

# Principles of Internetworking Protocols

Assignment One (20 marks)

(Due on March 1, 2023)

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## Instructions:

1. Submit a pdf file for your answers to i-Learning before 17:00 on March 1. Put down your name, student ID and program/year in your submission.
2. Late submission will not be accepted.
3. Observe also the penalty for plagiarism as stated in the Course Overview slides.

## Question 1: Wiresharking HTTP

[20 MARKS] Use the Brave browser for this question. First of all, clear the cache of your browser. Then visit <http://www.hkaia.org.hk/> and capture the traffic of the HTTP sessions between your browser and the web server. Answer the following questions **in English** based on your packet capture. **You must include a screenshot whenever necessary to support your answer.** Please first put down your OS (with version), the Brave browser's version and the network connection (e.g., campus WiFi, mobile, Ethernet, etc) before answering the questions below.

- (a) [2 MARKS] What is the IP address used by the web server?
- (b) [2 MARKS] What is the IP address used by your machine?
- (c) [2 MARKS] Find the first SYN segment sent to the web server and use a display filter to filter only the packets belonging to this TCP connection. Save these packets in a part-C.pcapng file using File/Export Specific Packets. Submit this file with your answers to other questions.
- (d) [2 MARKS] How many packets were captured for this TCP connection?
- (e) [2 MARKS] Why some packets were shown as TCP while others HTTP?
- (f) [2 MARKS] How many GET requests were sent out by your browser and for what purposes?
- (g) [2 MARKS] What is the size of the html file sent by the server in response to the first HTTP GET request?
- (h) [2 MARKS] How many TCP packets are used to send the image object?
- (i) [2 MARKS] What is the size of the image object sent by the server?
- (j) [2 MARKS] Use Wireshark's flow graph facility to generate a TCP flow graph for the TCP connection between the server and your browser. Include the screenshot for the first 20 TCP packets.