1. **A list of components in the architecture, with the use case for each :**

a) Technical Skills:

i) Python 3.7 - programming language

ii) Flask - Framework

iii) HTML - To structure web page

iv) CSS - To Style web page

b) DevOps Tools:

i) Virtual Machine with Ubuntu server - to deploy application

ii) Git/Git Hub - Source Control Management

iii) Jenkins - Integration tool

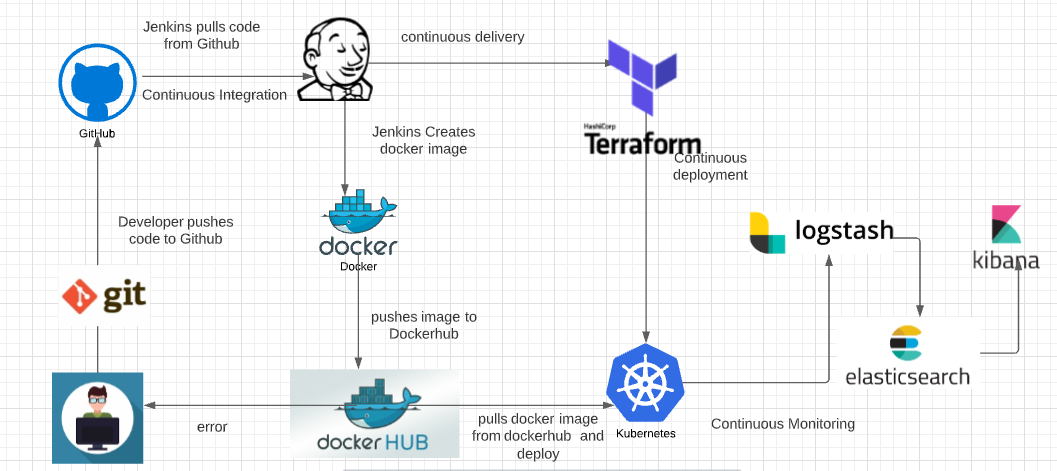
iv) Docker/ DockerHub - For Containerization

v) Terraform - IaC tool

vi) Kubernetes - (Minikube) Container Orchestration

vii) ELK (ElasticSearch, Logstash, Kibana, metricbeat) - Monitoring Tool

1. **A diagram documenting the architecture :**

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1. **A description of how your monitoring process is setup:**

I installed ELK on Local machine ie. Windows platform using the following link

[https://www.elastic.co/elastic-stack](https://www.elastic.co/elastic-stack?ultron=B-Stack-Trials-AMER-US-E-Exact&gambit=Stack-ELK&blade=adwords-s&hulk=paid&Device=c&thor=elk%20stack%20download&gclid=CjwKCAiApfeQBhAUEiwA7K_UHwkO8I77Iqu-9ZjKJZjIrzbNvGsTsiwWR1rO05m_quuvj7j6GNNuJhoCJacQAvD_BwE)

I downloaded zip files for elasticsearch, kibana and logstash, then created a folder

ELK on C:/ then unzipped all three folders. Then ran the following commands

from terminal.

elasticsearch.bat

kibana.bat

logstash.bat

Also installed metricbeat.

Then created this file myconf.conf in the config folder of logstash.

# Sample Logstash configuration for creating a simple

# Beats -> Logstash -> Elasticsearch pipeline.

input {

stdin {}

}

output {

elasticsearch {

hosts => ["http://localhost:9200"]

index => "indexforlogstash"

user => "elastic"

password => "\*\*\*\*\*\*\*"

}

}

This is the pipelines.yml. Created in the metricbeat.

