

Meteorology 227 – Homework #10

Due: 11/17/2023

Using your program or my example from class, re-write your FORTRAN growing degree day program in Python.

Assignment: Growing degree days (GDD) are often used as an expression of crop maturity. Write a program to calculate the number of growing degree days (GDD) accumulated on a given day. The program will ask the user to input the daily maximum and minimum temperature. When all calculations are finished, the program will output the original data entered by the user, the daily average temperature (calculated from the original data), and the accumulated number of growing degree days.

To test your program, use the three sets of test data below.

Maximum Temperature (°F)	Minimum Temperature (°F)
82	60
92	68
55	42

Hand in your assignment by emailing your program as an attachment to mteor227@iastate.edu on the due date.

Background: Growing degree day (GDD) calculations frequently use a base temperature of 50 °F and the following equation:

$$\text{GDD} = \text{average_temperature} - \text{base_temperature},$$

where $\text{average_temperature} = (\text{daily_max_temp} + \text{daily_min_temp})/2$.

Cautions: A few points to be aware of. The growing degree day calculation will be explained in class, but be sure to note the following. If the high temperature is above 86 °F, then a high temperature of 86 °F is used in the growing degree calculation. If the low temperature is below 50 °F, then a low temperature of 50 °F is used in the growing degree day calculation. In addition, there is no such thing as a negative growing degree day. If your number of growing degree days is less than zero, then no accumulation occurs (Growing degree days = 0). Your program will be thoroughly tested on these points during grading.