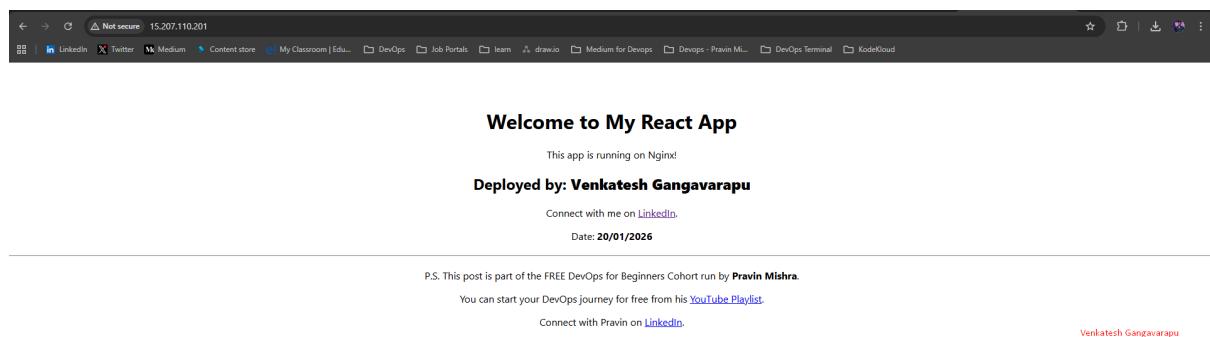


Production Maintenance Drill (OPS Checklist)

1. Server Access - Traffic Verification:



- Is it a serving?
 - Yes
- What proves it?
 - The React application is accessible via the public IP (<http://15.207.110.201>) in the browser, and the UI loads successfully displaying my Full Name as Updated in "[App.js](#)". This confirms that the EC2 instance is reachable, Nginx is running, and traffic is being served correctly.
- If not, what would be the first suspicion?
 - My first suspicion would be:
 1. Nginx service not running or misconfigured.
 2. Security Group inbound rule missing port 80 (HTTP) access.

Assignment Tasks

PHASE 1: NETWORKING & ACCESS CHECKS (PRODUCTION BASICS):

This phase validates that the server is reachable, networked correctly, and exposing only intended services.

1. IP and Network Interfaces:

```
$ ip a
```

```
ubuntu@ip-172-31-7-210:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
        inet6 ::1/128 scope host noprefixroute
            valid_lft forever preferred_lft forever
2: ens5: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc mq state UP group default qlen 1000
    link/ether 0a:00:43:66:91:97 brd ff:ff:ff:ff:ff:ff
    altnet enp0s5
        inet 172.31.7.210/20 metric 100 brd 172.31.15.255 scope global dynamic ens5
            valid_lft 3141sec preferred_lft 3141sec
        inet6 fe80::800:43ff:fe66:9197/64 scope link
            valid_lft forever preferred_lft forever
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This command shows all network interfaces and their assigned IP addresses. From the output, I confirmed that the primary network interface is UP and has valid private IP assigned.
- Why it matters in production:
 - If the interface is down or misconfigured, the server cannot send or receive traffic, making the application completely unreachable.

2. Default Route (Gateway Check):

```
$ ip route
ubuntu@ip-172-31-7-210:~$ ip route
default via 172.31.0.1 dev ens5 proto dhcp src 172.31.7.210 metric 100
172.31.0.0/20 dev ens5 proto kernel scope link src 172.31.7.210 metric 100
172.31.0.1 dev ens5 proto dhcp scope link src 172.31.7.210 metric 100
172.31.0.2 dev ens5 proto dhcp scope link src 172.31.7.210 metric 100
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This output shows the default gateway used to reach external networks. The presence of a default route confirms that the server knows where to send traffic destined for the internet.
- Why it matters in production:
 - Without a correct default route, outbound traffic (updates, APIs, DNS, package installs) will fail, breaking deployments and monitoring.

