TEAM. 7

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Docker:

Docker is an open source containerization platform. It enables developers to package applications into containers—standardized executable components combining application source code with the operating system (OS) libraries and dependencies required to run that code in any environment.

Installation steps for docker:

1. Download Docker:

   https://docs.docker.com/desktop/windows/install/

2. Double –click Install Docker.
3. Follow the install wizard: accept the license, authorize the installer, and proceed with the install
4. Click finish to launch Docker.
5. Docker starts automatically.
6. Docker loads a“Welcome“windows giving you tips and access to the Docker documentation.

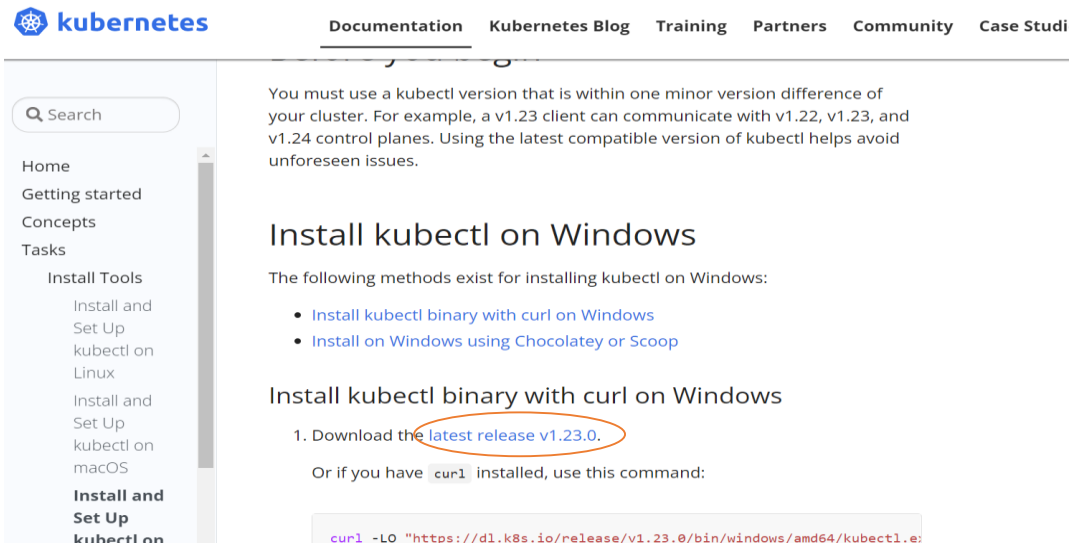
Kubernetes:

Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and services, that facilitates both declarative configuration and automation

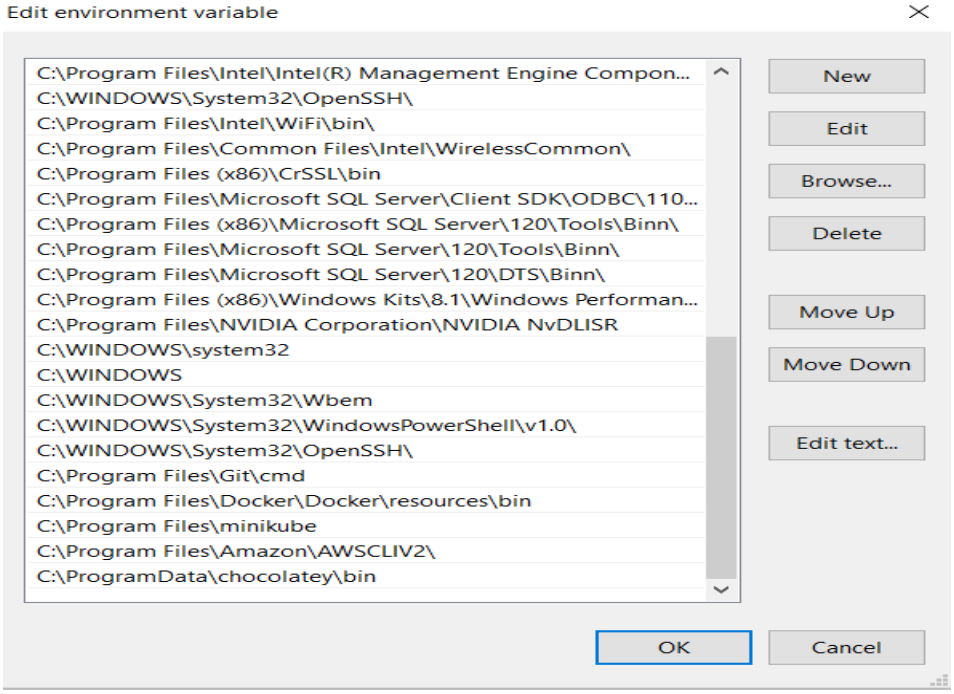
1. To Install Kubernetes on windows go to this website:

