CIS 403: Problem Set 2

Directions for Submission

E-mail your answers to me at ajp9@cornell.edu. The subject of your message should be “CIS403 PS2,” and the body of the message should contain your answers.

Essential Knowledge–Please give a brief answer (1-2 sentences) for each

1. Describe a subtle bug that a C compiler would catch, but a FORTRAN compiler would miss.

2. Your lab comparing FORTRAN and C was designed to paint FORTRAN in an unfavorable light. Describe some advantages of poor, old FORTRAN.

3. Here are a couple of lines from a Makefile:

   f1.o:f1.c f1.h f2.h
   $(CC) $(CFLAGS) -w f1.c

   Describe what would happen if you change f1.c and type make? What if you change f3.h?

4. You’ve been given a program with the following statement:

   ...
   val[j]=input[right]-input[left];
   ...

   where val and input are both length m arrays (m>0). The code compiles, but when you run the program, it crashes. The code fragment is embedded in a complicated while loop that does a lot of funny things to the value of j, left, and right. You suspect that there is a bug that causes the value of left and/or right to be < 0 or ≥m. Describe how you would test your hypothesis using either gdb or checkpointing.