

Module1:

```
 1 [nathaniel@nathaniel-OptiPlex-5090:~/Desktop]$ aws lambda invoke --function-name my-function --payload file://lambda_function.py
 2 {
 3     "statusCode": 200,
 4     "headers": {
 5         "Content-Type": "application/json"
 6     },
 7     "body": "{'text': 'Hello from Lambda!'}"
 8 }
```

The screenshot shows a terminal window with the command `aws lambda invoke --function-name my-function --payload file://lambda_function.py` run. The output is a JSON object containing the status code, headers, and body of the response from the Lambda function.

File Edit Selection View Go Run Terminal Help

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-S...
- .venv
- agentcore
- external_api_examples
- guardrails
- mcp_examples
- strands_calculator_mcp_agent_example
- mcp_calculator.py
- strands_knowledgebase_agent_example
- strands_memory_agent_example
- strands_meta_tooling_agent_example
- strands_multi_agent_example
- strands_nova_example
- strands_session_management_example
- strands_weather_agent_example
- strands_workflow_agent_example
- streamlit_examples
- .gitignore
- app_kb_mem.py
- app_kb.py
- cleanup_resources.py
- cleanup_resources2.py
- CODE_OF_CONDUCT.md
- CONTRIBUTING.md
- create_knowledge_base.py
- knowledge_base.py
- LICENSE
- README.md

requirements.txt

```
aws-opentelemetry-distro>=0.10.0
bedrock-agentcore
bedrock-agentcore-starter-toolkit
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands>cd strands_calculator_mcp_agent_example

C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands>uv run mcp_calculator.py

Waiting for MCP server to start...

Starting MCP Calculator Server on http://localhost:8000

INFO: Started server process [10944]

INFO: Waiting for application startup.

INFO: Application startup complete.

INFO: uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)

Connecting to MCP server...

INFO: 127.0.0.1:55907 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:55907 - "POST /mcp/ HTTP/1.1" 200 OK

INFO: 127.0.0.1:55910 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:55911 - "GET /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:55910 - "POST /mcp/ HTTP/1.1" 202 Accepted

INFO: 127.0.0.1:55911 - "GET /mcp/ HTTP/1.1" 200 OK

INFO: 127.0.0.1:55913 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:55913 - "POST /mcp/ HTTP/1.1" 200 OK

Available MCP tools: ['add', 'subtract', 'multiply', 'divide']

Calculator Agent Ready! Type 'exit' to quit.

Question: What is 16 times 16?

Thinking...

<thinking>The User has asked for the multiplication of two numbers, 16 and 16. I can use the 'multiply' tool to perform this operation.</thinking>

Tool #1: multiply

INFO: 127.0.0.1:55920 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:55920 - "POST /mcp/ HTTP/1.1" 200 OK

The result of multiplying 16 by 16 is 256.

Answer: The result of multiplying 16 by 16 is 256.

Question: sum of 20 and 100

Thinking...

<thinking>The User has asked for the sum of two numbers, 20 and 100. I can use the 'add' tool to perform this operation.</thinking>

Tool #2: add

INFO: 127.0.0.1:63023 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:63023 - "POST /mcp/ HTTP/1.1" 200 OK

The sum of 20 and 100 is 120.

Answer: The sum of 20 and 100 is 120.

Question: main* Nathaniel (7 months ago)

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EXPLORER

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- strands_multi_agent_example
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- strands_session_management_example
- strands_weather_agent_example
- strands_workflow_agent_example
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bedrock-agentcore
bedrock-agentcore-starter-toolkit
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

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The result of multiplying 16 by 16 is 256.

Answer: The result of multiplying 16 by 16 is 256.

Question: sum of 20 and 100

Thinking...

<thinking>The User has asked for the sum of two numbers, 20 and 100. I can use the 'add' tool to perform this operation.</thinking>

Tool #2: add

INFO: 127.0.0.1:63023 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:63023 - "POST /mcp/ HTTP/1.1" 200 OK

The sum of 20 and 100 is 120.

Answer: The sum of 20 and 100 is 120.

Question: If I have \$1000 and spend \$246, how much do I have left?

Thinking...

<thinking>The User has asked to subtract \$246 from \$1000 to find out how much money is left. I can use the 'subtract' tool to perform this operation.</thinking>

Tool #3: subtract

INFO: 127.0.0.1:51038 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:51038 - "POST /mcp/ HTTP/1.1" 200 OK

If you have \$1000 and spend \$246, you will have \$754 left.

Answer: If you have \$1000 and spend \$246, you will have \$754 left.

Question: What is pi by 4?

Thinking...

<thinking>The User has asked for the division of pi by 4. However, I don't have a direct tool to calculate pi. I can use the approximate value of pi (3.14159) and then divide it by 4 using the 'divide' tool.</thinking>

Tool #4: divide

INFO: 127.0.0.1:51042 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect

INFO: 127.0.0.1:51042 - "POST /mcp/ HTTP/1.1" 200 OK

The result of dividing pi by 4 (using an approximate value of pi as 3.14159) is approximately 0.7853975.

Answer: The result of dividing pi by 4 (using an approximate value of pi as 3.14159) is approximately 0.7853975.

Question: main* Nathaniel (7 months ago) In 15. Col 3. Spaces: 4. UTR-8 CRLF () pip requirements

Module2:

```

File Edit Selection View Go Run Terminal Help
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_weather_agent_example> run weather_forecaster.py
Weather Forecaster Strands Agent

This example demonstrates using Strands Agents' HTTP request capabilities
to get weather forecasts from the National Weather Service API.

Options:
  'get weather' - Demonstrate weather API capabilities
  'exit' - Exit the program

Or simply ask about the weather in any US location:
  'What's the weather like in San Francisco?'
  'Will it rain tomorrow in Miami?'

> What's the weather like in Seattle?
<thinking> I need to retrieve the coordinates or grid information for Seattle. I can do this by making an HTTP request to the National Weather Service API using the endpoint https://api.weather.gov/points/{latitude},{longitude}. Once I have the coordinates, I can use the returned forecast URL to get the actual forecast. </thinking>
Tool #1: http.request
<thinking> I have retrieved the coordinates and grid information for Seattle. Now I need to use the returned forecast URL to get the actual forecast. </thinking>
Tool #2: http.request
Here's the weather forecast for Seattle:

**Tonight:** 
- Light rain expected after 11pm.
- Cloudy.
- Low temperature around 49°F, rising to around 42°F overnight.
- North wind 3 to 10 mph.
- Chance of precipitation is 90%.
- New rainfall amounts less than a tenth of an inch possible.

**Wednesday:** 
- Light rain expected before 4pm.
- Mostly cloudy.
- High temperature near 46°F, falling to around 46°F in the afternoon.
- Southeast wind 5 to 10 mph, with gusts as high as 52 mph.
- Chance of precipitation is 90%.
- New rainfall amounts between a tenth and a quarter of an inch possible.

**Thursday Night:** 
- Partly cloudy.
- Low temperature around 30°F.
- Southeast wind 5 to 16 mph, with gusts as high as 43 mph.

**Friday Day:** 
- Light rain expected after 10am.
- Mostly cloudy.
- High temperature near 45°F.
- North wind around 6 mph.
- Chance of precipitation is 80%.
- New rainfall amounts less than a tenth of an inch possible.

**Friday Night:** 
- Light rain expected before 10pm.
- Mostly cloudy.
- Low temperature around 37°F.

**Saturday:** 
- Mostly cloudy.
- High temperature near 44°F.

**Saturday Night:** 
- Mostly cloudy.
- Low temperature around 36°F.

**Sunday:** 
- Mostly cloudy.
- High temperature near 45°F.

**Sunday Night:** 
- Mostly cloudy.
- Low temperature around 37°F.

**Monday:** 
- Slight chance of light rain after 10am.
- Mostly cloudy.
- High temperature near 47°F.

**Tuesday Night:** 
- Chance of light rain.
- Mostly cloudy.
- Low temperature around 38°F.

**Wednesday:** 
- Chance of light rain before 8pm.
- Mostly cloudy.
- High temperature near 40°F.
- Will it rain tomorrow in Miami?
<thinking> I need to retrieve the coordinates or grid information for Miami. I can do this by making an HTTP request to the National Weather Service API using the endpoint https://api.weather.gov/points/{latitude},{longitude}. Once I have the coordinates, I can use the returned forecast URL to get the actual forecast. </thinking>
Tool #3: http.request
<thinking> I have retrieved the coordinates and grid information for Miami. Now I need to use the returned forecast URL to get the actual forecast. </thinking>
Tool #4: http.request
Based on the forecast, it is not expected to rain in Miami tomorrow. Here are the details for Wednesday:
**Wednesday:** 
- Sunny.
- High temperature near 70°F.
- Northeast wind 10 to 14 mph, with gusts as high as 20 mph.
- Probability of precipitation is 0%.
> exit
Goodbye! 🌟

```

```

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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_weather_agent_example> run weather_forecaster.py
Weather Forecaster Strands Agent

This example demonstrates using Strands Agents' HTTP request capabilities
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Options:
  'get weather' - Demonstrate weather API capabilities
  'exit' - Exit the program

Or simply ask about the weather in any US location:
  'What's the weather like in San Francisco?'
  'Will it rain tomorrow in Miami?'

> What's the weather like in Seattle?
<thinking> I need to retrieve the coordinates or grid information for Seattle. I can do this by making an HTTP request to the National Weather Service API using the endpoint https://api.weather.gov/points/{latitude},{longitude}. Once I have the coordinates, I can use the returned forecast URL to get the actual forecast. </thinking>
Tool #1: http.request
<thinking> I have retrieved the coordinates and grid information for Seattle. Now I need to use the returned forecast URL to get the actual forecast. </thinking>
Tool #2: http.request
Here's the weather forecast for Seattle:

**Tonight:** 
- Light rain expected after 11pm.
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- North wind 3 to 10 mph.
- Chance of precipitation is 90%.
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- Chance of light rain before 8pm.
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- High temperature near 40°F.
- Will it rain tomorrow in Miami?
<thinking> I need to retrieve the coordinates or grid information for Miami. I can do this by making an HTTP request to the National Weather Service API using the endpoint https://api.weather.gov/points/{latitude},{longitude}. Once I have the coordinates, I can use the returned forecast URL to get the actual forecast. </thinking>
Tool #3: http.request
<thinking> I have retrieved the coordinates and grid information for Miami. Now I need to use the returned forecast URL to get the actual forecast. </thinking>
Tool #4: http.request
Based on the forecast, it is not expected to rain in Miami tomorrow. Here are the details for Wednesday:
**Wednesday:** 
- Sunny.
- High temperature near 70°F.
- Northeast wind 10 to 14 mph, with gusts as high as 20 mph.
- Probability of precipitation is 0%.
> exit
Goodbye! 🌟

```

Module3:

File Edit Selection View Go Run Terminal Help PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

```
C:\Users\User1\Downloads\VAI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_weather_agent_example>cd ..<br/>
C:\Users\User1\Downloads\VAI For Bharat\workshop5\agentic-ai-with-mcp-and-strands>v run create_knowledge_base.py<br/>
Region: us-west-2<br/>
[2025-12-24 12:03:33,289] p10776 [credentials.py:1392] INFO - Found credentials in shared credentials file: ./aws/credentials<br/>
Error downloading file: HTTPConnectionPool(host='d3k8crba2n14d.cloudfront.net', port=443): Max retries exceeded with url: /pets-kb-files.zip (Caused by NameResolutionError("HTTPSConnection(host='d3k8crba2n14d.cloudfr...<br/>
Error extracting zip file: [Errno 2] No such file or directory: 'pets-kb-files.zip'<br/>
Successfully created bucket: bedrock-kb-bucket-7b8ae7<br/>
Created S3 bucket: bedrock-kb-bucket-7b8ae7<br/>
[2025-12-24 12:03:37,382] p10776 [credentials.py:1392] INFO - Found credentials in shared credentials file: ./aws/credentials<br/>
[2025-12-24 12:03:40,122] p10776 [credentials.py:1392] INFO - Found credentials in shared credentials file: ./aws/credentials<br/>
Step 1 - Creating or retrieving bedrock-kb-bucket-7b8ae7 S3 bucket for Knowledge Base documents<br/>
Bucket bedrock-kb-bucket-7b8ae7 already exists - retrieving it!<br/>
Step 2 - Creating Knowledge Base Execution Role (AmazonBedrockExecutionRoleForKnowledgeBase_8913) and Policies<br/>
Step 3 - Creating OSS encryption, network and data access policies<br/>
Step 4 - Creating OSS Collection (this step takes a couple of minutes to complete)<br/>
{'ResponseMetadata': {'HTTPHeaders': {'connection': 'keep-alive', 'content-length': '315', 'content-type': 'application/x-amz-json-1.0', 'date': 'Wed, 24 Dec 2025 06:33:44 GMT', 'x-amzn-requestid': '10fb5f61-4474-44d8-b854-90d56c9e5cef'}, 'HTTPStatusCode': 200, 'RequestId': '10fb5f61-4474-44d8-b854-90d56c9e5cef', 'RetryAttempts': 0}, 'createCollectionDetail': {'arn': 'arn:aws:oss:us-west-2:891377318455:collection/glqtcwuo6cecg25t181', 'createdDate': '17665588023119', 'id': 'glqtcwuo6cecg25t181', ' kmsKeyArn': 'auto', 'lastModified': '17665588023119', 'name': 'bedrock-sample-rag-8913', 'standbyReplicas': 'ENABLED', 'status': 'CREATING', 'type': 'VECTORSEARCH'}}<br/>
glqtcwuo6cecg25t181.us-west-2.oss.amazonaws.com<br/>
Creating collection.....<br/>
Collection successfully created:<br/>
[{'arn': 'arn:aws:oss:us-west-2:891377318455:collection/glqtcwuo6cecg25t181', 'collectionEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss.amazonaws.com', 'createdDate': '17665588023119', 'dashboardEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss.amazonaws.com/_dashboards', 'vipsEndpoints': {'collectionEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss-fips.amazonaws.com',}<br/>
Nathaniel (6 months ago) Ln 221, Col 18 Spaces: 4 UFT-8 CRLF () Python 3.12.0
```

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```
Collection successfully created:<br/>
[{'arn': 'arn:aws:oss:us-west-2:891377318455:collection/glqtcwuo6cecg25t181', 'collectionEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss.amazonaws.com', 'createdDate': '17665588023119', 'dashboardEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss-fips.amazonaws.com', 'vipsEndpoints': {'collectionEndpoint': 'https://glqtcwuo6cecg25t181.us-west-2.oss-fips.amazonaws.com/_dashboards'}, 'id': 'glqtcwuo6cecg25t181', ' kmsKeyArn': 'auto', 'lastModified': '17665588023125', 'name': 'bedrock-sample-rag-8913', 'standbyReplicas': 'ENABLED', 'status': 'ACTIVE', 'type': 'VECTORSEARCH'}]<br/>
OpenSearch Serverless Arn: arn:aws:opensearch:us-west-2:891377318455:policy/AmazonBedrockOSSPolicyForKnowledgeBase_8913<br/>
Sleeping for a minute to ensure data access rules have been enforced<br/>
Step 5 - Creating OSS Vector Index<br/>
[2025-12-24 12:08:23,006] p10776 [base.py:258] INFO - PUT https://glqtcwuo6cecg25t181.us-west-2.oss.amazonaws.com:443/bedrock-sample-rag-index-8913 [status:200 request:1.000s]<br/>
Creating index:<br/>
{'acknowledged': True, 'index': 'bedrock-sample-rag-index-8913', 'shardsAcknowledged': True}<br/>
Step 6 - Creating Knowledge Base<br/>
{'createdAt': datetime.datetime(2025, 12, 24, 6, 39, 21, 208151, tzinfo=tzutc()), 'description': 'Pet's Knowledge Base on cats and dogs', 'knowledgeBaseArn': 'arn:aws:bedrock:us-west-2:891377318455:knowledge-base:80CUEHZGD', 'knowledgeBaseConfiguration': {'type': 'VECTOR'}, 'knowledgeBaseId': 'V0UJIEJDQY', 'name': 'pets-kb-fae93597', 'status': 'CREATING', 'storageConfiguration': {'collectionArn': 'arn:aws:oss:us-west-2:891377318455:collection/glqtcwuo6cecg25t181', 'fieldMapping': {'metadataField': 'text-metadata', 'textField': 'text', 'vectorField': 'vector'}, 'vectorIndexName': 'bedrock-sample-rag-index-8913'}, 'updatedAt': datetime.datetime(2025, 12, 24, 6, 39, 21, 208151, tzinfo=tzutc())}<br/>
{'createdAt': datetime.datetime(2025, 12, 24, 6, 39, 21, 322892, tzinfo=tzutc()), 'dataDeletePolicy': 'DELETE', 'dataSourceConfiguration': {'type': 'CUSTOM'}, 'dataSourceArn': 'CEGVEGMAR', 'description': 'Pet's Knowledge Base on cats and dogs', 'knowledgeBaseArn': 'arn:aws:bedrock:us-west-2:891377318455:knowledge-base:80CUEHZGD', 'knowledgeBaseId': 'V0UJIEJDQY', 'name': 'pets-kb-fae93597', 'status': 'AVAILABLE', 'updatedAt': datetime.datetime(2025, 12, 24, 6, 39, 22, 322892, tzinfo=tzutc())}, 'vectorIngestionConfiguration': {'chunkingConfiguration': {'fixedSizeChunkingConfiguration': {'maxTokens': 512, 'overlapPercentage': 20}}}}<br/>
Nathaniel (6 months ago) Ln 221, Col 18 Spaces: 4 UFT-8 CRLF () Python 3.12.0
```

Amazon S3 Buckets

General purpose buckets (2) All AWS Regions

Buckets are containers for data stored in S3.

Find buckets by name

Name	AWS Region	Creation date
bedrock-kb-bucket-7bb8ae7	US West (Oregon) us-west-2	December 24, 2025, 12:03:33 (UTC+0:30)

Account snapshot

Storage Lens provides visibility into storage usage and activity trends.

External access summary - new

Build

- Agents
- Flows
- Knowledge Bases**
- Automated Reasoning
- Guardrails
- Prompt Management
- Data Automation

Knowledge Bases (1)

Name	Status	Type	Data sources	Description	Creation time	Last sync date	Last sync warnings
pets-kb-7ae85357	Available	Vector store	-	Pets Knowledge Bas...	December 24, 2025, ...	-	-

File Edit Selection View Go Run Terminal Help

agentic-ai-with-mcp-and-strands [Administrator]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

cmd

EXPLORER

```
C:\Users\USER\Downloads\AI-for-Bharat\workshop\agentic-ai-with-mcp-and-strands>aws s3 sync pets-kb/ "s3://bedrock-kb-bucket-7bb8ae7"
upload: pets-kb/_MACOSX/_Cat_food.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Cat_food.pdf
upload: pets-kb/_MACOSX/_Dog_Food.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Dog_Food.pdf
upload: pets-kb/_MACOSX/_Cat_play_and_toys.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Cat_play_and_toys.pdf
upload: pets-kb/_MACOSX/_Dog_grooming.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Dog_grooming.pdf
upload: pets-kb/_MACOSX/_Cat_behavior.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Cat_behavior.pdf
upload: pets-kb/_MACOSX/_Dog_grooming.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Dog_grooming.pdf
upload: pets-kb/_MACOSX/_Dog_toy.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Dog_toy.pdf
upload: pets-kb/_MACOSX/_Cat_toy.pdf to s3://bedrock-kb-bucket-7bb8ae7/_MACOSX/_Cat_toy.pdf
upload: pets-kb/Dog_Toy.pdf to s3://bedrock-kb-bucket-7bb8ae7/Dog_Toy.pdf
upload: pets-kb/Dog_grooming.pdf to s3://bedrock-kb-bucket-7bb8ae7/Dog_grooming.pdf
upload: pets-kb/Cat_behavior.pdf to s3://bedrock-kb-bucket-7bb8ae7/Cat_behavior.pdf
upload: pets-kb/Dog_Food.pdf to s3://bedrock-kb-bucket-7bb8ae7/Dog_Food.pdf

C:\Users\USER\Downloads\AI-for-Bharat\workshop\agentic-ai-with-mcp-and-strands>python run create_knowledge_base.py
Region: US-West-2
[2025-12-24 12:25:20,768] p17308 [credentials.py:1392] INFO - Found credentials in shared credentials file: ./aws/credentials
Load document from S3 bucket: VBC0JIEZDGD
Data Source ID: CEG2VEG620H
s3://bedrock-kb-bucket-7bb8ae7/Cat_behavior.pdf -> Custom Document Identifier: "cat_behavior"
s3://bedrock-kb-bucket-7bb8ae7/Cat_food.pdf -> Custom Document Identifier: "cat_food"
s3://bedrock-kb-bucket-7bb8ae7/Cat_play_and_toys.pdf -> Custom Document Identifier: "cat_play_and_toys"
s3://bedrock-kb-bucket-7bb8ae7/Dog_grooming.pdf -> Custom Document Identifier: "dog_grooming"
s3://bedrock-kb-bucket-7bb8ae7/Dog_toy.pdf -> Custom Document Identifier: "dog_toy"
{
    "responseHeaders": {
        "requestId": "e0898ac-8ab2-4eb8-82ab-06299492c61e",
        "HTTPStatusCode": 202,
        "HTTPHeaders": {
            "date": "Wed, 24 Dec 2025 06:55:19 GMT",
            "content-type": "application/json",
            "content-length": "120",
            "connection": "keep-alive",
            "x-amz-requestid": "609063c-8ab2-4eb8-82ab-06299492c61e",
            "x-amz-apache-id": "WHRHqAdHCENg=",
            "x-amz-trace-id": "Root-1-694b8e57-4b94568e2f1b0e747ca3165"
        },
        "RetryAttempts": 0
    },
    "documentDetails": [
        {
            "knowledgeBaseId": "V8KJHEZDG0",
            "dataSourceId": "CEG2VEG620H",
            "status": "STARTING",
            "identifier": {
                "documentType": "CUSTOM",
                "custom": {
                    "id": "cat_behavior"
                }
            },
            "updatedAt": "2025-12-24 06:55:19.141565+00:00"
        }
    ],
    "knowledgeBaseId": "V8KJHEZDG0",
    "status": "STARTING"
}
```

OUTLINE

main* Python 3.12.0

```

    "custom": {
      "id": "cat_food"
    }
  },
  {
    "updatedAt": "2025-12-24 06:55:19.164027+00:00"
  },
  {
    "knowledgeBaseId": "V8CUIEZD90",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
      "dataSourceType": "CUSTOM",
      "custom": {
        "id": "cat_play_and_toys"
      }
    },
    "updatedAt": "2025-12-24 06:55:19.186025+00:00"
  },
  {
    "knowledgeBaseId": "V8CUIEZD90",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
      "dataSourceType": "CUSTOM",
      "custom": {
        "id": "dog_food"
      }
    },
    "updatedAt": "2025-12-24 06:55:19.2990169+00:00"
  },
  {
    "knowledgeBaseId": "V8CUIEZD90",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
      "dataSourceType": "CUSTOM",
      "custom": {
        "id": "dog_grooming"
      }
    },
    "updatedAt": "2025-12-24 06:55:19.233077+00:00"
  },
  {
    "knowledgeBaseId": "V8CUIEZD90",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
      "dataSourceType": "CUSTOM",
      "custom": {
        "id": "dog_toy"
      }
    },
    "updatedAt": "2025-12-24 06:55:19.255429+00:00"
  }
]

```

Data source overview

- Name:** pets-kb-7ae85357
- Data source type:** Custom
- Serverside KMS key:** -
- Account ID:** -
- Chunking strategy:** Fixed-size chunking
- Lambda function:** -

Documents (6)

Document identifier	Status	Document source	Updated date
dog_toy	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)
dog_grooming	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)
dog_food	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)
cat_play_and_toys	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)
cat_food	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)

```

$ export STRANDS_KNOWLEDGE_BASE_ID=$(aws lambda invoke --function-name $LAMBDA_NAME --query '$.collectionId' --output text)
export OPENSEARCH_COLLECTION_ID=$AWS_REGION$OPENSEARCH_HOST$STRANDS_KNOWLEDGE_BASE_ID
export OPENSEARCH_ENDPOINT=$AWS_REGION$OPENSEARCH_HOST$OPENSEARCH_COLLECTION_ID
export OPENSEARCH_HOST=$AWS_REGION$OPENSEARCH_HOST$OPENSEARCH_COLLECTION_ID
echo "export STRANDS_KNOWLEDGE_BASE_ID=\"$STRANDS_KNOWLEDGE_BASE_ID\";" >> ./bashrc
echo "export OPENSEARCH_HOST=\"$OPENSEARCH_HOST\";" >> ./bashrc
tail -2 ./bashrc > /tmp/bashrc
export OPENSEARCH_HOST="gljqc0jodcecp25181.us-west-2.oss.amazonaws.com"

```

Test Agent:

```

File Edit Selection View Go Run Terminal Help
EXPLORER AGENTIC-AI-WITH-MCP-AND-STRANDS ...
knowledge_base_agent.py M ...
strands_knowledgebase_agent_example > knowledge_base_agent.py ...
26 import sys
27 from pathlib import Path
28 from strands import Agent
29 from strands.models import BedrockModel
30 from strands_tools import memory, use_agent
31
32 # Set knowledge base ID (can be overridden by environment variable)
33 DEFAULT_KB_ID = "demobk123"
34 KB_ID = os.getenv("STRANDS KNOWLEDGE_BASE_ID", "")
35
36 # Set minimum score threshold (adjust lower if retrievals fail, adjust higher to avoid hallucinations)
37 MIN_SCORE = os.getenv("MIN_SCORE", "0.00000001")
38
39 # Set the number of results to retrieve from the knowledge base
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
C:\Users\USER1\Downloads\VAI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_knowledgebase_agent_example>uv run knowledge_base_agent.py
Using Knowledge Base ID: V8CU1EZDGD
Knowledge Base Agent

This agent helps you store and retrieve information from your knowledge base.
Try commands like:
- "Remember what my birthday is on July 25"
- "What day is my birthday?"

Type your request below or 'exit' to quit:
> I am 41 years old
Processing...
store
I've stored this information.

> What is my age?
Processing...
retrieve
Based on the retrieved results, you are 41 years old.
> what is the capital of France?
Processing...
retrieve
The capital of France is Paris.
> []

```

Successfully deleted the document memory_20251224_125036_31161112.

