```
main.tf  terraform.tfstate  terraform.tfstate.backup
[ec2-user@ip-172-31-2-112 terrafromvpc]$ cat main.tf
provider "aws" {
  region = "ap-south-1" # Adjust the region as needed
}


resource "aws_vpc" "my_vpc" {
  cidr_block = "10.0.0.0/16"
  enable_dns_support = true
  enable_dns_hostnames = true
  tags = {
    Name = "my-vpc"
  }
}


resource "aws_subnet" "public_subnet" {
  vpc_id     = aws_vpc.my_vpc.id
  cidr_block = "10.0.1.0/24"
  availability_zone = "ap-south-1a" # Adjust as needed
  map_public_ip_on_launch = true
  tags = {
    Name = "public-subnet"
  }
}


resource "aws_subnet" "private_subnet" {
  vpc_id     = aws_vpc.my_vpc.id
  cidr_block = "10.0.2.0/24"
  availability_zone = "ap-south-1a" # Adjust as needed
  tags = {
    Name = "private-subnet"
  }
}


resource "aws_internet_gateway" "igw" {
  vpc_id = aws_vpc.my_vpc.id
  tags = {
    Name = "my-igw"
  }
}


resource "aws_route_table" "public_route_table" {
  vpc_id = aws_vpc.my_vpc.id

  route {
    cidr_block = "0.0.0.0/0"
    gateway_id = aws_internet_gateway.igw.id
  }

  tags = {
    Name = "public-route-table"
  }
}


resource "aws_route_table_association" "public_route_table_assoc" {
  subnet_id      = aws_subnet.public_subnet.id
```

```
 route_table_id = aws_route_table.public_route_table.id
}



resource "aws_security_group" "web_sg" {
 vpc_id = aws_vpc.my_vpc.id

 egress {
  from_port   = 0
  to_port     = 0
  protocol    = "tcp"
  cidr_blocks = ["0.0.0.0/0"]
 }

 ingress {
  from_port   = 80
  to_port     = 80
  protocol    = "tcp"
  cidr_blocks = ["0.0.0.0/0"]
 }

 ingress {
  from_port   = 443
  to_port     = 443
  protocol    = "tcp"
  cidr_blocks = ["0.0.0.0/0"]
 }

 tags = {
  Name = "web-sg"
 }
```

```
}



resource "aws_instance" "web_instance" {
  ami           = "ami-0e53db6fd757e38c7" # Example AMI; choose one suitable for your region
  instance_type = "t2.micro"
  subnet_id     = aws_subnet.public_subnet.id
  vpc_security_group_ids = [aws_security_group.web_sg.id]

  user_data = <<-EOF
              #!/bin/bash
              sudo apt-get update
              sudo apt-get install -y nginx
              sudo systemctl start nginx
              sudo systemctl enable nginx
              EOF

  tags = {
    Name = "web-instance"
  }
}

output "instance_public_ip" {
  value = aws_instance.web_instance.public_ip
}
```