

Module 1:

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

- File, Edit, Selection, View, Go, Run, Terminal, Help** menu bar.
- Explorer** sidebar showing the project structure:
 - AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .env
 - agentcore
 - external_api_examples
 - guardrails
 - mcp_examples
 - strands_calculator_mcp_agent_example
 - strands_knowledgebase_agent_example
 - strands_memory_agent_example
 - strands_meta_tooling_agent_example
 - strands_multi_agent_example
 - strands_neva_example
 - strands_session_management_example
 - strands_weather_agent_example
 - strands_workflow_agent_example
 - streamlit_examples
 - .gitignore
 - app_k3.mem.py
 - app_k3.py
 - cleanup_resources.py
 - cleanup_resources2.py
 - CODE_OF_CONDUCT.md
 - CONTRIBUTING.md
 - create_knowledge_base.py
 - knowledge_base.py
 - LICENSE
 - README.md
- Terminal** tab showing a bash session on an Amazon Q instance:

```
User: [REDACTED] MINGW64 ~/aws/amazonq
$
```
- Chat** sidebar showing a conversation with Amazon Q about MCP Servers:

Add MCP servers to extend Q's capabilities.

Active

 - strands-agents-sops
 - awslabsaws documentation-mcp-server
 - aws-knowledge-mcp-server
 - awslabscdk mcp-server
 - strands

Disabled

 - awslabscore-mcp-server

Fix Configuration >

```
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 M
strands_calculator_mcp_agent_example
  requirements.txt
    1 aws-opentelemetry-distro>=0.10.0
    2 bedrock-agentcore
    3 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>d strands_calculator_mcp_agent_exampleuv run mcp_calculator.py
Waiting for MCP server to start...
Starting MCP Calculator Server at http://localhost:8000
INFO: Started server process [19044]
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: 127.0.0.1:55916 - "POST /mcp/ HTTP/1.1" 307 Temporary Redirect
INFO: 127.0.0.1:55916 - "GET /mcp/ HTTP/1.1" 307 Temporary Redirect
INFO: 127.0.0.1:55916 - "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:
```

Module2

The screenshot shows the Eclipse IDE interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** agentic-ai-with-mcp-and-strands [Administrator].
- Left Sidebar (Explorer):** Shows the project structure:
 - AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .venv
 - agentcore
 - external_api_examples
 - guards
 - mcp_examples
 - strands_calculator_mcp_agent_example
 - 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
 - nea_agency.py
 - nea_chainability.py
 - weather_forecaster.py
 - strands_workflow_agent_example
 - streamlit_examples
 - gtinparser
 - 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
 - streamlit_app.py
- Terminal Tab:** Problems, Output, Debug Console, TERMINAL, Ports, Azure, Code Reference Log. The terminal window contains the command: C:\Users\USER\Downloads\VAI For Bharat\workshops\agentic-ai-with-mcp-and-strands\strands_weather_agent_example\uv run weather_forecaster.py. The output shows "Weather Forecaster" Strands Agent and a message about using Strands Agents' HTTP request capabilities to get weather forecasts from the National Weather Service API.
- Code Editor:** The weather_forecaster.py file is open, showing code to interact with the National Weather Service API to get weather forecasts for Seattle. It includes comments explaining the steps: retrieving coordinates and grid information, making an HTTP request to the API, and then using the returned forecast URL to get the actual forecast. The code also handles precipitation amounts and wind speeds.

Module3:

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

```
C:\Users\user1\Downloads\VAI> For Bharat\workshop5\agenetic-ai-with-mcp-and-strands\strands_weather_agent_example>cd ..  
C:\Users\user1\Downloads\VAI> For Bharat\workshop5\agenetic-ai-with-mcp-and-strands>uv run create_knowledge_base.py  
Berlin: us-west-2  
[2025-12-24 12:03:33,289] p10776 [credentials.py:1392] INFO - Found credentials in shared credentials file: ./aws/credentials  
Error downloading file: HTTPSConnectionPool(host='d3k0cbaw2nl4d.cloudfront.net', port=443): Max retries exceeded with url: /pets-kb-files.zip (Caused by NameResolutionError("HTTPSConnection host=d3k0cbaw2nl4d.cloudfr...  
ent.net, port=443"))  
[2025-12-24 12:03:33,290] p10776 [credentials.py:1392] ERROR - Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after error: HTTPSConnectionPool(host='d3k0cbaw2nl4d.cloudfront.net', port=443): Max retries exceeded with url: /pets-kb-files.zip (Caused by NameResolutionError("HTTPSConnection host=d3k0cbaw2nl4d.cloudfr...  
ent.net, port=443"))  
[2025-12-24 12:03:37,382] p10776 [credentials.py:1392] INFO - Successfully created bucket: bedrock-kb-bucket-7b8aeaf7  
Created S3 bucket: bedrock-kb-bucket-7b8aeaf7  
[2025-12-24 12:03:46,121] p10776 [credentials.py:1392] INFO - Bucket bedrock-kb-bucket-7b8aeaf7 already exists - retrieving it!  
Step 1 - Creating or retrieving bedrock-kb-bucket-7b8aeaf7 S3 bucket for Knowledge Base documents  
Step 2 - Creating Knowledge Base Execution Role (AmazonBedrockExecutionRoleForKnowledgeBase_8913) and Policies  
Step 3 - Creating OSS encryption, network and data access policies  
Step 4 - Creating OSS collection (this step may take a few minutes to complete)  
{ "ResponseMetadata": { "HTTPHeaders": { "Content-Type": "application/x-amz-json-1.0", "Content-Length": "315", "Date": "Wed, 24 Dec 2025 05:33:44", "Via": "x-amzn-requestid": "19fb5f61-4474-44d9-b854-98556c9e5cef", "HTTPStatusCode": 200, "RequestId": "19fb5f61-4474-44d9-b854-98556c9e5cef", "RetryAttempts": 0 } }, "CreateCollectionDetail": { "CollectionArn": "arn:aws:bedrock:us-west-2:891377310455:collection/gjqtcau06cecg2st181", "CollectionName": "bedrock-sample-rng-4913", "CollectionStatus": "CREATING", "CollectionType": "VECTORSEARCH", "LastModified": "2025-12-24T05:33:40Z", "Id": "gjqtcau06cecg2st181", "KmsKeyArn": "auto", "StandbyReplicas": 0, "StandbyReplicasAs": "ENABLED", "Tags": [ { "Key": "Owner", "Value": "user1" } ] } }  
gjqtcau06cecg2st181.us-west-2.oss.amazonaws.com  
Creating collection...  
Collection successfully created:  
[ { "arn": "arn:aws:bedrock:us-west-2:891377310455:collection/gjqtcau06cecg2st181", "collectionEndpoint": "https://gjqtcau06cecg2st181.us-west-2.oss.amazonaws.com", "createdDate": "2025-12-24T05:33:40Z", "dashboards": "https://gjqtcau06cecg2st181.us-west-2.ams-flips.amazonaws.com", "flipsEndpoints": [ "collectionEndpoint": "https://gjqtcau06cecg2st181.us-west-2.ams-flips.amazonaws.com", "dashboards": "https://gjqtcau06cecg2st181.us-west-2.ams-flips.amazonaws.com" ] } ]
```

```

agentic-ai-with-mcp-and-strands
└─ PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
    Collection successfully created:
    [ { "arn": "arn:aws:lambda:us-west-2:891377318455:collection/g1qtcu0u6cecg5t181",
      "collectionArn": "arn:aws:lambda:us-west-2:891377318455:collection/g1qtcu0u6cecg5t181",
      "dashboardEndpoint": "https://g1qtcu0u6cecg5t181.us-west-2.aoss.amazonaws.com/dashboards",
      "fipsEndpoints": { "collectionEndpoint": "https://g1qtcu0u6cecg5t181.us-west-2.aoss-fips.amazonaws.com",
        "dashboardEndpoint": "https://g1qtcu0u6cecg5t181.us-west-2.aoss-fips.amazonaws.com/dashboards" },
      "id": "g1qtcu0u6cecg5t181",
      "lastModified": "2025-12-24T12:08:23.026Z",
      "name": "bedrock-sample-rag-8913",
      "standbyReplica": "ENABLED",
      "status": "ACTIVE",
      "type": "VECTORSEARCH" } ]
    Opensearch serverless arn: arn:aws:iam::891377318455:policy/AmazonBedrockSSSPolicyForKnowledgeBase_8913
    Sleeping for a minute to ensure data access rules have been enforced
    =====
    Step 5 - Creating OSS Vector Index
    [2025-12-24 12:08:23.026] p10776 (base.py:258) INFO - PUT https://g1qtcu0u6cecg5t181.us-west-2.aoss.amazonaws.com:443/bedrock-sample-rag-Index-8913 [status:200 request:1.899s]
    Creating index:
    { "indexName": "Index-8913",
      "indexArn": "arn:aws:lambda:us-west-2:891377318455:role/AmazonBedrockExecutionRoleForKnowledgeBase_8913",
      "shardsAcknowledged": true }
    Step 6 - Creating Knowledge Base
    { "collectionArn": "arn:aws:lambda:us-west-2:891377318455:collection/g1qtcu0u6cecg5t181",
      "description": "Pet's Knowledge Base on cats and dogs",
      "knowledgeBaseArn": "arn:aws:bedrock:us-west-2:891377318455:knowledge-base/8C0UEZGD",
      "knowledgeBaseConfiguration": { "type": "VECTOR" },
      "knowledgeBaseId": "V8C0UEZGD",
      "name": "pets-kb-7a083537",
      "roleArn": "arn:aws:iam::891377318455:role/AmazonBedrockExecutionRoleForKnowledgeBase_8913",
      "status": "CREATING",
      "storageConfiguration": { "openSearchServerlessConfiguration": { "collectionArn": "arn:aws:aoss:us-west-2:891377318455:collection/g1qtcu0u6cecg5t181",
        "fieldMapping": { "metadataField": "text-metadata",
          "textField": "text",
          "vectorField": "vector" },
        "vectorIndexName": "bedrock-sample-rag-index-8913" },
        "updatedAt": "2025-12-24 12:08:23.026Z" },
      "updatedAt": "2025-12-24 12:08:23.026Z",
      "updatedBy": "arn:aws:lambda:us-west-2:891377318455:role/AmazonBedrockExecutionRoleForKnowledgeBase_8913",
      "updatedPolicy": "DELETE",
      "dataSourceConfiguration": { "type": "CUSTOM" },
      "description": "Pet's Knowledge Base on cats and dogs",
      "knowledgeBaseArn": "arn:aws:bedrock:us-west-2:891377318455:knowledge-base/8C0UEZGD",
      "knowledgeBaseId": "V8C0UEZGD",
      "name": "pets-kb-7a083537",
      "status": "AVAILABLE",
      "updatedAt": "2025-12-24 12:08:23.026Z",
      "vectorIngestionConfiguration": { "chunkingStrategy": "FIXED_SIZE",
        "fixedSizeChunkingConfiguration": { "maxTokens": 512,
          "overlapPercentage": 20 } } }
    =====

```

Name	AWS Region	Creation date
bedrock-kb-bucket-7bb8afe7	US West (Oregon) us-west-2	December 24, 2025, 12:03:53 (UTC+05:30)

```

agentic-ai-with-mcp-and-strands
└─ PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
    C:\Users\lucas\OneDrive\Área de Trabalho\agentic-ai-with-mcp-and-strands>aws bedrock create-knowledge-base --name pets-kb-7ae85357 --type VECTOR_STORE
    upload: pets-kb-7ae85357_PetFood.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Food.pdf
    upload: pets-kb-7ae85357_DogFood.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Food.pdf
    upload: pets-kb-7ae85357_CatPlayAndToys.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Play_and_Toys.pdf
    upload: pets-kb-7ae85357_CatBehavior.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Behavior.pdf
    upload: pets-kb-7ae85357_DogBehavior.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Behavior.pdf
    upload: pets-kb-7ae85357_CatPlayAndToys.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Play_and_Toys.pdf
    upload: pets-kb-7ae85357_DogBehavior.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Behavior.pdf
    upload: pets-kb-7ae85357_CatPlayAndToys.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Play_and_Toys.pdf
    upload: pets-kb-7ae85357_DogBehavior.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Behavior.pdf
    upload: pets-kb-7ae85357_DogFood.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Food.pdf
    upload: pets-kb-7ae85357_CatFood.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Cat_Food.pdf
    upload: pets-kb-7ae85357_DogFood.pdf to s3://bedrock-kb-bucket-7bb8afe7/_MACOSX_Dog_Food.pdf
    Regions: us-west-2
[2025-12-24 12:12:26.768] p1708 (credentials.py:1392) INFO - Found credentials in shared credentials file: ./aws/credentials
[2025-12-24 12:12:26.768] p1708 (credentials.py:1392) INFO - Found security token in shared credentials file: ./aws/credentials
Data Source ID: 7AE85357
s3://bedrock-kb-bucket-7bb8afe7/cat_behavior.pdf -> Custom Document Identifier: "cat_behavior"
s3://bedrock-kb-bucket-7bb8afe7/cat_play_and_toys.pdf -> Custom Document Identifier: "cat_play_and_toys"
s3://bedrock-kb-bucket-7bb8afe7/cat_behavior.pdf -> Custom Document Identifier: "cat_behavior"
s3://bedrock-kb-bucket-7bb8afe7/cat_play_and_toys.pdf -> Custom Document Identifier: "cat_play_and_toys"
s3://bedrock-kb-bucket-7bb8afe7/dog_food.pdf -> Custom Document Identifier: "dog_food"
s3://bedrock-kb-bucket-7bb8afe7/cat_food.pdf -> Custom Document Identifier: "cat_food"
s3://bedrock-kb-bucket-7bb8afe7/dog_toy.pdf -> Custom Document Identifier: "dog_grooming"
s3://bedrock-kb-bucket-7bb8afe7/dog_toy.pdf -> Custom Document Identifier: "dog_grooming"
{
  "ResponseMetadata": {
    "RequestId": "6c909b3c-dab2-42ab-82ab-8e299492c61e",
    "HTTPStatusCode": 200,
    "HTTPHeaders": [
      "date": "Wed, 24 Dec 2025 06:55:19 GMT",
      "content-type": "application/json",
      "content-length": "2344",
      "connection": "Keep-Alive",
      "x-amz-request-id": "6C909B3C-DAB2-42AB-82AB-8E299492C61E",
      "x-amz-trace-id": "Root-1-6948b57-404568cf1b0b747ca1d65"
    ],
    "RetryAttempts": 0
  },
  "DocumentDetails": [
    {
      "knowledgeBaseId": "V8C0UEZGD",
      "documentId": "7AE85357",
      "status": "STARTED",
      "lastSyncTime": "2025-12-24T12:08:23.026Z",
      "datasourceType": "CUSTOM",
      "custom": {
        "id": "cat_behavior"
      }
    }
  ],
  "updatedAt": "2025-12-24 06:55:19.141565+00:00"
}
{
  "knowledgeBaseId": "V8C0UEZGD",
  "name": "pets-kb-7ae85357"
}

