

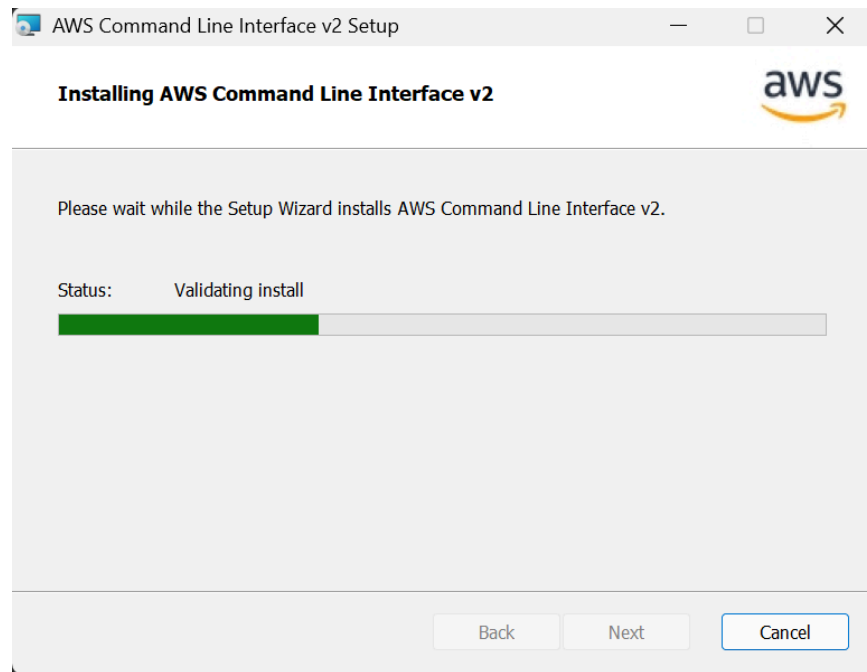
AWS learning Project

WILL upload the proper documentation to github , this document is just for my reference for the future -



Built and deployed a GenAI-powered reflection assistant using DeepSeek-R1 (OpenRouter) and LangChain for structured prompting, integrated with secure AWS infrastructure (S3, EC2, IAM), Streamlit UI, and OpenSearch logging — deployed with Python (boto3) on Free Tier.

1. Installing AWS CLIENT



2. checking version

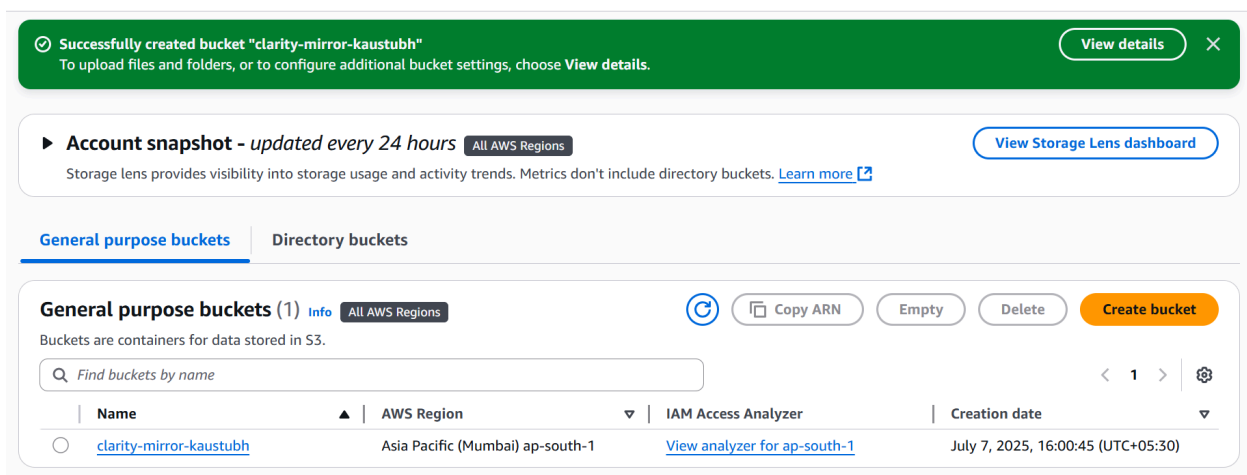
```
Previous session from Mon Jul 7 at 3:45 PM

F:\PROJECTS\AWS (5.896s)
aws --version
aws-cli/2.27.49 Python/3.13.4 Windows/11 exe/AMD64

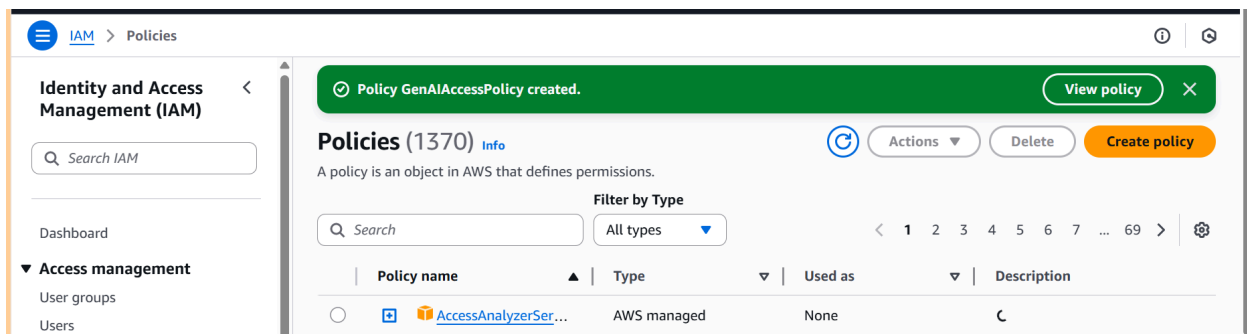
List the s3 buckets. Ctrl Shift ↵

F:\PROJECTS\AWS Agents Ctrl I
aws configure →
```