Data source: pets-kb-7ae85357

Name	pets-kb-7ae85357																																																		
Data source type	Custom																																																		
Serverside KMS key	-																																																		
Account ID	-																																																		
Chunking strategy	Fixed-size chunking																																																		
Lambda function	-																																																		
Documents (9)																																																			
<table border="1"> <thead> <tr> <th>Find document</th> <th>Document identifier</th> <th>Status</th> <th>Document source</th> <th>Updated date</th> </tr> </thead> <tbody> <tr> <td><input type="text"/></td> <td>memory_20251224_125159_341ced26</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:52:01 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>memory_20251224_125008_54e438ae</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:50:09 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>memory_20251224_124934_c4c760:9</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:49:55 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>dog_toy</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>dog_grooming</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>dog_food</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>cat_play_and_toys</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>cat_food</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> <tr> <td></td> <td>cat_behavior</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)</td> </tr> </tbody> </table>		Find document	Document identifier	Status	Document source	Updated date	<input type="text"/>	memory_20251224_125159_341ced26	INDEXED	Custom	Wed Dec 24 2025 12:52:01 GMT+0530 (India Standard Time)		memory_20251224_125008_54e438ae	INDEXED	Custom	Wed Dec 24 2025 12:50:09 GMT+0530 (India Standard Time)		memory_20251224_124934_c4c760:9	INDEXED	Custom	Wed Dec 24 2025 12:49:55 GMT+0530 (India Standard Time)		dog_toy	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)		dog_grooming	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)		dog_food	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)		cat_play_and_toys	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)		cat_food	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)		cat_behavior	INDEXED	Custom	Wed Dec 24 2025 12:26:03 GMT+0530 (India Standard Time)
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Module4:

```
C:\Users\Usen1\Downloads\AI For Bharat\workshop\agentic-ai-with-mcp-and-strands\strands_workflow_agent_example>uv run agents_workflow.py

Agentic Workflow: Research Assistant

This demo shows Strands agents in a workflow with web research.
Try research questions or fact-check claims.

Examples:
- "What are quantum computers?"
- "Lemon cures cancer"
- "Tuesday comes before Monday in the week"

> What are quantum computers?

Processing: 'what are quantum computers?'
Step 1: Researcher Agent gathering web information...
Analysis complete
Passing research findings to Analyst Agent...
Step 2: Analyst Agent analyzing findings...
Analysis complete
Passing analysis to Writer Agent...
Step 3: Writer Agent creating final report...
### Report on Quantum Computers

***Factual Claims Accuracy: 4***

1. **Superposition and Entanglement**:
   - **True**: Superposition allows qubits to exist in multiple states simultaneously. Entanglement refers to a quantum phenomenon where qubits become interconnected such that the state of one qubit instantly influences the state of another, regardless of distance. The description is largely accurate but could be more precise.

2. **Decoherence and Interference**:
   - **True but Needs Clarification**:
     Decoherence refers to the loss of quantum coherence, while interference is a fundamental property of waves, including quantum states. Clarifying their specific roles in quantum computing would enhance accuracy.

3. **Quantum Algorithms**:
   - **True but Needs Expansion**:
     Quantum computers can process information using quantum logic gates. It should also mention that quantum algorithms are specifically designed to leverage quantum properties to solve particular problems more efficiently than classical algorithms.

4. **Key Insights:**

  1. **Superposition and Parallelism**:
     - Quantum computers use qubits that can exist in multiple states simultaneously, enabling them to perform many calculations at once, which vastly increases their processing power for certain tasks.

  2. **Entanglement**:
     - This principle allows qubits to be interconnected in such a way that the state of one qubit can depend on the state of another, facilitating complex correlations and computations.

  3. **Applications**:
     - Quantum computers hold promise for revolutionizing fields like chemistry, pharmaceuticals, and machine learning by solving problems that are currently intractable for classical computers.

  4. **Challenges**:
     - Significant hurdles remain, including scaling quantum processors, minimizing errors, and developing effective quantum algorithms.

***Source Reliability***:
The sources provided are reputable. IBM is a leading technology company with a strong presence in quantum computing research and development. Their websites are reliable for insights into the current state and future directions of quantum computing.

***Analysis***:
Quantum computing represents a transformative approach to information processing, leveraging principles of quantum mechanics to solve complex problems beyond the reach of classical computers. The use of qubits, superposition, and entanglement allows quantum computers to perform parallel computations and maintain intricate correlations that classical systems cannot. While the potential applications in fields like chemistry and machine learning are vast, significant technical challenges remain. Scaling quantum systems, reducing errors, and developing robust quantum algorithms are critical areas of ongoing research. Despite these challenges, the progress in quantum computing holds promise for solving some of the most complex problems in science and engineering.

***Sources***:
- IBM Quantum Computing Resources (ibm.com)Report creation complete
```

```
Step 2: Analyst Agent analyzing findings...
Analysis complete
Passing analysis to Writer Agent...
Step 3: Writer Agent creating final report...
### Report on Quantum Computers

***Factual Claims Accuracy: 4***

1. **Superposition and Entanglement**:
   - **True**: Superposition allows qubits to exist in multiple states simultaneously. Entanglement refers to a quantum phenomenon where qubits become interconnected such that the state of one qubit instantly influences the state of another, regardless of distance. The description is largely accurate but could be more precise.

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  1. **Superposition and Parallelism**:
     - Quantum computers use qubits that can exist in multiple states simultaneously, enabling them to perform many calculations at once, which vastly increases their processing power for certain tasks.

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```

File Edit Selection View Go Run Terminal Help PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

agentic-ai-with-mcp-and-strands [Administrator]

coing research. Despite these challenges, the progress in quantum computing holds promise for solving some of the most complex problems in science and engineering.

Sources:

- IBM Quantum Computing Resources (ibm.com)Report creation complete
- Lemon cures cancer

Processing: 'Lemon cures cancer'

Step 1: Researcher Agent gathering web information...
Research complete
Passing research findings to Analyst Agent...

Step 2: Analyst Agent analyzing findings...
Analysis complete
Passing analysis to Writer Agent...

Step 3: Writer Agent creating final report...
Report on the Claim 'Lemon Cures Cancer'

Factual Claims Accuracy:

- Claim:** Lemon cures cancer.
- Rating:** False
- Correction:** The claim that lemons can cure cancer is not supported by credible health organizations such as the National Cancer Institute, American Cancer Society, and World Health Organization. There is no scientific evidence to substantiate this claim.

Key Insights:

- Lack of Credible Support:**
 - Reputable health organizations, including the National Cancer Institute, American Cancer Society, and World Health Organization, do not endorse the idea that lemons can cure cancer.
- Scientific Consensus:**
 - There is a strong consensus among medical professionals and health organizations that scientifically proven methods should be used for cancer prevention and treatment.
- Potential Misinformation:**
 - Claims that lemons can cure cancer may mislead individuals into neglecting evidence-based treatments, which can have serious health consequences.
- Nutritional Benefits:**
 - While lemons are rich in vitamin C and other nutrients, they are not a substitute for medical treatment for cancer.
- Holistic Approach:**
 - A balanced diet, including fruits like lemons, can support overall health, but should be part of a broader approach to health that includes regular medical check-ups and following professional medical advice.

Source Reliability Evaluation:

- National Cancer Institute:** Highly reliable, as it is a part of the National Institutes of Health (NIH) and provides evidence-based information on cancer.
- American Cancer Society:** Highly reliable, as it is a nationwide, community-based voluntary health organization dedicated to eliminating cancer.
- World Health Organization:** Highly reliable, as it is a leading authority in public health within the United Nations system and provides global health guidance.

Conclusion:

The claim that lemons can cure cancer is not supported by credible health organizations and lacks scientific evidence. It is crucial to rely on proven medical treatments and advice from reputable health organizations for cancer prevention and treatment. While lemons can be part of a healthy diet, they should not be considered a cure for cancer. Report creation complete

OUTLINE TIMELINE

File Edit Selection View Go Run Terminal Help PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

agentic-ai-with-mcp-and-strands [Administrator]

Interest rates have been decreasing recently. Report creation complete

Processing: 'Interest rates have been decreasing recently.'

Step 1: Researcher Agent gathering web information...
Research complete
Passing research findings to Analyst Agent...

Step 2: Analyst Agent analyzing findings...
Analysis complete
Passing analysis to Writer Agent...

Step 3: Writer Agent creating final report...
Report on "Interest Rates Have Been Decreasing Recently"

Factual Claim Accuracy:

- The claim "Interest rates have been decreasing recently" is "unverified" based on the provided analysis. The text discusses the general principles governing interest rates and their economic implications but does not provide specific recent data on interest rate trends. Therefore, the accuracy of this claim is rated as "I" due to insufficient evidence.

Key Insights:

- Interest Rate Definition:**
 - Interest rates represent the cost of borrowing money or the return on lending money, expressed as a percentage.
- Determinants of Interest Rates:**
 - Interest rates are influenced by the state of the economy and are primarily set by a country's central bank.
- Impact of High Interest Rates:**
 - High interest rates increase the cost of debt, which can discourage borrowing and slow consumer demand.
- Relationship with Inflation:**
 - Interest rates tend to rise with inflation as central banks attempt to control price increases.

Source Reliability:

- The source, Investopedia, is a reliable and well-respected financial educational website. It provides clear definitions and explanations of financial terms, making it a credible source for understanding basic concepts related to interest rates.

Summary:

The provided text offers a foundational understanding of interest rates, their determinants, and their economic implications. However, it does not provide specific information about recent trends in interest rates, making it insufficient to verify the claim that "Interest rates have been decreasing recently." For accurate and recent data, one should consult financial news sources or official reports from central banks.

Recommendation:

To verify the recent trends in interest rates, consult up-to-date financial news sources or official reports from central banks such as the Federal Reserve or the European Central Bank. Report creation complete

OUTLINE TIMELINE

27°C Mostly sunny

Module5:

File Edit Selection View Go Run Terminal Help

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

C:\Users\User1\Downloads\VAT For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_memory_agent_example>uv run memory_agent.py

Memory Agent

This example demonstrates using Strands Agents' memory capabilities to store and retrieve information.

Options:
 - 'demo' - Run demo and exit
 - 'exit' - Exit the program

Or try these examples:
 - I'm 45 years old
 - What is my age?
 - Do I have any pets?
 - What do you know about me?

> My name is J. I am 34 years old, I like seafood, and I have a pet dog.
 <thinking> I need to store the provided information about the user J. This includes their name, age, preference for seafood, and the fact that they have a pet dog. I will use the mem0_memory tool with the action 'store' to save this information. </thinking>

Tool #1: mem0_memory
 Creating index mem0, it might take 1-2 minutes...
 Creating index mem0migrations, it might take 1-2 minutes...

J is 34 years old, likes seafood, and has a pet dog

Memory for user J

Memory Stored

Operation	Content
ADD	J is 34 years old
ADD	Likes seafood
ADD	Has a pet dog

I have stored the following information about you, J:
 - You are 34 years old.
 - You like seafood.
 - You have a pet dog.

If you have any more details you'd like to share or if you need assistance with anything else, feel free to let me know!

File Edit Selection View Go Run Terminal Help

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

C:\Users\User1\Downloads\VAT For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_memory_agent_example>uv run memory_agent.py

Memory Agent

This example demonstrates using Strands Agents' memory capabilities to store and retrieve information.

Options:
 - 'demo' - Run demo and exit
 - 'exit' - Exit the program

Or try these examples:
 - I'm 45 years old
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 - What do you know about me?

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 Creating index mem0, it might take 1-2 minutes...
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Memory for user J

Memory Stored

Operation	Content
ADD	J is 34 years old
ADD	Likes seafood
ADD	Has a pet dog

I have stored the following information about you, J:
 - You are 34 years old.
 - You like seafood.
 - You have a pet dog.

If you have any more details you'd like to share or if you need assistance with anything else, feel free to let me know!

> What is my age?
 <thinking> I need to retrieve the age of the user J from the stored memories. I will use the mem0_memory tool with the action "retrieve" and the query "age" to find this information. </thinking>

Tool #2: mem0_memory

Search Results

ID	Memory	Relevance	Created At	User ID	Metadata
760584ec-ce0b-45c6-8d72-1ef4e6e02966	J is 34 years old	0.6696992	2025-12-24T00:12:40.243423-08:00	J	None
9164ac4b-ac30-4af4-804c-2596c7c4282c	Likes seafood	0.571997	2025-12-24T00:12:50.811555-08:00	J	None
90ae3642-2768-4eda-b80e-bea6c8e32bd5	Has a pet dog	0.54865587	2025-12-24T00:12:52.151680-08:00	J	None

According to the stored information, you are 34 years old. If you need to update this information or have any other details to share, please let me know!

The screenshot shows a terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]" with the following content:

Memory Stored

Operation	Content
ADD	J is 34 years old
ADD	Likes seafood
ADD	Has a pet dog

I have stored the following information about you, J:
 - You are 34 years old.
 - You like seafood.
 - You have a pet dog.

If you have any more details you'd like to share or if you need assistance with anything else, feel free to let me know!

> Now, I am my age.
 <thinking> I need to retrieve the age of the user J from the stored memories. I will use the mem0_memory tool with the action "retrieve" and the query "age" to find this information. </thinking>

Tool #2: mem0_memory

Search Results

ID	Memory	Relevance	Created At	User ID	Metadata
76058cfc-cecd-45c6-8d72-1ef4e6e62966	J is 34 years old	0.6698592	2025-12-24T08:12:49.243423-08:00	J	None
91464c4b-a330-4a1d-884c-259b67c4282c	Likes seafood	0.571997	2025-12-24T08:12:58.811555-08:00	J	None
93ae3642-2768-4ed5-b88e-bea6c8e32b05	Has a pet dog	0.54865587	2025-12-24T08:12:52.151680-08:00	J	None

According to the stored information, you are 34 years old. If you need to update this information or have any other details to share, please let me know!

> Tell me everything that you know about me
 <thinking> I need to list all the memories associated with the user J to provide a comprehensive overview of the information I have stored about them. I will use the mem0_memory tool with the action "list" to list all memories for user J. </thinking>

Tool #3: mem0_memory

Memories

ID	Memory	Created At	User ID	Metadata
76058cfc-cecd-45c6-8d72-1ef4e6e62966	J is 34 years old	2025-12-24T08:12:49.243423-08:00	J	None
91464c4b-a330-4a1d-884c-259b67c4282c	Likes seafood	2025-12-24T08:12:58.811555-08:00	J	None
93ae3642-2768-4ed5-b88e-bea6c8e32b05	Has a pet dog	2025-12-24T08:12:52.151680-08:00	J	None

Here is everything I know about you, J:
 - You are 34 years old.
 - You like seafood.
 - You have a pet dog.

If you have any more information to add or if you need assistance with anything else, please let me know!

> exit
 Goodbye! ☺

C:\Users\user1\Downloads\VAI for Bharat\workshop\agentic-ai-with-mcp-and-strands\strands_memory_agent_example[]

Module6:

Meta-Tooling Demonstration (Improved)

Commands:

- create <description> - Create a new tool
- make a tool that <description>
- list tools - Show created tools
- exit - Exit the program

> Create a tool that counts characters in text
I'll help create a character counting tool. I'll follow these steps:
Commands:

- create <description> - Create a new tool
- make a tool that <description>
- list tools - Show created tools
- exit - Exit the program

> Create a tool that counts characters in text
I'll help create a character counting tool. I'll follow these steps:
Commands:

- create <description> - Create a new tool
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- list tools - Show created tools
- exit - Exit the program

> Create a tool that counts characters in text
I'll help create a character counting tool. I'll follow these steps:
Commands:

- create <description> - Create a new tool
- make a tool that <description>
- list tools - Show created tools
- exit - Exit the program

Let's create a tool named "count_chars" that counts characters in text:
Let's create a tool named "count_chars" that counts characters in text:
First, I'll create the tool file:
Tool #1: editor

Do you want to proceed with the create operation? [y/*] y
Now that I've created the tool file, let's load it:
Tool #1: count_chars
Great! The tool has been successfully created and loaded. Let me verify it works by testing it:
Tool #1: editor

Do you want to proceed with the create operation? [y/*] y
Now that I've created the tool file, let's load it:
Tool #1: count_chars
Great! The tool has been successfully created and loaded. Let me verify it works by testing it:
Tool #1: editor

Do you want to proceed with the create operation? [y/*] y
Now that I've created the tool file, let's load it:
Tool #1: count_chars
Great! The tool has been successfully created and loaded. Let me verify it works by testing it:
Tool #1: editor

Do you want to proceed with the create operation? [y/*] y
Now that I've created the tool file, let's load it:
Tool #1: count_chars
Great! The tool has been successfully created and loaded. Let me verify it works by testing it:
Tool #1: editor

The character counting tool has been successfully:
1. Created at path: tools/count_chars.py
2. Loaded into the system
3. Tested with a sample input

Let me use the existing count_chars tool to count the characters in the given text:
Tool #1: count_chars
I used the existing 'count_chars' tool instead of creating a new one because:
1. We already have a tool that performs this exact function
2. The request was to count characters in specific text, not to create a new tool
3. Creating a duplicate tool would be redundant

The text "Hello, Strands! How are you today?" contains 34 characters.

If you'd like to create a different kind of tool with new functionality, please let me know!

The screenshot shows a code editor interface with a sidebar and two main panes. The sidebar on the left displays a file tree for a project named 'AGENTIC-AI-WITH-MCP-AND-STRANDS'. The tree includes several sub-directories like 'strands_calculator_mcp_agent_example', 'strands_knowledgebase_agent_example', and 'strands_meta_tooling_agent_example'. In the 'strands_meta_tooling_agent_example' directory, files like 'meta_tooling.py', 'strands_multi_agent_example.py', and 'LICENSE' are visible. The right pane shows the content of the 'count_chars.py' file. The code defines a class 'ToolSpec' with a static method 'count_chars' that takes a 'ToolUse' object and returns a 'ToolResult' containing the character count.

```
from typing import Any
from strands.types.tools import ToolUse, ToolResult

TOOL_SPEC = {
    "name": "count_chars",
    "description": "Counts the number of characters in the provided text",
    "inputSchema": {
        "json": {
            "type": "object",
            "properties": {
                "text": {
                    "type": "string",
                    "description": "The text to count characters in"
                }
            },
            "required": ["text"]
        }
    }
}

def count_chars(tool_use: ToolUse, **kwargs: Any) -> ToolResult:
    """
    Count the number of characters in the provided text.

    Args:
        tool_use: ToolUse object containing the input text

    Returns:
        ToolResult containing the character count
    """
    tool_use_id = tool_use["toolUseId"]
    text = tool_use["input"]["text"]

    char_count = len(text)

    return {
        "toolUseId": tool_use_id,
        "status": "success",
        "content": [{"text": f"Character count: {char_count}"}]
    }
```

Module7:

The screenshot shows a terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]" running on Windows. The command entered is "uv run teachers_assistant.py". The output is as follows:

```
C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_multi_agent_example>uv run teachers_assistant.py
Teacher's Assistant Strands Agent

Ask a question in any subject area, and I'll route it to the appropriate specialist.
Type 'exit' to quit.

> Solve the quadratic equation  $x^2 + 5x + 6 = 0$ 
Routed to Math Assistant
I'll solve the quadratic equation  $x^2 + 5x + 6 = 0$  step by step, showing you multiple methods and explaining the concepts clearly.
Tool #1: calculator
Perfect! Let me explain this solution step by step using multiple approaches to help you understand the concepts thoroughly.

## **Solution:  $x^2 + 5x + 6 = 0**$ 
**Answer:  $x = -2$  and  $x = -3**$ 
---

## **Method 1: Factoring (Most Common Approach)**

**Step 1: Identify the equation structure**
- This is a quadratic equation in standard form:  $ax^2 + bx + c = 0$ 
- Where  $a = 1$ ,  $b = 5$ ,  $c = 6$ 

**Step 2: Find two numbers that multiply to give  $c$  and add to give  $b**$ 
- We need two numbers that:
  - Multiply to give 6 (the constant term)
  - Add to give 5 (the coefficient of  $x$ )
- 1 × 6 = 6, and 1 + 6 = 7 ✗
- 2 × 3 = 6, and 2 + 3 = 5 ✓

**Step 3: List factor pairs of 6**
- 1 × 6 = 6, and 1 + 6 = 7 ✗
- 2 × 3 = 6, and 2 + 3 = 5 ✓

**Step 4: Write the factored form**
 $x^2 + 5x + 6 = (x + 2)(x + 3) = 0$ 

**Step 5: Apply the Zero Product Property**
If  $(x + 2)(x + 3) = 0$ , then either:
-  $x + 2 = 0 \rightarrow x = -2$ 
-  $x + 3 = 0 \rightarrow x = -3$ 
---

## **Method 2: Quadratic Formula (Universal Method)**

For any quadratic  $ax^2 + bx + c = 0$ , the solutions are:
Tool #2: calculator

Tool #3: calculator
**Using the quadratic formula:  $x = (-b \pm \sqrt{b^2 - 4ac}) / (2a)$ **

**Step 1: Identify coefficients**
-  $a = 1$ ,  $b = 5$ ,  $c = 6$ 
```

The screenshot shows a code editor interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar is the Explorer view, displaying a file tree for the project "AGENTIC-AI-WITH-MCP-AND-STRANDS". The terminal tab is active, showing the following content:

```
**Step 2: Calculate the discriminant**
- Discriminant = b2 - 4ac = 52 - 4(1)(6) = 25 - 24 = 1

**Step 3: Apply the formula**
- x = (-5 ± √1) / (2×1) = (-5 ± 1) / 2

**Step 4: Find both solutions**
- x1 = (-5 + 1) / 2 = -4/2 = -2
- x2 = (-5 - 1) / 2 = -6/2 = -3

---
## **Method 3: Completing the Square**

**Step 1: Start with the original equation**
x2 + 5x + 6 = 0

**Step 2: Move the constant to the right side**
x2 + 5x = -6

**Step 3: Complete the square on the left side**
- Take half of the coefficient of x: 5/2 = 2.5
- Square it: (2.5)2 = 6.25
- Add to both sides: x2 + 5x + 6.25 = -6 + 6.25

**Step 4: Factor the perfect square trinomial**
(x + 2.5)2 = 0.25

**Step 5: Take the square root of both sides**
x + 2.5 = ±√0.25 = ±0.5

**Step 6: Solve for x**
- x = -2.5 + 0.5 = -2
- x = -2.5 - 0.5 = -3

---
## **Verification**

Let's verify our solutions by substituting back into the original equation:
Tool #4: calculator
Tool #5: calculator
**For x = -2:** (-2)2 + 5(-2) + 6 = 4 - 10 + 6 = 0 ✓
**For x = -3:** (-3)2 + 5(-3) + 6 = 9 - 15 + 6 = 0 ✓

Both solutions check out!
---

## **Key Concepts Explained**

1. **Quadratic Equations**: These are polynomial equations of degree 2, always having at most 2 real solutions.
2. **Zero Product Property**: If the product of factors equals zero, at least one factor must be zero.
```

File Edit Selection View Go Run Terminal Help PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

AGENTIC-AI-WITH-MCP-AND-STRANDS

```
x + 2.5 - sqrt(0.25 - x) = 0.5
**Step 6: Solve for x**
- x = -2.5 + 0.5 = -2
- x = -2.5 - 0.5 = -3
...
## **Verification**
Let's verify our solutions by substituting back into the original equation:
Tool #4: calculator
Tool #5: calculator
**For x = -2:** (-2)^2 + 5(-2) + 6 = 4 - 10 + 6 = 0 ✓
**For x = -3:** (-3)^2 + 5(-3) + 6 = 9 - 15 + 6 = 0 ✓
Both solutions check out!
...
## **Key Concepts Explained**
1. **Quadratic Equations**: These are polynomial equations of degree 2, always having at most 2 real solutions.
2. **Zero Product Property**: If the product of factors equals zero, at least one factor must be zero.
3. **Discriminant**: The value  $b^2 - 4ac$  tells us about the nature of solutions:


- Positive (like our case): Two distinct real solutions
- Zero: One repeated real solution
- Negative: Two complex solutions


4. **Factoring Strategy**: Look for two numbers that multiply to give the constant term and add to give the middle coefficient.
```

The factoring method is usually fastest when it works, but the quadratic formula always works for any quadratic equation! The quadratic equation $(x^2 + 5x + 6 = 0)$ has been solved. Here are the solutions and some key concepts explained:

```
**Solutions:**
- For  $(x = -2)$ :  $((-2)^2 + 5(-2) + 6 = 4 - 10 + 6 = 0)$  ✓
- For  $(x = -3)$ :  $((-3)^2 + 5(-3) + 6 = 9 - 15 + 6 = 0)$  ✓
```

Key Concepts Explained:

1. **Quadratic Equations**: These are polynomial equations of degree 2, always having at most 2 real solutions.
2. **Zero Product Property**: If the product of factors equals zero, at least one factor must be zero.
3. **Discriminant**: The value $(b^2 - 4ac)$ tells us about the nature of solutions:
 - Positive (like our case): Two distinct real solutions
 - Zero: One repeated real solution
 - Negative: Two complex solutions
4. **Factoring Strategy**: Look for two numbers that multiply to give the constant term and add to give the middle coefficient.

The factoring method is usually fastest when it works, but the quadratic formula always works for any quadratic equation!

The factoring method is usually fastest when it works, but the quadratic formula always works for any quadratic equation!

```
> external_api_examples
> guardrails
> mcp_examples
> pets_kb
> strands_calculator_mcp_agent_example
  mcp_calculator.py
> strands_knowledgebase_agent_example
  knowledge_base_agent.py
> strands_memory_agent_example
> strands_meta_tooling_agent_example
> strands_multi_agent_example
  _pycache_
  graph
computer_science_assistant.py M
english_assistant.py
index.md
language_assistant.py
math_assistant.py
multi_agent_examplemd
no_expertise.py
teachers_assistant.py
strands_nova_example
strands_session_management_example
strands_weather_agent_example
  nea_agent.py
  nea_chainlink.py
  weather_forecaster.py
> strands_workflow_agent_example
  streamlit_examples
    gitignore
    app_kb_mem.py
    app_kb.py
    cleanup_resources.py
    cleanup_resources2.py
    CODE_OF_CONDUCT.md
CONTRIBUTING.md
OUTLINE
TIMELINE
```

> main* ⌂ ⌂ 0 △ 0 Amazon Q

> Write a Python function to check if a string is a palindrome
 Certainly! A palindrome is a string that reads the same forward and backward. Here's a simple Python function to check if a given string is a palindrome:

```
...python
def is_palindrome(s: str) -> bool:
    Check if the given string is a palindrome.
    Parameters:
    s (str): The string to check.
    Returns:
    bool: True if the string is a palindrome, False otherwise.
    ...
    # Remove any non-alphanumeric characters and convert to lowercase
    cleaned_string = ''.join([e for e in s if e.isalnum()]).lower()

    # Check if the cleaned string is equal to its reverse
    return cleaned_string == cleaned_string[::-1]

# Example usage:
print(is_palindrome("A man, a plan, a canal, Panama")) # True
print(is_palindrome("Hello")) # False
...

### Example:
1. Cleaning the String: The function first removes any non-alphanumeric characters (like punctuation and spaces) and converts the string to lowercase to ensure the check is case-insensitive and ignores non-alphanumeric characters.
2. Checking for Palindrome: It then compares the cleaned string to its reverse ('cleaned_string[::-1]'). If they are the same, the string is a palindrome.

### Example:
- "A man, a plan, a canal, Panama" becomes "amanaplanacanalpanama" after cleaning, which is a palindrome.
- "Hello" remains "Hello" after cleaning, which is not a palindrome.

> Translate "Hello, how are you?" to Spanish
In Spanish, "Hello, how are you?" is translated as "Hola, ¿cómo estás?"
Here's a breakdown of the translation:
- "Hello" translates to "Hola."
- "how are you?" translates to "¿cómo estás?"
If you are speaking in a more formal context, you might use "¿cómo está usted?" instead of "¿cómo estás?" The phrase "usted" is a formal version of "you."
```

> []

```
(agentic-ai-with-mcp-and-strands) C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_multi_agent_example\streamlit_app>streamlit run app.py

Welcome to Streamlit!

If you'd like to receive helpful onboarding emails, news, offers, promotions,
and the occasional swag, please enter your email address below. Otherwise,
leave this field blank.

