COMP3331 Lab6 Report
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Exercise 1:

- Q1: The IP address is 192.168.1.100
- Q2: The source IP address is 192.168.1.100 and its TCP source port number is 4335. The destination IP address is 64.233.169.104 and its TCP destination port number is 80.
- Q3: The time is 7.159897. The source IP address is 64.233.169.104 and its TCP source port number is 80. The destination IP address is 192.168.1.100 and its TCP destination port number is 4335.
- Q4: The time is 7.075657. The source IP address is 192.168.1.100 and its TCP source port is 4335. The destination IP address is 64.233.169.104 and its TCP destination port number is 80.
- Q5: The time is 7.108986. The source IP address is 64.233.169.104 and its TCP source port number is 80. The destination IP address is 192.168.1.100 and its TCP destination port number is 4335.
- Q6: The time is 6.069168.
- Q7: The source IP address is 71.192.34.104 and its TCP source port number is 4335. The destination IP address is 64.233.169.104 and its TCP destination port number is 80. Only source IP address had been changed.
- Q8: NO.
- Q9: Except checksum, others were not changed. The reason why checksum has changed is because IP checksum includes checking the value of IP source address. As the source IP address has changed, sending from WAN-side interface, the IP checksum had also changed.
- Q10: The time is 6.117570
- Q11: The source IP address is 64.233.169.104 and its TCP source port number is 80. The destination address is 71.192.34.104 and its destination port number is 4335.
- Q12: The SYN time is 6.035475. The ACK time is 6.067775.
- Q13:
  - SYN time:
    - Source IP address: 71.192.34.104. Source port number: 4335
    - Destination IP address: 64.233.169.104. Destination port number: 80
  - ACK time:
    - Source IP address: 64.233.169.104. Source port number: 80
    - Destination IP address: 71.192.34.104. Destination port number: 4335
  - Except source IP address in the SYN time and destination IP address in ACK time, others are not changed.

- Q14:

NAT Translation Table	
WAN side	LAN side
71.192.34.104, 4335	192.168.1.100, 4335

Exercise 2:
- Q1: Node 0 is sending packets to Node 5. The packets follow route 0-1-4-5, and the route does not change over time.
- Q2: At the time = 1.0, the path 1-4 has been down, but the route from 0 to 5 was not changed. Therefore, node 5 was not reachable. However, at time=1.2, the path 1-4 has resumed and now node 0 can reach node 5.
- Q3: When the path 1-4 was down at the time = 1.0, the network has found a different route 0-1-2-3-5 and by using that, node 0 can reach node 5. At time = 1.2 when the 1-4 has resumed, the route went back to the original one, since it has a lower cost.
- Q4: The desired route from node 0 to node 5 has moved to 0-1-2-3-5. This is because the new route has lower cost than the previous route(0-1-4-5).
- Q5: Now the network has two routes, and specifically node 1 will split traffic equally on the shortest paths because they have the equal cost to the node 5. By uncommenting the provided code, I reckon right now the program can allow multiple paths to reach the destination.