3. DNS Resolution Check:

```
$ dig pravinmishra.com +short
```

```
ubuntu@ip-172-31-7-210:~$ dig pravinmishra.com +short
18.66.41.52
18.66.41.78 ←
18.66.41.14
18.66.41.97
ubuntu@ip-172-31-7-210:~$
```

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(or)

```
$ host pravinmishra.com
```

```
ubuntu@ip-172-31-7-210:~$ host pravinmishra.com
pravinmishra.com has address 18.66.41.78
pravinmishra.com has address 18.66.41.52
pravinmishra.com has address 18.66.41.97 ←
pravinmishra.com has address 18.66.41.14
pravinmishra.com mail is handled by 1 smtp.google.com.
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This confirms that DNS resolution is working and domain names can be resolved to IP addresses successfully.
- Why it matters in production:
 - If DNS fails, applications cannot reach external services, APIs, or dependencies, even if the network itself is up.

4. Connectivity Test (Packet-Level):

```
$ ping -c 4 thecloudadvisory.com
```

```
ubuntu@ip-172-31-7-210:~$ ping -c 4 thecloudadvisory.com
PING thecloudadvisory.com (3.169.71.43) 56(84) bytes of data.
64 bytes from server-3-169-71-43.tlv55.r.cloudfront.net (3.169.71.43): icmp_seq=1 ttl=246 time=130 ms
64 bytes from server-3-169-71-43.tlv55.r.cloudfront.net (3.169.71.43): icmp_seq=2 ttl=246 time=130 ms
64 bytes from server-3-169-71-43.tlv55.r.cloudfront.net (3.169.71.43): icmp_seq=3 ttl=246 time=130 ms
64 bytes from server-3-169-71-43.tlv55.r.cloudfront.net (3.169.71.43): icmp_seq=4 ttl=246 time=130 ms
--- thecloudadvisory.com ping statistics --- ←
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 130.035/130.039/130.043/0.003 ms
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This verifies basic network connectivity by sending ICMP packets and receiving responses, confirming outbound reachability.
- Why it matters in production:
 - If ping fails, it may indicate network blocks, routing issues, or firewall problems that can prevent the app from communicating externally.

5. Listening Ports and Owning Processes:

```
$ sudo ss -tulpen
```

- What it means:
 - This command lists all listening ports along with the processes that own them. From the output, I verified which services are exposed on the server.
 - Why it matters in production:
 - Unexpected open ports increase the attack surface.
 - Knowing exactly what is listening helps prevent security incidents.

- Key Observations:

- Nginx listening on 0.0.0.0:80
 - SSH listening on port 22
 - No unexpected open ports

6. Firewall Status Check:

```
$ sudo ufw status  
ubuntu@ip-172-31-7-210:~$ sudo ufw status  
Status: inactive ←  
ubuntu@ip-172-31-7-210:~$  
ubuntu@ip-172-31-7-210:~$
```

- What it means:
 - This shows whether a host-level firewall is active and enforcing rules.
 - Why it matters in production:
 - Even in cloud environments, host-level firewalls provide an additional security layer.
 - Knowing its status prevents false assumptions during incidents

PHASE 2: SERVICE HEALTH + PROCESS VALIDATION (SYSTEMD STYLE)

This phase validates whether the service is not only running, but also manageable, restartable, and production-safe using systemd-style operational checks.

1. Service Status Check:

```
$ systemctl status nginx --no-pager
ubuntu@ip-172-31-7-210:~$ systemctl status nginx --no-pager
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
    Active: active (running) since Wed 2026-01-21 05:23:00 UTC; 3h 31min ago
      Docs: man:nginx(8)
   Process: 12250 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 12253 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 12254 (nginx)
    Tasks: 3 (limit: 1008)
   Memory: 3.5M (peak: 4.0M)
      CPU: 30ms
     CGroup: /system.slice/nginx.service
             └─12254 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
               ├─12255 "nginx: worker process"
               ├─12256 "nginx: worker process"

Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This command shows the current state of the Nginx service, including whether it is active, running and free of immediate errors.
- Why it matters in production:
 - If a service is not in an “**active (running)**” state, traffic will fail.
 - This is the first check during any incident or on-call alert.

2. Service Enabled on Boot (Reliability Check)

```
$ systemctl is-enabled nginx
ubuntu@ip-172-31-7-210:~$ systemctl is-enabled nginx
enabled
```

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- What it means:
 - This confirms whether Nginx is configured to start automatically on system boot.
- Why it matters in production:
 - If a server reboots and the service is not enabled, the application will remain down until manual intervention, causing prolonged downtime.

3. Nginx Configuration Validation:

