SHL Assessment Recommendation System

Solution Approach

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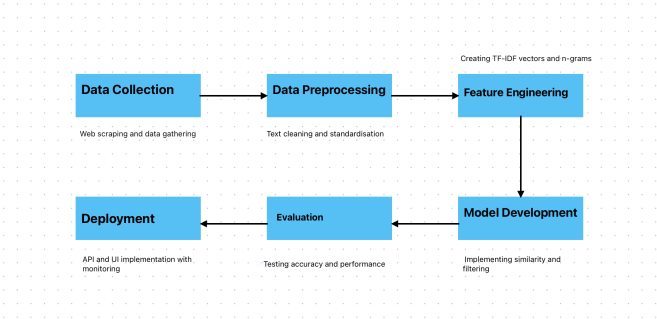
SHL Assessment Recommendation System - Solution Approach

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

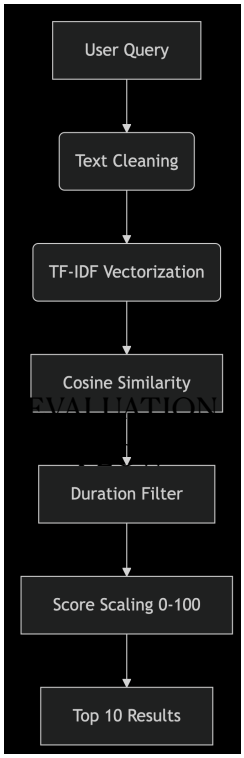
Recommendation Engine:

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

Key Metrics Characteristics:

- Content-Based Filtering: Pure cosine similarity between query and documents.
- Weighting Schema:
- Assessment Title: 3x weight
- Description: 2x weight
- Other fields: 1x weight
- No Traditional ML Metrics:
- Doesn't use precision/recall
- No train/test split
- Pure similarity-based ranking



EVALUATION FLOW

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: https://shltestrecommendation.onrender.com/docs

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