```

```

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 + v 🌐 ... | x
EXPLORER ...
AGENTIC-AI-WITH-MCP-AND-STRAANDS
    > __pycache__ ...
    > .venv ...
    > agentcore ...
    > external_api_examples ...
    > guardrails ...
    > pets_kb ...
        strands_calculator_mcp_agent_example ...
            mcp_calculator.py ...
        strands_knowledgebase_agent_example ...
            strands_memory_agent_example ...
            strands_meta_tooling_agent_example ...
            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 ...
                create_knowledge_base.py ...
                knowledge_base.py ...
            LICENSE ...
            README.md ...
            requirements.txt ...
            streamlit_app.py ...
        strands ...
    > OUTLINE ...
    > TIMELINE ...
Not Committed Yet Ln 210 Col 22 Spaces: 4 UTT-8 CRLF {} Python 3.12.0 ...

```

The terminal window displays the following Python code for creating knowledge bases:

```

    "custom": {
        "id": "cat_food"
    },
    "updatedAt": "2025-12-24 06:55:19.164027+00:00"
},
{
    "knowledgeBaseId": "V8CUIEZDGD",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
        "dataSourceType": "CUSTOM",
        "custom": {
            "id": "cat_play_and_toys"
        }
    },
    "updatedAt": "2025-12-24 06:55:19.186025+00:00"
},
{
    "knowledgeBaseId": "V8CUIEZDGD",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
        "dataSourceType": "CUSTOM",
        "custom": {
            "id": "dog_food"
        }
    },
    "updatedAt": "2025-12-24 06:55:19.2090169+00:00"
},
{
    "knowledgeBaseId": "V8CUIEZDGD",
    "dataSourceId": "CEG2VEG9AR",
    "status": "IMAGING",
    "identifier": {
        "dataSourceType": "CUSTOM",
        "custom": {
            "id": "dog_grooming"
        }
    },
    "updatedAt": "2025-12-24 06:55:19.233077+00:00"
},
{
    "knowledgeBaseId": "V8CUIEZDGD",
    "dataSourceId": "CEG2VEG9AR",
    "status": "STARTING",
    "identifier": {
        "dataSourceType": "CUSTOM",
        "custom": {
            "id": "dog_toy"
        }
    },
    "updatedAt": "2025-12-24 06:55:19.255429+00:00"
}
]

```

Amazon Bedrock > Knowledge Bases > pets-kb-7ae85357 > pets-kb-7ae85357

Data source: pets-kb-7ae85357

Data source overview	
Name	pets-kb-7ae85357
Data source type	Custom
Serverside KMS key	-
Account ID	-
Chunking strategy	Fixed-size chunking
Lambda function	-
Data source ID: CEG2VEG9AR	
Created date	December 24, 2025, 12:09 (UTC+05:30)
Status	Available
Data deletion policy	DELETE
Parsing strategy	Default
S3 bucket for 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)

```

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 + v 🌐 ... | x
EXPLORER ...
AGENTIC-AI-WITH-MCP-AND-STRAANDS
    > __pycache__ ...
    > .venv ...
    > agentcore ...
    > external_api_examples ...
    > guardrails ...
    > pets_kb ...
        strands_calculator_mcp_agent_example ...
            mcp_calculator.py ...
        strands_knowledgebase_agent_example ...
            strands_memory_agent_example ...
            strands_meta_tooling_agent_example ...
            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 ...
                create_knowledge_base.py ...
                knowledge_base.py ...
            LICENSE ...
            README.md ...
            requirements.txt ...
            streamlit_app.py ...
        strands ...
    > OUTLINE ...
    > TIMELINE ...
$ ./Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)
$ export STRANDS_XMM_EDGE_BASE_ID=$(aws bedrock-agent list-knowledge-bases --region $AWS_REGION --query 'knowledgeBaseSummaries[0].knowledgeBaseId' --output text)
export OPENSEARCH_COLLECTION_ID=$(aws opensearchserverless list-collections --query 'collectionSummaries[0].id' --output text)
export OPENSEARCH_ENDPOINT=$(aws opensearchserverless batch-get-collection -ids $OPENSEARCH_COLLECTION_ID --query 'collectionDetails[0].collectionEndpoint' --output text)
export OPENSEARCH_HOST=$OPENSEARCH_ENDPOINThttps:///
echo "export OPENSEARCH_HOST=$OPENSEARCH_HOST" >> ~/.bashrc
tail -2 ~/.bashrc
export STRANDS_XMM_EDGE_BASE_ID="V8CUIEZDGD"
export OPENSEARCH_HOST="git@codegeeksgitlab.us-west-2.oss.amazonaws.com"
$ ./Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)

```

Test Agent:

```

File Edit Selection View Go Run Terminal Help
EXPLORER AGENTIC-AI-WITH-MCP-AND-STRANDS ...
    > _pycache_ .venv
    > agentcore
    > external_api_examples
    > guardrails
    > mcp_examples
    > pets-kb
        strands_calculator_mcp_agent_example
            strands_calculator_agent.py
            knowledge_base_agent.py M
                > strands_memory_agent_example
                > strands_meta_tooling_agent_example
                > strands_multi_agent_example
                > strands_nova_example
                > strands_session_management_example
                > strands_weather_agent_example
                    nea_agent.py
                    nea_chainlit.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
                    create_knowledge_base.py
                    knowledge_base.py
                    LICENSE
                    pets-kb.zip
                    README.md
                    requirements.txt
                    streamlit_app.py
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_knowledgebase_agent_example>uv run knowledge_base_agent.py
Using Knowledge Base ID: V8CUEIEDGD
● 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_31f61112.

Data source: pets-kb-7ae85557

Data source overview																																													
Name	pets-kb-7ae85557	Data source type	Custom	Status	Available																																								
Serverside KMS key	-	Account ID	-	Data deletion policy	DELETE																																								
Chunking strategy	Fixed-size chunking	Lambda function	-	Parsing strategy	Default																																								
Documents (9)																																													
<table border="1"> <thead> <tr> <th>Document Identifier</th> <th>Status</th> <th>Document source</th> <th>Updated date</th> </tr> </thead> <tbody> <tr> <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>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>memory_20251224_124934_c4c760e9</td> <td>INDEXED</td> <td>Custom</td> <td>Wed Dec 24 2025 12:49:35 GMT+0530 (India Standard Time)</td> </tr> <tr> <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>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>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>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>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>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>						Document Identifier	Status	Document source	Updated date	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_c4c760e9	INDEXED	Custom	Wed Dec 24 2025 12:49:35 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:

```

File Edit Selection View Go Run Terminal Help ← → 🔍 agentic-ai-with-mcp-and-strands [Administrator]
EXPLORER PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
C:\Users\Umesh\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...
Report 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: ***
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.

```

```

File Edit Selection View Go Run Terminal Help ← → 🔍 agentic-ai-with-mcp-and-strands [Administrator]
EXPLORER PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
C:\Users\Umesh\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:
- "Lemon cures cancer"
- "Tuesday comes before Monday in the week"

> Lemon cures cancer

Processing: 'Lemon cures cancer'
Step 1: Researcher Agent gathering web information...
Report 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: ***
1. **Claim:** Lemon cures cancer.
2. **Rating:** False
3. **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.

4. **Key Insights:***
1. **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.

2. **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.

3. **Potential Misinformation**:
   - Claims that lemons can cure cancer may mislead individuals into neglecting evidence-based treatments, which can have serious health consequences.

4. **Nutritional Benefits**:
   - While lemons are rich in vitamin C and other nutrients, they are not a substitute for medical treatment for cancer.

5. **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.

6. **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.

7. **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.

```

```

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

> 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 **!** due to insufficient evidence.

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

**Source Reliability:***
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

```

Module5:

```

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\workshop\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 am 45 years old
- What's your 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.
Creating index mem0, it might take 1-2 minutes...
Creating index memmigrations, it might take 1-2 minutes...

Tool #1: mem0 memory
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!

```

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 am 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 mem0_migrations, it might take 1-2 minutes...

```

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

Memory for user J

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
7658bec-cec0-45c6-8d72-1ef4e6e62966	J is 34 years old	0.6969592	2025-12-24T08:12:49.243423-08:00	J	None
914844b-w39-441d-804c-259b67c4282c	Likes seafood	0.571997	2025-12-24T08:12:50.811555-08:00	J	None
9iae3642-2768-4ec4-b88e-8ea6c8e32bd5	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!

> []

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 am 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 mem0_migrations, it might take 1-2 minutes...

```

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

Memory for user J

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
7658bec-cec0-45c6-8d72-1ef4e6e62966	J is 34 years old	0.6969592	2025-12-24T08:12:49.243423-08:00	J	None
914844b-w39-441d-804c-259b67c4282c	Likes seafood	0.571997	2025-12-24T08:12:50.811555-08:00	J	None
9iae3642-2768-4ec4-b88e-8ea6c8e32bd5	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 retrieve all memories for user J. </thinking>

Tool #3: mem0_memory

Memories

ID	Memory	Created At	User ID	Metadata
7658bec-cec0-45c6-8d72-1ef4e6e62966	J is 34 years old	2025-12-24T08:12:49.243423-08:00	J	None
914844b-w39-441d-804c-259b67c4282c	Likes seafood	2025-12-24T08:12:50.811555-08:00	J	None
9iae3642-2768-4ec4-b88e-8ea6c8e32bd5	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\workshop5\agentic-ai-with-mcp-and-strands\strands_memory_agent_example[]

Module6:

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

```
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_meta_tooling_agent_example\uv run meta_tooling.py
Meta-Tooling Demonstration (Improved)
Commands:
  • create <description> - Creates 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:
  • 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:
  • 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:
  • 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:
  • create <description> - Create a new tool
  • make a tool that <description>
  • list tools - Show created tools
  • exit - Exit the program

  1. Create the tool file with appropriate naming
  2. Write the code using the editor tool
  3. Create the tool file with appropriate naming
  4. Write the code using the editor tool
  5. Load the tool using load tool
  6. Write the code using the editor tool
  7. Load the tool using load tool
  8. Load the tool using load tool
  9. Confirm creation and loading

  4. Confirm creation and loading

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

```

meta_tooling.py M count_chars.py U
strands_meta_tooling.agent_example> tools > count_chars.py > count_chars

1 from typing import Any
2 from strands.types.tools import ToolUse, ToolResult
3
4 TOOL_SPEC = {
5     "name": "count_chars",
6     "description": "Counts the number of characters in the provided text",
7     "inputSchema": {
8         "json": {
9             "type": "object",
10            "properties": {
11                "text": {
12                    "type": "string",
13                    "description": "The text to count characters in"
14                }
15            },
16            "required": ["text"]
17        }
18    }
19}
20
21 def count_chars(tool_use: ToolUse, **kwargs: Any) -> ToolResult:
22     """
23     Count the number of characters in the provided text.
24
25     Args:
26         tool_use: ToolUse object containing the input text
27
28     Returns:
29         ToolResult containing the character count
30     """
31     tool_use_id = tool_use["tooluseId"]
32     text = tool_use["input"]["text"]
33
34     char_count = len(text)
35
36     return {
37         "tooluseId": tool_use_id,
38         "status": "success",
39         "content": [{"text": f"Character count: {char_count}"}]
40     }

```

Module7:

```

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

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  $x$ )  

Step 3: List factor pairs of 6**  

-  $1 \times 6 = 6$ , and  $1 + 6 = 7$  ✗  

-  $2 \times 3 = 6$ , 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  

-  $a = 1$ ,  $b = 5$ ,  $c = 6$ 

```

File Edit Selection View Go Run Terminal Help

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

```
**Step 2: Calculate the discriminant**
- Discriminant =  $b^2 - 4ac = 5^2 - 4(1)(6) = 25 - 24 = 1$ 

**Step 3: Apply the formula**
-  $x = (-5 \pm \sqrt{1}) / (2 \cdot 1) = (-5 \pm 1) / 2$ 

**Step 4: Find both solutions**
-  $x_1 = (-5 + 1) / 2 = -4/2 = -2$ 
-  $x_2 = (-5 - 1) / 2 = -6/2 = -3$ 

---

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

**Step 1: Start with the original equation**
 $x^2 + 5x + 6 = 0$ 

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

**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:  $x^2 + 5x + 6.25 = -6 + 6.25$ 

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

**Step 5: Take the square root of both sides**
 $x + 2.5 = \pm\sqrt{0.25} = \pm 0.5$ 

**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

```
x + 2.5 = ±\sqrt{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.
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
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    - 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!

> 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
```

### Explanation:
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."