   https://kubernetes.io/docs/tasks/tools/install-kubectl-windows/

2. Then click on latest version v1.23.0.to download the Kubernetes.



3. Add the path in Environment variables.



4. Test to ensure the version of kubectl is the same as downloaded.

```
$kubectl version –client
```

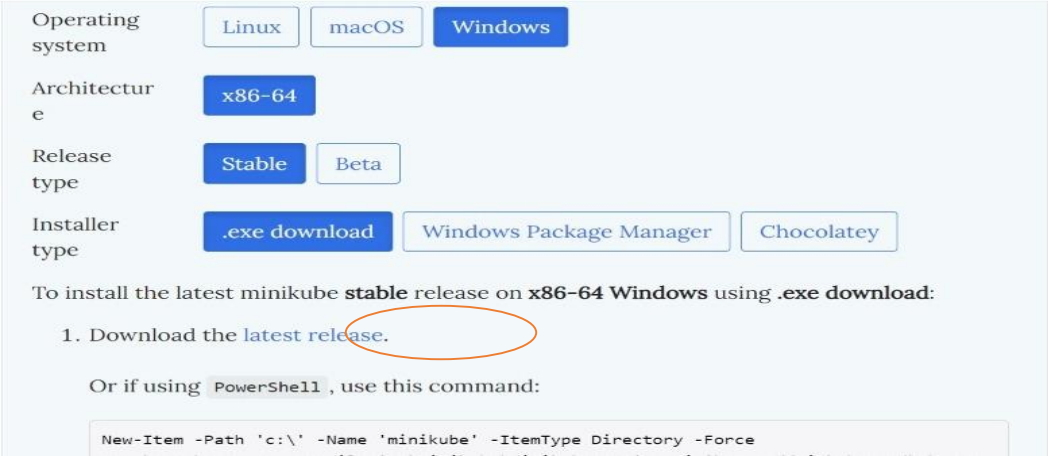
MINIKUBE

Like kind, minikube is a tool that lets you run Kubernetes locally. Minikube runs a single-node Kubernetes cluster on your personal computer (including Windows, macOS and Linux PCs) so that you can try out Kubernetes, or for daily development work.

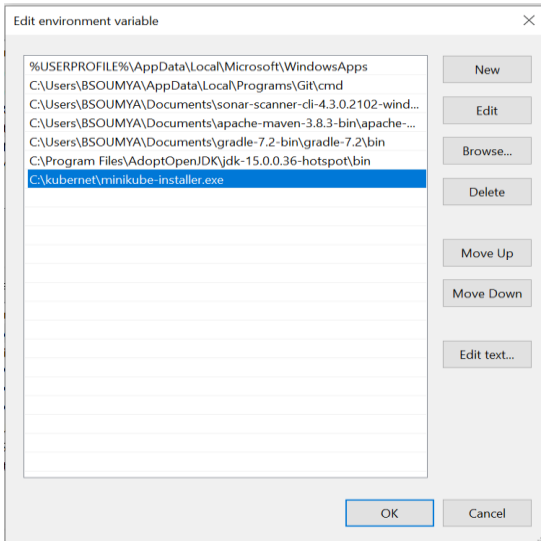
1. To Install minikube on windows go to this website:. To install minikube on windows go to this website:

