

# **Week 5- Group A (Task)**

## **Two Tier Infrastructure Setup with Packer and Terraform**

### **Task**

Fork/Copy: • application code repo: [https://github.com/techbleat/fruits-veg\\_market](https://github.com/techbleat/fruits-veg_market)

• Infrastructure code repo: <https://github.com/techbleat/class2025iac>

Redo Week 4 task, this time creating 2 AMIs using Packer; Node 1 [NGINX] and Node 2 [Java 17 /Python3]. Then, use Terraform to spin up the following infrastructure leveraging the AMIs created.

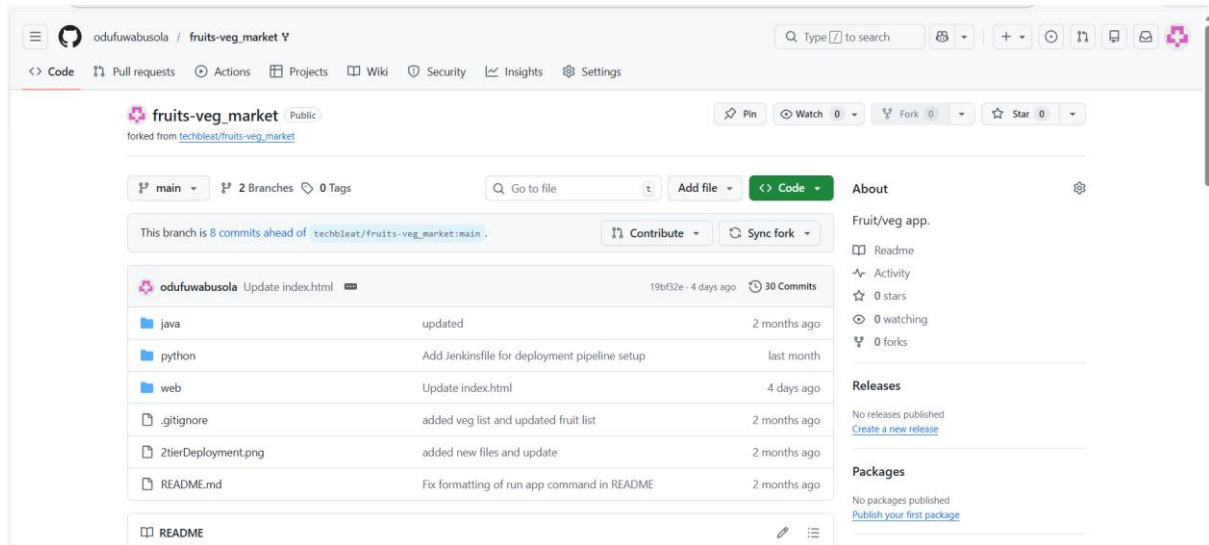
- Node 1: A frontend/Tier 1 system running NGINX
- Node 2: A backend/Tier 2 system running Python 3 o should run on port 8080
- Node 3: A backend/Tier 2 system running Java 17 o should run on port 9090 After completion:
  1. share screenshots of your infrastructure
  2. Share your GitHub repo(s) Remember to exclude .terraform directory and other files not needed when pushing your code to the repo.

### **Implementation Steps**

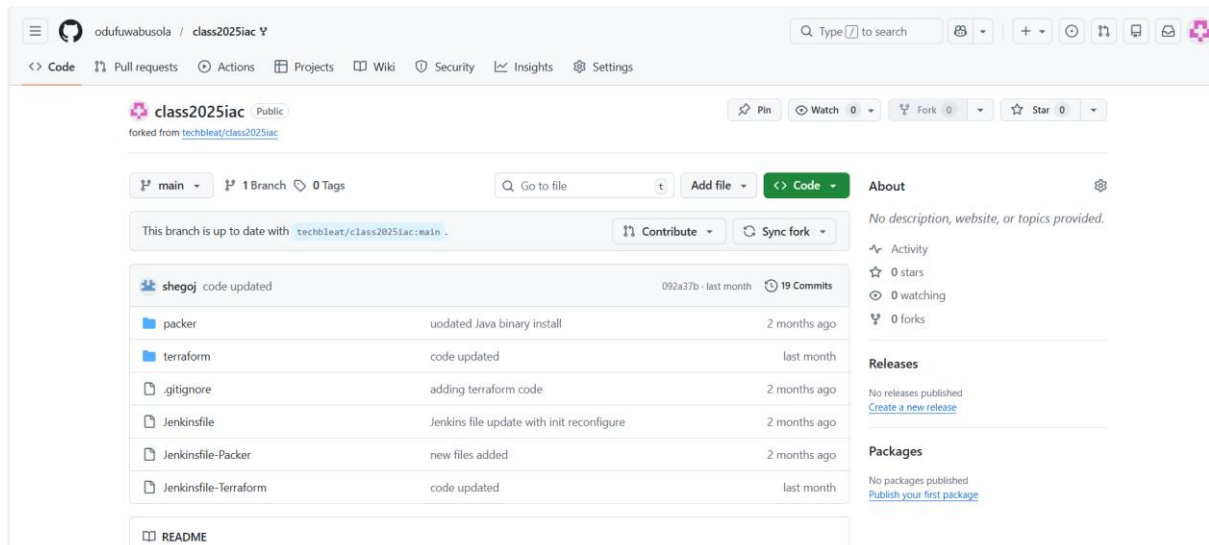
1. Fork/copy the application code repo and the infrastructure code repo
2. Created AMI images using packer
3. Created a tool server for execution
4. Created terraform to spin up the following infrastructure (nginx, python (8080) and java (9090)
5. Configure the load balancing for frontend/Tier 1 – Nginx, backend/Tier2- Python on port 8080 and backend/Tier 2 java on port 9090.

