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Sub : Adv. DevOps (Assignment - 2)

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Create a REST API with serverless framework.
Creating REST API with serverless framework is an efficient way to deploy serverless applications that can scale automatically without managing services. and serverless applications (i) Serverless framework :

A powerful tool that deployment of services and serverless applications across various cloud providers such as AWS, Azure and Google Cloud.

(ii) Serverless architecture :

This design model allows developers to build applications without worrying about underlying infrastructure enabling focus on code & business logic.

(iii) REST API : Representational state transfer is an architecture style for designing network applications

Steps :

- 1) Install serverless framework
 - 2) Creating a Node.js ~~serverless~~ project
 - 3) ~~to~~ Create a REST API resource
 - 4) Deploy the service.
 - 5) Testing the API.
 - 6) Storing data in Dynamo DB
 - 7) Adding more functionalities like To list all, get candidates by ID
 - 8) AWS IAM permissions : you need to ensure serverless framework serverless framework is given right permissions to interact with AWS resources.
 - 9) Monitoring & maintenance :
- After deployment serverless framework provides service information like deployed endpoints, API key, log streams.

Q.2. Case study for SonarQube.

Ans 1) SonarQube is an open-source platform for testing project quality. Use SonarQube to analyze code.

ii) It detects bugs, code smells and security vulnerabilities in project across various programming languages.

iii) Profile Creation in SonarQube

Quality profiles are essential configuration that define rules applied during code analysis. Each project has a quality profile for every language with default being 'Sonar way' profile.

2) Using Sonar Cloud to analyze Github code
Sonarcloud is counterpart cloud-based part of SonarQube that directly integrates with Github, Bitbucket, Azure, etc. To get started with Sonar Cloud via Github Sign up via Sonarcloud product page and connect your github organization personal account. Once connected, Sonarcloud will mirror your github set setup with each project corresponding to github repository. Automatic analysis happens automatically in Sonarcloud.

3) Sonarlint in Java IDE:

Sonarlint is an IDE that performs on-the-fly code analysis as you write code. It helps developers detect bugs, security vulnerabilities and code smells directly in development environment.

IntelliJ, Idea or Eclipse.

- 4) Analyzing Python project with Sonarqube :
Sonarqube supports python test coverage reporting but it requires 3rd party tool like coverage.py to generate the coverage part.
To enable coverage adjust your build process so that process tool runs before SonarScanner and ensure report file is saved in different path.
- 5) Analyzing Node.js project with Sonarqube.
For Node.js project Sonarqube can analyze javascript and TypeScript code. Similar to python setup you can configure Sonarqube to analyze node.js projects by installing appropriate plugins.

Implementing "a self service" infrastructure model using terraform can transform how large organizations manage their infrastructure independently, organizations can enhance efficiency, reduce bottlenecks and ensure compliance with established needs.

Benefits of using terraform :

- 1) Modularity & reusability
- 2) Standardization
- 3) Increased efficiency
- 4) Integration with ticketing systems