**ENGAGEDLY INC.**

**“Practical Task”**

This document outlines the setup of a basic AWS infrastructure using Terraform. It includes the creation of a VPC, subnets, an internet gateway, route tables, security groups, EC2 instances, and an Application Load Balancer (ALB).

Set up a private network for multiple remote machines that need to communicate with each other securely.

**1. Provider Configuration**

* Specifies the AWS region to use: us-west-2.

**2. VPC**

* Creates a VPC with the CIDR block 10.1.0.0/16.
* DNS support and hostnames are enabled.

**3. Internet Gateway**

* An internet gateway is attached to the VPC.

**4. Route Table**

* A route table is created for the VPC.
* A default route is added to allow outbound internet access through the internet gateway.

**5. Subnets**

Two subnets are created:

* app\_subnet\_a in us-west-2a with CIDR 10.1.1.0/24.
* app\_subnet\_b in us-west-2b with CIDR 10.1.2.0/24.

**6. Route Table Associations**

* The subnets are associated with the route table to enable internet access.

**7. Security Groups**

* Frontend Security Group (frontend\_sg):
* Allows HTTP (port 80) and HTTPS (port 443) traffic from any source.
* Permits all outbound traffic.
* Database Security Group (database\_sg):
* Allows PostgreSQL traffic (port 5432) from the frontend security group.
* Permits all outbound traffic.

**8. EC2 Instances**

Frontend Instance:

* Uses a specified AMI.
* Runs in app\_subnet\_a with the frontend security group.
* User data script installs Nginx and sets up a welcome page.

Database Instance:

* Uses a specified AMI.
* Runs in app\_subnet\_b with the database security group.
* User data script installs PostgreSQL and configures it.

**9. Application Load Balancer (ALB)**

* An ALB is created to balance traffic across the subnets.
* A listener is configured to forward HTTP traffic to a target group.
* The target group checks the health of instances by requesting the root path (/).

This setup provides a simple, scalable infrastructure with separate subnets for application and database layers, secured by appropriate security groups, and balanced by an ALB.