```
$ sudo nginx -t
ubuntu@ip-172-31-7-210:~$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
```

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- What it means:

- This checks the syntax and validity of the Nginx configuration files without restarting the service.
- Why it matters in production:
 - Invalid configurations can prevent Nginx from starting after a restart, leading to a full production outage.

4. Master and Worker Process Identification:

```
$ ps aux | grep -E "nginx: master|nginx: worker" | grep -v grep
```

```
ubuntu@ip-172-31-7-210:~$ ps aux | grep -E "nginx: master|nginx: worker" | grep -v grep
root    12254  0.0  0.1 11156 1648 ?        Ss   05:23  0:00 nginx: master process /usr/sbin/nginx -g daemon on; master_process
www-data 12255  0.0  0.5 12880 4872 ?        S    05:23  0:00 nginx: worker process
www-data 12256  0.0  0.5 12880 4924 ?        S    05:23  0:00 nginx: worker process
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This confirms that the Nginx master process and worker processes are running as expected.
- Why it matters in production:
 - If worker processes are missing or unstable, Nginx may accept connections but fail to serve traffic properly.

5. Confirm Process Listening on Port 80:

```
$ sudo ss -lptn '( sport = :80 )'
```

```
ubuntu@ip-172-31-7-210:~$ sudo ss -lptn '( sport = :80 )'
State      Recv-Q    Send-Q      Local Address:Port          Peer Address:Port      Process
LISTEN     0          511          0.0.0.0:80              0.0.0.0:*          users:(("nginx
",pid=12256,fd=5),("nginx",pid=12255,fd=5),("nginx",pid=12254,fd=5))
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This identifies which process and PID are actively listening on port 80.
- Why it matters in production:
 - If the wrong process is bound to port 80 or no process is listening, users will not be able to access the application.

6. Safe Restart Drill (Routine Deploy Simulation)

```
$ sudo systemctl restart nginx
```

```
ubuntu@ip-172-31-7-210:~$ sudo systemctl restart nginx
ubuntu@ip-172-31-7-210:~$
```

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```
$ systemctl status nginx --no-pager
```

```

ubuntu@ip-172-31-7-210:~$ systemctl status nginx --no-pager
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
  Active: active (running) since Wed 2026-01-21 09:35:16 UTC; 47s ago
    Docs: man:nginx(8)
    Process: 28177 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 28181 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 28182 (nginx)
   Tasks: 3 (limit: 1008)
  Memory: 2.5M (peak: 2.7M)
     CPU: 16ms
    CGroup: /system.slice/nginx.service
            └─28182 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
              ├─28183 "nginx: worker process"
              ├─28184 "nginx: worker process"
              ├─28185 "nginx: worker process"

Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse...erver...
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse ... server.
Hint: Some lines were ellipsized, use -l to show in full.
ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ | Venkatesh Gangavarapu

```

- What it means:
 - This simulates a routine restart such as during a deployment or configuration change and verifies that the service comes back cleanly.
- Why it matters in production
 - Services are restarted frequently during releases.
 - If restarts are unsafe, every deployment becomes a risk.

Production Risk Assessment

- What could happen if nginx restarts and doesn't come back?
 - If Nginx fails to restart, the application becomes completely unavailable, leading to immediate user impact, failed health checks, and potential SLA violations.
- What is the rollback plan (basic)?
 - Revert the last configuration change
 - Validate configuration using `nginx -t`
 - Restart Nginx again
 - If required, restore the last known working config backup

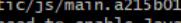
PHASE 3: LOGS & REQUEST TRACE (REAL DEVOPS WORK)

This phase validates whether the system is “observable”. In real production, “it’s working” is not enough - logs are the source of truth to confirm clean traffic and detect hidden issues.

