

Building and pushing docker images

1. git clone <https://github.com/rinormaloku/k8s-mastery.git>
2. In sa-frontend folder 'npm run build'

```
PS C:\Users\aditya\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> npm run build

> salogic-front@0.1.0 build C:\Users\aditya\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend
> react-scripts build

Creating an optimized production build...
Compiled successfully.

File sizes after gzip:

  73 KB  build\static\js\main.7bd4a5f6.js
  356 B  build\static\css\main.6469d74d.css

The project was built assuming it is hosted at the server root.
You can control this with the homepage field in your package.json.
For example, add this to build it for GitHub Pages:

  "homepage": "http://myname.github.io/myapp",

The build folder is ready to be deployed.
You may serve it with a static server:

  yarn global add serve
  serve -s build

Find out more about deployment here:

  http://bit.ly/2vY88Kr
```

3. docker build -f Dockerfile -t adityadw/sentiment-analysis-frontend .

```
PS C:\Users\aditya\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> docker build -f Dockerfile -t adityadw/sentiment-analysis-frontend .
[+] Building 21.7s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 81B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/nginx:latest
=> [auth] library/nginx:pull token for registry-1.docker.io
=> [1/2] FROM docker.io/library/nginx:sha256:155238fc7fdea5b7d4e5cf026f268a03f87741e511bdd225b89cea884544a8fb
=> => sha256:155238fc7fdea5b7d4e5cf026f268a03f87741e511bdd225b89cea884544a8fb 1.86kB / 1.86kB
=> => resolve docker.io/library/nginx:sha256:155238fc7fdea5b7d4e5cf026f268a03f87741e511bdd225b89cea884544a8fb 7.73kB / 7.73kB
=> => sha256:7250923ba3543110040462388756ef099331822c6172a050b12c7a38361ea46f 1.57kB / 1.57kB
=> => sha256:b380b0d43752f83945df805d1074fef8dd044820e7d3ae533b555a2483e030c7 27.14kB / 27.14kB
=> => sha256:fca7e12d1754baddbd07178dd1693c726e9d792c0c9659208e3f4b474dc41a7c 26.64kB / 26.64kB
=> => sha256:745ab57616cb3c803b3a00c3bd46fd0d94762bd5b9446eadc877cb7400fb6c11 602B / 602B
=> => sha256:a4723e26006fedec963910b3ae53e939fd58cbad8232258576ba26765cdecf522 894B / 894B
=> => sha256:1c84ebdf6819c0100dc43a59ee391cc2cbl4f7aba20ca0af1004fb78652fc9 666B / 666B
=> => sha256:858292fd2e56e240ab472db6e9fabd5fd390486609787fcf8d65a06a04c00971 1.39kB / 1.39kB
=> => extracting sha256:b380b0d43752f83945df805d1074fef8dd044820e7d3ae533b555a2483e030c7
=> => extracting sha256:fca7e12d1754baddbd07178dd1693c726e9d792c0c9659208e3f4b474dc41a7c
=> => extracting sha256:745ab57616cb3c803b3a00c3bd46fd0d94762bd5b9446eadc877cb7400fb6c11
=> => extracting sha256:a4723e26006fedec963910b3ae53e939fd58cbad8232258576ba26765cdecf522
=> => extracting sha256:1c84ebdf6819c0100dc43a59ee391cc2cbl4f7aba20ca0af1004fb78652fc9
=> => extracting sha256:858292fd2e56e240ab472db6e9fabd5fd390486609787fcf8d65a06a04c00971
=> [internal] load build context
=> => transferring context: 1.74MB
=> [2/2] COPY build /usr/share/nginx/html
=> exporting to image
=> exporting layers
=> writing image sha256:fab8382ab0dc765d0b3563365ed053768bf0470ed93ade6b02a1f8214a8d5717
=> naming to docker.io/adityadw/sentiment-analysis-frontend

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS C:\Users\aditya\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend>
```

