
LAB 09

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REGISTRATION #: 2023-BSE-061

DEPARTMENT: BSE(5B)

LAB TASK

Codespaces + AWS: GH CLI (Codespaces), AWS CLI, EC2, IAM, Security Groups, Filters & Queries

Task 1 — GitHub CLI, Codespace setup and authentication

task1_gh_install

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Syed> winget install --id GitHub.cli
The 'msstore' source requires that you view the following agreements before using.
Terms of Transaction: https://aka.ms/microsoft-store-terms-of-transaction
The source requires the current machine's 2-letter geographic region to be sent to the backend service to function properly (ex. "US").

Do you agree to all the source agreements terms?
[Y] Yes [N] No: Y
Found GitHub CLI [GitHub.cli] Version 2.83.1
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://github.com/cli/cli/releases/download/v2.83.1/gh_2.83.1_windows_amd64.msi
17.6 MB / 17.6 MB
Successfully verified installer hash
Starting package install...
Successfully installed
PS C:\Users\Syed>
```

task1_gh_auth_login

```
PS C:\Users\Syed> gh --version
gh version 2.83.1 (2025-11-13)
https://github.com/cli/cli/releases/tag/v2.83.1
PS C:\Users\Syed> gh auth login -s codespace
? Where do you use GitHub? GitHub.com
? What is your preferred protocol for Git operations on this host? HTTPS
? Authenticate Git with your GitHub credentials? Yes
? How would you like to authenticate GitHub CLI? Paste an authentication token
Tip: you can generate a Personal Access Token here https://github.com/settings/tokens
The minimum required scopes are 'repo', 'read:org', 'workflow'.
? Paste your authentication token: *****
- gh config set -h github.com git_protocol https
? Configured git protocol
? Logged in as 23-22411-061-rgb
PS C:\Users\Syed>
```

task1 codespace list

```
Logged in as 23-22411-061-rgb
PS C:\Users\Syed> gh codespace list
NAME                                DISPLAY NAME    REPOSITORY      BRANCH  STATE    CREATED AT
friendly-succotash-wrqr469p765cv49 friendly succotash 23-22411-061-rgb/UbuntuMachine  main    Shutdown about 24 days agoPS C:\Users\Syed>
```

task1 codespace ssh connected

```
special-space-funicular-97g7wxvdr97x2pgxr
PS C:\Users\Syed> gh codespace create --repo 23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061- --branch main --machine basicLinux32gb
friendly-succotash-wrqr469p765cv49
studious-spork-5g7g59647vv4cvjg
PS C:\Users\Syed>
PS C:\Users\Syed>
PS C:\Users\Syed> gh codespace list
NAME                                DISPLAY NAME    REPOSITORY      BRANCH  STATE    CREATED AT
friendly-succotash-wrqr469p765cv49 friendly succotash 23-22411-061-rgb/UbuntuMachine  main    Shutdown  about 28 days ago
special-space-funicular-97g7wxvdr97x2pgxr special space funicular 23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061- main    Available about 16 minutes ago
studious-spork-5g7g59647vv4cvjg      studious spork 23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061- main    Available about 16 minutes ago
PS C:\Users\Syed> gh codespace ssh -c studious-spork-5g7g59647vv4cvjg
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-1030-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

Task 2 — Install AWS CLI inside the Codespace and configure it

task2_aws_install_and_version

```

inflating: aws/dist/awscli/data/metadata.json
inflating: aws/dist/awscli/data/cli.json
inflating: aws/dist/awscli/topics/s3-config.rst
inflating: aws/dist/awscli/topics/topic-tags.json
inflating: aws/dist/awscli/topics/config-vars.rst
inflating: aws/dist/awscli/topics/ddb-expressions.rst
inflating: aws/dist/awscli/topics/s3-faq.rst
inflating: aws/dist/awscli/topics/return-codes.rst
creating: aws/dist/awscli/customizations/sso/
creating: aws/dist/awscli/customizations/wizard/
creating: aws/dist/awscli/customizations/wizard/wizards/
creating: aws/dist/awscli/customizations/wizard/wizards/configure/
creating: aws/dist/awscli/customizations/wizard/wizards/dynamodb/
creating: aws/dist/awscli/customizations/wizard/wizards/events/
creating: aws/dist/awscli/customizations/wizard/wizards/iam/
creating: aws/dist/awscli/customizations/wizard/wizards/lambda/
inflating: aws/dist/awscli/customizations/wizard/wizards/configure/_main.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/dynamodb/new-table.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/iam/new-role.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/events/new-rule.yml
inflating: aws/dist/awscli/customizations/wizard/wizards/lambda/new-function.yml
inflating: aws/dist/awscli/customizations/sso/index.html
creating: aws/dist/prompt_toolkit-3.0.51.dist-info/licenses/
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/METADATA
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/RECORD
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/INSTALLER
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/top_level.txt
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/WHEEL
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/licenses/LICENSE
inflating: aws/dist/prompt_toolkit-3.0.51.dist-info/licenses/AUTHORS.rst
inflating: aws/dist/wheel-0.45.1.dist-info/METADATA
inflating: aws/dist/wheel-0.45.1.dist-info/INSTALLER
inflating: aws/dist/wheel-0.45.1.dist-info/direct_url.json
inflating: aws/dist/wheel-0.45.1.dist-info/RECORD
inflating: aws/dist/wheel-0.45.1.dist-info/LICENSE.txt
inflating: aws/dist/wheel-0.45.1.dist-info/REQUESTED
inflating: aws/dist/wheel-0.45.1.dist-info/entry_points.txt
inflating: aws/dist/wheel-0.45.1.dist-info/WHEEL
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ sudo ./aws/install
You can now run: /usr/local/bin/aws --version
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $
inflating: aws/dist/wheel-0.45.1.dist-info/entry_points.txt
inflating: aws/dist/wheel-0.45.1.dist-info/WHEEL
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ sudo ./aws/install
You can now run: /usr/local/bin/aws --version
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ aws --version
aws-cli/2.32.10 Python/3.13.9 Linux/6.8.0-1030-azure exe/x86_64.ubuntu.24
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $

```

task2 aws configure and files

```

Last login: Fri Dec 5 12:59:19 2023 from ...
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ aws configure
AWS Access Key ID [None]: AKIARC5V6TLZ6NFKFNXP
AWS Secret Access Key [None]: 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
Default region name [None]: me-central-1
Default output format [None]: json
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ cat ~/.aws/credentials
[default]
aws_access_key_id = AKIARC5V6TLZ6NFKFNXP
aws_secret_access_key = 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
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ cat ~/.aws/config
[default]
region = me-central-1
output = json
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $

```

task2 aws get caller identity

```

023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $ aws sts get-caller-identity
{
  "UserId": "AIDARC5V6TLZ4NBM72TWI",
  "Account": "075006647027",
  "Arn": "arn:aws:iam::075006647027:user/Admin"
}
023-22411-061-rgb [0] /workspaces/CC_-Shumail-zahra-_-2023-BSE-061- (main) $