1. Generate Traffic (Trigger Log Entries):

```
$ curl -s http://<public-ip> /dev/null
```

```
ubuntu@ip-172-31-7-210:~$ curl -s http://15.207.110.201 /dev/null
<!doctype html><html lang="en"><head><meta charset="utf-8"/><link rel="icon" href="/favicon.ico"/><meta name="viewport" content="width=device-width,initial-scale=1"/><meta name="theme-color" content="#000000"/><meta name="description" content="Web site created using create-react-app"/><link rel="apple-touch-icon" href="/logo192.png"/><link rel="manifest" href="/manifest.json"/><title>React App</title><script defer="defer" src="/static/js/main.a215b01a.js"></script><link href="/static/css/main.e6c13ad2.css" rel="stylesheet"></head><body><noscript>You need to enable JavaScript to run this app.</noscript><div id="root"></div></body></html>ubuntu@ip-172-31-7-210:~$
```



```
$ curl -s http://<public-ip> /dev/null
```

```
ubuntu@ip-172-31-7-210:~$ curl -I http://15.207.110.201 /dev/null
HTTP/1.1 200 OK
Server: nginx/1.24.0 (Ubuntu)
Date: Wed, 21 Jan 2026 10:30:06 GMT
Content-Type: text/html
Content-Length: 644
Last-Modified: Wed, 21 Jan 2026 05:22:47 GMT
Connection: keep-alive
ETag: "697062a7-284"
Accept-Ranges: bytes

curl: (3) URL rejected: No host part in the URL
ubuntu@ip-172-31-7-210:~$
```

- What it means:
 - These commands generate HTTP requests to ensure fresh entries appear in the Nginx access and error logs
 - Why it matters in production:
 - Logs are only useful if traffic is actually reaching the service.
 - This step confirms real requests are being processed.

2. Access Logs (Traffic Proof)

```
$ sudo tail -n 30 /var/log/nginx/access.log
```

- What it means:
 - The access log records every incoming request, including client IP, HTTP method, response code and user agent.
 - Whey it matters in production:
 - Access logs confirm real traffic flow and help trace requests during incidents, performance issues, or security investigations.
 - Key Observation:

- My `curl` requests are visible in the access log entries.

3. Error Logs (Failures, Misconfigurations and permission issues):

```
$ sudo tail -n 30 /var/log/nginx/error.log
```

```
ubuntu@ip-172-31-7-210:~$ sudo tail -n 5 /var/log/nainx/error.log  
2026/01/20 09:22:22 [notice] 7964#7964: using inherited sockets from "5;6;"  
ubuntu@ip-172-31-7-210:~$  
ubuntu@ip-172-31-7-210:~$
```

- What it means:
 - The error log captures runtime issues such as permission problems, misconfigurations or failed upstream connections.
 - There is normal Nginx notice, indicating that Nginx restarted gracefully and reused existing sockets instead of dropping connections.
 - Why it matters in production:
 - Many failures do not surface in the UI.
 - Error logs reveal silent problems that can later cause outages.
 - There is notice which is a clean, zero-downtime style restart. Notices are informational and not failures - no user traffic was impacted.
 - Observation:
 - No errors were observed. Only a normal Nginx NOTICE related to socket inheritance during restart was present, which indicates a clean and graceful restart.

OPS rule of thumb:

- [error] - problem
 - [warn] - potential risk
 - [notice] - normal operational information

4. Systemd Journal (Service-Level logs):

```
$ sudo journalctl -u nginx --no-pager -n 50
```

```

ubuntu@ip-172-31-7-210:~$ sudo journalctl -u nginx --no-pager -n 50
Jan 20 09:22:22 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jan 20 09:22:22 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
Jan 20 10:18:53 ip-172-31-7-210 systemd[1]: Stopping nginx.service - A high performance web server and a reverse proxy server...
Jan 20 10:18:53 ip-172-31-7-210 systemd[1]: nginx.service: Deactivated successfully.
Jan 20 10:18:53 ip-172-31-7-210 systemd[1]: Stopped nginx.service - A high performance web server and a reverse proxy server.
Jan 20 10:18:53 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jan 20 10:18:53 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Stopping nginx.service - A high performance web server and a reverse proxy server...
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: nginx.service: Deactivated successfully.
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Stopped nginx.service - A high performance web server and a reverse proxy server.
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jan 21 05:23:00 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Stopping nginx.service - A high performance web server and a reverse proxy server...
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: nginx.service: Deactivated successfully.
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Stopped nginx.service - A high performance web server and a reverse proxy server.
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Jan 21 09:35:16 ip-172-31-7-210 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This shows service-level logs managed by systemd, including restarts, failures and warnings.
- Why it matters in production:
 - Systemd logs help diagnose issues during service restarts, crashes or failed reloads.
- Observation:
 - No recent failures or warnings related to Nginx were observed.

PHASE 4: SYSTEM RESOURCE HEALTH (CAPACITY RED FLAGS)

- This phase answers a critical production question:
 - Can this host safely handle traffic, or is it close to failure?
- The goal is to identify early warning signs before users are impacted.

1. Load Average & Uptime:

```

$ uptime
ubuntu@ip-172-31-7-210:~$ uptime
11:55:26 up 1 day, 2:58, 4 users, load average: 0.00, 0.00, 0.00
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - This shows system uptime and load averages over the last 1, 5, and 15 minutes, indicating how busy the system is.
- Why it matters in production:
 - High load relative to CPU cores indicates the system is overloaded, which can cause slow responses or service timeouts.

2. Memory Usage (Quick View):

```
$ free -h
```

```
ubuntu@ip-172-31-7-210:~$ free -h
total        used         free      shared  buff/cache   available
Mem:    914Mi       412Mi     237Mi      2.8Mi     455Mi     501Mi
Swap:      0B         0B        0B
ubuntu@ip-172-31-7-210:~$ |
```

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- What it means:
 - Displays total, used, free memory and swap usage in a human-readable format.
- Why it matters in production:
 - Low available memory or heavy swap usage can lead to application slowdowns or process termination by OOM killer.

3. Disk Usage:

```
$ df -h
```

```
ubuntu@ip-172-31-7-210:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root      6.8G  3.6G  3.2G  53% /
tmpfs          458M    0  458M   0% /dev/shm
tmpfs          183M  928K  182M   1% /run
tmpfs          5.0M    0  5.0M   0% /run/lock
efivarfs       128K   3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16 881M 155M  665M  19% /boot
/dev/nvme0n1p15 105M   6.2M  99M   6% /boot/efi
tmpfs           92M   12K   92M   1% /run/user/1000
ubuntu@ip-172-31-7-210:~$ |
```

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- What it means:
 - Shows disk space usage for all mounted filesystems.
- Why it matters in production:
 - Disks approaching full capacity (>80-90%) are a major risk.
 - Many services fail silently when disk space runs out.

4. Largest Disk Consumers under `/var`:

```
$ sudo du -sh /var/* | sort -h
```

```

ubuntu@ip-172-31-7-210:~$ sudo du -sh /var/* | sort -h
0      /var/lock
0      /var/run
4.0K   /var/crash
4.0K   /var/local
4.0K   /var/mail
4.0K   /var/opt
16K    /var/spool
48K    /var/tmp
52K    /var/snap
1.3M   /var/backups
2.2M   /var/www
19M    /var/log
148M   /var/cache
578M   /var/lib
ubuntu@ip-172-31-7-210:~$
```

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- What it means:
 - Identifies which directories under `/var` are consuming the most disk space.
 - Logs are often the biggest contributors in production systems.
- Why it matters in production:
 - Unchecked log growth is one of the most common causes of production outages.

Capacity Risk Assessment:

- Which resource looks most risky right now?
 - Disk usage is the most critical resource to monitor because logs under `/var` can grow continuously and fill the filesystem if not rotated or monitored.
- What happens to production services when the disk fills up?
 - Applications fail to write logs or temp files
 - Nginx may stop serving requests
 - Databases can crash or enter read-only mode
 - Deployments and restarts fail

This can lead to full production outages even if CPU and memory are healthy.

PHASE 5: CONFIGURATION & CONTENT INTEGRITY (RELEASE SAFETY)

This phase verifies that the “Correct build is deployed”, the “right content is being served”, and the “web server configuration matches” after a release.

Real production teams never assume a deployment succeeded, they only verify it.