   https://minikube.sigs.k8s.io/docs/start/

2. Then click on latest release and download.



3. Add the path in Environment variables.



4. Start your cluster by using below command.

   $ Minikube start

5. Then it will be shown below.

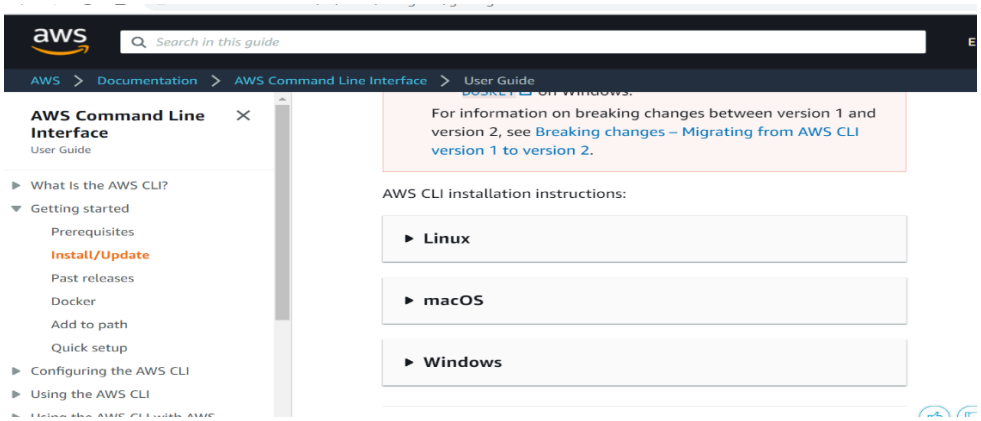
```
Exiting due to PROVIDER_DOCKER_NOT_RUNNING: deadline exceeded running "docker version --format -": exit status 1
Suggestion: Restart the Docker service
Documentation: https://minikube.sigs.k8s.io/docs/drivers/docker/


:\Users\ADINATH N MUNDHE>minikube start
minikube v1.24.0 on Microsoft Windows 10 Home Single Language 10.0.19043 Build 19043
Using the docker driver based on existing profile
Starting control plane node minikube in cluster minikube
Pulling base image ...
Restarting existing docker container for "minikube" ...
Preparing Kubernetes v1.22.3 on Docker 20.10.8 ...
Verifying Kubernetes components...
Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 15.8778241s
Restarting the docker service may improve performance.
- Using image gcr.io/k8s-minikube/storage-provisioner:v5
Enabled addons: default-storageclass
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

AWSCLI:

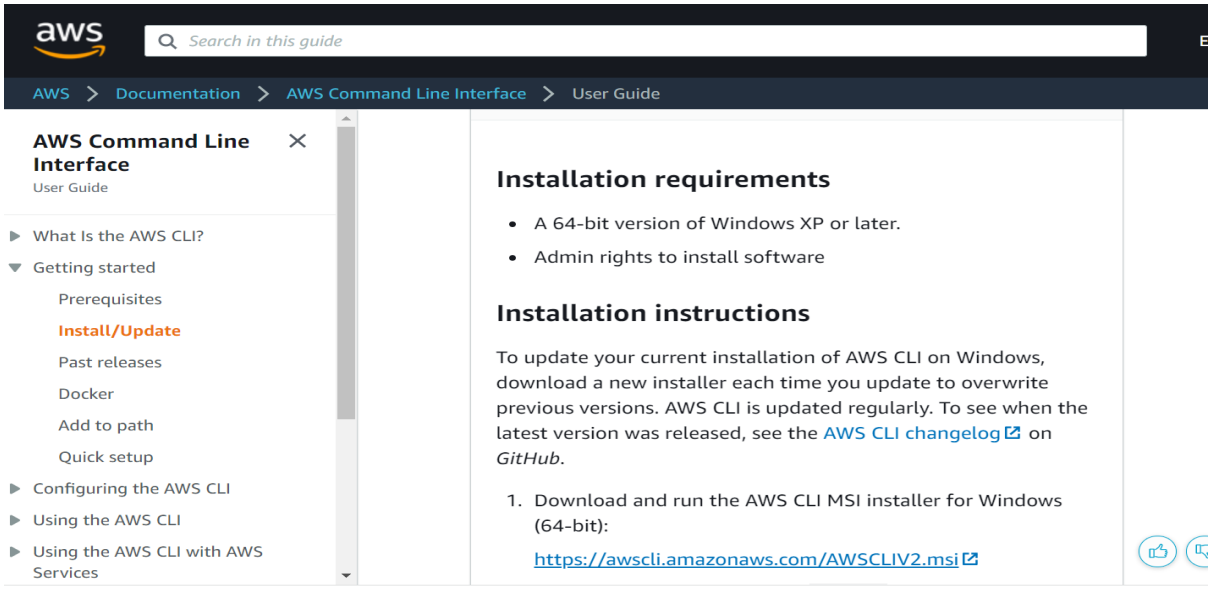
1. To Install AWSCLI on windows go to this website:

   https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-getting-

2. Then go to install and click on windows.



3. Click on link to download the awscli



4. Follow the install wizard: accept the license, authorize the installer, and proceed with the install
5. Click finish to launch AWSCLI.
6. To confirm the installation, open the Start menu, search for `cmd` to open a command prompt window, and at the command prompt use the `aws --version` command.

CHOCOLATEY:

Chocolatey is a software management solution that gives you the freedom to create a simple software package and then deploy it anywhere you have Windows using any of your familiar configuration or system management tools

