Associate Software Engineer Coding Exercise

Question 1

Implement a MyQueue class which implements a queue using two stacks.

Question 2

Given an input string, write a function to check its validity based on the following rules:

* First character is a single digit
* Does **not** contain any extended characters e.g. !@#$%^&
* Does **not** contain any uppercase characters
* Contains at least 10 vowel characters (a,e,i,o,u)
* Space characters are allowed
* Minimum length: 5
* Maximum length: 50

The output should be **True** if the string is valid and **False** if invalid.

**Show strings that were used to test the function.**

**“ 1aaaaaaaaaa” - False**

**“1aaaaa” - False**

**“1aaaaAaaaaa” – False**

**“1aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa” – False**

**“0aaaaaabcdefghijklmnopqrstuvwxyz” – True**

**“1aaaaaaaaaaaa!aaa” - False**

Question 3

Hands-on Lab Details

|  |  |
| --- | --- |
| **Instance IP Address:** | t 52.15.217.113 |
| **User:** | candidate01 |
| **Password:** | ci3#sch097 |
| **Bitbucket Repo:** | https://sch-candidate01@bitbucket.org/superday/sch-candidate01.git |

Case Study Instructions:

1. Using the logon credentials, SSH into the instance and report the following:

a. What operating system is the instance running?  What release?

- Redhat 7.3.1611

b. # of assigned CPUs

- 1

c. Total allocated RAM

- 991M

d. # of disk partitions and free space for each

- 7 total: /dev/xvdal - 5106M Free

devtmpfs – 478M

tmpfs – 496M

tmpfs – 483M

tmpfs – 496M

/dev/xvdf1 – 18946M

tmpfs – 100M

e. Identify the following AWS instance details:

f. What is the AWS instance id?

Instance ID: i-0589ae499ae6ef9f2

g. What is the current instance type?

Instance Type: t2.micro

h. Which Availability Zone is the instance running in?

Availability Zone: us-east-2b

1. Enable log compression and configure the log rotation interval for every 6 weeks
   1. Force the change and output the file list under /var/log directory to a file. Check the file into the Bitbucket repo.
2. You have noticed system response has been sluggish. Use your favorite Linux troubleshooting method to identify:
   1. Is the system CPU or memory constrained?
      1. CPU Contstrained
   2. Record the name and location of the process that is causing the high utilization
      1. Stressor, PID: 3106,
      2. Location: /proc/3106/exe
   3. Terminate the offending process
      1. Tried “kill 3106” and it says “operation not permitted”
3. Output your history to a file and check it into the Bitbucket repo