Fortran and Python Exercise 5

Convert your BMI program into a module.

Fortran: you may remove the routines that ask for interactive user input.
Python: enclose any routines for interactive user input into a main function.

Download the file bodyfat.csv
Examine the header so you know what each field represents.

Write a program that
1. imports/uses your module
2. reads the name of the input file from the command line (see examples for how to do this)
3. reads the input file into appropriate arrays (use one-dimensional arrays for this project)
4. pass appropriate arrays to a subroutine that computes an array of BMI data based on height and weight and returns the array
5. Fortran: write a file that appends the BMI to the original data (you may use a different file name). Use Excel or whatever to plot BMI as a function of percentage body fat. Python: use Matplotlib to plot BMI versus percentage body fat. Be sure to plot it as a *scatter plot* (points only, no connecting lines).

Print a crude histogram of BMI values. To do this, divide the data into an appropriate number of bins as defined by your table from Homework 4, obtain the count for each bin, and print out a line of asterisks representing the number of BMIs in each bin. Python: you must do this manually, you may not use any builtins from any module or package. It should look something like this (I have not computed the results, this just sketches the general appearance of the output)

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