Cloud Specialist at Firefly - Home Assignment

Introduction:
This assignment aims to assess your technical self-learning abilities, proficiency in working with the AWS cloud, Terraform Infrastructure as Code, and familiarity with Linux commands. It is designed to be relatively easy and should take approximately 1-2 hours, including the time required for learning if you possess the relevant background.

For this assignment, document every step with detailed **screenshots and explanations**. For each significant action or decision, provide a brief description of what you did and why. If you encounter any errors, include the error message, attach screenshots, and describe your troubleshooting process. Even if unresolved, explain your approach. Be thorough and organized in your documentation to help us understand your workflow and problem-solving skills.

Submission:
Please complete the assignment and send the assignment file which includes the answers and the documentation via email.

Note- Please use the latest version of the Terraform provider and the AWS provider.
Also, don't forget to destroy all of the infrastructure when you finish the assignment.

 GOOD LUCK! 

Assignment:

Part 1

1. Create a Free Tier AWS account:
    - Sign up for a Free Tier AWS account by visiting the AWS website (https://aws.amazon.com/free/) and following the registration process.
2. Learn about Terraform:
    - Familiarize yourself with Terraform, an open-source Infrastructure as Code tool provided by HashiCorp, by referring to the official documentation and online tutorials.
3. Create an EC2 instance with a dedicated VPC and Subnet:
    - Use Terraform to define and provision an EC2 instance on AWS.
    - Configure the EC2 instance to run within a dedicated Virtual Private Cloud (VPC) and Subnet.
    - Ensure that the EC2 instance is accessible via SSH or other appropriate means.
4. Create an S3 bucket:
    - Utilize Terraform to create an S3 bucket on AWS.
    - Configure the bucket with appropriate access permissions and settings.
5. Connect to the EC2 instance using the AWS CLI or the UI:
    - Demonstrate your ability to connect to the provisioned EC2 instance either through the AWS Command Line Interface (CLI) or the AWS Management Console.
6. Create a text file using the echo command containing the word "Firefly":
    - Once connected to the EC2 instance, utilize the terminal and create a text file named "firefly.txt" that contains the word "Firefly".
      Make sure to document the process.
7. Write the file from the EC2 terminal to the S3 bucket:
    - From the EC2 instance's terminal, use AWS CLI or appropriate commands to upload the "firefly.txt" file to the previously created S3 bucket.
      Make sure to document the process.

Part 2

1. Configuration Modification
    a. Access to the AWS Management Console, and change the following attributes to the following resources you have just created:
        - Modify the tags of your **EC2 instance** and add a tag named *Vendor: Firefly*
        - Update the **security group** inbound rules, so port 80 will be opened from anywhere.
    b. Use TF to identify those changes
    c. Use TF to align your IaC in order to remediate those change
    d. Include any relevant screenshots and explanations of the steps you took.

2. Learning new S3 bucket attributes

Versioning—Bucket versioning allows you to store multiple versions of an object, helping you recover from accidental deletions or overwrites.

    a. Try to enable versioning for the existing S3 bucket within the same resource block and apply changes.
    b. If an error is raised, Set the versioning configuration as it should be and explain in what scenario this attribute could be valid within the S3 block.

3. Security Group Creation and Integration with Terraform
    a. Access the AWS Management Console and create a new security group that meets the requirements of your infrastructure.
    b. After creating the security group, find a way to bring this new security group into your Terraform state file.
    c. Once the new security group is part of the state file, update your existing EC2 instance configuration to replace the current security group with the new one you created.

4. Access to app.firefly.ai using your Gmail account. On the onboarding page, choose “Sandbox” (please share your Gmail account so we can whitelist it for accessing the Firefly app).
Review the system and navigate through the screen. Use the system and review the documentation to understand Firefly's offering.
After exploring our SaaS solution, which feature did you find the most interesting? How do you think it adds value to cloud engineers?