Email:

You can find our privacy policy at https://streamlit.io/privacy-policy

Summary:
- This open source library collects usage statistics.
- We cannot see and do not store information contained inside Streamlit apps,
such as text, charts, images, etc.
- Telemetry data is stored in servers in the United States.
- If you'd like to opt out, add the following to %UserProfile%/.streamlit/config.toml,
creating that file if necessary:

[browser]
gatherUsageStats = false

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://10.61.132.54:8501
```

← → ⌂ ⓘ localhost:8501

Hello World!

Welcome to my first Streamlit app.

Enter your name

Deploy

TeachAssist - Educational Assistant

Ask a question in any subject area, and I'll route it to the appropriate specialist.

Ask your question here...





TeachAssist - Educational Assistant

Ask a question in any subject area, and I'll route it to the appropriate specialist.

 Solve the quadratic equation $x^2 + 5x + 6 = 0$

 Thinking...

Ask your question here... 



TeachAssist - Educational Assistant

Ask a question in any subject area, and I'll route it to the appropriate specialist.

 Solve the quadratic equation $x^2 + 5x + 6 = 0$

 The quadratic equation ($x^2 + 5x + 6 = 0$) has been solved. The solutions are ($x = -2$) and ($x = -3$).

Here's the step-by-step verification:

- For ($x = -2$): $(-2)^2 + 5(-2) + 6 = 4 - 10 + 6 = 0$
- For ($x = -3$): $(-3)^2 + 5(-3) + 6 = 9 - 15 + 6 = 0$

Both values satisfy the equation.

Ask your question here... 



The screenshot shows a Microsoft Visual Studio Code interface with the following details:

- File Explorer:** Shows a project structure for "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "app.py" file is the active file, indicated by a blue background and a "1 U" status.
- Terminal:** Displays the command `streamlit run app.py` and the message "You can now view your Streamlit app in your browser." It also shows local and network URLs.
- Code Editor:** The "app.py" file contains Python code for solving quadratic equations step-by-step. It includes comments explaining the process, such as identifying the standard form and finding factors of the constant term.
- Status Bar:** Shows the file is 1 U, the current line is 27, column 37, and the file was last saved on 12/24/2025 at 7:11 PM.

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows the project structure under "AGENTIC-AI-WITH-MCP-AND-STRANDS". The file "app.py" is currently selected.
- Terminal:** Displays a quadratic equation solver tool. It starts with "Tool #5: calculator" and provides steps to solve $x^2 + 5x + 6.25 = -6 + 2.5$, leading to $(x + 2.5)^2 = 0.25$. It then notes the need to take the square root of both sides, resulting in $x + 2.5 = \pm 0.5$. Step 5 involves solving for x, yielding two solutions: $x = -2.5 + 0.5 = -2$ and $x = -2.5 - 0.5 = -3$.
- Output:** Contains sections for "## Key Concepts Explained" and "## Verification". The verification section notes that the solutions should be substituted back into the original equation to check if they satisfy it.
- Code Reference Log:** Shows a log entry for "Tool #6: calculator" which factors the equation into $(x + 2.5)^2 = 0.25$ and finds the roots $x = -2$ and $x = -3$.

Write a Python function to check if a string is a palindrome

Here's a Python function to check if a string is a palindrome, along with an explanation of the key concepts and educational examples:

```
def is_palindrome(text):
    cleaned = ''.join(char.lower() for char in text if char.isalnum())
    return cleaned == cleaned[::-1]

# Examples
print(is_palindrome("racecar")) # True
print(is_palindrome("level")) # True
print(is_palindrome("A man a plan a canal Panama")) # True
print(is_palindrome("Madam, I'm Adam")) # True
print(is_palindrome("hello")) # False
```

Key Concepts:

1. **Definition:** A palindrome is a sequence that reads the same forwards and backwards.
2. **Etymology:** From Greek "palin" (again) + "dromos" (way/direction).
3. **Literary Significance:** Palindromes are a form of wordplay used in literature and poetry.

How the Function Works:

Ask your question here...



Educational Examples:

- Perfect Palindromes:
 - "racecar" → r-a-c-e-c-a-r
 - "level" → l-e-v-e-l
 - "A man a plan a canal Panama" → amanaplanacanalpanama
- Why the cleaning step matters:
 - "Madam, I'm Adam" becomes "madamimadam" (true palindrome).
 - Without cleaning, punctuation and spaces would break the symmetry.

Literary Context:

Palindromes appear in:

- Poetry: For rhythmic and aesthetic effects.
- Word puzzles: Challenging readers' linguistic skills.
- Names: Hannah, Otto, Ada.
- Famous phrases: "Able was I ere I saw Elba" (attributed to Napoleon).

This programming exercise beautifully illustrates how computational thinking can help us understand linguistic patterns and the structural beauty of language!

Ask your question here...



The screenshot shows the VS Code interface with the following details:

- Explorer View:** Shows a project structure under 'AGENTIC-AI-WITH-MCP-AND-STRANDS'. The 'app.py' file is selected.
- Terminal Tab:** Displays a demonstration of the 'file_write' tool, asking if the user wants to proceed with the file write. It then runs the 'file_read' tool to demonstrate its functionality.
- Code Editor:** Shows the content of 'app.py' which includes:


```

Tool #1: file_write
Do you want to proceed with the file write? [y/*] y
Now let me run the demonstration to show you how it works:
Tool #2: file_read
## Analysis and Explanation

From an **English language education perspective**, here's what this palindrome checker demonstrates:

### **Key Concepts:**

1. **Definition:** A palindrome is a sequence that reads the same forwards and backwards
2. **Etymology:** From Greek "palin" (again) + "dromos" (way/direction)
3. **Literary Significance:** Palindromes are a form of wordplay used in literature and poetry

### **The Function Explained:**

**Main Function: `is_palindrome(text)`**
```python
def is_palindrome(text):
 cleaned = ''.join(char.lower() for char in text if char.isalnum())
 return cleaned == cleaned[::-1]
```

**How it works:**
1. **Normalization:** Converts to lowercase and removes non-alphanumeric characters
2. **Comparison:** Uses Python's slice notation `[::-1]` to reverse the string
3. **Returns:** Boolean result of the comparison

### **Educational Examples:**

**Perfect Palindromes:**
- "racecar" → r-a-c-e-c-a-r
- "level" → l-e-v-e-l
```
- Bottom Status Bar:** Shows file path 'main*', line count 'Ln 27, Col 37', spaces 'Spaces: 4', encoding 'UTF-8', and version '3.12.0'.
- System Tray:** Shows weather information for 'Partly cloudy' at 27°C.

The screenshot shows a web application interface with the following details:

- Title Bar:** 'TeachAssist - Educational Assistant'.
- Address Bar:** 'localhost:8501'.
- Content Area:**
 - A button to 'Translate "Hello, how are you?" to Spanish'.
 - A message: 'Here's the translation of "Hello, how are you?" to Spanish, along with some helpful explanations and cultural context:'
 - Translation Section:** 'Hello, how are you?' in Spanish is: "Hola, ¿cómo estás?"
 - Breakdown and Explanation Section:**
 - Text: 'Let me break this down for you:'
 - List:
 - "Hola" = "Hello"
 - Pronounced: OH-lah
 - This is the most common, universal greeting in Spanish
 - Appropriate for any time of day and any level of formality
 - "¿cómo estás?" = "how are you?"
 - Input Field:** 'Ask your question here...' with a red border.

TeachAssist - Educational Assist

localhost:8501

1. Informal (friends, family, peers): "Hola, ¿cómo estás?"
 2. Formal (strangers, elders, professional settings): "Hola, ¿cómo está usted?"
 o "Está" instead of "estás" and adding "usted" shows respect

Regional Variations:

- Argentina/Uruguay: "Hola, ¿cómo andás?" (using "vos" form)
- Mexico: Often shortened to "¿Qué tal?" (What's up?/How's it going?)
- Spain: Might use "¿Qué tal?" or "¿Cómo andas?"

Grammar Note:

Spanish uses two verbs for "to be": **ser** and **estar**. In "¿cómo estás?" we use **estar** because we're asking about someone's current state/condition, not their permanent characteristics.

Pronunciation Tips:

- Roll the 'r' slightly in "cómo" if you can
- The stress falls on "CÓ-mo" and "es-TÁS" (indicated by the accent marks)
- Spanish vowels are crisp and consistent: 'a' always sounds like "ah," 'o' like "oh"

This is one of the most useful phrases to learn in Spanish, as it's appropriate for almost any social situation!

Ask your question here...

27°C Partly cloudy

Search

7:15 PM 12/24/2025

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG streamlit

EXPLORER

AGENTIC-AI-WITH-MCP-AND-STRANDS

- strands_knowledgebase_agent_example
- strands_memory_agent_example
- strands_meta_tooling_agent_example
- strands_multi_agent_example
- app.py
- computer_science_assistant.py
- english_assistant.py
- index.md
- language_assistant.py
- math_assistant.py
- multi_agent_example.md
- no_expertise.py
- palindrome_checker.py
- teachers_assistant.py
- strands_nova_example
- strands_session_management_example
- strands_weather_agent_example
- nea_agent.py
- nea_chainlink.py
- weather_forecaster.py
- strands_workflow_agent_example

OUTLINE

TIMELINE

```

- ***"Hola"*** = "Hello"
- Pronounced: OH-lah
- This is the most common, universal greeting in Spanish
- Appropriate for any time of day and any level of formality

- ***"¿cómo estás?"*** = "how are you?"
- Pronounced: KOH-moh ehs-TAHS
- Notice the inverted question mark (?) at the beginning - this is required in Spanish
- "Cómo" = how
- "Estás" = you are (informal "you")

## Cultural Context and Alternatives

### Formality Levels:
1. **Informal (friends, family, peers)**: "Hola, ¿cómo estás?"
2. **Formal (strangers, elders, professional settings)**: "Hola, ¿cómo está usted?"
- "Está" instead of "estás" and adding "usted" shows respect

### Regional Variations:
- **Argentina/Uruguay**: "Hola, ¿cómo andás?" (using "vos" form)
- **Mexico**: Often shortened to "¿Qué tal?" (What's up?/How's it going?)
- **Spain**: Might use "¿Qué tal?" or "¿Cómo andas?"

### Grammar Note:
Spanish uses two verbs for "to be": **ser** and **estar**. In "¿cómo estás?" we use **estar** because we're asking about someone's current state/condition, not their permanent characteristics.

## Pronunciation Tips:
- Roll the 'r' slightly in "cómo" if you can
- The stress falls on "CÓ-mo" and "es-TÁS" (indicated by the accent marks)
- Spanish vowels are crisp and consistent: 'a' always sounds like "ah," 'o' like "oh"

This

```

Ln 27, Col 37 Spaces: 4 UTF-8 CRLF () Python 3.12.0



TeachAssist - Educational Assistant

Ask a question in any subject area or store/retrieve personal information.

Solve the quadratic equation $x^2 + 5x + 6 = 0$

The quadratic equation ($x^2 + 5x + 6 = 0$) has been solved. The solutions are:

- ($x = -2$)
- ($x = -3$)

These are the points where the parabola ($y = x^2 + 5x + 6$) crosses the x-axis.

For further details, the Math Agent provided the following key concepts:

- Quadratic Equations:** These are second-degree polynomial equations in the form ($ax^2 + bx + c = 0$).
- Zero Product Property:** If ($AB = 0$), then ($A = 0$) or ($B = 0$) (or both).
- Factoring Strategy:** Look for two numbers that multiply to the constant term (6) and add to the linear coefficient (5).
- Discriminant:** The value ($b^2 - 4ac$) tells us about the nature of the roots:
 - Positive (like in this case): Two real, distinct roots

Ask your question here...



```
(agentic-ai-with-mcp-and-strands) C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_multi_agent_example>streamlit run app.py

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://192.168.1.31:8501

teacherRouted to Math Assistant
I'll solve this quadratic equation step by step, showing you multiple methods and explaining the concepts clearly.
Tool #1: calculator
Perfect! Let me explain this quadratic equation solution thoroughly with multiple approaches:

## Problem: Solve  $x^2 + 5x + 6 = 0$ 

### **Solution:  $x = -2$  and  $x = -3$ **

---

## Method 1: Factoring (Most Elegant)

**Step 1: Identify the quadratic form**
- We have:  $ax^2 + bx + c = 0$ 
- Where:  $a = 1$ ,  $b = 5$ ,  $c = 6$ 

**Step 2: Find two numbers that multiply to  $c$  and add to  $b$ **
- We need two numbers that:
  - Multiply to give 6 (the constant term)
  - Add to give 5 (the coefficient of  $x$ )

**Step 3: Find the factor pair**
- Possible factor pairs of 6: (1,6), (2,3), (-1,-6), (-2,-3)
```

localhost:8501

Translate "Hello, how are you?" to Spanish

The translation of "Hello, how are you?" to Spanish is "Hola, ¿cómo estás?".

Here's a breakdown and some cultural context:

1. "Hola" = "Hello"
 - This is the most common and universal greeting in Spanish.
 - Pronunciation: OH-lah
 - Used in both formal and informal situations.
2. "¿cómo estás?" = "how are you?"
 - "cómo" = "how"
 - "estás" = "you are" (informal form of the verb "estar")
 - Pronunciation: KOH-moh ehs-TAHS

Cultural Context & Variations

- Formality Levels
 - Informal (friends, family, peers): "Hola, ¿cómo estás?"
 - Formal (strangers, elders, professional settings): "Hola, ¿cómo está usted?"

Ask your question here... ➤

File Edit Selection View Go Run ... ← → agentic-ai-with-mcp-and-strands [Administrator] PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG streamlit + -

EXPLORER

```

    AGENTIC-AI-WITH-MCP-AND-STRANDS
      > mcp_examples
      > pets_kb
      > strands_calculator_mcp_agent_example
        mcp_calculator.py
      > strands_knowledgebase_agent_example
        knowledge_base_agent.py
      > strands_memory_agent_example
      > strands_meta_tooling_agent_example
      > strands_multi_agent_example
        __pycache__
        graph
        app_bkp.py 1, U
        app.py 1, U
        computer_science_assistant.py
        english_assistant.py
        index.md
        language_assistant.py
        math_assistant.py
        multi_agent_example.md
        no_expertise.py
        palindrome_checker.py
        teachers_assistant.py
      > strands_nova_example
      > strands_session_management_example
      > OUTLINE
      > TIMELINE
  
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG streamlit + -

```

## Translation
"""
Hello, how are you?""" in Spanish is:
"""
Hola, ¿cómo estás?"""

## Breakdown and Explanation
1. """Hola"" = "Hello"
   - This is the most common and universal greeting in Spanish
   - Pronunciation: OH-lah
   - Used in both formal and informal situations

2. """¿cómo estás?"" = "how are you?"
   - """como"" = "how"
   - """estás"" = "you are" (informal form of the verb "estar")
   - Pronunciation: KOH-moh ehs-TAHS

## Cultural Context & Variations
### Formality Levels
- **Informal (friends, family, peers)**: "Hola, ¿cómo estás?"
- **Formal (strangers, elders, professional settings)**: "Hola, ¿cómo está usted?"
- Uses "usted" (formal "you") instead of "tú" (informal "you")

### Regional Variations
Different Spanish-speaking countries have their own variations:
- **Argentina**: "Hola, ¿cómo andás?"
- **Mexico**: "Hola, ¿qué tal?" (What's up?)
- **Colombia**: "Hola, ¿cómo vas?" (How are you going?)
- **Spain**: "Hola, ¿qué tal?" or "Hola, ¿cómo estás?"
  
```

Ln 37, Col 62 (10 selected) Spaces: 4 UTF-8 CRLF {} Python 3.12.0

localhost:8501

■ Spain: "Hola, ¿qué tal?" or "Hola, ¿cómo estás?"

Grammar Notes

- **Question marks:** Spanish uses both opening (?) and closing (?) question marks.
- **Verb conjugation:** "estás" changes based on who you're addressing:
 - Tú estás (you are - informal)
 - Usted está (you are - formal)
 - Él/Ella está (he/she is)

Cultural Tip

In Spanish-speaking cultures, greetings are very important social rituals. It's common to ask "¿cómo estás?" even in brief encounters, and people often expect a brief response rather than a detailed answer about your actual state of being.

If you have any more questions or need further assistance, feel free to ask!

Write a Python function to check if a string is a palindrome

Consulting educational specialists...

Ask your question here...

File Edit Selection View Go Run ... PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG streamlit + -

EXPLORER AGENTIC-AI-WITH-MCP-AND-STRANDS

- > mcp_examples
- > pets-kb
- strands_calculator_mcp_agent_example
 - mcp_calculator.py
 - strands_knowledgebase_agent_example
 - knowledge_base_agent.py
 - strands_memory_agent_example
 - strands_meta_tooling_agent_example
 - strands_multi_agent_example
 - _pycache_
 - graph
 - app_bkp.py 1.U
 - app.py 1.U
 - computer_science_assistant.py
 - english_assistant.py
 - index.md
 - language_assistant.py
 - math_assistant.py
 - multi_agent_example.md
 - no_expertise.py
 - palindrome_checker.py
 - teachers_assistant.py
 - strands_nova_example
 - strands_session_management_example

OUTLINE TIMELINE

For

```
### Regional Variations
Different Spanish-speaking countries have their own variations:
- **Argentina**: "Hola, ¿cómo andás?"
- **Mexico**: "Hola, ¿qué tal?" (What's up)
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- **Spain**: "Hola, ¿qué tal?" or "Hola, ¿cómo estás?"

## Grammar Notes
- **Question marks**: Spanish uses both opening (?) and closing (?) question marks
- **Verb conjugation**: "estás" changes based on who you're addressing:
  - Tú estás (you are - informal)
  - Usted está (you are - formal)
  - Él/Ella está (he/she is)

## Cultural Tip
In Spanish-speaking cultures, greetings are very important social rituals. It's common to ask "¿cómo estás?" even in brief encounters, and people often expect a brief response rather than a detailed answer about your actual state of being. While I'm not an expert in programming, but I can provide a basic Python function to check if a string is a palindrome:

```python
def is_palindrome(s):
 s = s.lower().replace(" ", "")
 return s == s[::-1]
```

This function converts the string to lowercase, removes spaces, and checks if it reads the same forwards and backwards using Python's slice notation `[::-1]`.
```

Ln 37, Col 62 (10 selected) Spaces: 4 UTF-8 CRLF {} Python 3.12.0

← → ⌛ ⓘ localhost:8501

Agent Configuration

Select Agent Type

Knowledge Base Ag... ▾

Select Model

us.amazon.nova-pr... ▾

Teacher Agent Tools

Math Assistant

Language Assistant

English Assistant

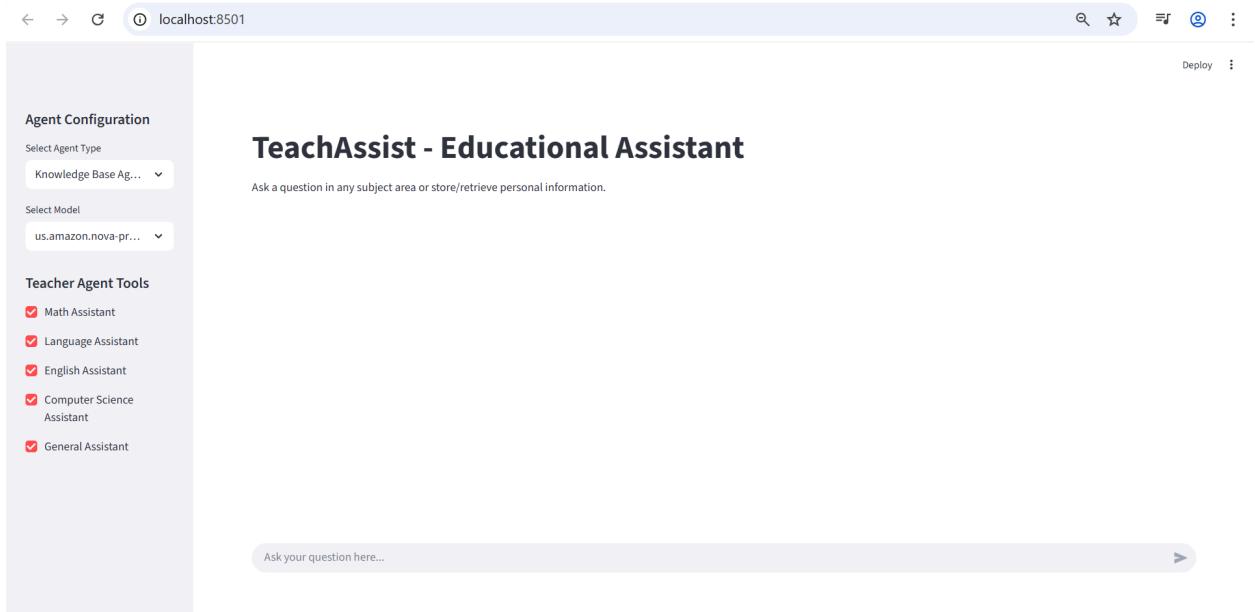
Computer Science Assistant

General Assistant

Ask a question in any subject area or store/retrieve personal information.

Ask your question here... ➤

Deploy ⋮



← → ⌛ ⓘ localhost:8501

Agent Configuration

Select Agent Type

Knowledge Base Ag... ▾

Select Model

us.amazon.nova-pr... ▾

Teacher Agent Tools

Math Assistant

Language Assistant

English Assistant

Computer Science Assistant

General Assistant

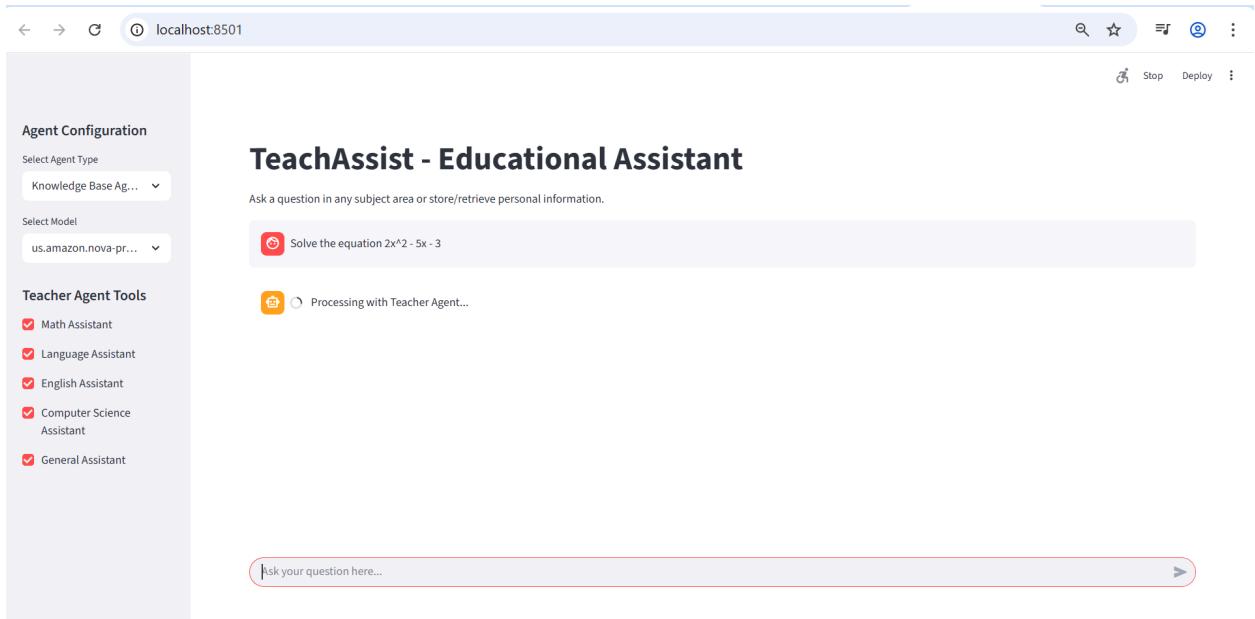
Ask a question in any subject area or store/retrieve personal information.

 Solve the equation $2x^2 - 5x - 3$

 Processing with Teacher Agent...

Ask your question here... ➤

Stop Deploy ⋮



```
(agentic-ai-with-mcp-and-strands) C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\strands_multi_agent_example>streamlit run app.py

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://192.168.1.31:8501

teacherRouted to Math Assistant
I'll solve the quadratic equation  $2x^2 - 5x - 3 = 0$  step by step, showing you multiple methods and explaining the concepts clearly.
Tool #1: calculator
Great! The equation has two solutions:  $x = -1/2$  and  $x = 3$ . Now let me explain this step by step using different methods.

## Method 1: Quadratic Formula

For a quadratic equation in the form  $ax^2 + bx + c = 0$ , we use the quadratic formula:


$$x = \frac{(-b \pm \sqrt{b^2 - 4ac})}{2a}$$


In our equation  $2x^2 - 5x - 3 = 0$ :
-  $a = 2$ 
-  $b = -5$ 
-  $c = -3$ 

Let me calculate the discriminant first:
Tool #2: calculator
The discriminant is  $b^2 - 4ac = 25 + 24 = 49$ 

Since the discriminant is positive ( $49 > 0$ ), we have two real solutions.

Now applying the quadratic formula:
```

Ln 163, Col 69 Spaces: 4 UTF-8 CRLF {} Python 3.12.0

```
Group the terms:

$$= 2x(x - 3) + 1(x - 3)$$


$$= (2x + 1)(x - 3)$$


Setting each factor to zero:
-  $2x + 1 = 0 \rightarrow x = -1/2$ 
-  $x - 3 = 0 \rightarrow x = 3$ 

## Verification

Let me verify our solutions by substituting back into the original equation:

For  $x = 3$ :
Tool #5: calculator
For  $x = -1/2$ :
Tool #6: calculator
Perfect! Both solutions check out.

## Key Concepts Explained:

1. **Discriminant ( $b^2 - 4ac$ ):** This tells us about the nature of solutions:


- If positive: two real solutions
- If zero: one real solution (repeated)
- If negative: no real solutions (complex solutions)



2. **Factoring:** When possible, factoring is often the quickest method. It works by using the zero product property: if  $a = 0$ , then  $a = 0$  or  $b = 0$ .

3. **Quadratic Formula:** This method always works for any quadratic equation and is especially useful when factoring is difficult.

## Final Answer:
```

Ln 163, Col 69 Spaces: 4 UTF-8 CRLF {} Python 3.12.0

localhost:8501

Agent Configuration

Select Agent Type: Knowledge Base Ag... ▾

Select Model: us.amazon.nova-pr... ▾

Teacher Agent Tools

- Math Assistant
- Language Assistant
- English Assistant
- Computer Science Assistant
- General Assistant

Key Concepts Explained:

1. **Discriminant ($b^2 - 4ac$):** This tells us about the nature of solutions:
 - If positive: two real solutions
 - If zero: one real solution (repeated)
 - If negative: no real solutions (complex solutions)
2. **Factoring:** When possible, factoring is often the quickest method. It works by using the zero product property: if $ab = 0$, then $a = 0$ or $b = 0$.
3. **Quadratic Formula:** This method always works for any quadratic equation and is especially useful when factoring is difficult.

Final Answer:

The solutions to $2x^2 - 5x - 3 = 0$ are $x = 3$ and $x = -1/2$

Ask your question here... ➤

26°C Mostly clear

Search

7:44 PM 12/24/2025

File Edit Selection View Go Run ... ← → deploy-streamlit-app [Administrator]

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG bash - docker_app

```
User1@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app/docker_app
● $ export AWS_ACCOUNT_ID=$(aws sts get-caller-identity --query "Account" --output text)
echo "Running cdk bootstrap aws://${AWS_ACCOUNT_ID}/${AWS_REGION}"
cdk bootstrap aws://${AWS_ACCOUNT_ID}/${AWS_REGION}
Running cdk bootstrap aws://891377318455/us-west-2
  Bootstrapping environment aws://891377318455/us-west-2...
Trusted accounts for deployment: (none)
Trusted accounts for lookup: (none)
Using default execution policy of 'arn:aws:iam::aws:policy/AdministratorAccess'. Pass '--cloudformation-execution-policies' to customize.
CDKToolkit: creating CloudFormation changeset...
CDKToolkit | 0/12 | 9:09:39 PM | REVIEW_IN_PROGRESS | AWS::CloudFormation::Stack | CDKToolkit User Initiated
CDKToolkit | 0/12 | 9:09:50 PM | CREATE_IN_PROGRESS | AWS::CloudFormation::Stack | CDKToolkit User Initiated
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | LookupRole
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | FilePublishingRole
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::S3::Bucket | StagingBucket
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | CloudFormationExecutionRole
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | ImagePublishingRole
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::SSM::Parameter | CdkBootstrapVersion
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::ECR::Repository | ContainerAssetsRepository
CDKToolkit | 0/12 | 9:09:53 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | FilePublishingRole Resource creation
  Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::SSM::Parameter | CdkBootstrapVersion Resource creatio
n Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | ImagePublishingRole Resource creatio
n Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::ECR::Repository | ContainerAssetsRepository Resource c
reation Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | LookupRole Resource creation Initiat
ed
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | CloudFormationExecutionRole Resource
creation Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::S3::Bucket | StagingBucket Resource creation Initiat
ed
Ln 1, Col 1 Spaces: 4 UTF-8 LF () pip requirements
```

0 0 0 Amazon Q

25°C Mostly clear

Search

9:12 PM 12/24/2025

```

source creation Initiated
CDKToolkit | 8/12 | 9:10:14 PM | CREATE_IN_PROGRESS | AWS::IAM::Policy | ImagePublishingRoleDefaultPolicy Res
source creation Initiated
CDKToolkit | 8/12 | 9:10:14 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | DeploymentActionRole Resource creati
on Initiated
CDKToolkit | 9/12 | 9:10:29 PM | CREATE_COMPLETE | AWS::IAM::Policy | FilePublishingRoleDefaultPolicy
CDKToolkit | 10/12 | 9:10:29 PM | CREATE_COMPLETE | AWS::IAM::Policy | ImagePublishingRoleDefaultPolicy
CDKToolkit | 11/12 | 9:10:32 PM | CREATE_COMPLETE | AWS::IAM::Role | DeploymentActionRole
CDKToolkit | 12/12 | 9:10:33 PM | CREATE_COMPLETE | AWS::CloudFormation::Stack | CDKToolkit

Environment aws://891377318455/us-west-2 bootstrapped.

NOTICES (What's this? https://github.com/aws/aws-cdk/wiki/CLI-Notices)

34892 CDK CLI collects telemetry data on command usage starting at version 2.1100.0 (unless opted out)

Overview: We do not collect customer content and we anonymize the telemetry we do collect. See the attached issue for more information on what data is collected, why, and how to opt-out. Telemetry will NOT be collected for any CDK CLI version prior to version 2.1100.0 - regardless of opt-in/out. You can also view the telemetry we collect by logging it to a local file, by adding '--telemetry-file=my/local/file' to any `cdk` command.

Affected versions: cli: >2.1100.0

More information at: https://github.com/aws/aws-cdk/issues/34892

If you don't want to see a notice anymore, use "cdk acknowledge <id>". For example, "cdk acknowledge 34892".
(.venv)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app/docker_app
$ 

```

Ln 1, Col 1 Spaces: 4 UTF-8 LF {} pip requirements

```

[notice] To update, run: python.exe -m pip install --upgrade pip
(.venv)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app
$ cdk synth
[Warning at /Streamlit/StreamlitECSService] minHealthyPercent has not been configured so the default value of 50% is used.
The number of running tasks will decrease below the desired count during deployments etc. See https://github.com/aws/aws-cdk/issues/31705 [ack: @aws-cdk/aws-ecs:minHealthyPercent]
Resources:
StreamlitUserPoolIA6C14569:
Type: AWS::Cognito::UserPool
Properties:
AccountRecoverySetting:
RecoveryMechanisms:
- Name: verified_phone_number
Priority: 1
- Name: verified_email
Priority: 2
AdminCreatedUserConfig:
AllowAdminCreateUserOnly: true
EmailVerificationMessage: The verification code to your new account is {####}
EmailVerificationSubject: Verify your new account
SmsVerificationMessage: The verification code to your new account is {####}
VerificationMessageTemplate:
DefaultEmailOption: CONFIRM_WITH_CODE
EmailMessage: The verification code to your new account is {####}
EmailSubject: Verify your new account
SmsMessage: The verification code to your new account is {####}
UpdateReplacePolicy: Retain
DeletePolicy: Retain
Metadata:
aws:cdk:path: Streamlit/StreamlitUserPool/Resource
StreamlitUserPoolClientDFDD860F:
Type: AWS::Cognito::UserPoolClient