```

Task 3 — Create security group and add ingress rules using Codespace IP

task3_create_security_group_output

```

023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 describe-vpcs
{
  "Vpcs": [
    {
      "OwnerId": "075006647027",
      "InstanceTenancy": "default",
      "CidrBlockAssociationSet": [
        {
          "AssociationId": "vpc-cidr-assoc-0c5d06f771e76a9c6",
          "CidrBlock": "172.31.0.0/16",
          "CidrBlockState": {
            "State": "associated"
          }
        }
      ],
      "IsDefault": true,
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "VpcId": "vpc-0f993bf131956a286",
      "State": "available",
      "CidrBlock": "172.31.0.0/16",
      "DhcpOptionsId": "dopt-0e0af21c8a35300b5"
    }
  ]
}
023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 create-security-group --group-name 'MySecurityGroup' \
> --description 'My Security Group' \
> --vpc-id 'vpc-0f993bf131956a286'
{
  "GroupId": "sg-08993822688556c15",
  "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15"
}

```

task3_describe_sg_before_ingress

```

023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 describe-security-groups --group-ids sg-08993822688556c15
{
  "SecurityGroups": [
    {
      "GroupId": "sg-08993822688556c15",
      "IpPermissionsEgress": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "0.0.0.0/0"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ],
      "VpcId": "vpc-0f993bf131956a286",
      "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15",
      "OwnerId": "075006647027",
      "GroupName": "MySecurityGroup",
      "Description": "My Security Group",
      "IpPermissions": []
    }
  ]
}

```

task3_codespace_public_ip

```

023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ curl icanhazip.com
20.192.21.51

```

task3_authorize_ssh_and_describe

```

root@ip-10-0-1-101:~# aws ec2 authorize-security-group-ingress \
--group-id sg-08993822688556c15 \
--protocol tcp \
--port 22 \
--cidr 20.192.21.51/32
{
  "Return": true,
  "SecurityGroupRules": [
    {
      "SecurityGroupRuleId": "sgr-01c18859adc5fd49d",
      "GroupId": "sg-08993822688556c15",
      "GroupOwnerId": "075006647027",
      "IsEgress": false,
      "IpProtocol": "tcp",
      "FromPort": 22,
      "ToPort": 22,
      "CidrIpv4": "20.192.21.51/32",
      "SecurityGroupRuleArn": "arn:aws:ec2:me-central-1:075006647027:security-group-rule/sgr-01c18859adc5fd49d"
    }
  ]
}
root@ip-10-0-1-101:~# aws ec2 describe-security-groups --group-ids sg-08993822688556c15
{
  "SecurityGroups": [
    {
      "GroupId": "sg-08993822688556c15",
      "IpPermissionsEgress": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "0.0.0.0/0"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ],
      "VpcId": "vpc-0f993bf131956a286",
      "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15",
      "OwnerId": "075006647027",
      "GroupName": "MySecurityGroup",
      "Description": "My Security Group",
      "IpPermissions": [
        {
          "IpProtocol": "tcp",
          "FromPort": 22,
          "ToPort": 22,
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "20.192.21.51/32"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ]
    }
  ]
}

```

task3_authorize_http_and_describe

```

023-22411-001-rgb @ /workspaces/CC--Shumail-zahra--2023-BSE-061- (main) $ aws ec2 authorize-security-group-ingress \
> --group-id 'sg-08993822688556c15' \
> --ip-permissions '[{"FromPort":80,"ToPort":80,"IpProtocol":"tcp","IpRanges":[{"CidrIp":"20.192.21.51/32"}]}'
{
  "Return": true,
  "SecurityGroupRules": [
    {
      "SecurityGroupRuleId": "sgr-0b7b8916cedd62cf7",
      "GroupId": "sg-08993822688556c15",
      "GroupOwnerId": "075006647027",
      "IsEgress": false,
      "IpProtocol": "tcp",
      "FromPort": 80,
      "ToPort": 80,
      "CidrIpv4": "20.192.21.51/32",
      "SecurityGroupRuleArn": "arn:aws:ec2:me-central-1:075006647027:security-group-rule/sgr-0b7b8916cedd62cf7"
    }
  ]
}
023-22411-001-rgb @ /workspaces/CC--Shumail-zahra--2023-BSE-061- (main) $

```

task3_describe_sg_final

```

023-22411-001-rgb @ /workspaces/CC--Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-security-groups --group-ids sg-08993822688556c15
{
  "SecurityGroups": [
    {
      "GroupId": "sg-08993822688556c15",
      "IpPermissionsEgress": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "0.0.0.0/0"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ],
      "VpcId": "vpc-0f993bf131956a286",
      "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15",
      "OwnerId": "075006647027",
      "GroupName": "MySecurityGroup",
      "Description": "My Security Group",
      "IpPermissions": [
        {
          "IpProtocol": "tcp",
          "FromPort": 80,
          "ToPort": 80,
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "20.192.21.51/32"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        },
        {
          "IpProtocol": "tcp",
          "FromPort": 22,
          "ToPort": 22,
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "20.192.21.51/32"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ]
    }
  ]
}

```

```

    "IpPermissionsEgress": [
      {
        "IpProtocol": "-1",
        "UserIdGroupPairs": [],
        "IpRanges": [
          {
            "CidrIp": "0.0.0.0/0"
          }
        ],
        "Ipv6Ranges": [],
        "PrefixListIds": []
      }
    ],
    "VpcId": "vpc-0f993bf131956a286",
    "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15",
    "OwnerId": "075006647027",
    "GroupName": "MySecurityGroup",
    "Description": "My Security Group",
    "IpPermissions": [
      {
        "IpProtocol": "tcp",
        "FromPort": 80,
        "ToPort": 80,
        "UserIdGroupPairs": [],
        "IpRanges": [
          {
            "CidrIp": "20.192.21.51/32"
          }
        ],
        "Ipv6Ranges": [],
        "PrefixListIds": []
      },
      {
        "IpProtocol": "tcp",
        "FromPort": 22,
        "ToPort": 22,
        "UserIdGroupPairs": [],
        "IpRanges": [
          {
            "CidrIp": "20.192.21.51/32"
          }
        ],
        "Ipv6Ranges": [],
        "PrefixListIds": []
      }
    ]
  }
}

```

Task 4 — Create a key pair, describe key pairs, and launch EC2 instance

task4_create_keypair_output

```

023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $ aws ec2 create-key-pair \
> --key-name MyED25519Key \
> --key-type ed25519 \
> --key-format pem \
> --query 'KeyMaterial' \
> --output text > MyED25519Key.pem
023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $ ls -l MyED25519Key.pem
-rw-rw-rw- 1 codespace codespace 388 Dec  5 13:23 MyED25519Key.pem
023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $

```

task4_describe_keypairs

```

023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $ aws ec2 describe-key-pairs
{
  "KeyPairs": [
    {
      "KeyPairId": "key-0a9be170950d81144",
      "KeyType": "ed25519",
      "Tags": [],
      "CreateTime": "2025-12-05T13:23:59.551000+00:00",
      "KeyName": "MyED25519Key",
      "KeyFingerprint": "iSzJvBqE8S3lxQik87qC798p0lu3j9oQz1pe0FRExCc="
    }
  ]
}
023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $

```

task4_delete_keypair_optional

```
023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 delete-key-pair --key-name MyED25519Key
{
  "Return": true,
  "KeyPairId": "key-0a9be170950d81144"
}
023-22411-061-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $
```

task4_run_instances_output


```

2023-224111-061-rg@ /workspaces/CC--Shumail-zahra--2023-BSE-061- (main) $ aws ec2 run-instances \
> --image-id ami-05e66df2bafcb7dea \
> --count 1 \
> --instance-type t3.micro \
> --key-name MyED25519Key \
> --security-group-ids sg-08993822688556c15 \
> --subnet-id subnet-0d8f9fccb79043cbc \
> --tag-specifications "ResourceType=instance,Tags=[{Key=Name,Value=MyServer}]"
{

```

```

  "ReservationId": "r-07c6d39550b039046",
  "OwnerId": "075006647027",
  "Groups": [],
  "Instances": [
    {
      "Architecture": "x86_64",
      "BlockDeviceMappings": [],
      "ClientToken": "2d5b5f21-6bcf-4e2f-9842-16d5a4ce48f6",
      "EbsOptimized": false,
      "EnaSupport": true,
      "Hypervisor": "xen",
      "NetworkInterfaces": [
        {
          "Attachment": {
            "AttachTime": "2025-12-05T13:36:33+00:00",
            "AttachmentId": "eni-attach-0da824320c24a466a",
            "DeleteOnTermination": true,
            "DeviceIndex": 0,
            "Status": "attaching",
            "NetworkCardIndex": 0
          },
          "Description": "",
          "Groups": [
            {
              "GroupId": "sg-08993822688556c15",
              "GroupName": "MySecurityGroup"
            }
          ],
          "Ipv6Addresses": [],
          "MacAddress": "0e:47:65:7b:28:67",
          "NetworkInterfaceId": "eni-019bd90f8245df3e4",

```

Windows Powershell

```

          "GroupName": "MySecurityGroup"
        }
      ],
      "Ipv6Addresses": [],
      "MacAddress": "0e:47:65:7b:28:67",
      "NetworkInterfaceId": "eni-019bd90f8245df3e4",
      "OwnerId": "075006647027",
      "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
      "PrivateIpAddress": "172.31.0.144",
      "PrivateIpAddresses": [
        {
          "Primary": true,
          "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
          "PrivateIpAddress": "172.31.0.144"
        }
      ],
      "SourceDestCheck": true,
      "Status": "in-use",
      "SubnetId": "subnet-0d8f9fccb79043cbc",
      "VpcId": "vpc-0f993bf131956a286",
      "InterfaceType": "interface",
      "Operator": {
        "Managed": false
      }
    }
  ],
  "RootDeviceName": "/dev/xvda",
  "RootDeviceType": "ebs",
  "SecurityGroups": [
    {
      "GroupId": "sg-08993822688556c15",
      "GroupName": "MySecurityGroup"
    }
  ],
  "SourceDestCheck": true,
  "StateReason": {
    "Code": "pending",
    "Message": "pending"
  },
  "Tags": [
    {
      "SourceDestCheck": true

```

```

"StateReason": {
  "Code": "pending",
  "Message": "pending"
},
"Tags": [
  {
    "Key": "Name",
    "Value": "MyServer"
  }
],
"VirtualizationType": "hvm",
"CpuOptions": {
  "CoreCount": 1,
  "ThreadsPerCore": 2
},
"CapacityReservationSpecification": {
  "CapacityReservationPreference": "open"
},
"MetadataOptions": {
  "State": "pending",
  "HttpTokens": "required",
  "HttpPutResponseHopLimit": 2,
  "HttpEndpoint": "enabled",
  "HttpProtocolIpv6": "disabled",
  "InstanceMetadataTags": "disabled"
},
"EnclaveOptions": {
  "Enabled": false
},
"BootMode": "uefi-preferred",
"PrivateDnsNameOptions": {
  "HostnameType": "ip-name",
  "EnableResourceNameDnsARecord": false,
  "EnableResourceNameDnsAAAARecord": false
},
"MaintenanceOptions": {
  "AutoRecovery": "default",
  "RebootMigration": "default"
},
"CurrentInstanceBootMode": "uefi",
"Operator": {

```

```

  "PrivateDnsNameOptions": {
    "HostnameType": "ip-name",
    "EnableResourceNameDnsARecord": false,
    "EnableResourceNameDnsAAAARecord": false
  },
  "MaintenanceOptions": {
    "AutoRecovery": "default",
    "RebootMigration": "default"
  },
  "CurrentInstanceBootMode": "uefi",
  "Operator": {
    "Managed": false
  },
  "InstanceId": "i-0dcf5e8e4fdd23377",
  "ImageId": "ami-05e66df2bafcb7dea",
  "State": {
    "Code": 0,
    "Name": "pending"
  },
  "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
  "PublicDnsName": "",
  "StateTransitionReason": "",
  "KeyName": "MyED25519Key",
  "AmiLaunchIndex": 0,
  "ProductCodes": [],
  "InstanceType": "t3.micro",
  "LaunchTime": "2025-12-05T13:36:33+00:00",
  "Placement": {
    "AvailabilityZoneId": "mec1-az3",
    "GroupName": "",
    "Tenancy": "default",
    "AvailabilityZone": "me-central-1c"
  },
  "Monitoring": {
    "State": "disabled"
  },
  "SubnetId": "subnet-0d8f9fccb79043cbc",
  "VpcId": "vpc-0f993bf131956a286",
  "PrivateIpAddress": "172.31.0.144"
}
]
}