1. Goto chocolatey website:

   https://chocolatey.org/install

2. Click on take the installation course.

3. Paste the copied text into your shell and press Enter.
4. Wait a few seconds for the command to complete.
5. Then upgrade by using the below command:

   $ choco upgrade chocolatey

EKSCTL:

Eksctl is a tool jointly developed by AWS and Weave works that automates much of the experience of creating EKS clusters. In this module, we will use eksctl to launch and configure our EKS cluster and nodes

1. To install eksctl goto these AWS website and open Amazon EMR on EKS Development Guide.
2. If you do not already have Chocolatey installed on your Windows system, see Installing Chocolatey
3. Install or upgrade eksctl

   $ choco install -y eksctl

4. If they are already installed, run the following command to upgrade:

   $ choco upgrade -y eksctl

5. Test that your installation was successful with the following command.

   $ eksctl version

Document – Online-Food-Delivery

Procedure:

1. Steps To create Docker file:

    a. Install Docker on machine.
    b. Create project.
    c. Create a file called Docker File.
    d. Build your Docker File using properties.
    e. Save the file.

2. Steps to create docker image:

    a. Create a Base Container
    b. Inspect Images
    c. Inspect Containers
    d. Start the Container
    e. Modify the Running Container
    f. Create an Image from a Container by using below command.

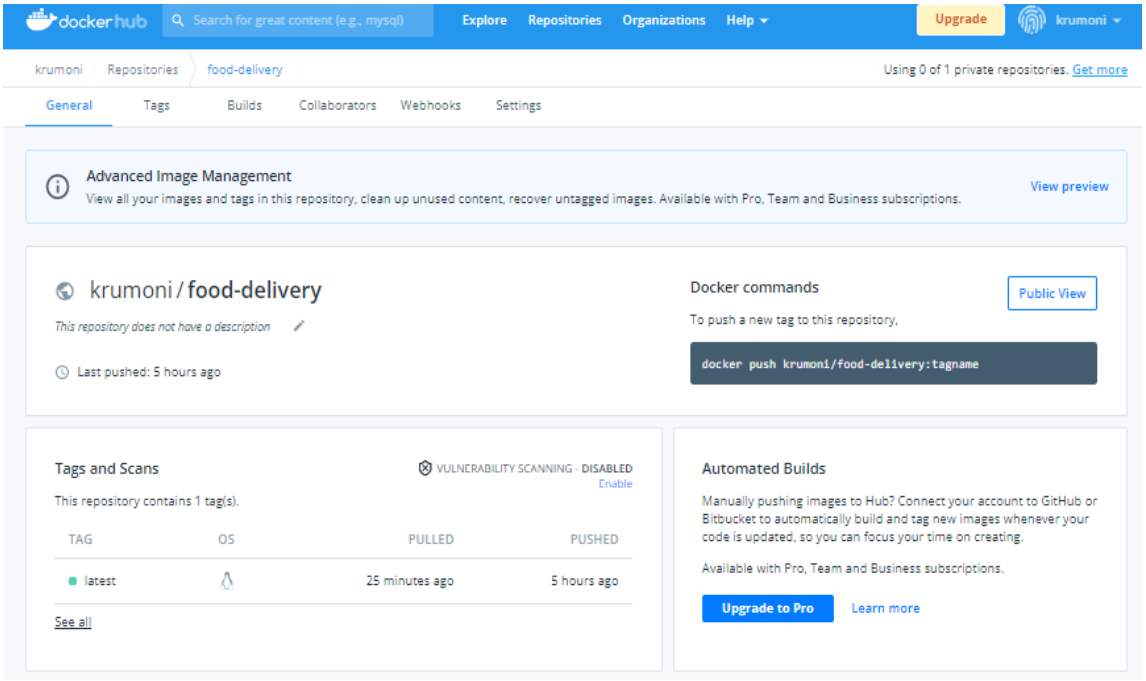
- **docker build -t food-delivery krumoni/ food-delivery .**

    g. Tag the Image

- **docker tag food-delivery krumoni/ food-delivery**

    h. push that image into docker hub using below command.

- **docker push krumoni/ food-delivery**



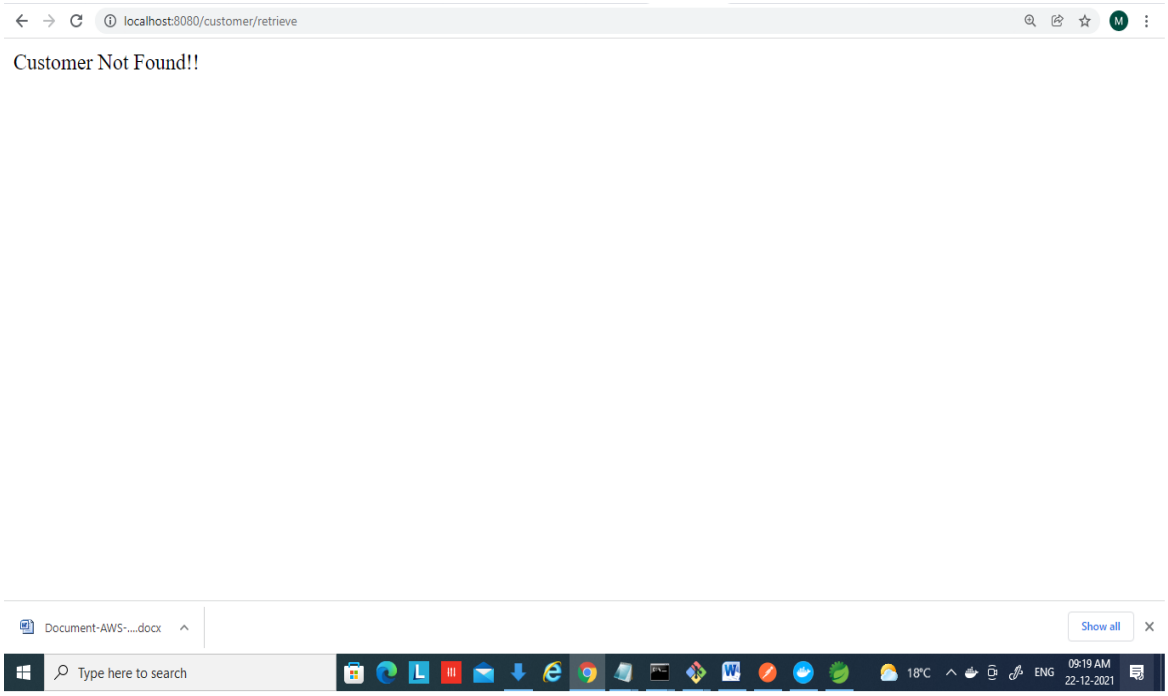
3. Steps to create docker-compose file:
    a. create the docker-compose.yml
    b. Define services in a Compose file
    c. Run the application with compose using the below command

- **docker-compose up**

