SA421 – Simulation Modeling Fall 2017
Assoc. Prof. Nelson Uhan

Assignment 4 – Feedback

0 How I graded your assignments

- Similar process to Assignments 1 and 3.
- See last page for rubric.
- Remember that my comments (in particular, my marks directly on your report) are not comprehensive. Consider carefully how they may apply to other parts of your writing.

1 Comments to the class

1.1 On writing

- Spell out the fitted distributions you are evaluating, before you evaluate them. Don't forget to include the relevant parameters. For example:

  > Using maximum likelihood estimation, the interarrival times best fit an exponential distribution with rate 2.5, and a gamma distribution with shape 4 and rate 3.

- Use "we" instead of "I," even if you're the sole author. (It might feel strange at first, but this is common in scientific writing.) Avoid passive voice if possible.
  - For example, do this:

    > We now discuss our analysis of the cashier service times. First, we visually inspected the data by looking at its histogram, shown below.

  - Avoid this:

    > I now consider the cashier service times. First, the data was visually inspected by looking at its histogram, shown below.

- With input data analysis, the distribution you ultimately choose to model your data is your choice. Sometimes, even with the same body of evidence, different people can come to different conclusions.
  - So, for example, do this:

    > Based on the above evidence, we chose to model the interarrival times with the gamma distribution with shape 4 and rate 3.

  - Avoid this:

    > Based on the above evidence, the best distribution for the interarrival times is the gamma distribution with shape 4 and rate 3.

- The data on baristas and cashiers given in this assignment are service times, not wait times or interarrival times.
- When describing the data, be specific: e.g. "barista service time data" instead of "barista data."

1.2 On the analysis

- Remember that the domain of normal distribution is $(-\infty, +\infty)$, and so is not suitable for data that can only take on positive values.
- The Kolmogorov-Smirnov (K-S) statistic is not a p-value. As we discussed in Lesson 6, it is the maximum distance between the empirical CDF of the data and the theoretical CDF of the fitted distribution.
- The K-S test computes a p-value based on this K-S statistic. `gofstat` does not report this p-value, instead, it only reports "reject" or "do not reject" at the 0.05 significance level.
- Some of you tried fitting the data to a lognormal distribution. There's nothing wrong with that. However, for this course, limit yourself to the distributions covered in Lesson 6: uniform, normal, exponential, and gamma. (This isn't a bad rule of thumb in general for the types of data associated with queueing systems.)

	Exemplary (10)	**Satisfactory (8)**	**Unsatisfactory (4)**	**Weight**
Organization / Focus	Paper has a clear focus and is clearly organized so that the reader knows where they are in the narrative / analysis	Organization / focus is there, but not clear to the reader	Incoherent	1
Style / Tone	Appropriate for an academic journal or professional memo	Appropriate for a student paper	Too informal, too many superlatives, too wordy, imprecise	1
Grammar / Punctuation / Spelling / Formatting	No detected errors	A few minor errors	Distracting	1
Appropriate use of technical language	All technical language is used correctly	Technical language is used correctly, for the most part	I don't think that word means what you think it means	1
Presentation of results	Results are clearly presented with any tables explained and referenced	Results are presented and described correctly, for the most part	Results are poorly presented or not presented at all	2
Interpretation of results / Conclusions	All conclusions are correct and supported by the results presented; caveats are discussed as appropriate	Key conclusions are correct and supported by the results presented	At least one key conclusion is incorrect or missing	2
R Markdown code	Runs from top to bottom without intervention		Otherwise	2
Total				100 points