SHL Assessment Recommender System - Solution Overview

Problem Statement:
Develop a system that recommends suitable SHL assessments based on job descriptions by analyzing key requirements (skills, test type, language, duration, etc.) and matching them with SHL's assessment catalog.

Solution Approach:

1. **Input Processing with Specialized Workers**
    - Used a multi-agent system where each "worker" extracts specific information:
        - *Test Type Analyst* → Classifies assessments (aptitude, personality, skills, etc.)
        - *Skill Extractor* → Identifies hard/soft skills
        - *Language & Time Identifier* → Detects language and duration constraints
        - *Testing Method Specialist* → Checks for remote/adaptive testing needs
    - Workers use **LangChain + Groq API (Llama 70B)** for structured text analysis.
2. **Semantic Search & Filtering**
    - Pre-computed embeddings for assessments using **Sentence Transformers (paraphrase-MiniLM-L6-v2)**.
    - Stored embeddings in **FAISS** for fast similarity search.
    - Applied hard filters (language, test type, duration) before semantic matching.
3. **Ranking & Recommendations**
    - Combined semantic similarity (FAISS) with categorical filters.
    - Returned top 10 assessments ranked by relevance.

Tools & Libraries Used:

- **Backend:** Python
- **NLP/ML:** Sentence Transformers, FAISS
- **LLM Processing:** LangChain, Groq API
- **UI:** Streamlit
- **Data Storage:** Parquet (metadata)

Key Strengths:
✓ **Modular Design** – Workers can be updated independently.
✓ **Efficient Search** – FAISS enables fast semantic matching.
✓ **User-Friendly** – Simple UI with debug insights.

Outcome:
A scalable system that accurately recommends assessments by intelligently parsing job descriptions and matching them with SHL's catalog.