

ECE 448/528 – Application Software Design

HOMEWORK #2

Due date: Tuesday, February 14th 2023, 23:59 PM

1. Execute the commands `ifconfig` and `route -n` inside the course VM. Answer the following questions based on the output *(10 points)*
 - i) How many network interfaces are there and what are their names?
 - ii) List the MAC addresses of the network interfaces if there are any
 - iii) What are the IP addresses and subnet associated with each interface?
 - iv) How many rules are there in the routing table? What is the address of the default gateway?
 - v) Which rule will apply if we need to send a packet to the default gateway?
2. Consider the URL `http://127.0.0.1:8080/light?action=on`. What are the protocol, host, port, path, and query respectively? *(5 points)*
3. Research TCP and UDP header formats and explain why UDP is considered a lighter protocol than TCP in terms of packet size. *(5 points)*
4. Describe the purpose of using a Java Interface in Project 2. Provide your own answer, not from the lecture notes *(5 points)*