

The Challenge from Leeds

The challenge comes in two parts.

1. A group of students are making a long train journey to London for a programming competition. On the way, one student remarks that it is reasonably well known¹ that only one London tube station² shares no common letters with the word "mackerel". The other students are challenged to work out which one this is.

The obvious approach would be to study a tube map for a while until the station was spotted. The better approach is obviously to download a text file containing all the names of the tube stations, and to write a program that uses the information in the file to determine which station this is. Write such a program.

2. Having enjoyed the first challenge (and keeping the piscine theme), another student observes that an anagram of one particular tube station's name is:

"Sardine tins? We'll get one!"

Write a program that uses the provided list to find out which station this is.

The anagram uses the name of the station together with the word "station" itself, so "Holloway Road" should be treated as "Holloway Road Station", for example. Ignore capitalisation, punctuation and white space in both the station name and the anagram.

For example, if the phrase was:

"Hold on at railways too!"

The correct answer would be "Holloway Road".

We provide you with a handy text file containing the names and post codes of all³ the London tube stations⁴. The file is called `tube-postcodes.txt`. Each line in the file contains the name of a tube station and its post code, separated by a comma. We promise that all the lines in the file follow this format, and that no tube stations have a comma in their name.

Solutions could be one program or two, as you prefer. The programs will be tested with a file in the format described above; the name of the file could be a command-line argument or entered at a prompt, again as you prefer.

1 This fact is on Wikipedia, so it must be true.

2 We are assuming here that Hoxton on the East London line has not yet opened.

3 Actually, Acton Town is missing. We don't know why, and this doesn't make any difference.

4 We are grateful to <http://usefulthings.org.uk/index.php/archives/london-tube-station-postcodes/> for the file.