This Terraform project provisions a AWS infrastructure for creating public and private EC2 instance with RDS PostgreSQL database backend.

**Architecture Overview**

This infrastructure deploys a highly available, scalable web application with the following components:

* **Region**: ap-south-1 (Mumbai)
* **Organization**: hddevops01
* **Team**: august bootcamp

**Infrastructure Components**

**Network (network.tf)**

* **VPC**: Custom VPC with CIDR 10.0.0.0/16
* **Subnets**:
  + 1 Public Subnet - 10.0.1.0/24 - for Public EC2 instance
  + 2 Private Subnets - 10.0.2.0/24 and 10.0.3.0/24 - for Private EC2 instance
  + 2 RDS Subnets (10.0.2.0/24 and 10.0.3.0/24) across AZ a & b - for database
* **Internet Gateway**: For public subnet internet access
* **NAT Gateway**: With Elastic IP for private subnet outbound traffic
* **Route Tables**: Separate routing for public and private subnets

**Application Layer (ec2.tf)**

* **EC2 Public instance.**
* **EC2 Private instance.**

**Database Layer (rds.tf)**

* **RDS PostgreSQL**:
  + Engine: PostgreSQL 14.15
  + Instance: db.t3.micro
  + Storage: 30 GB (auto-scaling up to 50 GB), encrypted with KMS
  + Backup retention: 7 days
  + Multi-AZ deployment via subnet group
  + Not publicly accessible
* **DB Subnet Group**: Spans both RDS subnets
* **Security Group**: Allows inbound on port 5432 from EC2 Private instance only
* **Secrets Manager**: Stores database connection string securely
* **Random Password**: Generated for RDS master user