4. docker push adityadw/sentiment-analysis-frontend

```
PS C:\Users\aditya\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> docker push adityadw/sentiment-analysis-frontend
Using default tag: latest
The push refers to repository [docker.io/adityadw/sentiment-analysis-frontend]
3b30e3ca024e: Pushed
9959a332cf6e: Mounted from library/nginx
f7e00b807643: Mounted from library/nginx
f8e880dfc4ef: Mounted from library/nginx
788e89a4d186: Mounted from library/nginx
43f4e41372e4: Mounted from library/nginx
e81bff72725db: Mounted from library/nginx
latest: digest: sha256:13f61c81f1bba79ed96de8195af1912b7622c0df450dd2661ff48bea648b07ad size: 1780
```

In sa-logic

1. docker build -f Dockerfile -t adityadw/sentiment-analysis-logic .

```
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-logic> docker build -f Dockerfile -t adityadw/sentiment-analysis-logic .
[+] Building 40.9s (11/11) FINISHED
=> [Internal] load build definition from Dockerfile
=> => transferring dockerfile: 242B
=> [Internal] load .dockerignore
=> => transferring context: 2B
=> [Internal] load metadata for docker.io/library/python:3.6-slim
=> [auth] library/python:pull token for registry-1.docker.io
=> [Internal] load build context
=> => transferring context: 618B
=> [1/4] FROM docker.io/library/python:3.6-slim@sha256:d4b23da195256830d7306b7d70120a19b802a67b337c2f7653e28343b313862c
=> resolve docker.io/library/python:3.6-slim@sha256:d4b23da195256830d7306b7d70120a19b802a67b337c2f7653e28343b313862c
=> sha256:7d63c13d9b9b6ec5f05a2b07daadcaac9c610d01102a662ae9b1d0821051ffa 31.36MB / 31.36MB
=> sha256:7c9d54bd1446b064612a059b5b49c147c720e5bdae3b2d9fe2f0fabbb89d6270 1.00MB / 1.00MB
=> sha256:c864302cca0121fcf6839c3127d8bb31d198f64393655aea9d614dffe75d4368 9.74MB / 9.74MB
=> sha256:d4b23da195256830d7306b7d70120a19b802a67b337c2f7653e28343b313862c 1.86kB / 1.86kB
=> sha256:9c8b89a25f6616e627318be1deb2d4f2b9ad3ac7c4d14a10cf3c0b47b75ac0af 1.37kB / 1.37kB
=> sha256:e2bad1eb13cde513f20788ce19fa7064c5b0e43bfbf9d331c9f9f95029e3e63 0.54kB / 0.54kB
=> sha256:a0e760d4fca82e421fb15c281d58025931e2473b4821177783086925d263f14 232B / 232B
=> sha256:c34762471ad6135f3726c0d07ca523fdd1ea213fa49619c47848c9a02473eb67 2.50MB / 2.50MB
=> extracting sha256:7d63c13d9b9b6ec5f05a2b07daadcaac9c610d01102a662ae9b1d0821051ffa
=> extracting sha256:7c9d54bd1446b064612a059b5b49c147c720e5bdae3b2d9fe2f0fabbb89d6270
=> extracting sha256:c864302cca0121fcf6839c3127d8bb31d198f64393655aea9d614dffe75d4368
=> extracting sha256:a0e760d4fca82e421fb15c281d58025931e2473b4821177783086925d263f14
=> extracting sha256:c34762471ad6135f3726c0d07ca523fdd1ea213fa49619c47848c9a02473eb67
=> [auth] library/python:pull token for registry-1.docker.io
=> [2/4] COPY sa /app
=> [3/4] WORKDIR /app
=> [4/4] RUN pip3 install -r requirements.txt && python3 -m textblob.download_corpora
=> exporting to image
=> => exporting layers
=> => writing image sha256:ec70672160c4ba07e5e1671bab426a9043c7351396a04086d220b173aa4ffcb6
=> => naming to docker.io/adityadw/sentiment-analysis-logic
```