## Fork/Copy

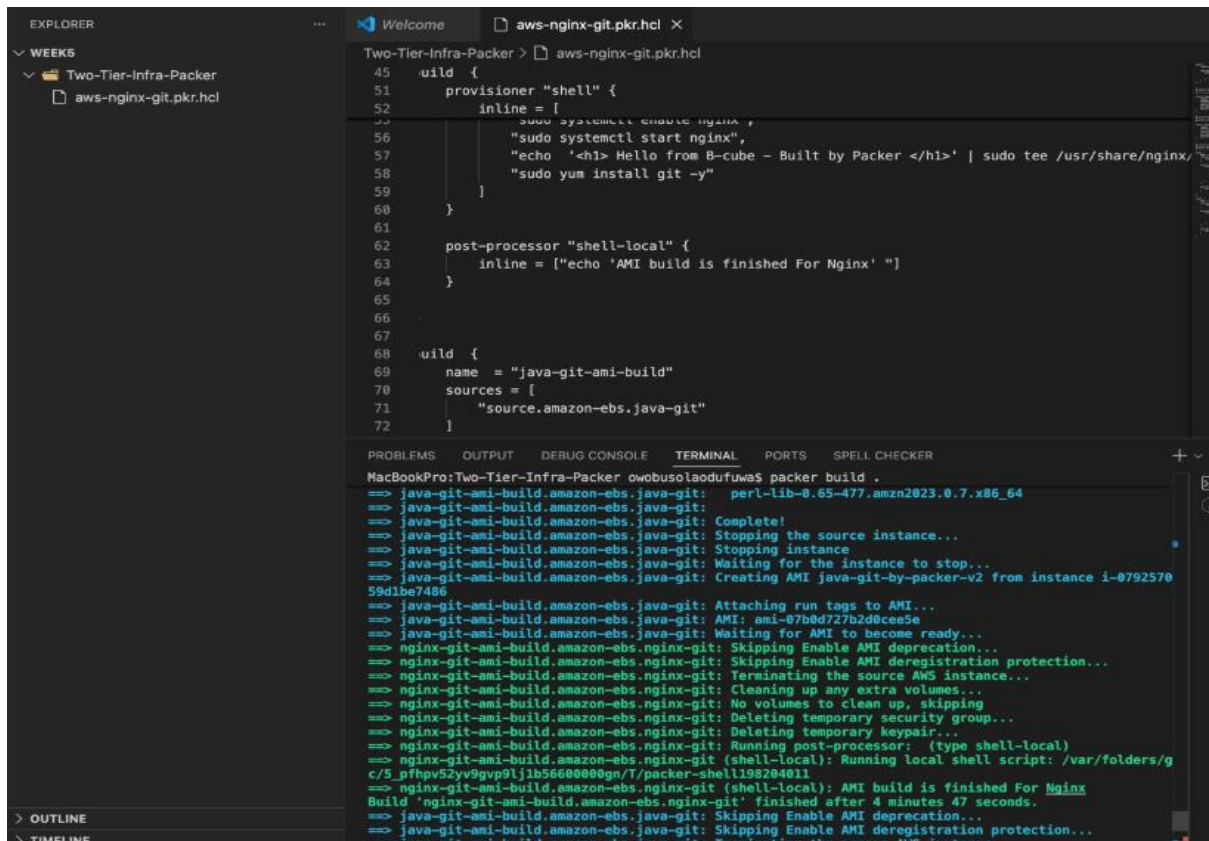
- application code repo: [https://github.com/techbleat/fruits-veg\\_market](https://github.com/techbleat/fruits-veg_market)



