# TEAM LEAD

## Mentoring

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# Class Schedule

- Agile, SDLC, Scrum, Jira
- Python
- Linux
- AWS
- Git
- DevOps
- Networking
- SQL

# Teamwork Schedule

## Ice-breaking 10 minutes

- Personal Questions (Stay at home & Corona, Study Environment, Kids etc.)
- Any challenges (Classes, Coding, AWS, studying, etc.)
- Ask how they're studying, give personal advice.
- Remind that practice makes perfect.

## Team work 10 minutes

- Ask what exactly each student does for the team, if they know each other, if they care for each other, if they follow and talk with each other etc.

## Ask Questions 20 minutes

1. **Within the CloudFormation, updates can sometimes replace resources.**

    A. True
    B. False

Answer : A

2. **Which of the following is NOT an option while running a new CloudFormation template?**

A. Tags
B. Permissions
C. Notification Options
D. Timeouts
E. Rollback on Failure
F. Stack Policy
G. Custom Script

Answer G: Custom script

3. **What tool should I use for automating the deployment of CloudFormation templates?**

A. Cloud Formation Designer
B. AWS CLI
C. Shell Script
D. S3 service

Answer : B. AWS CLI

## Interview Questions 20 mins

**A consulting firm repeatedly builds large architectures for their customers using AWS resources from several AWS services including IAM, Amazon EC2, Amazon RDS, DynamoDB and Amazon VPC. The consultants have architecture diagrams for each of their architectures, and are frustrated that they cannot use them to automatically create their resources.**

**Which service should provide immediate benefits to the organization?**

A. AWS Beanstalk
B. AWS CloudFormation
C. AWS CodeBuild
D. AWS CodeDeploy

Explanation:

**Answer - B**

AWS CloudFormation: This supplements the requirement in the question and enables consultants to use their architecture diagrams to construct CloudFormation templates.

AWS Documentation mentions the following on AWS CloudFormation:

AWS CloudFormation is a service that helps you model and set up your Amazon Web Service resources so that you can spend less time managing those resources and more time focusing on your applications that run in AWS. You create a template that describes all the AWS resources that you want (like Amazon EC2 instances or Amazon RDS DB instances), and AWS CloudFormation takes care of provisioning and configuring those resources for you.

For more information on AWS Cloudformation, please visit the following URL:

https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/Welcome.html

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js etc. You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring.

In question mentioned that "A consulting firm **repeatedly builds large architectures for their customers using AWS resources from several AWS services including IAM, Amazon EC2,**

**Amazon RDS, DynamoDB and Amazon VPC."**

When you are building large architectures repeatedly, you can use the cloud formation template so that create or modify an existing AWS CloudFormation template. A template describes all of your resources and their properties. When you use that template to create an AWS CloudFormation stack, AWS CloudFormation provisions the Auto Scaling group, load balancer, and database for you. After the stack has been successfully created, your AWS resources are up and running. You can delete the stack just as easily, which deletes all the resources in the stack. By using AWS CloudFormation, you easily manage a collection of resources as a single unit. whenever working with more number of AWS resources together, cloud formation is the best option.

**You have a requirement to host a static website following the best practices for a domain named mycompany.com in AWS.**

**How would you set up this? (SELECT TWO)**

A. Host the static site on an EC2 Instance.
B. Use Route53 with a static web site in S3.
C. Enter the DNS records from Route53 in the hosted zones..
D. Place the EC2 instance behind the ELB.

Explanation:

**Correct Answer – B and C**

You can host a static website in S3. You need to ensure that the nameserver records for the Route53 hosted zone are entered in your domain registrar.

For more information on website hosting in S3, please visit the following URLs:

- https://docs.aws.amazon.com/AmazonS3/latest/dev/WebsiteHosting.html
- https://docs.aws.amazon.com/Route53/latest/DeveloperGuide/RoutingToS3Bucket.html

**A company hosts 5 web servers in AWS. They want to ensure that Route53 can be used to route user traffic to random healthy web servers when they request for the underlying web application. Which routing policy should be used to fulfill this requirement?**

A. Simple
B. Weighted
C. Multivalue Answer
D. Latency

Explanation:

**Correct Answer - C**

The AWS Documentation mentions the following to support this:

If you want to route traffic randomly to multiple resources such as web servers, you can create one multivalue answer record for each resource and, optionally, associate an Amazon Route 53 health check with each record.

For example, suppose you manage an HTTP web service with a dozen web servers where each has its own IP address. No web server could handle all the traffic, but if you create a dozen multivalue answer records, Amazon Route 53 responds to DNS queries with up to eight healthy records in response to each DNS query. Amazon Route53 gives different answers to different DNS resolvers. If a web server becomes unavailable after a resolver caches a response, client software can try another IP address in the response.

For more information, please visit the following URL:

https://aws.amazon.com/about-aws/whats-new/2017/06/amazon-route-53-announces-support-for-multivalue-answers-in-response-to-dns-queries/

- Simple routing policy – Use for a single resource that performs a given function for your domain, for example, a web server that serves content for the example.com website.
- Latency routing policy – Use when you have resources in multiple locations and you want to route traffic to the resource that provides the best latency.
- Weighted routing policy – Use to route traffic to multiple resources in proportions that you specify.
- Multivalue answer routing policy – Use when you want Route53 to respond to DNS queries with up to eight healthy records selected at random.