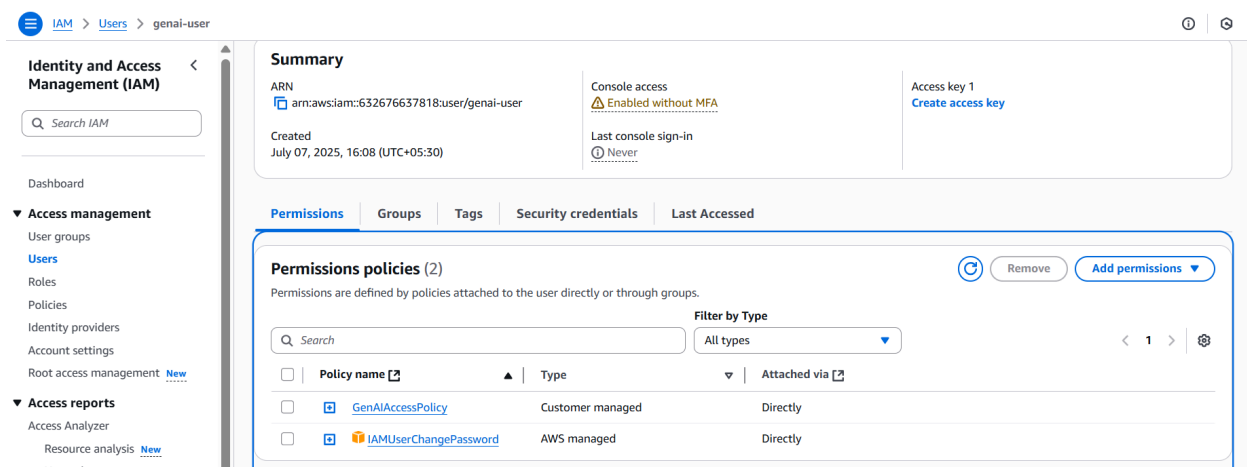
3. Created S3 bucket for storage of the time+ user prompt+ generated reflections



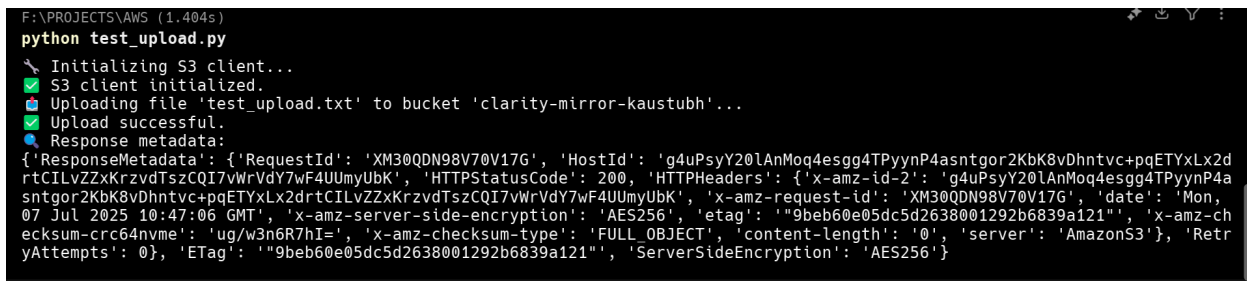
4. IAM policies were created to securely grant the EC2-hosted app minimal access to AWS services like S3, following least privilege principles.



