INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

Domain: Cloud Application Development

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DEPLOYMENT OF APP IN IBM CLOUD:

STEP 1: Containerize the App

STEP 2: Upload the image to IBM Registry

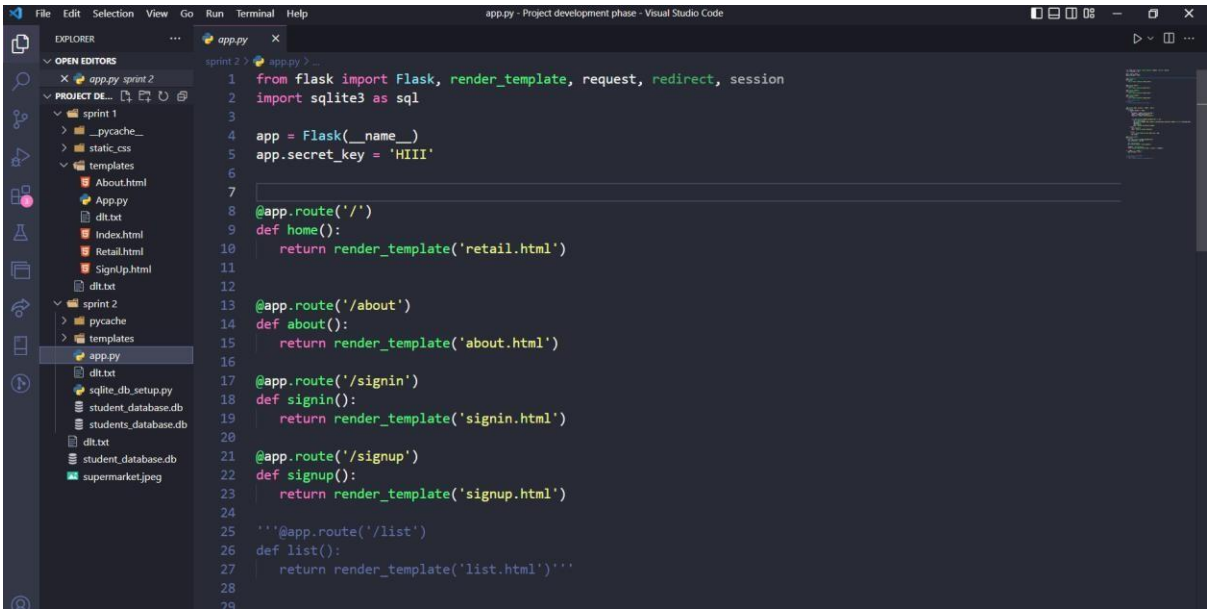
STEP 3: Deploy in Kubernates Cluster

STEP 1 : CONTAINERIZE THE APP:

Docker Image Creation

Make Project Folder

Open your terminal and make a folder for your flask application

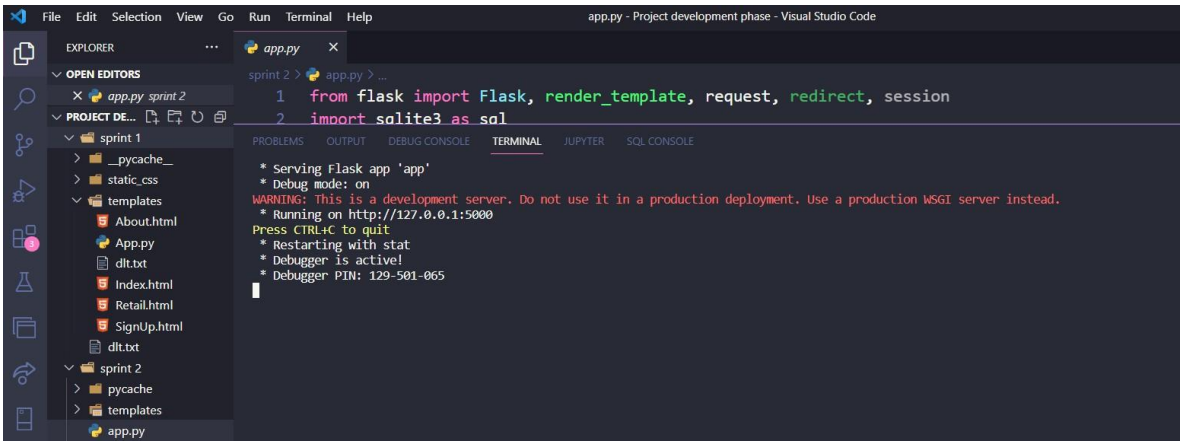


Insert the code to the Dockerfile:

```
FROM python:alpine3.7
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
EXPOSE 5001
ENTRYPOINT [ "python" ]
CMD [ "app.py" ]
```

Test the Flask App:

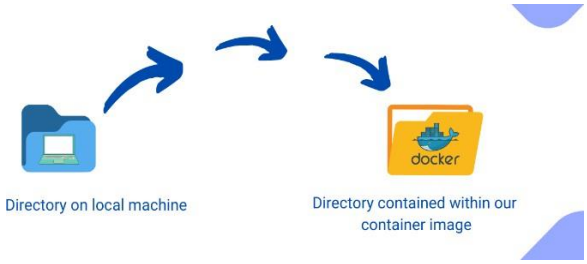
It should start our development server which comes with the flask on “http://0.0.0.0:5001/”.



