TEAM LEAD

Mentoring

CLARUSWAY©
WAY TO REINVENT YOURSELF

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

- 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.)

- **What is the difference between SQL and MySQL?**

Answer:
SQL is a standard language for retrieving and manipulating structured databases.
MySQL is a relational database management system.

- **What is FOREIGN KEY?**

  A FOREIGN KEY is a key used to link two tables together.

  A FOREIGN KEY is a field (or collection of fields) in one table that refers to the PRIMARY KEY in another table.

  The table containing the foreign key is called the child table, and the table containing the candidate key is called the referenced or parent table.

- **Which of the following is not the disadvantages of SQL?**

A. It requires strict coordination with database developers.
B. The requests must be determined correctly in advance.
C. Low flexibility due to the determined scheme.
D. Join functions are not available in SQL.

Answer: D

- **What is SQL Join?**

  A JOIN clause is used to combine rows from two or more tables, based on a related column between them.

- **What does a subnet mask tell us?**

  A. How many subnets are there
  B. Mask protects against COVID19
  C. Which part of the IP address is the network ID
  D. How big network is
  E. How to redirect IP address

Answer: C - Which part of the IP address is the network ID

- **Why does a Layer 3 device perform the ANDing process on a destination IP address and subnet mask?**

A. To identify the broadcast address of the destination network
B. To identify the loopback address of the destination host
C. To identify the network address of the destination host
D. To identify faulty frames

Answer C -To identify the network address of the destination host

- **Which of the below is a false statement in python?**

A. `int(144) == 144`
B. `int('144') == 144`
C. `int(144.0) == 144`
D. None of the above

Answer: D

Explanation: The built-in int() type constructor converts string and floating value to integer.

Please visit below link for more info about python built-in Types:
https://docs.python.org/3/library/stdtypes.html

Randomly ask questions about subjects they've learned so far.

Interview Questions 20 mins

- **Your development team is planning to host a development environment on the cloud. This consists of EC2 and RDS instances. This environment will probably only be required for 2 months. Which types of instances would you use for this purpose?**

  A. On-Demand

  B. Spot

  C. Reserved

  D. Dedicated Hosts

  Explanation:

  Answer - A

  The best and cost effective option would be to use On-Demand Instances. The AWS documentation gives the following additional information on On-Demand EC2 Instances

  With On-Demand instances you only pay for EC2 instances you use. The use of On-Demand instances frees you from the costs and complexities of planning, purchasing, and maintaining hardware and transforms what are commonly large fixed costs into much smaller variable costs.

  For more information on AWS On-Demand Instances, please refer to the below URL:

  https://aws.amazon.com/ec2/pricing/on-demand/

  Option B is incorrect. Spot instances may be terminated at any time with the fluctuation of market prices. Therefore, unless the question indicates this use case, we cannot assume the development team would not expect high availability.

  Option C is incorrect. Reserved Instances require a minimum 1 year commitment.

  Option D is incorrect. Dedicated hosts are typically used when the underlying hardware cannot be shared across tenants (customers). This is the most expensive option and typically would not be ideal for development purposes.

- **Which of the following helps you set up a logically isolated section of your AWS cloud ?**

A. AWS Subnets
B. AWS VPC
C. AWS Regions
D. AWS Availability Zones

Explanation:

Answer – B
The AWS Documentation mentions the following
Amazon Virtual Private Cloud (Amazon VPC) enables you to launch AWS resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.
For more information on AWS VPC, please refer to the below URL:
https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Introduction.html

- **Which of the following options is TRUE for AWS Database Migration Service (AWS DMS) ?**

A. AWS DMS can migrate databases from on-premise to AWS
B. AWS DMS can migrate databases from AWS to on-premise
C. AWS DMS can migrate databases from EC2 to Amazon RDS
D. AWS DMS can have Amazon Redshift and Amazon DynamoDB as target databases.
E. All the above

Explanation:

Answer: E
All the options are CORRECT.

