# CEG5101 Modern Computer Networking

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## Programming Assignment 1 (based on Lab 02)

**INSTRUCTIONS**

This lab assignment focuses on manually configuring Open vSwitches with layer 3 information. Design a network for the below-given topology in the Mininet/MiniEdit. The topology consists of five end-hosts named h1 to h5 and four Open vSwitches named as S1 to S5. The assignment is to enable packet forwarding among all hosts by manually defining flow tables at each switch. The IP addresses for different hosts must be configured according to Table 1.

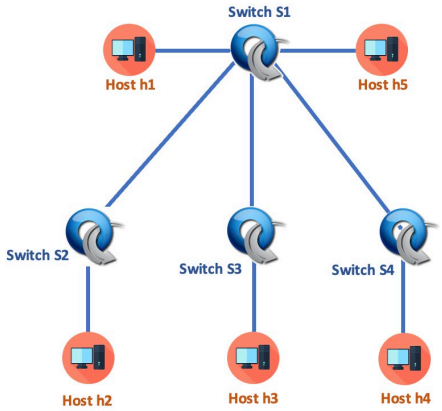


*Figure 1: Topology*

**Table 1: IP Addresses**

| Host | Interface | IP Address |
|---|---|---|
| h1 | Eth0 | 10.0.0.1/8 |
| h2 | Eth0 | 10.0.0.2/8 |
| h3 | Eth0 | 10.0.0.3/8 |
| h4 | Eth0 | 10.0.0.4/8 |
| h5 | Eth0 | 10.0.0.5/8 |

Your lab assignment work will be assessed based on the following deliverables.

1. Design the above topology in the Mininet or MiniEdit and assign the IP address to each host according to Table 1.
2. Issue a command to print active Open vSwitches (attach the screenshot).
3. Issue a command to delete any existing flow table on each switch (attach the screenshot).
4. Issue commands to implement the flow table at each switch that will enable traffic forwarding among the network (attach the screenshots).
5. Issue a command to print flow entries for each switch (attach the screenshots).

6. Test connectivity by sending a ping command from one host to all other hosts (attach the screenshots).

During the assignment demo,

a) Demonstrate the working of the above topology.
b) Show a report to the GA showing the above deliverables.
c) Answer the questions asked by the GA. Please note that during the demo student will be asked to make amendments within the network and explain the changes in the network that will be observed because of those changes.