```

Ln 11, Col 5 Spaces: 4 UTF-8 CRLF {} pip requirements

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays deployment logs for a Streamlit application using AWS CDK. The logs include configuration parameters like CognitoPoolId and BootstrapVersion, and a note about feature flags. It also includes a detailed overview of telemetry collection and affected versions.

```
- DomainName
CognitoPoolId:
  Value:
    Ref: StreamlitUserPoolA6C14569
Parameters:
  BootstrapVersion:
    Type: AWS::SSM::Parameter::Value<String>
    Default: /cdk-bootstrap/hnb65b7f8b/version
    Description: Version of the CDK Bootstrap resources in this environment, automatically retrieved from SSM Parameter Store. [cdk:skip]

  36 feature flags are not configured. Run `cdk flags --unstable=flags` to learn more.

NOTICES      (What's this? https://github.com/aws/aws-cdk/wiki/CLI-Notices)

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Affected versions: cli: ^2.1100.0

More information at: https://github.com/aws/aws-cdk/issues/34892

If you don't want to see a notice anymore, use "cdk acknowledge <id>". For example, "cdk acknowledge 34892". (.venv)
```

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays deployment logs for a Streamlit application using AWS CDK. The logs show the deployment command being run, a warning about minHealthyPercent, synthesis time, Streamlit build steps, and finally successful publishing of the Streamlit template and custom provider code.

```
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app
$ cdk deploy
[Warning at /Streamlit/StreamlitECSService] minHealthyPercent has not been configured so the default value of 50% is used.
The number of running tasks will decrease below the desired count during deployments etc. See https://github.com/aws/aws-cdk/issues/31705 [ack: @aws-cdk/aws-ecs:minHealthyPercent]

Synthesis time: 12.78s

Streamlit: start: Building AWS679f53fac002430cb0da5b7982bd2287/Code
Streamlit: success: Built AWS679f53fac002430cb0da5b7982bd2287/Code
Streamlit: start: Building Streamlit/Custom::VpcRestrictDefaultSGCustomResourceProvider Code
Streamlit: success: Built Streamlit/Custom::VpcRestrictDefaultSGCustomResourceProvider Code
Streamlit: start: Building Streamlit Template
Streamlit: success: Built Streamlit Template
Streamlit: start: Building StreamlitWebappTaskDef/StreamlitWebContainer/AssetImage
Streamlit: start: Publishing Streamlit Template (current_account-us-west-2-d8806803)
Streamlit: start: Publishing Streamlit/Custom::VpcRestrictDefaultSGCustomResourceProvider Code (current_account-us-west-2-47120e91)
Streamlit: start: Publishing AWS679f53fac002430cb0da5b7982bd2287/Code (current_account-us-west-2-f3763b06)
Streamlit: fail: Failed to find and execute 'docker' while attempting to build a container asset. Please install 'docker' and try again. (Or set the 'CDK_DOCKER' environment variable to choose a different compatible container client.)
Streamlit: success: Published AWS679f53fac002430cb0da5b7982bd2287/Code (current_account-us-west-2-f3763b06)
Streamlit: success: Published Streamlit Template (current_account-us-west-2-d8806803)
Streamlit: success: Published Streamlit/Custom::VpcRestrictDefaultSGCustomResourceProvider Code (current_account-us-west-2-47120e91)

NOTICES      (What's this? https://github.com/aws/aws-cdk/wiki/CLI-Notices)

34892  CDK CLI collects telemetry data on command usage starting at version 2.1100.0 (unless opted out)

Overview: We do not collect customer content and we anonymize the telemetry we do collect. See the attached issue for more information on what data is collected, why, and how to
```

The screenshot shows the AWS CDK CLI interface with the terminal tab active. The command run was `cdk deploy-streamlit-app [Administrator]`. The output shows Streamlit publishing code and failing to find and execute 'docker'. It also mentions notices about telemetry collection and affected versions.

```

47120e91)
Streamlit: start: Publishing AWS679f53fac002430cb0da5b7982bd2287/Code (current_account-us-west-2-f3763b06)
Streamlit: fail: Failed to find and execute 'docker' while attempting to build a container asset. Please install 'docker' and try again. (Or set the 'CDK_DOCKER' environment variable to choose a different compatible container client.)
Streamlit: success: Published AWS679f53fac002430cb0da5b7982bd2287/Code (current_account-us-west-2-f3763b06)
Streamlit: success: Published Streamlit Template (current_account-us-west-2-d8866803)
Streamlit: success: Published Streamlit/custom:VpcRestrictDefaultSGCustomResourceProvider Code (current_account-us-west-2-47120e91)

NOTICES      (What's this? https://github.com/aws/aws-cdk/wiki/CLI-Notices)

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Affected versions: cli: ^2.1100.0

More information at: https://github.com/aws/aws-cdk/issues/34892

If you don't want to see a notice anymore, use "cdk acknowledge <id>". For example, "cdk acknowledge 34892".
Failed to publish asset Streamlit/Custom:VpcRestrictDefaultSGCustomResourceProvider Code (current_account-us-west-2-47120e91)
(.venv)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app

```

Module8:

Weather Forecast - Agent core run time

The screenshot shows the AWS CDK CLI interface with the terminal tab active. The command run was `cdk agentcore`. The output shows deployment logs for the Agent core application, including weather forecasts and various metrics.

```

n***Sunday:** Warmer with rain likely, high 43°F\n\n### **Key Highlights:**\n- ☀ **Great weather today and Christmas Day** - mild temperatures and mostly clear\n- ❄ **Significant snow event** expected Friday night through Saturday (3-7 inches possible)\n- 🌬 **Temperature swings** from 44°F Christmas Day down to 25°F later in the week\n- 🌬 **Windy conditions** today with gusts up to 37 mph\nPerfect weather for Christmas Eve and Christmas Day activities, but keep an eye on that weekend snow forecast if you have travel plans!}}}
{'result': AgentResult(stop_reason='end_turn', message='{"role": "assistant", "content": [{"text": "# Weather Forecast for New York City\\n\\nHere's the current weather outlook for New York City:\\n\\n**Today (Christmas Eve) - December 24**\\n☀ **Sunny and Breezy**\\n- **High:** 44°F (dropping to around 40°F in the afternoon)\\n- **Winds:** Northwest 13-21 mph with gusts up to 37 mph\\nPerfect weather for Christmas Eve activities!\\n\\n**Tonight:**\\n🌙 **Partly Cloudy**\\n- **Low:** 33°F (rising to 35°F overnight)\\n- **Winds:** Northwest 10-18 mph (much calmer)\\n- **Precipitation:** 9% chance\\n\\n**Tomorrow (Christmas Day) - December 25**\\n☁ **Mostly Cloudy with Slight Chance of Mixed Precipitation**\\n- **High:** 44°F\\n- **Winds:** West 7-15 mph\\n- **Precipitation:** 20% chance of rain and snow between 1pm-4pm\\nA relatively mild Christmas with only a slight chance of light precipitation\\n\\n**Weekend Outlook**\\n⚠ **Significant Weather Changes Coming:**\\n**Friday (Dec 26):** Chance of light snow developing, high 31°F\\n\\n**Saturday:** Major snow event expected!\\n- Snow likely with 3-7 inches possible\\n\\nContinued snow Saturday with an additional 1-2 inches\\nThis could be significant for travel and activities\\n\\n**Sunday:** Warmer with rain likely, high 43°F\\n\\n**Key Highlights:**\\n- ☀ **Great weather today and Christmas Day** - mild temperatures and mostly clear\\n- ❄ **Significant snow event** expected Friday night through Saturday (3-7 inches possible)\\n- 🌬 **Temperature swings** from 44°F Christmas Day down to 25°F later in the week\\n- 🌬 **Windy conditions** today with gusts up to 37 mph\\n\\nPerfect weather for Christmas Eve and Christmas Day activities, but keep an eye on that weekend snow forecast if you have travel plans!"}], metrics=EventLoopMetrics(cycle_count=3, tool_metrics=[{'http_request': ToolMetrics(tool={'toolUserId': 'tooluse_Wb0ZknT3SmzPrIKNKA43w', 'name': 'http_request', 'input': {'method': 'GET', 'url': 'https://api.weather.gov/gridpoints/OKX/33,35/forecast'}}, call_count=2, success_count=2, error_count=0, total_time=0.135296062271118164}, cycle_durations=[10.29760193824768], traces=[strands.telemetry.metrics.Trace object at 0x0000022222B82930, <strands.telemetry.metrics.Trace object at 0x0000022222C2EAE0>, strands.telemetry.metrics.Trace object at 0x00000222219B0080], accumulated_usage={'inputTokens': 1116, 'outputTokens': 758, 'totalTokens': 11924}, accumulated_metrics={'latencyMs': 15316}), state={}, interrupts=None, structured_output=None)}

```

The screenshot shows a Microsoft Visual Studio Code interface with the following details:

- File Explorer:** On the left, it lists files and folders related to the project "AGENTIC-AI-WITH-MCP-AND-STRANDS".
- Terminal:** The main area displays the output of a Python script. The script prints a detailed weather forecast for New York City, including current conditions, a 24-hour outlook, and a multi-day forecast from December 24th to January 1st. It highlights a significant snow event on December 26th.
- Bottom Status Bar:** Shows the command line prompt, file path (~\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands), and the status bar indicating the user is an administrator.

The screenshot shows the Microsoft Visual Studio Code interface with the following details:

- File Explorer (Left):** Shows the project structure for "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "runtime" folder contains files like ".bedrock_agentcore.yaml", ".dockerignore", "Dockerfile", "deploy_agent_from_ecr.py", "invoke_agent.py", "mcp_client_local.py", "mcp_client_remote.py", "mcp_server.py", "requirements.txt", "setup_cognito.sh", "weather_agentcore.py", "agentcore_utils.py", "agentcore_code-changes.png", "cleanup_agents.py", and "deploy_to_agentcore.nu".
- Problems (Top):** Lists several issues:
 - No container engine found (Docker/Finch/Podman not installed)
 - Default deployment uses CodeBuild (no container engine needed). For local builds, install Docker, Finch, or Podman.
 - Memory disabled
 - Network mode: PUBLIC
 - Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work. Please use default launch command which will do a remote cross-platform build using code build. For deployment other options and workarounds, see: <https://docs.aws.amazon.com/bedrock-agentcore/latest/devguide/getting-started-custom.html>
- Terminal (Bottom):** Displays the command line output:

```
User1@IGTX98C3 MINIGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
$ uv run -- /c/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/depl oy_to_agentcore.py --agent_name weather_agent --entry_point weather_agentcore.py
Entrypoint parsed: file:C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands\ agentcore/runtime/weather_agentcore.py, bedrock_agentcore_name=weather_agentcore
Memory disabled - agent will be stateless
Configuring BedrockAgentCore agent: weather_agent

? No container engine found (Docker/Finch/Podman not installed)
✓ Default deployment uses CodeBuild (no container engine needed). For local builds, install Docker,
Finch, or Podman
Memory disabled
Network mode: PUBLIC

⚠ Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so
local builds won't work.
Please use default launch command which will do a remote cross-platform build using code build. For
deployment other options and workarounds, see:
https://docs.aws.amazon.com/bedrock-agentcore/latest/devguide/getting-started-custom.html

Generated Dockerfile: Dockerfile
Generated .dockerignore: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands\ agentcore/runtime\.dockerignore
Keeping 'weather_agent' as default agent
Bedrock AgentCore configured: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-st rands/agentcore/runtime/.bedrock_agentcore.yaml
Launching Bedrock AgentCore (cloud mode - RECOMMENDED)...
• Deploy Python code directly to runtime
• No Docker required (DEFAULT behavior)
• Production-ready deployment
```

```
✓ Role creating: AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e274c35
Creating IAM role: AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e274c35
✓ Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e274c35
✓ Execution policy attached: BedrockAgentCoreRuntimeExecutionPolicy-weather_agent
Role creation complete and ready for use with Bedrock AgentCore
Execution role available: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e274c35
Preparing CodeBuild project and uploading source...
Getting or creating CodeBuild execution role for agent: weather_agent
Role name: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
CodeBuild role doesn't exist, creating new role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
Creating IAM role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
✓ Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
Attaching inline policy: CodeBuildExecutionPolicy to role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
✓ Policy attached: CodeBuildExecutionPolicy
Waiting for IAM role propagation...
CodeBuild execution role creation complete: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
Created S3 bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
Using .dockerignore.template with 45 patterns for zip filtering
Uploaded source to S3: weather_agent/source.zip
Created CodeBuild project: bedrock-agentcore-weather_agent-builder
Starting CodeBuild build (this may take several minutes)...
Starting CodeBuild monitoring...
QUEUED started (total: 0s)
QUEUED completed in 1.6s
PROVISIONING started (total: 2s)
PROVISIONING completed in 7.4s
DOWNLOAD_SOURCE started (total: 9s)
DOWNLOAD_SOURCE completed in 1.3s
BUILD started (total: 11s)
```

The screenshot shows the Microsoft Visual Studio Code (VS Code) interface. The top bar includes File, Edit, Selection, View, Go, Run, and a search bar for "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar has sections for Explorer, Problems, Output, Debug Console, Terminal (which is active), Ports, Azure, and Code Reference Log. The Explorer view shows a project structure with folders like ".idea", ".venv", "agentcore", "browser", "codeinterpreter", "gateway", "identity", "memory", and "runtime", along with various Python files and configuration files. The terminal window displays the following log output:

```
Attaching inline policy: CodeBuildExecutionPolicy to role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
✓ Policy attached: CodeBuildExecutionPolicy
Waiting for IAM role propagation...
CodeBuild execution role creation complete: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e274c35
Created S3 bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
Using dockerignore.template with 48 patterns for zip filtering
Uploaded source to S3: weather_agent/source.zip
Created CodeBuild project: bedrock-agentcore-weather_agent-builder
Starting CodeBuild build (this may take several minutes)...
Starting CodeBuild monitoring...
queued QUEUED started (total: 0s)
checked QUEUED completed in 1.6s
queued PROVISIONING started (total: 2s)
checked PROVISIONING completed in 7.4s
queued DOWNLOAD_SOURCE started (total: 9s)
checked DOWNLOAD_SOURCE completed in 1.3s
queued BUILD started (total: 11s)
checked BUILD completed in 16.6s
queued POST_BUILD started (total: 27s)
checked POST_BUILD completed in 14.5s
queued COMPLETED started (total: 42s)
checked COMPLETED completed in 2.0s
checked CodeBuild completed successfully in 0m 43s
CodeBuild completed successfully
CodeBuild project configuration saved
Deploying to Bedrock AgentCore...
Agent created/updated: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b97ON
Observability is enabled, configuring observability components...
Created/updated CloudWatch Logs resource policy
Configured X-Ray trace segment destination to CloudWatch Logs
X-Ray indexing rule already configured
```

The bottom status bar shows the main tab is active, there are 0 errors and 0 warnings, and the system temperature is 25°C. The bottom right corner shows the date and time as 10:10 PM on 12/24/2025.

File Edit Selection View Go Run ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

cmd bash runtime

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - runtime
 - ! .bedrock_agentcore.yaml
 - ! .dockerrun
 - ! deploy_agent_from_ecr.py
 - Dockerfile
 - ! invoke_agent.py
 - ! mcp_client_local.py
 - ! mcp_client_remote.py
 - ! mcp_server.py
 - ! requirements.txt
 - ! setup_cognito.sh
 - ! weather_agentcore.py
 - ! agentcore_utils.py
 - ! agentcore_code-changes.png
 - ! cleanup_agents.py
 - ! deploy_to_agentcore.py
- OUTLINE
- TIMELINE

main* 0 0 Amazon Q

25°C Partly cloudy

Search

10:11 PM 12/24/2025

```
Observability is enabled, configuring observability components...
Created/updated CloudWatch Logs resource policy
Configured X-Ray trace segment destination to CloudWatch Logs
X-Ray indexing rule already configured
Transaction Search configured: resource_policy, trace_destination
ObservabilityDeliveryManager initialized for region: us-west-2, account: 891377318455
Logs auto-created by AWS for runtime/weather_agent-hG9v3b97ON
Traces delivery enabled for runtime/weather_agent-hG9v3b97ON
observability enabled for runtime/weather_agent-hG9v3b97ON - logs: True, traces: True
X-Ray traces delivery enabled for agent weather_agent-hG9v3b97ON
GenAI Observability Dashboard:
https://console.aws.amazon.com/cloudwatch/home?region=us-west-2#gen-ai-observability/agent-core
Polling for endpoint to be ready...
Agent endpoint: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b97ON/runtime
-endpoint/DEFAULT
Deployment completed successfully - Agent: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b97ON
Built with CodeBuild: bedrock-agentcore-weather_agent-builder:e4448112-d7f6-4dbc-92f2-cc9c27d343fa
Deployed to cloud: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b97ON
ECR image: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-weather_agent
Agent logs available at:
/aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b97ON-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]"
/aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b97ON-DEFAULT --log-stream-names "otel-rt-logs"
Tail logs with: aws logs tail /aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b97ON-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow
Or view recent logs: aws logs tail /aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b97ON-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h
Retrieved Bedrock AgentCore status for: weather_agent
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
```

File Edit Selection View Go Run ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

cmd uv runtime

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-S...
 - .idea
 - .venv
 - agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - runtime
 - ! .bedrock_agentcore.yaml
 - ! .dockerrun
 - ! deploy_agent_from_ecr.py
 - Dockerfile
 - ! invoke_agent.py
 - ! mcp_client_local.py
 - ! mcp_client_remote.py
 - ! mcp_server.py
 - ! requirements.txt
 - ! setup_cognito.sh
 - ! weather_agentcore.py
 - ! agentcore_utils.py
 - ! agentcore_code-changes.png
 - ! cleanup_agents.py
 - ! deploy_to_agentcore.py
- OUTLINE
- TIMELINE

main* 0 0 Amazon Q

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)

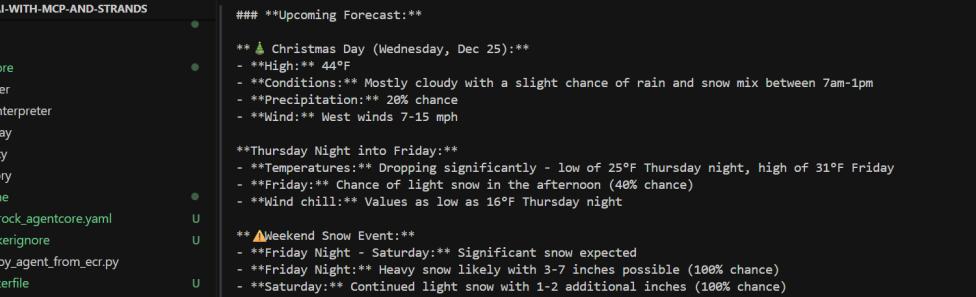
```
$ uv run invoke_agent.py --prompt "What is the weather like in New York?"
Using region: us-west-2
-----
Agent Name: weather_agent
ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b97ON
-----
Invoking agent with payload:
{"prompt": "What is the weather like in New York?"}

I'll help you get the current weather forecast for New York. Let me start by getting the grid information for New York City coordinates and then retrieve the forecast. Great! Now let me get the actual weather forecast using the forecast URL from the response:## Weather Forecast for New York City

**Current Conditions (Christmas Eve - Today):**
- **Temperature:** High of 44°F, dropping to around 40°F this afternoon
- **Conditions:** ☀️ Sunny skies
- **Wind:** Gusty northwest winds at 13-21 mph, with gusts up to 37 mph
- **Precipitation:** 0% chance of rain

**Tonight (Christmas Eve):**
- **Low:** 33°F (rising to 35°F overnight)
- **Conditions:** 🌙 Partly cloudy
- **Wind:** Light northwest winds at 3-10 mph
- **-**

### **Upcoming Forecast:**
**Christmas Day (Wednesday, Dec 25):**
- **High:** 44°F
- **Conditions:** Mostly cloudy with a slight chance of rain and snow mix between 7am-1pm
```



The screenshot shows a terminal window with the title "agentic-ai-with-mcp-and-strands [Administrator]". The terminal displays a Python script for generating weather forecasts. The script includes sections for "Upcoming Forecast", "Christmas Day (Wednesday, Dec 25)", "Thursday Night into Friday", "Wind chill", "Weekend Snow Event", "Friday Night - Saturday", "Friday Night", "Saturday", "Sunday", and a "Summary". The summary notes a "white Christmas" after the snowfall. The script concludes with a warning about strong winds and safe travel. The command used to run the script is visible at the bottom: "User@LITX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run_time (main)".

```
### **Upcoming Forecast:**\n\n** Christmas Day (Wednesday, Dec 25):**\n- **High:** 44°F\n- **Conditions:** Mostly cloudy with a slight chance of rain and snow mix between 7am-1pm\n- **Precipitation:** 20% chance\n- **Wind:** West winds 7-15 mph\n\n**Thursday Night into Friday:**\n- **Temperatures:** Dropping significantly - low of 25°F Thursday night, high of 31°F Friday\n- **Friday:** Chance of light snow in the afternoon (40% chance)\n- **Wind chill:** Values as low as 16°F Thursday night\n\n**Weekend Snow Event:**\n- **Friday Night - Saturday:** Significant snow expected\n- **Friday Night:** Heavy snow likely with 3-7 inches possible (100% chance)\n- **Saturday:** Continued light snow with 1-2 additional inches (100% chance)\n\n**Sunday:** Transition to rain with highs around 43°F (70% chance)\n\n---\n\n### **Summary:**\nToday is looking great for Christmas Eve activities with sunny skies, though it's quite breezy. Christmas Day will be mild but cloudy. However, **plan ahead for the weekend** - a significant snowstorm is forecast for Friday night through Saturday, potentially bringing 4-9 inches total to the NYC area. Perfect timing if you want a white Christmas aftermath!\n\nBundle up and stay safe, especially with those strong winds today and the upcoming winter weather!\n(agentic-ai-with-mcp-and-strands)\nUser@LITX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run_time (main)
```

The screenshot shows the VS Code interface with the following details:

- File Explorer (Left):** Shows the project structure:
 - AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - runtime
 - .bedrock_agentcore.yaml
 - .dockerrignore
 - deploy_agent_from_ecr.py
 - Dockerfile
 - invoke_agent.py
 - mcp_client_local.py
 - mcp_client_remote.py
 - mcp_server.py
 - requirements.txt
 - setup_cognito.sh
 - weather_agentcore.py
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py
 - OUTLINE
 - TIMELINE- Editor (Right):** Displays the content of the Dockerfile.

```
FROM gcr.io/astral-sh/uv:python3.12-bookworm-slim
WORKDIR /app

# All environment variables in one layer
ENV UV_SYSTEM_PYTHON=1 \
    UV_COMPILE_BYTECODE=1 \
    UV_NO_PROGRESS=1 \
    PYTHONUNBUFFERED=1 \
    DOCKER_CONTAINER=1 \
    AWS_REGION=us-west-2 \
    AWS_DEFAULT_REGION=us-west-2

COPY requirements.txt requirements.txt
# Install from requirements file
RUN uv pip install -r requirements.txt

RUN uv pip install aws-opentelemetry-distro==0.12.2

# Signal that this is running in Docker for host binding logic
ENV DOCKER_CONTAINER=1

# Create non-root user
RUN useradd -m -u 1000 bedrock_agentcore
```
- Bottom Status Bar:** Shows the file name (main*), line count (0), and other status indicators.

The screenshot shows a code editor interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar displays a project structure under "EXPLORER" with the following files and folders:

- .idea
- .venv
- agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
- runtime
 - ! .bedrock_agentcore.yaml
 - .dockerignore
 - deploy_agent_from_ecr.py
 - Dockerfile
 - invoke_agent.py
 - mcp_client_local.py
 - mcp_client_remote.py
 - mcp_server.py
 - requirements.txt
 - setup_cognito.sh
 - weather_agentcore.py
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.nv

The main editor area shows the content of the ".bedrock_agentcore.yaml" file:

```
agentcore > runtime > ! .bedrock_agentcore.yaml
1 default_agent: weather_agent
2 agents:
3   weather_agent:
4     name: weather_agent
5     entrypoint: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/ager
6     deployment_type: container
7     runtime_type: null
8     platform: linux/arm64
9     container_runtime: none
10    source_path: null
11    aws:
12      execution_role: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e2
13      execution_role_auto_create: false
14      account: '891377318455'
15      region: us-west-2
16      ecr_repository: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-weather_agent
17      ecr_auto_create: false
18      s3_path: null
19      s3_auto_create: false
20      network_configuration:
21        network_mode: PUBLIC
22        network_mode_config: null
23      protocol_configuration:
24        server_protocol: HTTP
25      observability:
26        enabled: true
27      lifecycle_configuration:
28        idle_runtime_session_timeout: null
29        max_lifetime: null
30
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61
```

At the bottom of the editor, status bars show "Ln 1, Col 1", "Spaces: 2", "UTF-8", "CRLF", and "YAML".

