# Group Assignment 2 - Group Lab Activity 2

TNE10006/TNE60006 S2 2023

**Assignment Weight:**   
7.5%

**Assignment Points:**   
75

**Submission Due Date:**

By the start of Week 12 Lab session.

**Reference Material:**

* Sample Final Practical Assessment (available in Canvas Lab Sessions page, Week 6a tab)

**Instructions:**

1. Form a group of 3-4 people amongst the students present in the lab session.
2. Your group discussion time will be in the last 60 minutes of the lab session in Collaborate Ultra, Breakout groups.
3. Discuss and answer the questions in Group Assignment 2 in your breakout group.
4. Organise for your group to meet again to complete all the questions.
5. Each group will submit one completed Group Assignment 2
6. Submit Group Assignment 2, in the Canvas shell, under the Group Lab Activity 2
7. Late penalties will apply for submission after the due date.

**Group Assignment 2 Sections:**

* Section 1: Sample Final Practical Assessment – Topology and Specs Analysis (15 marks)
* Section 2: Sample Final Practical Assessment – Configuration (35 marks)
* Section 3: Sample Final Practical Assessment – Validation and Troubleshooting (25 marks)

**Group Assignment 2 Members Information:**

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| **Name** | **Student Id:** |
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**Section 1: Sample Final Practical Assessment – Topology and Specs Analysis  
(15 marks)**

When tasked to build a network end to end, you should first take some time to analyse the topology diagram, addressing tables and other specifications to understand the basic network requirements.

Refer to the Sample Final Practical Assessment.

Q1. How many VLANs MUST be configured on the switches? (3 marks)

1. On Lisbon? Please specify VLAN(s) ID
2. On Tokyo? Please specify VLAN(s) ID

Q2. How many access ports MUST be configured on the switches? (3 marks)

1. On Lisbon? Please specify switchport to VLAN ID allocation.
2. On Tokyo? Please specify switchport to VLAN ID allocation.

Q3. How many 802.1q trunks MUST be configured on the switches? (3 marks)

1. On Lisbon? Please specify interface(s) ID.
2. On Tokyo? Please specify interface(s) ID.

Q4. How many sub-interfaces MUST be configured on Nairobi? Please specify sub-interface(s) ID.   
(3 marks)

Q5. How many interfaces VLAN MUST be configured on the switches? (2 marks)

1. On Lisbon? Please specify interface(s) ID.
2. On Tokyo? Please specify interface(s) ID.

Q6. Do we need to set a default-gateway on the switches? If YES, specify the default-gateway IP to be configured. (1 mark)

**Section 2: Sample Final Practical Assessment - Configuration   
(35 marks)**

After you have a good understanding of the network topology and basic network requirements, you can move on to configuring the devices following a systemic procedure.

Refer to the Sample Final Practical Assessment.

Q1. List the configuration commands required to complete **Task 1: Configure Device Names and MOTD**. For each command, specify the device(s) and operation mode.(2 marks)

Q2. List the configuration commands required to complete **Task 2: Configure VLANs and VLAN membership**. For each command, specify the device(s) and operation mode. (6 marks)

Q3. List the configuration commands required to complete **Task 3: Configure Router-on-a-Stick**. For each command, specify the device(s) and operation mode. (8 marks)

Q4. List the configuration commands required to complete **Task 4: Configure Switch Management**. For each command, specify the device(s) and operation mode. (6 marks)

Q5. List the configuration commands required to complete **Task 5: Fine-tune STP**. For each command, specify the device(s) and operation mode. (4 marks)

Q6. List the configuration commands required to complete **Task 6: Configure Port-Security.** For each command, specify the device(s) and operation mode. (4 marks)

Q7. List the configuration commands required to complete **Task 7: Configure EtherChannel**. For each command, specify the device(s) and operation mode. (4 marks)

Q8. List the configuration commands required to complete **Task 8: Additional Settings.** For each command, specify the device(s) and operation mode. (1 mark)

**Section 2: Sample Final Practical Assessment - Validation and Troubleshooting   
(25 marks)**

Upon completing your configuration, you should validate all settings using troubleshooting commands, such as Cisco **show** commands. You should also run connectivity tests using ICMP tools, such as **ping**.

Refer to the Sample Final Practical Assessment.

Q1. Answer the following questions regarding validating and troubleshooting **VLANs and VLAN membership.**

* + 1. What command(s) can be used on **Tokyo** to validate VLANs and VLAN membership configuration? For each command, describe the expected output. (2 marks)
    2. What command(s) can be use on **Lisbon** to validate VLANs and VLAN membership configuration? For each command, describe the expected output. (2 marks)
    3. What command(s) can be use on **Lisbon** to validate that all unused ports have been disabled? For each command, describe the expected output. (2 marks)

Q2. Answer the following question regarding validating and troubleshooting **Router-on-a-Stick**

* + 1. What command(s) can be used on **Nairobi** to validate Router-on-a-Stick configuration? List at least 2. For each command, describe the expected output. (4 marks)
    2. What command(s) can be used on **Tokyo** to validate Router-on-a-Stick configuration? For each command, describe the expected output. (2 marks)
    3. Troubleshooting Scenario: The routing table on **Nairobi** is not displaying all the correct connected (C) routes and their exit interfaces.

What are the possible configuration issues? List at least 3 possible issues. (3 marks)

Q3. Answer the following questions regarding validating and troubleshooting **Switch Management**

* + 1. What command(s) can be used on **Tokyo** to validate that the Management IP has been correctly configured? For each command, describe the expected output. (1 mark)
    2. What command(s) can be used on **Tokyo** to test SSH access to **Lisbon**? (1 mark)
    3. Troubleshooting Scenario: **Tokyo** and **Lisbon** can ping each other. **Tokyo** can ping all IP addresses configured on **Nairobi**. However, **Lisbon** can only ping the IP address configured on **Nairobi’s** Management sub-interface; it cannot ping any other router IP.

What is the most likely configuration issue? (2 marks)

Q4. Answer the following questions regarding validating and troubleshooting **STP, Port-Security and EtherChannel**

* + 1. Using the ***show spanning-tree*** command, how do we validate that **Tokyo** has been correctly configured as the root bridge for the Royalmint VLAN? (2 marks)
    2. What command can be used on **Lisbon** to validate the current Port-Security status of interface Gi1/0/3? (2 marks)
    3. If the Port-Channel between **Tokyo** and **Lisbon** has been correctly configured and is fully operational; what should be the status flag(s) next to the Port-Channel interface on the ***show etherchannel summary*** output? (1 mark)
    4. If the Port-Channel between **Tokyo** and **Lisbon** has been correctly configured and is fully operational; what should be the status flag(s) next to the member interfaces on the ***show etherchannel summary*** output? (1 mark)