



**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE

Full CI/CD Pipeline Implementation

Cloud Infrastructure Engineering

**Nanyang Technological University
& Skills Union - 2022/2023**

Today's Activity

- Implement Full CI/CD Deployment
 - New project
 - Unit Testing
 - Secret Management
 - Package Vulnerability Scan
- Group Capstone Project Discussion



List All Github Project

1. <https://github.com/selvam14/selvam-190823.git>
2. <https://github.com/piethox/ds-cicd-co-activity>
3. <https://github.com/Dylon-Chan/coaching-cicd>
4. <https://github.com/pritanu07/priya-secret-ps>
5. <https://github.com/ilovedragon/pohleng-819-class>
6. <https://github.com/renpeng0168/renpeng19aug.git>
7. <https://github.com/ioctlsq/19AugCICD.git>
8. <https://github.com/wishingbox111/vulnerability-scan-3-13-3-14.git>
9. <https://github.com/tosangeetha/sangeetha-project>
10. <https://github.com/jhchsg/jason-cicd-sat190823>
11. <https://github.com/aadyr/Aady-CICD-Deployment>
12. https://github.com/vincent8055/1908_vincent
13. <https://github.com/apkiys/Sat-Morn-Fever-Chris>
14. <https://github.com/YuYuanNg/CICDrevision>
15. <https://github.com/Halolage/hengy-sat-fullCICD>

Project

List down all command

- `git clone <repository ssh>`
- `npm init`
- `npm install serverless`
- `npm install serverless-offline --save-dev`
- `serverless deploy` #to deploy serverless application
- `serverless remove` #to remove serverless application on lambda
- `.gitignore` (add `node_modules/` and `.serverless`)
- Create workflow `".github/workflows/main.yml"`
- `npm install jest --save-dev`
- `npm test`



Index.js

```
module.exports.handler = async (event) => {  
  return {  
    statusCode: 200,  
    body: JSON.stringify(  
      {  
        message: "Your function executed successfully!",  
        access_key: process.env.ACCESS_KEY  
      },  
      null,  
      2  
    ),  
  };  
};
```

serverless.yml

```
service: <CHANGE_TO_YOUR_PROJECT_NAME>
frameworkVersion: '3'
```

```
provider:
  name: aws
  runtime: nodejs18.x
  region: ap-southeast-1
  deploymentBucket:
    name: cohort2.serverless.deploys
```

```
functions:
  api:
    handler: index.handler
    events:
      - httpApi:
          path: /
          method: get
    environment:
      ACCESS_KEY: ${ssm:ACCESS_KEY}
```

```
plugins:
  - serverless-offline
```



.github/workflows/main.yml

```
name: CI/CD for Serverless Application
run-name: ${{ github.actor }} is doing CI/CD for serverless application

on:
  push:
    branches: [ main, "*" ]

jobs:
  pre-deploy:
    runs-on: ubuntu-latest
    steps:
      - run: echo "The job is automatically triggered by a ${{ github.event_name }} event."

  install-dependencies:
    runs-on: ubuntu-latest
    needs: pre-deploy
    steps:
      - name: Check out repository code
        uses: actions/checkout@v3
      - name: Run installation of dependencies commands
        run: npm install

  unit-testing:
    runs-on: ubuntu-latest
    needs: install-dependencies
    steps:
      - name: Check out repository code
        uses: actions/checkout@v3
      - name: Run installation of dependencies commands
        run: npm install
      - name: Run unit testing
        run: npm test
```



index.test.js

```
const { handler } = require('./index');
describe('Lambda Handler', () => {
  it('returns a successful response', async () => {
    const event = { key: 'value' };
    const expectedResponse = {
      statusCode: 200,
      body: JSON.stringify(
        {
          message: "Go Serverless v3.0! Your function executed successfully!"
        },
        null,
        2
      ),
    };
    const response = await handler(event);
    expect(response).toEqual(expectedResponse);
  });
});
```



[https://www.serverless.com/framework/docs/
providers/aws/guide/variables](https://www.serverless.com/framework/docs/providers/aws/guide/variables)

