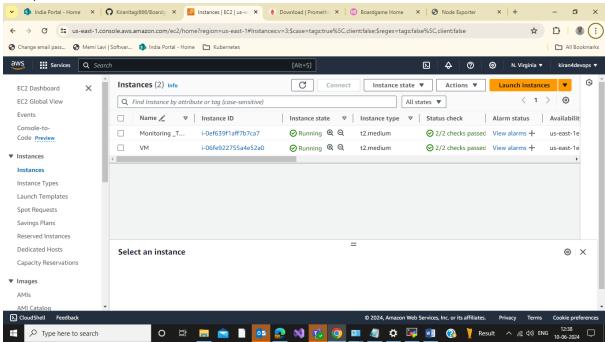
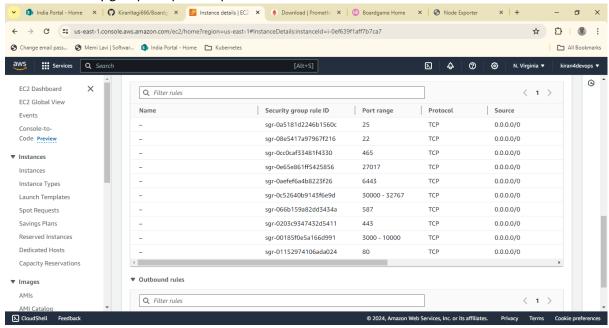
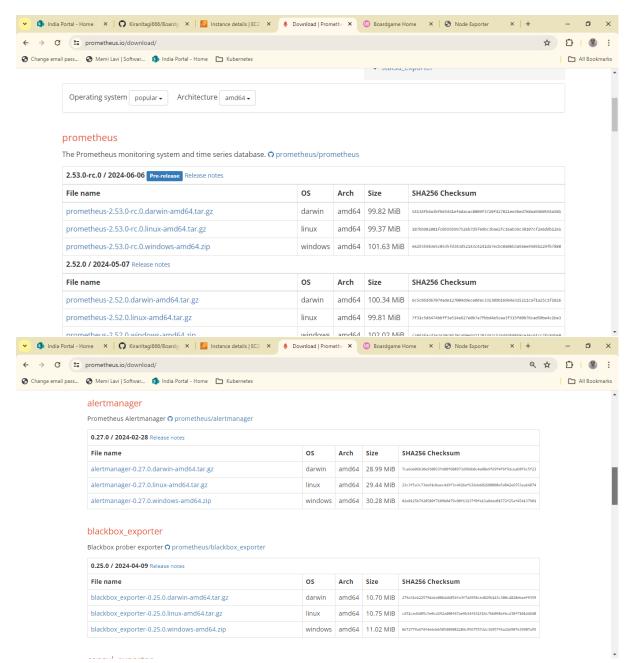
1. Set up two Virtual Machines



2. Create a Security group to open the ports

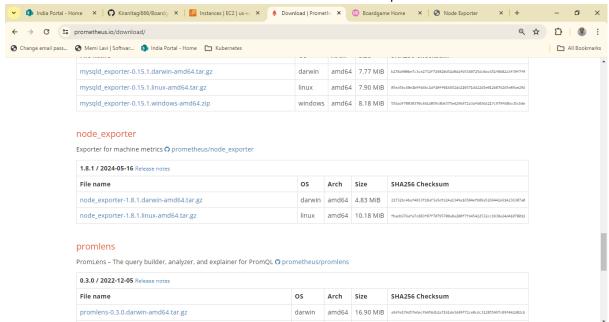


3. On one VM download the tools i. Prometheus ii. Blackbox exporter iii. Alert-Manager from <a href="https://prometheus.io/download/">https://prometheus.io/download/</a>



