Vinh Pham

Exercise 4:

Input:

4
0.0001 -5.0300 5.8090 7.8320
2.2660   1.9950 1.2120 8.0080
8.8500   5.6810 4.5520 1.3020
6.7750 -2.2530 2.9080 3.9700
9.5740   7.2190 5.7300 6.2910

Output for Naïve Gaussian Algorithm

0.21602476699023 -0.00791510608732474 0.635243326488567 0.746174276089373

Output for Gaussian Algorithm with Scaled Partial Partition

0.216024767008412 -0.00791510608777801 0.635243326493105 0.746174276085716

Naïve Gaussian Algorithm vs Gaussian Algorithm with Scaled Partial Partition

After comparing the two outputs I can determine that Gaussian Algorithm with Scaled Partial Partition slightly reduces the floating-point round-off error. While the Naïve Gaussian Algorithm loses some precision, for example, in the Naïve Gaussian Algorithm it returns 0.21602476699023, with 14 precision places while, the scaled partial partition returns with 0.216024767008412, with 15 precision places instead. We can see that in all the numbers returned that scaled partial partitioning returns with a slight edge on precision. Although the arithmetic is the same the precision returned is different.