

PREDICTING AND ADDRESSING YOUTH UNEMPLOYMENT THROUGH DATA-DRIVEN INTERVENTION

INTRODUCTION

Youth unemployment poses a significant barrier to Rwanda's socio-economic progress. Despite various policy interventions, a persistent mismatch between labor market demands and youth skills remains. This project introduces a data-driven solution to predict unemployment trends and design effective interventions, aligning with national goals of fostering inclusive economic growth.

BACKGROUND

Rwanda's Vision 2050 aspires to transform the nation into a high-income economy, with human capital as a cornerstone of development. However, youth unemployment remains high due to limited job opportunities and misaligned skills. Previous efforts have focused on traditional strategies, such as education reforms and entrepreneurship programs, yet lacked the predictive capability to address emerging trends proactively.

SOLUTION

This project proposes an AI-powered platform that:

- Predicts youth unemployment trends using machine learning models.
- Provides targeted, data-driven intervention recommendations.
- Monitors intervention outcomes through a real-time dashboard to inform ongoing policy adjustments.

RESULTS

The project is expected to achieve the following:

- Reliable forecasts of youth unemployment trends to guide proactive policymaking.
- Customized recommendations for bridging the skills-labor market gap.
- Enhanced policy effectiveness through continuous monitoring and data-driven adjustments.

PROBLEM STATEMENT

Current unemployment intervention strategies in Rwanda are often reactive and generalized, failing to address the unique needs of different youth demographics. The absence of predictive tools and real-time monitoring systems limits the ability to anticipate and mitigate unemployment risks effectively.

OBJECTIVES

- Develop a predictive model to forecast youth unemployment trends across different regions and demographics.
- Create an intervention recommendation system based on risk factor analysis.
- Design a real-time dashboard for monitoring and evaluating intervention impacts.

METHODOLOGY

Data Layer

Data Sources:

- [NISR employment surveys\(dataset\)](#)
- [Kaggle youth unemployment dataset](#)

Processing Layer

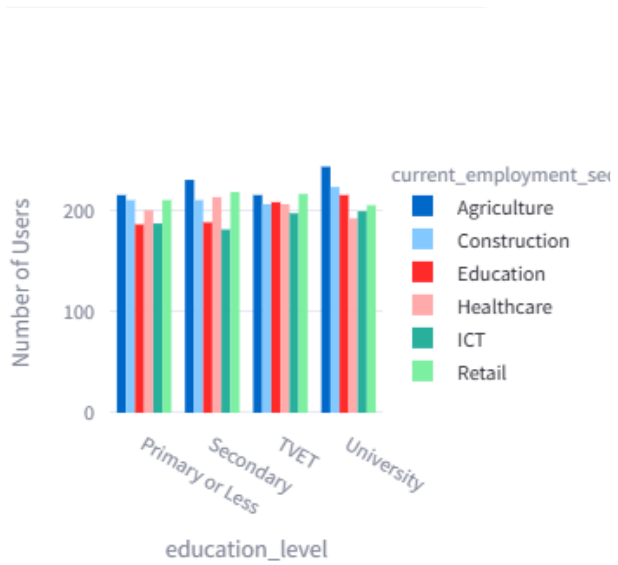
ETL Pipeline:

- Raw Data → Cleaning → Feature Engineering → Integration → Storage

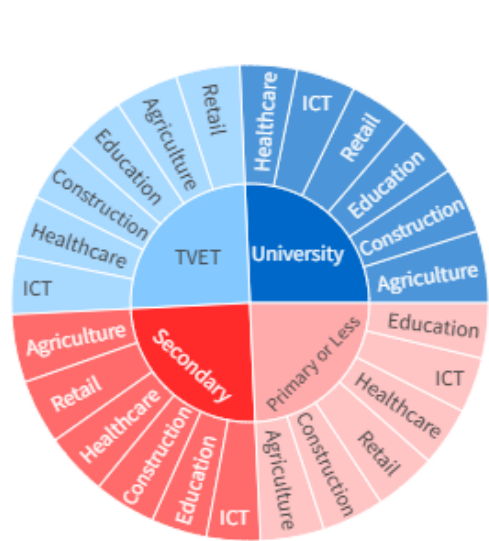
Technologies:

- Python (pandas, numpy)
- Streamlit

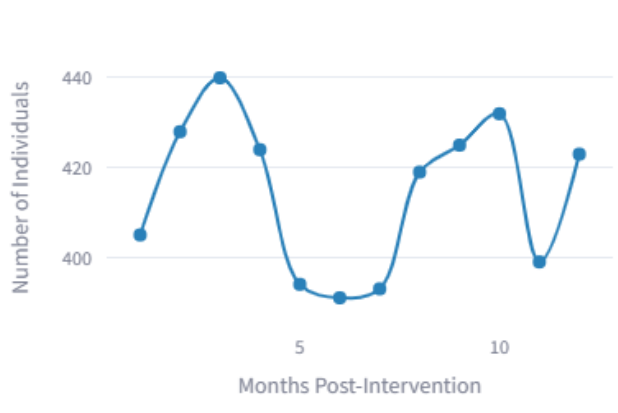
CURRENT EMPLOYMENT SECTOR BY EDUCATION LEVEL



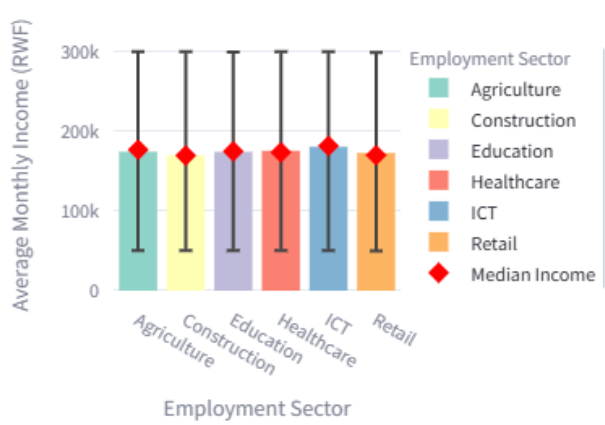
EMPLOYMENT SECTORS BY EDUCATION LEVEL



EMPLOYMENT DURATION TREND



INCOME ANALYTICS BY SECTOR



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NISR HACKATHON 2024 “DEVELOP A DATA SCIENCE SOLUTION TO A PROBLEM FACING YOUNG PEOPLE TODAY”