Due time: 11:59pm, April 1, 2023, Saturday

Total marks: 10 points

Submission Requirements:

You need to submit the homework to the blackboard via Learn@PolyU on or before the due time. Late submission will cause the marks to be deducted 25% per day.

Questions:

1) (4 points) Consider a network using 8-bit host addresses. Suppose a router uses longest prefix matching and has the following forwarding table:

Prefix Match	Interface
00	0
010	1
011	2
10	2
11	3

For each of the four interfaces, give the associated range of destination host addresses and the number of addresses in the range.

2) (1 point) Suppose datagrams are limited to 1,500 bytes (including header) between source Host A and destination Host B due to the link has an MTU of 1500 bytes. Assuming a 20-byte IP header, how many datagrams would be required to send an MP3 file that consists of 3 million bytes when using TCP? Explain how you computed your answer.

3) (5 points) Consider the network below. Please use Dijkstra's shortest-path algorithm to compute the shortest path from node *h* to all network nodes.