LINFO2241-Project
Part 2: Modelling

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Introduction

Being able to model the performance of a system is an important skill as it allow to get more insight on how the system behaves under different conditions. For example, if a server is consistently making requests wait, is it better to buy a bigger server or duplicate the existing one and split the request among the two. Such information is useful to take good decisions and it is not always possible to run experiment to discover this information. In this second part of the project, you compare the measurements you obtained in the first part with the model queuing station of your choice.

Task 3: Modelling

In this task, you have to analyze your server using a queuing station model seen in the course. To select the most appropriate model think about the properties of your experiment (arrival rate of requests, number of server threads, etc.). With those information, you should be able to assess what kind of model is the most appropriate ($M|M|1, M|M|m, M|G|1, M|G|m, ...$). Then use the model to calculate the theoretical mean response times using the same parameters as in task 2. Compare the model results (make plots!) with the measurement results and discuss the results. How well does the model work?

Some of the models seen in the course require the moments of the service time distribution. To determine them, you have to know how much time your system needs to process a single request without any queuing delay. That's relatively easily done: Just send a single request and wait for the answer before sending the next request. Obviously, the service time will depend on the difficulty of the requests.

Expected Output

The expected output is described in the first part of the project. What you must add to the report is the discussion of the modelling part. Reminder: there

is only one report and one deadline which is the **December 24**.

Evaluation Criteria for the second part

- Quality of the argumentation for choosing the queuing station
- Quality of the comparison between the measurement and the queuing station.