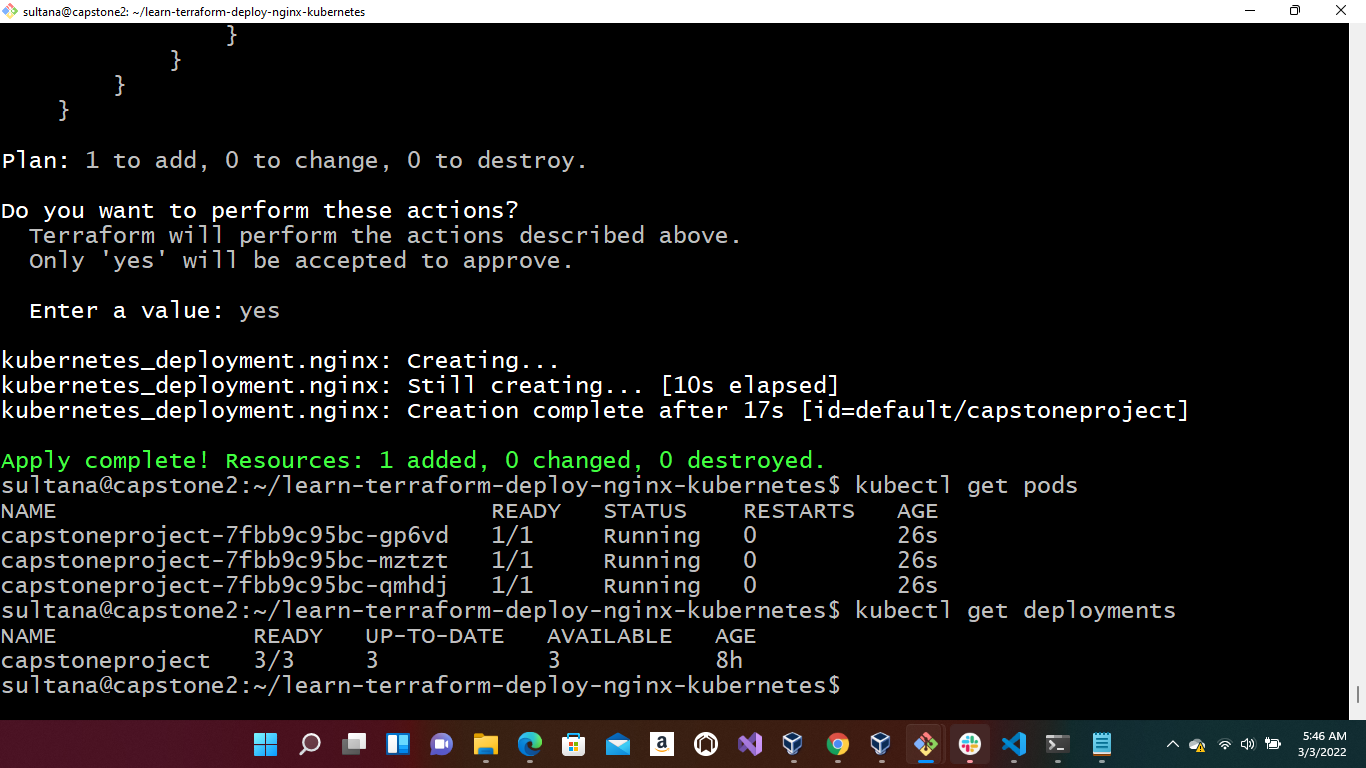
- pipeline.id: another\_test

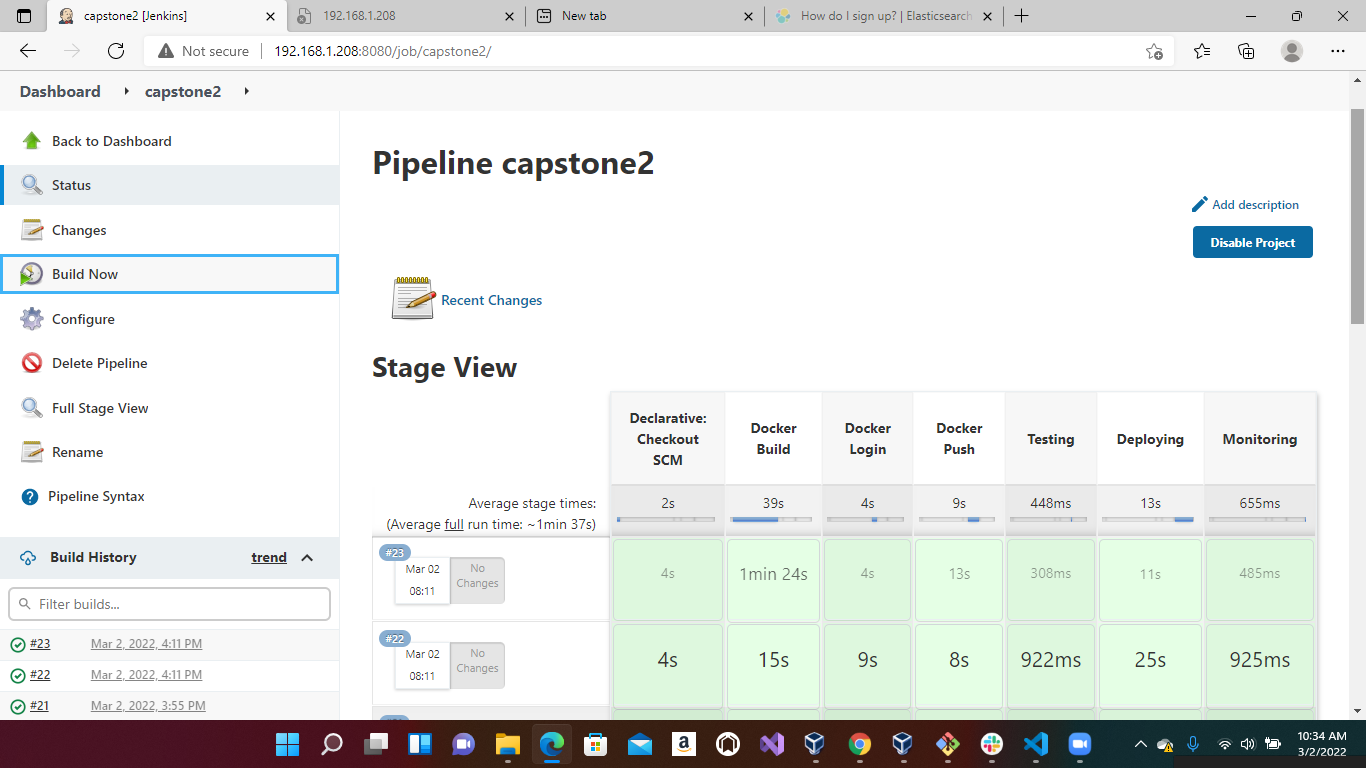
queue.type: persisted

path.config: "/ELK/logstash-8.0.0-windows-x