This screenshot shows the same code editor interface as the first one, but the content of the ".bedrock_agentcore.yaml" file has been modified:

```
agentcore > runtime > ! .bedrock_agentcore.yaml
1
2   agents:
3     weather_agent:
4       codebuild:
5         execution_role: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425e2
6         source_bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
7       memory:
8         mode: NO_MEMORY
9         memory_id: null
10        memory_arn: null
11        memory_name: null
12        event_expiry_days: 30
13        first_invoke_memory_check_done: false
14        was_created_by_toolkit: false
15       identity:
16         credential_providers: []
17       workload: null
18       aws_jwt:
19         enabled: false
20         audiences: []
21         signing_algorithm: ES384
22         issuer_url: null
23         duration_seconds: 300
24         authorizer_configuration: null
25         request_header_configuration: null
26         oauth_configuration: null
27         api_key_env_var_name: null
28         api_key_credential_provider_name: null
29         is_generated_by_agentcore_create: false
30
31
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56
57
58
59
60
61
```

At the bottom of the editor, status bars show "Ln 1, Col 1", "Spaces: 2", "UTF-8", "CRLF", and "YAML".

```

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ uv run cleanup_agents.py
Using region: us-west-2
-----
Name: weather_agent (ID: weather_agent-hG9v3b970N)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime weather_agent
-----
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ 

```

====

```

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ cd runtime/
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run
time (main)
$ uv run mcp_client_local.py
meta=None nextCursor=None tools=[Tool(name='add_numbers', title=None, descriptions='Add two numbers together', inputSchema={'properties': {'a': {'title': 'A', 'type': 'integer'}, 'b': {'title': 'B', 'type': 'integer'}}, required=['a', 'b'], title='add_numbersArguments', type='object'), outputSchema={'proper
ties': {'result': {'title': 'Result', 'type': 'integer'}}}, required=['result'], title='add_numbersOutput', type='object'), icons=None, annotations=None, meta=None, execution=None), Tool(name='multiply_numbers', title=None, description='Multiply two numbers together', inputSchema={'properties': {'a': {'ti
tle': 'A', 'type': 'integer'}, 'b': {'title': 'B', 'type': 'integer'}}, required=['a', 'b'], title='multiply_
numbersArguments', type='object'), outputSchema={'properties': {'result': {'title': 'Result'
, 'type': 'integer'}}}, required=['result'], title='multiply_numbersOutput', type='object'), icon
s=None, annotations=None, meta=None, execution=None), Tool(name='greet_user', title=None, description='Gre
et a user by name', inputSchema={'properties': {'name': {'title': 'Name', 'type': 'string'}}}, 'required
: ['name'], 'title': 'greet_userArguments', 'type': 'object'}, outputSchema={'properties': {'result': {'t
itle': 'Result', 'type': 'string'}}}, 'required': ['result'], 'title': 'greet_userOutput', 'type': 'object
'}, icons=None, annotations=None, meta=None, execution=None)]
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run
time (main)
$ 

```

```

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run
time (main)
$ bash setup_cognito.sh
Using region us-west-2
Pool id: us-west-2_MjjtqTM3k
Client ID: 75dhio0303918ohqet3nk75f0h
Cognito user created
Cognito user password set
----- Environment variables saved in .env -----
POOL_ID=us-west-2_MjjtqTM3k
DISCOVERY_URL=https://cognito-idp.us-west-2.amazonaws.com/us-west-2_MjjtqTM3k/.well-known/openid-configuration
CLIENT_ID=75dhio0303918ohqet3nk75f0h
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run
time (main)
$ 

```

The screenshot shows the AWS Lambda function configuration interface. The left sidebar lists the function's layers and dependencies. The main pane displays the runtime configuration, which includes the following steps:

- Execution Role:** Press Enter to use this name, or type a different one (alphanumeric without '-'). Agent name [mcp_server]: mcp_server
- ECR Repository:** Press Enter to auto-create ECR repository, or provide ECR Repository URI to use existing ECR Repository URI (or press Enter to auto-create):
- Deployment Configuration:** Warning: Direct Code Deploy deployment unavailable (zip utility not found). Falling back to Container deployment.
- Select deployment type:**
 1. Container - Docker-based deployment
- Deployment type:** Container
- Execution Role:** Press Enter to auto-create execution role, or provide execution role ARN/name to use existing Execution role ARN/name (or press Enter to auto-create):
- Will auto-create execution role**

The screenshot shows the AWS Lambda function configuration interface. The left sidebar lists the function's layers and dependencies. The main pane displays the request headers configuration, which includes the following steps:

- Request Headers Allowlist:** Configure which request headers are allowed to pass through to your agent. Common headers: Authorization, X-Amzn-Bedrock-AgentCore-Runtime-Custom-*
- Configure request header allowlist? (yes/no) [no]:** no
- Using default request header configuration**
- Configuring BedrockAgentCore agent:** mcp_server
- No container engine found (Docker/Finch/Podman not installed)**
- Default deployment uses CodeBuild (no container engine needed), For local builds, install Docker, Finch, or Podman**
- Memory Configuration:** Tip: Use --disable-memory flag to skip memory entirely
- MemoryManager initialized for region: us-west-2**
- No existing memory resources found in your account**

The screenshot shows the VS Code interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The Explorer sidebar on the left lists files and folders under the project "AGENTIC-AI-WITH-MCP-AND-STRANDS", including "agentcore", "runtime", and ".bedrock_agentcore". The terminal tab is active, displaying configuration output:

```
MemoryManager initialized for region: us-west-2
No existing memory resources found in your account

Options:
  * Press Enter to create new memory
  * Type 's' to skip memory setup

Your choice: s
✓ Skipping memory configuration
Memory disabled by user choice
Network mode: PUBLIC

⚠️Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work.
Please use default launch command which will do a remote cross-platform build using code build. For deployment other options and workarounds, see:
https://docs.aws.amazon.com/bedrock-agentcore/latest/devguide/getting-started-custom.html

Generated Dockerfile: .bedrock_agentcore\mcp_server\Dockerfile
Changing default agent from 'weather_agent' to 'mcp_server' Configuration Success
```

Agent Details

```
Agent Name: mcp_server
Deployment: container
Region: us-west-2
Account: 891377318455
```

Configuration

```
Execution Role: Auto-create
ECR Repository: Auto-create
Network Mode: Public
ECR Repository: Auto-create
```

Ln 118, Col 1 Spaces: 2 UTF-8 CRLF {} YAML

The screenshot shows the VS Code interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The Explorer sidebar on the left lists files and folders under the project "AGENTIC-AI-WITH-MCP-AND-STRANDS", including "agentcore", "runtime", and ".bedrock_agentcore". The terminal tab is active, displaying configuration output:

```
⚠️Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work.
⚠️Follow link (ctrl + click) for more launch command which will do a remote cross-platform build using code build. For options and workarounds, see:
https://docs.aws.amazon.com/bedrock-agentcore/latest/devguide/getting-started-custom.html

Generated Dockerfile: .bedrock_agentcore\mcp_server\Dockerfile
Changing default agent from 'weather_agent' to 'mcp_server' Configuration Success
```

Agent Details

```
Agent Name: mcp_server
Deployment: container
Region: us-west-2
Account: 891377318455
```

Configuration

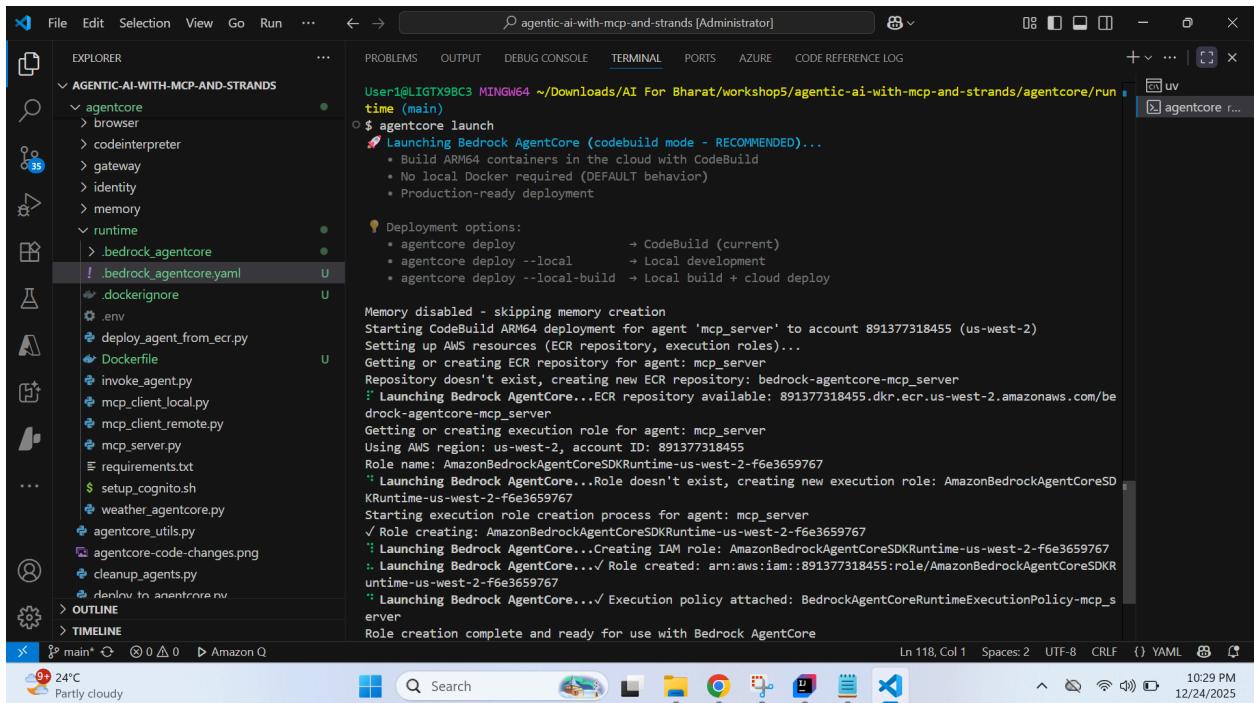
```
Execution Role: Auto-create
ECR Repository: Auto-create
Network Mode: Public
ECR Repository: Auto-create
Authorization: OAuth (customJWTAuthorizer)
```

Memory: Disabled

Config saved to: C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore\runtime\.bedrock_agentcore.yaml

Next Steps:
agentcore launch

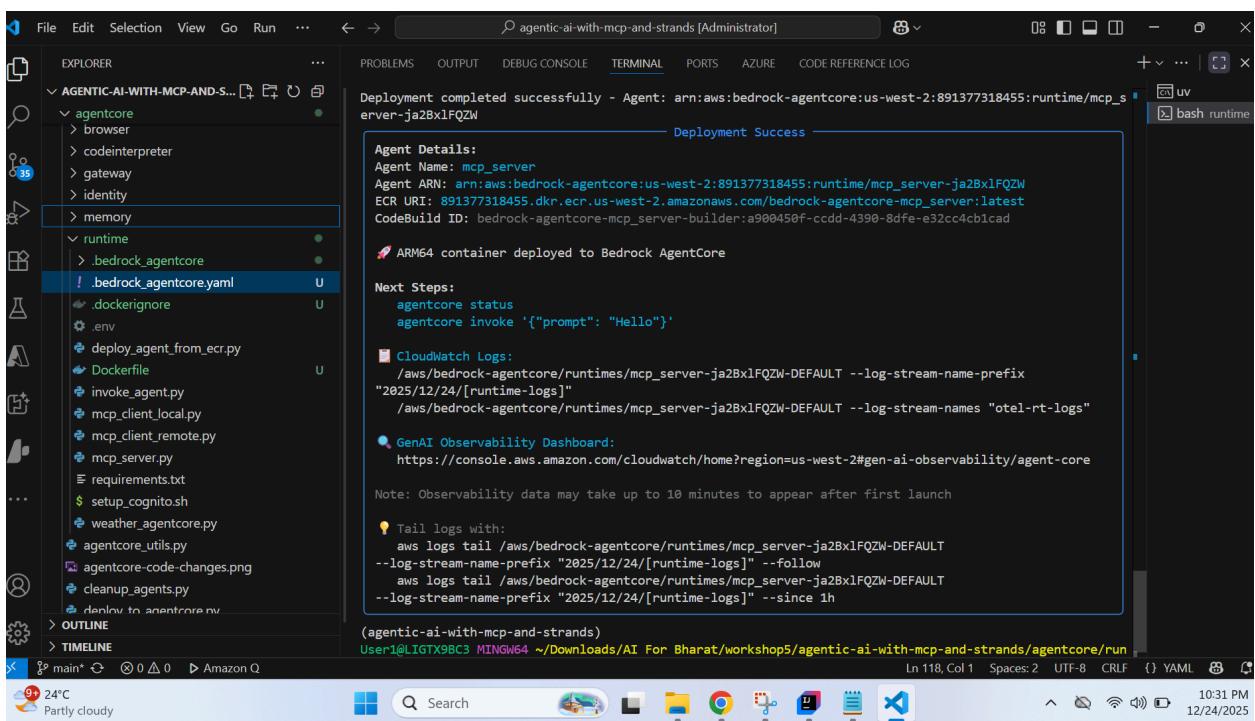
Ln 118, Col 1 Spaces: 2 UTF-8 CRLF {} Y



```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
$ agentcore launch
Launching Bedrock AgentCore (codebuild mode - RECOMMENDED)...
  * Build ARM64 containers in the cloud with CodeBuild
  * No local Docker required (DEFAULT behavior)
  * Production-ready deployment

Deployment options:
  * agentcore deploy           → CodeBuild (current)
  * agentcore deploy --local   → Local development
  * agentcore deploy --local-build → Local build + cloud deploy

Memory disabled - skipping memory creation
Starting CodeBuild ARM64 deployment for agent 'mcp_server' to account 891377318455 (us-west-2)
Setting up AWS resources (ECR repository, execution roles)...
Getting or creating ECR repository for agent: mcp_server
Repository doesn't exist, creating new ECR repository: bedrock-agentcore-mcp_server
: Launching Bedrock AgentCore...ECR repository available: 891377318455.dkr.ecr.us-west-2.amazonaws.com/be
drock-agentcore-mcp_server
Getting or creating execution role for agent: mcp_server
Using AWS region: us-west-2, account ID: 891377318455
Role name: AmazonBedrockAgentCoreSDKRuntime-us-west-2-f6e3659767
: Launching Bedrock AgentCore...Role doesn't exist, creating new execution role: AmazonBedrockAgentCoreSD
KRuntime-us-west-2-f6e3659767
Starting execution role creation process for agent: mcp_server
✓ Role creating: AmazonBedrockAgentCoreSDKRuntime-us-west-2-f6e3659767
: Launching Bedrock AgentCore...Creating IAM role: AmazonBedrockAgentCoreSDKRuntime-us-west-2-f6e3659767
: Launching Bedrock AgentCore...Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKR
untime-us-west-2-f6e3659767
: Launching Bedrock AgentCore...Execution policy attached: BedrockAgentCoreRuntimeExecutionPolicy-mcp_s
erver
Role creation complete and ready for use with Bedrock AgentCore
In 118 Col 1 Spaces:2 UTF-8 CRLF {} YAML 8 10:29 PM 12/24/2025
```



```
Deployment completed successfully - Agent: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_s
erver-ja2Bx1FQZW
Agent Details:
Agent Name: mcp_server
Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-ja2Bx1FQZW
ECR URI: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-mcp_server:latest
CodeBuild ID: bedrock-agentcore-mcp_server-builder:a900450f-ccdd-4390-8dfe-e32cc4cb1cad

ARM64 container deployed to Bedrock AgentCore

Next Steps:
agentcore status
agentcore invoke '{"prompt": "Hello"}'

CloudWatch Logs:
/aws/bedrock-agentcore/runtimes/mcp_server-ja2Bx1FQZW-DEFAULT --log-stream-name-prefix
"2025/12/24/[runtime-logs]"
/aws/bedrock-agentcore/runtimes/mcp_server-ja2Bx1FQZW-DEFAULT --log-stream-names "otel-rt-logs"

GenAI Observability Dashboard:
https://console.aws.amazon.com/cloudwatch/home?region=us-west-2#gen-ai-observability/agent-core

Note: Observability data may take up to 10 minutes to appear after first launch

Tail logs with:
aws logs tail /aws/bedrock-agentcore/runtimes/mcp_server-ja2Bx1FQZW-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow
aws logs tail /aws/bedrock-agentcore/runtimes/mcp_server-ja2Bx1FQZW-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h
(agnostic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run
In 118 Col 1 Spaces:2 UTF-8 CRLF {} YAML 8 10:31 PM 12/24/2025
```

File Edit Selection View Go Run ... ← → ⌂ agentic-ai-with-mcp-and-strands [Administrator]

EXPLORER PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

AGENTIC-AI-WITH-MCP-AND-STRANDS

- agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
- runtime
 - .bedrock_agentcore
 - ! .bedrock_agentcore.yaml
 - .dockerrigignore
 - .env
 - deploy_agent_from_ecr.py
 - Dockerfile
 - invoke_agent.py
 - mcp_client_local.py
 - mcp_client_remote.py
 - mcp_server.py
 - requirements.txt
 - \$ setup_cognito.sh
 - weather_agentcore.py
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py

OUTLINE TIMELINE

```
time (main)
$ # Load environment variables from .env file
source .env

# Verify CLIENT_ID was loaded correctly
echo "CLIENT_ID: $CLIENT_ID"

# Execute AWS Cognito authentication
export BEARER_TOKEN=$(aws cognito-oidc init-auth \
--client-id "$CLIENT_ID" \
--auth-flow USER_PASSWORD_AUTH \
--auth-parameters USERNAME='testuser',PASSWORD='PERMANENT_PASSWORD' \
--region $AWS_REGION | jq -r '.AuthenticationResult.AccessToken')

echo "Bearer Token: $BEARER_TOKEN"

uv run mcp_client_remote.py
CLIENT_ID: 75dh0i030918ohqet3nk75f0h
Bearer Token: eyJraiwQioi6s044SUFLalpCZU1ROTBMQzArK2E3VHTR1wvdDJNInBuZHiXsJzUdHN6D0ilCJhbGcioiJSUzI1NiJ
9.eyJzdWIoiIxOGUxNzM1MC03MG1xLtcwMTktY2FjZC0yMzRkM2M1ZGMwNGQilCJpc3MiOjodHRwcpcLlwvY29nbm10by1pZHAudXM
td2Vzb0YlmFtYXpvmf3cy5jb21cL3VzLxd1c3QtM19Namp0cVRNM2siLCJjbGllbnRfaWQoi0i3NWRoaw8wMzAzOTE4b2hxZXQzbms3
NmZvaCisimyaWdpb19gd6k10i02mrkZWFkZC01Nzkl1TrJNTETyTh1ZC03yjuyYz3YjFkN20ilC1ldmVud9pZC161jA1N20xZG11L
TdiZmyTNGZ1Ny1iMDlhLTazMz4M2GZkMjIwZCIsInRva2VuX3VzZS16Imjy2VzcylsInjbj381TjoiYXdxzLmVz25pdg8uc21nbmluLn
VzZXiuYwRta4iLcJhdXro3Rpblu0jE3NjY10TU4MTYsImV4cC16MtC2NjU5OTQxNiwiawF0IjoxNzY2NTk10DE2LCJqdGkiOijjZDN
mWt5NC0wNzFlTQ2NmMtyjFhZS03MjwZT13YTAt1LcJ1c2VbmfTzS16InRlc3R1c2VyIn0.1Poe9EsmpHft6LQ31QmNsXkZ59
I2VLb95x6TvU5ekAw4y00vBkvrt8VPeoZj-nK6fbeiwRpChud2MNntFeeEzk7WubMxxLw7JNpZvzbysLYRREgsODroUz2_Nh3ztw0Vpc
NzoxB6uV5krbjwpf4gfYDB-ResC6_rbhC8PMdvoUfwTuVmmmkF6p6aztPaUNBFLG7qYh01TfLjLxAS50ucXr-AAFDah-Alt8Xk0vsjaOF
lb8x5tCEEPHArId4y40qLeirz-LqgiWnu-kVSU0111psd51xWMMwfNf0gU5nuTU9Juub52Beigxwvw4y7xf0azqq7GCX00rf5PPOZuW
Using region: us-west-2
Using the first agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jaz2Bx1fQZw
Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jaz2Bx1fQZw
Bearer Token: eyJraiwQioi6s044SUFLalpCZU1ROTBMQzArK2E3VHTR1wvdDJNInBuZHiXsJzUdHN6D0ilCJhbGcioiJSUzI1NiJ
9.eyJzdWIoiIxOGUxNzM1MC03MG1xLtcwMTktY2FjZC0yMzRkM2M1ZGMwNGQilCJpc3MiOjodHRwcpcLlwvY29nbm10by1pZHAudXM

```

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File Edit Selection View Go Run ... ← → ⌂ agentic-ai-with-mcp-and-strands [Administrator]

EXPLORER PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

AGENTIC-AI-WITH-MCP-AND-STRANDS

- agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
- runtime
 - .bedrock_agentcore
 - ! .bedrock_agentcore.yaml
 - .dockerrigignore
 - .env
 - deploy_agent_from_ecr.py
 - Dockerfile
 - invoke_agent.py
 - mcp_client_local.py
 - mcp_client_remote.py
 - mcp_server.py
 - requirements.txt
 - \$ setup_cognito.sh
 - weather_agentcore.py
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py

OUTLINE TIMELINE

```
VzZXiuYwRta4iLcJhdXro3Rpblu0jE3NjY10TU4MTYsImV4cC16MtC2NjU5OTQxNiwiawF0IjoxNzY2NTk10DE2LCJqdGkiOijjZDN
mNNi5NC0wNzFlTQ2NmMtyjFhZS03MjwZT13YTAt1LcJ1c2VbmfTzS16InRlc3R1c2VyIn0.1Poe9EsmpHft6LQ31QmNsXkZ59
I2VLb95x6TvU5ekAw4y00vBkvrt8VPeoZj-nK6fbeiwRpChud2MNntFeeEzk7WubMxxLw7JNpZvzbysLYRREgsODroUz2_Nh3ztw0Vpc
NzoxB6uV5krbjwpf4gfYDB-ResC6_rbhC8PMdvoUfwTuVmmmkF6p6aztPaUNBFLG7qYh01TfLjLxAS50ucXr-AAFDah-Alt8Xk0vsjaOF
lb8x5tCEEPHArId4y40qLeirz-LqgiWnu-kVSU0111psd51xWMMwfNf0gU5nuTU9Juub52Beigxwvw4y7xf0azqq7GCX00rf5PPOZuW
Using region: us-west-2
Using the first agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jaz2Bx1fQZw
Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jaz2Bx1fQZw
Bearer Token: eyJraiwQioi6s044SUFLalpCZU1ROTBMQzArK2E3VHTR1wvdDJNInBuZHiXsJzUdHN6D0ilCJhbGcioiJSUzI1NiJ
9.eyJzdWIoiIxOGUxNzM1MC03MG1xLtcwMTktY2FjZC0yMzRkM2M1ZGMwNGQilCJpc3MiOjodHRwcpcLlwvY29nbm10by1pZHAudXM

```

Invoking: https://bedrock-agentcore.us-west-2.amazonaws.com/runtimes/arn%3Aaws%3Abedrock-agentcore%3Aus-w
est-2%3A891377318455%3Aruntimes%2Fmcp_server-jaz2Bx1fQZw#invocations?qualifier=DEFAULT,
with headers: {'authorization': 'Bearer eyJraiwQioi6s044SUFLalpCZU1ROTBMQzArK2E3VHTR1wvdDJNInBuZHiXsJzUd
HN6D0ilCJhbGcioiJSUzI1NiJ9.eyJzdWIoiIxOGUxNzM1MC03MG1xLtcwMTktY2FjZC0yMzRkM2M1ZGMwNGQilCJpc3MiOjodHRwc
pcLlwvY29nbm10by1pZHAudXMt2d2Vzb0YlmFtYXpvmf3cy5jb21cL3VzLxd1c3QtM19Namp0cVRNM2siLCJjbGllbnRfaWQoi0i3NW
Roaw8wMzAzOTE4b2hxZXQzbms3NmZvaCisimyaWdpb19gd6k10i02mrkZWFkZC01Nzkl1TrJNTETyTh1ZC03yjuyYz3YjFkN20ilC1ldmVud9pZC161jA1N20xZG11L
TdiZmyTNGZ1Ny1iMDlhLTazMz4M2GZkMjIwZCIsInRva2VuX3VzZS16Imjy2VzcylsInjbj381TjoiYXdxzLmVz25pdg8uc21nbmluLn
VzZXiuYwRta4iLcJhdXro3Rpblu0jE3NjY10TU4MTYsImV4cC16MtC2NjU5OTQxNiwiawF0IjoxNzY2NTk10DE2LCJqdGkiOijjZDN
mWt5NC0wNzFlTQ2NmMtyjFhZS03MjwZT13YTAt1LcJ1c2VbmfTzS16InRlc3R1c2VyIn0.1Poe9EsmpHft6LQ31QmNsXkZ59
I2VLb95x6TvU5ekAw4y00vBkvrt8VPeoZj-nK6fbeiwRpChud2MNntFeeEzk7WubMxxLw7JNpZvzbysLYRREgsODroUz2_Nh3ztw0Vpc
NzoxB6uV5krbjwpf4gfYDB-ResC6_rbhC8PMdvoUfwTuVmmmkF6p6aztPaUNBFLG7qYh01TfLjLxAS50ucXr-AAFDah-Alt8Xk0vsjaOF
lb8x5tCEEPHArId4y40qLeirz-LqgiWnu-kVSU0111psd51xWMMwfNf0gU5nuTU9Juub52Beigxwvw4y7xf0azqq7GCX00rf5PPOZuW
4y7xf0azqq7GCX00rf5PPOZuW', 'Content-Type': 'application/json'}

Ln 118, Col 1 Spaces: 2 UTF-8 CRLF { }

```

File Edit Selection View Go Run ... ← → agentic-ai-with-mcp-and-strands [Administrator]
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG + ... x
cmd bash agentc...
EXPLORER
AGENTIC-AI-WITH-MCP-AND-STRANDS
agentcore
> browser
> codeinterpreter
> gateway
> identity
> memory
> runtime
> .bedrock_agentcore
! .bedrock_agentcore.yaml U
.dockerignore U
.env U
deploy_agent_from_ecr.py
Dockerfile
invoke_agent.py
mcp_client.local.py

User@LIGTX9BC3MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
$ cd ..
(agentic-ai-with-mcp-and-strands)
User@LIGTX9BC3MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ uv run cleanup_agents.py
Using region: us-west-2
Name: mcp_server (ID: mcp_server-ja28x1fQzW)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime mcp_server
-
(agentic-ai-with-mcp-and-strands)
User@LIGTX9BC3MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ 

```

====

Inbound:

```

File Edit Selection View Go Run ... ← → agentic-ai-with-mcp-and-strands [Administrator]
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG uv - identity + ... x
EXPLORER
AGENTIC-AI-WITH-MCP-AND-STRANDS
._pycache_ 
.idea 
._venv 
agentcore
._pycache_
> browser
> codeinterpreter
> gateway
> identity
! .bedrock_agentcore.yaml U
.dockerignore U
agentcore_identity_inbound.py M
.create_creds_provider.py
Dockerfile
requirements.txt
strands_agents_openai.py
strands_claude.py U
> memory
> runtime
agentcore_utils.py
agentcore-code-changes.png
cleanup_agents.py
deploy_to_agentcore.py
> OUTLINE
> TIMELINE

User@LIGTX9BC3MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/identity (main)
$ export AWS_DEFAULT_REGION="us-west-2"
uv run agentcore_identity_inbound.py
Added path: C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore
Setting up Amazon Cognito user pool...
Pool id: us-west-2_ZCfIRK2J7
Discovery URL: https://cognito-identity.us-west-2.amazonaws.com/us-west-2_ZCfIRK2J7/.well-known/openid-configuration
Client ID: 3glthsb8s03714egofk5mg1qfuf
Bearer Token: eyJraWN0OiPSGZwK1A0QXNkQUJyVcGZy1dRSmNxWfFvtT29HUFZ1RUv0cFp6T1o8S0J1RT0i1CjhbGciOiJSUzT1NiJ9.eYJzdwTiOitOODY
xYjM5MC03MGmxLTcwNjQzMjBiN01NjkyYzRjNTJ1YjkiLCjpc3Mi01JodHRwcpcL1wv29nbm10by1pZHAudXHtd2VzdC0yLmfTxyvbmr3cy5jb21cL3VzL
Xdi1c3t018yQ2ZUmUsSjciLCjgbG1bnRfaQj01zIzzxa0hZOG8zN2k0Zwdxzms1bWldqcwZ12isimyawdpb19sqGki013ODb1NTJmIioyZWQ1LRhzmQ
tvjydkYy0wN2RnTOA2ODQ2NDEi1CjdmVudf9pZC16ImY1Mjc4ZGzjlTcnDktnDiyyv84njmlTIXxGyxTnkDcyOs1sInrv2vUx3VzS16ImjY2V2zcIsI
nVj3b81IjoiYXdzLmNVZ25pdg8uc2lnbm1uLnVzXIUWrtal4i1CjhdXRo3RpbbUi0je3NjY10TY5TgsIm4cC1GmTc2hjVwDUlxOciwlf0IjoxNzY2Ntk
20TE4LC1qdkgki0i4MjdmMjE2M10x0QM8LTQ1MDUYjYjExZ1110G12M214GUzGuilC1c2VybmfTzS16Inrl3R1c2VyIn0.VLTW1JZTH3SeLruts6_hLam
ieUMZ4040vUMx-8sEmw5XaTPPx3lYxssfEyAtyLSbgT6Lo5F1tV_FJ14LszAd2mM651aKgnptPhrOz97tWANyycWLACNkIVRaDxu39sfLB07i2VytQkjA5d7A
MTM0QMLSHct-avvo2IBndazKFEg7KHM2-UN1Nz02jzhRTb0aeDGP178bV-5lp-yJH-rV1kerKt2eM66SDf1gd6j2r8tn8x2t+RO-XH5h1AdEcBgg9nLKAEVZO
BLHSA3_mz0739PkuiChreRrpQdHksZ1pTDY5o3_-Soz_le6uRL4t00KVESPRFVGoeA
Password stored in Parameter Store: /cognito/us-west-2_2_CfIRK2J7/testuser/password
Cognito setup completed /
Entry point parsed: file=C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore\identity\strands_claude.py, bedrock_agentcore_name=strands_claude
Memory disabled - agent will be stateless
Configuring BedrockAgentCore agent: strands_agent_inbound_identity

⚠ No container engine found (Docker/Finch/Podman not installed)
✓ Default deployment uses CodeBuild (no container engine needed). For local builds, install Docker, Finch, or Podman
Memory disabled
Network mode: PUBLIC

⚠ Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work.
Please use default launch command which will do a remote cross-platform build using code build. For deployment other

```

φ Nathaniel (4 months ago) Ln 35, Col 10 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp-and-strands)

```

Repository doesn't exist, creating new ECR repository: bedrock-agentcore-strands_agent_inbound_identity
ECR repository available: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-strands_agent_inbound_identity
Getting or creating execution role for agent: strands_agent_inbound_identity
Using AWS region: us-west-2, account ID: 891377318455
Role name: AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
Role doesn't exist, creating new execution role: AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
Starting execution role creation process for agent: strands_agent_inbound_identity
✓ Role creating: AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
Creating IAM role: AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
✓ Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
✓ Execution policy attached: BedrockAgentCoreRuntimeExecutionPolicy-strands_agent_inbound_identity
Role creation complete and ready for use with Bedrock AgentCore
Execution role available: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-2213d1079e
Preparing CodeBuild project and uploading source...
Getting or creating CodeBuild execution role for agent: strands_agent_inbound_identity
Role name: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
CodeBuild role doesn't exist, creating new role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
Creating IAM role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
✓ Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
Attaching inline policy: CodeBuildExecutionPolicy to role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
✓ Policy attached: CodeBuildExecutionPolicy
Waiting for IAM role propagation...
CodeBuild execution role creation complete: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-2213d1079e
Using dockerignore.template with 46 patterns for zip filtering
Uploaded source to S3: strands_agent_inbound_identity/source.zip
created CodeBuild project: bedrock-agentcore-strands_agent_inbound_identity-builder
Starting CodeBuild build (this may take several minutes)...
Starting CodeBuild monitoring...
QUEUED started (total: 0s)
QUEUED completed in 1.3s
PROVISIONING started (total: 2s)