- Infrastructure code repo: <https://github.com/techbleat/class2025iac>



## Packer

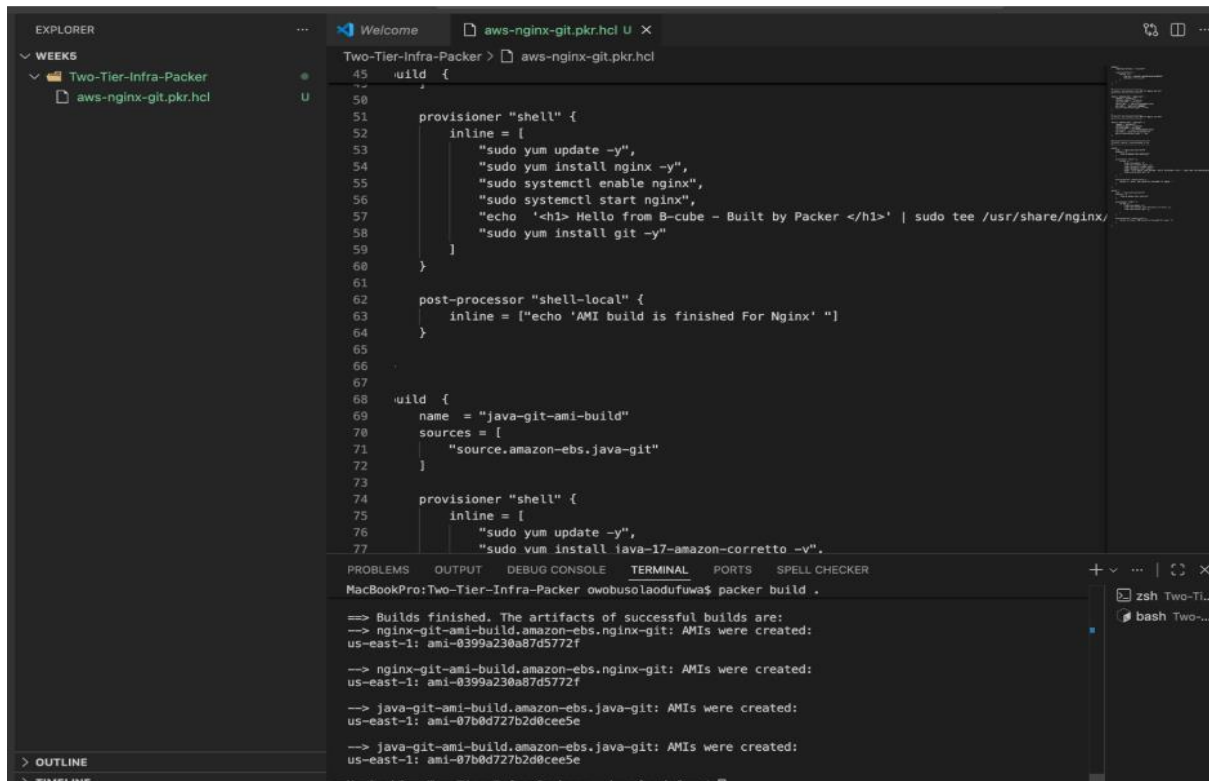


```
Two-Tier-Infra-Packer > aws-nginx-git.pkr.hcl
45  build {
51    provisioner "shell" {
52      inline = [
53        "sudo systemctl enable nginx",
54        "sudo systemctl start nginx",
55        "echo '<h1> Hello from B-cube - Built by Packer </h1>' | sudo tee /usr/share/nginx/html/index.html",
56        "sudo yum install git -y"
57      ]
58    }
59  }
60
61  post-processor "shell-local" {
62    inline = ["echo 'AMI build is finished For Nginx' "]
63  }
64
65
66
67
68  build {
69    name = "java-git-ami-build"
70    sources = [
71      "source.amazon-ec2.java-git"
72    ]
73  }
```