Install them in machine named Montoring\_Tools

4. On another machine name VM download and install the node exporter

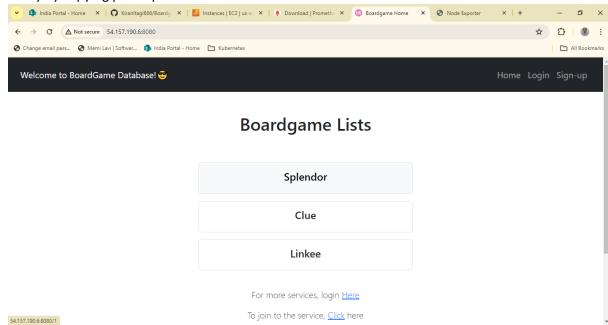


Verify by copying the public ip:9100



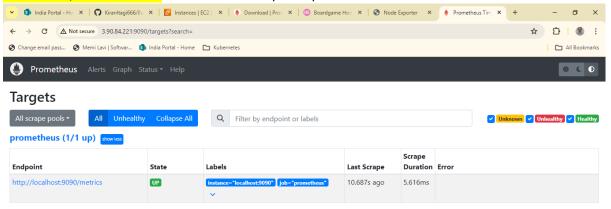
5. Install java and maven on this machine, clone the Board-game application and build it using mvn package command, after that go to the target folder where the .jar application is present, run the application using command java-jar name of the jar file

verify by copying publicip:8080



6. Next switch to the Monitoring\_Tools machine

Run Prometheus in the background by going to the Prometheus directory and running the command ./Prometheus & it will access it at publicip:9090



7. Create a file alert\_rules.yml in Prometheus

groups:
- name: alert\_rules
rules:
- alert: InstanceDown
expr: up == 0
for: 1m
labels:

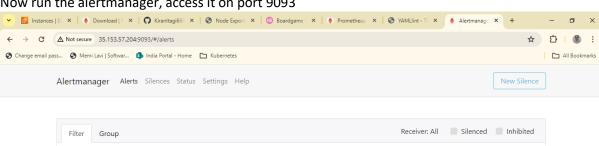
```
severity: critical
 annotations:
  summary: Endpoint {{ $labels.instance }} down
  description: "{{ $labels.instance }} of job {{ $labels.job }} has been down for
   more than 1 minute."
- alert: WebsiteDown
 expr: probe_success == 0
 for: 1m
 labels:
  severity: critical
 annotations:
  description: The website at {{ $labels.instance }} is down.
  summary: Website down
- alert: HostOutOfMemory
 expr: node_memory_MemAvailable / node_memory_MemTotal * 100 < 25
 for: 5m
 labels:
  severity: warning
 annotations:
  summary: Host out of memory (instance {{ $labels.instance }})
  description: |-
   Node memory is filling up (< 25% left)
   VALUE = {{ $value }}
   LABELS: {{ $labels }}
- alert: HostOutOfDiskSpace
 expr: (node_filesystem_avail{mountpoint="/"} * 100) /
  node_filesystem_size{mountpoint="/"} < 50
 for: 1s
 labels:
  severity: warning
 annotations:
  summary: Host out of disk space (instance {{ $labels.instance }})
  description: |-
   Disk is almost full (< 50% left)
   VALUE = {{ $value }}
   LABELS: {{ $labels }}
- alert: HostHighCpuLoad
 expr: (sum by (instance)
  (irate(node_cpu{job="node_exporter_metrics",mode="idle"}[5m]))) > 80
 for: 5m
 labels:
  severity: warning
 annotations:
  summary: Host high CPU load (instance {{ $labels.instance }})
  description: |-
   CPU load is > 80%
   VALUE = {{ $value }}
   LABELS: {{ $labels }}
```

```
- alert: ServiceUnavailable
    expr: up{job="node exporter"} == 0
    for: 2m
    labels:
     severity: critical
    annotations:
     summary: Service Unavailable (instance {{ $labels.instance }})
     description: |-
      The service {{ $labels.job }} is not available
       VALUE = {{ $value }}
       LABELS: {{ $labels }}
   - alert: HighMemoryUsage
    expr: (node_memory_Active / node_memory_MemTotal) * 100 > 90
    for: 10m
    labels:
     severity: critical
    annotations:
     summary: High Memory Usage (instance {{ $labels.instance }})
     description: |-
      Memory usage is > 90%
       VALUE = {{ $value }}
       LABELS: {{ $labels }}
   - alert: FileSystemFull
    expr: (node_filesystem_avail / node_filesystem_size) * 100 < 10
    for: 5m
    labels:
     severity: critical
    annotations:
     summary: File System Almost Full (instance {{ $labels.instance }})
     description: |-
      File system has < 10% free space
       VALUE = {{ $value }}
       LABELS: {{ $labels }}
save it
```