```

```

>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>

Hello World!

Welcome to my first Streamlit app.

Enter your name

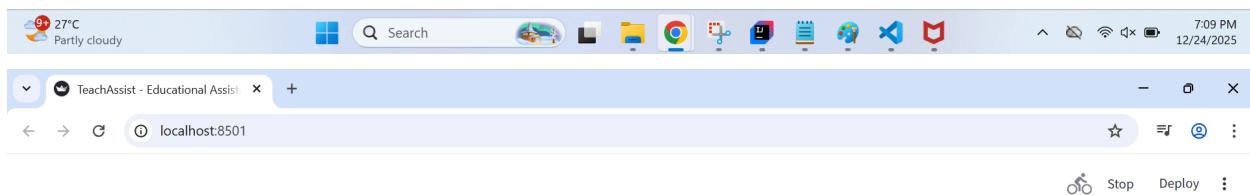
Hello, user1!



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...

The screenshot shows a web browser window with the title 'TeachAssist - Educational Assistant'. The URL bar displays 'localhost:8501'. The main content area features a large heading 'TeachAssist - Educational Assistant' and a sub-instruction 'Ask a question in any subject area, and I'll route it to the appropriate specialist.' Below this, a card displays a math problem: 'Solve the quadratic equation $x^2 + 5x + 6 = 0$ '. A response follows: '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.' At the bottom, there is a text input field with placeholder text 'Ask your question here...' and a right-pointing arrow icon.

The screenshot shows a Microsoft Visual Studio Code (VS Code) interface running as an administrator. The title bar indicates the file path: `agentic-ai-with-mcp-and-strands [Administrator]`. The left sidebar displays a file tree under the 'EXPLORER' tab, showing various Python files and examples related to 'AGENTIC-AI-WITH-MCP-AND-STRANDS'. The main editor area shows a Streamlit application for solving quadratic equations. The code uses the `strands` library to handle user input and provide step-by-step solutions. A terminal window at the bottom shows the command used to run the app and the resulting output.

```
(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

Routed to Math Assistant
I'll solve the quadratic equation  $x^2 + 5x + 6 = 0$  step by step, showing multiple methods and explaining the concepts clearly.
Tool #1: calculator
Great! Now let me explain the solution with multiple approaches and concepts:

## Solution:  $x^2 + 5x + 6 = 0$ 

**The solutions are:  $x = -3$  and  $x = -2$ **

Let me show you different methods to solve this quadratic equation:

### Method 1: Factoring (Most Efficient for this problem)

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

**Step 2:** Find two numbers that multiply to give  $c$  (6) and add to give  $b$  (5)
We need two numbers where:
- Product = 6
- Sum = 5

Let's think: What factors of 6 are there?
```

```

Tool #5: calculator
 $x^2 + 5x + 6.25 = -6 + 6.25$ 
 $(x + 2.5)^2 = 0.25$ 

**Step 4:** Take square root of both sides:
 $x + 2.5 = \pm 0.5$ 

**Step 5:** Solve for x:
-  $x = -2.5 + 0.5 = -2$ 
-  $x = -2.5 - 0.5 = -3$ 

## Key Concepts Explained:

1. **Quadratic Equation**: Any equation of the form  $ax^2 + bx + c = 0$  where  $a \neq 0$ 
2. **Zero Product Property**: If  $AB = 0$ , then  $A = 0$  or  $B = 0$  (or both)
3. **Discriminant**:  $b^2 - 4ac$  tells us about the nature of roots:
    - If positive (like our case): 2 real, distinct roots
    - If zero: 1 real, repeated root
    - If negative: 2 complex roots
4. **Factoring**: Often the quickest method when the quadratic factors nicely with integers

## Verification:
Let's check our solutions by substituting back into the original equation:
Tool #6: calculator

Tool #7: calculator
For  $x = -2$ :  $(-2)^2 + 5(-2) + 6 = 4 - 10 + 6 = 0 \checkmark$ 
For  $x = -3$ :  $(-3)^2 + 5(-3) + 6 = 9 - 15 + 6 = 0 \checkmark$ 

```

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" → a-m-a-n-a-p-l-a-n-a-c-a-n-a-l-p-a-n-a-m-a
- Why the cleaning step matters:
 - "Madam, I'm Adam" becomes "madamimadam" (true palindrome).
 - Without cleaning, punctuation and spaces would break the symmetry.

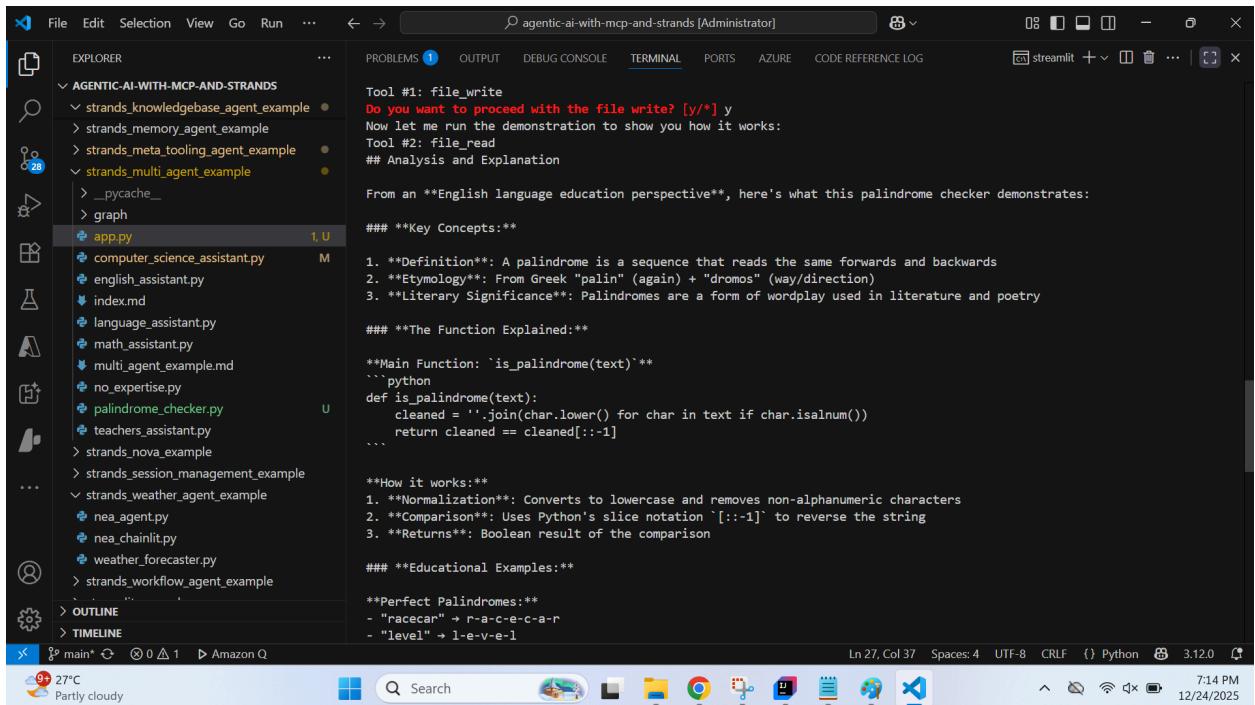
Literary Context:

Palindromes appear in:

- Poetry: For rhyming 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... ➤



```

File Edit Selection View Go Run ... ← → 🔍 agentic-ai-with-mcp-and-strands [Administrator] 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
_pycache_
graph
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
main* ① 0 △ 1 Amazon Q
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG streamlit + - ×
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

```

Ln 27, Col 37 Spaces: 4 UTF-8 CRLF { Python 3.12.0 7:14 PM 12/24/2025

Translate "Hello, how are you?" to Spanish

Here's the translation of "Hello, how are you?" to Spanish, along with some helpful explanations and cultural context:

Translation

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

Breakdown and Explanation

Let me break this down for you:

- "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?"

Ask your question here... ➤

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

Ask your question here... ➤



```

    /**
     * "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-TAHHS
     * 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"
  */

  // Solve the quadratic equation x^2 + 5x + 6 = 0
  solveQuadraticEquation() {
    const a = 1;
    const b = 5;
    const c = 6;

    const discriminant = b * b - 4 * a * c;
    const sqrtDiscriminant = Math.sqrt(discriminant);

    const x1 = (-b - sqrtDiscriminant) / (2 * a);
    const x2 = (-b + sqrtDiscriminant) / (2 * a);

    return [x1, x2];
  }

  solveQuadraticEquation();

```



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:

1. **Quadratic Equations:** These are second-degree polynomial equations in the form ($ax^2 + bx + c = 0$).
2. **Zero Product Property:** If ($AB = 0$), then ($A = 0$) or ($B = 0$) (or both).
3. **Factoring Strategy:** Look for two numbers that multiply to the constant term (6) and add to the linear coefficient (5).
4. **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...



```

(agenetic-ai-with-mcp-and-strands) C:\Users\User1\Downloads\AI For Bharat\workshop5\agenetic-ai-with-mcp-and-strands\strands
_mcp_and_strands>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  $x$ )
- Possible factor pairs of 6: (1,6), (2,3), (-1,-6), (-2,-3)

```

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

Here's a breakdown and some cultural context:

- "**Hola**" = "Hello"
 - This is the most common and universal greeting in Spanish.
 - Pronunciation: OH-lah
 - Used in both formal and informal situations.
- "**¿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, older, professional settings):** "Hola, ¿cómo está usted?"

Ask your question here... ➤

```

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

## Cultural Context & Variations
### Formality Levels
Different Spanish-speaking countries have their own variations:
- **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
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...

The screenshot shows a terminal window within a code editor interface. The title bar reads "agentic-ai-with-mcp-and-strands [Administrator]". The terminal tab is active, displaying the following Python code:

```
### 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?"

## 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.
```

The code editor interface includes an Explorer sidebar on the left showing project files like "mcp_examples", "strands_calculator_mcp_agent_example", and "strands_knowledgebase_agent_example". The status bar at the bottom shows "Ln 37, Col 62 (10 selected) Spaces: 4 UTF-8 CRLF {} Python 3.12.0".

The screenshot shows a web application running on "localhost:8501". The URL bar indicates the address. The page has a header with a search icon, a star icon, and other navigation icons. The main content area is titled "TeachAssist - Educational Assistant". On the left, there is a sidebar titled "Agent Configuration" with dropdown menus for "Select Agent Type" (set to "Knowledge Base Ag...") and "Select Model" (set to "us.amazon.nova-pr..."). Below this is a section titled "Teacher Agent Tools" with checkboxes for "Math Assistant", "Language Assistant", "English Assistant", "Computer Science Assistant", and "General Assistant", all of which are checked. The main body of the page contains a text input field with placeholder text "Ask your question here..." and a send button with a right-pointing arrow icon.

The screenshot shows a web browser window with the URL `localhost:8501`. The page title is "TeachAssist - Educational Assistant". On the left, there's a sidebar titled "Agent Configuration" with dropdown menus for "Select Agent Type" (set to "Knowledge Base Ag...") and "Select Model" (set to "us.amazon.nova-pr..."). Below this is a section titled "Teacher Agent Tools" with checkboxes for "Math Assistant" (checked), "Language Assistant" (checked), "English Assistant" (checked), "Computer Science Assistant" (checked), and "General Assistant" (checked). The main content area features a large input field at the bottom with the placeholder "Ask your question here..." and a red arrow icon on the right. Above the input field, there are two examples: "Solve the equation $2x^2 - 5x - 3$ " and "Processing with Teacher Agent...".

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

- File Explorer:** On the left, it lists a project structure under "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "app.py" file is currently selected.
- Terminal:** The main pane displays the output of running the Streamlit app. It shows the local URL as `http://localhost:8501` and the network URL as `http://192.168.1.31:8501`. The terminal also contains a step-by-step explanation of solving a quadratic equation $2x^2 - 5x - 3 = 0$ using a calculator tool, mentioning the discriminant and two real solutions.
- Status Bar:** At the bottom, it shows "Ln 163, Col 69", "Spaces: 4", "UTF-8", "CRLF", "Python", and "3.12.0".

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 $2x^2 - 5x - 3$

 The Math Agent has provided a detailed solution to the quadratic equation $2x^2 - 5x - 3$. Here are the key concepts and the final answer:

Key Concepts Explained:

1. **Discriminant ($b^2 - 4ac$):** This tells us about the nature of solutions:
 - o If positive: two real solutions
 - o If zero: one real solution (repeated)
 - o 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... ➤

```

User1@LIGTX9BC3 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 creation
n Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | ImagePublishingRole Resource creation
n Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::ECR::Repository | ContainerAssetsRepository Resource creation Initiated
CDKToolkit | 0/12 | 9:09:54 PM | CREATE_IN_PROGRESS | AWS::IAM::Role | LookupRole Resource creation Initiated
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 Initiated
Ln 1, Col 1 Spaces: 4 UTF-8 LF {} pip requirements

```

25°C Mostly clear

9:12 PM 12/24/2025

```

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app/docker_app
$ bash - docker_app
  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

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

```
$ 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:
  StreamlitUserPoolA6C14569:
    Type: AWS::Cognito::UserPool
    Properties:
      AccountRecoverySetting:
        RecoveryMechanisms:
          - Name: verified_phone_number
            Priority: 1
          - Name: verified_email
            Priority: 2
      AdminCreateUserConfig:
        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
      DeletionPolicy: Retain
      Metadata:
        aws:cdk:path: Streamlit/StreamlitUserPool/Resource
      StreamlitUserPoolClientDFDD860F:
        Type: AWS::Cognito::UserPoolClient
```

The terminal also shows the current working directory as `~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app`.

The screenshot shows the VS Code interface with the terminal tab active. The terminal window displays the following command and its output, which includes detailed information about a Cognito User Pool resource:

```
$ cdk synth
- DomainName
CognitoPoolId:
  Value:
    Ref: StreamlitUserPoolA6C14569
Parameters:
  BootstrapVersion:
    Type: AWS::SSM::Parameter::Value<String>
    Default: /cdk-bootstrap/hnb659fds/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)
  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)
```

The terminal also shows the current working directory as `~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app`.

User1@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 AWS679ff53fac002430cb0da5b7982bd2287/Code
Streamlit: success: Built AWS679ff53fac002430cb0da5b7982bd2287/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 AWS679ff53fac002430cb0da5b7982bd2287/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 AWS679ff53fac002430cb0da5b7982bd2287/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)

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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
```

User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/deploy-streamlit-app-2/deploy-streamlit-app

```
47120e91)
Streamlit: start: Publishing AWS679ff53fac002430cb0da5b7982bd2287/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 AWS679ff53fac002430cb0da5b7982bd2287/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)

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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 a terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]". The code displayed is a Python script for a weather forecast agent. It includes imports for `agentcore` and `weather_agentcore.py`, and defines a function `agentResult` which prints a detailed weather forecast for New York City, including temperatures, precipitation, and travel advice. The terminal also shows the command `C:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore\runtime>clear` at the bottom.