```

```

Built with CodeBuild: bedrock-agentcore-strands_agent_inbound_identity-builder:9d6068c0-0d11-4e03-9889-5cd9ec0acdca
Deployed to cloud: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/strands_agent_inbound_identity-gVBrm9HLM0
ECR image: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-strands_agent_inbound_identity
Agent logs available at:
    /aws/bedrock-agentcore/runtimes/strands_agent_inbound_identity-gVBrm9HLM0-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]"
    /aws/bedrock-agentcore/runtimes/strands_agent_inbound_identity-gVBrm9HLM0-DEFAULT --log-stream-names "otel-rt-logs"
Tail logs with: aws logs tail /aws/bedrock-agentcore/runtimes/strands_agent_inbound_identity-gVBrm9HLM0-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" -f
Or view recent logs: aws logs tail /aws/bedrock-agentcore/runtimes/strands_agent_inbound_identity-gVBrm9HLM0-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h
=====
Invoking AgentCore Runtime without authorization (this should fail)
=====
✖ Error invoking AgentCore Runtime
An error occurred (AccessDeniedException) when calling the InvokeAgentRuntime operation: Authorization method mismatch. The agent is configured for a different authorization method than what was used in your request. Check the agent's authorization configuration and ensure your request uses the matching method (OAuth or SigV4)
=====
```

```

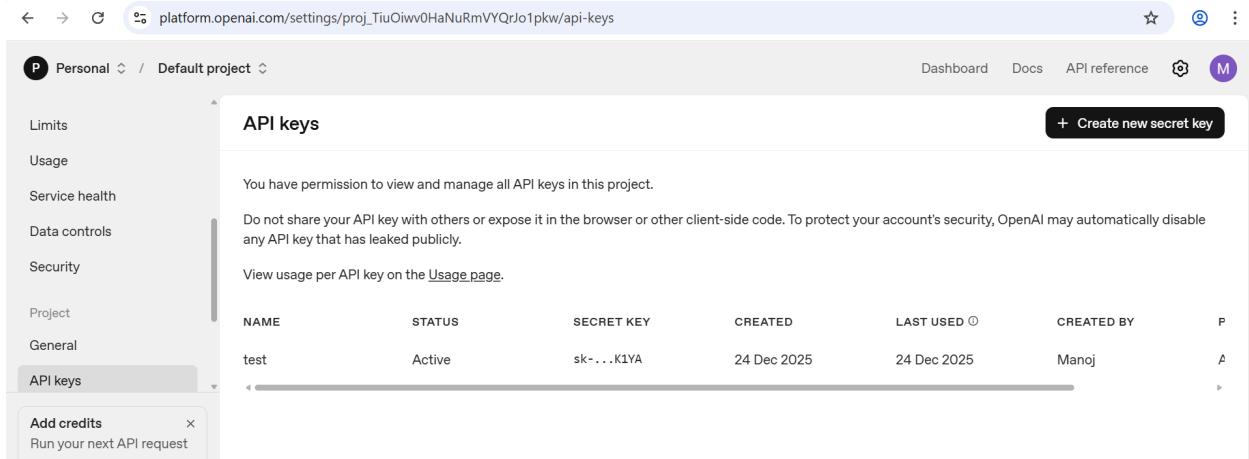
=====
Invoking AgentCore Runtime with authorization (this should succeed)
=====
=====
Using JWT authentication
Successfully invoked AgentCore Runtime
{
    "response": "\u201cIt's sunny right now! Looks like a great day to spend some time outside or enjoy some outdoor activities.\u201d
    "Would you like to know anything else about the current weather?\u201d
}
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/identity (main)

$ cd ..
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ uv run cleanup_agents.py
Using region: us-west-2

Name: strands_agent_inbound_identity (ID: strands_agent_inbound_identity-gVBrm9HLM0)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime strands_agent_inbound_identity
-----
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ 
```

=====

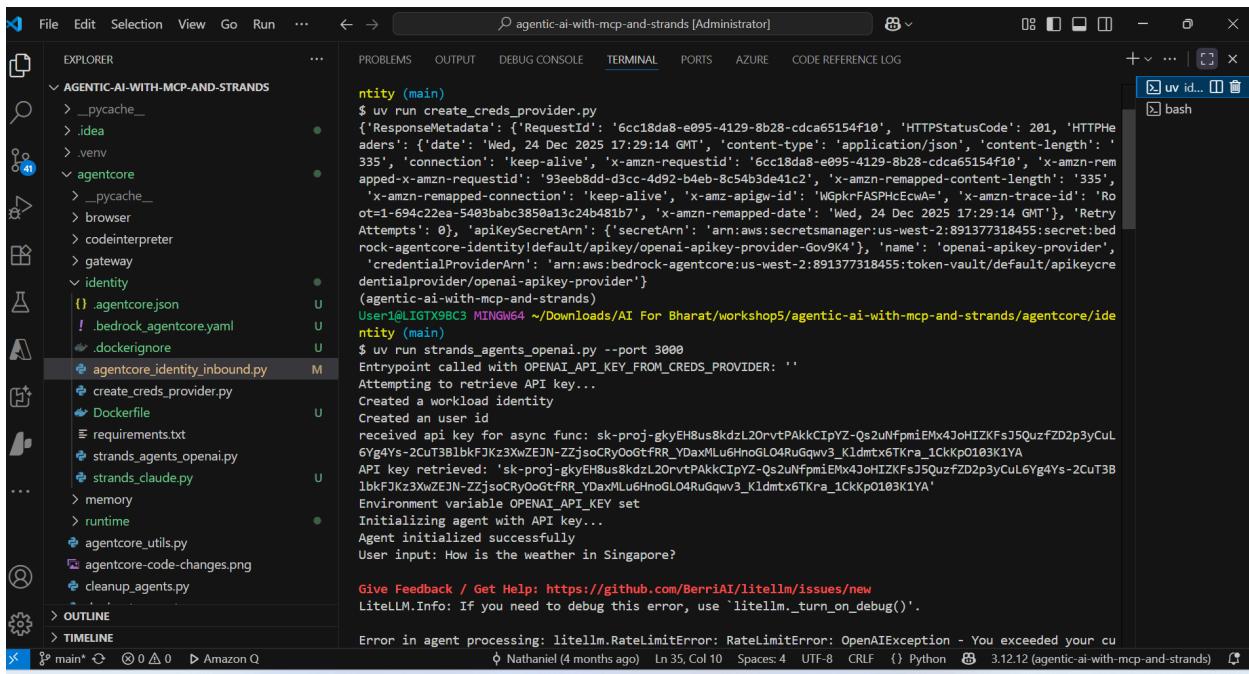
Outbound:



The screenshot shows the OpenAI platform's settings page for a project titled "Default project". The left sidebar has a "Personal" dropdown and several sections: Limits, Usage, Service health, Data controls, Security, Project, General, and API keys (which is currently selected). The main area is titled "API keys" and displays the message "You have permission to view and manage all API keys in this project." It includes a note about not sharing API keys publicly. A table lists the existing API key:

| NAME | STATUS | SECRET KEY | CREATED | LAST USED | CREATED BY |
|------|--------|------------|-------------|-------------|------------|
| test | Active | sk-...K1YA | 24 Dec 2025 | 24 Dec 2025 | Manoj |

At the bottom, there are buttons for "Add credits" and "Run your next API request".



The screenshot shows a terminal window in VS Code with the title "agentic-ai-with-mcp-and-strands [Administrator]". The terminal output shows the execution of Python scripts:

```
uv id... bash
nity (main)
$ uv run create_creds_provider.py
{'ResponseMetadata': {'RequestId': '6cc18da8-e095-4129-8b28-cdca65154f10', 'HTTPStatusCode': 201, 'HTTPHeaders': {'date': 'Wed, 24 Dec 2025 17:29:14 GMT', 'content-type': 'application/json', 'content-length': '335', 'connection': 'keep-alive', 'x-amzn-requestid': '6cc18da8-e095-4129-8b28-cdca65154f10', 'x-amzn-redded-x-amzn-requestid': '93eeb8dd-d3cc-4d92-b4eb-8c54b3de41c2', 'x-amzn-redded-content-length': '335', 'x-amzn-redded-connection': 'keep-alive', 'x-amz-apigw-id': 'NgkrFASPHCeCwA=', 'x-amzn-trace-id': 'Root=1-694c22ea-5403abc3850a13c24b481b7', 'x-amzn-redded-date': 'Wed, 24 Dec 2025 17:29:14 GMT'}, 'RetryAttempts': 0}, 'apiKeySecretArn': {'secretArn': 'arn:aws:secretsmanager:us-west-2:891377318455:secret:bedrock-agentcore-default/apikey/openai-apikey-provider-Gov9K4'}, 'name': 'openai-apikey-provider', 'credentialProviderArn': 'arn:aws:bedrock-agentcore:us-west-2:891377318455:token-vault/default/apikeycredentialprovider/openai-apikey-provider'}
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/ide
nity (main)
$ uv run strands_agents_openai.py --port 3000
Entrypoint called with OPENAI_API_KEY_FROM_CRED_PROVIDER: ''
Attempting to retrieve API key...
Created a workload identity
Created an user id
Received api key for async func: sk-proj-gkyEH8us8kdzL20rvtpAkkCIpYZ-Qs2uNfpniEMx4JoHIZKfsJ5QuzfZD2p3yCuL6Yg4Ys-2CuT3B1bkFJKz3XwZEJN-ZZjsocRyOoGtRR_YDaxMLu6HnoGL04RuGqww3_Kldmtx6TKra_1CkKp0103K1YA
API key retrieved: 'sk-proj-gkyEH8us8kdzL20rvtpAkkCIpYZ-Qs2uNfpniEMx4JoHIZKfsJ5QuzfZD2p3yCuL6Yg4Ys-2CuT3B1bkFJKz3XwZEJN-ZZjsocRyOoGtRR_YDaxMLu6HnoGL04RuGqww3_Kldmtx6TKra_1CkKp0103K1YA'
Environment variable OPENAI_API_KEY set
Initializing agent with API key...
Agent initialized successfully
User input: How is the weather in Singapore?

Give Feedback / Get Help: https://github.com/BerryAI/litellm/issues/new
LitellM.info: If you need to debug this error, use 'litellm._turn_on_debug()'.

Error in agent processing: litellm.RateLimitError: RateLimitError: OpenAIException - You exceeded your cu
```

二

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)

- \$ export AWS_DEFAULT_REGION="us-west-2"
- (agentic-ai-with-mcp-and-strands)
- User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
- \$ uv runv create_agentcore_gateway.py

Added path: C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore

(1) Creating Lambda Function

Reading code from zip file

Creating IAM role for lambda function

Attaching policy to the IAM role

Role 'gateway_lambda_iamrole' created successfully: arn:aws:iam::891377318455:role/gateway_lambda_iamrole

Creating lambda function

{

- "lambda_function_arn": "arn:aws:lambda:us-west-2:891377318455:function:gateway_lambda",
- "exit_code": 0

}

Lambda function ready with ARN: arn:aws:lambda:us-west-2:891377318455:function:gateway_lambda

attaching role policy agentcore-sample-lambdagateway-role

Agentcore gateway role ARN: arn:aws:iam::891377318455:role/agentcore-sample-lambdagateway-role

(2) Creating Cognito Resources.....

Creating or retrieving Cognito resources...

Creating new user pool

Domain created as well

User Pool ID: us-west-2_XdGRqz6IG

creating new resource server

Resource server ensured.

creating new m2m client

Client ID: 50nuhisijsdliumpu7p8vh3b1r

Cognito Discovery URL: https://cognito-idp.us-west-2.amazonaws.com/us-west-2_XdGRqz6IG/.well-known/openid-configuration

(3) Creating AgentCore Gateway.....

{

```
(3) Creating AgentCore Gateway.....
{
  "RequestID": "5e3c3bff-4291-4ed2-963e-19a9e2e36ac9",
  "HTTPStatusCode": 202,
  "HTTPHeaders": {
    "date": "Wed, 24 Dec 2025 17:45:42 GMT",
    "content-type": "application/json",
    "content-length": "815",
    "connection": "keep-alive",
    "x-amzn-requestid": "5e3c3bff-4291-4ed2-963e-19a9e2e36ac9",
    "x-amzn-remapped-x-amzn-requestid": "9ed351b7-ec0b-4516-81ae-a89973efa32d",
    "x-amzn-remapped-content-length": "815",
    "x-amzn-remapped-connection": "keep-alive",
    "x-amz-apigw-id": "WGr_GFBCPHcEBHQ=",
    "x-amz-trace-id": "Root=1-694c26c6-7c82e9c65162d28016c4d0df",
    "x-amzn-remapped-date": "Wed, 24 Dec 2025 17:45:42 GMT"
  },
  "RetryAttempts": 0
},
"gatewayArn": "arn:aws:bedrock-agentcore:us-west-2:891377318455:gateway/testgwforlambda-rgerkl0vnq",
"gatewayId": "testgwforlambda-rgerkl0vnq",
"gatewayUrl": "https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp",
"createdAt": "2025-12-24 17:45:42.773144+00:00",
"updatedAt": "2025-12-24 17:45:42.773154+00:00",
"status": "CREATING",
"name": "TestGwforLambda",
"description": "AgentCore Gateway with AWS Lambda target type",
"roleArn": "arn:aws:iam::891377318455:role/agentcore-sample-lambdagateway-role",
"protoType": "MCP",
"authorizerType": "CUSTOM_JWT",
"authorizerConfiguration": {
```

```
"orderID"
      ]
    }
  ],
  {
    "name": "update_order_tool",
    "description": "tool to update the orderID",
    "inputSchema": {
      "type": "object",
      "properties": {
        "orderId": {
          "type": "string"
        }
      },
      "required": [
        "orderId"
      ]
    }
  }
],
"credentialProviderConfigurations": [
  {
    "credentialProviderType": "GATEWAY_IAM_ROLE"
  }
]
}
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
```

```
lambda_function_code.zip
strands_agent_oai_nasa.py
> identity
> memory
> runtime
agentcore_utils.py
agentcore-code-changes.png
cleanup_agents.py
deploy_to_agentcore.py
requirements.txt
> OUTLINE
> TIMELINE
)
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ cat .env
USER_POOL_ID=us-west-2_XdGRQz6IG
CLIENT_ID=50uhis1jsdlumpu7p8vh3blr
CLIENT_SECRET=rdcce2db0hbg59kr9g2d5k14fmnnescjka38pvtc8pfsifq1rqm
SCOPE_STRING=sample-agentcore-gateway-id/gateway:read sample-agentcore-gateway-id/gateway:write
GATEWAY_URL=https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
TARGET_NAME=LambdaUsingSDK
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
```

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays a command-line session for the 'agentic-ai-with-mcp-and-strands' project. The user runs the command '\$ uv run invoke_agentcore_gateway.py' which triggers a series of logs related to AWS Lambda and Bedrock AgentCore interactions. The logs include requests for access tokens, Lambda function invocations, and tool availability responses.

```

(agentic-ai-with-mcp-and-strands)
User@LIGTX98C3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ uv run invoke_agentcore_gateway.py
Added path: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore
Requesting the access token from Amazon Cognito authorizer...
50nuh1s1jsd1iumpu7p8vh3blr
rdcce2db0hbgb59krq2dsk14fmnnescjka38ptvc8pfslfq1rqm
Cogito Token:
eyJraWQioi1RZERFRMUVrSVVrS0I1ZUhaiHNpWfH0UEI0Y01RVGRWZDZ1Rwdic1hYZ1vwWT0iLCJhbGciOiJSUzI1NiJ9.eyJzdWIiOiI1MG51aDFzMWpzZDFpdW1wTdwOHZm2JscisInRva2VlXvZlZSiGmFjY2VzcIyNjb38lIjoic2ftcGx1lwFnZnYXRld2F5lWlkC9nYXRld2F50ndyaXR1IHnhbAxS21hZvVdNvcmU7Z2F0zXheS1pZfwV2F0zXheTpVnfKiwiYX0eaF90aW1l1joxNzY2NTk4NDWlCJpc3Mi0i1jodHkwczpl1wvY29nbml0by1pZHxAudXtcd2Vzcd0yLmfTYXpvbmF3cy5jb21cL3VzLXd1c3QM19Y2EdScx0zUclC1leHaoje3Njy2MD1wvjAs1mhdC16TC2hjUSODQ2McwidMy21vb16MiwanRpijoiZGQ5ZmQ5NzgtZmQ8Ny00OTASLTThMzQtNTU4ZwJ0Nm5zMu21iwiy1x2pxzW50x21kjoiNTBudWgxczfq:20>xVtCH3Cd2aDn1hIf0_WfpAdoA6Vh-hpTdjgW04nA_1D12ZFjgp25moPBVHDm5HigGx_N1wHA23XN_7_P676hp4ht6um2dD_TDRYwZwrt5ikjv5m1_sZCDUCgykuQ0xtdYMPafI0t9w7h-sy6TQ7tGYS3dgQ0mzo6XZlZUwhBQ2P1zI-_NVUI_-2F_PCcqlllu1KsvzfFL6wRm0SeOnykpaStmpZV42q37N0k9gaxcmzAOwQAlwGhfrjwePc-h2Kr2Ek8jKPMqtJvZajuoHthS5-v0tPzpGkljTxr2b-QigtV7TbxYtaa6mbA_ouXAnO6b1s89jPi3m98HgXkInIUiq63Q1CeHg

2025-12-24 23:17:43 | INFO | botcore.credentials | Found credentials in environment variables.
2025-12-24 23:17:45 | INFO | httpx | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.1 200 OK"
2025-12-24 23:17:45 | INFO | mcp.client.streamable_http | Negotiated protocol version: 2025-03-26
2025-12-24 23:17:45 | INFO | httpx | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.1 202 Accepted"
2025-12-24 23:17:46 | INFO | httpx | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.1 200 OK"
Tools loaded in the agent are ['LambdaUsingSDK__get_order_tool', 'LambdaUsingSDK__update_order_tool']
2025-12-24 23:17:46 | INFO | strands.telemetry.metrics | Creating Strands MetricsClient
<thinking> The user has asked for a list of all available tools. I should provide this information directly as it is part of the system's capabilities. </thinking>

Here are the tools available to me:
1. **LambdaUsingSDK__get_order_tool**

```

This screenshot shows the same VS Code setup as the first one, but the terminal output has been truncated. It starts with a general message about available tools, followed by detailed descriptions for each tool: 'LambdaUsingSDK__get_order_tool' and 'LambdaUsingSDK__update_order_tool'. Both descriptions mention the purpose of the tool, its parameters, and a note about extracting order status for a specific ID. The terminal then shows a truncated response from the tool, followed by a tool call result and a final truncated message.

```

Here are the tools available to me:
1. **LambdaUsingSDK__get_order_tool**
- Description: Tool to get the order.
- Parameters:
- "orderId" (string): Property orderId.
- Required: `orderId`.

2. **LambdaUsingSDK__update_order_tool**
- Description: Tool to update the orderId.
- Parameters:
- "orderId" (string): Property orderId.
- Required: `orderId`.<thinking> The user has requested to check the order status for a specific order ID. I will use the `LambdaUsingSDK__get_order_tool` to retrieve the order status. </thinking>

Tool #1: LambdaUsingSDK__get_order_tool
2025-12-24 23:17:51 | INFO | httpx | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.1 200 OK"
<thinking> The tool has returned the order status for order ID 123. I will extract and present the exact response from the tool to the user. </thinking>

The exact response from the tool is:
```
{
 "statusCode": 200,
 "body": "Order Id 123 is in shipped status"
}
2025-12-24 23:17:53 | INFO | httpx | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.1 200 OK"
```
Tool Call result:
{
  "statusCode": 200,

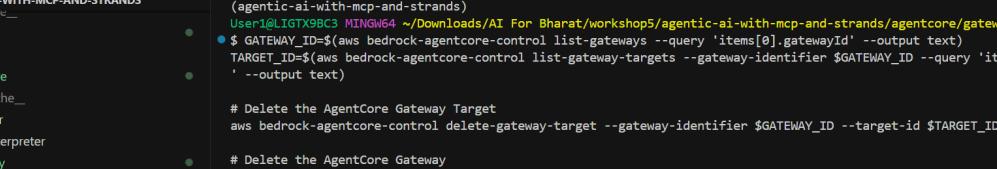
```

The screenshot shows a VS Code interface with the following details:

- File Explorer:** Shows a project structure under "AGENTIC-AI-WITH-MCP-AND-STRANDS".
- Terminal:** Displays AI-generated code completion and tool logs.

Terminal Output:

```
- `orderId` (string): Property orderId.  
- Required: `orderId`.  
  
2. **LambdaUsingSDK__update_order_tool**  
- Description: Tool to update the orderId.  
- Parameters:  
- `orderId` (string): Property orderId.  
- Required: `orderId`.<thinking> The user has requested to check the  
the `LambdaUsingSDK__get_order_tool` to retrieve the order status. </th  
  
Tool #1: LambdaUsingSDK__get_order_tool  
2025-12-24 23:17:51 | INFO | httpx | HTTP Request: POST https://testgwf  
st-2.amazonaws.com/mcp "HTTP/1.1 200 OK"  
<thinking> The tool has returned the order status for order ID 123. I will  
tool to the user. </thinking>  
  
The exact response from the tool is:  
...  
{  
    "statusCode": 200,  
    "body": "Order Id 123 is in shipped status"  
}  
2025-12-24 23:17:53 | INFO | httpx | HTTP Request: POST https://testgwf  
st-2.amazonaws.com/mcp "HTTP/1.1 200 OK"  
...  
  
Tool Call result:  
{  
    "statusCode": 200,  
    "body": "Order Id 123 is in shipped status"  
}  
(agentic-ai-with-mcp-and-strands)  
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-wi  
$
```



The screenshot shows a terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]" with the following content:

```
(agentic-ai-with-mcp-and-strands)
User@LIGTXBC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ GATEWAY_ID=$(aws bedrock-agentcore-control list-gateways --query 'items[0].gatewayId' --output text)
TARGET_ID=$(aws bedrock-agentcore-control list-gateway-targets --gateway-identifier $GATEWAY_ID --query 'items[0].targetId' --output text)

# Delete the AgentCore Gateway Target
aws bedrock-agentcore-control delete-gateway-target --gateway-identifier $GATEWAY_ID --target-id $TARGET_ID

# Delete the AgentCore Gateway
aws bedrock-agentcore-control delete-gateway --gateway-identifier $GATEWAY_ID

# Delete the Lambda function
aws lambda delete-function --function-name gateway_lambda
{
    "gatewayArn": "arn:aws:bedrock-agentcore:us-west-2:891377318455:gateway/testgwforlambda-rgerkl0vnq",
    "targetId": "V7YNUHNMQF",
    "status": "DELETING"
}
{
    "gatewayId": "testgwforlambda-rgerkl0vnq",
    "status": "DELETING"
}
{
    "statusCode": 204
}

(agentic-ai-with-mcp-and-strands)
```

三

```

User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ uv run create_agentcore_gateway_oai.py
Setting up Cognito resources...
Found domain for user pool us-west-2_XdGRqz6IG: us-west-2xdgrqz6ig (https://us-west-2xdgrqz6ig.auth.us-west-2.amazoncognito.com)
Client ID: 50nuh1s1jsdiumpu7p8vh3blr
50nuh1s1jsdiumpu7p8vh3blr
rdcce2db0hhgbg59kr9gd5k34fmnnnscjka38pvctc8pfslfq1r9m
Cognito Token: eyJraiwQioiJRZERFMRUV-S01IZUhaiNpFhUOE1Y01RVGRWZDZ1RWdic1hYZ1wvWT0iLCjhBgcioiJSUzI1NiJ9.eyJzdWIoiI1MG51aDFzMpzDFpdw1wdTdw0HzoM21scisInRva2uXv3VzS161m+jY2VzcyIsInjb3B1Ijoic2FtcgxLwFnZw5Y9z5inYXRld2F5LWlkXc9yXRld2F5OndyaXR1LHNWhxBzS1h2zudGnvcmUtz2F0zXdhes1pFwv2zZ0zXdhetePyZWfKtiwiYXV0a9aw1lIjoxNzYNTknt4zI4lCjpc3Mio1odRwcpc1lwV299nbm1Obyp1zHaudXWt2vzdc0yLmfYtXpvbmfr3cy5jb21cl3VzLx1c1QtM19YzEdszo2Uc1lC1leA1Oje3NjY2MDiMjgsIm1hdC16MtC2Nj02J5DcyCwidmvyc2lVb1E6MiwnrpijoiM2RknDwZUthMjnjM100MmY11LwNYtAtYR1MDYwTkv00k2Ii1YzxpZw58x2lKjoiNTBudWngxczFqc2QxaXvtch3Uh2aDNibHiifQ.PoY1xsS7ijXsWKTGZ_PT3FLkrTDw8KOTv-YaTiKn8uAkzzAUpsBtqvqmtABihrxrpln4gr19w3gZfXXXTsFhopRYLP7uvQCZS1Gz1UXbYVKnZ2215Wmhu-sM7R4F1_HduKGm7QJahucVp_Mp1xjw7Heo2d-Q2ldqf5HzeBRrlgz0ELK1DB_5fgtURd1x-MUZ2p7wHwSoppIS8c9MjLXLV3yCwlwAqOojunf51oz9wtXAes5VKG0P1ebNEGUUnTRBP40QW7JGM2y0VECx36z_Y2lhedofF2aYdCoyCtcA5qz1wTLHFaY2cRTzG2F1MAs283WMQ
Role already exists -- deleting and creating it again
policies: {'PolicyNames': ['AgentCorePolicy'], 'IsTruncated': False, 'ResponseMetadata': {'RequestId': 'e1f0f2e2-8db9-43d5-81e9-b55eb50c7b78', 'HTTPStatusCode': 200, 'HTTPHeaders': {'date': 'Wed, 24 Dec 2025 17:52:11 GMT', 'x-amzn-requestid': 'e1f0f2e2-8db9-43d5-81e9-b55eb50c7b78', 'content-type': 'text/xml', 'content-length': '380'}, 'RetryAttempts': 0}}
deleting agentcore-sample-lambdagateway-role
recreating agentcore-sample-lambdagateway-role
attaching role policy agentcore-sample-lambdagateway-role
Role ARN: arn:aws:iam::891377318455:role/agentcore-sample-lambdagateway-role
Gateway ID: demogopenapiapikeynasaosai-hgp3damvnd
Credential Provider ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:token-vault/default/apikeycredentialprovider/NasaiInsightAPITKey
OpenAPI S3 URI: s3://agentcore-gateway-891377318455-us-west-2/nasa_mars_insights_openapi.json

==== Gateway Setup Complete ====