2. docker push adityadw/sentiment-analysis-logic

```
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-logic> docker push adityadw/sentiment-analysis-logic
Using default tag: latest
The push refers to repository [docker.io/adityadw/sentiment-analysis-logic]
e49dd43584b4: Pushed
5f70bf18a086: Mounted from opensecurity/mobile-security-framework-mobsf
8a9406e4bc9f: Pushed
8e924f40c925: Mounted from library/python
7e7daecd0f4: Mounted from library/python
b4a3082e9e17: Mounted from library/python
5e34d134c883: Mounted from library/python
e8b689711f21: Mounted from library/python
latest: digest: sha256:e50c025a06922c63660c35516aa733a1c9d2ffc393481c40da671dd26099704 size: 1994
```

In sa-webapp

1. mvn install

```
bash-4.2$ mvn install
[INFO] Scanning for projects...
[INFO]
[INFO] Building sentiment-analysis-web 0.0.1-SNAPSHOT
[INFO]
[INFO]
[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ sentiment-analysis-web ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Copying 1 resource
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ sentiment-analysis-web ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ sentiment-analysis-web ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] skip non existing resourceDirectory /afs/andrew.cmu.edu/usr14/adityadw/private/Cloud-Infra/k8s-mastery/sa-webapp/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ sentiment-analysis-web ---
[INFO] No sources to compile
[INFO]
[INFO] --- maven-surefire-plugin:2.18.1:test (default-test) @ sentiment-analysis-web ---
[INFO] No tests to run.
[INFO]
[INFO] --- maven-jar-plugin:2.6:jar (default-jar) @ sentiment-analysis-web ---
[INFO] Building jar: /afs/andrew.cmu.edu/usr14/adityadw/private/Cloud-Infra/k8s-mastery/sa-webapp/target/sentiment-analysis-web-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:1.5.9.RELEASE:repackage (default) @ sentiment-analysis-web ---
[INFO]
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @ sentiment-analysis-web ---
[INFO] Installing /afs/andrew.cmu.edu/usr14/adityadw/private/Cloud-Infra/k8s-mastery/sa-webapp/target/sentiment-analysis-web-0.0.1-SNAPSHOT.jar to /afs/andrew.cmu.edu/usr14/adityadw/.m2/repository/com/sa/web/sentiment-analysis-web/0.0.1-SNAPSHOT/sentiment-analysis-web-0.0.1-SNAPSHOT.jar
[INFO] Installing /afs/andrew.cmu.edu/usr14/adityadw/private/Cloud-Infra/k8s-mastery/sa-webapp/pom.xml to /afs/andrew.cmu.edu/usr14/adityadw/.m2/repository/com/sa/web/sentiment-analysis-web/0.0.1-SNAPSHOT/sentiment-analysis-web-0.0.1-SNAPSHOT.pom
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 26.580s
[INFO] Finished at: Tue Oct 12 23:03:26 EDT 2021
[INFO] Final Memory: 10M/350M
[INFO]
bash-4.2$
```

