COL733: Fundamentals of Cloud Computing
Semester II, 2021-2022

Lab-2: Analysis

Answer the following questions and upload a PDF in the Gradescope.

1. [**3 points**] For a fixed input size, measure how the rate at which messages are processed from the '*tweet*' stream varies with an increase in worker threads allocated to the application. Explain your observations.
   Note: Use a single celery worker node and vary the concurrency option for the experiment between 4 and 8.

2. [**2.5 points**] Given two streams namely *w_0* and *w_1* which store words, how does the designed solution handle load imbalance, such as *w_0* starts receiving a lot of messages whereas *w_1* is not receiving any new messages?

3. [**2 points**] Describe how your code is tolerant to celery worker failures. In other words, describe why your code is guaranteed to provide the same answer even if a worker crashes.

4. [**2.5 points**] Describe how your code can be made tolerant to network partitions between a celery worker and RabbitMQ. A network partition occurs when a celery worker is unable to talk to RabbitMQ. It may be able to talk to Redis.