MENU ☰

MARCH 12, 2023

DevOps Classroomnotes 12/Mar/2023

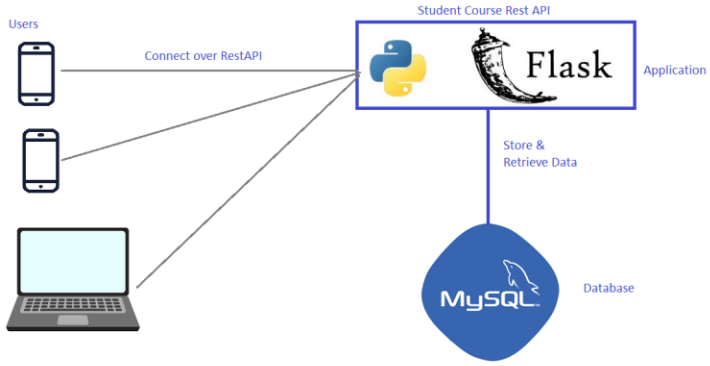
DevSecOps

- Security Shifted left => DevSecOps
- Developer completes Code and pushes to git
    - build the code
    - run unit tests
    - Perform Static Code Analysis
    - Perform Scans
        - SAST (Static Application Security Test)
            - SonarQube
            - Checkmarx
            - Jfrog
            - Veracode
            - Fortify
        - SCA (Software Composition Analysis) Refer Here
            - Black Duck
            - Jfrog
            - checkmarx
            - SonarQube
    - Quality Gate of Static Code Analysis
    - Create Test Environments and execute automated tests
        - Perform Scans
            - DAST (Dynamic Application Security Test)
                - OWASP ZAP
            - Execute Penetration Tests
    - Continue to Deployment
- CVE
- OWASP
- Attack Surface
- Attack Vector
- Red Blue Security

Jenkins CI/CD Pipeline

- The architecture of the application which we are going to deploy
    - This is a simple microservice
    - This has web api frontend exposed as REST API.

- This has a mysql backend



- To build the code of this tool
  - docker

    ```
    curl -fsSL https://get.docker.com -o get-docker.sh
    sh get-docker.sh
    sudo usermod -aG docker <username>
    exit
    ```
  - code: https://github.com/khajadevopsmarch23/StudentCoursesRestAPI, branch: master
  - docker hub account Refer Here

    ```
    docker login
    ```

- Build steps

```
git clone https://github.com/khajadevopsmarch23/StudentCoursesRestAPI
docker image build -t <dockerhubusername>/spc:latest .
docker image push <dockerhubusername>/spc:latest
```

- Created a multi branch pipeline for two branches
  - develop Refer Here
  - sprint_1_release Refer Here

Deployment

- The package in the case was a docker image which we pushed to docker hub
- To deploy this application we need k8s cluster. For this workshop we will use aks cluster
- Lets create a k8s cluster in azure Refer Here
- To connect to k8s cluster we need `kubectl`
- To install cluster ensure azure cli is installed Refer Here
- Azure cli is authenticated `az login`
- Create cluster

```
az aks create -g myResourceGroup -n myAKSCluster --enable-managed-identity --node-count 1
az aks install-cli
az aks get-credentials --resource-group myResourceGroup --name myAKSCluster
```

- Once cluster is created `kubectl get nodes`
- For deployment

```
git clone https://github.com/khajadevopsmarch23/StudentCoursesRestAPI
cd StudentCoursesRestAPI
git checkout sprint_release_1
kubectl apply -f ./K8s/mysql-aws.yml
kubectl apply -f ./K8s/flask-aws.yml
```

Exercise

- Create a Jenkins pipeline which deploys spring petclinic application into some linux machine
- Suggestions:
  - Run springboot as a linux daemon
  - Use git flow as branching strategy
  - Create a jenkins job for merging pull requests into develop branch
- Fork the spring petclinic into your account
- Have Jenkinsfile in your branches

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