```
n***Sunday:** Warmer with rain likely, high 43°F\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!}}}\n{'result': AgentResult(stop_reason='end_turn', message={'role': 'assistant', 'content': [{'text': '\#\# Weather Forecast for New York City\\nHere's the current weather outlook for New York City:\\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 3-10 mph (much calmer)\n- **Precipitation:** 0% chance\n- Perfect clear weather for Christmas Eve activities!\n- **Tonight:**\n- ☀ **Partly Cloudy**\n- **Low:** 33°F (rising to 35°F overnight)\n- **Winds:** Northwest 3-10 mph (much calmer)\n- **Precipitation:** 0% chance\n- Perfect clear weather for Christmas Eve activities!\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 7am-1pm\n- A relatively mild Christmas with only a slight chance of light precipitation\n- **Weekend Outlook**\n- ☀ **Significant Weather Changes Coming:**\n- **Friday (Dec 26):** Chance of light snow developing, high 31°F\n- **Saturday:** Major snow event expected!\n- Snow likely with 3-7 inches possible Friday night\n- Continued snowfall with an additional 1-2 inches\n- This could be significant for travel and activities\n- **Sunday:** Warmer with rain likely, high 43°F\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!}}}, metrics=EventLoopMetrics(cycle_count=3, tool_metrics=[{'http_request': ToolMetrics(tool='toolUserId': 'tooluse_Wr0ZknI3SmzPrIkNKA3w', '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=0.1352966227118164}], cycle_durations=[10.29760193824768], traces=<strands.telemetry.metrics.Trace object at 0x0000022222C2EAE0>, <strands.telemetry.metrics.Trace object at 0x0000022222B2930>, accumulated_usage={'inputTokens': 11166, 'outputTokens': 758, 'totalTokens': 11924}, accumulated_metrics={'latencyMs': 15316}), state={}, interrupts=None, structured_output=None)}\nC:\Users\User1\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore\runtime>clear
```

The screenshot shows a terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]". The code displayed is identical to the one in the previous screenshot, showing the same weather forecast logic and terminal output. The terminal shows the command `User@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)` at the bottom.

```
data: {'result': AgentResult(stop_reason='end_turn', message={'role': 'assistant', 'content': [{'text': '\#\# Weather Forecast for New York City\\nHere's the current weather outlook for New York City:\\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 3-10 mph (much calmer)\n- **Precipitation:** 0% chance\n- Perfect clear weather for Christmas Eve activities!\n- **Tonight:**\n- ☀ **Partly Cloudy**\n- **Low:** 33°F (rising to 35°F overnight)\n- **Winds:** Northwest 3-10 mph (much calmer)\n- **Precipitation:** 0% chance\n- Perfect clear weather for Christmas Eve activities!\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 7am-1pm\n- A relatively mild Christmas with only a slight chance of light precipitation\n- **Weekend Outlook**\n- ☀ **Significant Weather Changes Coming:**\n- **Friday (Dec 26):** Chance of light snow developing, high 31°F\n- **Saturday:** Major snow event expected!\n- Snow likely with 3-7 inches possible Friday night\n- Continued snowfall with an additional 1-2 inches\n- This could be significant for travel and activities\n- **Sunday:** Warmer with rain likely, high 43°F\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!}}}, metrics=EventLoopMetrics(cycle_count=3, tool_metrics=[{'http_request': ToolMetrics(tool='toolUserId': 'tooluse_Wr0ZknI3SmzPrIkNKA3w', '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=0.1352966227118164}], cycle_durations=[10.29760193824768], traces=<strands.telemetry.metrics.Trace object at 0x0000022222C2EAE0>, <strands.telemetry.metrics.Trace object at 0x0000022222B2930>, accumulated_usage={'inputTokens': 11166, 'outputTokens': 758, 'totalTokens': 11924}, accumulated_metrics={'latencyMs': 15316}), state={}, interrupts=None, structured_output=None)}\n(AGENTIC-AI-WITH-MCP-AND-STRANDS)\nUser@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)\n$ curl http://localhost:8082/ping\n{"status": "Healthy", "time_of_last_update": "1766593130"}(agentic-ai-with-mcp-and-strands)\nUser@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands (main)
```

File Edit Selection View Go Run ... ← → ⌘ cmd uv runtime

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

EXPLORER

- 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

main* 0 0 Amazon Q 25°C Partly cloudy 10:09 PM 12/24/2025

```
(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 "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
Entry point parsed: file=C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands\agentcore\run
time\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 .dockerrignore: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands\agentcore\run
time\.dockerrignore
Keeping 'weather_agent' as default agent
Bedrock AgentCore configured: C:/Users/User1/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-str
ands\agentcore\run
time\.bedrock_agentcore.yaml
Launching Bedrock AgentCore (cloud mode - RECOMMENDED)...
  • Deploy Python code directly to runtime
  • No Docker required (DEFAULT behavior)
  • Production-ready deployment
```

File Edit Selection View Go Run ... ← → ⌘ cmd uv runtime

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG

EXPLORER

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .idea
 - .venv
 - agentcore
 - browser
 - codeinterpreter
 - gateway
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 - ! .bedrock_agentcore.yaml
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 - 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 10:09 PM 12/24/2025

```
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-2-425e2
74c35
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-2-4
25e274c35
✓ Policy attached: CodeBuildExecutionPolicy
Waiting for IAM role propagation...
CodeBuild execution role creation complete: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeB
uild-us-west-2-425e274c35
Created S3 bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
Using dockerrignore.template with 46 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 AWS Cloud9 IDE interface. 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 46 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)
✓ BUILD completed in 16.6s
! POST_BUILD started (total: 27s)
✓ POST_BUILD completed in 14.5s
! COMPLETED started (total: 42s)
✓ COMPLETED completed in 2.0s
! 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-hG9v3b970N
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 screenshot shows the AWS Cloud9 IDE interface. The terminal window displays the following log output:

```
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-hG9v3b970N
Traces delivery enabled for runtime/weather_agent-hG9v3b970N
Observability enabled for runtime/weather_agent-hG9v3b970N - logs: True, traces: True
X-Ray traces delivery enabled for agent weather_agent-hG9v3b970N
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-hG9v3b970N/runtime-endpoint/DEFAULT
Deployment completed successfully - Agent: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/weather_agent-hG9v3b970N
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-hG9v3b970N
ECR image: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-weather_agent
Agent logs available at:
/aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b970N-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]"
/aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b970N-DEFAULT --log-stream-names "otel-rt-logs"
Tail logs with: aws logs tail /aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b970N-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow
Or view recent logs: aws logs tail /aws/bedrock-agentcore/runtimes/weather_agent-hG9v3b970N-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/runtime (main)
```

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-hG9v3b970N
-----
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:** 6% 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
```

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

```
### **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
- **Precipitation:** 28% chance
- **Wind:** West winds 7-15 mph

**Thursday Night into Friday:**
- **Temperatures:** Dropping significantly - low of 25°F Thursday night, high of 31°F Friday
- **Friday:** Chance of light snow in the afternoon (40% chance)
- **Wind chill:** Values as low as 16°F Thursday night

**Weekend Snow Event:**
- **Friday Night - Saturday:** Significant snow expected
- **Friday Night:** Heavy snow likely with 3-7 inches possible (100% chance)
- **Saturday:** Continued light snow with 1-2 additional inches (100% chance)

**Sunday:** Transition to rain with highs around 43°F (70% chance)

---
### **Summary:**

Today 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!

Bundle up and stay safe, especially with those strong winds today and the upcoming winter weather!
(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 a code editor interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar is an "EXPLORER" view showing the project structure:

- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - .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.py
 - OUTLINE
 - TIMELINE

The right pane displays the content of the "Dockerfile" file:

```
agentcore > runtime > Dockerfile > FROM
  1  FROM ghc.io/astral-sh/uv:python3.12-bookworm-slim
  2  WORKDIR /app
  3
  4  # All environment variables in one layer
  5  ENV UV_SYSTEM_PYTHON=1 \
  6      UV_COMPILE_BYTECODE=1 \
  7      UV_NO_PROGRESS=1 \
  8      PYTHONUNBUFFERED=1 \
  9      DOCKER_CONTAINER=1 \
 10     AWS_REGION=us-west-2 \
 11     AWS_DEFAULT_REGION=us-west-2
 12
 13
 14
 15 COPY requirements.txt requirements.txt
 16 # Install from requirements file
 17 RUN uv pip install -r requirements.txt
 18
 19
 20
 21
 22 RUN uv pip install aws-opentelemetry-distro==0.12.2
 23
 24
 25 # Signal that this is running in Docker for host binding logic
 26 ENV DOCKER_CONTAINER=1
 27
 28 # Create non-root user
 29 RUN useradd -m -u 1000 bedrock_agentcore
```

Bottom status bar: Ln 1, Col 1 Spaces: 4

The screenshot shows a code editor interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar is an "EXPLORER" view showing the project structure, identical to the first screenshot.

The right pane displays the content of the ".bedrock_agentcore.yaml" file:

```
! .bedrock_agentcore.yaml < X
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
 12    aws:
 13      execution_role: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKRuntime-us-west-2-425e2
 14      execution_role_auto_create: false
 15      account: '891377318455'
 16      region: us-west-2
 17      ecr_repository: 891377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-weather_agent
 18      ecr_auto_create: false
 19      s3_path: null
 20      s3_auto_create: false
 21      network_configuration:
 22        network_mode: PUBLIC
 23        network_mode_config: null
 24      protocol_configuration:
 25        server_protocol: HTTP
 26      observability:
 27        enabled: true
 28      lifecycle_configuration:
 29        idle_runtime_session_timeout: null
        max_lifetime: null
```

Bottom status bar: Ln 1, Col 1 Spaces: 2 UTF-8 CRLF {} YAML < X

The screenshot shows the VS Code interface with the file `.bedrock_agentcore.yaml` open in the editor. The code defines an agent named `weather_agent` using the `codebuild` runtime. The runtime configuration includes an execution role, source bucket, memory settings (mode: NO_MEMORY), and event expiry days (30). It also specifies AWS IAM roles, audiences, and signing algorithms.

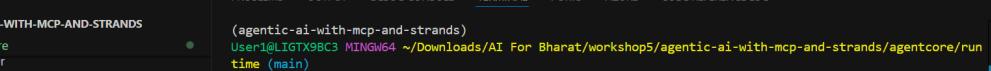
```
agents:
  weather_agent:
    codebuild:
      execution_role: arn:aws:iam::891377318455:role/AmazonBedrockAgentCoreSDKCodeBuild-us-west-2-425
      source_bucket: bedrock-agentcore-codebuild-sources-891377318455-us-west-2
      memory:
        mode: NO_MEMORY
        memory_id: null
        memory_arn: null
        memory_name: null
      event_expiry_days: 30
      first_invoke_memory_check_done: false
      was_created_by_toolkit: false
    identity:
      credential_providers: []
      workload: null
    aws_jwt:
      enabled: false
      audiences: []
      signing_algorithm: ES384
      issuer_url: null
      duration_seconds: 300
      authorizer_configuration: null
      request_header_configuration: null
      oauth_configuration: null
      api_key_env_var_name: null
      api_key_credential_provider_name: null
      is_generated_by_agentcore_create: false
```

The screenshot shows the VS Code interface with the terminal tab active. The user runs the command `$ uv run cleanup_agents.py` to delete a runtime named `weather_agent`. The terminal output shows the confirmation message and the success of the deletion.

```
(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: weather_agent (ID: weather_agent-hg9v3b970N)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime weather_agent
-
(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 user runs the command `$ uv run mcp_client_local.py` to execute a local MCP client. The terminal output shows the execution of the `mcp_client_local.py` script, which handles operations like adding numbers and greeting users.