8. Open Prometheus.yml file and define the rule\_files: with alert\_rules.yml

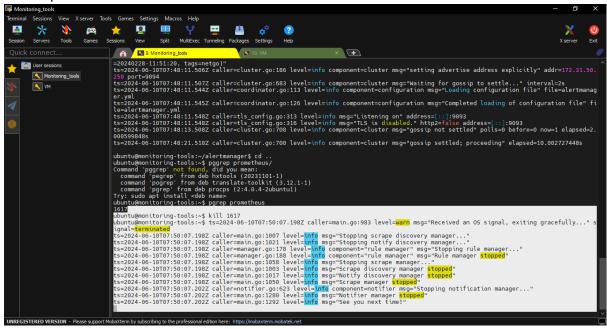


9. Now run the alertmanager, access it on port 9093

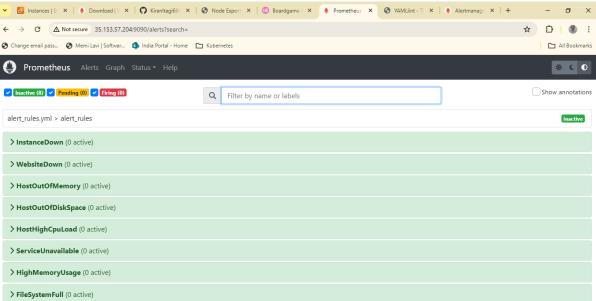


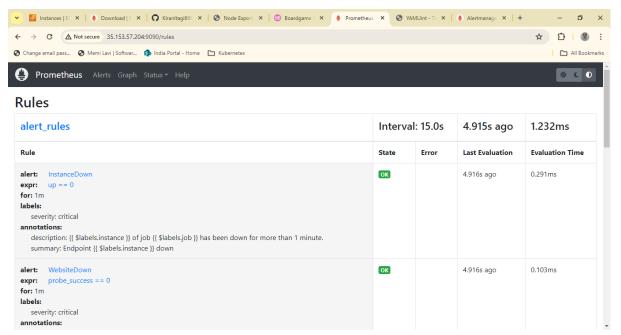
+ 🎉 Silence Custom matcher, e.g. env="production" No alert groups found

10. Restart prometheus



11. Refresh the Prometheus page





12. Inside Prometheus we have to mention the information of blackbox exporter and node exporter, so

i. Provide the IP address of alert manager in the Prometheus.yml file, in the targets menu

```
A 🔅 🕜
                                              × 🛨
         A 2
toring_Tools
         alerting:
           alertmanagers:
               static_configs:
                   targets:
                       B5.153.57.204:9093
         rule_files:
         scrape_configs:
           # The job name is added as a label `job=<job_name>` to any timeseries scrape
             job_name: "prometheus"
             # metrics path defaults to '/metrics'
         -- INSERT --
                                                                       12,15
                                                                                     60%
```

ii. Node exporter and blackbox exporter are scraping metrics which are to be given Prometheus that configuration is done by adding 3 jobs (Prometheus, node exporter, blackbox exporter)

