SHL Assessment Recommendation System – Technical Approach By Uday Vimal-udayvimal08@gmail.com

Problem Understanding

Recruiters usually describe job roles in free-form natural language, while SHL's assessment catalog is structured and static. This creates a gap between how hiring needs are expressed and how assessments are organized.
The objective of this task is to bridge this gap by recommending the most relevant SHL assessments for a given job description using semantic similarity.

The solution strictly follows SHL's constraints:
- No chatbot or generative LLM usage
- Semantic recommendation approach only
- Evaluation using Recall@10
- API-based and reproducible solution

Data Collection

SHL Individual Assessments were scraped from the official SHL product catalog. As instructed, only **Individual Tests** were retained and pre-packaged job solutions were excluded.
To ensure reproducibility and stability, the catalog was cached locally instead of relying on the live website.

Captured attributes include:
- Assessment name
- Assessment URL
- Test type
- Remote testing availability
- Adaptive / IRT availability

Vector Indexing

A FAISS index was built over the assessment embeddings to enable fast and scalable similarity search.
FAISS allows efficient nearest-neighbor retrieval and is widely used in production-grade recommendation systems.

Recommendation Logic

For a given recruiter query, the following steps are performed:

1. The query is converted into an embedding
2. FAISS retrieves the top-K most similar assessment.
3. Results are ranked by semantic similarity

This approach ensures low latency, deterministic outputs, and zero dependency on external LLM APIs.

API Layer

The recommendation logic is exposed through a FastAPI backend.
Two endpoints are provided:

- /health – health check endpoint
- /recommend – returns top-K recommended SHL assessments

FastAPI was chosen due to its automatic Swagger documentation, clean request/response validation, and ease of integration with ATS or internal HR tools.

Web Application

A Streamlit web application was built to provide an interactive interface for recruiters. Users can enter job descriptions, select the number of recommendations, and explore suggested SHL assessments.
The web app uses the same semantic search logic as the API and is intended for demonstration and usability validation.

Evaluation Methodology

Evaluation was conducted using the **Train-Set** provided in Gen_AI Dataset.xlsx.
The evaluation metric used was **Recall@10**, which measures whether at least one correct assessment appears within the top 10 recommendations for a query.

Results

Total evaluation queries: 10
Mean Recall@10: **0.70**

This indicates that the system successfully retrieves relevant SHL assessments for the majority of recruiter queries.

Final Submission

The final submission file was generated using the **Test-Set** queries.
Each query is paired with the top 10 recommended SHL assessment URLs, exactly following the required submission format.