Mentoring

CLARUSWAY©
WAY TO REINVENT YOURSELF

Class Schedule

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

Questions:

● Encapsulation is the process of taking data from one protocol and translating it into another protocol, so the data can continue across a network.

A. True
B. False

- You need to transfer files between two hosts. Which protocol can you use?

A. TCP
B. NFS
C. FTP
D. UDP

- Which piece of hardware would reduce the size of a broadcast domain?

A. Hub
B. Router
C. Packet injector
D. Switch

- Which one of the following options are correct about python dictionaries?

A. Dictionaries are mutable
B. Dictionaries are accessed by key
C. Dictionaries can be nested to any depth
D. All of the above

- After you increase the size of an EBS volume, you must use file system–specific commands to ……. the file system to the larger size.

A. Identify
B. Format
C. Extend
D. Mount

Interview Questions 20 mins

- A company has a set of EC2 Instances that store critical data on EBS Volumes. There is a fear from IT Supervisors that if data on the EBS Volumes is lost, then it could result in a lot of effort to recover the data from other sources. Which of the following would help alleviate this concern in an economical way?

A.Take regular EBS Snapshots.

B.Enable EBS Volume encryption

C.Create a script to copy data to an EC2 Instance Store

D.Mirror data across 2 EBS Volumes

- You are working as an AWS Architect for a start-up company. They have a two-tier production website. Database servers are spread across multiple Availability Zones and are stateful.

  You have configured Auto Scaling Group for these database servers with a minimum of 2 instances & maximum of 6 instances. During post-peak

hours, you observe some data loss. Which feature needs to be configured additionally to avoid future data loss (and copy data before instance termination)?

A.Modify the cooldown period to complete custom actions before the Instance terminates.

B.Add lifecycle hooks to Auto Scaling group.

C.Customize Termination policy to complete data copy before termination.

D.Suspend Terminate process that will avoid data loss.

- You are working as an AWS consultant for a start-up company. They have developed a web application for their employees to share files with external vendors securely. They created an AutoScaling group for the web servers which requires two m4.large EC2 instances running at all times, scaling up to a maximum of twelve instances. Post-deployment of the application, a huge rise in cost was observed. Due to a limited budget, the CTO has requested your advice to optimize the usage of instances in the Auto Scaling groups. What would you suggest to reduce costs without any adverse impact on the performance?

A. Create an Auto Scaling group with t2. micro On-Demand instances.
B. Create an Auto Scaling group with a mix of On-Demand & Spot Instance. Select the On-Demand base as zero. Above On-Demand base, select 100% of On-Demand instance & 0% of Spot Instance.
C. Create an Auto Scaling group with all Spot Instance.
D. Create an Auto Scaling group with a mix of On-Demand & Spot Instance. Select the On-Demand base as 2. Above On-Demand base, select 20% of On-Demand instance & 80% of Spot Instance.

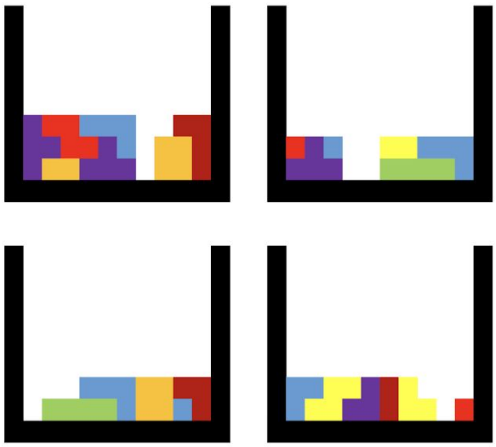
Video of the Week 15 mins

https://www.youtube.com/watch?v=60z9bWIEhH8&list=PLiZj-Ik9MmM0a9JQz8mhrPdZ19q3K0evK&index=2

Problem of the week 5 mins

Students should work in small teams to complete the case study.

- The answer is a single word or name in English.
- You may use the internet and any other resources at your disposal.
- You are encouraged to work on a team with 2, or 3 teammates.
- Have fun and good luck!



Answer: _ _ _ _

Coding challenge 5 mins

Students should work in small teams to complete the case study.

Write a python program that enables the user to retrieve elements from a given list. The program will print the elements in the list from the given starting index end ending index.

For example for the given list [1,2,4,6] if the input is 1 and 3 then the output will be: 2,6.

You should also make an input check which means that program should keep on asking for an input until the user enters a valid value. For example if the length of the given list is 5 and the user enters 6 as a starting point, that is an invalid input.

NOTE: Do not forget that the first index is the 0th index in computers.

Explain which of the at least two computational thinking concepts have you used and how have you used them.

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.

In this case :

- We will write a Shell script which runs a Python phone book application
- In the Shell script; first check if the user knows the root password
- If the user knows the root password, then echo a welcome message with the name of the user
- Then check if AccessLog.txt file exists in the current directory
- If the file doesn't exist, create it in the current directory
- If the file exists, then append the name of the user, the date and the number of the record starting by 1 to the file
- Later on, check if you have installed Python
- If Python is not installed, install it within your script
- If Python is installed, check if you have the path to Python in your environment variables
- If the path to your Python binary files doesn't exist, you should export the path into your environment variables
- Later on, your script should look into the current directory for your Python application which has the name "phone_book.py"

- If the script finds the application, it should run it

- If the script can't find the application, it should clone it from your git repository which already has your application in it and run the application. (But before that you should check if you have git installed and if not, you should install it first)

- Your phone_book.py program should be able to list out all the people with their name, last name and phone number and sequence number (3 hard coded records are enough)

- You should be able make CRUD (Create, Read, Update, Delete) operations with your application.

Expectations/End result:

1. Python code named as “phone_book.py” and python code should be pushed to the GitHub repo.
2. Shell script (name it as “phone_book.sh”) that runs the phone_book.py and shell script should be pushed to the GitHub repo.
3. Execution of the Shell script in AWS EC2 linux machine.
4. Students will present the application within the next sprint.