Computer systems modeling and semantic web
Exam project assignment - A.A. 2023/24

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NOTICE: Each group will receive on request a custom set of the missing parameters

A newsletter dispatching systems receives two kinds of streams:

- a quick news information stream (on the average, D_{news} news per hour);
- a detailed article stream (on the average, D_{artc} articles per hours).

Each stream is processed by a text and image processing system, where quick news require an average of D_{news}, while articles need an average of D_{artc}. Feeds are then sent to three social media, namely Facebook, Twitter, and Instagram, each one using a sending queue that works in FCFS. Each feed might be sent to one or more of the considered media. In particular, each social network receives the following percentage of feeds, and requires a different average time for being processed:

Social media	news %	news time	article %	article time
Facebook	50%	8 s.	80%	10 s.
Twitter	80%	6 s.	10%	12 s.
Instagram	75%	8 s.	60%	9 s.

All service time distributions can be considered exponential, and arrivals are Poisson processes. Note that social media can be modeled by infinite server stations, since those services are generally spread over an extremely large number of servers (which is unknown to the users). The administrator would like to study the average time required to publish an article over all its media.