

# Gen AI Task: Build an SHL Assessment Recommendation System

## Problem Overview

Hiring managers often struggle to find the right assessments for the roles that they are hiring for. The current system relies on keyword searches and filters, making the process time-consuming and inefficient. Your task is to build an **intelligent recommendation system** that simplifies this process. Given a **natural language query or a job description text or URL**, your application should return a list of relevant SHL assessments. You can take a look at the data sources that you are going to work with here, <https://www.shl.com/solutions/products/product-catalog/>

## Your Task

Design and develop a web application that:

1. Takes a given natural language query or job description text URL
2. Recommends at most 10 (min 1) most relevant Individual test solutions from [here](#) in the tabular format
3. Each recommendation needs to have at least the following attributes
  - Assessment name and URL (linked to SHL's catalog)
  - Remote Testing Support (Yes/No) and Adaptive/IRT Support (Yes/No)
  - Duration and Test type

## Submission Materials

You need to submit the following items using this [form](#).

- Three URLs, 1) First URL where you can host the working demo (we type in queries and see the result) 2) API end point which can be queried using a query or piece of text and returns result in JSON (API Configurations mentioned below in [Appendix 2](#)) 3) URL of the code on GitHub which we can see (**URL of the complete code - Including your experiments and evaluation**)
- 1-page document outlining your approach on how you solved this problem. Write this document as concisely as possible with appropriate information. Highlight the tools, libraries that you have used.

### **These points are vital for us to evaluate the technical completeness and robustness of your solution:**

- **Accessibility:** Ensure that the API URL providing access to your recommendation engine is functional, your code is accessible via a public or private (shared with us) GitHub repository, and the UI (if you build one) is reachable and working.
- **Evaluation:** You must detail the evaluation metrics you used, the achieved evaluation score, and the strategies you tried to measure the system's performance. Implementation and clear documentation of your evaluation pipeline and results are mandatory for this option. **(This is critical to consider your submission, and you can find the test dataset to evaluate and report metric at the bottom of this document)**

(Optional) **Optimization:** You are welcome to briefly document any efforts you put into optimizing the overall performance score, including initial results and how you improved them.

## Evaluation Criteria

### **We will be using the following criteria to evaluate your solution.**

- **Approach:** The approach that you took to solve this problem. How have you crawled, represented, stored, and searched the data? How much of emerging LLM stack that you leveraged? We love evals and tracing -- would like to see how you have leveraged those.

- Accuracy: Accuracy on a benchmark set. Measured using Mean Recall@3 and MAP@3.
- Demo quality: The quality of the end-to-end demo and attention to the details. It is OK if you do not have front-end skills. You can use low-code frameworks like Streamlit, Gradio.

## Resources

You are not restricted to use these – feel free to use from anywhere else. Number of cloud platforms allow you to host applications and APIs for free for some time. Feel free to leverage those.

1. LLMs/Gemini Free APIs: <https://ai.google.dev/gemini-api/docs/pricing>

## Index: Metrics to compute accuracy

Your solution will be assessed using the following **ranking evaluation metrics**:

### 1. Mean Recall@K

This metric measures how many of the **relevant assessments** were retrieved in the **top K recommendations**, averaged across all test queries.

$$Recall@K = \frac{\text{Number of relevant assessments in top K}}{\text{Total relevant assessments for the query}}$$

$$MeanRecall@K = \frac{1}{N} \sum_{i=1}^N Recall@K_i$$

where **N** is the total number of test queries.

### 2. Mean Average Precision @K (MAP@K)

MAP@K evaluates both the **relevance** and **ranking order** of retrieved assessments by calculating **Precision@k** at each relevant result and averaging it over all queries.

$$AP@K = \frac{1}{\min(K, R)} \sum_{k=1}^K P(k) \cdot rel(k)$$

$$MAP@K = \frac{1}{N} \sum_{i=1}^N AP@K_i$$

where:

- **R** = total relevant assessments for the query
- **P(k)** = precision at position **k**
- **rel(k)** = 1 if the result at position **k** is relevant, otherwise 0
- **N** = total number of test queries

A higher **Mean Recall@K** and **MAP@K** indicate a better-performing recommendation system.

## Appendix 1: Metrics to compute accuracy

Here are some of the queries that you can use to test your application.

