CO1107 Algorithm, Data Structure & Advanced Programming - Workshop Week 2

Task 1:

Write a Python program that asks the user for the name of a file containing information about the distance of a vendor from Leicester and the cost of an item at that vendor. Each line in the file consists of a distance (as an integer) and an item price (as a float) separated by a comma. For example: the file Tiny.txt contains

120,150.12
140,180.1
70,250.02
99,398.72
144,205.42

Your program should create a list of distance/cost pairs based on the file contents. It should print the list, so that you can check that your program works correctly.

Enter a file name: Tiny.txt

[[120, 150.12], [140, 180.1], [70, 250.02], [99, 398.72], [144, 205.42]]

Improve the readability of the output by writing a function printList so that output will be as follow:

Enter a file name: Tiny.txt

120 Miles, £ 150.12
140 Miles, £ 180.1
70 Miles, £ 250.02
99 Miles, £ 398.72
144 Miles, £ 205.42

Task 2:

Write a function **selectionSortDistance** that takes as input a list of distance/cost pairs and sorts the list in increasing order of distance using Selection Sort. Use this function to modify your program from **Task 1**, so that the list is printed in increasing order of distance.

Sample output:

Enter a file name: Tiny.txt

70 Miles, £ 250.02

99 Miles, £ 398.72
120 Miles, £ 150.12
140 Miles, £ 180.1
144 Miles, £ 205.42

Task 3:

Modify your program in **Task 2** by adding a function **selectionSortPrice**, so sorts the list in increasing order of Price using Selection Sort

Sample output:

Enter a file name: Tiny.txt
120 Miles, £ 150.12
140 Miles, £ 180.1
144 Miles, £ 205.42
70 Miles, £ 250.02
99 Miles, £ 398.72