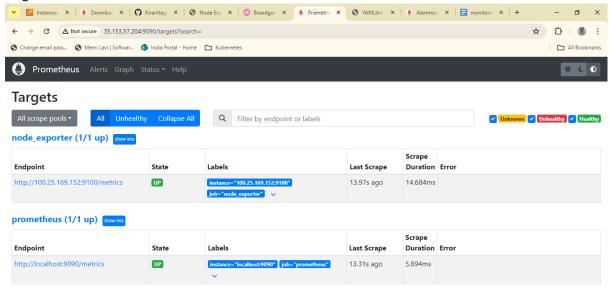
```
- job_name: node_exporterstatic_configs:
```

- targets:

- 3.110.195.114:9100

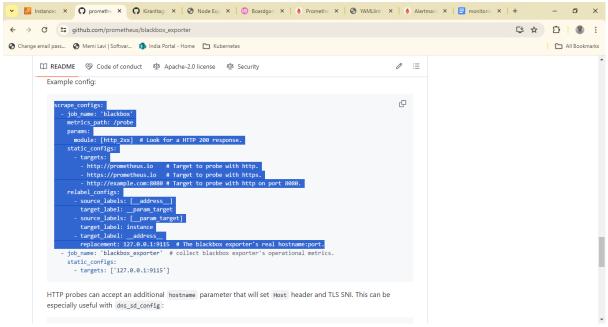
Add a job under Prometheus job

Restart Prometheus and refresh the Prometheus page you can see the node exporter added in the targets



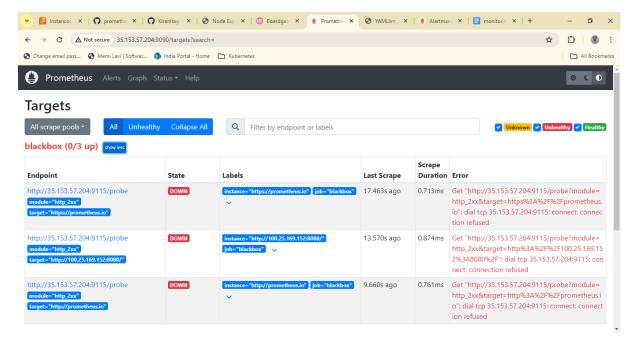
Next add blackbox exporter, go to the Prometheus.io page, click on the git hub repo link

