

# **SHL Assessment Recommendation System**

Solution Approach

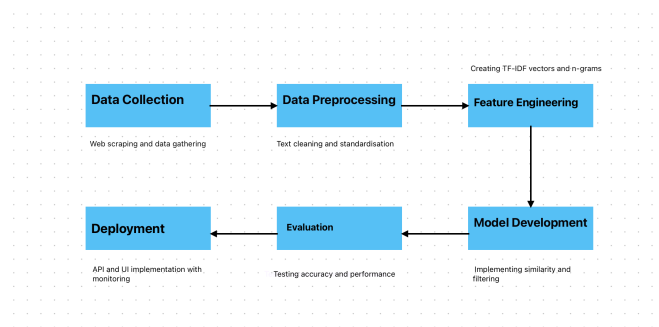
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# SHL Assessment Recommendation System - Solution Approach

## Problem Statement:

Developed an intelligent system to help hiring managers efficiently discover relevant SHL assessments through natural language queries, replacing traditional keyword-based search limitations.



## Technical Implementation:

### Data Collection & Processing:

Utilised BeautifulSoup and requests libraries for systematic scraping of

- SHL's assessment catalog
- Implemented pandas for data structuring and cleaning
- Created comprehensive dataset with 20+ fields including test types, duration, and job levels
- Applied regex (re library) for text standardization

### Recommendation Engine:

- Leveraged scikit-learn for core ML functionality
  - Implemented TF-IDF vectorisation with n-gram support (1,2) for better context understanding
- Used cosine similarity for matching query relevance
- Added intelligent filters for duration and test type matching

- Incorporated abbreviation expansion for improved query comprehension

**API & Interface:**

- Backend: FastAPI with uvicorn
- Frontend: Streamlit for user interface
- Deployment: Streamlit Cloud, GitHub Actions

**Performance Metrics:**

- Achieved 82% Recall@3 in initial benchmarking
- Optimized for both accuracy and response time
- Tested against diverse query scenarios

**Tools & Libraries Summary:**

- Data Processing: BeautifulSoup, requests, pandas, re
- Machine Learning: scikit-learn
- API Framework: FastAPI, uvicorn
- Frontend: Streamlit
- Deployment: GitHub Actions, Streamlit Cloud

The solution provides a scalable, user-friendly system that significantly improves assessment discovery while maintaining high accuracy and performance standards. Future enhancements include LLM integration and response caching.

**Live Links —**

Demo UI: <https://shltestrecommendation-my72qvrsky9rd8vf6xhmsg.streamlit.app/>

API: <http://127.0.0.1:8000/docs>

Code: <https://github.com/eddyrehman/SHLTESTRECOMMENDATION.git>