```
C:\Windows\System32\cmd.exe - docker-compose up
627070616b39: Mounted from krumoni/spring-food-delivery-postgres
1119ff37d4a9: Mounted from krumoni/spring-food-delivery-postgres
latest: digest: sha256:14502e53025ea8b7cb7d51197b435d3836a1f8269d22c425f0331deb62dda12c size: 1163

C:\Users\Monika S A\Desktop\SPRINT-FoodDelivery>docker-compose up
Starting sprint-fooddelivery_postgresqldb_1 ... done
Recreating spring-food-delivery             ... done
Attaching to sprint-fooddelivery_postgresqldb_1, food-delivery
postgresqldb_1  |
postgresqldb_1  | PostgreSQL Database directory appears to contain a database; Skipping initialization
postgresqldb_1  |
postgresqldb_1  | 2021-12-21 10:21:45.584 UTC [1] LOG:  starting PostgreSQL 14.1 (Debian 14.1-1.pgdg110+1) on x86_64-pc-linux-gnu, compiled by gcc (Debian 10.2.1-6) 10.
2.1 20210110, 64-bit
postgresqldb_1  | 2021-12-21 10:21:45.643 UTC [1] LOG:  listening on IPv4 address "0.0.0.0", port 5432
postgresqldb_1  | 2021-12-21 10:21:45.643 UTC [1] LOG:  listening on IPv6 address "::", port 5432
postgresqldb_1  | 2021-12-21 10:21:46.120 UTC [1] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
postgresqldb_1  | 2021-12-21 10:21:46.451 UTC [27] LOG:  database system was interrupted; last known up at 2021-12-20 04:58:11 UTC
postgresqldb_1  | 2021-12-21 10:21:58.945 UTC [27] LOG:  database system was not properly shut down; automatic recovery in progress
postgresqldb_1  | 2021-12-21 10:21:59.131 UTC [27] LOG:  redo starts at 0/173D428
postgresqldb_1  | 2021-12-21 10:21:59.131 UTC [27] LOG:  invalid record length at 0/173D510: wanted 24, got 0
postgresqldb_1  | 2021-12-21 10:21:59.132 UTC [27] LOG:  redo done at 0/173D4D8 system usage: CPU: user: 0.00 s, system: 0.00 s, elapsed: 0.00 s
postgresqldb_1  | 2021-12-21 10:22:00.101 UTC [1] LOG:  database system is ready to accept connections
food-delivery   |
food-delivery   |   .   ____          _            __ _ _
food-delivery   |  /\\ / ___'_ __ _ _(_)_ __  __ _ \ \ \ \
food-delivery   | ( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
food-delivery   |  \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
food-delivery   |   '  |____| .__|_| |_|_| |_\__, | / / / /
food-delivery   |  =========|_|==============|___/=/_/_/_/
food-delivery   |  :: Spring Boot ::                (v2.6.1)
food-delivery   |
food-delivery   | 2021-12-21 10:22:01.618  INFO 1 --- [           main] c.cg.ofda.SprintFoodDeliveryApplication  : Starting SprintFoodDeliveryApplication v0.0.1-SNAPSHO
T using Java 16-ea on b334a624b193 with PID 1 (/app.jar started by root in /)
food-delivery   | 2021-12-21 10:22:01.642  INFO 1 --- [           main] c.cg.ofda.SprintFoodDeliveryApplication  : No active profile set, falling back to default profil
es: default
food-delivery   | 2021-12-21 10:22:04.669  INFO 1 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT
 mode.
food-delivery   | 2021-12-21 10:22:05.058  INFO 1 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 342 ms. F
ound 6 JPA repository interfaces.
food-delivery   | 2021-12-21 10:22:09.783  INFO 1 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080 (http)
food-delivery   | 2021-12-21 10:22:09.848  INFO 1 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
food-delivery   | 2021-12-21 10:22:09.849  INFO 1 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache Tomcat/9.0.55]
food-delivery   | 2021-12-21 10:22:10.146  INFO 1 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
food-delivery   | 2021-12-21 10:22:10.147  INFO 1 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed
```

