**Project 2: Routing Process Simulator**

Introduction to Data Communication Networks (2023 Fall)

Instructor: Prof. Kyunghan Lee

Deadline: December 7th, 2023

**Notice for Report**

You don’t need to write about code. Please write at least the required number of words to answer each question. We will check the number of words using built-in program in Microsoft Word. You don’t have to handwrite your answer. You should write the answer in **English**. We will not grade answer in Korean.

**Q1. Metric for Routing**

Distance-vector and link-state routing algorithm find shortest paths based on metrics. How can we define the metric in real-world? Based on your definition, discuss the benefits and the drawbacks. (20 points, more than 60 words)

Answer:

**Q2. Count-to-Infinity**

Type the below command in your implemented program and write the result. Using this result, explain about count-to-infinity problem in distance-vector algorithm. Discuss how to solve this problem. For this question, please do not change graph4.csv. (20 points, more than 60 words)

./route\_sim graph4.csv D

timestamp

change 1 2 1000000000

timestamp

Answer:

**Q3. Analysis of Routing Protocol**

Distance-vector routing algorithm and link-state routing algorithm is generally used Interior Gateway Protocol. Path-vector routing algorithm is generally used Exterior Gateway Protocol. Interior Gateway Protocol works within an autonomous system. Exterior Gateway Protocol operates between autonomous systems. Explain why distance-vector routing algorithm and link-state routing algorithm is difficult to use Exterior Gateway Protocol. (Hint: Packet size, memory, count-to-infinity problem, and scenario that new AS comes in could be a reason for this) (40 points, more than 200 words)

Answer: