

SHL Assessment Recommendation System – Generative AI Intern Assignment

1. Problem Understanding

The goal of this project is to build a recommendation system that maps recruiter-style natural language queries to relevant SHL assessments. The system must retrieve and rank suitable assessments from the SHL product catalog and return the top recommendations via an API.

2. Data Collection

Assessment metadata was programmatically collected from the SHL product catalog using a web scraper built with `requests` and `BeautifulSoup`. The scraper extracts assessment names, URLs, test types, remote support, and adaptive support. The final dataset consists of 377 unique assessments.

3. Data Preprocessing

Scraped data was normalized and stored in CSV format. The provided evaluation datasets required handling non-UTF8 encodings (Windows-1252), which were resolved during ingestion to ensure robust processing.

4. Recommendation Approach

A heuristic-based recommendation strategy was implemented. Incoming queries are tokenized and matched against assessment names and metadata using keyword overlap and rule-based filtering. Diversity across assessment types (e.g., Ability, Personality, Skills) is maintained to avoid over-specialization. The recommender returns the top-k most relevant assessments.

5. Evaluation Methodology

System performance was evaluated using **Mean Recall@10**, as specified in the assignment. The provided training dataset contains multiple relevant assessments per query, which were grouped appropriately before evaluation. The baseline system achieved a Mean Recall@10 of **0.0200**, reflecting the difficulty and sparsity of the query-to-assessment mapping.

6. Limitations and Future Improvements

While the heuristic approach establishes a correct and interpretable baseline, future improvements may include semantic embeddings (e.g., sentence transformers), learning-to-rank models, and user feedback loops to improve recall.

7. Conclusion

This project demonstrates an end-to-end recommendation pipeline including data scraping, preprocessing, recommendation logic, evaluation, and submission generation. The system is modular, extensible, and production-ready for further enhancements.