

SHL Assessment Recommender – Solution Approach

Objective

To develop an intelligent recommendation system that maps job roles or descriptions to relevant SHL assessments using natural language processing and a modern frontend experience.

Backend Intelligence

Tech Stack: Node.js, Express.js, Natural Language Processing (NLP) using `natural`, and TF-IDF matching.

Key Features:

- **Data Preprocessing:** Assessment descriptions and job queries are tokenized, stemmed, and stripped of stopwords for clean text comparison.
- **Keyword Extraction:** A domain-specific dictionary and pattern recognition extract relevant terms from the user query.
- **TF-IDF Scoring:** Utilized for similarity computation between job queries and assessment documents.
- **Multi-factor Scoring:** Combines:
 - TF-IDF relevance (60%)
 - Keyword matching (30%)
 - Test-type mapping relevance (10%)
- **Resilient API:** Includes health check, error handling, and graceful fallbacks (always returns at least one result).

Frontend

Tech Stack: Python, Streamlit

Key Features:

- **Minimalist UI:** Custom CSS for professional dark-themed visuals.
- **Dynamic Results:** Displays relevant assessments with metadata (test type, duration, adaptive/remote support).
- **API Configurability:** Users can dynamically set or update API endpoints from the sidebar.

- **User Feedback:** Inline messages and states (loading, success, fallback) improve usability.

Hosting & Accessibility

- Backend hosted on **Render** with dynamic scoring and recommendations.
- Frontend built in **Streamlit**, easily deployable via **Streamlit Cloud** or **Docker**.
- Fully stateless and scalable architecture.

Summary

This solution delivers a production-ready, user-friendly assessment recommendation tool that leverages NLP, TF-IDF vectorization, and intelligent keyword mapping to align SHL tests with job descriptions. It's optimized for both performance and interpretability, ensuring HR teams find the most relevant assessments quickly and accurately.