86\_64/logstash-8.0.0/config/myconf.conf"

1. **Screenshots that capture or demonstrate:**

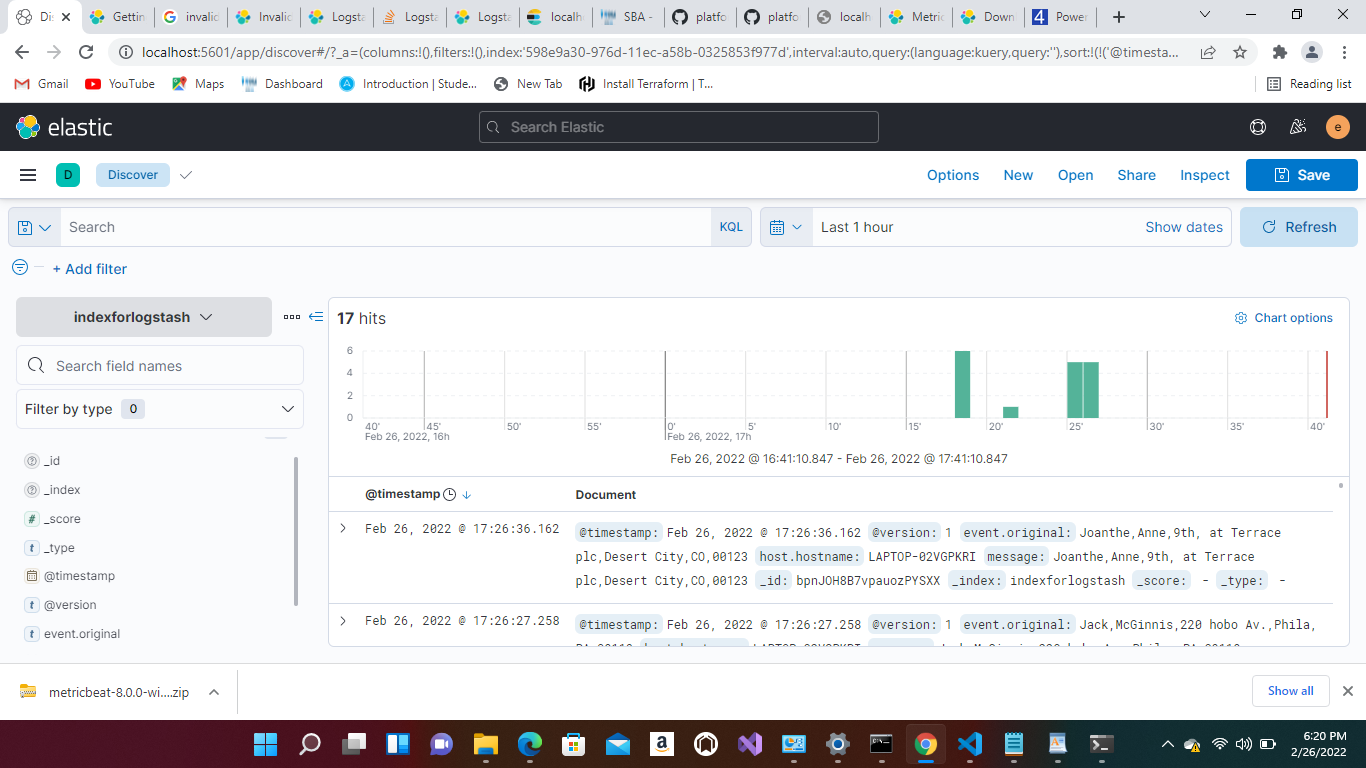
**i) Kubernetes environment is working :**