## Scroll down and copy this part

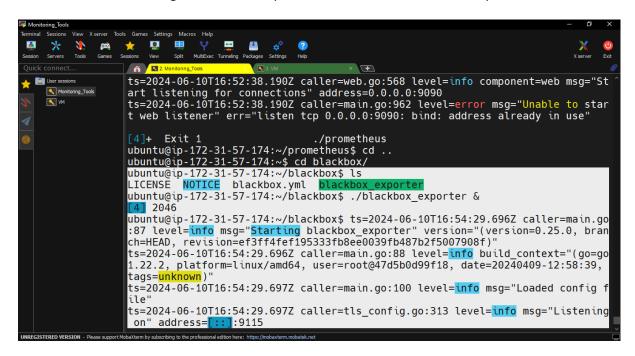


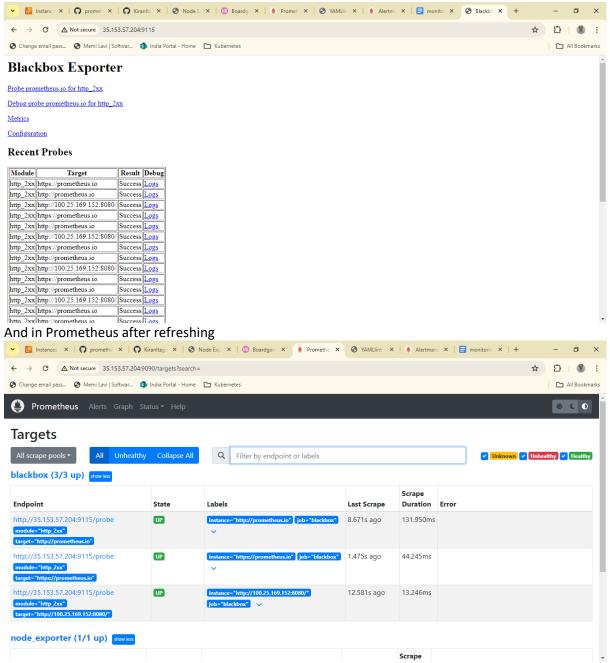
in targets under static configs: paste the address where the application is running and in replacement paste the address where the blackbox is running

```
- job_name: blackbox
metrics_path:/probe
params:
  module:
   - http_2xx
static_configs:
  - targets:
    - http://prometheus.io
    - https://prometheus.io
    - http://100.25.169.152:8080/ (application to monitotred)
relabel_configs:
 - source_labels:
    __address__
   target_label: __param_target
  - source_labels:
    - __param_target
   target_label: instance
  - target_label: __address__
   replacement: 35.153.57.204:9115 (blackbox address)
       restart prometheus
                              commands: 1. pgrep prometheus 2. kill pid 3. ./prometheus &
       refresh Prometheus page
```



Blackbox will be down so go to blackbox exporter and execute and access it at port 9115





Monitoring part is now done all the data from the VM and application(board game) are now being scraped to the Prometheus.

Now we need to do the configuration to receive email notifications

13. Goto alertmanager and edit alertmanager.yml

```
| Session | Size | Server | Tools | Games | Settings | Micros | Help | Session | Server | Tools | Games | Settings | Micros | Help | Session | Server | Tools | Games | Sessions | Micros | Help | Session | Server | Tools | Games | Sessions | Micros | Help | Session | Server | Tools | Sessions | New Stat | Militare | Turneling | Rodops | Settings | Help | Sessions | Sessions | Micros | Help | Sessions | Sessions | Micros | Notifice | Sessions | Micros | Notifice | Notifi
```

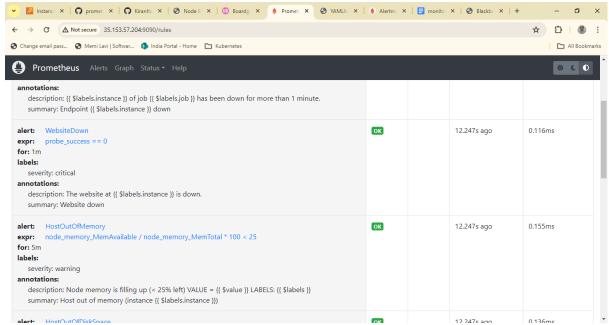
```
route:
group_by:
 - alertname
group_wait: 30s
group_interval: 5m
repeat interval: 1h
receiver: email-notification
receivers:
- name: email-notifications
  email configs:
   - to: kiranitagi09121988@gmail.com
    from: test@gmail.com
    smarthost: smtp.gmail.com:587
    auth_username: kiranitagi09121988@gmail.com
    auth identity: kiranitagi09121988@gmail.com
    auth password: bmsi pksm vint bnrc
    send_resolved: true
inhibit_rules:
- source match:
   severity: critical
  target_match:
   severity: warning
  equal:
   - alertname
```

go to alertmanager directly and 1. pgrep alertmanage 2, kill 'pid' 3. ./alertmanager &