- I am hiring for Java developers who can also collaborate effectively with my business teams. Looking for an assessment(s) that can be completed in 40 minutes.
- Looking to hire mid-level professionals who are proficient in Python, SQL and Java Script. Need an

assessment package that can test all skills with max duration of 60 minutes.

- Here is a [JD text](#), can you recommend some assessment that can help me screen applications. Time limit is less than 30 minutes.
- I am hiring for an analyst and wants applications to screen using Cognitive and personality tests, what options are available within 45 mins.

## Appendix 2: API Structure & Endpoints

This section outlines the required API configuration for the take-home assignment. Your API must implement the endpoints described below exactly as specified to ensure proper evaluation of your submission.

Base requirements:

- Your API should be accessible via HTTP/HTTPS
- All responses should use proper HTTP status codes
- All data exchanges must be in JSON format

Required Endpoints:

1. **Health Check Endpoint:** This endpoint provides a simple status check to verify the API is running.

Request:

- Method: GET
- Path: <YOUR-BASE-URL>/health

Response:

- Content-Type: application/json
- Status Code: 200 OK (if healthy)
- Body:

```
{
  "status": "healthy"
}
```

2. **Assessment Recommendation Endpoint:** This endpoint accepts a job description or Natural language query and returns recommended relevant assessments (At most 10, minimum 1) based on the input.

Request:

- Method: POST
- Path: <YOUR-BASE-URL>/recommend
- Content-Type: application/json
- Body:

```
{
  "query": "JD/query in string"
}
```

Response:

- Content-Type: application/json
- Status Code: 200 OK (if successful)
- Body:

```
{
  "recommended_assessments": [
    {
      "url": "Valid URL in string",
      "adaptive_support": "Yes/No",
      "description": "Description in string",
      "duration": 60,
      "remote_support": "Yes/No",
      "test_type": ["List of string"]
    }
  ]
}
```

Response Fields Explanation: For the /recommend endpoint response ->

Field	Type	Description
url	String	Valid URL to the assessment resource
adaptive_support	String	Either "Yes" or "No" indicating if the assessment supports adaptive testing
description	String	Detailed description of the assessment
duration	Integer	Duration of the assessment in minutes
remote_support	String	Either "Yes" or "No" indicating if the assessment can be taken remotely
test_type	Array of Strings	Categories or types of the assessment

Example Response:

```
{
  "recommended_assessments": [
    {
      "url": "https://www.shl.com/solutions/products/product-catalog/view/python-new/",
      "adaptive_support": "No",
      "description": "Multi-choice test that measures the knowledge of Python programming, databases, modules and library. For",
      "duration": 11,
      "remote_support": "Yes",
      "test_type": ["Knowledge & Skills"]
    },
    {
      "url": "https://www.shl.com/solutions/products/product-catalog/view/technology-professional-8-0-job-focused-assessment/",
      "adaptive_support": "No",
      "description": "The Technology Job Focused Assessment assesses key behavioral attributes required for success in fast-pa",
      "duration": 16,
      "remote_support": "Yes",
      "test_type": ["Competencies", "Personality & Behaviour"]
    }
  ]
}
```

Testing your API: Before submitting your API link, please verify that ->

1. Both endpoints are functioning correctly
2. The response formats match exactly what is given

**To assist you with implementing the evaluation component of your chosen assignment, we have attached a test set that you can use in your evaluation pipeline.**

### **SHL Assessment Recommendations**

Query	Assessments	URL
I am hiring for Java developers who can also collaborate effectively with my business teams. Looking for an assessment(s) that can be completed in 40 minutes.	<a href="#">Automata - Fix (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/automata-fix-new/">https://www.shl.com/solutions/products/product-catalog/view/automata-fix-new/</a>
	<a href="#">Core Java (Entry Level) (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/core-java-entry-level-new/">https://www.shl.com/solutions/products/product-catalog/view/core-java-entry-level-new/</a>
	<a href="#">Java 8 (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/java-8-new/">https://www.shl.com/solutions/products/product-catalog/view/java-8-new/</a>
	<a href="#">Core Java (Advanced Level) (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/core-java-advanced-level-new/">https://www.shl.com/solutions/products/product-catalog/view/core-java-advanced-level-new/</a>
	<a href="#">Agile Software Development   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/agile-software-development/">https://www.shl.com/solutions/products/product-catalog/view/agile-software-development/</a>