```
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.py
requirements.txt
utils.py
> OUTLINE
> TIMELINE
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, description='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={'properties': {'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': {'title': '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'}], icons=None, annotations=None, meta=None, execution=None), Tool(name='greet_user', title=None, description='Greet a user by name', inputSchema={'properties': {'name': {'title': 'Name', 'type': 'string'}}, required:[{'name': 'name'}], title='greet_userArguments', type='object'}, outputSchema={'properties': {'result': {'title': 'Result', 'type': 'string'}}, required:[{'result': '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)
$ 
```



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

- File Explorer:** Shows a tree view of files and folders related to "AGENTIC-AI-WITH-MCP-AND-STRANDS".
 - agentcore:** Contains "browser", "codeinterpreter", "gateway", "identity", "memory", and "runtime".
 - runtime:** Contains ".bedrock_agentcore.yaml", ".dockerrunignore", ".env", "deploy_agent_from_ecr.py", "Dockerfile", "invoke_agent.py", and "mcp_client_local.py".
- Terminal:** Displays the command-line output of a bash session:

```
(agentic-ai-with-mcp-and-strands)
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 Editor interface. On the left, the file structure of the function is displayed:

- EXPLORER
- AGENTIC-AI-WITH-MCP-AND-STRANDS
 - agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
 - runtime
 - bedrock_agentcore\mcp_server
 - ! .bedrock_agentcore.yaml
 - .dockerignore
 - .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.nv
- OUTLINE
- TIMELINE

On the right, the configuration steps for the function are listed:

- (agentic-ai-with-mcp-and-strands)
- User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
- \$ agentcore configure -e mcp_server.py --protocol MCP
Configuring Bedrock AgentCore...
- ✓ Using file: mcp_server.py
- ◆ Inferred agent name: mcp_server
Press Enter to use this name, or type a different one (alphanumeric without '-')
Agent name [mcp_server]: mcp_server
✓ Using agent name: mcp_server
- 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
- 🔒 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
- [E] 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

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 "AGENTIC-AI-WITH-MCP-AND-STRANDS", including ".bedrock_agentcore.yaml", ".env", and various Python scripts like "invoke_agent.py" and "mcp_client_local.py". The Terminal tab is active, displaying configuration steps:

- ECR Repository URI (or press Enter to auto-create): Will auto-create ECR repository
- Authorization Configuration**: By default, Bedrock AgentCore uses IAM authorization. Configure OAuth authorizer instead? (yes/no) [no]: yes
- OAuth Configuration**: Enter OAuth discovery URL: https://cognito-idp.us-west-2.amazonaws.com/us-west-2_MjjtqTM3k/.well-known/openid-configuration
- Enter allowed OAuth client IDs (comma-separated): 75dhio0303918ohqet3nk75f0h
- Enter allowed OAuth audience (comma-separated):
- Enter allowed OAuth allowed scopes (comma-separated):
- Enter allowed OAuth custom claims as JSON string (comma-separated):
- OAuth authorizer configuration created
- Request Header 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

At the bottom, status bar: 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 "AGENTIC-AI-WITH-MCP-AND-STRANDS", including ".bedrock_agentcore.yaml", ".env", and various Python scripts like "invoke_agent.py" and "mcp_client_local.py". The Terminal tab is active, displaying configuration steps:

- 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

At the bottom, status bar: 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 root "AGENTIC-AI-WITH-MCP-AND-STRANDS". The terminal tab is active, displaying the following configuration details:

```
⚠️Platform mismatch: Current system is 'linux/amd64' but Bedrock AgentCore requires 'linux/arm64', so local builds won't work.  
Launch command which will do a remote cross-platform build using code build. For  
Follow link (ctrl + click) for more information 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
```

The status bar at the bottom indicates "Ln 118, Col 1" and "Spaces: 2" and "UTF-8".

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 root "AGENTIC-AI-WITH-MCP-AND-STRANDS". The terminal tab is active, displaying the output of the "agentcore launch" command:

```
User1@LIGTX98C3 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/bedrock-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: AmazonBedrockAgentCoreSDKRuntime-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/AmazonBedrockAgentCoreSDKRuntime-us-west-2-f6e3659767  
Launching Bedrock AgentCore...Execution policy attached: BedrockAgentCoreRuntimeExecutionPolicy-mcp_server  
Role creation complete and ready for use with Bedrock AgentCore
```

The status bar at the bottom indicates "Ln 118, Col 1" and "Spaces: 2" and "UTF-8".

The screenshot shows the AWS Lambda console interface. On the left, the 'EXPLORER' sidebar lists the project structure:

- AGENTIC-AI-WITH-MCP-AND-STRANDS
- agentcore
 - browser
 - codeinterpreter
 - gateway
 - identity
 - memory
- runtime
 - .bedrock_agentcore
 - !.bedrock_agentcore.yaml
 - .dockerrignore
 - .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.nu
- OUTLINE
- TIMELINE

The main area displays deployment logs:

```
Deployment completed successfully - Agent: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jc2Bx1FQZW
Agent Details:
Agent Name: mcp_server
Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jc2Bx1FQZW
ECR URI: 901377318455.dkr.ecr.us-west-2.amazonaws.com/bedrock-agentcore-mcp_server:latest
CodeBuild ID: bedrock-agentcore-mcp_server-builder:900450f-ccdd-4390-8dfc-e32cc4cb1cad

🚀 ARM64 container deployed to Bedrock AgentCore

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

💡 CloudWatch Logs:
 aws/bedrock-agentcore/runtimes/mcp_server-jc2Bx1FQZW-DEFAULT --log-stream-name-prefix "2025/12/24/[runtime-logs]"
 aws/bedrock-agentcore/runtimes/mcp_server-jc2Bx1FQZW-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-jc2Bx1FQZW-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --follow
aws logs tail /aws/bedrock-agentcore/runtimes/mcp_server-jc2Bx1FQZW-DEFAULT
--log-stream-name-prefix "2025/12/24/[runtime-logs]" --since 1h
```

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

User1@LGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run

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

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
 - .dockerignore
 - .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

```
VzZXIUyWrtal4iLCJhdXRox3RpbwUiOjE3NjY1OTU4MTYsImV4cCI6MTc2NjU5OTQxNiwiWF0IjoxNzY2NTk1ODE2LCJqdGkiOjJzDNNi5NCBwNzFmLTQ2NmzTYJfhZSB3NjVmMzgwZTII3TAiLC1c2VybmtFzSI6Inrlc3Rlc2VyIn0.1Poe9EsmaHft6LQ3ILQmVSXkZ59I2VLb95xC6TvU5ekAw4y0OvubkVrT8Pezoj-nK6fbeiwrpChud2MjNtFeezk7WubMxKlw7JNpZvjbysLYRREGsODroUz2_Nh3ztw8VpcNzoxB6u5krbjwpf4gfYDB-REsC6_rbhC8MDvoUpwfTuVmnmKFg6aztPaUNBFLG7qYh01TfLjLxa50ucXr-AAFDah-Alt8Xk0vsjaOF1b8x5tCEPHArId4y40qLeirz-LqgIWHu-kVsu0111psd51xWHMwFnf0gU5nuTU9Juub52BEigxwWwV4y7Xf0azqq7GCX00rf5PP0ZUwUsing region: us-west-2
Using the first agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jab28x1FQZW
Agent ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/mcp_server-jab28x1FQZW
Bearer Token: eyJraWQiOjE6S044SUFLalpCZU1ROTBMQzArK2E3VHrTlwdDJInBuZtXsjZUdHN0D0ilCjhGcioiJSUzIiNiJ9.eyJzdWIiOiIxGUxNzIMC03MGIXLTCwMTKtY2FjZC0yMzRM2M1ZGMwNGQ1LCjpc3MioiodHrwczpcLiwY29nbml0by1pZHAudXmtd2VzdC8yLmfYXpvbmF3cyjzb1cL3VzLxd1c3QmI9Namp0cVRNM2siCjbg1bnRfaQioiI3NWRoaWbwMzA2TEbzxZQzbms3NWZvaCisIm9yaWdpbl9qddkiOjIbZmRkZwfkZC91NzK1LTrjNTTeTyTh1ZC03YjUyYzM3YjFkN2QilCj1dmVudf9pZC16j1A1N2QxZGI1LTd1zMytNGZ1NyimDlhlTAz2Mz4GZkMjIwZCisInRva2Vx3vZS16fJzIoiYXzdLMvz25pdG8uc2lnbm1uLnVzZXIUyWrtal4iLCJhdXRox3RpbwUiOjE3NjY1OTU4MTYsImV4cCI6MTc2NjU5OTQxNiwiWF0IjoxNzY2NTk1ODE2LCJqdGkiOjJzDNNi5NCBwNzFmLTQ2NmzTYJfhZSB3NjVmMzgwZTII3TAiLC1c2VyIn0.1Poe9EsmaHft6LQ3ILQmVSXkZ59I2VLb95xC6TvU5ekAw4y0OvubkVrT8Pezoj-nK6fbeiwrpChud2MjNtFeezk7WubMxKlw7JNpZvjbysLYRREGsODroUz2_Nh3ztw8VpcNzoxB6u5krbjwpf4gfYDB-REsC6_rbhC8MDvoUpwfTuVmnmKFg6aztPaUNBFLG7qYh01TfLjLxa50ucXr-AAFDah-Alt8Xk0vsjaOF1b8x5tCEPHArId4y40qLeirz-LqgIWHu-kVsu0111psd51xWHMwFnf0gU5nuTU9Juub52BEigxwWwV4y7Xf0azqq7GCX00rf5PP0ZUwInvoking: https://bedrock-agentcore.us-west-2.amazonaws.com/runtimes/arn%3Aaws%3Abedrock-agentcore%3Aus-west-2%3A891377318455%3Aruntime%2Fmcp_server-jab28x1FQZW/involcations?qualifier=DEFAULT, with headers: {'authorization': 'Bearer eyJraWQiOjE6S044SUFLalpCZU1ROTBMQzArK2E3VHrTlwdDJInBuZtXsjZUdHN0D0ilCjhGcioiJSUzIiNiJ9eyJzdWIiOiIxGUxNzIMC03MGIXLTCwMTKtY2FjZC0yMzRkM2M1ZGMwNGQ1LCjpc3MioiodHrwczpcLiwY29nbml0by1pZHAudXmtcpl1vV29nbml0by1pZHAudXmt2vzdc0yLmfYXpvbmF3cyjzb1cL3VzLxd1c3QmI9Namp0cVRNM2siCjbg1bnRfaQioiI3NWRoaWbwMzA2TEb2h2xZQzbms3RoalBwMzAz0tE4b2h2xZQzbms3NWZvaCisIm9yaWdpbl9qddkiOjI0i0z2mRkZwfkZC01NzK1LTrjNTTeTyTh1ZC03YjUyYzM3YjFkN2QilCj1dmVudf9pZC16j1A1N2QxZGI1LdmVudf9pZC16j1A1N2QxZG11TdiZmYtNGZ1Ny1imD1hLTazh2Mz4GZkMjIwZCisInRva2Vx3vZS16fJzIoiYXzdLMvz25pdG8uc2lnbm1uLnVzYXzdLMvz25pdG8uc2lnbm1uLnVzZK1UYWrtal4iLCJhdXRox3RpbwUiOjE3NjY1OTU4MTYsImV4cCI6MTc2NjU5OTQxNiwiWF0IjoxNzY2NTk1ODE2LCJqdGkiOjJzDNNi5NCBwNzFmLTQ2NmzTYJfhZSB3NjVmMzgwZTII3TAiLC1c2VyIn0.1Poe9EsmaHft6LQ3ILQmVSXkZ59I2VLb95xC6TvU5ekAw4y0OvubkVrT8Pezoj-nK6fbeiwrpChud2MjNtFeezk7WubMxKlw7JNpZvjbysLYRREGsODroUz2_Nh3ztw8VpcName: mcp_server (ID: mcp_server-jab28x1FQZW)
User1@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
$ cd ..
(agentic-ai-with-mcp-and-strands)
User1@IGTX9BC3 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: mcp_server (ID: mcp_server-jab28x1FQZW)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime mcp_server
-
(agentic-ai-with-mcp-and-strands)
User1@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$
```

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
 - .dockerignore
 - .env
 - deploy_agent_from_ecr.py
 - Dockerfile
 - invoke_agent.py
 - mcp_client_local.py

cmd bash agent...

```
(agentic-ai-with-mcp-and-strands)
User1@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/run time (main)
$ cd ..
(agentic-ai-with-mcp-and-strands)
User1@IGTX9BC3 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: mcp_server (ID: mcp_server-jab28x1FQZW)
Are you sure you want to delete this runtime? (y/n): y
Successfully deleted runtime mcp_server
-
(agentic-ai-with-mcp-and-strands)
User1@IGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$
```

Inbound:

The screenshot shows a terminal window with the following details:

- File Edit Selection View Go Run ...**
- PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG**
- uv - identity + ...**

EXPLORER pane:

- AGENTIC-AI-WITH-MCP-AND-STRANDS**
 - > _pycache_
 - > _idea
 - > .venv
 - > agentcore
 - _pycache_
 - browser
 - codeinterpreter
 - gateway
 - identity
 - ! .bedrock_agentcore.yaml
 - .dockergignore
 - 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

TERMINAL pane:

```
(agentic-ai-with-mcp-and-strands)
User1@IGTX9KC3 MINGW64 ~/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_2CfIRk237
Discovery URL: https://cognito-idp.us-west-2.amazonaws.com/us-west-2_2CfIRk237/.well-known/openid-configuration
Client ID: 3gith8sbo3t4egqfk5mgqfruf
Bearer Token: eyJraWQjQlo1PSGZmV1AOxQnQjUVjCgZyZ1rSmNxWfwT29HUFz1RUW0cFp6Tlo0s5j1Rt0i1CjhGciOijSuZ1iNiJ9.eyJzdwiIi0iI00DYxJyHSMC03MGmLwCmVjQtMjB08N1kjYzRzJNTj9jklCjP3mioiHrwzcpz1lWv29Nmlb0yipZAuthMd2DzvD0yLMfybmf3c5yj21cl3vzL
Xdc1QtM1ByQ2ZUmstySjcjLjCjBn1lnRfaQioiZz2px0DhzGB8zN2k07WdxZms1bwldqCwTj3IsIm9yaWdpb1qdGkiO130DBNTm1i0y101TRhZQ
tyJdky0wN2RHTOTAA2QDZDNEi1Cjd1mdVud9pZC1i6M1m4j4ZGzjLtczDktdNdyYb4mJmLTixNgYNTkhdCyoISiRwv2Xu3VzS16imfjY2Vzcyls1
njb381Rjoi9pZC1i6M1m4j4ZGzjLtczDktdNdyYb4mJmLTixNgYNTkhdCyoISiRwv2Xu3VzS16imfjY2Vzcyls1
20TE4LCjQdgkci01I4MjdMjE2M0jQOM8L7Q1MDUyExz1i10G1M2124MGuJGUiLc1C12v2YomptZS16InRlc3R1CvVIn0. VLTW1JZTH3SESlRts6_hlam
ieUMz940uVMx-8sEn5XaTPxT9YxxsfEyAtLysdL65oF1tV_FJ14lszAd2mMs1kaGnpThPr0z97tWaNycqkILAnKvIRaBu39sFL8o712VqT0kjg5d7A
MTMqKwLsHct-awvo2IBBhdAzKfEG37KH2n-uh1Mz02jHrt0ea0DGLP78bW-5p-vJH-rVJKerT2eM6HSDfig6jg2r8tnBXZfRO-XH5h1AdECbgn9LKAEVZ0
BLHSAs_mz079PaKuicrheRpr0QkHxsstVpTDy50c3...So_1eu6LR4tE0VesPvRVOgoEa
Password stored in Parameter Store: /cognito/us-west-2_2CfIRk237/testuser/password
Cognito setup completed ✓
Entrypoint parsed: file=:/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
```

The screenshot shows the AWS Lambda console interface. At the top, there's a search bar with the text "agentic-ai-with-mcp-and-strands [Administrator]". The left sidebar has sections for "EXPLORER", "OUTLINE", and "TIMELINE". The "EXPLORER" section lists several files and folders under a root folder "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "agentcore" folder contains "identity", ".bedrock_agentcore.yaml", ".dockerrigignore", "agentcore_identity_inbound.py", "create_creds_provider.py", "Dockerfile", "requirements.txt", "strands_agents_openai.py", and "strands_claude.py". Other items include ".memory", ".runtime", "agentcore_utils.py", "agentcore_code-changes.png", "cleanup_agents.py", and "deploy_to_agentcore.py". The "OUTLINE" and "TIMELINE" sections are collapsed.

