SmartMatch: Optimizing Real-Time Student-Job Connections on Stunio

Background

In today's dynamic business environment, companies often struggle to find reliable short-term or surge staffing solutions, especially during peak periods or for specific projects. Traditional staffing methods can be slow, inefficient, and may result in mismatches or unreliable placements. Simultaneously, college students seek flexible work opportunities that fit their academic schedules, providing valuable experience and income.

Stunio addresses this disconnect by leveraging scalable algorithms to connect businesses with college students for short-term work opportunities, offering a fast and reliable solution for both sides. Acting as a matchmaking platform, Stunio ensures that jobs are filled quickly and efficiently, optimizing outcomes for both employers and students. Its system reduces traditional staffing headaches—such as long response times and unreliable workers—by using algorithmic matchmaking to streamline the process.

Committed to enhancing student wellness by providing financial opportunities and work experiences, Stunio also helps businesses solve critical labor shortages with a trustworthy and ready talent pool. Since its founding, Stunio has won prestigious awards like the first prize in the Burgess New Venture Challenge and the Spartan Innovations Student Startup of the Year award. The company has also raised nearly $1 million in funding from notable investors like Invest Detroit, MI Rise—a subsidiary of the MSU Research Foundation—and MEDC, alongside other venture firms and angel investors.

Project Scope

The goal of this project is to improve our matchmaking algorithms and develop recommendation systems that create the best possible outcomes for both students and businesses. This project offers a unique opportunity to work on data science, software engineering, and applying models and analytics to optimize our platform. The project will be carried out in three phases:

1. Data Understanding and Enhancement:
• Understand our existing data infrastructure and datasets.
• Document the data collected and analyze its current use in our algorithms.
• Make recommendations on additional data or signals that could be incorporated to improve the matchmaking process without introducing biases.
2. Algorithm Exploration and Evaluation:
• Explore various algorithms and models that could enhance the matchmaking process.
• Generate a framework to compare different models based on performance metrics relevant to our platform.
• Make recommendations on the most effective algorithms to implement.
3. Model Implementation and Optimization:

• Build and implement the improved algorithms using the available data.
• If time allows, develop mechanisms to update and refine the models with new data as the platform scales.
• Test and validate the performance of the new models in a live environment.

Deliverables
• Project Presentation: a comprehensive presentation to be given at the end of the semester detailing the findings, work accomplished, and suggested next steps.
• Project Documentation, a detailed technical documentation that includes:
• A review of the available datasets.
• Proposed new signals or features (even if not implemented).
• Data flow diagrams illustrating how data moves through the system.
• Feature engineering methodology.
• Evaluation of different models and algorithms.
• Rationale for the selected model.
• Model performance metrics and analysis.
• Project Code:
• Well-documented code used throughout the project.
• Includes scripts or modules developed for data processing, model training, and implementation.
• Code should be organized and annotated to allow for future development and scalability.