Options are clearly described in the AWS DMS documentation at the link below.
Option A is TRUE and is the “most common” way to use AWS DMS.
Option B is TRUE and can be used to create a copy (or migrate) a database from AWS to on-premise data center.
Option C is TRUE and can be used to migrate a IaaS solution (e.g. generated from a lift-and-shift wave) to a managed service like Amazon RDS.
Option D is TRUE according to AWS documentation.

References:
https://aws.amazon.com/dms/
https://aws.amazon.com/dms/faqs/

- **Which of the following networking component can be used to host EC2 resources in the AWS Cloud?**

  A. AWS Trusted Advisor

  B. AWS VPC

  C. AWS Elastic Load Balancer

  D. AWS Autoscaling

  Explanation:

  Answer - B

  The AWS Documentation mentions the following on Amazon VPC

  Amazon Virtual Private Cloud (Amazon VPC) enables you to launch AWS resources into a virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

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

- https://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Introduction.html

Video of the Week 15 mins

What is a microservice architecture and its advantages?

https://www.youtube.com/watch?v=qYhRvH9tJKw&index=6

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.

LIFE IS ABOUT THE JOURNEY, NOT THE DESTINATION

Itinerary:

Day 1: Start in Lithuania
Day 3: Arrive in Slovakia
Day 9: Arrive in Serbia
Day 16: Arrive in Turkey
Day 20: Arrive in Romania
Day 25: Arrive in Poland
Day 31: Arrive in Luxembourg
Day 36: Arrive in Spain
Day 39: Arrive in Germany
Day 40: Arrive in Belarus
Day 45: Arrive in Georgia
Day 46: Arrive in Syria
Day 50: Arrive in Egypt
Day 51: Arrive in Niger

Answer: Vilnius
Solution Video:
https://www.youtube.com/watch?v=eMEL7oX4IzY&list=PLhQjrBD2T381e1IyDsLSXFYveF6ggaPBx&index=3

Computational Thinking Concepts:

Abstraction: Converting the written destinations into the map format and focusing on the time spent between the destinations.
Algorithm Design: Tracking the journey and recording the time in between each destination.

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

Roman numerals are represented by seven different symbols: `I`, `V`, `X`, `L`, `C`, `D` and `M`.

Symbol	Value
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

For example, two is written as `II` in Roman numeral, just two one's added together. Twelve is written as, `XII`, which is simply `X` + `II`. The number twenty seven is written as `XXVII`, which is `XX` + `V` + `II`.
Roman numerals are usually written largest to smallest from left to right. However, the numeral for four is not `IIII`. Instead, the number four is written as `IV`. Because the one is before the five we subtract it making four. The same principle applies to the number nine, which is written as `IX`. There are six instances where subtraction is used:

- `I` can be placed before `V` (5) and `X` (10) to make 4 and 9.
- `X` can be placed before `L` (50) and `C` (100) to make 40 and 90.
- `C` can be placed before `D` (500) and `M` (1000) to make 400 and 900.

Given an integer, convert it to a roman numeral. Input is guaranteed to be within the range from 1 to 3999.

Example 1:

```
Input: 3

Output: "III"
```

Example 2:

```
Input: 4

Output: "IV"
```

Example 3:

```
Input: 9

Output: "IX"
```

Example 4:

```
Input: 58

Output: "LVIII"

Explanation: L = 50, V = 5, III = 3.
```

Example 5:

```
Input: 1994

Output: "MCMXCIV"

Explanation: M = 1000, CM = 900, XC = 90 and IV = 4.
```

Pattern recognition: Recognize the pattern. The pattern in this case is that for each digit you need to have a certain amount of a certain letter. So each time you go through a digit, you need to decide how many times you need that letter.

Abstraction: To be able to convert a number into a roman numeral you need to think of the number digit by digit. So for example 2020 is not two thousand and twenty (which mean nothing in this case) but, 2 of digit M, 0 of digit CD, 2 of digit X and 0 of digit I.

Algorithm Design: In this case our algorithm is, using the pattern that we have obtained, to go through each roman numeral and decide how many of that letter we need. And then add that letter into the string of roman numerals.

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.

Case study provided W17 is for sprint-6 (2 weeks)

Closing 5 mins

- Next week's plan
- QA Session