MacBookPro:Two-Tier-Infra-Packer owobusolaodufuwa\$ packer build .

```
=> java-git-ami-build.amazon-ec2.java-git: perl-lib-0.65-477.amzn2023.0.7.x86_64
=> java-git-ami-build.amazon-ec2.java-git: Complete!
=> java-git-ami-build.amazon-ec2.java-git: Stopping the source instance...
=> java-git-ami-build.amazon-ec2.java-git: Stopping instance
=> java-git-ami-build.amazon-ec2.java-git: Waiting for the instance to stop...
=> java-git-ami-build.amazon-ec2.java-git: Creating AMI java-git-by-packer-v2 from instance i-079257059d1be7486
=> java-git-ami-build.amazon-ec2.java-git: Attaching run tags to AMI...
=> java-git-ami-build.amazon-ec2.java-git: AMI: ami-07b0d727b2d0cee5e
=> java-git-ami-build.amazon-ec2.java-git: Waiting for AMI to become ready...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Skipping Enable AMI deprecation...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Skipping Enable AMI deregistration protection...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Terminating the source AWS instance...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Cleaning up any extra volumes...
=> nginx-git-ami-build.amazon-ec2.nginx-git: No volumes to clean up, skipping
=> nginx-git-ami-build.amazon-ec2.nginx-git: Deleting temporary security group...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Deleting temporary keypair...
=> nginx-git-ami-build.amazon-ec2.nginx-git: Running post-processor: (type shell-local)
=> nginx-git-ami-build.amazon-ec2.nginx-git (shell-local): Running local shell script: /var/folders/g/c/5_pfhpy52yv9v9p9ljb5660000gn/T/packer-shell198204011
=> nginx-git-ami-build.amazon-ec2.nginx-git (shell-local): AMI build is finished For Nginx
Build 'nginx-git-ami-build.amazon-ec2.nginx-git' finished after 4 minutes 47 seconds.
=> java-git-ami-build.amazon-ec2.java-git: Skipping Enable AMI deprecation...
=> java-git-ami-build.amazon-ec2.java-git: Skipping Enable AMI deregistration protection...
```

## Packer successfully Installed



```
Two-Tier-Infra-Packer > aws-nginx-git.pkr.hcl
45  build {
51    provisioner "shell" {
52      inline = [
53        "sudo yum update -y",
54        "sudo yum install nginx -y",
55        "sudo systemctl enable nginx",
56        "sudo systemctl start nginx",
57        "echo '<h1> Hello from B-cube - Built by Packer </h1>' | sudo tee /usr/share/nginx/html/index.html",
58        "sudo yum install git -y"
59      ]
60    }
61  }
62
63  post-processor "shell-local" {
64    inline = ["echo 'AMI build is finished For Nginx' "]
65  }
66
67
68  build {
69    name = "java-git-ami-build"
70    sources = [
71      "source.amazon-ec2.java-git"
72    ]
73  }
74
75  provisioner "shell" {
76    inline = [
77      "sudo yum update -y",
78      "sudo yum install java-17-amazon-corretto -v"
79    ]
80  }
```

MacBookPro:Two-Tier-Infra-Packer owobusolaodufuwa\$ packer build .

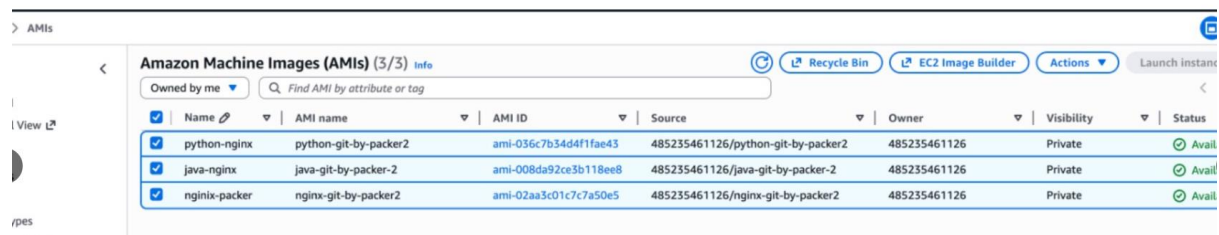
```
=> Builds finished. The artifacts of successful builds are:
-> nginx-git-ami-build.amazon-ec2.nginx-git: AMIs were created:
us-east-1: ami-0399a230a87d5772f

-> nginx-git-ami-build.amazon-ec2.nginx-git: AMIs were created:
us-east-1: ami-0399a230a87d5772f

-> java-git-ami-build.amazon-ec2.java-git: AMIs were created:
us-east-1: ami-07b0d727b2d0cee5e

-> java-git-ami-build.amazon-ec2.java-git: AMIs were created:
us-east-1: ami-07b0d727b2d0cee5e
```

## AMI Images created from Packer

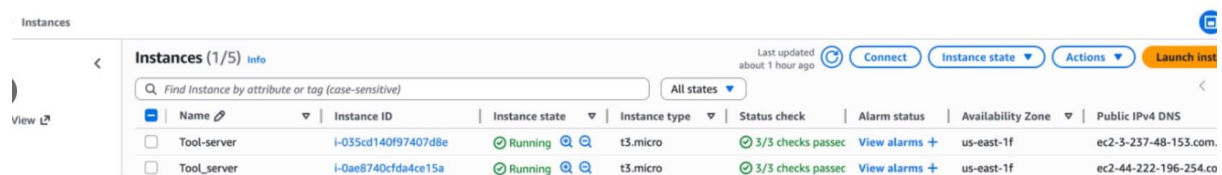


Amazon Machine Images (AMIs) (3/3) Info

Owned by me Find AMI by attribute or tag

	Name	AMI name	AMI ID	Source	Owner	Visibility	Status
<input checked="" type="checkbox"/>	python-nginx	python-git-by-packer2	ami-036c7b34d4f1fae43	485235461126/python-git-by-packer2	485235461126	Private	Available
<input checked="" type="checkbox"/>	java-nginx	java-git-by-packer-2	ami-008da92ce3b118ee8	485235461126/java-git-by-packer-2	485235461126	Private	Available
<input checked="" type="checkbox"/>	nginx-packer	nginx-git-by-packer2	ami-02aa3c01c7c7a50e5	485235461126/nginx-git-by-packer2	485235461126	Private	Available