On the right, the main pane displays the following log output:

```
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 dockerrigignore.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]" --follow
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": "\\"It's sunny right now! Looks like a great day to spend some time outside or enjoy some outdoor activities. Would you like to know anything else about the current weather?\\\""
}
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/identity (main)
$ 

```

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


```

$ 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)
$ 

```

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

=====

Outbound:

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

Add credits X
Run your next API request

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

__pycache__ .idea .venv agentcore

pycache browser codeinterpreter gateway identity

{ agentcore.json ! .bedrock_agentcore.yaml .dockerignore agentcore_identity_inbound.py

entity (main)

\$ uv run create_creds_provider.py

['ResponseMetadata': {'RequestId': '6cc18da8-e095-4129-8b28-cdc65154f10', '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-cdc65154f10', 'x-amzn-reddited': 'x-amzn-requestid': '93eeb8d-d3cc-4d92-b4eb-8c54b3de41c2', 'x-amzn-remapped-content-length': '335', 'x-amzn-remapped-connection': 'keep-alive', 'x-amz-apigw-id': 'W6GpkFASPHcEcwA=', 'x-amzn-trace-id': 'Root=1-6942c2ea-5403babc3850a13c24b481b7', 'x-amzn-remapped-datetime': 'Wed, 24 Dec 2025 17:29:14 GMT', 'RetryAttempts': 0}, 'apiKeySecretArn': {'secretArn': 'arn:aws:secretsmanager:us-west-2:891377318455:secret:bedrock-agentcore-identity/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)

User@LILGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/ide

entity (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-Qs2uNfpMiEMx4JoHIZKFsJ5QuzfZD2p3yCuL6Yg4Ys-2CUT3B1bkJKzXeZJN-ZZjscoRyoGtFR_YdaxMuLg6hnoGL04RuGqv3_Kldmtx6TKra_1Ckkp0183K1YA

API key retrieved: 'sk-proj-gkyEH8us8kdzL20rvtpAkKCipYZ-Qs2uNfpMiEMx4JoHIZKFsJ5QuzfZD2p3yCuL6Yg4Ys-2CUT3B1bkJKzXeZJN-ZZjscoRyoGtFR_YdaxMuLg6hnoGL04RuGqv3_Kldmtx6TKra_1Ckkp0183K1YA'

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/BerriAI/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

main.c 0 0 Amazon Q

Nathaniel (4 months ago) Ln 35, Col 10 Spaces: 4 UTF-8 CRLF () Python 3.12.12 (agentic-ai-with-mcp-and-strands) 11:59 AM

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User1@LIGTX98C3 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@LIGTX98C3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
$ uv run 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: 50nuhlsijsdiiumpu7p8vh3blr
Cognito Discovery URL: https://cognito-idp.us-west-2.amazonaws.com/us-west-2_XdGRqz6IG/.well-known/openid-configuration

(3) Creating AgentCore Gateway.....
{
```

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

(3) Creating AgentCore Gateway.....
{

```
"ResponseMetadata": {
  "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-1-694c26c6-7c82e9cc65162d28016c4d0df",
    "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",
"protocolType": "MCP",
"authorizerType": "CUSTOM_JWT",
"authorizerConfiguration": {
```

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

The screenshot shows the Microsoft Visual Studio Code interface. The left sidebar displays the 'EXPLORER' view with the project structure:

- AGENTIC-AI-WITH-MCP-AND-STRANDS
- __pycache__
- idea
- .venv
- agentcore
- __pycache__
- browser
- codeinterpreter
- gateway
 - openapi-specs
 - .env
 - create_agentcore_gateway_oai.py
 - create_agentcore_gateway.py
 - delete_agentcore_gateway_oai.py
 - invoke_agentcore_gateway.py
 - 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

The right pane shows the content of a JSON file named 'agentcore/gateway/tool_update_order_id.json'. The code is as follows:

```
        "orderTool": {
            "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)
User@LIXT98C3 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_xdGRqz6lG
CLIENT_ID=50nuh1s1jsd1pu0mpu7p8vh3blr
CLIENT_SECRET=rfdce2dbhbgb59krg2d5k14fmnnescjka38pvtc8psfsfq1rqm
SCOPE_STRING=sample-agentcore-gateway-id/gateway:read sample-agentcore-gateway-id/gateway:write
GATEWAY_URL=https://testgwforlambda-rgerkl0vqn.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 Microsoft Visual Studio Code interface with the following details:

- File Explorer:** On the left, it lists the project structure under "AGENTIC-AI-WITH-MCP-AND-STRANDS".
- Terminal:** The main area shows the terminal output of a script named "agentcore_gateway.py".
- Output:** A tab labeled "OUTPUT" is visible at the top.
- Code Reference Log:** A tab labeled "CODE REFERENCE LOG" is visible at the top.
- Bottom Status Bar:** Shows file paths like "main.py", line counts (Ln 35, Col 10), and other system information.

Terminal Output:

```
(agentic-ai-with-mcp-and-strands)
User@LGTX9B3 MINIM64 ~/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 autorizer...
50nhuhls1jsd1umpu7p8hbblr
rdcce2db0hbgb59kr2d5k14fmnnescjka38pvtc8psfsfq1rqm
Cogito Token:
eyJrJzWlIwTdwH0Zm23ciisInRva2VxZvZSISfjy2VzcylsInNjbsLljioc2fPtxGxlWfNzW50Y29yZS1nYXRlRdF5LwLlkC9nYXRLd2F50ndyaXRlHNhbXBsZS1hZ2vudGnvcmUtzF2ZxhdsIspZfwZvZ2F0ZxhneTpzWnfkiwiYX0af90aWlljoxhY2NT4KNDYwLClJpc3Mio1JodRhwcpcLiwY29bm10by1pZHAudXtId2vZG9yLmtFyxpvbmfc3Yj2z1L3v2LxLdc3Qm19yEdScx0z5u1C1leMaHej30n9Y2MD1wAsIm1hdEiMtczNy1US0DQ25WcdmWzv1cblv1GdwianRpIj0iZQ5Zm0NzQntgtZmQ0Ny00PTASLThMzQntQ24JwNm05zmu2J1w1y2xpZw50X21kLjntNBUdGxzcFqZavxTvhcUs3ch2aDN1hIIQ_WfpAAGVN-hPtDjg04Na_1D1zZPfGjp25mBoPHCDW51gXk_NiWHA2Jxn_X_-P6767hp4rt6UmzDd_7DRYmTlhk1w19ikjV5ml_s_ZCDUcgykuQmtdyMPafI0t9w7h-sy67Qo7t6YGSQm2o9E6ZLZU2P1IZz_-NUWI_2F_Pccqlu1kvsvzFLW6RnOSeOnkypkas7mzV4Zq37NokgaxcmzAOA0JlwHffrjwePc-2hKr2cEkBjgkPMejtVjZaujhohthhs5-v0TPzPgpkjTzX-2f-QigtV7Tbxta6nbA_ouXan6b18s9jPisMj9BhgXkxiUiq6301cehig

2025-12-24 23:17:43 | INFO | botocore.credentials | Found credentials in environment variables.
2025-12-24 23:17:45 | INFO | https | HTTP Request: POST https://testgwforlambda-rgerkl0vnq.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp "HTTP/1.2 200 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 | https | 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 | https | 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**
```

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

- File Explorer:** On the left, it lists a project structure under "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "agentcore" folder contains several files: .idea, .venv, create_agentcore_gateway_oai.py, create_agentcore_gateway.py, delete_agentcore_gateway_oai.py, invoke_agentcore_gateway.py, 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, and requirements.txt.
- Terminal:** The main area displays the output of an AI tool catalog. It starts with a header: "Here are the tools available to me:" followed by two entries:
 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`.
- 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:**

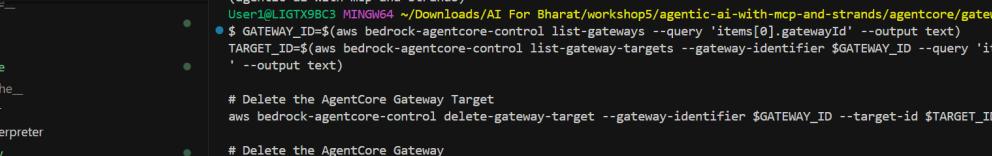
{
 "statusCode": 200,

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

- EXPLORER**: Shows the project structure for "AGENTIC-AI-WITH-MCP-AND-STRANDS". The "agentcore" folder contains several Python files: "create_agentcore_gateway_oai.py", "delete_agentcore_gateway_oai.py", "invoke_agentcore_gateway.py", "lambda_function_code.zip", "strands_agent_oai_nasa.py", "agentcore_utils.py", "agentcore-code-changes.png", "cleanup_agents.py", "deploy_to_agentcore.py", and "requirements.txt". Other folders like ".pycache_" and ".idea" are also present.
- PROBLEMS**: Displays two error messages:
 - `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. </thinking>
- TERMINAL**: Shows the command-line output:

```
Tool #1: LambdaUsingSDK__get_order_tool
2025-12-24 23:17:51 | INFO | httpx | HTTP Request: POST https://testgwfamazonaws.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://testgwfamazonaws.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)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-wi
```



```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 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": "V7YNJHWMQF",
    "status": "DELETING"
}
{
    "gatewayId": "testgwforlambda-rgerkl0vnq",
    "status": "DELETING"
}
{
    "statusCode": 204
}

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

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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 bash - gateway + ...
AGENTIC-AI-WITH-MCP-AND-STRANDS
    __pycache__ .idea .venv agentcore
        __pycache__
        browser codeinterpreter
    gateway
        openapi-specs
            env
                create_agentcore_gateway_oai.py
                create_agentcore_gateway.py
                delete_agentcore_gateway_oai.py
                invoke_agentcore_gateway.py
                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

AqoOjuNF5l0z9vtXe5VGK0P1ebNEGUNnTrBP4Q0W7JGM2y0VECx36z_Y2WhedoFF2aYdCDoyCTCA5qz1wTLHFaV2cRTzG2F1MaS283NMQ
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 2023 15:52:11 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: demogopenapiapikeynasaoci-hgp3damvnd
Credential Provider ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:token-vault/default/apikeycredentialprovider/NasaInsightAPIKey
OpenAPI S3 URI: s3://agentcore-gateway-891377318455-us-west-2:nasa_mars_insights_openapi.json

== Gateway Setup Complete ==
Gateway URL: https://demogopenapiapikeynasaoci-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
Gateway ID: demogopenapiapikeynasaoci-hgp3damvnd
Target ID: BWRM54EIP
Access Token: eyJraWQlo1ZrEFPRNUVRSwR0SI1ZUhiaHnPWFhUOE10Y01RVRGVWDZD1RNdic1hYz1wWt0iLjChGciOjJSUz1NIj9eyJzdWii0i1IMG51dF7MzbZDFpdW1dDzW0HmZJscisIInRvaWzXv3ZzSI6mJgj2V2zcyslns1j381Ljzic2FtcgxlFnWz58y29yNxr1dzP51WxkC9yNxr1d2f50ndyaXRL1NhbxZs1ZhnBwdQnvCmUzTzZ0F2BxZdheTpVzNfKliw1YX0Ba9w11IjoxZyNTkNtIu4LCJpc3M0IjRhdRwcZpl1wV29nbml0by1ZHAudMtd2vDz0yLnFtYXpvbmF3cy5jb21c3VzLxd1c3Qt1Y9EdScx02SuCilCjleHai0jE3NjY2MDzJmgsImhldCI6MtC2NjU5D0cyOcwidmyc21vb16MiwiianPrjoi0jNDRKdwuZnUtmjhM10@My11WEYnTAtym1MDyW0TxKdxR21yv1Yz2pX582X1k1joi1NBudigxzcFcq2xaVtch03Dn2dAnhiHftP.y0x1Ks57iijTzKtGZQ8fzRtkD0kWt0vTaYiKtKn8AkkzZzUpvBtqyMabRin14gr19o13g7zXzKxtsFhopRlp7uQzC51Gz1ubXvBnZ215zNMu-sMTFR4f1_HduGmGm70HJaahCv_p_9M1pxjWA7Heod2-Q21dgsF3B8e8R1lg0eEL1DB_5_fgtRdM1x-MUzzp7w4HwSoppIS8c9MjYLyL3yCwLwqoOjuNF5l0z9wtXe5VGK0P1ebNEGUNnTrBP4Q0W7JGM2y0VECx36z_Y2WhedoFF2aYdCDoyCTCA5qz1wTLHFaV2cRTzG2F1MaS283NMQ

Environment variables exported:
GATEWAY_URL=https://demogopenapiapikeynasaoci-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
ACCESS_TOKEN=eyJraWQlo1ZrEFPRNUVRSwR0SI1ZUhiaHnPWFhUOE10Y01RVRGVWDZD1RNdic1hYz1wWt0iLjChGciOjJSUz1NIj9eyJzdWii0i1IMG51dF7MzbZDFpdW1dDzW0HmZJscisIInRvaWzXv3ZzSI6mJgj2V2zcyslns1j381Ljzic2FtcgxlFnWz58y29yNxr1dzP51WxkC9yNxr1d2f50ndyaXRL1NhbxZs1ZhnBwdQnvCmUzTzZ0F2BxZdheTpVzNfKliw1YX0Ba9w11IjoxZyNTkNtIu4LCJpc3M0IjRhdRwcZpl1wV29nbml0by1ZHAudMtd2vDz0yLnFtYXpvbmF3cy5jb21c3VzLxd1c3Qt1Y9EdScx02SuCilCjleHai0jE3NjY2MDzJmgsImhldCI6MtC2NjU5D0cyOcwidmyc21vb16MiwiianPrjoi0jNDRKdwuZnUtmjhM10@My11WEYnTAtym1MDyW0TxKdxR21yv1Yz2pX582X1k1joi1NBudigxzcFcq2xaVtch03Dn2dAnhiHftP.y0x1Ks57iijTzKtGZQ8fzRtkD0kWt0vTaYiKtKn8AkkzZzUpvBtqyMabRin14gr19o13g7zXzKxtsFhopRlp7uQzC51Gz1ubXvBnZ215zNMu-sMTFR4f1_HduGmGm70HJaahCv_p_9M1pxjWA7Heod2-Q21dgsF3B8e8R1lg0eEL1DB_5_fgtRdM1x-MUzzp7w4HwSoppIS8c9MjYLyL3yCwLwqoOjuNF5l0z9wtXe5VGK0P1ebNEGUNnTrBP4Q0W7JGM2y0VECx36z_Y2WhedoFF2aYdCDoyCTCA5qz1wTLHFaV2cRTzG2F1MaS283NMQ

User@LIGTXBC3 MINING64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/gateway (main)
φ Nathaniel (4 months ago) Ln 35, Col 10 Spaces: 4 UTF-8 CRLF () Python 3.12.12 (agentic-ai-with-mcp-and-strands)
```