```
C:\Windows\System32\cmd.exe - docker-compose up
food-delivery   | ( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
food-delivery   |  \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
food-delivery   |   '  |____| .__|_| |_|_| |_\__, | / / / /
food-delivery   |  =========|_|==============|___/=/_/_/_/
food-delivery   |  :: Spring Boot ::                (v2.6.1)
food-delivery   |
food-delivery   | 2021-12-21 10:22:01.618  INFO 1 --- [           main] c.cg.ofda.SprintFoodDeliveryApplication  : Starting SprintFoodDeliveryApplication v0.0.1-SNAPSHO
T using Java 16-ea on b334a624b193 with PID 1 (/app.jar started by root in /)
food-delivery   | 2021-12-21 10:22:01.642  INFO 1 --- [           main] c.cg.ofda.SprintFoodDeliveryApplication  : No active profile set, falling back to default profil
es: default
food-delivery   | 2021-12-21 10:22:04.669  INFO 1 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT
 mode.
food-delivery   | 2021-12-21 10:22:05.058  INFO 1 --- [           main] .s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 342 ms. F
ound 6 JPA repository interfaces.
food-delivery   | 2021-12-21 10:22:09.783  INFO 1 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port(s): 8080 (http)
food-delivery   | 2021-12-21 10:22:09.848  INFO 1 --- [           main] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
food-delivery   | 2021-12-21 10:22:09.849  INFO 1 --- [           main] org.apache.catalina.core.StandardEngine  : Starting Servlet engine: [Apache Tomcat/9.0.55]
food-delivery   | 2021-12-21 10:22:10.146  INFO 1 --- [           main] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
food-delivery   | 2021-12-21 10:22:10.147  INFO 1 --- [           main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed
in 8103 ms
food-delivery   | 2021-12-21 10:22:10.977  INFO 1 --- [           main] o.hibernate.jpa.internal.util.LogHelper  : HHH000204: Processing PersistenceUnitInfo [name: defa
ult]
food-delivery   | 2021-12-21 10:22:11.214  INFO 1 --- [           main] org.hibernate.Version                    : HHH000412: Hibernate ORM core version 5.6.1.Final
food-delivery   | 2021-12-21 10:22:11.938  INFO 1 --- [           main] o.hibernate.annotations.common.Version   : HCANN000001: Hibernate Commons Annotations {5.1.2.Fin
al}
food-delivery   | 2021-12-21 10:22:12.402  INFO 1 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Starting...
food-delivery   | 2021-12-21 10:22:13.928  INFO 1 --- [           main] com.zaxxer.hikari.HikariDataSource       : HikariPool-1 - Start completed.
food-delivery   | 2021-12-21 10:22:14.025  INFO 1 --- [           main] org.hibernate.dialect.Dialect            : HHH000400: Using dialect: org.hibernate.dialect.Postg
reSQLDialect
food-delivery   | 2021-12-21 10:22:19.679  INFO 1 --- [           main] o.h.e.t.j.p.i.JtaPlatformInitiator       : HHH000490: Using JtaPlatform implementation: [org.hib
ernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
food-delivery   | 2021-12-21 10:22:19.709  INFO 1 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence
unit 'default'
food-delivery   | 2021-12-21 10:22:22.847  WARN 1 --- [           main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Theref
ore, database queries may be performed during view rendering. Explicitly configure spring.jpa.open-in-view to disable this warning
food-delivery   | 2021-12-21 10:22:24.442  INFO 1 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port(s): 8080 (http) with context p
ath ''
food-delivery   | 2021-12-21 10:22:24.497  INFO 1 --- [           main] c.cg.ofda.SprintFoodDeliveryApplication  : Started SprintFoodDeliveryApplication in 25.741 secon
ds (JVM running for 33.924)
food-delivery   | Spring is Started
food-delivery   | 2021-12-21 10:22:50.419  INFO 1 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring DispatcherServlet 'dispatcherServ
let'
food-delivery   | 2021-12-21 10:22:50.420  INFO 1 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherServlet'
food-delivery   | 2021-12-21 10:22:50.429  INFO 1 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet        : Completed initialization in 8 ms
```

Check whether the application is working with the port in chrome.



4. Create the manifest files(yaml):

    a. change the application properties

    b. write yaml files

        - deployment.yaml
        - postgres-credentials.yaml
        - postgres-configmap.yaml
        - postgres-deployment.yaml

    c. Again build the jar

    d. In cmd start the minikube

5. Deploy the application on Kubernetes environment:

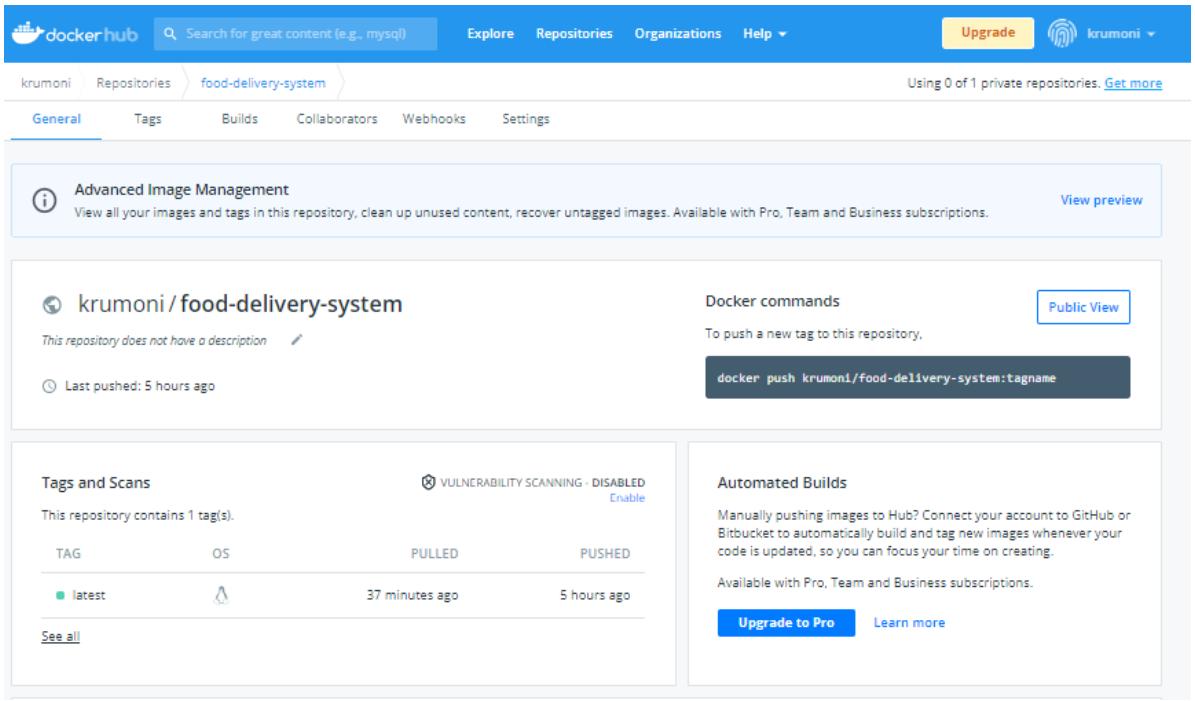
    Create an image food-delivery-system and push the image.

- **docker build -t food-delivery-system .**
- **docker tag food-delivery-system krumoni/ food-delivery-system**
- **docker push krumoni/food-delivery-system**

Change the directory using the command **cd k8s** (In folder k8s yaml files are created)

a. write the below deployment commands in cmd:

- **kubectl create -f deployment.yaml**
- **kubectl create -f postgres-credentials.yaml**
- **kubectl create -f postgres-configmap.yaml**
- **kubectl create -f postgres-deployment.yaml**



b. After successful deployment ,forward the port

- **kubectl port-forward svc/ food-delivery-system 9094:8080**

