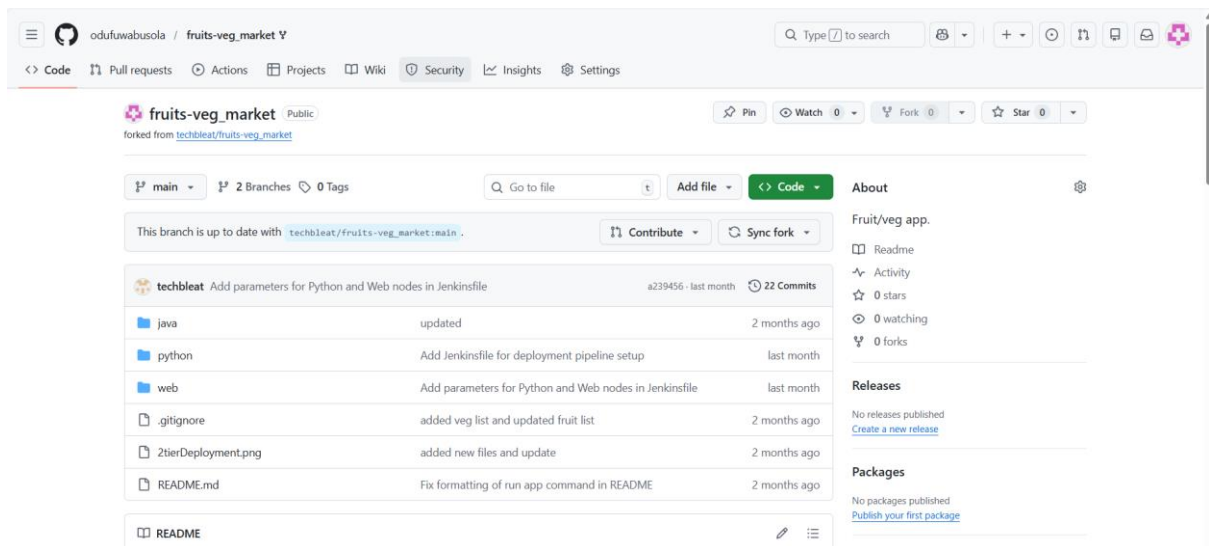


# Group A- Assignment

## WEEK 4 – Two Tier Infrastructure Deployment

**Fork/Copy this repo to your GitHub account:**

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

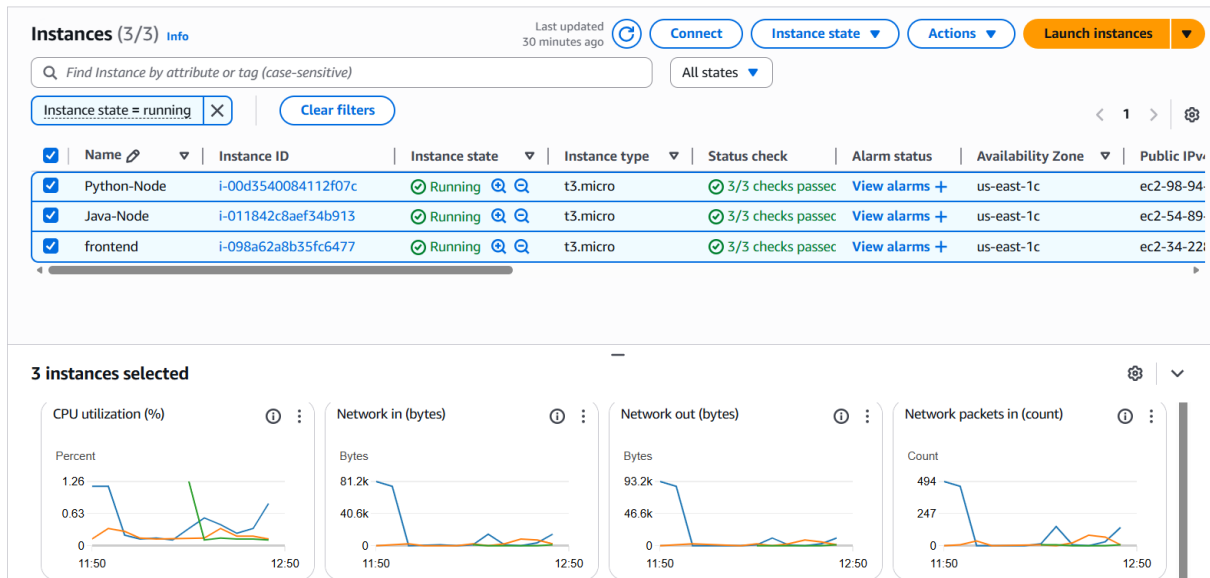


### Requirements

Replicate Week 4 Class using 3 nodes

- Node 1: A frontend/Tier 1 system running NGINX
- Node 2: A backend/Tier 2 system running Python 3 o should run on port 9090
- Node 3: A backend/Tier 2 system running Java 11 (or Java 17) o should run on port 9998

## EC2 Instances Running for the Three Nodes



## Node 1- Frontend System

“curl localhost” initiated to confirm the codes and the port number for both python and java

```
<table id="fruitTable">
  <thead><tr><th>Fruit</th><th>Price ($)</th></tr></thead>
  <tbody></tbody>
</table>
</div>

<div class="section">
  <h2>Vegetables (Java)</h2>
  <table id="vegTable">
    <thead><tr><th>Vegetable</th><th>Price ($)</th></tr></thead>
    <tbody></tbody>
  </table>
</div>

<script>
const FRUITS_API = "http://ec2-98-94-1-11.compute-1.amazonaws.com:9090/fruits"; // FastAPI
const VEGETABLES_API = "http://ec2-54-89-77-40.compute-1.amazonaws.com:9998/vegetables"; // Java Spring
const out = document.getElementById("output");

async function load(url, tableSelector, key) {
  out.textContent = "Loading...";
  try {
    const res = await fetch(url);
    if (!res.ok) throw new Error(`HTTP ${res.status}`);
    const data = await res.json();

    const items = data[key] || [];
    const tbody = document.querySelector(`${tableSelector} tbody`);
    tbody.innerHTML = "";
```

i-098a62a8b35fc6477 (frontend)

Frontend system running on NGINX

```
}

document.getElementById("loadFruits").onclick = () =>
  load(FRUIT_API, "#fruitTable", "fruits");

document.getElementById("loadVegetables").onclick = () =>
  load(VEGETABLES_API, "#vegTable", "vegetables");
</script>
</body>
</html>
[ec2-user@ip-172-31-30-228 web]$ cd ..
[ec2-user@ip-172-31-30-228 fruits-veg_market]$ git pull
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (4/4), 1009 bytes | 1009.00 KiB/s, done.
From https://github.com/odufuwabusola/fruits-veg_market
   5dc085d..75af6d0  main       -> origin/main
Updating 5dc085d..75af6d0
Fast-forward
   web/index.html | 2 + -
   1 file changed, 1 insertion(+), 1 deletion(-)
[ec2-user@ip-172-31-30-228 fruits-veg_market]$ ls
2tierDeployment.png  README.md  java  python  web
[ec2-user@ip-172-31-30-228 fruits-veg_market]$ cd web
[ec2-user@ip-172-31-30-228 web]$ ls
Jenkinsfile  index.html
[ec2-user@ip-172-31-30-228 web]$ sudo cp index.html /usr/share/nginx/html/

i-098a62a8b35fc6477 (frontend)
```

Frontend Load Balancer

← ↻ ⚠ Not secure 34.228.23.140

# Produce List

Load Fruits

Load Vegetables

## Fruits (FastAPI)

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

## Vegetables (Java)

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

Node 2- Python (Backend) running on port:9090 (uvicorn)

```
Requirement already satisfied: pydantic==2.7.0 in ./venv/lib/python3.9/site-packages (from fastapi->r requirements.txt (line 1)) (2.12.5)
Requirement already satisfied: typing-extensions==4.8.0 in ./venv/lib/python3.9/site-packages (from fastapi->r requirements.txt (line 1)) (4.15.0)
Requirement already satisfied: annotated-doc==0.0.2 in ./venv/lib/python3.9/site-packages (from fastapi->r requirements.txt (line 1)) (0.0.4)
Requirement already satisfied: anyio<5,>=3.6.2 in ./venv/lib/python3.9/site-packages (from starlette<0.51.0,>=0.40.0->fastapi->r requirements.txt (line 1)) (4.12.1)
Requirement already satisfied: exceptiongroup==1.0.2 in ./venv/lib/python3.9/site-packages (from anyio<5,>=3.6.2->starlette<0.51.0,>=0.40.0->fastapi->r requirements.txt (line 1)) (1.3.1)
Requirement already satisfied: idna==2.8 in ./venv/lib/python3.9/site-packages (from anyio<5,>=3.6.2->starlette<0.51.0,>=0.40.0->fastapi->r requirements.txt (line 1)) (3.11)
Requirement already satisfied: click>=7.0 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (8.1.8)
Requirement already satisfied: h11>=0.8 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (0.16.0)
Requirement already satisfied: httptools==0.6.3 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (0.7.1)
Requirement already satisfied: python-dotenv>=0.13 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (1.2.1)
Requirement already satisfied: pyyaml>=5.1 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (6.0.3)
Requirement already satisfied: uvloop>=0.15.1 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (0.22.1)
Requirement already satisfied: watchfiles==0.13 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (1.1.1)
Requirement already satisfied: websockets==10.4 in ./venv/lib/python3.9/site-packages (from uvicorn[standard]->r requirements.txt (line 2)) (15.0.1)
Requirement already satisfied: annotated-types==0.6.0 in ./venv/lib/python3.9/site-packages (from pydantic==2.7.0->fastapi->r requirements.txt (line 1)) (0.7.0)
Requirement already satisfied: pydantic-core==2.41.5 in ./venv/lib/python3.9/site-packages (from pydantic==2.7.0->fastapi->r requirements.txt (line 1)) (2.41.5)
Requirement already satisfied: typing-inspection==0.4.2 in ./venv/lib/python3.9/site-packages (from pydantic==2.7.0->fastapi->r requirements.txt (line 1)) (0.4.2)
(.venv) [ec2-user@ip-172-31-31-183 python]$ uvicorn main:app --host 0.0.0.0 --port 9090 --reload
INFO: Will watch for changes in these directories: ['/home/ec2-user/fruits-veg_market/python']
INFO: Uvicorn running on http://0.0.0.0:9090 (Press Ctrl+C to quit)
INFO: Started reload process [36928] using WatchFiles
INFO: Started server process [36930]
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: 78.147.123.231:47699 - "GET /fruits HTTP/1.1" 200 OK
INFO: 78.147.123.231:17494 - "GET /fruits HTTP/1.1" 200 OK
```

i-00d3540084112f07c (Python-Node)

```
Not secure ec2-98-94-1-11.compute-1.amazonaws.com:9090/fruits
Pretty-print
{"fruits":[{"name":"Apple","price":1.2}, {"name":"Banana","price":0.8}, {"name":"Pineapple","price":2.2}, {"name":"Cherry","price":3.5}, {"name":"Orange","price":1.8}, {"name":"Blueberry","price":2.5}, {"name":"Lime","price":5.5}, {"name":"Mango","price":2.4}, {"name":"Kiwi","price":6.5}, {"name":"Organinc Cucumber","price":2.0}, {"name":"Lemon","price":2.0}, {"name":"Grapes","price":2.2}]}
```

Not secure ec2-34-228-23-140.compute-1.amazonaws.com

# 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       |

```

Downloading from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-collections4/4.4/commons-collections4-4.4.jar (136 kB at 335 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 335 KB/s)
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 782 KB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/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 1.6 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/vafer/jdependency/2.8.0/jdependency-2.8.0.jar (233 kB at 503 KB/s)
[INFO] Attaching agents: []


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:: Spring Boot ::                (v3.3.4)

2026-01-16T13:44:39.855Z INFO 29183 --- [        ] main] com.produce_vegetables.ProduceApp : Starting ProduceApp using Java 17.0.17 with PID 29183 (/home/ec2-user/fruits-veg_market/java/target/classes started by ec2-user in /home/ec2-user/fruits-veg_market/java)
2026-01-16T13:44:39.865Z INFO 29183 --- [        ] main] com.produce_vegetables.ProduceApp : No active profile set, falling back to 1 default profile: "default"
2026-01-16T13:44:40.748Z INFO 29183 --- [        ] main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8080 (http)
2026-01-16T13:44:40.791Z INFO 29183 --- [        ] main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2026-01-16T13:44:40.792Z INFO 29183 --- [        ] main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.30]
2026-01-16T13:44:40.856Z INFO 29183 --- [        ] main] o.s.a.c.c.f.tomcat.[localhost]/:/ : Initializing Spring embedded WebApplicationContext
2026-01-16T13:44:40.858Z INFO 29183 --- [        ] main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: Initialization completed in 936 ms
2026-01-16T13:44:41.125Z INFO 29183 --- [        ] main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path '/'
2026-01-16T13:44:41.137Z INFO 29183 --- [        ] main] com.produce_vegetables.ProduceApp : Started ProduceApp in 1.605 seconds (process running for 1.873 s)

```

```
[INFO] No sources to compile
[INFO]
[INFO] <<< spring-boot-maven-plugin:3.3.4:run (default-cli) < test-compile @ produce-app <<<
[INFO]
[INFO] --- spring-boot-maven-plugin:3.3.4:run (default-cli) @ produce-app ---
[INFO] Attaching agents: []
```



```
:: Spring Boot ::                (v3.3.4)
```

```
2026-01-16T14:58:19.526Z INFO 31902 --- [main] com.produce.vegetables.ProduceApp : Starting ProduceApp using Java 17.0.17 with PID 31902 (/home/ec2-user/fruits-veg_market/java/target/classes started by ec2-user in /home/ec2-user/fruits-veg_market/java)
2026-01-16T14:58:19.536Z INFO 31902 --- [main] com.produce.vegetables.ProduceApp : No active profile set, falling back to 1 default profile: "default"
2026-01-16T14:58:20.450Z INFO 31902 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 9998 (http)
2026-01-16T14:58:20.490Z INFO 31902 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2026-01-16T14:58:20.491Z INFO 31902 --- [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.30]
2026-01-16T14:58:20.543Z INFO 31902 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2026-01-16T14:58:20.545Z INFO 31902 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 924 ms
2026-01-16T14:58:20.837Z INFO 31902 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 9998 (http) with context path '/'
2026-01-16T14:58:20.846Z INFO 31902 --- [main] com.produce.vegetables.ProduceApp : Started ProduceApp in 1.699 seconds (process running for 1.985)
```

i-011842c8aef34b913 (Java-Node)





⚠ Not secure ec2-34-228-23-140.compute-1.amazonaws.com

# Produce List

Load Fruits

Load Vegetables

Loaded ✓

## Fruits (FastAPI)

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

## Vegetables (Java)

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