

[Get started](#) · [Exercises](#)

Exercise 01: trace a search

🕒 2 min read · Updated 25 September 2026

Run three real queries through the search waterfall — one the exact tier answers, one the lexicon answers, one that falls to the fold — and read the reported mode against the code.

<https://docs.gurbanisoul.com/exercises/01-trace-a-search/>

Goal. Predict which tier answers a query, run it, and confirm from the mode the API reports. **Needs.** A local server (python3 webapp/serve.py) or the production API through the wiki's [simulator](#). 30 minutes.

1. Predict

Read [modes and tiers](#). For each query below, write down the tier you expect and the mode string it would report:

Query	Your prediction
sat nam	
waheguru	
zzqvxv plok	

2. Run

```
curl -s 'http://127.0.0.1:7777/api/search?q=sat%20nam&limit=3' | python3 -c 'import json,sys; d=json.load(sys.stdin); print(d["mode"], len(d["results"]))'
curl -s 'http://127.0.0.1:7777/api/search?q=waheguru&limit=3' | python3 -c 'import json,sys; d=json.load(sys.stdin); print(d["mode"], len(d["results"]))'
curl -s 'http://127.0.0.1:7777/api/search?q=zzqvxv%20plok&limit=3' | python3 -c 'import json,sys; d=json.load(sys.stdin); print(d["mode"], len(d["results"]))'
```

Expected output (the second line's term in brackets may differ by dataset):

```
variant-match 3
seeker-lexicon (vaahiguroo) 3
roman-spelling-tolerant 0
```

3. Read the code

Open `webapp/sggs/search.py` and find `do_search`. For each query, find the line that set the mode you saw. Then answer:

- Why did `sat naam` skip the transliteration tier? (Hint: what does the `translit` column hold for the line whose transliteration is `sat naam`?)
- Why is the last query's mode a *fold* tier with zero results, rather than `NOT_FOUND`?

Self-check

A query with no results reports a mode. Which one?

- ☐ The last tier the waterfall reached
- ☐ `NOT_FOUND`
- ☐ An empty string

You change a `bm25` weight to make one query rank better. What must you run before opening a pull request?

- ☐ The harnesses and make contract
- ☐ Only the unit tests
- ☐ Nothing; weights are configuration