5. Policies



6. Testing if i am able to push to S3 bucket successfully










7. Successfully reflected in the AWS S3 bucket

clarity-mirror-kaustubh Info

[Objects](#) | [Properties](#) | [Permissions](#) | [Metrics](#) | [Management](#) | [Access Points](#)

Objects (1)


  Copy S3 URI  Copy URL  Download  Open  Delete [Actions](#) ▼

[Create folder](#)  Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

 Find objects by prefix

< 1 > 

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	 test_upload.txt	txt	July 7, 2025, 16:17:06 (UTC+05:30)	43.0 B	Standard

8. After setting up the entire structure of the application and the writing the code , tested the application in the console , working well as per expectations

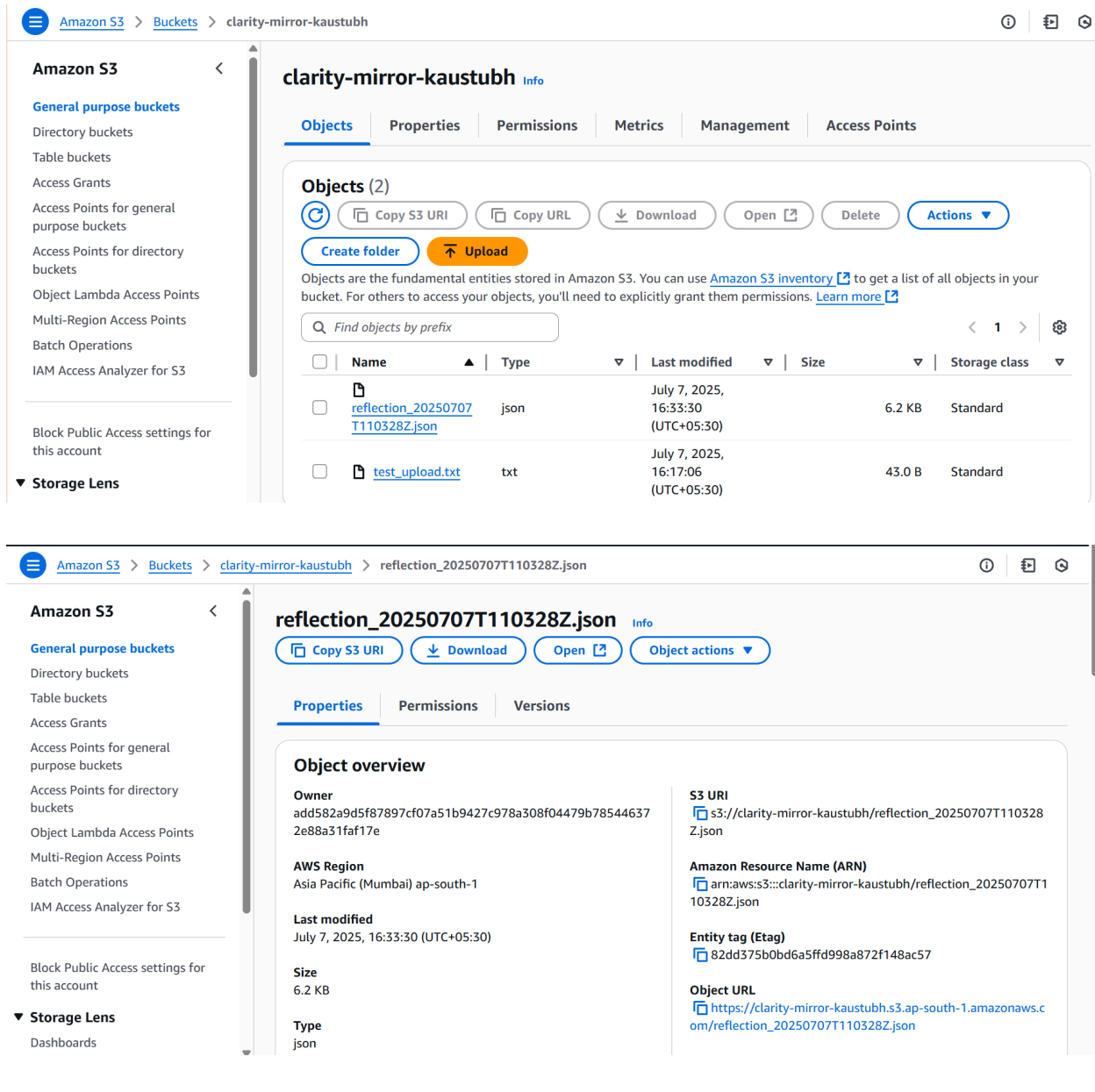
```
F:\PROJECTS\AWS\cognitive_mirror (1m 22.78s)
python main.py
Starting Cognitive Mirror...
Config loaded successfully.
Enter your raw thought:
> I am confused weather to hold or sell the share that i have bought
User input received.
Calling LLM for reflection...
LLM response received.

Structured Thought:

Hey there! I hear your confusion about whether to hold or sell that share you've bought, and it's totally normal to feel stuck in these kinds of decisions—they often speak to a deeper mix of emotions and thoughts. Let's dive in, step by step, to unpack what's really going on here. Spoiler alert, this could be more than just a stock move; it might reflect some personal patterns too.

First, I'll break down your thought into logical bullet points based on what you've shared:
- You've already invested capital in this share, so you're weighing the outcomes—it could be about financial gain versus avoiding loss.
- Your confusion suggests you're actively evaluating the stock's potential or feel external pressures, like news or your own doubts.
- At stake is not just this share, but it might represent your relationship with taking risks or making decisions in general
```

