SimpliLearn-DevOps-Project
CI/CD Deployment for Springboot Application

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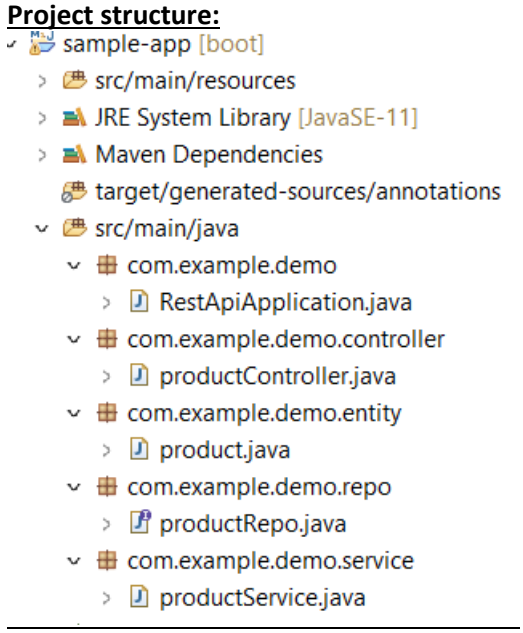
GitHub Project Repository URL : GitHub Link

Backend Rest API:

Project structure:



productController.java

```
package com.example.demo.controller;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.CrossOrigin;
import org.springframework.web.bind.annotation.DeleteMapping;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

import com.example.demo.entity.product;
import com.example.demo.service.productService;

@RestController
@RequestMapping("/api/product")
@CrossOrigin(allowedHeaders = "*")
public class productController {
@Autowired
productService service;
	@GetMapping("/")
	public String handshake() {
```

```
		return "Hello";
	}

	@GetMapping("/all")
	public ResponseEntity<List<product>> getAllProducts(){
		return ResponseEntity.ok(service.getAllProduct());
	}

	@GetMapping("/{id}")
	public ResponseEntity<product> getById(@PathVariable(name="id")int id){
		return ResponseEntity.ok(service.findById(id));
	}

	@PostMapping("/add")
	public ResponseEntity<product> addProduct(@RequestBody product p){
		return ResponseEntity.ok(service.addProduct(p));
	}
	@DeleteMapping("/delete/{id}")
	public ResponseEntity<String> deleteProduct (@PathVariable(name="id")int id){
		product pr = service.findById(id);
		service.deleteProduct(pr);
		return ResponseEntity.ok("Deleted id="+pr.getId());
	}
}
```

Product.java

```
package com.example.demo.entity;

import javax.persistence.Entity;
import javax.persistence.Id;

@Entity
public class product {
	@Id
	int id;
	String productName;
	public product() {
		// TODO Auto-generated constructor stub
	}
	public int getId() {
		return id;
	}
	public void setId(int id) {
		this.id = id;
	}
	public String getProductName() {
		return productName;
	}
	public void setProductName(String productName) {
		this.productName = productName;
	}

}
```

Installing Jenkins on Devops-Demo-Server (AWS EC2 instance):

```
curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee \
  /usr/share/keyrings/jenkins-keyring.asc > /dev/null
```

```
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null

sudo apt-get update
sudo apt-get install jenkins
```

Installing Docker on Devops-Demo-Server and api-server (AWS EC2 instances):

```
# Add Docker's official GPG key:
sudo apt-get update
sudo apt-get install ca-certificates curl gnupg
sudo install -m 0755 -d /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o
/etc/apt/keyrings/docker.gpg
sudo chmod a+r /etc/apt/keyrings/docker.gpg

# Add the repository to Apt sources:
echo \
  "deb [arch="$(dpkg --print-architecture)" signed-by=/etc/apt/keyrings/docker.gpg]
https://download.docker.com/linux/ubuntu \
  "$(. /etc/os-release && echo "$VERSION_CODENAME")" stable" | \
  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
sudo apt-get update

sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-
plugin
```

Dockerfile for building sample Springboot app:

```
FROM eclipse-temurin:17-jdk-alpine
WORKDIR /app
VOLUME api
COPY target/*.jar app.jar
ENTRYPOINT ["java","-jar","/app/app.jar"]
```

Jenkinsfile for building pipeline:

```
pipeline {
        agent any
        tools {
   maven 'maven'
  }
        stages {
                stage("Building the project"){
                        steps{
                                bat 'mvn clean package'
                        }
                }
                stage("Creating docker image"){
                        steps{
                                bat 'docker build -t kavinkr/devops-project:api .'
                        }
                }
                stage("Pushing docker image to DockerHub"){
                        steps{
                                bat 'docker push kavinkr/devops-project:api'
                        }
                }
```

```
                stage("Pulling image from docker hub and executing container on api server over SSH connection"){
                        steps{
                                sshPublisher(publishers: [sshPublisherDesc(configName: 'api-host', transfers: [sshTransfer(cleanRemote: false, excludes: '', execCommand: 'sudo docker pull kavinkr/devops-project:api', execTimeout: 120000, flatten: false, makeEmptyDirs: false, noDefaultExcludes: false, patternSeparator: '[, ]+', remoteDirectory: '', remoteDirectorySDF: false, removePrefix: '', sourceFiles: ''), sshTransfer(cleanRemote: false, excludes: '', execCommand: 'sudo docker run -d -p 8090:8080 --env-file appenv.txt --name api kavinkr/devops-project:api', execTimeout: 120000, flatten: false, makeEmptyDirs: false, noDefaultExcludes: false, patternSeparator: '[, ]+', remoteDirectory: '', remoteDirectorySDF: false, removePrefix: '', sourceFiles: '')], usePromotionTimestamp: false, useWorkspaceInPromotion: false, verbose: false)])
                        }
                }

        }
}
```