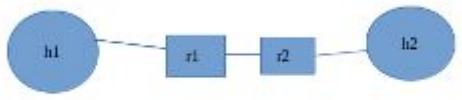
Assignment - 7
Name: Anurag
Roll no: 1601CS05

1. In this question i created the topology as where hosts h_1 and h_2 are connected to routers r_1 and r_2 respectively.



Here, there are two subnets, 10.0.1.0/24 and 10.0.2.0/24. These are subnets that are connected by two router, i.e. r1, r2. In each subnet, there is one openvswitch.

When we run code our topology will create. If we want H1 host to talks to H2 we can write code H1 ping -c 1 H2

```
mininet> H1 ping -c 1 H2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp seq=1 ttl=62 time=0.154 ms

--- 10.0.2.2 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.154/0.154/0.154/0.000 ms
mininet>
```

When can see we ping to IP 10.0.2.2 with time = 0.154ms with 1 packet and 0% packet loss.

When we want to R1 to talks to R2 then, we can write code R1 ping -c 1 R2

```
mininet> R1 ping -c 1 R2
PING 10.0.2.1 (10.0.2.1) 56(84) bytes of data.
64 bytes from 10.0.2.1: icmp seq=1 ttl=64 time=0.065 ms

--- 10.0.2.1 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.065/0.065/0.065/0.000 ms
mininet>
```

When can see we ping to IP 10.0.2.1 with time = 0.065ms with 1 packet and 0% packet loss.

This code will create topology,

```
class customTopo(Topo):
    def build(self, **_opts):
        R1 = self.addNode('R1', cls=LinuxRouter,
                          ip='10.0.1.1/24', defaultRoute='via 11.0.1.2')
        R2 = self.addNode('R2', cls=LinuxRouter,
                          ip='10.0.2.1/24', defaultRoute='via 11.0.4.2')
        H1 = self.addHost('H1', ip='10.0.1.2/24', defaultRoute='via 10.0.1.1')
        H2 = self.addHost('H2', ip='10.0.2.2/24', defaultRoute='via 10.0.2.1')
        self.addLink(H1, R1, intfName2='R1-eth0',
                     params2={'ip': '10.0.1.1/24'})
        self.addLink(H2, R2, intfName2='R2-eth0',
                     params2={'ip': '10.0.2.1/24'})

        # connection among routers
        self.addLink(R1, R2, intfName1='R1-eth1', intfName2='R2-eth1',
                     params1={'ip': '11.0.1.1/24'}, params2={'ip': '11.0.1.2/24'})
```

With the given information in question. Addlink is a mininet api to create link between host and switch with given Information, addhost and addSwitch is a mininet api to create host and switch respectively.