



Assignment No. 01
Semester: Fall 2020
CS206: Introduction to Network Design
& Analysis

Total Marks: 15
Due Date: 29th May,
2020

Instructions:

Please read the following instructions carefully before submitting assignment:

You need to use MS word document to prepare and submit the assignment on VU-LMS.

It should be clear that your assignment will not get any credit if:

- The assignment is submitted after due date.
- The assignment is not in the required format (.doc or docx)
- The submitted assignment does not open or file is corrupt.
- Assignment is copied (partial or full) from any source (websites, forums, students, etc)

Objectives:

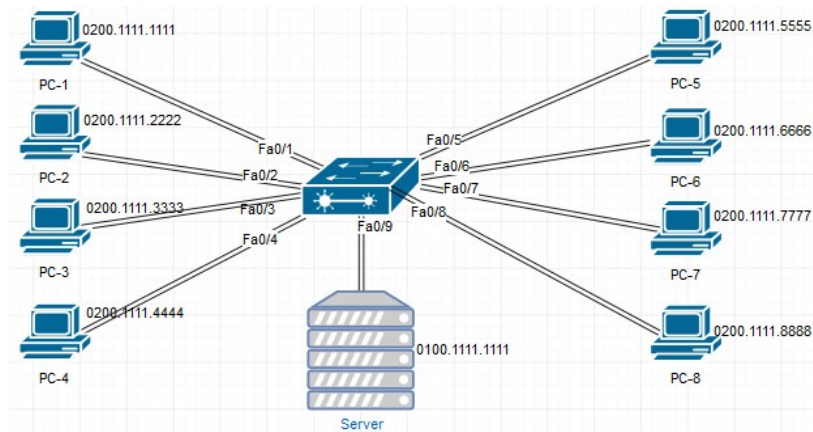
To enhance the learning capabilities of the students about:

- Ethernet LAN
- MAC addressing
- Learning process of switch

Assignment

Scenario:

The following diagram is a representation of an Ethernet based network comprising of eight Personal computers and a server connected with each other through a switch:



After carefully analyzing above diagram, you are required to do the following tasks:

Task 1:

Let's assume that the network has just been powered on and there hasn't been any flow of traffic occurred over the network yet.

- What might be in the MAC address table of the switch?
- If PC-1 sends a packet to PC-4, what action(s) will be performed by the switch?

Solution:

Task 2:

Now assume that some data transfer has been occurred between the following devices:

- PC-1 and PC-4
- PC-7 and PC-5

- iii. PC-3 and Server
- iv. PC-5 and PC-8

What might be in the forwarding table of the switch? Give your answer in the following format:

MAC Address	Port Number

Solution:

Task 3:

Let's assume that PC-1, PC-2, PC-3 and PC-4 belong to accounts department and PC-5, PC-6, PC-7 and PC-8 belong to admin department of an organization. Both departments have some concerns regarding security of their relevant departmental data, and they want to restrict unnecessary transfer of irrelevant traffic from each other. What approach can be implemented at the switch level to separate out network traffic of both the departments without changing the physical network configuration?

Solution:

Best of Luck!