## Tool Server



Instances (1/5) Info

Last updated about 1 hour ago

Find Instance by attribute or tag (case-sensitive) All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	Tool-server	i-035cd140f97407d8e	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-3-237-48-153.com
<input type="checkbox"/>	Tool_server	i-0ae8740cfd44ce15a	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-222-196-254.co

## Terraform initiated (vscode)

```
MacBookPro:terraform owobusolaodufuwa$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding hashicorp/aws versions matching "~> 5.0"...
- Installing hashicorp/aws v5.100.0...
- Installed hashicorp/aws v5.100.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
```

## Terrafoam initiated (aws- ec2)

```
[ec2-user@ip-172-31-75-37 Two-Tier-Infra-Packer]$ cd terraform/
-bash: cd: terraform/: No such file or directory
[ec2-user@ip-172-31-75-37 Two-Tier-Infra-Packer]$ cd terrafoam
[ec2-user@ip-172-31-75-37 terrafoam]$ ls
main.tf
[ec2-user@ip-172-31-75-37 terrafoam]$ terraform init
Initializing the backend...
Initializing provider plugins...

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
[ec2-user@ip-172-31-75-37 terrafoam]$
```

```

Plan: 6 to add, 0 to change, 3 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_security_group.java_web: Destroying... [id=sg-031e80f167d090ae5]
aws_security_group.nginx_web: Destroying... [id=sg-09edebb86d4ed436b]
aws_security_group.python_web: Destroying... [id=sg-0e2f3130fe454e390]
aws_security_group.nginx_web: Destruction complete after 1s
aws_security_group.nginx_web: Creating...
aws_security_group.python_web: Destruction complete after 1s
aws_security_group.python_web: Creating...
aws_security_group.java_web: Destruction complete after 1s
aws_security_group.java_web: Creating...
aws_security_group.python_web: Creation complete after 2s [id=sg-01c8815caa4d4e7e7]
aws_security_group.nginx_web: Creation complete after 2s [id=sg-0ddc644d1099ac846]
aws_security_group.java_web: Creation complete after 2s [id=sg-0e3bca4d7e7c40e8d]
aws_instance.python-node: Creating...
aws_instance.nginx-node: Creating...
aws_instance.java-node: Creating...
aws_instance.python-node: Still creating... [00m10s elapsed]
aws_instance.nginx-node: Still creating... [00m10s elapsed]
aws_instance.java-node: Still creating... [00m10s elapsed]
aws_instance.nginx-node: Creation complete after 13s [id=i-05fb3eef145ea4cc5]
aws_instance.java-node: Creation complete after 13s [id=i-0d049d82ca20b54f1]
aws_instance.python-node: Creation complete after 13s [id=i-04af527faca8e0794]

Apply complete! Resources: 6 added, 0 changed, 3 destroyed.
[ec2-user@ip-172-31-75-37 terraform]$

```

The three nodes were created using terraform

Instances	<input checked="" type="checkbox"/>	terraform-python-node	i-04af527faca8e0794	<span>Running</span>	<a href="#">t3.micro</a>	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-44-222-117-8.com...	44.222
Instance Types	<input type="checkbox"/>	terraform-java-node	i-0d049d82ca20b54f1	<span>Running</span>	<a href="#">t3.micro</a>	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-44-192-247-43.co...	44.192
Launch Templates	<input type="checkbox"/>	terraform-nginx-node	i-05fb3eef145ea4cc5	<span>Running</span>	<a href="#">t3.micro</a>	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-3-237-18-165.com...	3.237
Spot Requests										
Savings Plans										

## Nginx from Terraform

EC2

Instances

Dashboard

EC2 Global View

Events

▼ Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Capacity Manager

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

▼ Network & Security

Security Groups

Instances (1/5)

Find Instance by attribute or tag (case-sensitive)