	<a href="#">Technology Professional 8.0 Job Focused Assessment   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/technology-professional-8-0-job-focused-assessment/">https://www.shl.com/solutions/products/product-catalog/view/technology-professional-8-0-job-focused-assessment/</a>
	<a href="#">Computer Science (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/computer-science-new/">https://www.shl.com/solutions/products/product-catalog/view/computer-science-new/</a>
I want to hire new graduates for a sales role in my company, the budget is for about an hour for each test. Give me some options	<a href="#">Entry level Sales 7.1 (International)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-7-1/">https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-7-1/</a>
	<a href="#">Entry Level Sales Sift Out 7.1   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-sift-out-7-1/">https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-sift-out-7-1/</a>
	<a href="#">Entry Level Sales Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-solution/">https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-solution/</a>
	<a href="#">Sales Representative Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/sales-representative-solution/">https://www.shl.com/solutions/products/product-catalog/view/sales-representative-solution/</a>
	<a href="#">Sales Support Specialist Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/sales-support-specialist-solution/">https://www.shl.com/solutions/products/product-catalog/view/sales-support-specialist-solution/</a>
	<a href="#">Technical Sales Associate Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/technical-sales-associate-solution/">https://www.shl.com/solutions/products/product-catalog/view/technical-sales-associate-solution/</a>
	<a href="#">SVAR - Spoken English (Indian Accent) (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/svar-spoken-english-indian-accent-new/">https://www.shl.com/solutions/products/product-catalog/view/svar-spoken-english-indian-accent-new/</a>
	<a href="#">Sales &amp; Service Phone Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/sales-and-service-phone-solution/">https://www.shl.com/solutions/products/product-catalog/view/sales-and-service-phone-solution/</a>
	<a href="#">Sales &amp; Service Phone Simulation   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/sales-and-service-phone-simulation/">https://www.shl.com/solutions/products/product-catalog/view/sales-and-service-phone-simulation/</a>
I am looking for a COO for my company in China and I want to see if they are culturally a right fit for our company. Suggest me an assessment that they can complete in about an hour	<a href="#">English Comprehension (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/english-comprehension-new/">https://www.shl.com/solutions/products/product-catalog/view/english-comprehension-new/</a>
	<a href="#">Motivation Questionnaire MQM5   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/motivation-questionnaire-mqm5/">https://www.shl.com/solutions/products/product-catalog/view/motivation-questionnaire-mqm5/</a>
	<a href="#">Global Skills Assessment   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/global-skills-assessment/">https://www.shl.com/solutions/products/product-catalog/view/global-skills-assessment/</a>
Content Writer required, expert in English and SEO.	<a href="#">Graduate 8.0 Job Focused Assessment   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/graduate-8-0-job-focused-assessment-4228/">https://www.shl.com/solutions/products/product-catalog/view/graduate-8-0-job-focused-assessment-4228/</a>
	<a href="#">Drupal (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/drupal-new/">https://www.shl.com/solutions/products/product-catalog/view/drupal-new/</a>
	<a href="#">Search Engine Optimization (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/search-engine-optimization-new/">https://www.shl.com/solutions/products/product-catalog/view/search-engine-optimization-new/</a>
	<a href="#">Administrative Professional - Short Form   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/administrative-professional-short-form/">https://www.shl.com/solutions/products/product-catalog/view/administrative-professional-short-form/</a>
	<a href="#">Entry Level Sales Sift Out 7.1   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-sift-out-7-1/">https://www.shl.com/solutions/products/product-catalog/view/entry-level-sales-sift-out-7-1/</a>
	<a href="#">General Entry Level – Data Entry 7.0 Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/general-entry-level-data-entry-7-0-solution/">https://www.shl.com/solutions/products/product-catalog/view/general-entry-level-data-entry-7-0-solution/</a>

