COMP9334 Revision Questions for Week 6B_1 (Solution)

Question 1

Let us first compare Systems 1 and 2. The mean response time of System 1 minus mean response time of System 2, over 5 replications, are 0.86, -0.89, 0.26, -2.31, 1.83. The sample mean and sample standard deviation are, respectively, -0.05 and 1.6025. The 95% confidence interval is $-0.05 \pm t_{4,0.0975} \frac{1.6025}{\sqrt{5}} = [-2.0397, 1.9397]$. Thus we can not determine whether System 1 is better or worse than System 2. (Note: $t_{4,0.0975} = 2.7764$)

Consider the difference: mean response time of System 1 minus mean response time of System 3, we find the 95% confidence interval for this difference is $[-1.4356, 2.3716]$, thus we cannot conclude whether System 1 is better or worst than System 3.

Consider the difference: mean response time of System 2 minus mean response time of System 3, we find the 95% confidence interval for this difference is $[0.3266, 0.7094]$, thus we can conclude System 3 is better than System 2 with 95% confidence.

We can only conclude that System 3 is better than System 2 with 95% confidence. However, we cannot say with 95% confidence which system is the best out of the three.