BIRZEIT UNIVERSITY

Department of Electrical and Computer Engineering

ENCS3320-Computer Networks

# Project#2 due 15/1/2022

**Important: Each screenshot should include the date and time of your computer.**

**This is a group project, so you are allowed to work in groups of max 3 students**

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## Part1:

Using Wireshark, capture few DHCP and ICMP packets. Show the packets, write some comments about each picture and explain at least 3 fields of each packet.
Capture a TCP session for transferring a large file, show the sequence number of three packets and the ACK numbers, conclude the data size on two packets.

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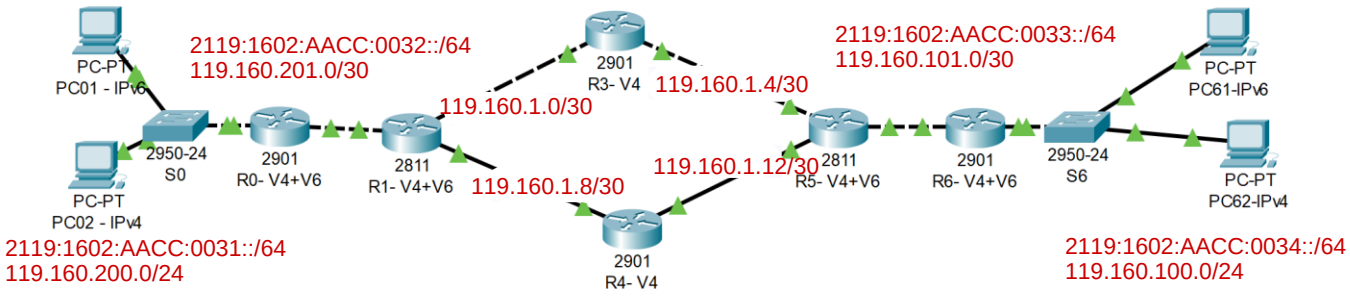
## Part2: 1191602




Tunnel:
R1 IPv6: 2119:1602:AACC:0035::/64
R5 IPv6: 2119:1602:AACC:0036::/64

Using packet tracer, implement the following network topology and implement the following:

1. Assign IP addresses to all PCs
2. Assign IP addresses to all router interfaces following the criteria below.
3. Make sure each host can ping at least one other host in the same network.
4. Implement single area OSPF routing protocol for IPv4
5. Show that IPv4 packets are correctly routed all over the network topology
6. Assign IPv6 addresses all connected interfaces on routers (R0,R1,R5 and R6)
7. Implement single area OSPF routing protocol for IPv6
8. Assume all other routers are not IPv6 capable, so, do not configure IPv6 on other router, then, implement a tunnel (IPv6 over IPv4) to allow IPv6 traffic to pass through those routers, show evidence of correct config.

9. From router R0 ping the IPv6 IP address of any interface on R6
10. Ping from PC01 to PC61
11. Ping from PC02 to PC62
12. Ping from PC01 to PC62

IP addressing criteria:

To assign IP addresses of the routers and PCs, use the IP address from your student ID as follows:

IPv4: Assume your id is 1131234,
You have the subnet 113.123.x.y, where x and y are the octets in the illustration above.
Example: In the illustration (192.168.200.0 /24) you have to change it to:
If your ID is 1181234, and your address space for the left most network will be 118.123.200.0 /24, and change all other subnets the same way.

IPv6: your number is: 1181234 and you have 2001:0DB8:AACC:0031:: /64
You have to change it to: 2118:1234:AACC:0031:: /64

* Use ping to show that the network is connected and the routing is working
* Use ping from PC to a PC in the same subnet as well as that you can reach an address in a different subnet* show that all subnets are reachable from the different subnets

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**You have to submit the packet tracer file as well as a report (doc or pdf) on moodle (itc.birzeit.edu) that contains Screenshots and with detailed explanations**

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