1. Confirm Correct Web Root Contains Build Files:

```
$ ls -lah /var/www/html | head -n 20
```

```
ubuntu@ip-172-31-7-210:~$ ls -lah /var/www/html/ | head -n 20
total 52K
drwxr-xr-x 3 www-data www-data 4.0K Jan 20 10:09 .
drwxr-xr-x 3 root      root      4.0K Jan 20 09:22 ..
-rw-rxr-x 1 www-data www-data  517 Jan 21 05:22 asset-manifest.json
-rw-rxr-x 1 www-data www-data 3.8K Jan 21 05:22 favicon.ico
-rw-rxr-x 1 www-data www-data 644 Jan 21 05:22 index.html
-rw-rxr-x 1 www-data www-data 5.3K Jan 21 05:22 logo192.png
-rw-rxr-x 1 www-data www-data 9.5K Jan 21 05:22 logo512.png
-rw-rxr-x 1 www-data www-data 492 Jan 21 05:22 manifest.json
-rw-rxr-x 1 www-data www-data  67 Jan 21 05:22 robots.txt
drwxr-xr-x 4 www-data www-data 4.0K Jan 20 10:09 static
ubuntu@ip-172-31-7-210:~$
```

- What it means:
 - This lists the contents of the Nginx web root directory and confirms that the React build artifacts (such as 'index.html' and 'static') are present.
 - Why it matters in production:
 - If the wrong directory is serving content, users may see an old version, a default page, or broken assets after deployment.

2. Confirm Nginx Is Serving the Correct Build Content.

```
$ grep -R "Deployed by" -n /var/www/html 2>/dev/null | head
```

- Observation:
 - Confirms that the deployed files contain the expected application content.
 - Why it matters in production:
 - Verifying content integrity prevents serving stale or incorrect versions after a release.

3. Confirm SPA Routing in Nginx Configuration:

```
$ grep -n "try_files" /etc/nginx/sites-available/default
```

```
ubuntu@ip-172-31-7-210:~$ grep -n "try_files" /etc/nginx/sites-available/default
8:      try_files $uri /index.html; ←
ubuntu@ip-172-31-7-210:~$
```

- What it means:
 - This confirms that Nginx is configured to route all requests to “index.html”, which is required for React Single Page Applications.

- Why it matters in production:
 - Without proper SPA routing, page refreshes or deep links will return 404 errors, breaking user navigation.

Release Verification:

- How do you know the correct version is deployed?

The correct version is confirmed by:

- Presence of the latest build files in /var/www/html
- Updated timestamps matching the recent deployment
- Application UI displaying the correct deployment details
- Nginx configuration correctly serving the SPA build

This combination confirms the right code + right config + right content are live.

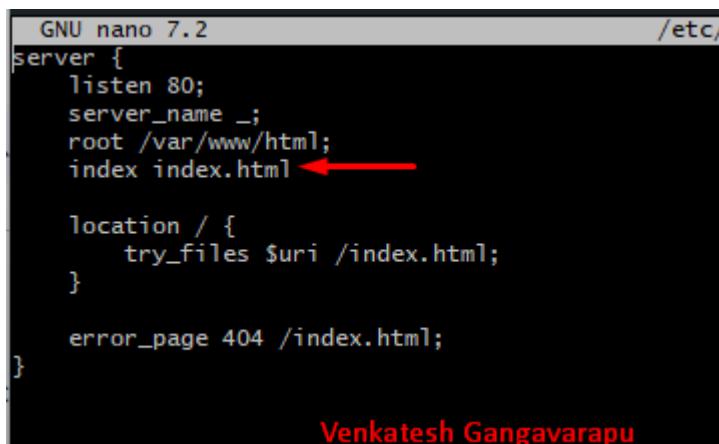
PHASE 6: MINI INCIDENT SIMULATION + RECOVERY (MANDATORY)

This phase simulates real production failures and validates safe recovery.
All actions were performed deliberately and restored fully.