For more information on different routing policies, please visit the following URL

https://aws.amazon.com/premiumsupport/knowledge-center/multivalue-versus-simple-policies

**Which of the following statements are FALSE when it comes to elasticity. Choose 2 answers from the options given below.**

A. Diverting traffic to instances based on the demand
B. Diverting traffic to instances with the least load
C. Diverting traffic across multiple regions
D. Diverting traffic to instances with higher capacity

Explanation:

Answer – C and D

The concept of Elasticity is the means of an application having the ability to scale up and scale down based on demand. An example of such a service is the Autoscaling service

For more information on AWS Autoscaling service, please refer to the below URL:

- https://aws.amazon.com/autoscaling/

**A company has set up some EC2 Instances in a VPC with the default Security group and NACL settings. They want to ensure that IT admin staff can connect to the EC2 Instance via SSH from specific IP addresses. As an architect, what would you ask the IT admin team to do to ensure that they can connect to the EC2 Instance from the Internet. Choose 2 answers from the options below**

A. Ensure that the Instance has a Public or Elastic IP
B. Ensure that the Instance has a Private IP
C. Ensure to modify the Security groups
D. Ensure to modify the NACL rules

Explanation:
Answer - A and C
The AWS Documentation mentions the following
To enable access to or from the internet for instances in a VPC subnet, you must do the following:

- Attach an internet gateway to your VPC.
- Ensure that your subnet's route table points to the internet gateway.
- Ensure that instances in your subnet have a globally unique IP address (public IPv4 address, Elastic IP address, or IPv6 address).

Option B is incorrect since the Private IP will always be created, and would not be used to connect from the internet
Option D is incorrect since the default NACL rules will allow all traffic

For more information on exposing VPC resources to the Internet please refer to the below link:
https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Internet_Gateway.html

## Video of the Week 15 mins

**Lambda Expressions & Anonymous Functions**

https://www.youtube.com/watch?v=25ovCm9jKfA

## Survey 10 minutes

- Which topic was interesting/exciting/easy for you?
- Which topic was boring/hard for you?
- What are the things you liked?
- What are the things you didn't like?

## Retro Meeting On a personal and team level 10 mins

Below questions for the week before the break but you can also ask these questions for the break period. It can be beneficial to hear students' opinions about how they did in terms of studying, practicing during the break.

- What went well?
- What could be improved?
- What will we commit to do better in the next week?

## Problem of the week: 5 mins

*Students should work in small teams to complete the problem of the week.*

| | | | | | |
|---|---|---|---|---|---|
| salesmen | waitress | referee | attendant | rabbi | ballerina |
| ghost | abhor | forty | almost | biopsy | spoon |
| twisted | wrote | bookend | clasping | baker | chair |
| chains | because | blackbird | sainted | taxman | misery |
| behind | sprint | blotch | plenty | cranky | froths |
| adviser | flushed | replicas | voyager | rations | matured |

Answer: _ _ _ _ _ _
Also indicate which computational thinking concepts have you used and how you used them.

**Answer:** Behind

**Computational Thinking:**
**Pattern recognition:** Recognizing that there is a different word among the words in each row. And recognizing the feature that repeats among the letter to find the odd one.
**Decomposition**: Trying to solve the puzzle by breaking it into parts and working letter by letter.
**Algorithm design:** Steps:
1-) Find the repeating feature of each word.
2-) Find the odd one and mark it

3-) Repeat 1-3 until you find all the words and finally repeat 1-2 among the words that you have marked.

## Presentation of Coding Challenge & POW 20 mins

We assume that each group has two sub teams. If this is possible one of the sub teams will present the coding challenge of last week. The other sub team will present the solution to the previous problem of the week. If there is only one sub team then, the sub team will present both of the solutions.

# Coding Challenge 5 mins

Write a python code that finds the largest number among the 5 numbers given as an input. It is forbidden to use max() function. Indicate which computational thinking concepts you have used.

**Solution:**

```
count =0
Limit = 5
Arr = [ ]

while count <5:
        inpt= input("Please enter the number: ")
        arr.append(inpt)
        count = count +1

def findLargestNum(nums):
          largest = nums[0]
          for i in nums:
            if i > largest:
              largest = i
          return largest
```

**Computational thinking:**
**Decomposition**: There are mainly two parts: 1-)Input part. 2-) Finding the largest number part.

## Presentation of Case Study of Sprint-5 20 mins

We assume that each group has two sub teams. Each week, one of the sub-teams will present their solution.

## Case study 10 mins

*Case study should be explained to the students during the weekly meeting and has to be completed in one sprint (2 weeks) by the students. Students should work in small teams to complete the case study.*

**Project 001 : Roman Numerals Converter Application (Python Flask) deployed on AWS EC2 with Cloudformation**

## Closing 5 mins

- Next week's plan
- QA Session