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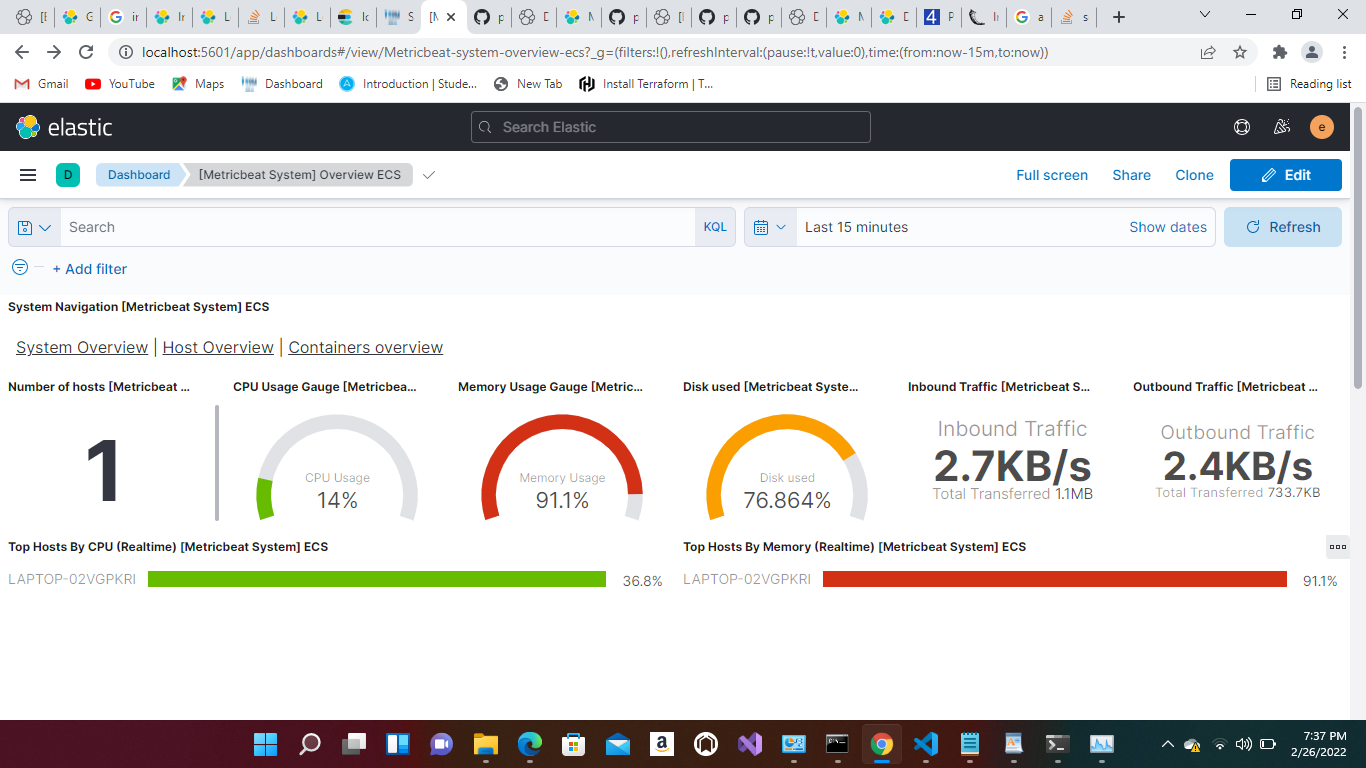
**ii) Flask application was deployed successfully by Jenkins into Kubernetes cluster : **