Task A: Bad Nginx Configuration Deployed

Step 1: Introduce Failure

```
$ sudo nano /etc/nginx/sites-available/default
```



```
GNU nano 7.2
server {
    listen 80;
    server_name _;
    root /var/www/html;
    index index.html ←

    location / {
        try_files $uri /index.html;
    }

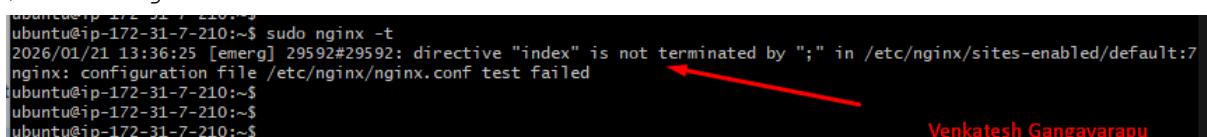
    error_page 404 /index.html;
}
```

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- A small syntax error was introduced (missing semicolon).

Step 2: Confirm config is broken by testing Nginx

```
$ sudo nginx -t
```



```
ubuntu@ip-172-31-7-210:~$ sudo nginx -t
2026/01/21 13:36:25 [emerg] 29592#29592: directive "index" is not terminated by ";" in /etc/nginx/sites-enabled/default:7
nginx: configuration file /etc/nginx/nginx.conf test failed
ubuntu@ip-172-31-7-210:~$
```

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- Configuration test failed.

Step 3: Fix the Config back

```
$ sudo nano /etc/nginx/sites-available/default
server {
    listen 80;
    server_name _;
    root /var/www/html;
    index index.html;|—————
}

location / {
    try_files $uri /index.html;
}

error_page 404 /index.html;
}
```

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- Updated the semicolon again to save

Step 4: Validate and Restart

```
$ sudo nginx -t
ubuntu@ip-172-31-7-210:~$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
ubuntu@ip-172-31-7-210:~$
```

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- Configuration test successful.

```
$ sudo systemctl restart nginx
ubuntu@ip-172-31-7-210:~$ sudo systemctl restart nginx
ubuntu@ip-172-31-7-210:~$
```

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- Nginx restarted.

```
$ curl -I http://15.207.110.201
ubuntu@ip-172-31-7-210:~$ curl -I http://15.207.110.201
HTTP/1.1 200 OK
Server: nginx/1.24.0 (Ubuntu)
Date: Wed, 21 Jan 2026 13:50:29 GMT
Content-Type: text/html
Content-Length: 644
Last-Modified: Wed, 21 Jan 2026 05:22:47 GMT
Connection: keep-alive
ETag: "697062a7-284"
Accept-Ranges: bytes

ubuntu@ip-172-31-7-210:~$
```

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- HTTP response returned 200.

Root Cause:

- A Syntax error (missing semicolon) was introduced in Nginx configuration, causing nginx -t to fail.

Fix:

- Corrected configuration and validated it using nginx -t before restarting the service.

Prevention:

- Always validate configuration changes before reloads and keep a last-known-good configuration for quick rollback.

Task B: Web Content Missing After Deployment

Step 1: Break Content (Safely)

```
$ sudo mv /var/www/html /var/www/html_backup
```

```
ubuntu@ip-172-31-7-210:~$ sudo mv /var/www/html/ /var/www/html_backup
ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ | Venkatesh Gangavarapu
```

- Taking backup of the web working content for safety.

```
$ sudo mkdir -p /var/www/html
```

```
ubuntu@ip-172-31-7-210:~$ sudo mkdir -p /var/www/html
ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ | Venkatesh Gangavarapu
```

- Creating the new web directory

Step 2: Confirm failure

```
$ curl -I http://15.207.110.201/
```

```
ubuntu@ip-172-31-7-210:~$ curl -I http://15.207.110.201
HTTP/1.1 500 Internal Server Error
Server: nginx/1.24.0 (Ubuntu)
Date: Wed, 21 Jan 2026 14:01:08 GMT
Content-Type: text/html
Content-Length: 186
Connection: close

ubuntu@ip-172-31-7-210:~$ ubuntu@ip-172-31-7-210:~$ | Venkatesh Gangavarapu
```

- Tested with curl and failed with 500 server error



- Browser returned 500 Internal Server Error.