```
^C
E:\d drive\All Workspace\AWS-Workspace\SPRINT-FoodDelivery3\K8S>kubectl get all
NAME                                READY   STATUS    RESTARTS        AGE
pod/food-delivery-5b94cf476-c9kps   1/1     Running   1 (2m26s ago)   4m39s
pod/food-delivery-5b94cf476-lh4nb   1/1     Running   1 (2m27s ago)   4m39s
pod/food-delivery-5b94cf476-nsmbt   1/1     Running   1 (2m27s ago)   4m39s
pod/postgres-6f4cd8968f-7vgwg       1/1     Running   0               2m49s

NAME                    TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
service/food-delivery   ClusterIP   10.104.156.70   <none>        8080/TCP   4m40s
service/kubernetes      ClusterIP   10.96.0.1       <none>        443/TCP    11m
service/postgres        ClusterIP   None            <none>        5432/TCP   2m50s

NAME                           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/food-delivery  3/3     3            3           4m39s
deployment.apps/postgres       1/1     1            1           2m49s

NAME                                      DESIRED   CURRENT   READY   AGE
replicaset.apps/food-delivery-5b94cf476   3         3         3       4m39s
replicaset.apps/postgres-6f4cd8968f       1         1         1       2m49s

E:\d drive\All Workspace\AWS-Workspace\SPRINT-FoodDelivery3\K8S>kubectl port-forward  svc/food-delivery 9090:8080
Forwarding from 127.0.0.1:9090 -> 8080
Forwarding from [::1]:9090 -> 8080
Handling connection for 9090
Handling connection for 9090
Handling connection for 9090
```

localhost:9090/customer/retrieve

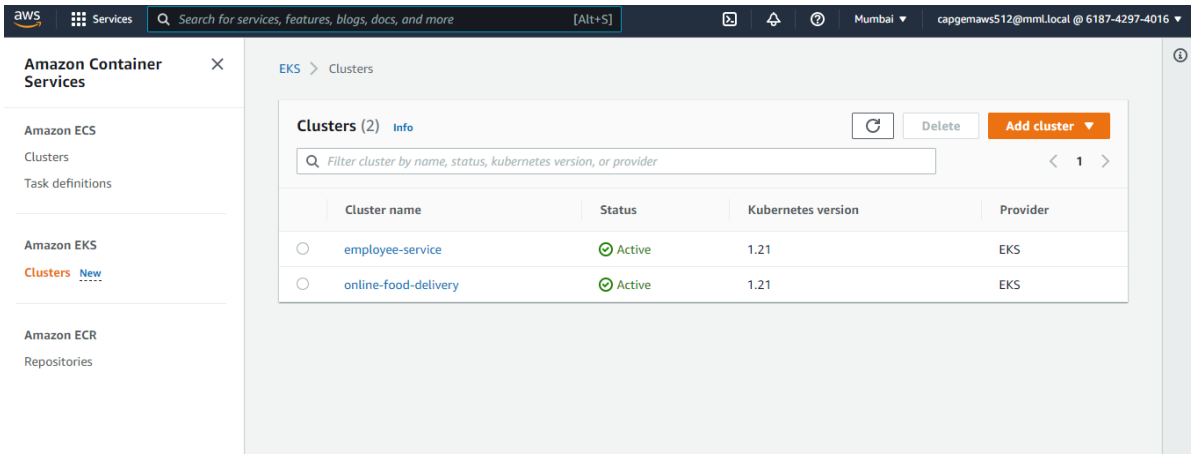
Customer Not Found!!

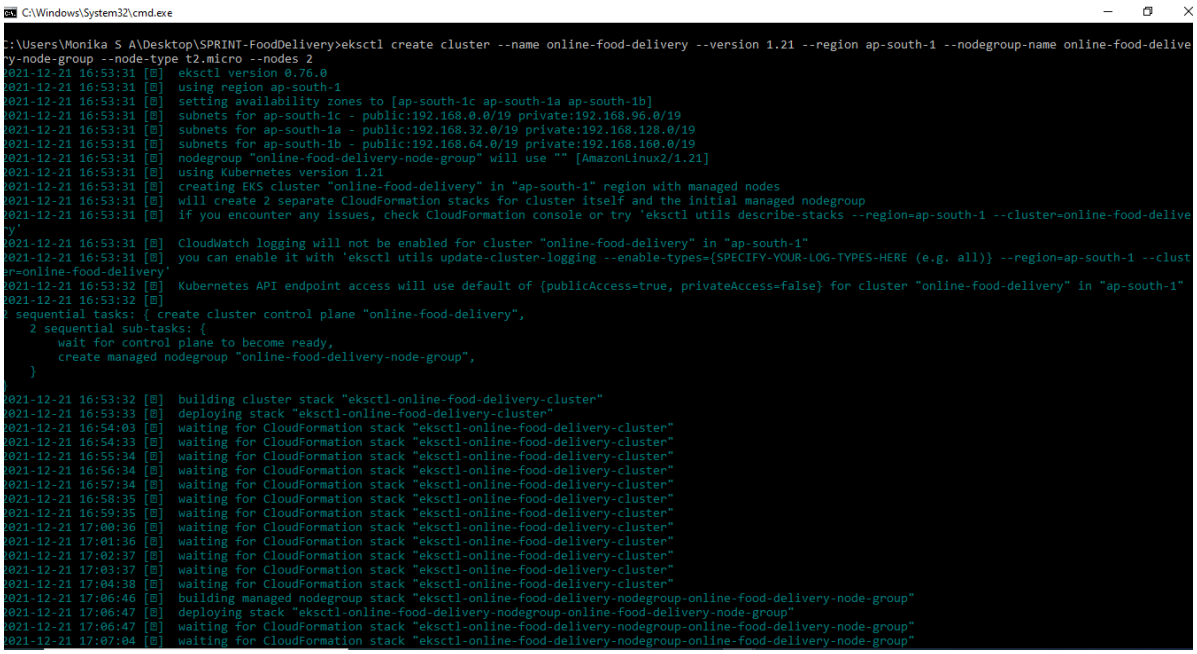
6. Deploy the application on EKS cluster:

a. Create a cluster in EKS with eksctl command

- **eksctl create cluster --name online-food-delivery --version 1.21 --region ap-south-1 --nodegroup-name online-food-delivery-node-group --node-type t2.micro --nodes 2**

- **awseks --region ap-south-1 update-kubeconfig --name online-food-delivery**





b. Create the docker image and push on docker hub

c. Deploying the application on eks cluster using the following commands

Change the directory using the command **cd test** (In folder test yaml files are created)

- **kubectl apply -f postgres-storage.yml**
- **kubectl apply -f postgres-secrets.yml**
- **kubectl apply -f postgres-deployment.yml**
- **kubectl apply -f postgres-service.yml**

```
C:\Windows\System32\cmd.exe
:\Users\Monika S A\Desktop\SPRINT-FoodDelivery\test>kubectl create configmap hostname-config --from-literal=postgres_host=10.100.211.188
onfigmap/hostname-config created

:\Users\Monika S A\Desktop\SPRINT-FoodDelivery\test>kubectl apply -f springboot-deployment.yml
eployment.apps/online-food-delivery created

:\Users\Monika S A\Desktop\SPRINT-FoodDelivery\test>kubectl apply -f springboot-service.yml
ervice/online-food-delivery created

:\Users\Monika S A\Desktop\SPRINT-FoodDelivery\test>kubectl get all
AME                                          READY   STATUS    RESTARTS   AGE
od/online-food-delivery-7d669864b-n2kjs      1/1     Running   0          36s
od/postgres-5bdb4fc5f9-69q9f                 1/1     Running   0          2m32s

AME                              TYPE           CLUSTER-IP       EXTERNAL-IP                                                              PORT(S)          AGE
ervice/kubernetes                ClusterIP      10.100.0.1       <none>                                                                   443/TCP          25m
ervice/online-food-delivery      LoadBalancer   10.100.42.156    ac6102de69c5448ec9ec6654a61d7b23-980927595.ap-south-1.elb.amazonaws.com  8080:31529/TCP   15s
ervice/postgres                  NodePort       10.100.211.188   <none>                                                                   5432:30863/TCP   2m20s