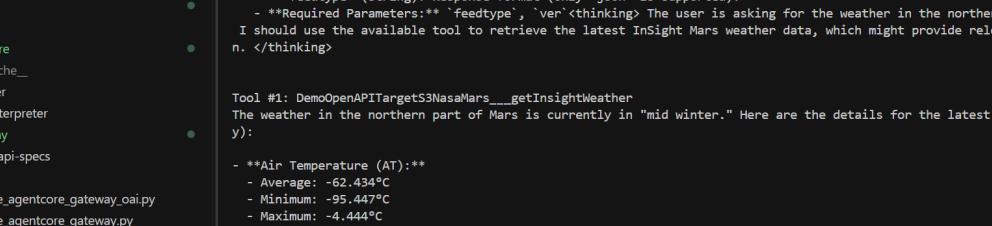
The screenshot shows a development environment with the following interface elements:

- File Edit Selection View Go Run ...**
- PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG**
- bash - gateway**
- EXPLORER** sidebar listing project files and folders.
- TERMINAL** pane displaying command-line output:

 - \$ echo \$GATEWAY_URL
https://demogopenapiapikeynasa0ai-hgp3damvnd.gateway.bedrock-agentcore.us-west-2.amazonaws.com/mcp
 - (agentic-ai-with-mcp-and-strands)
 - User1@LIGTX9BC3 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://demogopenapiapikeynasa0ai-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>

- OUTPUT** pane showing tool descriptions and weather details:

 - 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.
 - n. </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



```
- `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 (WWS):**
- 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: {"ver": "1.0", "feedtype": "json", "at": -62.434, "w": 5.632, "p": 743.55, "wd": "WNW", "dt": "2020-10-19T18:32:20Z", "w": 18.577, "mn": 718.463, "mx": 760.2244, "m": 22.455, "y": 2020, "mon": "October", "d": 19, "h": 11, "s": "mid winter", "lat": 67.5, "lon": -125.7, "n": "Northern", "s": "Southern", "a": "fall", "r": "early summer", "c": "InSight", "t": "Mars", "u": "https://api.nasa.gov/mars/weather/insight/1.0/?sol=1&feedtype=json"} Nathaniel (4 months ago) In 35 Col 10 Spaces: 4 UTF-8 CRLF () Python 3.12.12 (agentc-ai-with-mcp-and-strands)
```

```
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 BWRLM54EIP
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)
○ $
```

====

```
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-8DCG0s8Vnp
Memory Arn: arn:aws:bedrock-agentcore:us-west-2:891377318455:memory/CustomerSupportAgentMemory-8DCG0s8Vnp
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-8DCG0s8Vnp",
    "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": "Hello! How can I assist you with your order?"
          }
        }
      }
    ]
  }
]
```

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

The screenshot shows the VS Code interface with the file `short_term_memory.py` open in the editor. The code defines a class `MemoryClient` with methods for handling conversational and semantic memory. It includes logic for creating and updating memory items based on user input and tool interactions.

```
        },
        {
            "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"
        }
    }
]
```

====

The screenshot shows the VS Code interface with the terminal tab active, displaying the output of running `customer_support_agent.py`. The log shows the application initializing tools, connecting to MemoryClient, and successfully creating new memory items for customer preferences and semantic facts.

```
$ uv run customer_support_agent.py
2025-12-24 23:37:13,870 - INFO - Web search tool ready
2025-12-24 23:37:13,870 - 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
[
    {
        "strategyId": "CustomerPreferences-qm51fp3xV8",
        "name": "CustomerPreferences",
        "description": "Captures customer preferences and behavior",
        "type": "USER_PREFERENCE",
        "namespaces": [
            "support/customer/{actorId}/preferences"
        ],
        "createdAt": "2025-12-24 23:37:12.315000+05:30",
        "updatedAt": "2025-12-24 23:37:12.530000+05:30",
        "status": "ACTIVE",
        "memoryStrategyId": "CustomerPreferences-qm51fp3xV8",
        "memoryStrategyType": "USER_PREFERENCE"
    },
    {
        "strategyId": "CustomerSupportSemantic-BISybja7Qo",
        "name": "CustomerSupportSemantic",
        "description": "Stores facts from conversations",
        "type": "SEMANTIC",
        "namespaces": [
            "support/customer/{actorId}/semantic"
        ],
        "createdAt": "2025-12-24 23:37:12.315000+05:30",
        "updatedAt": "2025-12-24 23:37:12.530000+05:30"
    }
]
```

The screenshot shows a developer's interface with an open terminal window titled "agentic-ai-with-mcp-and-strands [Administrator]". The terminal displays a support query from a user about their iPhone's slow performance and overheating during charging. The AI has provided a summary of customer memory, retrieved preferences, semantic context items, and troubleshooting steps. The interface includes a sidebar with project files like "culinary_agent.py" and "short_term_memory.py", and a bottom status bar indicating the terminal is in Python mode.

```
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://gropikipedia.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+running+slow+and+overheating+while+charging+troubleshooting+solutions 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=143084 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:
```

The screenshot shows a Microsoft Visual Studio Code interface with an integrated terminal window. The terminal is displaying a conversation with an AI agent named 'agentic-ai-with-mcp-and-strands'. The user has asked for troubleshooting steps regarding an iPhone not connecting to Sennheiser headphones via Bluetooth. The AI has provided a summary of customer memory, retrieved preferences, and semantic context related to the user's query. It also suggests searching for specific troubleshooting steps.

```
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=how%20to%20fix%20sennheiser%20headphones%20bluetooth%20connection%20iPhone%2015%20Pro%20pairing%20problems%20
2025-12-24 23:42:08,216 - INFO - response: https://gropedia.com/api/typeahead?query=how+to+fix+Sennheiser+headphones+bluetooth+connection+iPhone+15+Pro+pairing+problems&limit=1 200
2025-12-24 23:42:08,608 - INFO - response: https://search.yahoo.com/search;_ylt=FGH0ISl04TT85Mlx6cBsmCZ;_ylu=9P150MJA_ques=
```

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

- File Explorer:** Shows a project structure for "AGENTIC-AI-WITH-MCP-AND-STRANDS".
- Terminal:** Displays an AI-generated support ticket and a memory summary.

Support Ticket Content:

- Contact Sennheiser support directly
- Consider using the warranty if it's a hardware issue

Would you like me to:

- Provide more detailed steps for any of these solutions?
- Search for troubleshooting steps specific to your Sennheiser model?
- 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.

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....
```

Recent Orders:

```
=====
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

The screenshot shows a developer environment with the following interface elements:

- Left Sidebar (EXPLORER):** Lists project files and folders:
 - 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
- Top Bar:** File, Edit, Selection, View, Go, Run, ...
- Terminal:** Displays the command "check_order_status". The output shows two recent orders:
 - Order #123456: iPhone 15 Pro
 - Delivered on June 5, 2025
 - 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: 0000001766599952031#02fc4cda
2025-12-24 23:42:32,434 - INFO - Saved support interaction to memory

Support Agent: Here's the status of both your recent orders:
orders have been successfully delivered. Is there anything specific about either order you'd like to know more about?
- Bottom Status Bar:** Shows the date and time (2025-12-24 23:42:38,991), file name (main.py), and other system information.

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
```

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%2elaptop%20models%202025%20recommendations%20reviews 200
2025-12-24 23:42:43,875 - INFO - response: https://gropkipedia.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
```

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

- 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)
$ 
```

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

```

> 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
bash: memory_id: No such file or directory
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agicnic-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/agicnic-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/agicnic-ai-with-mcp-and-strands/agentcore/memory (main)
$ []

```

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

```

File Edit Selection View Go Run ...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
uv - memory + ... x

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
  external_api_examples

(shorticnic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agicnic-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-PFE9Y12iUr
2025-12-24 23:46:26 - INFO - Created memory CulinaryAssistant-PFE9Y12iUr, waiting for ACTIVE status...
2025-12-24 23:49:13 - INFO - Memory CulinaryAssistant-PFE9Y12iUr is now ACTIVE (took 166 seconds)
Memory created successfully with ID: CulinaryAssistant-PFE9Y12iUr

Hydrating short term memory with previous conversations...
2025-12-24 23:49:14 - INFO - Created event: 000001766600353917#4eecc96
✓ 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:
=====
```

```

File Edit Selection View Go Run ...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS AZURE CODE REFERENCE LOG
uv - memory + ... x

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
  external_api_examples

(shorticnic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agicnic-ai-with-mcp-and-strands/agentcore/memory (main)
Enter your culinary query (or 'quit' to exit): Give me restaurant recommendations in Irvine based on my food preferences?
Food Preferences Summary:
=====
2025-12-24 23:49:56 - INFO - Retrieved 3 memories from namespace: user/user-20251224234625/preferences
1. {"context":"The user explicitly stated they really like tofu and fresh vegetables in their dishes."}
2. {"context":"The user explicitly mentioned wanting vegetarian-friendly pasta dishes.","preference":"P..."}
3. {"context":"The user explicitly mentioned enjoying Italian cuisine and loving pasta dishes that are ..."}
=====
2025-12-24 23:49:56 - INFO - Creating Strands MetricsClient
I'd be happy to recommend restaurants in Irvine for you. To provide personalized recommendations, I'll need to know more about your food preferences:
- Do you have any favorite cuisines (Italian, Mexican, Japanese, etc.)?
- Any dietary restrictions or preferences (vegetarian, gluten-free, etc.)?
- What's your preferred price range?
- Are you looking for casual dining, fine dining, or something in between?
- Any specific part of Irvine you'd prefer?

Once you share some of these preferences, I can suggest restaurants that would be a great match for you in Irvine!
Culinary Assistant: I'd be happy to recommend restaurants in Irvine for you. To provide personalized recommendations, I'll need to know more about your food preferences:
- Do you have any favorite cuisines (Italian, Mexican, Japanese, etc.)?
- Any dietary restrictions or preferences (vegetarian, gluten-free, etc.)?
- What's your preferred price range?
- Are you looking for casual dining, fine dining, or something in between?
- Any specific part of Irvine you'd prefer?

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):
```

Ln 169, Col 19 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agicnic-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
(agenetic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agenetic-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"
}
(agenetic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agenetic-ai-with-mcp-and-strands/agentcore/memory (main)
○ $ █
Ln 169, Col 19  Spaces: 4  UTF-8  CRLF  {} Python  ⚙  3.12.12 (agenetic-ai-with-mcp-and-strands)

```

====

```

$pyWEIMDX0TiaXR1URM190M0=
(agenetic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agenetic-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
(agenetic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agenetic-ai-with-mcp-and-strands/agentcore (main)
○ $ █

```

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

- Explorer:** Shows the project structure under 'AGENTIC-AI-WITH-MCP-AND-STRANDS' with files like 'agentcore', 'identity', 'memory', 'runtime', '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', and 'strands_knowledgebase_agent_example'.
- Terminal:** Displays command-line output for creating an IAM role and configuring Bedrock AgentCore.
- Problems:** Shows several status messages and dependency detection results, such as:
 - Inferred agent name: strands_claude_remote
 - Detected dependency file: requirements.txt
 - Deployment Configuration warning: Direct Code Deploy deployment unavailable (zip utility not found). Falling back to Container deployment.
 - ECR Repository prompt: Press Enter to auto-create ECR repository, or provide ECR Repository URI to use existing ECR Repository URI (or press Enter to auto-create).
 - Authorization Configuration: By default, Bedrock AgentCore uses IAM authorization.