Step 3: Restore Content

```
$ sudo rm -rf /var/www/html
```

```
ubuntu@ip-172-31-7-210:~$ sudo rm -rf /var/www/html
ubuntu@ip-172-31-7-210:~$ 
ubuntu@ip-172-31-7-210:~$ ls /var/www/html
ls: cannot access '/var/www/html': No such file or directory ←
ubuntu@ip-172-31-7-210:~$ 
ubuntu@ip-172-31-7-210:~$
```

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- Removed and confirmed the fault web directory.

```
$ sudo mv /var/www/html_backup /var/www/html
```

```
ubuntu@ip-172-31-7-210:~$ sudo mv /var/www/html_backup/ /var/www/html
ubuntu@ip-172-31-7-210:~$ 
ubuntu@ip-172-31-7-210:~$ ls /var/www/html/
asset-manifest.json  favicon.ico  index.html  logo192.png  logo512.png  manifest.json  robots.txt  static ←
ubuntu@ip-172-31-7-210:~$
```

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- Restored the old content and confirmed.

```
$ sudo systemctl restart nginx
```

```
ubuntu@ip-172-31-7-210:~$ sudo systemctl restart nginx
ubuntu@ip-172-31-7-210:~$ 
ubuntu@ip-172-31-7-210:~$
```

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- Restarted the nginx server

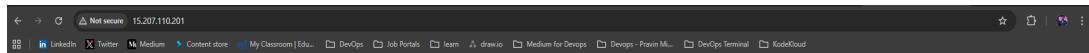
```
$ curl -I http://15.207.110.201/
```

```
ubuntu@ip-172-31-7-210:~$ curl -I http://15.207.110.201/
HTTP/1.1 200 OK ←
Server: nginx/1.24.0 (Ubuntu)
Date: Wed, 21 Jan 2026 14:12:41 GMT
Content-Type: text/html
Content-Length: 644
Last-Modified: Wed, 21 Jan 2026 05:22:47 GMT
Connection: keep-alive
ETag: "697062a7-284"
Accept-Ranges: bytes

ubuntu@ip-172-31-7-210:~$ 
ubuntu@ip-172-31-7-210:~$
```

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- Tested with curl and HTTP response returned 200



Welcome to My React App

This app is running on Nginx!

Deployed by: Venkatesh Gangavarapu

Connect with me on [LinkedIn](#).

Date: 20/01/2026

P.S. This post is part of the FREE DevOps for Beginners Cohort run by [Pravin Mishra](#).

You can start your DevOps journey for free from his [YouTube Playlist](#).

Connect with Pravin on [LinkedIn](#).

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- Refreshed the browser and Nginx is running.

Root Cause:

- The web root directory (/var/www/html) was missing, so Nginx had no content to serve.

Fix:

- Restored the correct build files from backup and restarted Nginx to serve the application.

Prevention:

- Use atomic deployments with backups and verify deployment paths before exposing changes to users.

On-Call Notes (Thinking, Not Command Dumps)

- **What I checked first:**

- I first checked the service status and configuration validity to determine whether the failure was service-related, configuration-related, or content-related before taking any corrective action.

- **What I concluded from the outputs:**

- The failed nginx -t output confirmed a configuration error, not a service crash. In the content incident, the HTTP response indicated missing web content rather than a network or service failure. This allowed me to focus recovery on configuration and content restoration instead of unnecessary restarts or network changes.

Security & Reliability Notes

- SSH access to the server is secured using **key-based authentication**, and ensuring that no passwords are shared or stored insecurely.
- Only **required network ports** are exposed to the internet — **port 22 (SSH)** for access and **port 80 (HTTP)** for the application. No unnecessary ports are open.
- **Nginx is enabled on system boot**, ensuring the service automatically starts after a reboot and reducing the risk of downtime.
- No **secrets, credentials, or private keys** were committed to GitHub or shared publicly at any stage.
- Since this is a cloud-based VM, I will **stop or terminate resources when not in use** to avoid unexpected costs and maintain responsible resource usage.

REFLECTION

This week taught me that real production checks go far beyond “the app is running.” I learned how to validate systems layer by layer—network, service health, logs, resources, configuration, and recovery—just like an on-call engineer.

The biggest issue I faced was intentionally breaking Nginx configuration and web content to simulate incidents; the challenge was staying calm and diagnosing instead of blindly restarting services. I fixed it by validating configs (`nginx -t`), checking logs, and restoring known-good states step by step.

Next time, I will rely even more on logs and evidence before action, and I will validate every deployment with post-release checks instead of assuming success.