CS 549: Performance Analysis of Computer Networks
Lab Assignment 2

Assigned: March 21, 2024   *Due*: April 1, 2024

Submit a report in answering the questions in each part. Your answers must include the associated calculations, comparison tables, plots and inferences.

1. Design experiments to use `wget` to measure network throughput. Use a fractional factorial design. Consider the following factors: file size, download speed limit (a `wget` option), number of concurrent file downloads running (write a script that spawns the desired number of concurrent downloads), time of day. Files to be downloaded are available here:

   1B `https://cloud.iitmandi.ac.in/f/104e18c7689843d38646/?dl=1`
   1kB `https://cloud.iitmandi.ac.in/f/34f236050c354ac995dc/?dl=1`
   10kB `https://cloud.iitmandi.ac.in/f/f2136456bcf6439eaf18/?dl=1`
   100kB `https://cloud.iitmandi.ac.in/f/c3b76d27af45462db019/?dl=1`
   500kB `https://cloud.iitmandi.ac.in/f/3c2970f86ea8449c84d1/?dl=1`
   1MB `https://cloud.iitmandi.ac.in/f/dcd4883d914a44fb9850/?dl=1`
   10MB `https://cloud.iitmandi.ac.in/f/390c9e71032d4f30a6ca/?dl=1`
   100MB `https://cloud.iitmandi.ac.in/f/4b2c32ec021e4de4a710/?dl=1`
   500MB `https://cloud.iitmandi.ac.in/f/bf9f34fc8eec43ee991e/?dl=1`

   Conduct the experiments and tabulate the data. Use the ranking method and the range method to analyse the impact of the factors. Identify the two factors that have the greatest impact. Now, analyse the effects of these 2 factors using the allocation of variance technique. If needed, run a few more experiments with different levels of these 2 factors.