Assignment

For this assignment, you will be provisioning AWS resources using Terraform. Specifically, you will be creating secrets in AWS Secrets Manager and IAM policies & permissions to gain authorized access to those secrets.

After that you will build a basic software development workflow using Github Actions. The Github Actions workflow will access secrets and output them in a human-readable manner.

Upon completion, our team will schedule time to review the assignment with you. You should be prepared to answer questions about the assignment implementation, as well as the mechanics of how to iterate upon it to support a different form of access control.

The parts of this assignment are described in more detail below.

NOTE: You will need to create an AWS account (if you do not already have one). All AWS services used for this assignment are available in the AWS Free Tier should you choose to take advantage of that (note that AWS Secrets Manager has a 30-day free trial).

Part 1: Provision AWS Resources

Create a secret in AWS Secrets Manager with a name of `extend-interview/<your_name>` (replacing the value of `<your_name>`) and a plaintext value set to the current date in `MM/DD/YYYY` format.

> Example:
> `name: extend-interview/mattyeh`
> `value: 01/30/2020`

This resource can only be accessed by specific IAM roles (ie, role-based access control, or RBAC). Create 2 separate IAM roles, one named `interview-bot` and the other named `interview-developer`. Only the `interview-bot` role can read the secret created above.

We would like to see all of the resources above provisioned in code using Terraform. Please commit these into a Github repository.

Part 2: Build Development Workflow

In that same Github repository, add a Github Action workflow. You are free to use any existing Github Action 'library' to facilitate building the workflow (otherwise, write the shell commands yourself).

This workflow should be triggered whenever a new pull request is opened or synchronized on the `main` branch (or whatever the default branch is of that repository).

This workflow should:

- Assume the role of an interview-bot
- Fetch the secret
- Log the secret to a file
- Upload the logfile as a Github Action artifact

Part 3: Understand Attribute-Based Access Control

In addition to being asked questions about the assignment itself, we ask that you be prepared to understand the concepts of Attribute-Based Access Control (ABAC) and answer any questions about how your assignment code would change in order to support that form of access control. If you are unfamiliar with this and would like more hands-on learning, there is an AWS-provided workshop on this topic.

If you would like, you may choose to modify your code in order to support ABAC. This is purely optional. If you decide to do this, we ask that you make those changes in a separate branch in the Github repository.

Deliverables

There will be 2 deliverables for this assignment.

The first deliverable is a link to a Github repository which contains:

- Terraform code.
- Terraform plan output saved as a text file.
- Github Actions code.

The second deliverable is a link to one of the Github Actions workflow jobs which shows the expected output.

An optional third deliverable is a link to the pull request showing the changes necessary to implement ABAC.