```

```

User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ uv run create_agentcore_gateway_oai.py
Setting up Cognito resources...
Found domain for user pool us-west-2_XdGRqz6IG: us-west-2xdgrqz6ig (https://us-west-2xdgrqz6ig.auth.us-west-2.amazoncognito.com)
Client ID: 50nuh1s1jsdiumpu7p8vh3blr
50nuh1s1jsdiumpu7p8vh3blr
rdcce2db0hhgbg59kr9gd5k34fmnnnscjka38pvctc8pfslfq1r9m
Cognito Token: eyJraiwQioiJRZERFMRUV-S01IZUhaiNpFhUOE1Y01RVGRWZDZ1RWdic1hYZ1wvWT0iLCjhBgcioiJSUzI1NiJ9.eyJzdWIoiI1MG51aDFzMpzDFpdw1wdTdw0HzoM21scisInRva2uXv3VzS161m+jY2VzcyIsInjb3B1Ijoic2FtcgxLwFnZw5Y9z5inYXRld2F5LWlkXc9yXRld2F5OndyaXR1LHNWhxBzS1h2zudGnvcmUtz2F0zXdhetePyZWfKtiwiYXV0a9aw1lIjoxNzYNTknt4zI4lCjpc3Mio1odRwcpc1lwV299nbm1Obyp1zHaudXWt2vzdc0yLmfYtXpvbmfr3cy5jb21cl3VzLx1c1QtM19YzEdszo2Uc1lC1leA1Oje3NjY2MDiMjgsIm1hdC16MtC2Nj02J5DcyCwidmvyc2lVb1E6MiwnrpijoiM2RknDwZUthMjnjM100MmY11LwNYtAtYR1MDYwTkv00k2Ii1YzxpZw58x2lKjoiNTBudWngxczFqc2QxaXvtch3Uh2aDNibHiifQ.PoY1xsS7ijXsWKTGZ_PT3FLkrTDw8KOTv-YaTiKn8uAkzzAUpsBtqvqmtABihrxrpln4gr19w3gZfXXXTsFhopRYLP7uvQCZS1Gz1UXbYVKnZ2215Wmhu-sM7R4F1_HduKGm7QJahucVp_Mp1xjw7Heo2d-Q2ldqf5HzeBRrlgz0ELK1DB_5fgtURd1x-MUZ2p7wHwSoppIS8c9MjLXLV3yCwlwAqOojunf51oz9wtXAes5VKG0P1ebNEGUUnTRBP40QW7JGM2y0VECx36z_Y2lhedofF2aYdCoyCtcA5qz1wTLHFaY2cRTzG2F1MAs283WMQ
Role already exists -- deleting and creating it again
policies: {'PolicyNames': ['AgentCorePolicy'], 'IsTruncated': False, 'ResponseMetadata': {'RequestId': 'e1f0f2e2-8db9-43d5-81e9-b55eb50c7b78', 'HTTPStatusCode': 200, 'HTTPHeaders': {'date': 'Wed, 24 Dec 2025 17:52:11 GMT', 'x-amzn-requestid': 'e1f0f2e2-8db9-43d5-81e9-b55eb50c7b78', 'content-type': 'text/xml', 'content-length': '380'}, 'RetryAttempts': 0}}
deleting agentcore-sample-lambdagateway-role
recreating agentcore-sample-lambdagateway-role
attaching role policy agentcore-sample-lambdagateway-role
Role ARN: arn:aws:iam::891377318455:role/agentcore-sample-lambdagateway-role
Gateway ID: demogopenapiapikeynasaosai-hgp3damvnd
Credential Provider ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:token-vault/default/apikeycredentialprovider/NasaiInsightAPITKey
OpenAPI S3 URI: s3://agentcore-gateway-891377318455-us-west-2/nasa_mars_insights_openapi.json

==== Gateway Setup Complete ====
Gateway URL: https://demogopenapiapikeynasaosai-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
Gateway ID: demogopenapiapikeynasaosai-hgp3damvnd
Target ID: BWLRMS4EIP
Access Token: eyJraiwQioiJRZERFMRUV-S01IZUhaiNpFhUOE1Y01RVGRWZDZ1RWdic1hYZ1wvWT0iLCjhBgcioiJSUzI1NiJ9.eyJzdWIoiI1MG51aDFzMpzDFpdw1wdTdw0HzoM21scisInRva2uXv3VzS161m+jY2VzcyIsInjb3B1Ijoic2FtcgxLwFnZw5Y9z5inYXRld2F5LWlkXc9yXRld2F5OndyaXR1LHNWhxBzS1h2zudGnvcmUtz2F0zXdhetePyZWfKtiwiYXV0a9aw1lIjoxNzYNTknt4zI4lCjpc3Mio1odRwcpc1lwV299nbm1Obyp1zHaudXWt2vzdc0yLmfYtXpvbmfr3cy5jb21cl3VzLx1c1QtM19YzEdszo2Uc1lC1leA1Oje3NjY2MDiMjgsIm1hdC16MtC2Nj02J5DcyCwidmvyc2lVb1E6MiwnrpijoiM2RknDwZUthMjnjM100MmY11LwNYtAtYR1MDYwTkv00k2Ii1YzxpZw58x2lKjoiNTBudWngxczFqc2QxaXvtch3Uh2aDNibHiifQ.PoY1xsS7ijXsWKTGZ_PT3FLkrTDw8KOTv-YaTiKn8uAkzzAUpsBtqvqmtABihrxrpln4gr19w3gZfXXXTsFhopRYLP7uvQCZS1Gz1UXbYVKnZ2215Wmhu-sM7R4F1_HduKGm7QJahucVp_Mp1xjw7Heo2d-Q2ldqf5HzeBRrlgz0ELK1DB_5fgtURd1x-MUZ2p7wHwSoppIS8c9MjLXLV3yCwlwAqOojunf51oz9wtXAes5VKG0P1ebNEGUUnTRBP40QW7JGM2y0VECx36z_Y2lhedofF2aYdCoyCtcA5qz1wTLHFaY2cRTzG2F1MAs283WMQ
Environment variables exported:
GATEWAY_URL=https://demogopenapiapikeynasaosai-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
ACCESS_TOKEN=eyJraiwQioiJRZERFMRUV...
TARGET_NAME=DemoOpenAPITargetS3NASA_Mars
(agentic-ai-with-mcp-and-strands)
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)

```

The screenshot shows a terminal session in VS Code with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The terminal window displays the following text:

```
$ echo $GATEWAY_URL
https://demogwopenapiapikeynasaoai-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
(agentic-ai-with-mcp-and-strands)
User1@LIGTX98C3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)

$ uv run strands_agent_oai_nasa.py
Connecting to: https://demogwopenapiapikeynasaoai-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
Token length: 946
Tools loaded in the agent are ['DemoOpenAPITargetS3NasaMars__getInsightWeather']
INFO | strands.telemetry.metrics | Creating Strands MetricsClient
<thinking> The user has requested a list of all available tools. I should provide this information directly as it is part of the system's capabilities. </thinking>

Here are the tools available to me:

1. **DemoOpenAPITargetS3NasaMars__getInsightWeather**
   - **Description:** Retrieve latest InSight Mars weather data.
   - **Parameters:** 
     - `ver` (string): API version string. (only "1.0" supported)
     - `feedtype` (string): Response format (only "json" is supported).
   - **Required Parameters:** `feedtype`, `ver` <thinking> The user is asking for the weather in the northern part of Mars. I should use the available tool to retrieve the latest InSight Mars weather data, which might provide relevant information. </thinking>

Tool #1: DemoOpenAPITargetS3NasaMars__getInsightWeather
The weather in the northern part of Mars is currently in "mid winter." Here are the details for the latest sol (Martian day):

- **Air Temperature (AT):**
  - Average: -62.434°C
  - Minimum: -95.447°C
  - Maximum: -4.444°C
```

The screenshot shows a terminal session in VS Code with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The terminal window displays the following text:

```
- `ver` (string): API version string. (only "1.0" supported)
- `feedtype` (string): Response format (only "json" is supported).
- **Required Parameters:** `feedtype`, `ver` <thinking> The user is asking for the weather in the northern part of Mars. I should use the available tool to retrieve the latest InSight Mars weather data, which might provide relevant information. </thinking>

Tool #1: DemoOpenAPITargetS3NasaMars__getInsightWeather
The weather in the northern part of Mars is currently in "mid winter." Here are the details for the latest sol (Martian day):

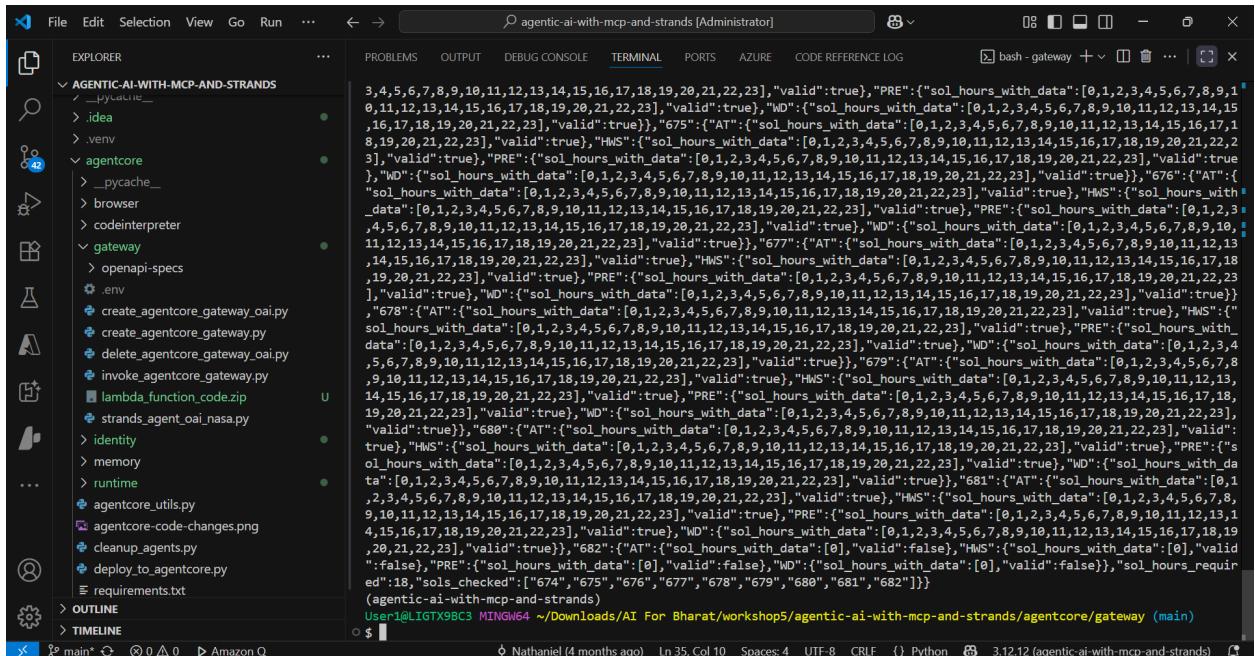
- **Air Temperature (AT):**
  - Average: -62.434°C
  - Minimum: -95.447°C
  - Maximum: -4.444°C

- **Wind Speed (HWS):**
  - Average: 5.632 m/s
  - Minimum: 0.228 m/s
  - Maximum: 18.577 m/s

- **Pressure (PRE):**
  - Average: 743.55 Pa
  - Minimum: 718.463 Pa
  - Maximum: 760.2244 Pa

- **Wind Direction (WD):**
  - Most common direction: WNW (West-Northwest)

These values represent the conditions at the InSight landing site, which is located in the northern hemisphere of Mars. Tool 1 Call result: {"675": {"AT": {"av": -62.314, "ct": 177556, "mn": -96.872, "mx": -15.988}, "First_UTC": "2020-10-19T18:32:20Z", "HWS": {"av": 7.233, "ct": 88628, "mn": 1.051, "mx": 22.455}, "Last_UTC": "2020-10-20T19:11:55Z", "Month_ordinal": 10, "Northern_season": "early winter", "PRE": {"av": 750.563, "ct": 887776, "mn": 722.0901, "mx": 768.791}, "Season": "fall", "Southern_season": "early summer", "WD": "WNW"}}
```



```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
● $ export GATEWAY_ID=demogwopenapiapikeynasaoai-hgp3damvnd
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
❸ $ uv run delete_agentcore_gateway_oai.py
Deleting target BWRLMS4EIP
Deleting gateway demogwopenapiapikeynasaoai-hgp3damvnd
Error deleting gateway: An error occurred (ValidationException) when calling the DeleteGateway operation: Gateway with ID: demogwopenapiapikeynasaoai-hgp3damvnd has targets associated with it. Delete all targets before deleting the gateway.
(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
❹ $
```

====

```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ uv run short_term_memory.py
2025-12-24 23:34:55,811 - botocore.credentials - INFO - Found credentials in environment variables.
2025-12-24 23:34:55,950 - bedrock_agentcore.memory.client - INFO - Initialized MemoryClient for control plane: us-west-2,
data plane: us-west-2
-----
Memory ID: CustomerSupportAgentMemory-8DCG0s8VWp
Memory Arn: arn:aws:bedrock-agentcore:us-west-2:891377318455:memory/CustomerSupportAgentMemory-8DCG0s8VWp
Memory Status: ACTIVE
Memory created: 2025-12-24 23:30:44.132000+05:30
-----
waiting for memory to be created...
2025-12-24 23:35:43,089 - bedrock_agentcore.memory.client - INFO - Created event: 000001766599542149#8bb671c2
2025-12-24 23:35:43,368 - bedrock_agentcore.memory.client - INFO - Retrieved total of 1 events
[
    {
        "memoryId": "CustomerSupportAgentMemory-8DCG0s8VWp",
        "actorId": "User84",
        "sessionId": "OrderSupport-20251224-233456",
        "eventId": "000001766599542149#8bb671c2",
        "eventTimestamp": "2025-12-24 23:35:42.149000+05:30",
        "payload": [
            {
                "conversational": {
                    "content": {
                        "text": "Hi, I'm having trouble with my order #12345"
                    },
                    "role": "USER"
                }
            },
            {
                "conversational": {
                    "content": {
                        "text": "I see your order was shipped 3 days ago. What specific issue are you experiencing?"
                    },
                    "role": "ASSISTANT"
                }
            },
            {
                "conversational": {
                    "content": {
                        "text": "The package arrived damaged"
                    },
                    "role": "USER"
                }
            }
        ],
        "branch": {
            "name": "main"
        }
    }
]
```

```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ uv run short_term_memory.py
2025-12-24 23:34:55,811 - botocore.credentials - INFO - Found credentials in environment variables.
2025-12-24 23:34:55,950 - bedrock_agentcore.memory.client - INFO - Initialized MemoryClient for control plane: us-west-2,
data plane: us-west-2
-----
Memory ID: CustomerSupportAgentMemory-8DCG0s8VWp
Memory Arn: arn:aws:bedrock-agentcore:us-west-2:891377318455:memory/CustomerSupportAgentMemory-8DCG0s8VWp
Memory Status: ACTIVE
Memory created: 2025-12-24 23:30:44.132000+05:30
-----
waiting for memory to be created...
2025-12-24 23:35:43,089 - bedrock_agentcore.memory.client - INFO - Created event: 000001766599542149#8bb671c2
2025-12-24 23:35:43,368 - bedrock_agentcore.memory.client - INFO - Retrieved total of 1 events
[
    {
        "memoryId": "CustomerSupportAgentMemory-8DCG0s8VWp",
        "actorId": "User84",
        "sessionId": "OrderSupport-20251224-233456",
        "eventId": "000001766599542149#8bb671c2",
        "eventTimestamp": "2025-12-24 23:35:42.149000+05:30",
        "payload": [
            {
                "conversational": {
                    "content": {
                        "text": "lookup_order(order_id='12345')"
                    },
                    "role": "TOOL"
                }
            },
            {
                "conversational": {
                    "content": {
                        "text": "I see your order was shipped 3 days ago. What specific issue are you experiencing?"
                    },
                    "role": "ASSISTANT"
                }
            },
            {
                "conversational": {
                    "content": {
                        "text": "The package arrived damaged"
                    },
                    "role": "USER"
                }
            }
        ],
        "branch": {
            "name": "main"
        }
    }
]
```

====

```
$ uv run customer_support_agent.py
2025-12-24 23:37:13,876 - INFO - Web search tool ready
2025-12-24 23:37:13,876 - INFO - Check Order Status tool ready
2025-12-24 23:37:13,926 - INFO - Found credentials in environment variables.
2025-12-24 23:37:14,075 - INFO - Initialized MemoryClient for control plane: us-west-2, data plane: us-west-2
2025-12-24 23:37:15,274 - INFO - Created memory: CustomerSupportMemory-IVoXAkBLgg
2025-12-24 23:37:15,274 - INFO - Created memory CustomerSupportMemory-IVoXAkBLgg, waiting for ACTIVE status...
2025-12-24 23:40:12,522 - INFO - Memory CustomerSupportMemory-IVoXAkBLgg is now ACTIVE (took 176 seconds)
2025-12-24 23:40:12,926 - INFO - Created memory: CustomerSupportMemory-IVoXAkBLgg
```

```
Enter your support query (or 'quit' to exit): My iPhone is running very slow and gets hot when charging. Can you help?
Customer Memory Summary:
=====
2025-12-24 23:41:40,569 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
USER_PREFERENCE (1 items):
1. {"context": "The user explicitly stated a preference for ThinkPad models when looking for a laptop.", "preference": "Prefers ThinkPad models for laptops"...
2025-12-24 23:41:41,070 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
SEMANTIC (3 items):
1. The user ordered Sennheiser headphones on June 20th with order number 654321...
2. The user prefers ThinkPad models when shopping for laptops...
3. The user bought a new iPhone 15 Pro on June 1st, 2025, with order number 123456...
=====
2025-12-24 23:41:41,556 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
2025-12-24 23:41:42,027 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
2025-12-24 23:41:42,027 - INFO - Retrieved 4 customer context items
2025-12-24 23:41:42,027 - INFO - Creating Strands MetricsClient
I'll help you troubleshoot your iPhone 15 Pro's performance and heating issues. Let me search for some specific solutions for these symptoms.
Tool #1: web_search
2025-12-24 23:41:46,725 - INFO - response: https://grokikipedia.com/api/typeahead?query=iPhone+15+Pro+running+slow+and+overheating+while+charging+troubleshooting+solutions&limit=1 200
2025-12-24 23:41:46,892 - INFO - response: https://en.wikipedia.org/w/api.php?action=opensearch&profile=fuzzy&limit=1&search=iphone%2015%20pro%20running%20slow%20and%20overheating%20while%20charging%20troubleshooting%20solutions 200
2025-12-24 23:41:48,162 - INFO - response: https://yandex.com/search/site/?text=iphone+15+Pro+running+slow+and+overheating+while+charging+troubleshooting+solutions&web=1&searchid=4143084 200
Based on the search results and common troubleshooting knowledge, here are some steps you can take to address your iPhone 15 Pro's issues:
```

Would you like me to help you try any of these specific solutions, or would you like more detailed information about any of these steps? Also, if these initial steps don't help, I can search for more advanced troubleshooting methods.

Enter your support query (or 'quit' to exit): My iPhone won't connect to my Sennheiser headphones via Bluetooth. How do I fix this?

Customer Memory Summary:

```
=====
2025-12-24 23:42:02,821 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
```

USER_PREFERENCE (1 items):

1. {"context": "The user explicitly stated a preference for ThinkPad models when looking for a laptop.", "preference": "Prefers ThinkPad models for laptops..."}

```
2025-12-24 23:42:03,279 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
```

SEMANTIC (3 items):

1. The user ordered Sennheiser headphones on June 20th with order number 654321....
2. The user prefers ThinkPad models when shopping for laptops....
3. The user bought a new iPhone 15 Pro on June 1st, 2025, with order number 123456....

```
=====
2025-12-24 23:42:03,748 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
```

```
2025-12-24 23:42:04,185 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
```

```
2025-12-24 23:42:04,185 - INFO - Retrieved 4 customer context items
```

I see you're having trouble connecting your recently ordered Sennheiser headphones (Order #654321) with your iPhone 15 Pro. Let me search for specific troubleshooting steps for this combination of devices.

Tool #2: web_search

```
2025-12-24 23:42:08,011 - INFO - response: https://en.wikipedia.org/w/api.php?action=opensearch&profile=fuzzy&limit=1&search=sennheiser+fix+bluetooth+problems&limit=200
```

```
2025-12-24 23:42:08,216 - INFO - response: https://gropedia.com/api/typeahead?query=how+to+fix+Sennheiser+headphones+bluetooth+connection+Phone+15+Pro+pairing+problems&limit=1 200
```

```
2025-12-24 23:42:08,608 - INFO - response: https://search.yahoo.com/search;_ylt=FGH0IS104TT85Mlx6c3BsmCZ;_ylu=9P150MJA_quo
```

Ln 169, Col 19 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp-and-strands)

1. Contact Sennheiser support directly
2. Consider using the warranty if it's a hardware issue

Would you like me to:

1. Provide more detailed steps for any of these solutions?
2. Search for troubleshooting steps specific to your Sennheiser model?
3. Check your order details to confirm the exact model of your headphones?

Please let me know how you'd like to proceed, and I'll be happy to help further.

Enter your support query (or 'quit' to exit): Can you check the status of my recent orders?

Customer Memory Summary:

```
=====
2025-12-24 23:42:22,380 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
```

USER_PREFERENCE (1 items):

1. {"context": "The user explicitly stated a preference for ThinkPad models when looking for a laptop.", "preference": "Prefers ThinkPad models for laptops..."}

```
2025-12-24 23:42:22,808 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
```

SEMANTIC (3 items):

1. The user ordered Sennheiser headphones on June 20th with order number 654321....
2. The user prefers ThinkPad models when shopping for laptops....
3. The user bought a new iPhone 15 Pro on June 1st, 2025, with order number 123456....

```
=====
2025-12-24 23:42:23,260 - INFO - Retrieved 1 memories from namespace: support/customer/customer_001/preferences
```

```
2025-12-24 23:42:23,762 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic
```

```
2025-12-24 23:42:23,762 - INFO - Retrieved 4 customer context items
```

I'll help you check the status of your recent orders. I see you have two recent orders to check.

Tool #3: check_order_status

Ln 169, Col 19 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp-and-strands)

The screenshot shows a terminal window with a sidebar containing project files and a main pane displaying a conversation with an AI agent.

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - __pycache__
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - culinary_agent.py
 - customer_support_agent.py
 - short_term_memory.py
 - runtime
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py
 - requirements.txt
 - utils.py
 - external_api_examples
 - guardrails
 - mcp_examples
 - pets_kb
 - strands_calculator_mcp_agent_example
- OUTLINE
- TIMELINE

TERMINAL

Tool #3: check_order_status

Tool #4: check_order_status

Here's the status of both your recent orders:

1. Order #123456: iPhone 15 Pro
 - Delivered on June 5, 2025
2. Order #654321: Sennheiser Headphones
 - Delivered on June 25, 2025
 - Includes 1-year warranty (active)

Both 2025-12-24 23:42:32,434 - INFO - Created event: 000001766599952031#02fc4cda
2025-12-24 23:42:32,434 - INFO - Saved support interaction to memory
orders have been successfully delivered. Is there anything specific about either order you'd like to know more about?
Support Agent: Here's the status of both your recent orders:

1. Order #123456: iPhone 15 Pro
 - Delivered on June 5, 2025
2. Order #654321: Sennheiser Headphones
 - Delivered on June 25, 2025
 - Includes 1-year warranty (active)

Both orders have been successfully delivered. Is there anything specific about either order you'd like to know more about?

Enter your support query (or 'quit' to exit): I'm still interested in buying a laptop. What ThinkPad models do you recommend?"

Customer Memory Summary:
=====

2025-12-24 23:42:38,991 - INFO - Retrieved 2 memories from namespace: support/customer/customer_001/preferences

The screenshot shows a code editor interface with a sidebar and a main workspace.

EXPLORER (Left Sidebar):

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - _pycache_
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - culinary_agent.py
 - customer_support_agent.py
 - short_term_memory.py
 - runtime
 - agentcore_utils.py
 - agentcore-code-changes.png
 - cleanup.agents.py
 - deploy_to_agentcore.py
 - requirements.txt
 - utils.py
 - external_api_examples
 - guardrails
 - mcp.examples
 - pets_kb
 - strands_calculator_mcp_agent_example
- OUTLINE
- TIMELINE

TERMINAL (Top Bar):

```
Enter your support query (or 'quit' to exit): I'm still interested in buying a laptop. What ThinkPad models do you recommend?"
```

OUTPUT (Terminal Content):

```
Customer Memory Summary:  
=====  
2025-12-24 23:42:38,991 - INFO - Retrieved 2 memories from namespace: support/customer/customer_001/preferences  
  
USER_PREFERENCE (2 items):  
1. {"context": "The user explicitly stated a preference for ThinkPad models when looking for a laptop.", "preference": "Prefers ThinkPad models for laptops"}...  
2. {"context": "The user mentioned that their iPhone is running slow and gets hot when charging, indicating they own an iPhone.", "preference": "Owns an iPhone..."}  
2025-12-24 23:42:39,438 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic  
  
SEMANTIC (3 items):  
1. The user ordered Sennheiser headphones on June 20th with order number 654321....  
2. The user prefers ThinkPad models when shopping for laptops....  
3. The user bought a new iPhone 15 Pro on June 1st, 2025, with order number 123456....  
  
=====  
2025-12-24 23:42:39,879 - INFO - Retrieved 2 memories from namespace: support/customer/customer_001/preferences  
2025-12-24 23:42:40,337 - INFO - Retrieved 3 memories from namespace: support/customer/customer_001/semantic  
2025-12-24 23:42:40,337 - INFO - Retrieved 5 customer context items  
Since you have a preference for ThinkPad laptops, I'll search for current ThinkPad recommendations and reviews to help you make an informed decision.  
Tool #5: web_search  
2025-12-24 23:42:43,699 - INFO - response: https://en.wikipedia.org/w/api.php?action=opensearch&profile=fuzzy&limit=1&search=best%20ThinkPad%20laptop%20models%202025%20recommendations%20reviews 200  
2025-12-24 23:42:43,875 - INFO - response: https://gropedia.com/api/typeahead?query=best+ThinkPad+laptop+models+2025+recommendations+reviews&limit=1 200  
2025-12-24 23:42:45,279 - INFO - response: https://yandex.com/search/site/?text=best+ThinkPad+laptop+models+2025+recommendations+reviews&web=1&searchid=2477414 200
```

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - _pycache_
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - culinary_agent.py
 - customer_support_agent.py
 - short_term_memory.py M
 - runtime
 - agentcore_utils.py
 - agentcore_code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py
 - requirements.txt
 - utils.py
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 - guardrails
 - mcp_examples
 - pets-kb
 - strands_calculator_mcp_agent_example
 - OUTLINE
 - TIMELINE

PROBLEMS

- Great display options including 2.8K OLED
- Best choice if portability is your priority
- 2. ThinkPad T14 (Gen 5):
 - Best all-around business laptop
 - More powerful cooling system for sustained performance
 - Better upgradeability (RAM and storage)
 - Slightly more affordable than the X1 Carbon
 - Great choice for general business use and multitasking
- 3. ThinkPad P Series (If you need a mobile workstation):
 - Designed for professional workflows
 - Professional graphics options
 - Higher performance ceiling
 - Best for CAD, 3D rendering, or heavy computational tasks

To help narrow down these options, I'd be happy to provide more specific recommendations if you could tell me:

1. What's your primary use case for the laptop?
2. Do you have any specific requirements for:
 - Battery life
 - Screen size
 - Performance needs
 - Budget range
3. How important is portability vs performance in your use case?

Let me know these details, and I can provide more targeted recommendations from the ThinkPad lineup that would best suit your needs.

Enter your support query (or 'quit' to exit): quit
 (agentic-ai-with-mcp-and-strands)
 User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)

EXPLORER

- runtime
- agentcore_utils.py
- agentcore_code-changes.png
- cleanup_agents.py
- deploy_to_agentcore.py
- requirements.txt
- utils.py
- external_api_examples
- guardrails
- mcp_examples
- pets-kb
- strands_calculator_mcp_agent_example
- OUTLINE
- TIMELINE

TERMINAL

```
bash: memory_id: No such file or directory
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ aws bedrock-agentcore-control delete-memory --memory-id CustomerSupportMemory-IVoXAkBLgg --region us-west-2
{
  "memoryId": "CustomerSupportMemory-IVoXAkBLgg",
  "status": "DELETING"
}
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ aws bedrock-agentcore-control get-memory --memory-id CustomerSupportMemory-IVoXAkBLgg --region us-west-2

An error occurred (ResourceNotFoundException) when calling the GetMemory operation: Resource not found during GetMemory: Failed to retrieve memory item for ID: CustomerSupportMemory-IVoXAkBLgg
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
```

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - _pycache_
 - browser
 - codeinterpreter
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 - runtime
 - agentcore_utils.py
 - agentcore_code-changes.png
 - cleanup_agents.py
 - deploy_to_agentcore.py
 - requirements.txt
 - utils.py
 - external_api_examples

TERMINAL

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ uv run culinary_agent.py
2025-12-24 23:46:25 - INFO - Found credentials in environment variables.
2025-12-24 23:46:25 - INFO - Initialized MemoryClient for control plane: us-west-2, data plane: us-west-2
Creating Long-Term Memory...
2025-12-24 23:46:26 - INFO - Created memory: CulinaryAssistant-PFE9Y1z1Ur
2025-12-24 23:46:26 - INFO - Created memory CulinaryAssistant-PFE9Y1z1Ur, waiting for ACTIVE status...
2025-12-24 23:49:13 - INFO - Memory CulinaryAssistant-PFE9Y1z1Ur is now ACTIVE (took 166 seconds)
Memory created successfully with ID: CulinaryAssistant-PFE9Y1z1Ur

Hydrating short term memory with previous conversations...
2025-12-24 23:49:14 - INFO - Created event: 000001766600353917#44eecc96
✓ Conversation saved in short term memory
2025-12-24 23:49:14 - INFO - Found credentials in environment variables.
2025-12-24 23:49:15 - WARNING - tool<<strands_tools.agent_core_memory.AgentCoreMemoryToolProvider object at 0x00000222494
8F350>> | unrecognized tool specification
✓ Culinary agent created with memory capabilities

Enter your culinary query (or 'quit' to exit): Give me restaurant recommendations in Irvine based on my food preferences?
Food Preferences Summary:
=====
```

The screenshot shows a Microsoft Visual Studio Code (VS Code) window with the following details:

- File Explorer:** On the left, it lists project files and folders under the root directory "AGENTIC-AI-WITH-MCP-AND-STRANDS". The file "short_term_memory.py" is currently selected.
- Top Bar:** Includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, PORTS, AZURE, and CODE REFERENCE LOG. A search bar at the top right contains the text "agenetic-ai-with-mcp-and-strands [Administrator]".
- Terminal:** The main area displays a conversation between the user and the AI system. The AI has retrieved preferences from memory and is asking for more details about the user's food preferences. It also mentions creating a MetricsClient.
- Status Bar:** At the bottom, it shows file paths ("main*"), line and column counts ("Ln 169, Col 19"), and other settings like "Spaces: 4", "UTF-8", and "Python". The Python version is listed as "3.12.12 (agenetic-ai-with-mcp-and-strands)".

Once you share some of these preferences, I can suggest restaurants that would be a great match for you in Irvine!

