Asymptotic Analysis Project

OLS Regression: Sx(n) = a1\*n2 + b1\*nlgn + c1\*n + d1

SelectionSort:

Increasing: S1(n) = 0.0131323\*n2 + 0.001295\*nlgn - 0.00154809\*n + 0.0015.0123

Decreasing: S2(n) = 0.03790475\*n2 - 0.01241592\*nlgn + 0.01456702\*n - 0.01720632

Constant: S3(n) = 0.01328697\*n2 + 0.0000859\*nlgn + 0.0003306\*n – 3.1796

Random: S4(n) = 0.03749846\*n2 - 0.004006\*nlgn - 0.00096829\*n - 0.00357025

InsertionSort:

Increasing: S1(n) = 0\*n2 + 0\*nlgn + 0\*n + 0 = 0

Decreasing: S2(n) = 0.03972097\*n2 + 0.01248085\*nlgn - 0.02394024\*n + 0.02930586

Constant: S3(n) = 0\*n2 + 0\*nlgn + 0\*n + 0 = 0

Random: S4(n) = 0.02863465\*n2 - 0.06277153\*nlgn + 0.07861072\*n - 0.09350338

MergeSort:

Increasing: S1(n) = -0.00005754\*n2 + 0.00068892\*nlgn - 0.00101525\*n + 0.00116642

Decreasing: S2(n) = -0.00005754\*n2 + 0.00068892\*nlgn - 0.00101525\*n + 0.00116642

Constant: S3(n) = -0.00005754\*n2 + 0.00068892\*nlgn - 0.00101525\*n + 0.00116642

Random: S4(n) = 0.00002985\*n2 - 0.00024704\*nlgn + 0.00053903\*n - 0.00069218

QuickSort:

Increasing: S1(n) = 0\*n2 + 0\*nlgn + 0\*n + 0 = 0

Decreasing: S2(n) = 0.00240223\*n2 - 0.00025802\*nlgn + 0.00043518\*n - 0.00094516

Constant: S3(n) = 0.00933230\*n2 + 0.00144575\*nlgn - 0.00171635\*n + 0.00158771

Random: S4(n) = 0.00009899\*n2 - 0.00083048\*nlgn + 0.00124904\*n - 0.00150312