

Introduction to Programming: FORTRAN Short Course
August 25, 2009
Homework Assignment 1

1. You might need to talk to other group members or your group computer person for help to start out.
 - a. Create a directory for code related to this class, using the command-line functions.
 - b. Find your Fortran compiler, and make sure it is accessible from this directory.
 - c. Find your favorite text editor, and set it up to color and format code in Fortran mode.

2. Write a new program called ClimateModel1Layer.f90 that adds one layer of atmosphere to your model. The atmosphere should be transparent to shortwave radiation, and 100% absorptive of longwave.
 - a. Solve for both the temperature of the atmospheric layer and the temperature of the surface.
 - b. Print out both temperatures in Kelvin and Celsius.

2. Write a new program called MyMathSandbox.f90 that demonstrates the following functions which are built-in to Fortran (r is a real number):
 - a. $\sin(r)$, $\cos(r)$, $\tan(r)$
 - b. $\exp(r)$, $\log(r)$, $\log_{10}(r)$, \sqrt{r}
 - c. $\text{ceiling}(r)$, $\text{floor}(r)$
 - d. $\text{mod}(r_1, r_2)$, $\text{sign}(r_1, r_2)$