and Matching Platform, OOP will be applied to model various entities such as users, jobs, recommendations, and the overall system. Each entity will be represented as a class, encapsulating relevant attributes and methods. Inheritance may be utilized to model relationships between entities, and polymorphism can enhance the adaptability of the platform to diverse user preferences.

The use of OOP will contribute to the creation of a well-organized, maintainable, and scalable codebase for the platform, aligning with best practices in software development. The encapsulation of functionality within classes will enhance code readability and reduce the complexity associated with managing

a comprehensive job matching system. Overall, OOP aligns with the platform's goal of providing an efficient and adaptable solution to address unemployment challenges in Uganda.

3.2.2 Frontend

The Frontend will be built using React JS which is an open-source JavaScript library developed and maintained by Facebook with the help of Material UI which is a popular open-source React UI component library that provides a set of React components implementing Google's Material Design principles.

Why we choose to use ReactJS:

- i Component-based architecture; this makes developing complex user interfaces easier by breaking them down into small reusable pieces making the code more modular, maintainable and easier to test.
- ii Large community and ecosystem; this framework has a very large and active community and ecosystem of tools and libraries making it easier to find resources and help when needed.
- iii Performance; for building high performance UIs, ReactJS is a very vital library to use since it is cross platform and applications can be developed once for web, mobile and desktop.

We shall make sure we correctly use different design elements like texts, buttons, containers, images etc. and create the flow and sequence of the User Interface screens. Like any other designer we shall also keep in mind Human Computer Interaction Principles while designing the User interface.

3.2.3 Backend

The Backend will be built using NodeJS which is an open-source, cross-platform JavaScript runtime environment that allows developers to execute server-side JavaScript and TypeScript code. It is built on the V8 JavaScript runtime engine, which is the same engine that powers the Google Chrome browser. Node.js enables the execution of JavaScript and TypeScript code on the server, outside the context of a web browser and with the help of the runtime environment, we will use the Express framework which is popular web application framework for Node.js that simplifies the process of building robust and scalable web applications by providing a set of features and tools that facilitate the development of web servers and APIs. Express framework is a popular choice for building backends of web applications and APIs because of the following:

- i Routing a system makes it easy to organize and manage application logic.
- ii Express framework supports middleware (functions that intercept and process HTTP requests before they reach the controller functions).

3.2.4 Database

We will use MongoDB for storage of our data which is a popular, open-source NoSQL database management system that belongs to the family of document-oriented databases. It stores data in flexible, JSON-like BSON (Binary JSON) documents instead of traditional rows and columns found in relational databases. MongoDB is good because of its ability to handle large volumes of data and is known for its scalability, flexibility, and ease of use.

3.3 Testing and evaluation

The system will be tested thoroughly through both unit testing and system/integration testing. In the unit testing, individual parts of the system will be tested to ensure that they do what they are supposed to do and during the integration testing, the individual parts of the system will be tested after being combined with the others to check if they function properly when connected.

3.3.1 Types of Testing

Below are the various types of testing that we are going to employ;

Functionality Testing:

This is to ensure that all features, including job search, matching algorithms, and user interactions, work as intended. It also helps to verify that the backend and frontend components integrate seamlessly.

Usability Testing:

This will be used to evaluate the user interface for intuitiveness and user-friendliness and also to gather feedback from potential users to identify areas for improvement in terms of navigation and overall user experience.

Security Testing:

Here, we will conduct security audits to identify and address potential vulnerabilities. Encryption protocols will also be implemented to safeguard user data and ensure secure communication.

Performance Testing:

This will be used to assess the responsiveness and speed of the platform under varying user loads. It will also help us optimize database queries and backend processes for efficient performance.

Compatibility Testing:

This will enable us to verify that the web application functions correctly across different browsers, devices, and screen sizes.

3.3.2 Evaluation Criteria

User Satisfaction: Feedback will be collected through surveys and interviews from beta users and user satisfaction ratings will be analysed to identify areas for improvement.

Accuracy of Job Recommendations: We will evaluate the effectiveness of the content-based filtering algorithm in providing relevant job suggestions.

System Performance: Under this metric, we will measure response times and system stability under various loads. Bottlenecks or performance issues will be identified and addressed.

Data Diversity and Inclusivity: We will ensure that the dataset used for training the recommendation system is diverse and representative of different industries, education levels, and experience. In addition to that, the inclusivity of job recommendations for users from various backgrounds will be evaluated.

3.4 Continuous Improvement

After the initial launch, we will establish a system for continuous improvement based on user feedback, emerging technologies, and changes in the job market. Regularly update the platform to enhance its capabilities and address evolving user needs.

By incorporating a comprehensive testing and evaluation strategy, the AI-Powered Job Search and Matching Platform can ensure a high-quality user experience, accurate job recommendations, and overall effectiveness in addressing unemployment challenges in Uganda.

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