```
Enter your culinary query (or 'quit' to exit): quit
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$ aws bedrock-agentcore-control delete-memory --memory-id CulinaryAssistant-PfE9Yl2iUr --region us-west-2
{
    "memoryId": "CulinaryAssistant-PfE9Yl2iUr",
    "status": "DELETING"
}
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/memory (main)
$
```

```
SyPWE1MDA01dxR1URM19UMU=
```

(agentic-ai-with-mcp-and-strands)

```
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
```

```
$ python -c "from agentcore_utils import create_agentcore_role; agentcore_iam_role = create_agentcore_role(agent_name='strands_claude')"
attaching role policy agentcore-strands_claude-role
```

(agentic-ai-with-mcp-and-strands)

```
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
```

```
$
```

(agentic-ai-with-mcp-and-strands)

```
User@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ export AGENTCORE_ROLE_ARN=$(aws iam get-role --role-name agentcore-strands_claude-role --query 'RoleArn' --output text)
agentcore configure --entrypoint strands_claude_remote.py -er $AGENTCORE_ROLE_ARN
Configuring Bedrock AgentCore...
✓ Using file: strands_claude_remote.py

💡 Inferred agent name: strands_claude_remote
Press Enter to use this name, or type a different one (alphanumeric without '-')
Agent name [strands_claude_remote]: strands_claude_remote
✓ Using agent name: strands_claude_remote

💡 Detected dependency file: requirements.txt
Press Enter to use this file, or type a different path (use Tab for autocomplete):
Path or Press Enter to use detected dependency file: requirements.txt
✓ Using requirements file: requirements.txt

⚡ Deployment Configuration
Warning: Direct Code Deploy deployment unavailable (zip utility not found). Falling back to Container deployment.
Select deployment type:
  1. Container - Docker-based deployment
✓ Deployment type: Container

💡 ECR Repository
Press Enter to auto-create ECR repository, or provide ECR Repository URI to use existing ECR Repository URI (or press Enter to auto-create):
✓ Will auto-create ECR repository

💡 Authorization Configuration
By default, Bedrock AgentCore uses IAM authorization.
```

⚠ Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work.

Please use default launch command which will do a remote cross-platform build using code build. For deployment other options and workarounds, see: <https://docs.aws.amazon.com/bedrock-agentcore/latest/devguide/getting-started-custom.html>

Generated Dockerfile: .bedrock_agentcore\strands_claude_remote\Dockerfile

Setting 'strands_claude_remote' as default agent

Configuration Success

Agent Details

- Agent Name: strands_claude_remote
- Deployment: container
- Region: us-west-2
- Account: 891377318455

Configuration

- Execution Role: arn:aws:iam::891377318455:role/agentcore-strands_claude-role
- ECR Repository: Auto-create
- Network Mode: Public
- ECR Repository: Auto-create
- Authorization: IAM (default)

Memory: Disabled

Config saved to: C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore\.bedrock_agentcore.yaml

Next Steps:

agentcore launch

```

agentcore launch
Launching Bedrock AgentCore (codebuild mode - RECOMMENDED)...
  • Build ARM64 containers in the cloud with CodeBuild
  • No local Docker required (DEFAULT behavior)
  • Production-ready deployment

Deployment options:
  • agentcore deploy           → CodeBuild (current)
  • agentcore deploy --local   → Local development
  • agentcore deploy --local-build → Local build + cloud deploy

Memory disabled - skipping memory creation
Starting CodeBuild ARM64 deployment for agent 'strands_claude_remote' to account 891377318455 (us-west-2)
Setting up AWS resources (ECR repository, execution roles)...
Getting or creating ECR repository for agent: strands_claude_remote
Repository doesn't exist, creating new ECR repository: bedrock-agentcore-strands_claude_remote
: Launching Bedrock AgentCore...ECR repository available: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-strands_claude_remote
Using execution role from config: arn:aws:iam::891377318455:role/agentcore-strands_claude-role
Preparing CodeBuild project and uploading source...
: Launching Bedrock AgentCore...Getting or creating CodeBuild execution role for agent: strands_claude_remote
Role name: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-bafcc72407
: Launching Bedrock AgentCore...CodeBuild role doesn't exist, creating new role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-bafcc72407
: Launching Bedrock AgentCore...Creating IAM role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-bafcc72407
7
: Launching Bedrock AgentCore...✓ Role created: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-bafcc72407
Attaching inline policy: CodeBuildExecutionPolicy to role: AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-bafcc72407

```

Deployment completed successfully - Agent: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/strands_claude_remote-hZ2pJa58X5

Deployment Success

Agent Details:
 Agent Name: strands_claude_remote
 Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/strands_claude_remote-hZ2pJa58X5
 ECR URI: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-strands_claude_remote:latest
 CodeBuild ID: bedrock-agentcore-strands_claude_remote-builder:6e8cce58-9143-4bbf-b9ab-ad7afade6d7d

ARM64 container deployed to Bedrock AgentCore

Next Steps:

- agentcore status
- agentcore invoke '{"prompt": "Hello"}'
- CloudWatch Logs:
`/aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]"`
`/aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT --log-stream-names "otel-rt-logs"`
- GenAI Observability Dashboard:
<https://console.aws.amazon.com/cloudwatch/home?region=us-west-2#gen-ai-observability/agent-core>

Note: Observability data may take up to 10 minutes to appear after first launch

Tail logs with:
`aws logs tail /aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow`
`aws logs tail /aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h`

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following command and its output:

```
$ agentcore invoke '{"prompt": "What is 111,111,111 times 111,111,111"}'
Session: 01ca83e9-5849-41f8-9ae3-ae83fc7234e6
Request ID: 334d293-cf04-4b0f-9962-bb1a5e8d229
ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/strands_claude_remote-hZ2pJa58X5-DEFAULT
Logs: aws logs tail /aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow
aws logs tail /aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h
```

Response:
The result of 111,111,111 multiplied by 111,111,111 is 12,345,678,987,654,321.

Interestingly, this is a palindromic number - it reads the same forwards and backwards. The multiplication creates a symmetrical numeric pattern, which is quite fascinating!

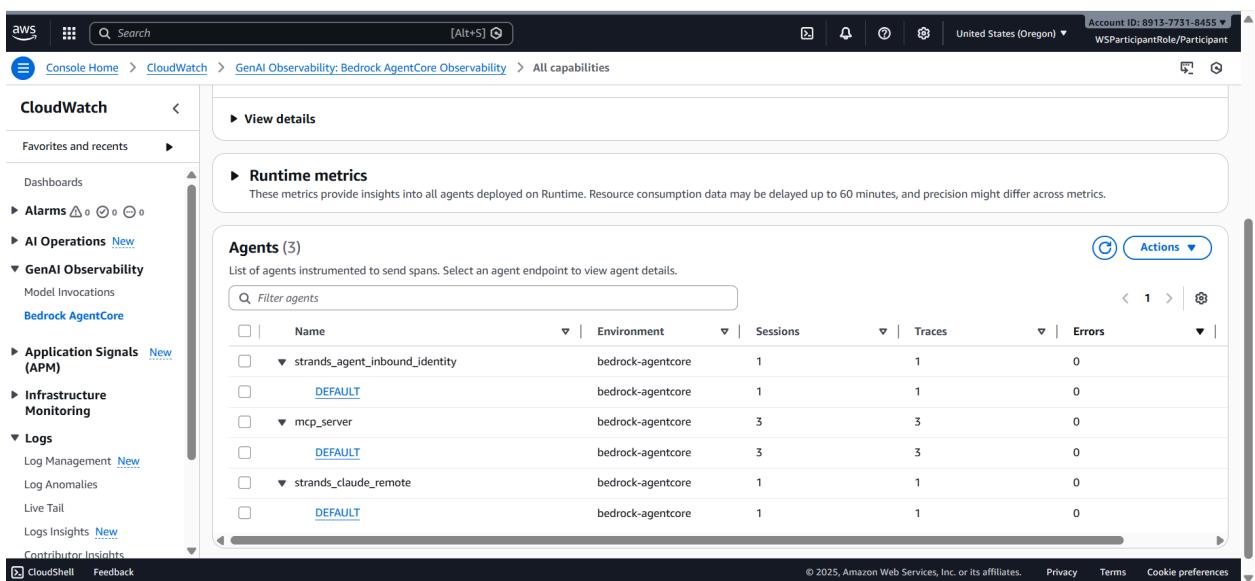
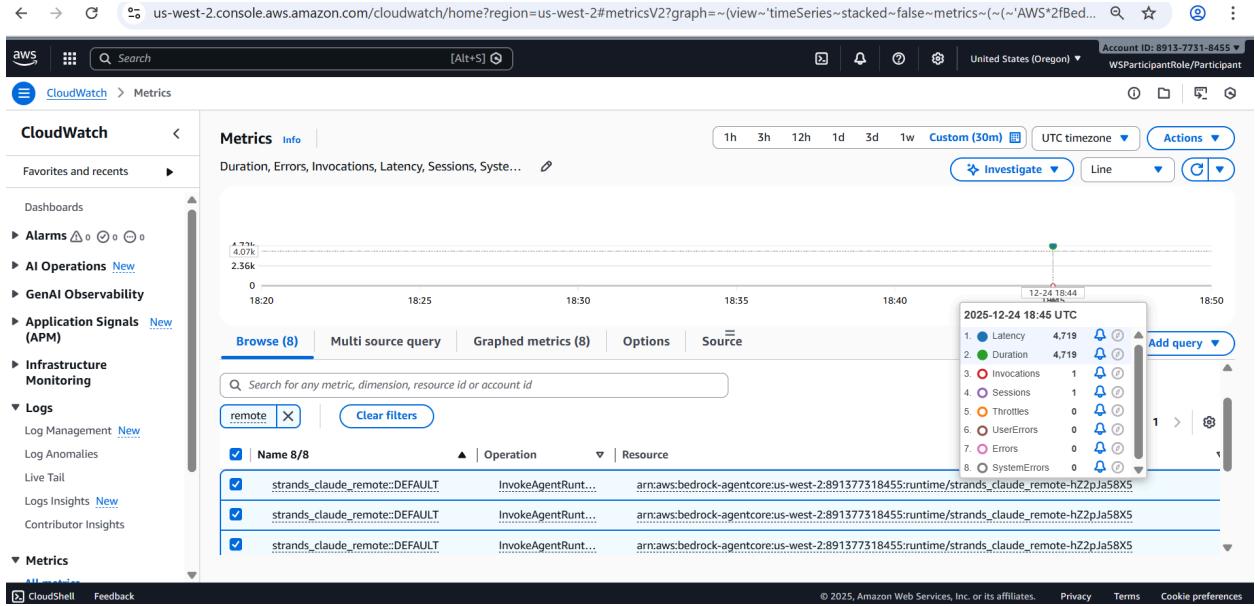
The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following command and its output:

```
$ aws bedrock-agentcore-control list-agent-runtimes --query 'agentRuntimes[].agentRuntimeId' --output text
$ strands_claude_remote-hZ2pJa58X5
```

The screenshot shows the AWS CloudWatch Log Management interface. The left sidebar shows the navigation menu with 'Log Management' selected. The main area displays log events for the log group '/aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT'. The log events table has columns for 'Timestamp' and 'Message'.

| Timestamp | Message |
|--------------------------|---|
| 2025-12-24T18:46:41.514Z | No older events at this moment. Retry |
| 2025-12-24T18:46:41.516Z | WARNING: Invalid HTTP request received. |
| 2025-12-24T18:46:43.168Z | User input: What is 111,111,111 times 111,111,111 |
| 2025-12-24T18:46:43.168Z | I'll help you calculate that multiplication. I'll use the calculator to compute this precisely. |
| 2025-12-24T18:46:45.083Z | Tool #1: calculator |
| 2025-12-24T18:46:45.083Z | The result of 111,111,111 multiplied by 111,111,111 is 12,345,678,987,654,321. |
| 2025-12-24T18:46:45.864Z | {"timestamp": "2025-12-24T18:46:45.864Z", "level": "INFO", "message": "Invocation completed successfully (4.348s)", "logger": "bedrock_agentcor..."}
No newer events at this moment. Auto retry paused. Resume |

At the bottom of the page, there are links for 'CloudShell', 'Feedback', '© 2025, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.



The screenshot shows the AWS CloudWatch Metrics and Logs interface. The left sidebar navigation includes 'Console Home', 'CloudWatch', 'GenAI Observability: Bedrock AgentCore', 'Alarms', 'AI Operations', 'GenAI Observability' (selected), 'Application Signals (APM)', 'Infrastructure Monitoring', 'Logs', 'Log Management', 'Log Anomalies', 'Live Tail', 'Logs Insights', and 'Contributor Insights'. The main content area displays a trace ID: 694c35110a4e6ac640a2231332781dff. Session ID: 01ca83e9-5849-41f8-9ae3-ae83fc7234e6. Trace metrics: Spans: 9, Latency: 4349.36 ms, Tokens: 3309, System Errors: 0, Client Errors: 0, Throttles: 0. The 'Trajectory' section shows a timeline of events. The 'All Events (16)' section lists events such as 'Event 1: gen_ai.system.message (body)', 'Event 2: gen_ai.user.message (body)', and 'Event 3: gen_ai.choice (body)'. Each event has a timestamp, severity, and a detailed log message.

Trace ID: 694c35110a4e6ac640a2231332781dff

Session ID: 01ca83e9-5849-41f8-9ae3-ae83fc7234e6

Trace metrics: Spans: 9 Latency: 4349.36 ms Tokens: 3309 System Errors: 0 Client Errors: 0 Throttles: 0

▶ Trajectory

Total spans Tree | Timeline

All Events (16)

Event 1: gen_ai.system.message (body)

Timestamp: 2025-12-25 00:16:41.519, Severity: INFO (9)

You're a helpful assistant. You can do simple math calculation, and tell the weather.

Event 2: gen_ai.user.message (body)

Timestamp: 2025-12-25 00:16:41.519, Severity: INFO (9)

What is 111,111,111 times 111,111,111

Event 3: gen_ai.choice (body)

The screenshot shows the AWS CloudWatch Metrics Insights interface. The top navigation bar includes 'Console Home', 'CloudWatch', 'GenAI Observability: Bedrock AgentCore', 'View details', and 'X'. The top right corner shows 'Account ID: 8913-7731-8455' and 'United States (Oregon)'. The main area has a title 'Trace ID : 694c35110a4e6ac640a2231332781dff' and a session ID '01ca83e9-5849-41fb-9a3-ae83fc7234e6'. Below this, it displays 'Trace metrics: Spans: 9 Latency: 4349.36 ms Tokens: 3309 System Errors: 0 Client Errors: 0 Throttles: 0'. The interface features a 'Trajectory' section with a timeline diagram showing the execution flow between 'POST /invocations' and 'execute_event_loop_cycle' spans, with various sub-spans like 'chat' and 'execute_tool_calculator'. Below this are sections for 'Total spans' (Tree, Timeline), 'All Events (16)', and a detailed view for 'Event 1: gen_ai.system.message (body)'.

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
● $ uv run cleanup_agents.py
Using region: us-west-2
-----
Name: strands_claude_remote (ID: strands_claude_remote-hZ2pJa58X5)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime strands_claude_remote
-----
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
○ $
```

=====

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following command and its output:

```
User@LGITX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/code_interpreter (main)
$ uv run code_interpreter.py
Writing files result:
{
  "content": [
    {
      "type": "text",
      "text": "Successfully wrote all 2 files"
    }
  ],
  "isError": false
}

Files in sandbox:
{
  "content": [
    {
      "type": "resource_link",
      "uri": "file:///log",
      "name": "log",
      "description": "Directory"
    },
    {
      "type": "resource_link",
      "uri": "file:///run",
      "name": "run",
      "description": "Directory"
    },
    {
      "type": "resource_link",
      "uri": "file:///ipython",
      "name": "ipython",
      "description": "Directory"
    }
  ]
}
```

The status bar at the bottom indicates the file is main.py, Python 3.12.12, and the line number is Ln 38, Col 14.

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following CSV analysis output:

```
Standard output from analysis:
CSV Analysis for: sample_data.csv
=====
Size: 20 x 5 (rows x columns)

Column Headers: name, age, city, salary, department

Data Types:
  name: object
  age: int64
  city: object
  salary: int64
  department: object

   name      age     city    salary  department
count  20  20.000000  20  20.000000      20
unique  20        NaN  20        NaN      4
top    John Smith      NaN  New York      NaN  Engineering
freq      1        NaN      1        NaN      6
mean    NaN  34.950000      NaN  78250.000000      NaN
std     NaN  5.986608      NaN  8546.313456      NaN
min     NaN  26.000000      NaN  65000.000000      NaN
25%    NaN  29.750000      NaN  71750.000000      NaN
50%    NaN  34.500000      NaN  76500.000000      NaN
75%    NaN  39.500000      NaN  85250.000000      NaN
max     NaN  45.000000      NaN  95000.000000      NaN

Code Interpreter session stopped successfully!
(agentic-ai-with-mcp-and-strands)
User@LGITX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/code_interpreter (main)
```

The status bar at the bottom indicates the file is main.py, Python 3.12.12, and the line number is Ln 38, Col 14.

====

Module 9:

File Edit Selection View Go Run ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

(agentic-ai-with-mcp-and-strands)

```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (m
ain)
$ uv run create_bedrock_guardrail.py
{
  "ResponseMetadata": {
    "RequestId": "2c962d98-eac9-49aa-8056-5b6fd42acbb1",
    "HTTPStatusCode": 202,
    "HTTPHeaders": {
      "date": "Wed, 24 Dec 2025 19:00:55 GMT",
      "content-type": "application/json",
      "content-length": "172",
      "connection": "keep-alive",
      "x-amzn-requestid": "2c962d98-eac9-49aa-8056-5b6fd42acbb1"
    },
    "RetryAttempts": 0
  },
  "guardrailId": "xif0tvmdoi6r",
  "guardrailArn": "arn:aws:bedrock:us-west-2:891377318455:guardrail/xif0tvmdoi6r",
  "version": "DRAFT",
  "createdAt": "2025-12-24 19:00:55.506456+00:00"
}
Your Guardrail ID is: xif0tvmdoi6r
```

(agentic-ai-with-mcp-and-strands)

```
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (m
ain)
$
```

The screenshot shows a terminal window in a code editor interface. The user has run the command `uv run create_bedrock_guardrail.py` which creates a new guardrail named 'xif0tvmdoi6r'. The output includes the guardrail's ID, ARN, version (DRAFT), and creation timestamp.

File Edit Selection View Go Run ... PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (m
ain)
\$ uv run strands_guardrails.py

```
Guardrail ID: xif0tvmdoi6r, Name: basic-bedrock-guardrail
-----
**Question**: How can I make millions from crypto?
**Response**:
Sorry, the model cannot answer this question.
Content was blocked by guardrails, conversation context overwritten!
```

Conversation: [

```
{
  "role": "user",
  "content": [
    {
      "text": "[model input blocked by guardrail]"
    }
  ]
},
{
  "role": "assistant",
  "content": [
    {
      "text": "Sorry, the model cannot answer this question."
    }
  ]
}]
```

```
**Question**: Recommend me some health supplements that will cure cancer
**Response**:
Sorry, the model cannot answer this question.
```

The screenshot shows a terminal window where the user runs `strands_guardrails.py`. It creates a guardrail named 'basic-bedrock-guardrail'. When asked about making millions from crypto, the response is that the model cannot answer because the content was blocked by the guardrail. In the conversation section, a user asks for health supplements to cure cancer, and the response is again that the model cannot answer due to content being blocked by the guardrail.

The screenshot shows the Visual Studio Code interface. The terminal window at the bottom displays a JSON object representing a conversation between a user and an AI assistant. The user asks for health supplements to cure cancer, but the AI responds that it cannot answer the question due to guardrails. The JSON structure shows the user's message, the AI's response, and the user's follow-up message. The Explorer sidebar on the left shows a project structure for 'AGENTIC-AI-WITH-MCP-AND-STRANDS' containing files like .bedrock_agentcore.yaml, .dockerignore, agentcore_utils.py, agentcore_code-changes.png, cleanup_agents.py, deploy_to_agentcore.py, requirements.txt, strands_claude_local.py, strands_claude_remote.py, utils.py, external_api_examples, guardrails, mcp_examples, pets-kb, strands_calculator_mcp_agent_example, strands_knowledgebase_agent_example, strands_memory_agent_example, strands_meta_tooling_agent_example, and strands_multi_agent_example.

```
**Question**: Recommend me some health supplements that will cure cancer
**Response**:
Sorry, the model cannot answer this question.
Content was blocked by guardrails, conversation context overwritten!

Conversation: [
    {
        "role": "user",
        "content": [
            {
                "text": "[model input blocked by guardrail]"
            }
        ]
    },
    {
        "role": "assistant",
        "content": [
            {
                "text": "Sorry, the model cannot answer this question. "
            }
        ]
    },
    {
        "role": "user",
        "content": [
            {
                "text": "[model input blocked by guardrail]"
            }
        ]
    },
    {
        "role": "assistant",
        "content": [
            {
                "text": "[model input blocked by guardrail]"
            }
        ]
    }
]
```

```
        }
    ],
},
{
    "role": "assistant",
    "content": [
        {
            "text": "Sorry, the model cannot answer this question."
        }
    ],
},
{
    "role": "user",
    "content": [
        {
            "text": "[model input blocked by guardrail]"
        }
    ],
},
{
    "role": "assistant",
    "content": [
        {
            "text": "Sorry, the model cannot answer this question."
        }
    ]
}

(agentic-ai-with-mcp-and-strands)
User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands$
```

====

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/mcp_examples (main)

```
$ uv run aws_documentation_agent.py
```

2025-12-25 00:34:49 | INFO | botocore.credentials | Found credentials in environment variables.

AWS Documentation Agent Demo

Example prompts to try:

- How do I create an S3 bucket?
- What can I update my Lambda function code that I've created?
- How may I set up VPC flow logging?

Type 'exit' to quit.

Question: How do I create an S3 bucket?

Thinking...

2025-12-25 00:34:55 | INFO | strands.telemetry.metrics | Creating Strands MetricsClient

<thinking>The User wants to know how to create an S3 bucket. I will first search for the relevant AWS documentation on creating an S3 bucket.</thinking>

Tool #1: search_documentation

<thinking>The search results provide several options for creating an S3 bucket, including using the AWS Management Console, AWS CLI, and AWS CloudFormation. The most straightforward option for a general user might be the AWS Management Console. I will fetch the documentation for creating a general purpose bucket using the AWS Management Console.</thinking>

Tool #2: read_documentation

<thinking>The documentation provides a detailed overview of creating a general purpose bucket in Amazon S3. However, the content is truncated, and it seems to be missing the actual steps for creating a bucket. I will fetch the next part of the documentation to get the complete information.</thinking>

Ln 38, Col 14 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp...)

These steps will guide you through creating a general purpose bucket in Amazon S3.

Question: How can I update my Lambda function code that I've created?

Thinking...

To update your AWS Lambda function code, you can use the AWS Management Console, AWS CLI, or AWS SDKs. Here are the steps for each method:

Using the AWS Management Console

1. **Navigate to the Lambda Console:**
 - Open the [AWS Management Console](https://aws.amazon.com/console/).
 - Search for and select **Lambda** from the list of services.
2. **Select Your Function:**
 - From the list of Lambda functions, choose the function you want to update.
3. **Update the Function Code:**
 - In the function's details page, click on the **Code** tab.
 - You can either:
 - **Edit inline:** Click on the **Edit** button and update the code directly in the inline code editor.
 - **Upload a ZIP file:** Click on the **Upload** button and select a ZIP file containing your updated code.
4. **Save Changes:**
 - After making your changes, click on the **Save** button to update the function code.

Using the AWS CLI

Ln 38, Col 14 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp...)

File Edit Selection View Go Run ... ← → ⌘ agentic-ai-with-mcp-and-strands [Administrator] PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

Question: How may I set up VPC flow logging?

Thinking...

Setting up VPC Flow Logs in AWS involves several steps. Here's a comprehensive guide to help you through the process:

Prerequisites

- **AWS Account:** Ensure you have an active AWS account.
- **VPC:** You need a Virtual Private Cloud (VPC) where you want to enable flow logs.

Steps to Set Up VPC Flow Logging

1. Create an IAM Role for VPC Flow Logs

- **Navigate to IAM:**
 - Open the [IAM console](https://console.aws.amazon.com/iam/).
- **Create a Role:**
 - Click on **Roles** in the left-hand menu and then click **Create role**.
 - Choose **AWS service** as the type of trusted entity.
 - Select **VPC** as the service that will use this role.
 - Click **Next: Permissions**.
- **Attach Policies:**
 - Attach the **AmazonVPCFlowLogsRolePolicy** policy to the role.
 - Click **Next: Tags** and then **Next: Review**.
- **Create Role:**
 - Provide a role name (e.g., `VPCFlowLogsRole`) and click **Create role**.

File Edit Selection View Go Run ... ← → ⌘ agentic-ai-with-mcp-and-strands [Administrator] PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/mcp_examples (main)

```
$ uv run aws_documentation_agent.py
2025-12-25 00:32:33 | INFO | botocore.credentials | Found credentials in environment variables.
-----
AWS Documentation Agent Demo
-----
```

Example prompts to try:
- How do I create an S3 bucket?
- What can I update my Lambda function code that I've created?
- How may I set up VPC flow logging?

Type 'exit' to quit.

Question: Give me the latitude and longitude for 440 Terry Ave N, Seattle, WA 98109-5210, United States

Thinking...

```
2025-12-25 00:32:52 | INFO | strands.telemetry.metrics | Creating Strands MetricsClient
<thinking>The User is asking for geographic coordinates (Latitude and longitude) for a specific address. This information is not available through the AWS documentation tools provided, as they are focused on AWS-related content. I need to inform the User that I cannot provide this information using the current tools.</thinking>
```

<thinking>Since the tools cannot provide geographic coordinates, I will inform the User that I cannot help with this request using the available tools.</thinking>
I'm sorry, but I cannot provide geographic coordinates for addresses using the available tools. These tools are specifically designed for AWS documentation and do not support geographic information. If you need to find the latitude and longitude for a specific address, I recommend using a different service or tool that specializes in geographic data.

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following text:

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/mcp_examples
(main)
$ uv run aws_location_agent.py
2025-12-25 00:36:42 | INFO | botocore.credentials | Found credentials in environment variables.
-----
AWS Location Agent Demo
-----
Example prompts to try:
- Give me the latitude and longitude for 440 Terry Ave N, Seattle, WA 98109-5210, United States
- Please provide the details of Seattle Airport
- Provide the address for latitude: 47.62292 and longitude: -122.33676
- What's nearby to zip code 98109-5210?
- Give me the driving directions from zip code 98109-5210 to the Seattle Airport

Type 'exit' to quit.

Question: Give me the latitude and longitude for 440 Terry Ave N, Seattle, WA 98109-5210, United States

Thinking...
2025-12-25 00:36:50 | INFO | strands.telemetry.metrics | Creating Strands MetricsClient
<thinking>I need to use the 'geocode' tool to find the latitude and longitude for the given address. I will input the address into the 'geocode' tool and retrieve the coordinates.</thinking>
Tool #1: geocode
<thinking>It seems there was an error with the geocode tool due to an invalid security token. I will attempt to geocode the address again to retrieve the coordinates.</thinking>
Tool #2: geocode
|
```

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following text:

```
Tool #1: geocode
<thinking>It seems there was an error with the geocode tool due to an invalid security token. I will attempt to geocode the address again to retrieve the coordinates.</thinking>
Tool #2: geocode
<thinking>The error persists, indicating a potential issue with the tool or the security token. I will attempt to geocode the address one more time to retrieve the coordinates.</thinking>
Tool #3: geocode
<thinking>The error continues to occur, suggesting a persistent issue with the tool or the security token. I cannot proceed with the geocode operation due to this error. I will inform the User about the issue.</thinking>

I'm sorry, but I encountered an error while trying to geocode the address. It seems there is an issue with the security token included in the request. I'm unable to retrieve the latitude and longitude for the given address at this time. Please let me know if there is anything else I can assist you with.
-----

Question: What's nearby to zip code 98109-5210?

Thinking...
<thinking>I need to use the 'search_neaby' tool to find places near the given zip code. I will input the zip code into the 'search_neaby' tool and retrieve the nearby places.</thinking>
Tool #4: search_neaby
<thinking>The error persists, indicating a potential issue with the tool or the security token. I cannot proceed with the search_neaby operation due to this error. I will inform the User about the issue.</thinking>

I'm sorry, but I encountered an error while trying to search for places near the given zip code. It seems there is an issue with the security token included in the request. I'm unable to retrieve the nearby places at this time. Please let me know if there is anything else I can assist you with.
-----

Question: |
```

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)
● $ uv run cleanup_resources.py
Are you sure you want to delete knowledge base: pets-kb-7ae85357 (V8CU1EZDGD)? [y/N]: y
Deleting knowledge base: pets-kb-7ae85357 (V8CU1EZDGD)
Successfully deleted knowledge base: pets-kb-7ae85357
Skipping bucket: agentcore-gateway-891377318455-us-west-2
Skipping bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
Are you sure you want to delete bucket: bedrock-kb-bucket-7bb8aef7? [y/N]: y
Deleting bucket: bedrock-kb-bucket-7bb8aef7
Successfully deleted bucket: bedrock-kb-bucket-7bb8aef7
Skipping bucket: cdk-hnb659fds-assets-891377318455-us-west-2
Skipping bucket: template-ssmlogbucket-1c0knxdydv4
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)
○ $ 
```