2. docker build -f Dockerfile -t adityadw/sentiment-analysis-web-app .

```
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-webapp> docker build -f Dockerfile -t adityadw/sentiment-analysis-web-app .
[*] Building 20.8s (8/8) FINISHED
-> [internal] load build definition from Dockerfile
-> <=> transferring dockerfile: 370B
-> [internal] load .dockerignore
-> <=> transferring context: 2B
-> [internal] load metadata for docker.io/library/openjdk:8-jdk-alpine
[auth] library/openjdk:pull token for registry-1.docker.io
-> [internal] load build context
-> <=> transferring context: 20.46MB
-> [1/2] FROM docker.io/library/openjdk:8-jdk-alpine@sha256:94792824df2df33402f201713f932b58cb9de94a0cd524164a0f2283343547b3
-> resolve docker.io/library/openjdk:8-jdk-alpine@sha256:94792824df2df33402f201713f932b58cb9de94a0cd524164a0f2283343547b3
-> sha256:f910a506b6c1dbec766725d70356f695ae2bf2bea6224dbe8c7c6ad4f3664a2 238B / 238B
-> sha256:c2274a1a0e2786ee9101b08f7611f9ab8019e368dce1e325d3c284a0ca33397 70.73MB / 70.73MB
-> sha256:94792824df2df33402f201713f932b58cb9de94a0cd524164a0f2283343547b3 1.64kB / 1.64kB
-> sha256:44b3cea369c947527e266275cee85c71a81f20fc5078f6ebb5a13f19015dce71 947B / 947B
-> sha256:a3562aa0b991a89cf8172847c8be6dbf6e46340b759c2b782f8b8be45342717 3.40kB / 3.40kB
-> sha256:e7c96db7181be991f19a9fb6975cddb73c65f442681348e63a141a2192a5f10 2.70MB / 2.70MB
-> extracting sha256:e7c96db7181be991f19a9fb6975cddb73c65f442681348e63a141a2192a5f10
-> extracting sha256:f910a506b6c1dbec766725d70356f695ae2bf2bea6224dbe8c7c6ad4f3664a2
-> extracting sha256:c2274a1a0e2786ee9101b08f7611f9ab8019e368dce1e325d3c284a0ca33397
-> [2/2] ADD target/sentiment-analysis-web-0.0.1-SNAPSHOT.jar /
-> exporting to image
-> exporting layers
-> writing image sha256:620ee517d125d800d0be7178955da2ce1bd882e9dead800b59b51710a2f1ad01
-> naming to docker.io/adityadw/sentiment-analysis-web-app
```

3. docker push adityadw/sentiment-analysis-web-app

```
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-webapp> docker push adityadw/sentiment-analysis-web-app
Using default tag: latest
The push refers to repository [docker.io/adityadw/sentiment-analysis-web-app]
39ce2ea3dc0d: Pushed
ceaf9e1ebef5: Mounted from library/openjdk
9b9b7f3d56a0: Mounted from library/openjdk
f1b5933fe4b5: Mounted from library/openjdk
latest: digest: sha256:ac76eb661be0d4cc8bc5ef715664e6795d239395173a332771ca6e16b639ba0 size: 1159
```

On GCP
Sa-logic

1. docker pull adityadw/sentiment-analysis-logic

```
adidwivedi96@cloudshell:~ (genuine-grid-327615) $ docker pull adityadw/sentiment-analysis-logic
Using default tag: latest
latest: Pulling from adityadw/sentiment-analysis-logic
7d63c13d9b9b: Pull complete
7c9d54bd144b: Pull complete
c864302cca01: Pull complete
ae2760d4fe3a: Pull complete
c34762471ad6: Pull complete
052beb124ac0: Pull complete
4f4fb700ef54: Pull complete
db4582ae3ce0: Pull complete
Digest: sha256:e50c025a06922c63660c35516aa733a1c9d2ffc393481c40da671ddd26099704
Status: Downloaded newer image for adityadw/sentiment-analysis-logic:latest
docker.io/adityadw/sentiment-analysis-logic:latest
```

2. docker tag adityadw/sentiment-analysis-logic

gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-logic:1

3. docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-logic:1

```
adidwivedi96@cloudshell:~ (genuine-grid-327615) $ docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-logic:1
The push refers to repository [gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-logic]
e49dd43584b4: Pushed
5f70bf18a086: Layer already exists
8a9406e4bc9f: Layer already exists
8e924f40c925: Layer already exists
7e7daecd0f4: Layer already exists
b4a3082e9e17: Layer already exists
5e34d134c883: Layer already exists
e8b689711f21: Layer already exists
1: digest: sha256:e50c025a06922c63660c35516aa733a1c9d2ffc393481c40da671ddd26099704 size: 1994
```