```

task4_describe_instances_public_ip

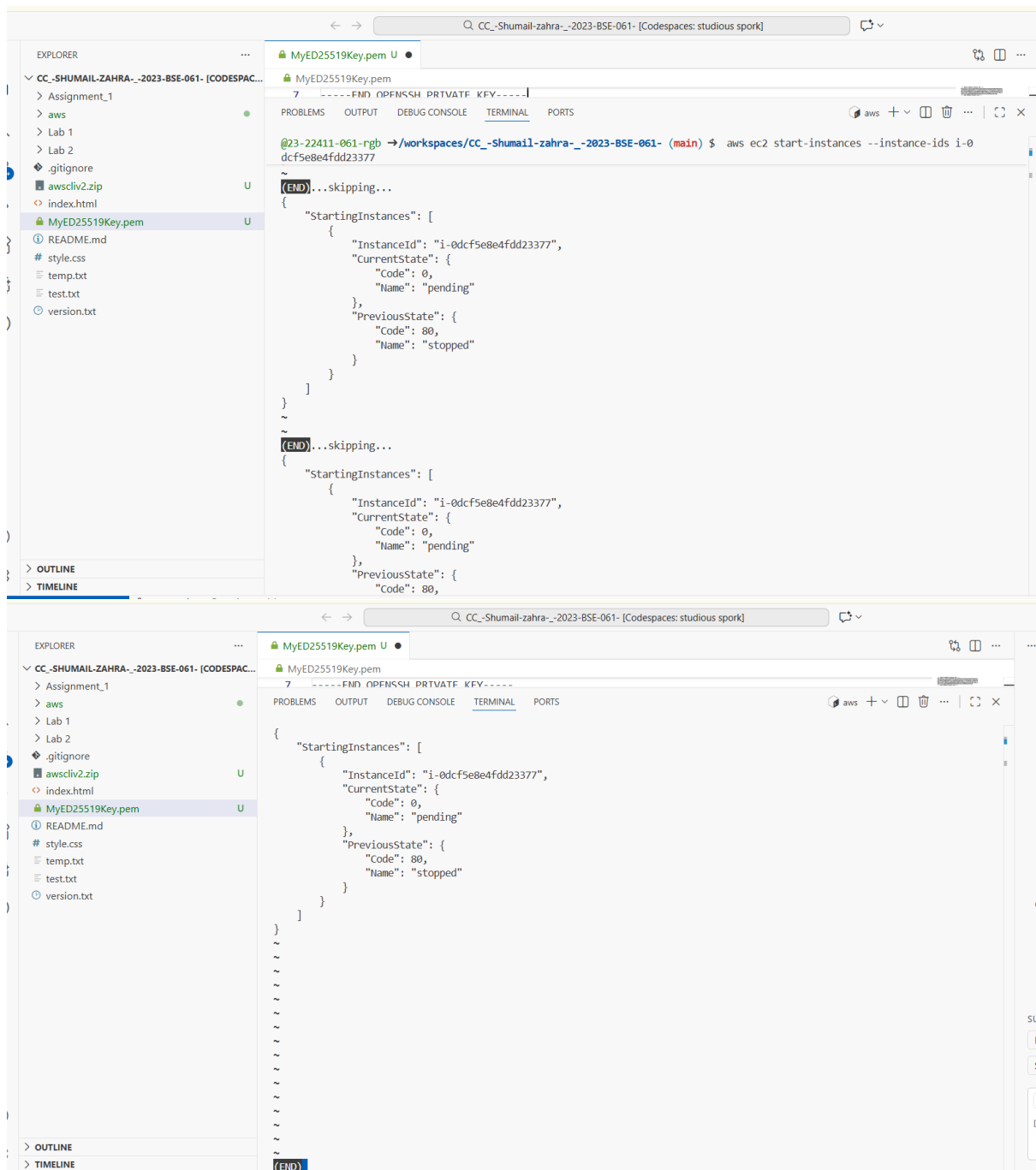
DescribeInstances	
i-0dcf5e8e4fdd23377	3.29.235.138

task4_ssh_permission_error_and_fix

```
#  
~ ##### Amazon Linux 2023  
~~ ~~~~~ |  
~~ ~~~~~ #|  
~~ ~~~~~ #|  
~~ ~~~~~ V- -> https://aws.amazon.com/linux/amazon-linux-2023  
~~ ~~~~~  
~~ ~~~~~
```

```
/m / -
```

task4_stop_start_terminate_commands



Task 5 — Understand AWS describe-* commands

task5_describe_security_groups

```
ec2-22411-061-rgb @ /workspaces/02_5howto-aws-ec2-001-001- (main) $ aws ec2 describe-security-groups
```

```
{
  "SecurityGroups": [
    {
      "GroupId": "sg-00517f6d675cbaf12",
      "IpPermissionsEgress": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "0.0.0.0/0"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ],
      "VpcId": "vpc-0f993bf131956a286",
      "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-00517f6d675cbaf12",
      "OwnerId": "075006647027",
      "GroupName": "default",
      "Description": "default VPC security group",
      "IpPermissions": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [
            {
              "UserId": "075006647027",
              "GroupId": "sg-00517f6d675cbaf12"
            }
          ],
          "IpRanges": [],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        },
        {
          "IpProtocol": "tcp",
          "FromPort": 22,
          "ToPort": 22,
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "39.58.206.178/32"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ],
      "Description": "Gitea Web UI",
      "CidrIp": "0.0.0.0/0"
    },
    {
      "GroupId": "sg-08993822688556c15",
      "IpPermissionsEgress": [
        {
          "IpProtocol": "-1",
          "UserIdGroupPairs": [],
          "IpRanges": [
            {
              "CidrIp": "0.0.0.0/0"
            }
          ],
          "Ipv6Ranges": [],
          "PrefixListIds": []
        }
      ]
    }
  ]
}
```

```

        "Ipv6Ranges": [],
        "PrefixListIds": []
    },
    {
        "VpcId": "vpc-0f993bf131956a286",
        "SecurityGroupArn": "arn:aws:ec2:me-central-1:075006647027:security-group/sg-08993822688556c15",
        "OwnerId": "075006647027",
        "GroupName": "MySecurityGroup",
        "Description": "My Security Group",
        "IpPermissions": [
            {
                "IpProtocol": "tcp",
                "FromPort": 80,
                "ToPort": 80,
                "UserIdGroupPairs": [],
                "IpRanges": [
                    {
                        "CidrIp": "20.192.21.51/32"
                    }
                ],
                "Ipv6Ranges": [],
                "PrefixListIds": []
            },
            {
                "IpProtocol": "tcp",
                "FromPort": 22,
                "ToPort": 22,
                "UserIdGroupPairs": [],
                "IpRanges": [
                    {
                        "CidrIp": "20.192.21.51/32"
                    },
                    {
                        "CidrIp": "4.240.39.199/32"
                    }
                ],
                "Ipv6Ranges": [],
                "PrefixListIds": []
            }
        ]
    }
]
}

```

task5_describe_vpcs

```

023-22411-001-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 describe-vpcs
{
  "Vpcs": [
    {
      "OwnerId": "075006647027",
      "InstanceTenancy": "default",
      "CidrBlockAssociationSet": [
        {
          "AssociationId": "vpc-cidr-assoc-0c5d06f771e76a9c6",
          "CidrBlock": "172.31.0.0/16",
          "CidrBlockState": {
            "State": "associated"
          }
        }
      ],
      "IsDefault": true,
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "VpcId": "vpc-0f993bf131956a286",
      "State": "available",
      "CidrBlock": "172.31.0.0/16",
      "DhcpOptionsId": "dopt-0e0af21c8a35300b5"
    }
  ]
}
023-22411-001-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $

```

task5_describe_subnets

```

3-22411-001-rgb @ /workspaces/CC_-Shumail-zahra_-2023-BSE-061- (main) $ aws ec2 describe-subnets
{
  "Subnets": [
    {
      "AvailabilityZoneId": "mec1-az3",
      "MapCustomerOwnedIpOnLaunch": false,
      "OwnerId": "075006647027",
      "AssignIpv6AddressOnCreation": false,
      "Ipv6CidrBlockAssociationSet": [],
      "SubnetArn": "arn:aws:ec2:me-central-1:075006647027:subnet/subnet-0d8f9fccb79043cbc",
      "EnableDns64": false,
      "Ipv6Native": false,
      "PrivateDnsNameOptionsOnLaunch": {
        "HostnameType": "ip-name",
        "EnableResourceNameDnsARecord": false,
        "EnableResourceNameDnsAAAARecord": false
      },
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "SubnetId": "subnet-0d8f9fccb79043cbc",
      "State": "available",
      "VpcId": "vpc-0f993bf131956a286",
      "CidrBlock": "172.31.0.0/20",
      "AvailableIpAddressCount": 4090,
      "AvailabilityZone": "me-central-1c",
      "DefaultForAz": true,
      "MapPublicIpOnLaunch": true
    },
    {
      "AvailabilityZoneId": "mec1-az2",
      "MapCustomerOwnedIpOnLaunch": false,
      "OwnerId": "075006647027",
      "AssignIpv6AddressOnCreation": false,
      "Ipv6CidrBlockAssociationSet": [],
      "SubnetArn": "arn:aws:ec2:me-central-1:075006647027:subnet/subnet-0375aad5c579a82c4",
      "EnableDns64": false,
      "Ipv6Native": false,
      "PrivateDnsNameOptionsOnLaunch": {
        "HostnameType": "ip-name",
        "EnableResourceNameDnsARecord": false,
        "EnableResourceNameDnsAAAARecord": false
      },
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "SubnetId": "subnet-0375aad5c579a82c4",
      "State": "available",
      "VpcId": "vpc-0f993bf131956a286",
      "CidrBlock": "172.31.16.0/20",
      "AvailableIpAddressCount": 4091,
      "AvailabilityZone": "me-central-1b",
      "DefaultForAz": true,
      "MapPublicIpOnLaunch": true
    },
    {
      "AvailabilityZoneId": "mec1-az1",
      "MapCustomerOwnedIpOnLaunch": false,
      "OwnerId": "075006647027",
      "AssignIpv6AddressOnCreation": false,
      "Ipv6CidrBlockAssociationSet": [],
      "SubnetArn": "arn:aws:ec2:me-central-1:075006647027:subnet/subnet-05bc73f40fefb9fe1",
      "EnableDns64": false,
      "Ipv6Native": false,
      "PrivateDnsNameOptionsOnLaunch": {
        "HostnameType": "ip-name",
        "EnableResourceNameDnsARecord": false,
        "EnableResourceNameDnsAAAARecord": false
      },
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "SubnetId": "subnet-05bc73f40fefb9fe1",
      "State": "available",
      "VpcId": "vpc-0f993bf131956a286",
      "CidrBlock": "172.31.32.0/20",
      "AvailableIpAddressCount": 4091,
      "AvailabilityZone": "me-central-1a",
      "DefaultForAz": true,
      "MapPublicIpOnLaunch": true
    }
  ]
}

```

task5_describe_instances


```
root@22411-001-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws ec2 describe-instances
```

```
{
  "Reservations": [
    {
      "ReservationId": "r-07c6d39550b039046",
      "OwnerId": "075006647027",
      "Groups": [],
      "Instances": [
        {
          "Architecture": "x86_64",
          "BlockDeviceMappings": [
            {
              "DeviceName": "/dev/xvda",
              "Ebs": {
                "AttachTime": "2025-12-05T13:36:34+00:00",
                "DeleteOnTermination": true,
                "Status": "attached",
                "VolumeId": "vol-0e732619af635e18b"
              }
            }
          ],
          "ClientToken": "2d5b5f21-6bcf-4e2f-9842-16d5a4ce48f6",
          "EbsOptimized": false,
          "EnaSupport": true,
          "Hypervisor": "xen",
          "NetworkInterfaces": [
            {
              "Association": {
                "IpOwnerId": "amazon",
                "PublicDnsName": "ec2-3-28-240-198.me-central-1.compute.amazonaws.com",
                "PublicIp": "3.28.240.198"
              },
              "Attachment": {
                "AttachTime": "2025-12-05T13:36:33+00:00",
                "AttachmentId": "eni-attach-0da824320c24a466a",
                "DeleteOnTermination": true,
                "DeviceIndex": 0,
                "Status": "attached",
                "NetworkCardIndex": 0
              },
              "Description": "",
              "Groups": [
                {
                  "GroupId": "sg-08993822688556c15",
                  "GroupName": "MySecurityGroup"
                }
              ],
              "Ipv6Addresses": [],
              "MacAddress": "0e:47:65:7b:28:67",
              "NetworkInterfaceId": "eni-019bd90f8245df3e4",
              "OwnerId": "075006647027",
              "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
              "PrivateIpAddress": "172.31.0.144",
              "PrivateIpAddresses": [
                {
                  "Association": {
                    "IpOwnerId": "amazon",
                    "PublicDnsName": "ec2-3-28-240-198.me-central-1.compute.amazonaws.com",
                    "PublicIp": "3.28.240.198"
                  },
                  "Primary": true,
                  "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
                  "PrivateIpAddress": "172.31.0.144"
                }
              ],
              "SourceDestCheck": true,
              "Status": "in-use",
              "SubnetId": "subnet-0d8f9fccb79043cbc",
              "VpcId": "vpc-0f993bf131956a286",
              "InterfaceType": "interface",
              "Operator": {
                "Managed": false
              }
            }
          ],
          "RootDeviceName": "/dev/xvda",
          "RootDeviceType": "ebs",
          "SecurityGroups": [
            {
              "GroupId": "sg-08993822688556c15",
              "GroupName": "MySecurityGroup"
            }
          ],
          "SubnetId": "subnet-0d8f9fccb79043cbc",
          "VpcId": "vpc-0f993bf131956a286",
          "InterfaceType": "interface",
          "Operator": {
            "Managed": false
          }
        }
      ]
    }
  ]
}
```

```

    }
  },
  "RootDeviceName": "/dev/xvda",
  "RootDeviceType": "ebs",
  "SecurityGroups": [
    {
      "GroupId": "sg-08993822688556c15",
      "GroupName": "MySecurityGroup"
    }
  ],
  "SourceDestCheck": true,
  "Tags": [
    {
      "Key": "Name",
      "Value": "MyServer"
    }
  ],
  "VirtualizationType": "hvm",
  "CpuOptions": {
    "CoreCount": 1,
    "ThreadsPerCore": 2
  },
  "CapacityReservationSpecification": {
    "CapacityReservationPreference": "open"
  },
  "HibernationOptions": {
    "Configured": false
  },
  "MetadataOptions": {
    "State": "applied",
    "HttpTokens": "required",
    "HttpPutResponseHopLimit": 2,
    "HttpEndpoint": "enabled",
    "HttpProtocolIpv6": "disabled",
    "InstanceMetadataTags": "disabled"
  },
  "EnclaveOptions": {
    "Enabled": false
  },
  "BootMode": "uefi-preferred",
  "PlatformDetails": "Linux/UNIX",
  "UsageOperation": "RunInstances",
  "UsageOperationUpdateTime": "2025-12-05T13:36:33+00:00",
  "PrivateDnsNameOptions": {
    "PublicName": "3.28.240.198"
  },
  "UsageOperationUpdateTime": "2025-12-05T13:36:33+00:00",
  "PrivateDnsNameOptions": {
    "HostnameType": "ip-name",
    "EnableResourceNameDnsARecord": false,
    "EnableResourceNameDnsAAAARecord": false
  },
  "MaintenanceOptions": {
    "AutoRecovery": "default",
    "RebootMigration": "default"
  },
  "CurrentInstanceBootMode": "uefi",
  "NetworkPerformanceOptions": {
    "BandwidthWeighting": "default"
  },
  "Operator": {
    "Managed": false
  },
  "InstanceId": "i-0dcf5e8e4fdd23377",
  "ImageId": "ami-05e66df2bafcb7dea",
  "State": {
    "Code": 16,
    "Name": "running"
  },
  "PrivateDnsName": "ip-172-31-0-144.me-central-1.compute.internal",
  "PublicDnsName": "ec2-3-28-240-198.me-central-1.compute.amazonaws.com",
  "StateTransitionReason": "",
  "KeyName": "MyED25519Key",
  "AmiLaunchIndex": 0,
  "ProductCodes": [],
  "InstanceType": "t3.micro",
  "LaunchTime": "2025-12-05T17:54:22+00:00",
  "Placement": {
    "AvailabilityZoneId": "mec1-az3",
    "GroupName": "",
    "Tenancy": "default",
    "AvailabilityZone": "me-central-1c"
  },
  "Monitoring": {
    "State": "disabled"
  },
  "SubnetId": "subnet-0d8f9fccb79043cbc",
  "VpcId": "vpc-0f993bf131956a286",
  "PrivateIpAddress": "172.31.0.144",
  "PublicIpAddress": "3.28.240.198"
}