All states

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
<input type="checkbox"/>	Tool-server	i-035cd140f97407d8e	<span>Running</span>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-3-237-48-153.com...	3.237
<input type="checkbox"/>	Tool_server	i-0ae8740cfd84ce15a	<span>Running</span>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-44-222-196-254.co...	44.222
<input type="checkbox"/>	terraform-python-node	i-04af527faca8e0794	<span>Running</span>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-44-222-117-8.com...	44.222
<input type="checkbox"/>	terraform-java-node	i-0d049d82ca20b54f1	<span>Running</span>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-44-192-247-43.co...	44.192
<input checked="" type="checkbox"/>	terraform-nginx-node	i-05fb3eef145ea4cc5	<span>Running</span>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms</a>	us-east-1f	ec2-3-237-18-165.com...	3.237

i-05fb3eef145ea4cc5 (terraform-nginx-node)

Security groups

sg-0ddc644d1099ac846 (terraform-20260121180159588100000001)

▼ Inbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-01e72f1073a0bd588	22	TCP	0.0.0.0/0	terraform-202601211801595881000...	SSH
-	sgr-0e3cee924005b6381	80	TCP	0.0.0.0/0	terraform-202601211801595881000...	HTTP



# Java from Terraform running on port 9090

EC2 > Instances

EC2

Dashboard  
EC2 Global View

Events

▼ Instances

Instances

Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances  
Dedicated Hosts  
Capacity Reservations  
Capacity Manager [New](#)

▼ Images

AMIs  
AMI Catalog

▼ Elastic Block Store

Volumes  
Snapshots  
Lifecycle Manager

▼ Network & Security

Security Groups  
Elastic IPs  
Placement Groups

Instances (1/5) info

Find Instance by attribute or tag (case-sensitive)

All states

Connect Instance state Actions Launch instances

Last updated 1 minute ago

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
<input type="checkbox"/> Tool-server	i-035cd140f97407d8e	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-3-237-48-153.com...	3.237.4
<input type="checkbox"/> Tool_server	i-0ae8740cfd4ce15a	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-222-196-254.co...	44.222
<input type="checkbox"/> terraform-python-node	i-04af527faca8e0794	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-222-117-8.com...	44.222
<input checked="" type="checkbox"/> terraform-java-node	i-0d049d82ca20b54f1	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-192-247-43.co...	44.192
<input type="checkbox"/> terraform-nginx-node	i-05fb3eef145ea4cc5	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-3-237-18-165.com...	3.237.7

i-0d049d82ca20b54f1 (terraform-java-node)

IAM Role ~

Owner ID 485235461126

Launch time Wed Jan 21 2026 18:02:03 GMT+0000 (Greenwich Mean Time)

Security groups

sg-0e3bca4d7e7c40ebd (terraform-20260121180159633500000003)

▼ Inbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-0e837840c22f49d60	9090	TCP	0.0.0.0/0	terraform-202601211801596335000...	HTTP
-	sgr-0b2edc8a5019e6274	22	TCP	0.0.0.0/0	terraform-202601211801596335000...	SSH

# Python from Terraform running on port 8080

EC2 > Instances

EC2

Dashboard  
EC2 Global View

Events

▼ Instances

Instances

Instance Types  
Launch Templates  
Spot Requests  
Savings Plans  
Reserved Instances  
Dedicated Hosts  
Capacity Reservations  
Capacity Manager [New](#)

▼ Images

AMIs  
AMI Catalog

▼ Elastic Block Store

Volumes  
Snapshots  
Lifecycle Manager

▼ Network & Security

Security Groups  
Elastic IPs  
Placement Groups

Instances (1/5) info

Find Instance by attribute or tag (case-sensitive)

All states

Connect Instance state Actions Launch instances

Last updated 1 minute ago

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
<input type="checkbox"/> Tool-server	i-035cd140f97407d8e	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-3-237-48-153.com...	3.237.4
<input type="checkbox"/> Tool_server	i-0ae8740cfd4ce15a	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-222-196-254.co...	44.222
<input checked="" type="checkbox"/> terraform-python-node	i-04af527faca8e0794	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-222-117-8.com...	44.222
<input type="checkbox"/> terraform-java-node	i-0d049d82ca20b54f1	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-44-192-247-43.co...	44.192
<input type="checkbox"/> terraform-nginx-node	i-05fb3eef145ea4cc5	Running	t3.micro	3/3 checks passed	View alarms +	us-east-1f	ec2-3-237-18-165.com...	3.237.7

i-04af527faca8e0794 (terraform-python-node)

sg-01c8815caa4d4e7e7 (terraform-20260121180159608400000002)

▼ Inbound rules

Filter rules

Name	Security group rule ID	Port range	Protocol	Source	Security groups	Description
-	sgr-0a22cb5c4265ea67f	22	TCP	0.0.0.0/0	terraform-202601211801596084000...	SSH
-	sgr-04587c516d35eacd	8080	TCP	0.0.0.0/0	terraform-202601211801596084000...	HTTP

