

# STUDENT



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# Teamwork Schedule

## Questions

20 minutes

- Make a quick review about what they learned so far (AWS-Cloud Computing Basics, AWS-IAM, CLI, EC2, S3, AWS Databases, Networking, VPC, SQL ETC.)

The virtual machines that we place in the Public subnets can be accessed from the outside of the VPC (Public internet).

- A. True
- B. False

Bastion Host is launched in ..... and acts as a proxy for the instances in a .....

- A. Private Subnet - Private Subnet
- B. Public Subnets - Private Subnet
- C. Private Subnet - Public Subnets
- D. Public Subnets - Public Subnets

.....is a networking connection between two VPCs.

- A. VPC Endpoint
- B. Network ACL

- C. VPC Peering
- D. Subnets

**Bastion Host/Jump Boxes are used for Inbound traffic to the instance in Private Subnet.**

- A. True
- B. False

## Interview Questions

20 mins

**Your team has developed an application and now needs to deploy that application onto an EC2 Instance. This application interacts with a DynamoDB table. Which of the following is the correct and MOST SECURE way to ensure that the application interacts with the DynamoDB table**

- A. Create a role which has the necessary permissions and can be assumed by the EC2 instance
- B. Use the API credentials from an EC2 instance. Ensure the environment variables are updated with the API access keys.
- C. Use the API credentials from a bastion host. Make the application on the EC2 Instance send requests via the bastion host.
- D. Use the API credentials from a NAT Instance. Make the application on the EC2 Instance send requests via the NAT Instance

**You are creating a number of EBS Volumes for the EC2 Instances hosted in your company's AWS account. The company has asked you to ensure that the EBS volumes are available even in the case of an entire region facing an outage due to a natural disaster. How would you accomplish this? Choose 2 answers from the options given below**

- A. Configure Amazon Storage Gateway with EBS volumes as the data source and store the backups on premise through the storage gateway
- B. Create snapshots of the EBS Volumes.
- C. Ensure the snapshots are made available in another availability zone
- D. Ensure the snapshots are made available in another region

**Your company is planning on hosting a set of EC2 Instances in AWS. The Instances would be configured in a way that one will be used as a web tier and the other as a database (EC2 Hosted). The web tier should be exposed to the Internet in the Public Subnet and Database is in Private Subnet in the same VPC with the default configuration. What configuration needs to be done in order to let Web Server communicate with Database Server?**

- A. Change the main route tables to have the desired routing between the subnets
- B. Ensure that the Security Groups have the required rules defined to allow traffic
- C. Ensure that all instances have a public IP for communication
- D. Ensure that all subnets are defined as public subnets

**Instances in your private subnet hosted in AWS, need access to important documents in S3. Due to the confidential nature of these documents, you have to ensure that the traffic does not traverse through the internet. As an architect, how would you implement this solution?**

- A. Consider using a VPC Endpoint.
- B. Consider using an EC2 Endpoint.
- C. Move the instances to a public subnet.
- D. Create a VPN connection and access the S3 resources from the EC2 Instance.

**A company has an on-premises infrastructure which they want to extend to the AWS Cloud. There is a need to ensure that communication across both environments is possible over the Internet when initiated from on-premises. What should be set up on the on-premise side?**

- A. Create a VPC peering connection between the on-premises and the AWS Environment.
- B. Create an AWS Direct connection between the on-premises and the AWS Environment.
- C. Create a VPN connection between the on-premises and the AWS Environment.
- D. Create a Virtual private gateway connection between the on-premises and the AWS Environment.

## **Video of the Week**

**15 mins**

### **What is SQL?**

<https://www.youtube.com/watch?v=27axs9dO7AE>

## **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.*

# THE RULES ARE STRAIGHTFORWARD ONCE YOU KNOW THEM

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## 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

Given  $n$  pairs of parentheses, write a code to generate all combinations of well-formed (valid for Python) parentheses.

For example, given  $n = 3$ , a solution set is:

```
[
    "((()))",
    "(()())",
    "(())()",
    "()()()",
    "()(())"
]
```

### Example Solution:

```
n=4
# Initialize the history list
seen = [[] for _ in range(n + 1)]
seen[0].append("")
if n == 0: ["" ]
# Generate the history from 1 pair case
for i in range(1, n + 1):
    # c is the number of pairs in left part
    for c in range(i):
        # Iterate through all the possible cases for left and right
        for left in seen[c]:
            for right in seen[i - 1 - c]:
                seen[i].append('(' + left + ')' + right)
seen[-1]
```



## 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 for this sprint will be declared as Project within Portfolio Building activities during the in-class session on *Tuesday, 23.06.2020***

## Closing

5 mins

- Next week's plan
- QA Session