* Experiences programming in C, Fortran, Ada, Python
* Also include benefits and disadvantages of each language
* Compare test results for any difference in accuracy (table form)

Python:

Easy, I have used python for 5 years and I’m very used to how it works. I translated the algorithm into python first so that I can refer to it for the other languages. Only thing that I had to consider is all python arrays start at 0, so I had to slightly modify the algorithm to begin at 0 (for example, coef starts from 2 to m, I had to make it start at 0)

C:

I next did this in C. It was pretty similar to Python, except I had to manually allocate space for the array of digits. Pyhton does that automatically, but not in C. This just meant that I had to free that information before my program quit. I followed how my python code worked and translated it into C.

Fortran:

Next, I moved onto fortran. I used my C code to be my point of reference how since it is lower level. I ended up manually allocating memory in fortran because it provided me with more flexibility for asking how many digits to calculate for e. Since the user wanted that information, I had to allocate the size of that array on runtime. Like C, this just meant I had to free up the memory when I was done. The basic format was the same as C.

Ada:

Finally, I wrote the ada program. Because of the way ada is formatted, I had more trouble using it than the other languages. I took my function from the 2nd assignment for checking if a file exists, since I needed that functionality here for writing the result to a file. The algorithm for calculating the number is the same as the other programs. However, a big difference is in ada I had trouble figuring out how to declare an array of an unknown size at runtime. I figured it out eventually by making another declare statement with the coef inside the ecalculation function, then another begin statement to use that new coef variable. It sort of went outside the box of how an ada function is formatted, with all variables beginning at the top of the function. By doing this however, I was able to declare an array of unknown size at runtime, allowing me to complete the algorithm. Writing to the file was pretty easy since I already did that functionality in A2.