Program 3

Use the Kali VM and netdump files as you did in Program 1 and Program 2. You will be adding code to netdump.c.

Please note the following:

- You will add code to the function/routine `raw_print()`
  This is where you will parse the packets – it is executed every time a new packet is captured. For example, to print out the number of IP packets you would declare a global variable that increments the number of IP packets seen and prints this number in the `raw_print()` routine.
  - the packet is contained in the array `p` where `p[0]` is the first byte of the HW destination address
  - `caplen` is the length of the packet
- You will add code to the function/routine `program_ending()`
  This is where you will put your final counts – it is executed only when you stop the program.
- You do not add code to any function/routine other than `raw_print()` and `program_ending()`
- The function/routine `default_print()` prints the packet out in hex
  You can use this function to decode a packet by hand to see if your print statements are accurate.
- You may create global variables, if necessary
- You may create helper functions *within* netdump.c
- Please do not create files or make changes in files outside of netdump.c

Steps to complete:

0. Correct any mistakes or missing information from Program 2.

1. Decode and print SMTP payload using the information from your textbook. Print the payload in ASCII.

2. Decode and print POP payload using the information from your textbook. Print the payload in ASCII.

3. Decode and print IMAP payload using the information from your textbook. Print the payload in ASCII.

4. Decode and print HTTP payload using the information from your textbook. Print the payload in ASCII.

5. Add a counter to keep track of the number of SMTP, POP, IMAP, and HTTP packets seen while running the code. Print the total number of SMTP, POP, IMAP, and HTTP packets seen in `program_ending()`.

6. In a comment at the top of your netdump.c file, place your name, your netid, Spring 2020, and the date of submission.

7. Format your output. Please work on making your printouts readable by printing with newlines (\n) and indentations/tabs (\t). Some people like to put lines (i.e. -------------) between packets to separate them.

8. Resolve any warnings or errors and make sure your code compiles.
   You may ignore the 4 implicit declaration warnings mentioned for Program 2.

10. Submit netdump.c on Canvas.