<p>Find me 1 hour long assesment for the below job at SHL</p> <p>Job Description</p> <p>Join a community that is shaping the future of work! SHL, People Science. People Answers.</p> <p>Are you a seasoned QA Engineer with a flair for innovation? Are you ready to shape the future of talent assessment and empower organizations to unlock their full potential? If so, we want you to be a part of the SHL Team! As a QA Engineer, you will be involved in creating and implementing software solutions that contribute to the development of our ground-breaking products.</p> <p>An excellent benefit package is offered in a culture where career development, with ongoing manager guidance, collaboration, flexibility, diversity, and inclusivity are all intrinsic to our culture. There is a huge investment in SHL currently so there's no better time to become a part of something transformational.</p> <p>What You Will Be Doing</p> <p>Getting involved in engineering quality assurance and providing inputs when required.</p> <p>Create and develop test plans for various forms of testing.</p> <p>Conducts and/or participates in formal and informal test case reviews.</p> <p>Develop and initiate functional tests and regression tests.</p> <p>Rolling out improvements for testing and quality processes.</p> <p>Essential</p> <p>What we are looking for from you:</p>		<p><a href="https://www.shl.com/solutions/products/product-catalog/view/automata-selenium/">https://www.shl.com/solutions/products/product-catalog/view/automata-selenium/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/automata-fix-new/">https://www.shl.com/solutions/products/product-catalog/view/automata-fix-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/automata-front-end/">https://www.shl.com/solutions/products/product-catalog/view/automata-front-end/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/javascript-new/">https://www.shl.com/solutions/products/product-catalog/view/javascript-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/htmlcss-new/">https://www.shl.com/solutions/products/product-catalog/view/htmlcss-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/html5-new/">https://www.shl.com/solutions/products/product-catalog/view/html5-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/css3-new/">https://www.shl.com/solutions/products/product-catalog/view/css3-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/selenium-new/">https://www.shl.com/solutions/products/product-catalog/view/selenium-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/sql-server-new/">https://www.shl.com/solutions/products/product-catalog/view/sql-server-new/</a></p> <p><a href="https://www.shl.com/solutions/products/product-catalog/view/automata-sql-new/">https://www.shl.com/solutions/products/product-catalog/view/automata-sql-new/</a></p>
	<a href="#">Automata Selenium   SHL</a>	
	<a href="#">Automata - Fix (New)   SHL</a>	
	<a href="#">Automata Front End   SHL</a>	
	<a href="#">JavaScript (New)   SHL</a>	
	<a href="#">HTML/CSS (New)   SHL</a>	
	<a href="#">HTML5 (New)   SHL</a>	
	<a href="#">CSS3 (New)   SHL</a>	
	<a href="#">Selenium (New)   SHL</a>	
	<a href="#">SQL Server (New)   SHL</a>	
	<a href="#">Automata - SQL (New)   SHL</a>	

Development experience – Java or JavaScript, CSS, HTML (Automation)  
Selenium WebDriver and page object design pattern (Automation)  
SQL server knowledge  
Test case management experience.  
Manual Testing

Desirable

Knowledge the basic concepts of testing  
Strong solution-finding experience  
Strong verbal and written communicator.

Get In Touch

Find out how this one-off opportunity can help you achieve your career goals by making an application to our knowledgeable and friendly Talent Acquisition team. Choose a new path with SHL.

#CareersAtSHL #SHLHiringTalent

#TechnologyJobs  
#QualityAssuranceJobs

#CareerOpportunities  
#JobOpportunities

About Us

We unlock the possibilities of businesses through the power of people, science and technology. We started this industry of people insight more than 40 years ago and continue to lead the market with powerhouse product launches, ground-breaking science and business transformation. When you inspire and transform people's lives, you will experience the greatest business outcomes possible. SHL's products insights, experiences, and services can help achieve growth at scale.

[Manual Testing \(New\) | SHL](https://www.shl.com/solutions/products/product-catalog/view/manual-testing-new/)

<https://www.shl.com/solutions/products/product-catalog/view/manual-testing-new/>

