System Monitoring with Prometheus and Grafana

Project Objective:

Monitor a Linux EC2 instance using Prometheus and visualize metrics using Grafana, with Node Exporter as the system metrics collector.

Prerequisites:

- AWS EC2 Ubuntu instance

- Docker + Docker Compose installed

- Open ports: 22, 9090, 3000

Step-by-Step Implementation:

1. Launch & Connect to EC2:

- Open required ports in Security Group.

- SSH: ssh -i "key.pem" ubuntu@your-ec2-public-ip

2. Install Docker & Docker Compose:

sudo apt update

sudo apt install docker.io docker-compose -y

sudo usermod -aG docker ubuntu

3. Create Project Directory:

mkdir prometheus-grafana-monitoring && cd prometheus-grafana-monitoring

4. Create Files:

docker-compose.yml:

```
version: '3'
services:
  prometheus:
    image: prom/prometheus
    volumes:
      - ./prometheus.yml:/etc/prometheus/prometheus.yml
    ports:
      - "9090:9090"
  node-exporter:
    image: prom/node-exporter
    ports:
      - "9100:9100"
  grafana:
    image: grafana/grafana
    ports:
      - "3000:3000"
    volumes:
      - grafana-storage:/var/lib/grafana
volumes:
  grafana-storage:
```

prometheus.yml:

```
global:
```

```
  scrape_interval: 15s
scrape_configs:
  - job_name: 'prometheus'
    static_configs:
      - targets: ['localhost:9090']
  - job_name: 'node-exporter'
    static_configs:
      - targets: ['node-exporter:9100']
```

5. Start All Services:

```
docker-compose up -d
```

6. Verify Services:

- Prometheus: http://your-ip:9090
- Grafana: http://your-ip:3000 (admin/admin)
- Node Exporter: http://your-ip:9100/metrics

7. Grafana Setup:

- Add Prometheus data source: http://prometheus:9090
- Import Dashboard ID: 1860

8. Optional Alerts:

- Use Grafana Alerting > Contact Points

To Stop:

```
docker-compose down
```