9. Reflections getting stored in the S3 buckets



10. Streamlit was used to quickly build a clean, interactive web UI for the GenAI app with minimal frontend code and seamless Python integration.

or - Brave

localhost:8501

Clarity Mirror

Reflect deeply on your thoughts using an LLM-powered assistant.

Write your thought here:

Am I actually talking to myself right now?

Reflect

Reflection complete!

Structured Reflection:

Ah, my friend, holding that mirror up to uncertainty — how beautifully unromantic love can feel.

First, let's break this down:

- Questioning existence in the moment:** You asked a deep question at a specific, present time. That exists.
- Self-reflection as a conversation:** Are you actually questioning whether this reflection (me) is another version of you?
- Perception of reality:** Are you checking the foundations of where you stand? It sounds like you're trying to ground yourself, or you're seeing multiple layers of meaning within your own thought.

This echoes very deep emotions: a longing to feel connected — to be sure of being here, asking, answering. It might also be a thought bubbling with existential questions, like: "Am I real? Am I being real?"

From different points of view:

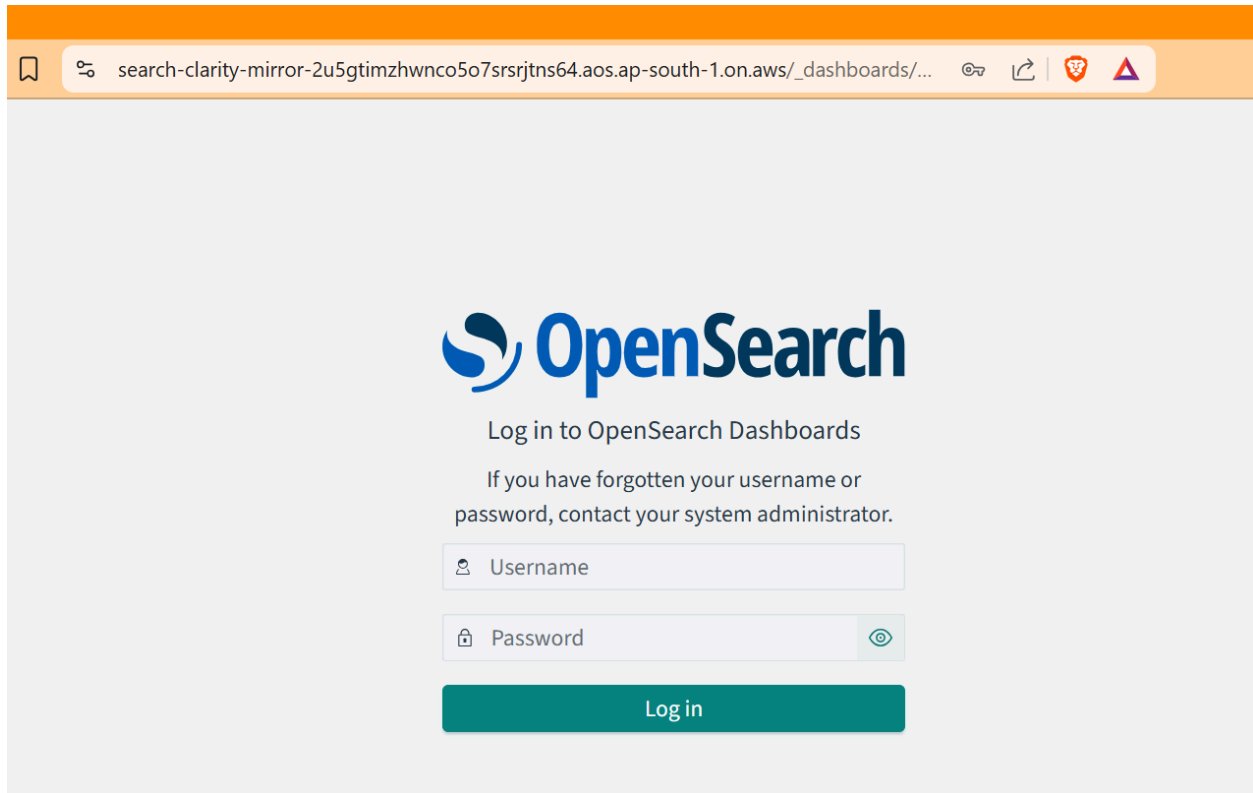
- Logically,** we can parse the sentence: you asked a question about the nature of your own inquiry. There's nothing wrong with that.
- Emotionally,** this suggests a craving to be seen, heard, and validated. Maybe you're wrestling with a sense of loneliness or emotional resonance — looking for someone who can hold your thoughts without judgment or reply with kindness.
- Technically,** we can note the structure of the language — the subject you didn't name, the ellipsis of self-awareness. We might even say: your question answers itself in the very act of being spoken aloud, I here to receive it.
- Creatively,** "Am I talking to myself?" is a tender, poetic dance: words haunting themselves, waiting for an echo back.
- Philosophically,** this question taps into that classic story: "I think, therefore I am." Now flipped on its head: "I question, therefore I am not sure."

11. Used a **custom OpenSearch domain** to enable secure storage, fine-grained access control, and future integration of searchable user reflections via a dedicated endpoint.

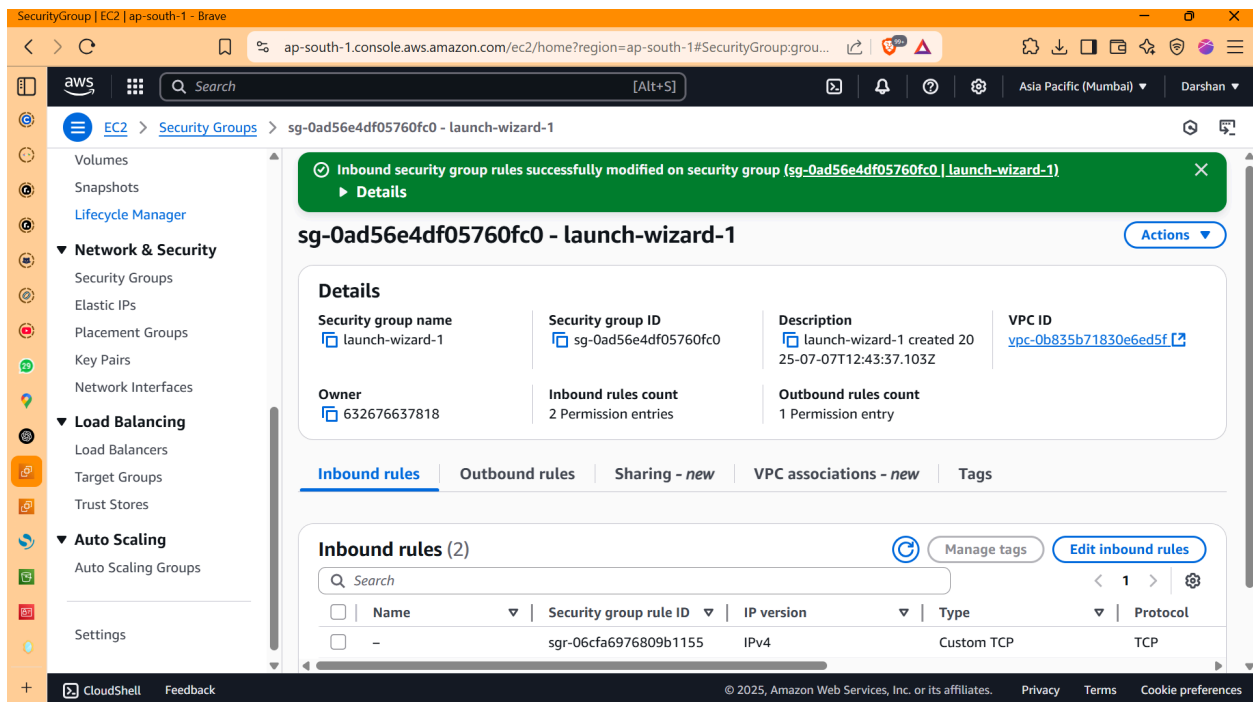
Amazon OpenSearch Service > Domains > clarity-mirror