commands: 1. pgrep prometheus 2. kill pid 3. ./prometheus &

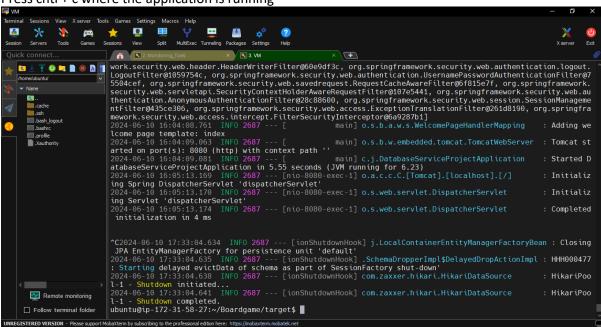
Restart alertmanager

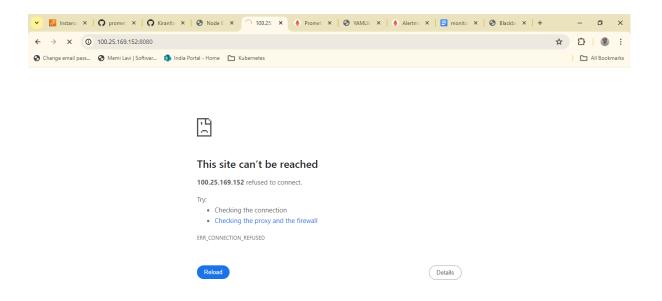
**Restart Prometheus** 

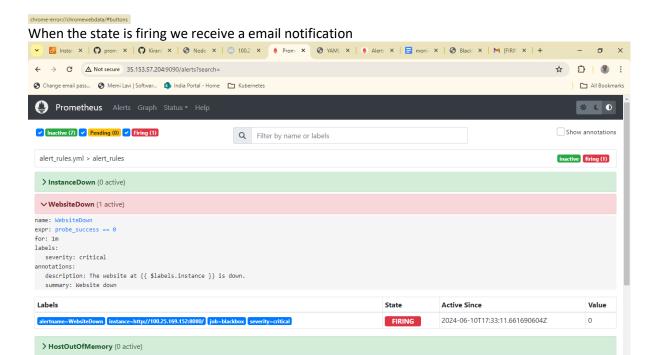


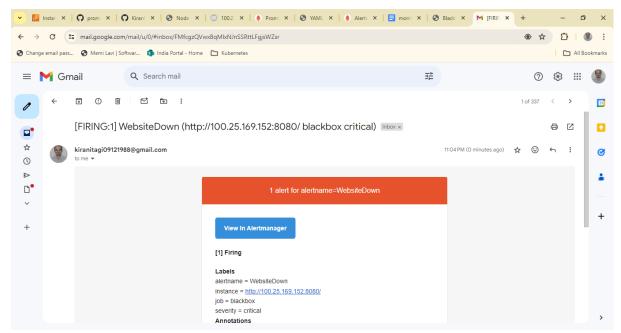
Let us check for website down,

Press cntl + c where the application is running

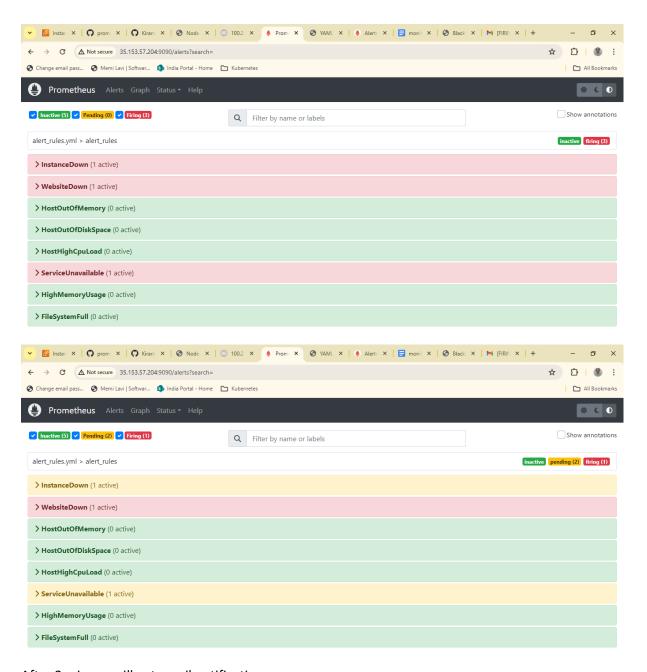








Next kill node exporter this will make the alarm service unavailable and instance down to fire



After 2 min we will get email notification