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 "AGENTIC-AI-WITH-MCP-AND-STRANDS", including "agentcore", "gateway", "identity", "memory", "runtime", ".bedrock_agentcore.yaml", ".dockignore", "agentcore_utils.py", "agentcore-code-changes.png", "cleanup_agents.py", "deploy_to_agentcore.py", "requirements.txt", "strands_claude_local.py", "strands_claude_remote.py", and "utils.py". The "TERMINAL" tab is active, displaying the following output:

```
⚠️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
```

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 the same files and folders as the previous screenshot. The "TERMINAL" tab is active, displaying the following output:

```
(agentic-ai-with-mcp-and-strands)  
User1@LIGTX9BC3 MINGW64 ~\Downloads\AI For Bharat\workshop5\agentic-ai-with-mcp-and-strands\agentcore (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 '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  
⠄ 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 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`

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`

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ agentcore invoke '{"prompt": "What is 111,111,111 times 111,111,111"}'
Session: 01ca83e9-5849-41f8-9ae3-ae83fc7234e6
Request ID: 334d3293-cf04-4b0f-9962-bb1a55e8d229
ARN: arn:aws:bedrock-agentcore:us-west-2:891377318455:runtime/strands_claude_remote-hZ2pJa58X5
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
GenAI Dashboard:
https://console.aws.amazon.com/cloudwatch/home?region=us-west-2#gen-ai-observability/agent-core
```

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!

```
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$ aws bedrock-agentcore-control list-agent-runtimes --query 'agentRuntimes[].agentRuntimeId' --output text
strands_claude_remote-hZ2pJa58X5
(strands_claude_remote-hZ2pJa58X5)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore (main)
$
```

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!

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

us-west-2.console.aws.amazon.com/cloudwatch/home?region=us-west-2#logsV2:log-groups/log-group/\$252Faws\$252Fbedrock-agentcore\$252Fruntime...

CloudWatch > Log management > /aws/bedrock-agentcore/runtimes/strands_claude_remote-hZ2pJa58X5-DEFAULT > 2025/12/24/[runtime-logs]99a5261a-ea1a-418...

CloudWatch

- Favorites and recents
- Dashboards
- Alarms △ 0 ○ 0 ⊖ 0
- AI Operations New
- GenAI Observability
- Application Signals New (APM)
- Infrastructure Monitoring
- Logs
 - Log Management New
 - Log Anomalies
 - Live Tail
 - Logs Insights New
 - Contributor Insights
- Metrics New

CloudShell Feedback

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

Filter events - press enter to search

Actions Start tailing Create metric filter

Display

| 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. |
| 2025-12-24T18:46:43.168Z | 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...", "resourceId": "arn:aws:bedrock-agentcore:us-west-2:891377318455:runtimes/strands_claude_remote-hZ2pJa58X5", "version": "1.0.0"}] |
| 2025-12-24T18:46:45.864Z | No newer events at this moment. Auto retry paused. Resume |

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us-west-2.console.aws.amazon.com/cloudwatch/home?region=us-west-2#metricsV2?graph=~(view~timeSeries~stacked~false~metrics~(~(~'AWS*2fBed...)

CloudWatch > Metrics

CloudWatch

- Favorites and recents
- Dashboards
- Alarms △ 0 ○ 0 ⊖ 0
- AI Operations New
- GenAI Observability
- Application Signals New (APM)
- Infrastructure Monitoring
- Logs
 - Log Management New
 - Log Anomalies
 - Live Tail
 - Logs Insights New
 - Contributor Insights
- Metrics New

CloudShell Feedback

Metrics Info

Duration, Errors, Invocations, Latency, Sessions, System...

1h 3h 12h 1d 3d 1w Custom (30m) UTC timezone Actions

Investigate Line

Browse (8) Multi source query Graphed metrics (8) Options Source

Search for any metric, dimension, resource id or account id

remote Clear filters

Name 8/8 Operation Resource

strands_claude_remote:DEFAULT InvokeAgentRun... arn:aws:bedrock-agentcore:us-west-2:891377318455:runtimes/strands_claude_remote-hZ2pJa58X5

strands_claude_remote:DEFAULT InvokeAgentRun... arn:aws:bedrock-agentcore:us-west-2:891377318455:runtimes/strands_claude_remote-hZ2pJa58X5

strands_claude_remote:DEFAULT InvokeAgentRun... arn:aws:bedrock-agentcore:us-west-2:891377318455:runtimes/strands_claude_remote-hZ2pJa58X5

2025-12-24 18:45 UTC

- Latency 4,719
- Duration 4,719
- Invocations 1
- Sessions 1
- Throttles 0
- UserErrors 0
- Errors 0
- SystemErrors 0

Add query

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CloudWatch

Console Home > CloudWatch > GenAI Observability: Bedrock AgentCore Observability > All capabilities

CloudWatch

- Favorites and recent
- Dashboards
- Alarms
- AI Operations
- GenAI Observability
 - Model Invocations
 - Bedrock AgentCore**
- Application Signals
- Infrastructure Monitoring
- Logs
- Log Management
- Log Anomalies
- Live Tail
- Logs Insights
- Contributor Insights

CloudShell Feedback

Search [Alt+S] []

United States (Oregon) Account ID: 8913-7731-8455 WSParticipantRole/Participant

Runtime metrics

These metrics provide insights into all agents deployed on Runtime. Resource consumption data may be delayed up to 60 minutes, and precision might differ across metrics.

Agents (3)

List of agents instrumented to send spans. Select an agent endpoint to view agent details.

| Name | Environment | Sessions | Traces | Errors |
|--------------------------------|-------------------|----------|--------|--------|
| strands_agent_inbound_identity | bedrock-agentcore | 1 | 1 | 0 |
| DEFAULT | bedrock-agentcore | 1 | 1 | 0 |
| mcp_server | bedrock-agentcore | 3 | 3 | 0 |
| DEFAULT | bedrock-agentcore | 3 | 3 | 0 |
| strands_claude_remote | bedrock-agentcore | 1 | 1 | 0 |
| DEFAULT | bedrock-agentcore | 1 | 1 | 0 |

Filter agents Actions

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CloudWatch

Console Home > CloudWatch > GenAI Observability: Bedrock AgentCore Observability > All capabilities

CloudWatch

- Favorites and recent
- Dashboards
- Alarms
- AI Operations
- GenAI Observability
 - Model Invocations
 - Bedrock AgentCore**
- Application Signals
- Infrastructure Monitoring
- Logs
- Log Management
- Log Anomalies
- Live Tail
- Logs Insights
- Contributor Insights

CloudShell Feedback

Search [Alt+S] []

United States (Oregon) Account ID: 8913-7731-8455 WSParticipantRole/Participant

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

Trace ID : 694c35110a4e6ac640a2231332781dff

View details []

Traces (5)

Total spans Tree Timeline

Filter spans Quick Filter Select

All Events (16)

Form JSON

Search events...

Event 1: gen_ai.system.message (body)

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

1 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) View Span

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

Event 3: gen_ai.choice (body)

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

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Screenshot of the AWS CloudWatch Metrics & Metrics Insights interface showing a trace ID and its execution path.

Trace ID : 694c35110a4e6ac640a2231332781dff

Session ID: 01ca83e9-5849-41f8-9ae3-a83fc723466

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

Trajectory

Total spans Tree Timeline

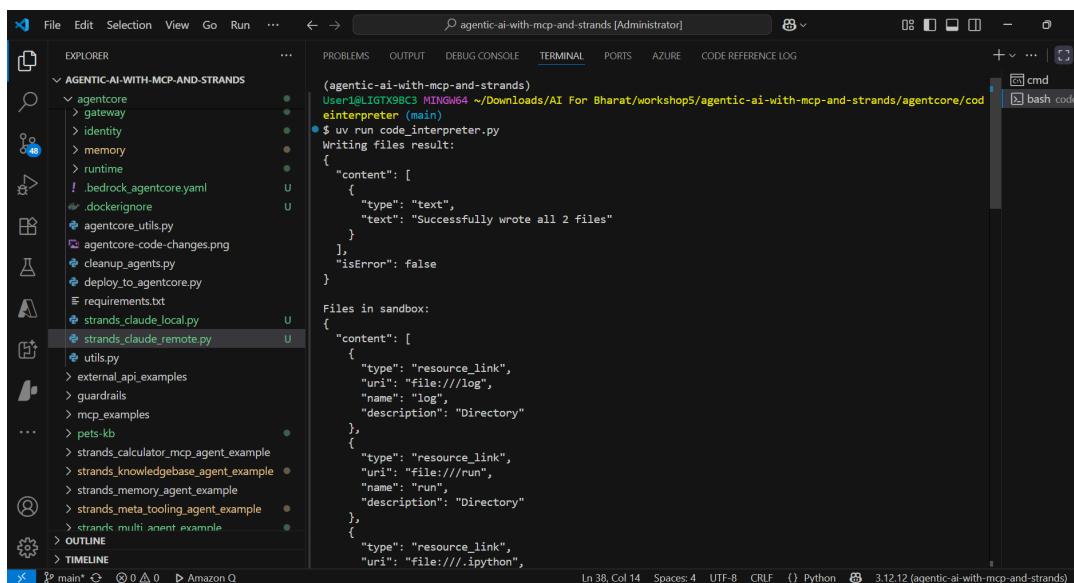
All Events (16)

Event 1: gen_ai.system.message (body)

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

1 You're a helpful assistant. You can do simple math calculation, and

```
(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 title bar "agentic-ai-with-mcp-and-strands [Administrator]". The Explorer sidebar on the left lists files and folders related to the project, including "agentcore", ".bedrock_agentcore.yaml", ".dockerignore", "agentcore_utils.py", "strands_claude_local.py", "strands_claude_remote.py", and "utils.py". The Terminal tab is active, displaying the output of a CSV analysis:

```

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  20.00000    20  20.00000    20
unique   20      NaN    20      NaN      4
top      John Smith      NaN New York      NaN
freq       1      NaN      1      NaN      6
mean      NaN  34.95000      NaN  78250.00000      NaN
std       NaN  5.986608      NaN  8546.313456      NaN
min       NaN  26.00000      NaN  65000.00000      NaN
25%      NaN  29.75000      NaN  71750.00000      NaN
50%      NaN  34.50000      NaN  76500.00000      NaN
75%      NaN  39.50000      NaN  85250.00000      NaN
max       NaN  45.00000      NaN  95000.00000      NaN

Code Interpreter session stopped successfully!
(agentic-ai-with-mcp-and-strands)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/agentcore/code_interpreter (main)

```

The status bar at the bottom indicates "In 38 Col 14 Spaces: 4 LITE: 8 CRLE: {} Python: 3.12.12 (agentic-ai-with-mcp-and-strands)".

Module 9:

The screenshot shows the VS Code interface with the title bar "agentic-ai-with-mcp-and-strands [Administrator]". The Explorer sidebar lists files and folders. The Terminal tab is active, showing the execution of a Python script to create a guardrail:

```

(AGENTIC-AI-WITH-MCP-AND-STRANDS)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (main)
$ 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 (main)

```

The status bar at the bottom indicates "In 38 Col 14 Spaces: 4 LITE: 8 CRLE: {} Python: 3.12.12 (agentic-ai-with-mcp-and-strands)".

User1@LIGTX98C3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (main)

```
$ uv run strands_guardrails.py
Guardrail ID: xf0fvtmdo16r, 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.
```

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

User1@LIGTX98C3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands/guardrails (main)

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

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

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 project files and folders, including ".bedrock_agentcore.yaml", ".dockerignore", "agentcore_utils.py", "cleanup_agents.py", "deploy_to_agentcore.py", "requirements.txt", "strands_claude_local.py", "strands_claude_remote.py", and "utils.py". The terminal tab is active, displaying the following JSON response:

```
        }
      ],
    },
    {
      "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)
User1@LIGTX9BC3 MINGW64 ~/Downloads/AI For Bharat/workshop5/agentic-ai-with-mcp-and-strands> $
```

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 project files and folders. The terminal tab is active, displaying the following log output:

```
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>
```

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 edit or.
 - **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)

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

1. **AWS Account:** Ensure you have an active AWS account.
2. **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

1. **Navigate to IAM:**
 - Open the [IAM console](https://console.aws.amazon.com/iam/).
2. **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**.
3. **Attach Policies:**
 - Attach the **AmazonVPCFlowLogsRolePolicy** policy to the role.
 - Click **Next: Tags** and then **Next: Review**.
4. **Create Role:**
 - Provide a role name (e.g., `VPCFlowLogsRole`) and click **Create role**.

Ln 38, Col 144 Spaces: 4 UTF-8 CRLF {} Python 3.12.12 (agentic-ai-with-mcp)

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.
```

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

(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 a code editor interface with an Explorer sidebar on the left and a terminal window on the right. The terminal window displays a series of AI-generated responses from a tool named 'geocode'.

```
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_nearby' tool to find places near the given zip code. I will input the zip code into the 'search_nearby' tool and retrieve the nearby places.</thinking>
Tool #4: search_nearby
<thinking>The error persists, indicating a potential issue with the tool or the security token. I cannot proceed with the search_nearby 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:
```

The screenshot shows a terminal window with a dark theme. It displays the execution of a script named 'cleanup_resources.py'.

```
(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)
$
```