```



```
023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $ aws ec2 describe-regions
```

```
{
  "Regions": [
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-south-1",
      "Endpoint": "ec2.ap-south-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-north-1",
      "Endpoint": "ec2.eu-north-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-3",
      "Endpoint": "ec2.eu-west-3.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-2",
      "Endpoint": "ec2.eu-west-2.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-1",
      "Endpoint": "ec2.eu-west-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-3",
      "Endpoint": "ec2.ap-northeast-3.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-2",
      "Endpoint": "ec2.ap-northeast-2.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-1",
      "Endpoint": "ec2.ap-northeast-1.amazonaws.com"
    },
    {
      "OptInStatus": "opted-in",
      "RegionName": "me-central-1",
      "Endpoint": "ec2.me-central-1.amazonaws.com"
    }
  ]
}
```

```
{
  "Regions": [
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-south-1",
      "Endpoint": "ec2.ap-south-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-north-1",
      "Endpoint": "ec2.eu-north-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-3",
      "Endpoint": "ec2.eu-west-3.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-2",
      "Endpoint": "ec2.eu-west-2.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "eu-west-1",
      "Endpoint": "ec2.eu-west-1.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-3",
      "Endpoint": "ec2.ap-northeast-3.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-2",
      "Endpoint": "ec2.ap-northeast-2.amazonaws.com"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "RegionName": "ap-northeast-1",
      "Endpoint": "ec2.ap-northeast-1.amazonaws.com"
    },
    {
      "OptInStatus": "opted-in",
      "RegionName": "me-central-1",
      "Endpoint": "ec2.me-central-1.amazonaws.com"
    }
  ]
}
```

```
023-22411-061-rgb @ /workspaces/CC-Shumail-zahra-_-2023-BSE-061- (main) $
```

task5_describe_availability_zones

```
073-22411-061-rgb @ /workspaces/CC_Shumail-zahra-_-2023-BSE-061- (main) $ aws ec2 describe-availability-zones
{
  "AvailabilityZones": [
    {
      "OptInStatus": "opt-in-not-required",
      "Messages": [],
      "RegionName": "me-central-1",
      "ZoneName": "me-central-1a",
      "ZoneId": "mec1-az1",
      "GroupName": "me-central-1-zg-1",
      "NetworkBorderGroup": "me-central-1",
      "ZoneType": "availability-zone",
      "GroupLongName": "Middle East (UAE) 1",
      "State": "available"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "Messages": [],
      "RegionName": "me-central-1",
      "ZoneName": "me-central-1b",
      "ZoneId": "mec1-az2",
      "GroupName": "me-central-1-zg-1",
      "NetworkBorderGroup": "me-central-1",
      "ZoneType": "availability-zone",
      "GroupLongName": "Middle East (UAE) 1",
      "State": "available"
    },
    {
      "OptInStatus": "opt-in-not-required",
      "Messages": [],
      "RegionName": "me-central-1",
      "ZoneName": "me-central-1c",
      "ZoneId": "mec1-az3",
      "GroupName": "me-central-1-zg-1",
      "NetworkBorderGroup": "me-central-1",
      "ZoneType": "availability-zone",
      "GroupLongName": "Middle East (UAE) 1",
      "State": "available"
    }
  ]
}
```

Task 6 — IAM: create group, user, attach policies, create console login & keys

task6_create_group_and_user

```
073-22411-061-rgb @ /workspaces/CC_Shumail-zahra-_-2023-BSE-061- (main) $ aws iam create-group --group-name MyGroupCli
{
  "Group": {
    "Path": "/",
    "GroupName": "MyGroupCli",
    "GroupId": "AGPARC5V6TLZQOM0FP7DK",
    "Arn": "arn:aws:iam::075006647027:group/MyGroupCli",
    "CreateDate": "2025-12-05T18:07:57+00:00"
  }
}
073-22411-061-rgb @ /workspaces/CC_Shumail-zahra-_-2023-BSE-061- (main) $ aws iam get-group --group-name MyGroupCli
{
  "Users": [],
  "Group": {
    "Path": "/",
    "GroupName": "MyGroupCli",
    "GroupId": "AGPARC5V6TLZQOM0FP7DK",
    "Arn": "arn:aws:iam::075006647027:group/MyGroupCli",
    "CreateDate": "2025-12-05T18:07:57+00:00"
  }
}
073-22411-061-rgb @ /workspaces/CC_Shumail-zahra-_-2023-BSE-061- (main) $ aws iam create-user --user-name MyUserCli
{
  "User": {
    "Path": "/",
    "UserName": "MyUserCli",
    "UserId": "AIDARC5V6TLZXWCP0WP36",
    "Arn": "arn:aws:iam::075006647027:user/MyUserCli",
    "CreateDate": "2025-12-05T18:08:56+00:00"
  }
}
073-22411-061-rgb @ /workspaces/CC_Shumail-zahra-_-2023-BSE-061- (main) $ aws iam get-user --user-name MyUserCli
{
  "User": {
    "Path": "/",
    "UserName": "MyUserCli",
    "UserId": "AIDARC5V6TLZXWCP0WP36",
    "Arn": "arn:aws:iam::075006647027:user/MyUserCli",
    "CreateDate": "2025-12-05T18:08:56+00:00"
  }
}
```

task6_add_user_to_group_and_verify

```

root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam add-user-to-group --user-name MyUserCli --group-name MyGroupCli
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam get-group --group-name MyGroupCli
{
  "Users": [
    {
      "Path": "/",
      "UserName": "MyUserCli",
      "UserId": "AIDARC5V6TLZQM0FP36",
      "Arn": "arn:aws:iam::075006647027:user/MyUserCli",
      "CreateDate": "2025-12-05T18:08:56+00:00"
    }
  ],
  "Group": {
    "Path": "/",
    "GroupName": "MyGroupCli",
    "GroupId": "AGPARC5V6TLZQM0FP7DK",
    "Arn": "arn:aws:iam::075006647027:group/MyGroupCli",
    "CreateDate": "2025-12-05T18:07:57+00:00"
  }
}
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $

```

task6_policy_list_and_attach

```

root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam list-policies \
> --query 'Policies[?contains(PolicyName, 'EC2')].(Name:PolicyName)' \
> --output text
AmazonEC2FullAccess
AmazonEC2ReadOnlyAccess
AmazonElasticMapReduceforEC2Role
AmazonEC2RoleforDataPipelineRole
AmazonEC2ContainerServiceforEC2Role
AmazonEC2ContainerServiceRole
AmazonEC2RoleforAWSCodeDeploy
AmazonEC2RoleforSSM
CloudWatchActionsEC2Access
AmazonEC2ContainerRegistryReadOnly
AmazonEC2ContainerRegistryPowerUser
AmazonEC2ContainerRegistryFullAccess
AmazonEC2ContainerServiceAutoscaleRole
AmazonEC2SpotFleetAutoscaleRole
AWSElasticBeanstalkCustomPlatformforEC2Role
AmazonEC2ContainerServiceEventsRole
AmazonEC2SpotFleetTaggingRole
AWSEC2SpotServiceRolePolicy
AWSServiceRoleforEC2ScheduledInstances
AWSEC2SpotFleetServiceRolePolicy
AWSApplicationAutoscalingEC2SpotFleetRequestPolicy
AWSEC2FleetServiceRolePolicy
AWSAutoScalingPlansEC2AutoScalingPolicy
EC2InstanceConnect
AmazonEC2RolePolicyforLaunchWizard
EC2InstanceProfileforImageBuilder
EC2FleetTimeShifttableServiceRolePolicy
AmazonEC2RoleforAWSCodeDeploylimited
EC2InstanceProfileforImageBuilderECRContainerBuilds
AWSApplicationMigrationEC2Access
AWSEC2CapacityReservationFleetRolePolicy
EC2FastLaunchServiceRolePolicy
AmazonSSMManagedEC2InstanceDefaultPolicy
AWSFaultInjectionSimulatorEC2Access
EC2ImageBuilderLifecycleExecutionPolicy
AWSEC2VssSnapshotPolicy
EC2FastLaunchFullAccess
AmazonEC2ContainerRegistryPullOnly
DeclarativePoliciesEC2Report
AmazonEC2ImageReferencesAccessPolicy
AWSEC2CapacityManagerServiceRolePolicy
AWSEC2SqlHaServiceRolePolicy
AWSEC2SqlHaInstancePolicy
AWSLambdaManagedEC2ResourceOperator
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $

```

```

EC2ImageBuilderLifecycleExecutionPolicy
AWSEC2VssSnapshotPolicy
EC2FastLaunchFullAccess
AmazonEC2ContainerRegistryPullOnly
DeclarativePoliciesEC2Report
AmazonEC2ImageReferencesAccessPolicy
AWSEC2CapacityManagerServiceRolePolicy
AWSEC2SqlHaServiceRolePolicy
AWSEC2SqlHaInstancePolicy
AWSLambdaManagedEC2ResourceOperator
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam list-policies --query 'Policies[?PolicyName=="AmazonEC2FullAccess"].(Name:PolicyName, ARN:Arn)' --output table
+-----+-----+
| ListPolicies |
+-----+-----+
| ARN | Name |
+-----+-----+
| arn:aws:iam::aws:policy/AmazonEC2FullAccess | AmazonEC2FullAccess |
+-----+-----+

root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam attach-group-policy \
> --group-name MyGroupCli \
> --policy-arn arn:aws:iam::aws:policy/AmazonEC2FullAccess
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $ aws iam list-attached-group-policies --group-name MyGroupCli
{
  "AttachedPolicies": [
    {
      "PolicyName": "AmazonEC2FullAccess",
      "PolicyArn": "arn:aws:iam::aws:policy/AmazonEC2FullAccess"
    }
  ]
}
root@22411-061:~# /workspaces/CC_Shumail-zahra-2023-BSE-061- (main) $

```

task6_create_login_profile_and_signin

task6_create_access_key_output

task6_env_exports_and_get_user_error

task6 after logout and get user success

```

03 22411-061-rgb  ▣ /workspaces/CC- Shumail-zahra- --2023-RSE-061- (main) $ exit
logout
Connection to localhost closed.
PS C:\Users\Syed> aws iam get-user --user-name MyUserCli
aws : The term 'aws' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify
again.
At line:1 char:1
+ aws iam get-user --user-name MyUserCli
+ ~~~~~
+ CategoryInfo          : ObjectNotFound: (aws:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundHttpException

PS C:\Users\Syed> gh codespace ssh -c studios-spork-5g7g59647wv4cvjg
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-1030-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro
Last login: Fri Dec  5 17:44:46 2025 from ::1
03 22411-061-rgb  ▣ /workspaces/CC- Shumail-zahra- --2023-RSE-061- (main) $ aws iam get-user --user-name MyUserCli
{
  "User": {
    "Path": "/",
    "UserName": "MyUserCli",
    "UserId": "AIDARCSV6TLZXKCPOMP36",
    "Arn": "arn:aws:iam::075006647027:user/MyUserCli",
    "CreateDate": "2025-12-05T18:08:56+00:00"
  }
}
03 22411-061-rgb  ▣ /workspaces/CC- Shumail-zahra- --2023-RSE-061- (main) $

```

Task 7 — Filters: query with filters to find instances and their attributes

task7_filter_by_tag_public_ip

```
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=tag:Name,Values=MyServer" \
> --query "Reservations[*].Instances[*].PublicIpAddress" \
> --output text
3.28.240.198
```

task7_filter_by_instance_type

```
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=instance-type,Values=t3.micro" \
> --query "Reservations[].Instances[].InstanceId" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 |
+-----+
```

task7_filter_by_subnet

```
> --output table
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=subnet-id,Values=subnet-0600df5fa8ce60857" \
> --query "Reservations[*].Instances[*].InstanceId" \
> --output table
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-instances \
> --query "Reservations[*].Instances[*].[InstanceId,SubnetId]" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 | subnet-0d8f9fccb79043cbc |
+-----+
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=subnet-id,Values=subnet-0d8f9fccb79043cbc" \
> --query "Reservations[*].Instances[*].InstanceId" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 |
+-----+
023-22411-061-rgb /workspaces/CC-Shumail-zahra--2023-BSE-061- (main) $
```

task7_filter_by_vpc