(Kubernetes cluster deployment)

4. gcloud container clusters create --machine-type n1-standard-2 --num-nodes 2 --zone us-central1-a --cluster-version latest adityadwkubernetescluster

```

adidwivedi96@cloudshell:~ (genuine-grid-327615)$ gcloud container clusters create --machine-type n1-standard-2 --num-nodes 2 --zone us-central1-a --cluster-version latest adityadw/kubernetescluster
WARNING: Currently VPC-native is the default mode during cluster creation for versions greater than 1.21.0-gke.1500. To create advanced routes based clusters, please pass the '--no-enable-ip-al
loc' flag
WARNING: Starting with version 1.19, clusters will have shielded GKE nodes by default.
WARNING: Your Pod address range ('--cluster-ipv4-cidr') can accommodate at most 1008 node(s).
WARNING: Starting with version 1.19, newly created clusters and node-pools will have COS_CONTAINERD as the default node image when no image type is specified.
Creating cluster adityadw/kubernetescluster in us-central1-a...done.
Created [https://container.googleapis.com/v1/projects/genuine-grid-327615/zones/us-central1-a/clusters/adityadw/kubernetescluster].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload/_gcloud/us-central1-a/adityadw/kubernetescluster?project=genuine-grid-327615
kubeconfig entry generated for adityadw/kubernetescluster.
NAME: adityadw/kubernetescluster
LOCATION: us-central1-a
MASTER_VERSION: 1.21.4-gke.2300
MASTER_IP: 35.193.72.220
MACHINE_TYPE: n1-standard-2
NODE_VERSION: 1.21.4-gke.2300
NUM_NODES: 2
STATUS: RUNNING

```

5. Sa-logic-deployment.yaml file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)

```

apiVersion: apps/v1
kind: Deployment
metadata:
  name: sa-logic
  labels:
    app: sa-logic
spec:
  selector:
    matchLabels:
      app: sa-logic
  replicas: 2
  minReadySeconds: 15
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxUnavailable: 1
      maxSurge: 1
  template:
    metadata:
      labels:
        app: sa-logic
    spec:
      containers:
        - image: adityadw/sentiment-analysis-logic
          imagePullPolicy: Always
          name: sa-logic
          ports:
            - containerPort: 5000

```

6. `kubectl apply -f sa-logic-deployment.yaml --record`

```

adidwivedi96@cloudshell:~/clud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ kubectl apply -f sa-logic-deployment.yaml --record
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/sa-logic created

```

7. Sa-logic service file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)

```

apiVersion: v1
kind: Service
metadata:
  name: sa-logic
spec:
  ports:
    - port: 80
      protocol: TCP
      targetPort: 5000
  selector:
    app: sa-logic

```

8. kubectl apply -f service-sa-logic.yaml

```

adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ kubectl apply -f service-sa-logic.yaml
service/sa-logic created

```

Sa-webapp

1. docker pull adityadw/sentiment-analysis-web-app
2. docker tag adityadw/sentiment-analysis-web-app gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-web-app:1
3. docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-web-app:1

```

adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker pull adityadw/sentiment-analysis-web-app
Using default tag: latest
latest: Pulling from adityadw/sentiment-analysis-web-app
e7c96db7181b: Pull complete
f910a50b6c6b: Pull complete
c2274a1a0e27: Pull complete
abe62236cc27: Pull complete
Digest: sha256:ac76eb661be0d4cc8bc5ef715664e6795d239395173a3372771ca6e16b639ba0
Status: Downloaded newer image for adityadw/sentiment-analysis-web-app:latest
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker tag adityadw/sentiment-analysis-web-app gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-web-app:1
The push refers to repository [docker.io/adityadw/sentiment-analysis-web-app]
tag does not exist: adityadw/sentiment-analysis-web-app:1
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-web-app:1
The push refers to repository [gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-web-app]
39ce2ea3dc0d: Pushed
ceaf9e1ebef5: Layer already exists
9b9b7f3d56a0: Layer already exists
f1b5933fe4b5: Layer already exists
1: digest: sha256:ac76eb661be0d4cc8bc5ef715664e6795d239395173a3372771ca6e16b639ba0 size: 1159
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$