AME                                       READY   UP-TO-DATE   AVAILABLE   AGE
eployment.apps/online-food-delivery       1/1     1            1           37s
eployment.apps/postgres                   1/1     1            1           2m33s

AME                                                 DESIRED   CURRENT   READY   AGE
eplicaset.apps/online-food-delivery-7d669864b       1         1         1       37s
eplicaset.apps/postgres-5bdb4fc5f9                  1         1         1       2m33s

:\Users\Monika S A\Desktop\SPRINT-FoodDelivery\test>kubectl get all
AME                                          READY   STATUS    RESTARTS   AGE
od/online-food-delivery-7d669864b-n2kjs      1/1     Running   0          2m32s
od/postgres-5bdb4fc5f9-69q9f                 1/1     Running   0          4m28s

AME                              TYPE           CLUSTER-IP       EXTERNAL-IP                                                              PORT(S)          AGE
ervice/kubernetes                ClusterIP      10.100.0.1       <none>                                                                   443/TCP          26m
ervice/online-food-delivery      LoadBalancer   10.100.42.156    ac6102de69c5448ec9ec6654a61d7b23-980927595.ap-south-1.elb.amazonaws.com  8080:31529/TCP   2m10s
ervice/postgres                  NodePort       10.100.211.188   <none>                                                                   5432:30863/TCP   4m15s

AME                                       READY   UP-TO-DATE   AVAILABLE   AGE
eployment.apps/online-food-delivery       1/1     1            1           2m33s
eployment.apps/postgres                   1/1     1            1           4m29s

AME                                                 DESIRED   CURRENT   READY   AGE
eplicaset.apps/online-food-delivery-7d669864b       1         1         1       2m33s
eplicaset.apps/postgres-5bdb4fc5f9                  1         1         1       4m29s
```

- **kubectl get all**

  d. Set the config map

  e. Get the Postgres Host IP Address:

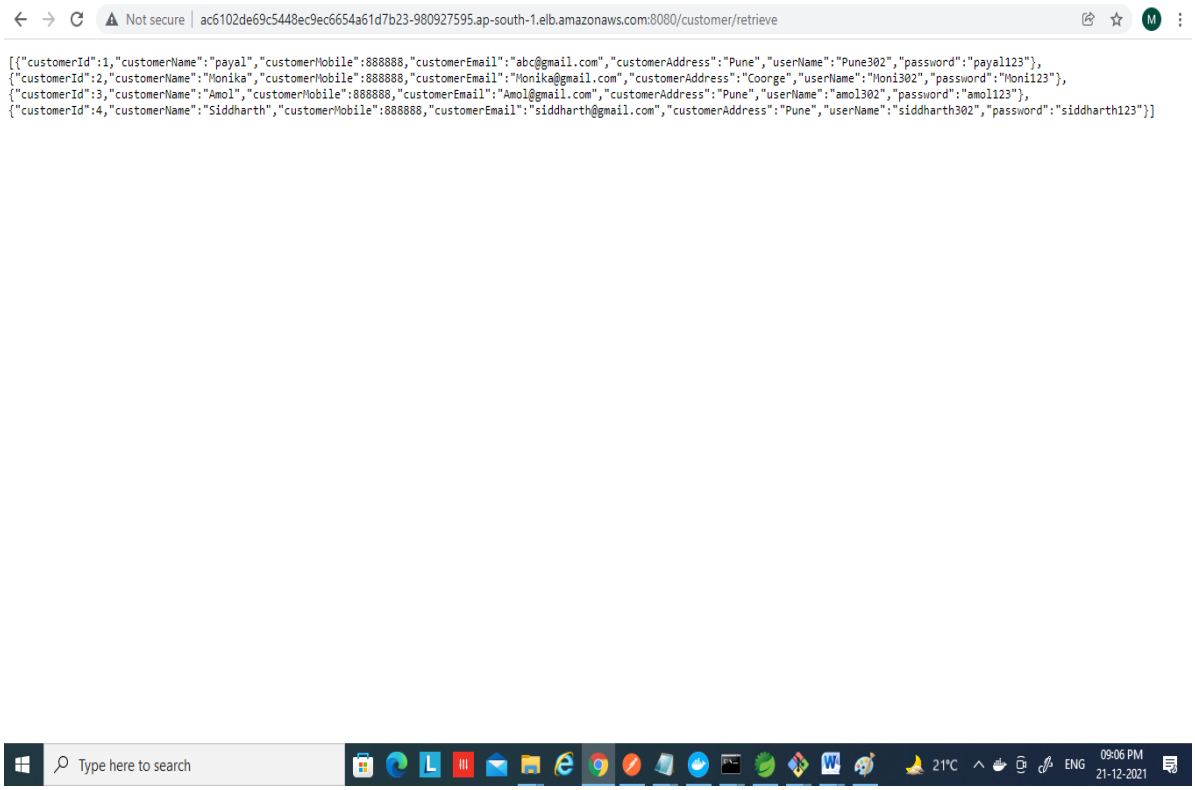
- **kubectl get svc postgres -o jsonpath="{.spec.clusterIP}"**

  f. get the IP Address and put in the below command

- **kubectl create configmap hostname-config --from-literal=postgres_host=10.100.211.188**
- **kubectl apply -f springboot-deployment.yml**
- **kubectl apply -f springboot-service.yml**

EKS Cluster Link:-

http://ac6102de69c5448ec9ec6654a61d7b23-980927595.ap-south-1.elb.amazonaws.com:8080/customer/retrieve



Git hub link:

1.https://github.com/aMOL156/Food-Delivery.git

2. https://github.com/MonikaProductOwner/Food-Delivery_Project.git

3. https://github.com/siddharth7575/Online-food-delivery.git

4. https://github.com/pawalepayal/Online-Food-Delivery.git

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