```

823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $ aws ec2 describe-subnets --subnet-ids subnet-0d8f9fccb79043cbc
{
  "Subnets": [
    {
      "AvailabilityZoneId": "mec1-az3",
      "MapCustomerOwnedIpOnLaunch": false,
      "OwnerId": "075006647027",
      "AssignIpv6AddressOnCreation": false,
      "Ipv6CidrBlockAssociationSet": [],
      "SubnetArn": "arn:aws:ec2:me-central-1:075006647027:subnet/subnet-0d8f9fccb79043cbc",
      "EnableDns64": false,
      "Ipv6Native": false,
      "PrivateDnsNameOptionsOnLaunch": {
        "HostnameType": "ip-name",
        "EnableResourceNameDnsARecord": false,
        "EnableResourceNameDnsAAAARecord": false
      },
      "BlockPublicAccessStates": {
        "InternetGatewayBlockMode": "off"
      },
      "SubnetId": "subnet-0d8f9fccb79043cbc",
      "State": "available",
      "VpcId": "vpc-0f993bf131956a286",
      "CidrBlock": "172.31.0.0/20",
      "AvailableIpAddressCount": 4090,
      "AvailabilityZone": "me-central-1c",
      "DefaultForAz": true,
      "MapPublicIpOnLaunch": true
    }
  ]
}
823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=vpc-id,Values=vpc-0f993bf131956a286" \
> --query "Reservations[*].Instances[*].InstanceId" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 |
+-----+

```

Task 8 — Use --query to format outputs for reporting

task8_query_table_instances_name_ip

```

823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $ aws ec2 describe-instances \
> --filters "Name=tag:Name,Values=MyServer" \
> --query "Reservations[*].Instances[*].[InstanceId,PublicIpAddress,Tags[?Key=='Name'].Value[0]]" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 | 3.28.240.198 | MyServer |
+-----+
823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $

```

task8_query_table_instance_state

```

823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $ aws ec2 describe-instances \
> --query "Reservations[*].Instances[*].[InstanceId,State.Name]" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 | running |
+-----+

```

task8_query_table_instance_type_az

```

823-22411-061-rgb @ /workspaces/CC_-_Shumail-zahra_-_2023-BSE-061- (main) $ aws ec2 describe-instances \
> --query "Reservations[*].Instances[*].[InstanceId,InstanceType,Placement.AvailabilityZone]" \
> --output table
-----
| DescribeInstances |
+-----+
| i-0dcf5e8e4fdd23377 | t3.micro | me-central-1c |
+-----+

```

Cleanup — Remove resources to avoid charges

cleanup_terminate_instance

```

root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws ec2 terminate-instances --instance-ids i-0dcf5e8e4fdd23377
{
  "TerminatingInstances": [
    {
      "InstanceId": "i-0dcf5e8e4fdd23377",
      "CurrentState": {
        "Code": 32,
        "Name": "shutting-down"
      },
      "PreviousState": {
        "Code": 16,
        "Name": "running"
      }
    }
  ]
}

```

cleanup_delete_volumes_snapshots

The top screenshot shows the AWS Management Console 'Volumes' page. The left sidebar contains navigation links for Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), and Load Balancing (Load Balancers). The main content area shows a search bar, a table with columns Name, Volume ID, Type, Size, IOPS, Throughput, Snapshot ID, Source volume ID, and Created. A message states 'You currently have no volumes in this region'. Below this is a 'Fault tolerance for all volumes in this Region' section and a 'Snapshot summary' showing '0/0' volumes backed up.

The bottom screenshot shows the AWS Management Console 'Snapshots' page. The left sidebar is identical to the top screenshot. The main content area shows a search bar, a table with columns Name, Snapshot ID, Full snapshot size, Volume size, Description, Storage tier, and Snapshot status. A message states 'You currently have no snapshots in this Region.'.

cleanup_delete_security_group_and_keypair

```

root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws ec2 delete-security-group --group-id sg-08993822688556c15
{
  "Return": true,
  "GroupId": "sg-08993822688556c15"
}
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws ec2 delete-key-pair --key-name MyED25519Key
{
  "Return": true,
  "KeyPairId": "key-0b81774c1d1176a6a"
}

```

cleanup_iam_users_deleted

```

root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam delete-access-key --user-name MyUserCli --access-key-id AKIARC5V6TLZ46TSJR53
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam delete-login-profile --user-name MyUserCli
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam remove-user-from-group --user-name MyUserCli --group-name MyGroupCli
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam delete-user --user-name MyUserCli
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam detach-group-policy --group-name MyGroupCli --policy-arn arn:aws:iam::aws:policy/AmazonEC2FullAccess
root@i-22411-061-rgb: /workspaces/CC_Shumail-zahra_2023-BSE-061- (main) $ aws iam delete-group --group-name MyGroupCli

```

cleanup_summary

Account ID: 0750-0664-7027

Shumail%20Zahra

Middle East (UAE)

[Alt+S]

Search

Find resources to tag in the current region - Middle East (UAE)

You can search for the resources that you want to tag. Then you can add, remove, or edit tags for the resources in your search results. [Learn more](#)

Resource types

Select resource types

Tags - Optional

Tag key

Tag value - optional

Q Tag key

Q Tag value

Add

Type the tag key and optional values shared by the resources you want to search for, and then choose Add or press Enter.

Search resources

Resource search results

Export to CSV

Manage tags of selected resources

Choose up to 500 resources for which you want to edit tags.

Filter resources

< 1 >

Identifier

Tag Name

Service

Type

Region

Tags

To see results, click the Search resources button.

Account ID: 0750-0664-7027

Shumail%20Zahra

Global

[Alt+S]

Search

Billing and Cost Management

Bills

Billing and Cost Management

Billing View

Home

Getting Started

Dashboards

Billing and Payments

Bills

Payments

Credits

Purchase Orders

Cost and Usage Analysis

Cost Explorer

Cost Explorer Saved Reports

Cost Anomaly Detection

Free Tier

Data Exports

Customer Carbon Footprint Tool

Bills

Download all to CSV

Print

Billing period: December 2025

Page refresh time: Saturday, December 6, 2025 at 12:02:27 AM GMT+5

AWS estimated bill summary

Total charges and payment information

Account ID

Billing period

Bill status

075006647027

December 1 - December 31, 2025

Pending

Service provider

Total in USD

Amazon Web Services, Inc.

USD 0.00

Estimated grand total:

USD 0.00

Payment information

Highest estimated cost by service provider

Viewing Amazon Web Services, Inc.

Highest service spend

Trend compared to prior month

Highest AWS Region spend

Trend compared to prior month

USD 0.00

No data to display.

USD 0.08

No data to display.

Account ID: 0750-0664-7027

Shumail%20Zahra

Global

[Alt+S]

Search

Billing and Cost Management

Bills

Billing and Cost Management

Billing View

Home

Getting Started

Dashboards

Billing and Payments

Bills

Payments

Credits

Purchase Orders

Cost and Usage Analysis

Cost Explorer

Cost Explorer Saved Reports

Cost Anomaly Detection

Free Tier

Data Exports

Customer Carbon Footprint Tool

Amazon Web Services, Inc. charges by service

Expand all

Total active services

Total pre-tax service charges in USD

9

USD 0.00

Filter by service name or region name

< 1 >

Description

Usage Quantity

Amount in USD

Data Transfer

USD 0.00

Elastic Compute Cloud

USD 0.00

Glue

USD 0.00

Key Management Service

USD 0.00

Secrets Manager

USD 0.00

Simple Notification Service

USD 0.00

Simple Queue Service

USD 0.00

Simple Storage Service

USD 0.00

Virtual Private Cloud

USD 0.00