**Software-Defined Networking Assignment 1 2017-18:**

**“Design and create a simple SDN network with a controller and a switch.”**

## Description

Write a Mininet script in Python to create a single switch network, with 10 hosts attached, and a remote controller. Define a subclass of the Mininet Topo class in order to create the topology. The subclass’ build method should take the number of hosts in the topology as a parameter. Name the switch ‘s1’, and the hosts ‘h1’, ‘h2’, … The switch should be an Open vSwitch instance, and the remote controller will be Pox. After the network is created, the script should call the Mininet CLI.

Write a Pox script in Python that detects when the switch is up, and listens for Packet\_In events. When the switch comes up, the Pox script should print the dpid of the switch. When a Packet\_In event is received, the Pox script should add a flow rule to the switch to forward all packets with the same source and destination IP addresses received on the port identified in the Packet\_In event to the appropriate output port. You can assume that port numbers match the order in which hosts have been added in the Mininet script. Use pox/ext/skeleton.py as the starting point for your script.

Start the Pox controller with your script – record the command and the output. In the Mininet CLI, test that all hosts can ping each other successfully – record the command and the output.

You must submit a .zip file (named <student-number>-<firstname.surname>-assign1.zip) include only the following files:

* sdntopo1.py – a script to create the Mininet topology.
* forward1.py – a Pox script to add OpenFlow rules to the switch on receipt of packet\_in events.
* output.txt – containing the commands and outputs that you recorded.

## Other Information

* Submission is through Blackboard (<http://citbb.blackboard.com>) only.
* Assignment value: 15%
* Submission date: 12 Nov 2017