```

4. Sa-web-app deployment file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)



CLOUD SHELL

Terminal

(genuine-grid-327615) X + ▾

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: sa-web-app
  labels:
    app: sa-web-app
spec:
  selector:
    matchLabels:
      app: sa-web-app
  replicas: 2
  minReadySeconds: 15
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxUnavailable: 1
      maxSurge: 1
  template:
    metadata:
      labels:
        app: sa-web-app
    spec:
      containers:
        - image: adityadw/sentiment-analysis-web-app
          imagePullPolicy: Always
          name: sa-web-app
          env:
            - name: SA_LOGIC_API_URL
              value: "http://sa-logic"
          ports:
            - containerPort: 8080
```

5. Sa-web-app service file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)

```
CLOUD SHELL
Terminal (genuine-grid-327615) X + ▾

apiVersion: v1
kind: Service
metadata:
  name: sa-web-app-lb
spec:
  type: LoadBalancer
  ports:
  - port: 80
    protocol: TCP
    targetPort: 8080
  selector:
    app: sa-web-app
```

6. `kubectl apply -f sa-web-app-deployment.yaml --record`
7. `kubectl apply -f service-sa-web-app-lb.yaml`

```
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ kubectl apply -f sa-web-app-deployment.yaml --record
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/sa-web-app created
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ kubectl apply -f service-sa-web-app-lb.yaml
service/sa-web-app-lb created
```

Changing sa-fronted to request from deployed sa-web-app

1. We get sa-web-app IP from GUI under deployment details in Kubernetes engine as -

Exposing services ?

Name ↑	Type	Endpoints
sa-web-app-lb	Load balancer	35.232.126.40:80 ↗

2. We make this change in App.js file of front-end

```
},

analyzeSentence() {
  fetch('http://35.232.126.40/sentiment', {
    method: 'POST',
    headers: {
      'Content-Type': 'application/json'
    },
    body: JSON.stringify({sentence: this.textField.getValue()})
  })
  .then(response => response.json())
  .then(data => this.setState(data));
}
```

3. `npm run build`

```

PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> npm run build

> salogic-front@0.1.0 build C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend
> react-scripts build

Creating an optimized production build...
Compiled successfully.

File sizes after gzip:

 73 KB   build\static\js\main.6c1fa88d.js
 356 B   build\static\css\main.6469d74d.css

The project was built assuming it is hosted at the server root.
You can control this with the homepage field in your package.json.
For example, add this to build it for GitHub Pages:

  "homepage": "http://myname.github.io/myapp",

The build folder is ready to be deployed.
You may serve it with a static server:

  yarn global add serve
  serve -s build

Find out more about deployment here:

  http://bit.ly/2vY88Kr

```

4. Build the docker image again - `docker build -f Dockerfile -t adityadw/sentiment-analysis-frontend:latest`
5. Push the docker image to dockerhub - `docker push adityadw/sentiment-analysis-frontend:latest`

```

PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> docker build -f Dockerfile -t adityadw/sentiment-analysis-frontend:latest .
[+] Building 11.1s (7/7) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 31B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/nginx:latest
=> [internal] load build context
=> => transferring context: 552B
=> [1/2] FROM docker.io/library/nginx@sha256:644a70516a26084c97d0d85c7fe1d0c3a67ea8ab7ddf4aff193d9f301670cf36
=> => resolve docker.io/library/nginx@sha256:644a70516a26084c97d0d85c7fe1d0c3a67ea8ab7ddf4aff193d9f301670cf36
=> CACHED [2/2] COPY build /usr/share/nginx/html
=> exporting to image
=> => writing image sha256:fab8382ab0d6765d6b3563365edb53768bf8479ed93ade6b02a1f8214a8d5717
=> => naming to docker.io/adityadw/sentiment-analysis-frontend:latest