Creating Docker image of the project:

```
sudo docker build --tag flask-docker-demo-app .
```

The above command will create an app with the tag flask-docker-demo-app.




```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL                                                    zsh
hiteshchoudhary~$docker build -t hiteshchoudhary/hey-python-flask:0.0.1.RELEASE .
[+] Building 7.2s (10/10) FINISHED
 => [internal] load build definition from Dockerfile                                          0.0s
 => => transferring dockerfile: 161B                                                          0.0s
 => [internal] load .dockerignore                                                             0.0s
 => => transferring context: 2B                                                               0.0s
 => [internal] load metadata for docker.io/library/python:3-alpine3.15                        3.0s
 => [auth] library/python:pull token for registry-1.docker.io                                 0.0s
 => [1/4] FROM docker.io/library/python:3-alpine3.15@sha256:d89ac9cefd2213b99a792fd8ec4f15c0297d9340a688b  0.0s
hiteshchoudhary~$docker container run -d -p 3000:3000 hiteshchoudhary/hey-python-flask:0.
Unable to find image 'hiteshchoudhary/hey-python-flask:0.' locally
^C
hiteshchoudhary~$docker container run -d -p 3000:3000 hiteshchoudhary/hey-python-flask:0.0.1.RELEASE

hiteshchoudhary~$
```

Run the docker image:

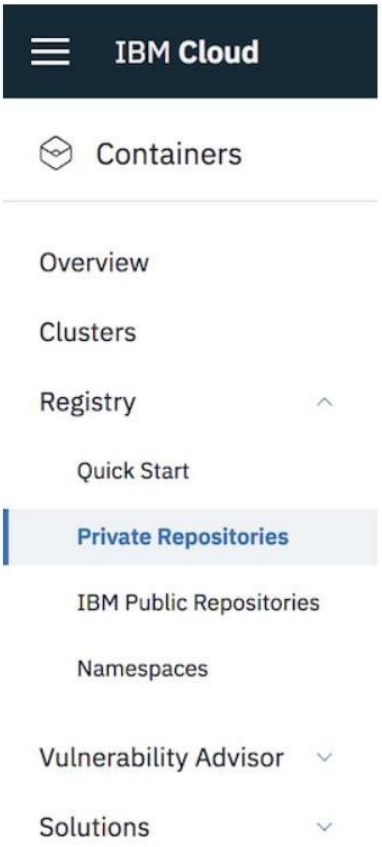
```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL                                                    zsh
hiteshchoudhary~$docker container run -d -p 3000:3000 hiteshchoudhary/hey-python-flask:0.
Unable to find image 'hiteshchoudhary/hey-python-flask:0.' locally
^C
hiteshchoudhary~$docker container run -d -p 3000:3000 hiteshchoudhary/hey-python-flask:0.0.1.RELEASE

hiteshchoudhary~$docker container run -d -p 3000:3000 hiteshchoudhary/hey-python-flask:0.0.1.RELEASE
076f9da1074488b9cd7a76ca96cafb44fbba1e43b8ac6a9832ccba38aad74c7d
hiteshchoudhary~$
```

```
sudo docker run --name flask-docker-demo-app -p 5001:5001 flask-docker-demo-app
```

STEP 2 : UPLOAD THE IMAGE TO IBM CONTAINER REGISTERY:

1. From your account dashboard, go to IBM Cloud Kubernetes Service.
2. From the left navigation menu, select Private Repositories.



Install the Container Registry plug-in:

```
ibmcloud plugin install container-registry -r "IBM Cloud"
```

Log in to your IBM Cloud account:

```
ibmcloud login -a <cloud_foundary_end_point_for_the_region>
```

Name and create your namespace. Use this namespace for the rest of the Quick Start.

```
ibmcloud cr namespace-add <namespace>
```

Log your local Docker daemon into the IBM Cloud Container Registry.

```
ibmcloud cr login
```

