

## CODING CHALLENGE

### Introduction

1. There are three switches (SW-S1, SW-S2 and SW-S3) connected to five terminals (T1 to T5) each. Refer to *Figure 1*.
2. Every two minutes, the connectivity to the terminals is checked using the ping tool. When a terminal is reachable, it is given ping status 1. When a terminal is not reachable, it is given the ping status 0. P1 is the ping status for T1, P2 is the ping status for T2, and so forth.
3. A switch is said to be not reachable if all the terminals connected to the switch are not reachable. In other words, a given switch is not reachable if the values of P1 to P5 are all zeroes (0) at the same time.
4. Data is collected for 12 hours (8AM-8PM).

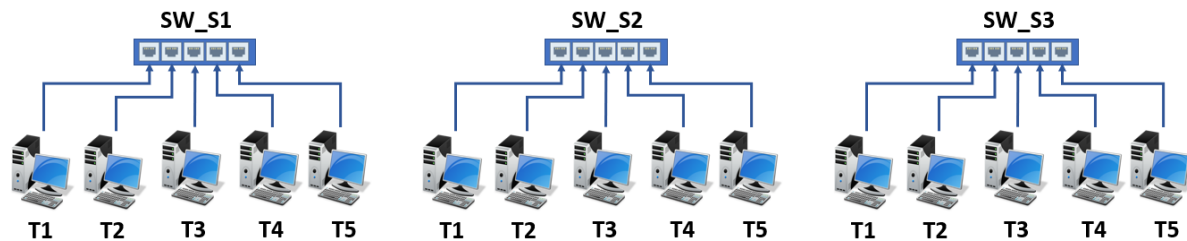


Figure 1: Switches and Terminals

### Instructions

Develop a web application using Python and MySQL to show the status of each of the switches (*Figure 2*) and the list of all times when the switches were unreachable (*Figure 3*).

1. MySQL
  - a. Understand the CSV data (Data\_Terminals ) provided.
  - b. Create the database, table(s) and fields accordingly. You may name the database, tables and fields as per your preference.
  - c. Import the CSV data into the database.

Note: For this challenge, you can either import the CSV data directly to the database or use Python to read the CSV file and export the data to the database.

2. Python web application
  - a. Connect to the MySQL database.
  - b. Read/write the records from/to the database to
    - i. insert switch status as "0" for each record where values P1 to P5 are all zeroes.
    - ii. insert switch status as "1" for all other records.
  - c. Create charts as given in *Figure 2* to represent the "1" or "0" statuses of each switch for 12 hours.

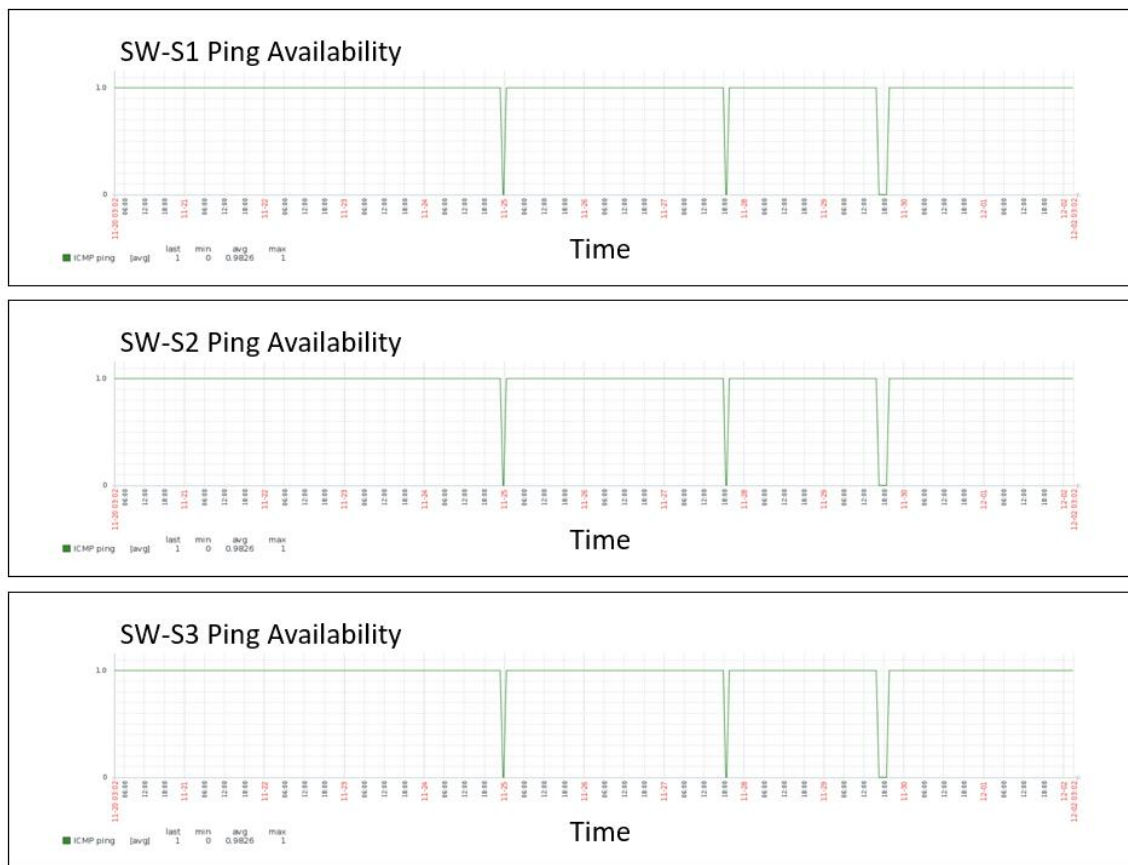


Figure 2: Sample Charts

- d. Create an “Alert Report” page and show all the records of switches when they are not reachable. Use “Ping Lost” as the Alert Type when switches are not reachable. Refer to *Figure 3*.

No	Switch	Alert type	Alert Date/Time	Email Notification Date/Time
01	SW-S3	Ping Lost	28/11/2019 8:00:00 AM	28/11/2019 8:00:10 AM
02	SW-S3	Ping Lost	28/11/2019 8:08:00 AM	28/11/2019 8:08:00 AM
03	SW-S1	Ping Lost	28/11/2019 8:10:00 AM	28/11/2019 8:10:05 AM
04	SW-S2	Ping Lost	28/11/2019 8:10:00 AM	28/11/2019 8:10:05 AM
05	SW-S3	Ping Lost	28/11/2019 8:10:00 AM	28/11/2019 8:10:07 AM

*Figure 3: Alert Report*

Notes:

1. The duration given to develop this application is FIVE (5) working days.
2. You should use a development framework like Django or Flask to develop this application.
3. Report your progress periodically. You may mention the progress in terms of percentage of completion. Email or WhatsApp the progress information to the contact details provided to you.
4. Optional: any other additional feature that you think can be useful in this application can be included.

END