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend> docker push adityadw/sentiment-analysis-frontend:latest
The push refers to repository [docker.io/adityadw/sentiment-analysis-frontend]
3b30e3ca024e: Layer already exists
9959a332cf6e: Layer already exists
f7e0b807643: Layer already exists
f8e880dfc4ef: Layer already exists
788e89a4d186: Layer already exists
43f4e41372e4: Layer already exists
e81bfff2725db: Layer already exists
latest: digest: sha256:13f61c81f1bba79ed96de8195af1912b7622c0df450dd2661ff48bea648b07ad size: 1780
PS C:\Users\adity\Desktop\Aditya\CMU\Courses\Cloud-Infra\k8s-mastery\sa-frontend>

```

Deploy sa-frontend to GKE

1. `docker pull adityadw/sentiment-analysis-frontend`
2. `docker tag adityadw/sentiment-analysis-frontend:latest gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-frontend:1`
3. `docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-frontend:1`


```

adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker pull adityadw/sentiment-analysis-frontend
Using default tag: latest
latest: Pulling from adityadw/sentiment-analysis-frontend
b380b8d43752: Pull complete
1ca7e12d1754: Pull complete
745ab57616cb: Pull complete
a4723e260b6f: Pull complete
1c84ebdff681: Pull complete
858292fd2e56: Pull complete
1f42f68f84da: Pull complete
Digest: sha256:13f61c81f1bba79ed96de8195af1912b7622c0df450dd2661ff48bea648b07ad
Status: Downloaded newer image for adityadw/sentiment-analysis-frontend:latest
docker.io/adityadw/sentiment-analysis-frontend:latest
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker tag adityadw/sentiment-analysis-frontend:latest gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-frontend:1
adidwivedi96@cloudshell:~/cloud-infra/k8s-mastery/resource-manifests (genuine-grid-327615)$ docker push gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-frontend:1
The push refers to repository [gcr.io/genuine-grid-327615/adityadw/sentiment-analysis-frontend]
3b30e3ca024e: Pushed
9959a332cf6e: Layer already exists
f7e00b807643: Layer already exists
f0e880dfc4ef: Layer already exists
788e95a4d186: Layer already exists
43f4e41372e4: Layer already exists
e81bff2725db: Layer already exists
1: digest: sha256:13f61c81f1bba79ed96de8195af1912b7622c0df450dd2661ff48bea648b07ad size: 1780

```

4. Sa-frontend deployment file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)

CLOUD SHELL Terminal (genuine-grid-327615) X + ▾

```

apiVersion: apps/v1
kind: Deployment
metadata:
  name: sa-frontend
  labels:
    app: sa-frontend
spec:
  selector:
    matchLabels:
      app: sa-frontend
  replicas: 2
  minReadySeconds: 15
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxUnavailable: 1
      maxSurge: 1
  template:
    metadata:
      labels:
        app: sa-frontend
    spec:
      containers:
      - image: adityadw/sentiment-analysis-frontend:latest
        imagePullPolicy: Always
        name: sa-frontend
        ports:
        - containerPort: 80

```

5. Sa-frontend service file (borrowed from <https://github.com/rinormaloku/k8s-mastery>)

```
CLOUD SHELL
Terminal (genuine-grid-327615) X + v
apiVersion: v1
kind: Service # 1
metadata:
  name: sa-frontend-lb
spec:
  type: LoadBalancer # 2
  ports:
    - port: 80 # 3
      protocol: TCP # 4
      targetPort: 80 # 5
  selector: # 6
    app: sa-frontend # 7
```

6. `kubectl apply -f sa-frontend-deployment.yaml --record`
7. `kubectl apply -f service-sa-frontend-lb.yaml`

Screenshot of App running -