# Nginx


```
Verifying : nginx-core-1:1.28.0-1.amzn2023.0.2.x86_64
Verifying : nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
Verifying : nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch


Installed:
generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch      gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64      libunwind-1.4.0-5.amzn2023.0.3.x86_64      nginx-1:1.28.0-1.amzn2023.0.2.x86_64
nginx-core-1:1.28.0-1.amzn2023.0.2.x86_64      nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch      nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch


Complete!
[root@ip-172-31-70-26 ~]# ls
[root@ip-172-31-70-26 ~]# pwd
/root
[root@ip-172-31-70-26 ~]# cd ..
[root@ip-172-31-70-26 ~]# pwd
/
[root@ip-172-31-70-26 ~]# cd -
[root@ip-172-31-70-26 ~]# mkdir week-5
[root@ip-172-31-70-26 ~]# cd week-5
[root@ip-172-31-70-26 week-5]# ls
[root@ip-172-31-70-26 week-5]# git clone https://github.com/odufuwabusola/fruits-veg_market.git
Cloning into 'fruits-veg_market'...
remote: Enumerating objects: 128, done.
remote: Counting objects: 100% (22/22), done.
remote: Compressing objects: 100% (47/47), done.
remote: Total 128 (delta 47), reused 27 (delta 25), pack-reused 56 (from 1)
Receiving objects: 100% (128/128), 1.69 MiB | 43.26 MiB/s, done.
Resolving deltas: 100% (64/64), done.
[root@ip-172-31-70-26 week-5]# ls
fruits-veg_market
[root@ip-172-31-70-26 week-5]# cd fruits-veg_market/
[root@ip-172-31-70-26 fruits-veg_market]# ls
2tierDeployment.png README.md java python web
[root@ip-172-31-70-26 fruits-veg_market]# cd web
[root@ip-172-31-70-26 web]# ls
jenkinsfile index.html
[root@ip-172-31-70-26 web]# cd index.html
-bash: cd: index.html: Not a directory
[root@ip-172-31-70-26 web]# sudo cp index.html /usr/share/nginx/html/
[root@ip-172-31-70-26 web]# ls
jenkinsfile index.html
[root@ip-172-31-70-26 web]# sudo systemctl start nginx
```

# Frontend Load Balancer

← → ↻ 🔍 httpc2-3-227-254-242.compute-1.amazonaws.com

 Gmail

 YouTube

 Maps

## Produce List

Load Fruits

Load Vegetables

### Fruits (FastAPI)

Fruit	Price (\$)
-------	------------

### Vegetables (Java)

Vegetable	Price (\$)
-----------	------------

# Python Load balancer

## Produce List

Load Fruits

Load Vegetables

Loaded ✓

### Fruits (FastAPI)

Fruit	Price (\$)
Apple	1.20
Banana	0.80
Pineapple	2.20
Cherry	3.50
Orange	1.80
Blueberry	2.50
Lime	5.50
Mango	2.40
Kiwi	6.50
Organinc Cucumber	2.00
Lemon	2.00
Grapes	2.20

### Vegetables (Java)

Vegetable	Price (\$)
-----------	------------

Python running on port 8080

```
Using cached typing-inspection-0.4.2-py3-none-any.whl (14 kB)
Collecting anyio<5,>=3.6.2
Using cached anyio-4.12.1-py3-none-any.whl (113 kB)
Collecting idna>=2.8
  Downloading idna-3.11-py3-none-any.whl (71 kB)
    | 71 kB 16.0 MB/s
Collecting exceptiongroup>=1.0.2
Using cached exceptiongroup-1.3.1-py3-none-any.whl (16 kB)
Installing collected packages: typing-extensions, idna, exceptiongroup, typing-inspection, pydantic-core, h11, click, anyio, annotated-types, websockets, watchfiles, uvloop, uvicorn, starlette, pyyaml, python-dotenv, pydantic, httpx, httptools, annotated-doc, fastapi
Successfully installed annotated-doc-0.0.4 annotated-types-0.7.0 anyio-4.12.1 click-8.1.8 exceptiongroup-1.3.1 fastapi-0.128.0 h11-0.16.0 httptools-0.7.1 idna-3.11 pydantic-2.12.5 pydantic-core-2.41.5 python-dotenv-1.2.1 pyyaml-6.0.3 starlette-0.49.3 typing-extensions-4.15.0 typing-inspection-0.4.2 uvicorn-0.39.0 uvloop-0.22.1 watchfiles-1.1.1 websockets-15.0.1
WARNING: You are using pip version 21.3.1; however, version 25.3 is available.
You should consider upgrading via the '/root/week-5/fruits-veg_market/python/.venv/bin/python3 -m pip install --upgrade pip' command.
(.venv) [root@ip-172-31-72-127 python]# uvicorn main:app --host 0.0.0.0 --port 8080 --reload
INFO: Will watch for changes in these directories: ['/root/week-5/fruits-veg_market/python']
INFO: Uvicorn running on http://0.0.0.0:8080 (Press CTRL+C to quit)
INFO: Started reloader process [2846] using WatchFiles
INFO: Started server process [2848]
INFO: Waiting for application startup.
INFO: Application startup complete.
```

Java Load Balancer

Produce List

Load Fruits

Load Vegetables

Loaded ✓

Fruits (FastAPI)

Fruit	Price (\$)
Apple	1.20
Banana	0.80
Pineapple	2.20
Cherry	3.50
Orange	1.80
Blueberry	2.50
Lime	5.50
Mango	2.40
Kiwi	6.50
Organinc Cucumber	2.00
Lemon	2.00
Grapes	2.20

Vegetables (Java)

Vegetable	Price (\$)
Carrot	0.60
Broccoli	1.40
Tomato	0.90
Spinach	1.10
Potato	0.50



## Java running on port 9090

```
Downloaded from central: https://repo.maven.apache.org/maven2/io/micrometer/micrometer-observation/1.12.10/micrometer-observation-1.12.10.jar (72 kB at 238 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.5/asm-tree-9.5.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-loader-tools/3.3.4/spring-boot-loader-tools-3.3.4.jar (464 kB at 1.5 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/jdom/jdom2/2.0.6.1/jdom2-2.0.6.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-shade-plugin/3.5.0/maven-shade-plugin-3.5.0.jar (147 kB at 468 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-dependency-tree/3.2.1/maven-dependency-tree-3.2.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.5/asm-9.5.jar (122 kB at 388 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-util-1.0.0.v20140518.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.5/asm-commons-9.5.jar (72 kB at 216 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-api-1.0.0.v20140518.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.5/asm-tree-9.5.jar (52 kB at 148 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.13.0/commons-io-2.13.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-util/1.0.0.v20140518/aether-util-1.0.0.v20140518.jar (146 kB at 406 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-dependency-tree/3.2.1/maven-dependency-tree-3.2.1.jar (43 kB at 118 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/vafer/jdependency/2.8.0/jdependency-2.8.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/jdom/jdom2/2.0.6.1/jdom2-2.0.6.1.jar (328 kB at 901 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/eclipse/aether/aether-api/1.0.0.v20140518/aether-api-1.0.0.v20140518.jar (136 kB at 362 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/vafer/jdependency/2.8.0/jdependency-2.8.0.jar (233 kB at 561 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.13.0/commons-io-2.13.0.jar (484 kB at 1.1 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-collections4/4.4/commons-collections4-4.4.jar (752 kB at 1.7 MB/s)
[INFO] Attaching agents: []

Spring
=====

+ Spring Boot + (v3.3.4)

2026-01-21T21:36:58.1215 INFO 3934 --- [main] com.produce.vegetables.ProduceApp : Starting ProduceApp using Java 17.0.17 with PID 3934 (/root/week-5/fruits-veg_market/java
/target/classes started by root in /root/week-5/fruits-veg_market/java)
2026-01-21T21:36:58.1285 INFO 3934 --- [main] com.produce.vegetables.ProduceApp : No active profile set, falling back to 1 default profile: "default"
2026-01-21T21:36:59.1315 INFO 3934 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 9090 (http)
2026-01-21T21:36:59.1745 INFO 3934 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2026-01-21T21:36:59.1745 INFO 3934 --- [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.39]
2026-01-21T21:36:59.2262 INFO 3934 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2026-01-21T21:36:59.2262 INFO 3934 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 975 ms
2026-01-21T21:36:59.5442 INFO 3934 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 9090 (http) with context path '/'
2026-01-21T21:36:59.5528 INFO 3934 --- [main] com.produce.vegetables.ProduceApp : Started ProduceApp in 1.865 seconds (process running for 2.218)
```

## GitHub

<https://github.com/odufuwabusola/Two-Tier-Infra-Packer>

The screenshot shows the GitHub repository page for 'Two-Tier-Infra-Packer'. The repository is public and has 0 stars, 0 forks, and 0 watches. The main branch is 'main' with 1 branch and 0 tags. The repository description is 'Two-Tier-Infrastructure setup with packer and Terraform'. The repository contains three files: 'packer', 'terraform', and 'README'. The 'packer' file was updated 1 hour ago, and the 'terraform' file was updated 24 minutes ago. The 'README' file is currently empty, with a prompt to 'Add a README'. The repository is created by user 'odufuwabusola' and is located at 'https://github.com/odufuwabusola/Two-Tier-Infra-Packer'.