Push the image:

```
kunals-mbp:web kunalmalhotra$ docker push registry.ng.bluemix.net/flask-node/app:latest
The push refers to repository [registry.ng.bluemix.net/flask-node/app]
a905410b27c1: Pushed
b96dea950728: Pushed
437e8db4a234: Pushed
ba9884d50644: Pushed
1989aa0f3739: Layer already exists
7bec9e49c283: Layer already exists
1172bcd1177f: Layer already exists
8eb4c3a69e64: Layer already exists
1fa8778eb779: Layer already exists
fa0c3f992cbd: Layer already exists
ce6466f43b11: Layer already exists
719d45669b35: Layer already exists
3b10514a95be: Layer already exists
latest: digest: sha256:5015254c21592b5ab08168707b74ddd763e97e80b59d9187afa2a80433b9d2ab size: 3061
kunals-mbp:web kunalmalhotra$
```

Verify that your image is in your private registry:

```
ibmcloud cr image-list
```

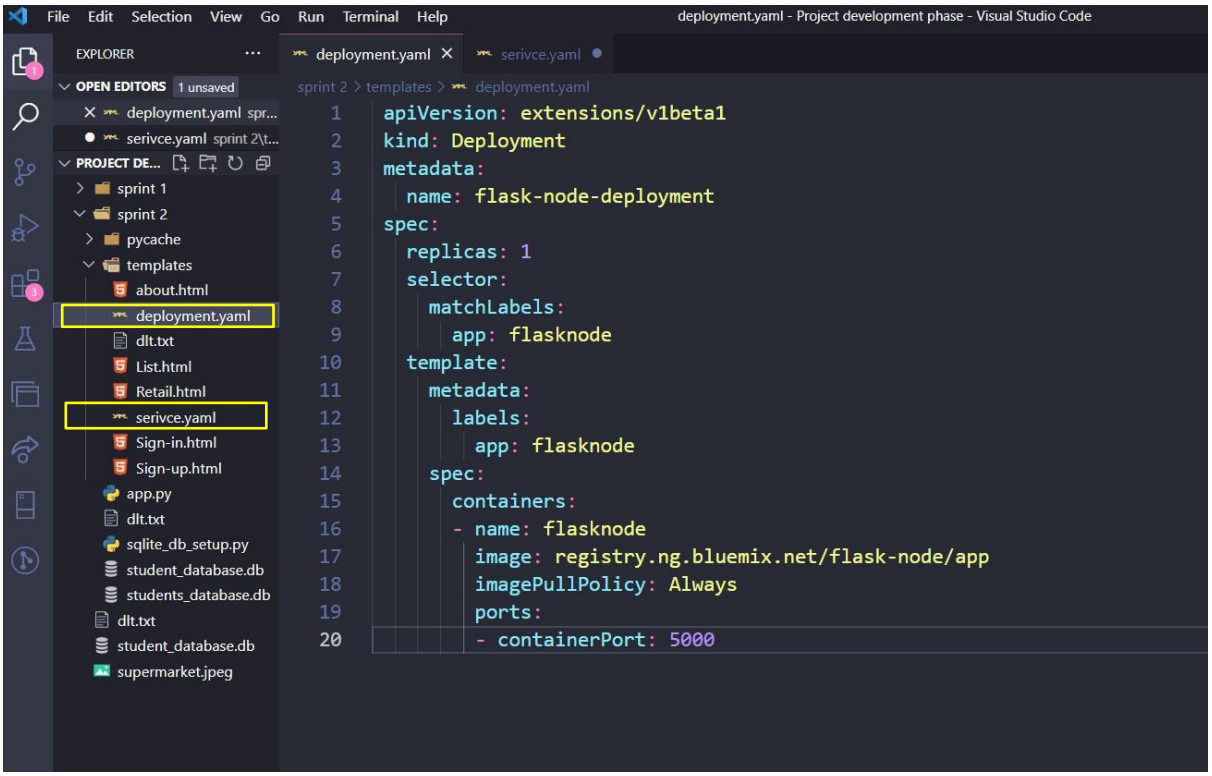
```
kunals-mbp:web kunalmalhotra$ ibmcloud cr image-list
Listing images...

REPOSITORY                          TAG     DIGEST        NAMESPACE   CREATED     SIZE    SECURITY STATUS
registry.ng.bluemix.net/flask-node/app  latest  b721dd768fe0  flask-node  1 day ago   366 MB  3 Issues

OK
kunals-mbp:web kunalmalhotra$
```

STEP 3: Deploy in Kubernates Cluster

Create Configuration files for Kubernates



Deploy Application to Kubernates:

```
ibmcloud cs region-set us-south
ibmcloud cs cluster-config cluster_kunal
```

Set the KUBECONFIG environment variable. Copy the output from the previous command and paste it in your terminal.

```
> export KUBECONFIG=/Users/$USER/.bluemix/plugins/container-service/clusters/<  cluster_name  >/<  cluster_configuration_file.yaml>
```

Verify that you can connect to your cluster by listing your worker nodes:

```
kubectl get nodes
kubectl create -f deployment.yaml
kubectl create -f service.yaml
```

Look at the Kubernetes dashboard from the IBM Kubernetes Service overview page: