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DEPARTMENT OF COMPUTER ENGINEERING

PRACTICE EXERCISE-I

1. When analyzing data collected as part of a science experiment it may be desirable to remove the most extreme values before performing other calculations. Write a function that takes a list of values and a non-negative integer, *n*, as its parameters. The function should create a new copy of the list with the *n* largest elements and the *n* smallest elements removed. Then it should return the new copy of the list as the function's only result. The order of the elements in the returned list does not have to match the order of the elements in the original list.

Write a main program that demonstrates your function. Your function should read a list of numbers from the user and remove the two largest and two smallest values from it. Display the list with the outliers removed, followed by the original list. Your program should generate an appropriate error message if the user enters less than 4 values.

2. In this exercise you will create a program that identifies all of the words in a string entered by the user. Begin by writing a function that takes a string of text as its only parameter. Your function should return a list of the words in the string with the punctuation marks at the edges of the words removed. The punctuation marks that you must remove include commas, periods, question marks, hyphens, apostrophes, exclamation points, colons, and semicolons. Do not remove punctuation marks that appear in the middle of a words, such as the apostrophes used to form a contraction. For example, if your function is provided with the string "Examples of contractions include: don't, isn't, and wouldn't." then your function should return the list ["Examples", "of", "contractions", "include", "don't", "isn't", "and", "wouldn't"].

Write a main program that demonstrates your function. It should read a string from the user and display all of the words in the string with the punctuation marks removed. You will need to import your solution to this exercise when completing Exercise 158. As a result, you should ensure that your main program only runs when your file has not been imported into another program.

3. Pig Latin is a language constructed by transforming English words. While the origins of the language are unknown, it is mentioned in at least two documents

from the nineteenth century, suggesting that it has existed for more than 100 years. The following rules are used to translate English into Pig Latin:

If the word begins with a consonant (including y), then all letters at the beginning of the word, up to the first vowel (excluding y), are removed and then added to the end of the word, followed by ay. For example, computer becomes omputercay and think becomes inkthay.

If the word begins with a vowel (not including y), then way is added to the end of the word. For example, algorithm becomes algorithmway and office becomes officeway.

Write a program that reads a line of text from the user. Then your program should translate the line into Pig Latin and display the result. You may assume that the string entered by the user only contains lowercase letters and spaces.