REPORT

5.1

The AIC values generated from statistical model fit distributions match exactly when comparing serial processing to parallel processing. Both approaches yield identical values of 2987.725 for mean whereas the interquartile range becomes 94.02024. The model fitting procedure resulted in identical distributions because the GLM calculations were determined by using the exact same bootstrapped data set for two cases. Stable and consistent floating-point computations appear because minor differences caused by parallel processing do not appear in this situation. Both sample frequency distributions present equivalent patterns and limits in their visualization patterns which confirms statistical accuracy of equal distribution results.

5.2

The serial program takes more time to execute its procedure than the parallel version. The parallel execution system handles multiple CPU cores simultaneously to achieve quicker execution times than serial processing which operates on one task at a time. The code lacks execution time records but parallel processing method typically performs at a much higher speed when dealing with growing bootstrap samples or complex models. The performance advancement depends on three main characteristics including processor core capability together with parallel task management expenses and data transmission effectiveness. The preferred selection for such tasks occurs when parallel processing handles large datasets or computationally extensive models because it delivers substantial speed accelerations.