Submit all code for this assignment as one .m file. Follow all course guidelines for submitting the homework.

<u>**Question 1 (5 points)**</u>
Go to the assignment HW13 – MATLAB Grader and complete the assignment that is linked there.

<u>**Problem 2 (15 points)**</u>
One of the statistics kept in the game of American football is sacks. A sack is when a player who is attempting to throw the ball is tackled behind the place where the ball was at the beginning of the play. The names of the twenty players in the National Football League with the most sacks in their careers, along with their number of sacks and number of games played are in the file `HW13_SackLeaders.txt`. The file is organized with one row of column headers followed by 20 rows of data. The first two columns are the player's last and first names, respectively. The third column is the number of sacks, and the fourth column is the number of games played. Since sometimes two players make a sack together and the statisticians give them each credit for half of a sack, the number of sacks is a floating point number. Games played are recorded as integers.

Write MATLAB code that does the following:
- Use `fscanf` and related commands to get the data from the file. You will not need to use the text data to perform the tasks below, so you may choose whether to store them or not.
- In one line of code, create a new vector with the number of sacks per game for each player.
- Use the vector of sacks per game as input for a user-written function that will sort the vector from most sacks per game to least and return the sorted vector. The user-written function should contain no built-in functions. Do not suppress the output from the function call.
- Prompt the user to enter the number of sacks and number of games played for a favorite player, then calculate their number of sacks per game and determine where they would rank on the list.
- Create an output file named `HW13_answer.txt` that has the number of sacks, number of games, and sacks per game of the favorite player, along with some descriptive text.

(Note: all numbers in the file are current as of 11/20/23.)