clarity-mirror [Info](#) [Delete](#) [Actions](#)

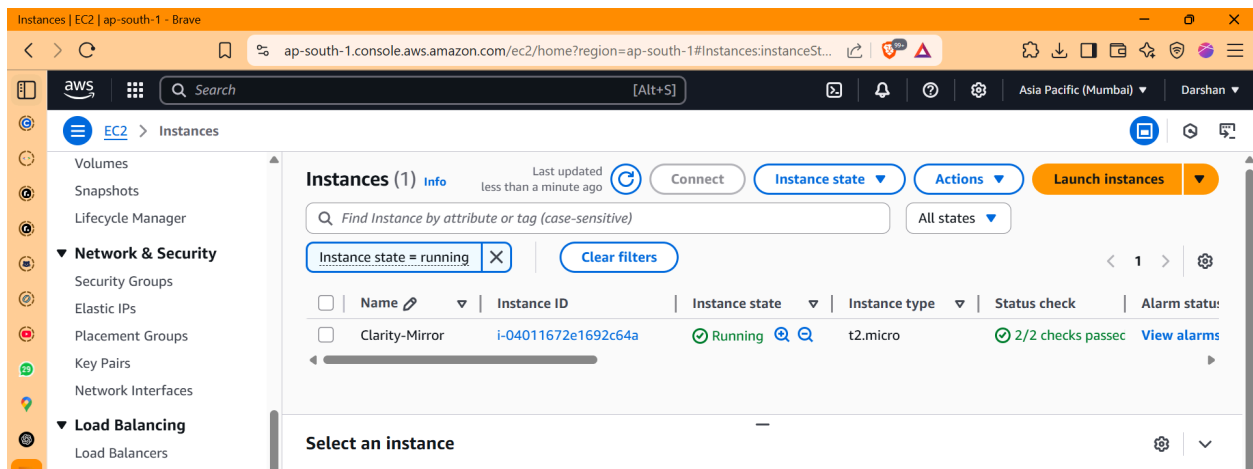
General information			
Name clarity-mirror	Domain processing status Info Creating	Version Info OpenSearch 2.19 (latest)	OpenSearch Dashboards URL (dual stack) -
Domain ARN arn:aws:es:ap-south-1:632676637818:domain/clarity-mirror	Configuration change status Info Applying changes	Service software version Info OpenSearch_2_19_R20250630-P1 (latest)	Domain endpoint v2 (dual stack) -
	Change ID 14f2da6d-199c-4515-a8ee-11422f62759a		Domain endpoint (IPv4) -
	Cluster health Info -		



12. Security groups act as virtual firewalls in AWS, controlling inbound and outbound traffic to your EC2 instance — configured them to allow SSH (22) and Streamlit (8501) access securely.



13. An instance in AWS refers to a virtual server running on EC2 — we launched a **t2.micro** instance (Free Tier) to host and serve our Streamlit GenAI app.