<p>What SHL Can Offer You</p> <p>Diversity, equity, inclusion and accessibility are key threads in the fabric of SHL's business and culture (find out more about DEI and accessibility at SHL )</p> <p>Employee benefits package that takes care of you and your family. Support, coaching, and on-the-job development to achieve career success</p> <p>A fun and flexible workplace where you'll be inspired to do your best work (find out more LifeAtSHL )</p> <p>The ability to transform workplaces around the world for others.</p> <p>SHL is an equal opportunity employer. We support and encourage applications from a diverse range of candidates. We can, and do make adjustments to make sure our recruitment process is as inclusive as possible.</p> <p>SHL is an equal opportunity employer.</p>		
<p>ICICI Bank Assistant Admin, Experience required 0-2 years, test should be 30-40 mins long</p>	<a href="https://www.shl.com/solutions/products/product-catalog/view/administrative-professional-short-form/">Administrative Professional - Short Form   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/administrative-professional-short-form/">https://www.shl.com/solutions/products/product-catalog/view/administrative-professional-short-form/</a>
	<a href="https://www.shl.com/solutions/products/product-catalog/view/verify-numerical-ability/">Verify - Numerical Ability   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/verify-numerical-ability/">https://www.shl.com/solutions/products/product-catalog/view/verify-numerical-ability/</a>
	<a href="https://www.shl.com/solutions/products/product-catalog/view/financial-professional-short-form/">Financial Professional - Short Form   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/financial-professional-short-form/">https://www.shl.com/solutions/products/product-catalog/view/financial-professional-short-form/</a>
	<a href="https://www.shl.com/solutions/products/product-catalog/view/bank-administrative-assistant-short-form/">Bank Administrative Assistant - Short Form   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/bank-administrative-assistant-short-form/">https://www.shl.com/solutions/products/product-catalog/view/bank-administrative-assistant-short-form/</a>
	<a href="https://www.shl.com/solutions/products/product-catalog/view/general-entry-level-data-entry-7-0-solution/">General Entry Level – Data Entry 7.0 Solution   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/general-entry-level-data-entry-7-0-solution/">https://www.shl.com/solutions/products/product-catalog/view/general-entry-level-data-entry-7-0-solution/</a>
	<a href="https://www.shl.com/solutions/products/product-catalog/view/basic-computer-literacy-windows-10-new/">Basic Computer Literacy (Windows 10) (New)   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/basic-computer-literacy-windows-10-new/">https://www.shl.com/solutions/products/product-catalog/view/basic-computer-literacy-windows-10-new/</a>
<p>KEY RESPONSIBILITIES:</p> <p>Manage the sound-scape of the</p>	<a href="https://www.shl.com/solutions/products/product-catalog/view/verify-verbal-ability-next-generation/">Verify - Verbal Ability - Next Generation   SHL</a>	<a href="https://www.shl.com/solutions/products/product-catalog/view/verify-verbal-ability-next-generation/">https://www.shl.com/solutions/products/product-catalog/view/verify-verbal-ability-next-generation/</a>



<p>station through appropriate creative and marketing interventions to Increase or Maintain the listenership</p> <p>Acts as an interface between Programming &amp; sales team, thereby supporting the sales team by providing creative inputs in order to increase the overall ad spends by clients</p> <p>Build brand Mirchi by ideating fresh programming initiatives on air campaigns, programming led on-ground events &amp; new properties to ensure brand differentiation &amp; thus increase brand recall at station level</p> <p>Invest time in local RJs to grow &amp; develop them as local celebrities</p> <p>Through strong networking, must focus on identifying the best of local talent and ensure to bring the creative minds from the market on board with Mirchi</p> <p>Build radio as a category for both listeners &amp; advertisers</p> <p>People Management</p> <p>Identifying the right talent and investing time in developing them by frequent feedback on their performance</p> <p>Monitor, Coach and mentor team members on a regular basis</p> <p>Development of Jocks as per guidelines</p> <p>Must have an eye to spot the local talent to fill up vacancies locally</p>	<p><a href="#">SHL Verify Interactive - Inductive Reasoning   SHL</a></p>	<p><a href="https://www.shl.com/solutions/products/product-catalog/view/shl-verify-interactive-inductive-reasoning/">https://www.shl.com/solutions/products/product-catalog/view/shl-verify-interactive-inductive-reasoning/</a></p>
<p>TECHNICAL SKILLS &amp; QUALIFICATION REQUIRED:</p> <p>Graduation / Post Graduation (Any specialisation) with 8 -12 years of relevant experience</p> <p>Experience in digital content conceptualisation</p> <p>Strong branding focus</p> <p>Must be well-read in variety of areas and must keep up with the</p>	<p><a href="#">Occupational Personality Questionnaire OPQ32r   SHL</a></p>	<p><a href="https://www.shl.com/solutions/products/product-catalog/view/occupational-personality-questionnaire-opq32r/">https://www.shl.com/solutions/products/product-catalog/view/occupational-personality-questionnaire-opq32r/</a></p>

<p>latest events in the city / cluster / country</p> <p>Must know to read, write &amp; speak English</p> <p>PERSONAL ATTRIBUTES:</p> <p>Excellent communication skills</p> <p>Good interpersonal skills</p> <p>People management</p> <p>Suggest me some tests for the above jd. The duration should be at most 90 mins</p>		
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