**iii) Your desktop showing the following:**

**a) Your Monitoring Solution showing CPU, Memory, Disk Utilization and Flask App (5 pts)**

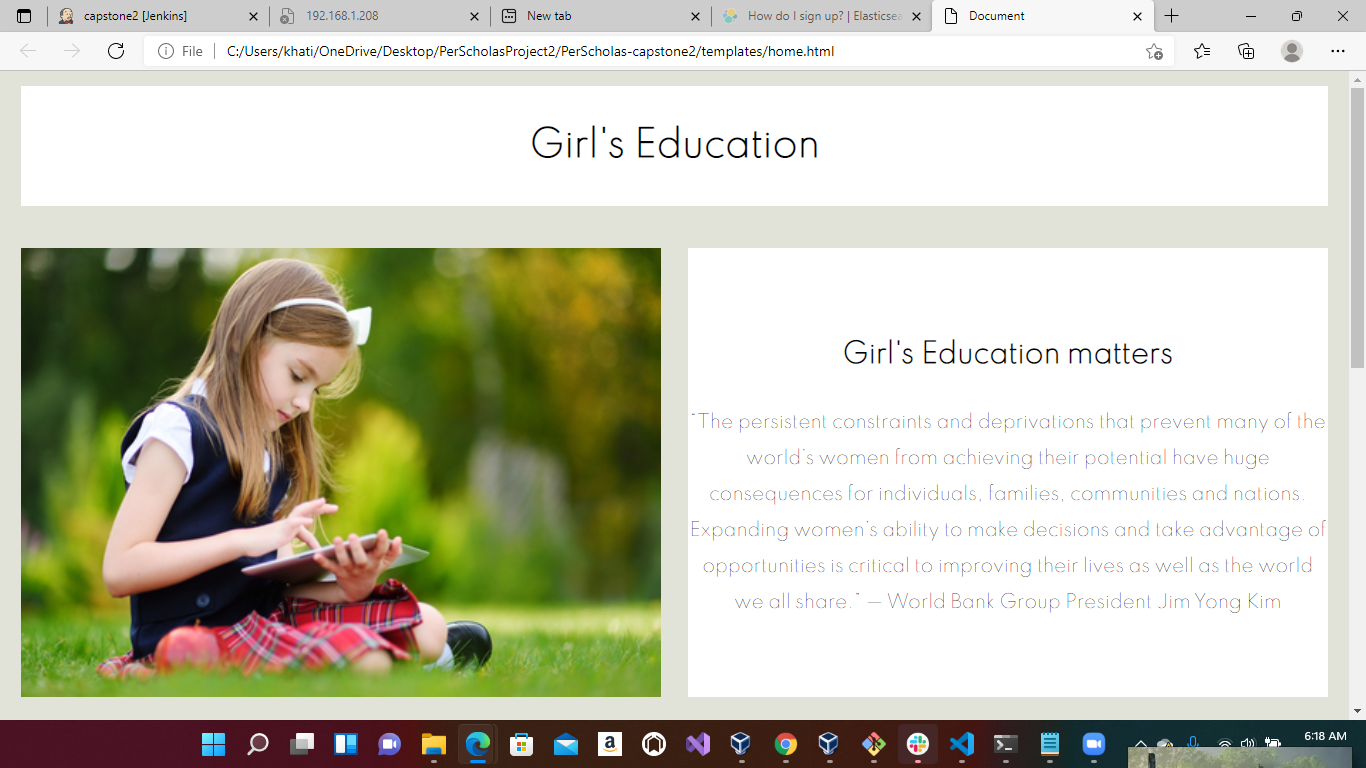
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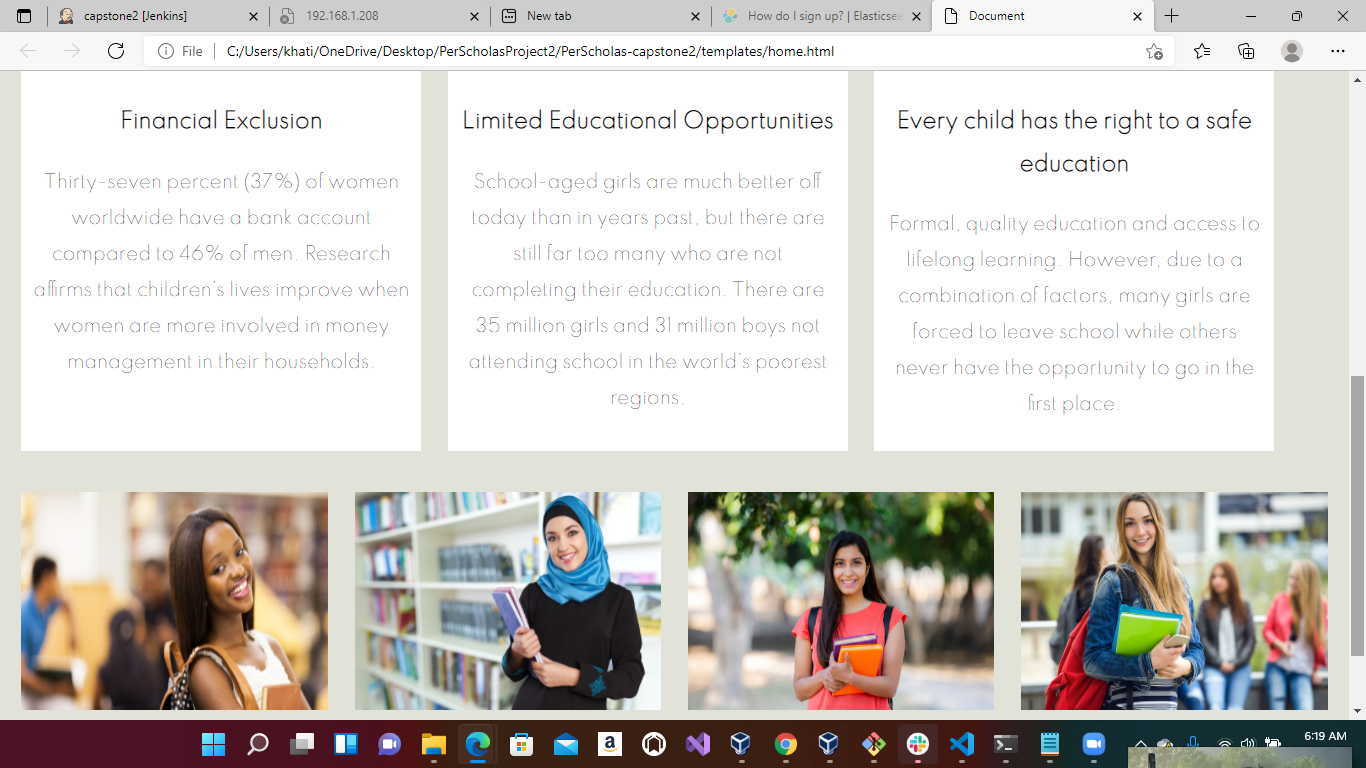
***b) any variant of top* in a terminal showing utilization of the system, if you are using EKS a screenshot of the dashboard showing utilization (5 pts)**

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**iv) Alerts stressing your application is running out of resources (5 pts)**

**Screenshots of WebPages:**

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