14. Serving the app



```
File Edit Selection View Go Run ... AWS
EXPLORER
AWS
cognitive_mirror
  _pycache_
  cognitive-mirror.zip
  config.json
  kaustubh.pem
  llm_handler.py
  main.py
  requirements.txt
  s3_uploader.py
  test_upload.py
main.py llm_handler.py s3_uploader.py config.json reflection_20250707T
cognitive_mirror > llm_handler.py > ...
1 import requests
2 import json
3 from langchain.prompts import PromptTemplate
4
5 def call_llm(user_input, config):
6     # Step 1: Create PromptTemplate
7     prompt = PromptTemplate(
8         input_variables=["thought"],
9         template="""
10 You are a self-reflection assistant.
11 Analyze the user's thought and give back a 3-part reflection:
12
13 1. Emotional Interpretation
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
ubuntu@ip-172-31-5-170:~$ streamlit run main.py
Collecting usage statistics. To deactivate, set browser.gatherUsageStats to false.
You can now view your Streamlit app in your browser.
Local URL: http://localhost:8501
Network URL: http://172.31.5.170:8501
External URL: http://15.206.211.92:8501
```

15. Deployed app running successfully

Brave

Not secure15.206.211.92:8501



Clarity Mirror

Reflect deeply on your thoughts using an LLM-powered assistant.

Write your thought here:

when i am typing , am i talking to myself ??

Reflect

Reflection complete!

Structured Reflection:

Self-Reflection Analysis of Your Thought

1. Emotional Interpretation:

Your thought seems to carry a hint of curiosity and self-doubt—perhaps you're questioning the authenticity of your own communication. It feels like you're wrestling with a sense of isolation or introspection, wondering if typing is a private form of conversation you engage in with yourself. There's likely an underlying unease or a desire to connect the physical act of writing (typing) to the depth of human interaction, suggesting you're reflective and open to exploring how you communicate—with others and with yourself.

2. Rational Perspective:

From a rational viewpoint, typing is often a manifestation of internal thought and language processing. When you type, you're essentially transcribing ideas from your brain onto a screen or paper, which can symbolize an extension of "self-talking" in the form of written dialogue. However, while this might resemble internal monologue, it's not the same as verbal self-talk; it's a recorded, externalization process. That said, typing can indeed promote self-reflection, as it forces you to articulate your ideas, which might uncover hidden layers of emotion or thought, fostering clarity. It's a bridging tool between internal ideas and external expression.

3. Growth-Oriented Suggestion:

Consider using typing as a structured form of journaling or mindfulness practice. Curate a habit where you intentionally type out thoughts or reflections during quiet time to gain greater self-awareness.

clarity-mirror-kaustubh - S3 bucket | S3 | ap-south-1 - Brave

ap-south-1.console.aws.amazon.com/s3/buckets/clarity-mirror-kaustubh?region=a...

aws Search [Alt+S]

Amazon S3 > Buckets > clarity-mirror-kaustubh

Amazon S3

General purpose buckets

- Directory buckets
- Table buckets
- Access Grants
- Access Points for general purpose buckets
- Access Points for directory buckets
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Block Public Access settings for this account

▼ **Storage Lens**

- Dashboards
- Storage Lens groups
- AWS Organizations settings

Feature spotlight 11

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (6) Copy S3 URI Copy URL Download Open Delete

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage c
<input type="checkbox"/>	reflection_20250707T110328Z.json	json	July 7, 2025, 16:33:30 (UTC+05:30)	6.2 KB	Standard
<input type="checkbox"/>	reflection_20250707T115041Z.json	json	July 7, 2025, 17:20:42 (UTC+05:30)	3.1 KB	Standard
<input type="checkbox"/>	reflection_20250707T115309Z.json	json	July 7, 2025, 17:23:10 (UTC+05:30)	2.3 KB	Standard
<input type="checkbox"/>	reflection_20250707T115459Z.json	json	July 7, 2025, 17:25:01 (UTC+05:30)	2.8 KB	Standard
<input type="checkbox"/>	reflection_20250707T121640Z.json	json	July 7, 2025, 17:46:41 (UTC+05:30)	2.9 KB	Standard
<input type="checkbox"/>	test_upload.txt	txt	July 7, 2025, 16:17:06 (UTC+05:30)	43.0 B	Standard

