

SHL Assessment Recommendation Engine - Approach Document

Candidate: Najmuddin Khan

Assignment: SHL Assessment Recommendation Engine

Date: May 4, 2025

Problem Statement

To build a recommendation engine that takes a job title or role description as input (text query) and returns the most relevant assessments from SHL's product catalogue.

Solution Overview

1. Data Preprocessing:

- Loaded SHL's assessment catalogue into a pandas DataFrame.
- Cleaned and normalized assessment names and descriptions.
- Combined text fields into a single corpus.

2. Text Embedding:

- Used sentence-transformers (MiniLM-L6-v2) to encode queries and assessments.

3. Similarity Scoring:

- Computed cosine similarity and returned top 5 matches.

4. API Development:

- FastAPI backend with a '/recommend' endpoint returning JSON.

5. UI Frontend:

- Built a simple Streamlit UI that queries the API and displays results.

Evaluation & Optimization

- Manual testing on various job titles.

- Switched from TF-IDF to MiniLM embeddings for improved semantic matching.
- Performed text cleaning and formatting for consistency.

Deployment

- FastAPI backend deployed on Render.
- Streamlit UI deployed on Streamlit Cloud.
- Codebase hosted on GitHub with README and requirements.

Links

- GitHub Repo: <https://github.com/yourusername/shl-recommendation-engine>
- API Endpoint: <https://your-api.onrender.com/recommend?query=product+manager>
- UI: <https://share.streamlit.io/yourusername/shl-recommendation-engine/ui/app.py>