Assignment 11: Anagrams

Anagrams

Two words are **anagrams** if they contain precisely the same letters (with repetition). That is, the words are
can be rearranged to form the other. For example, the words `silent` and `listen` are anagrams.

Your Task

For this assignment, you will write a program, `Anagrams.java`, that reads the words from a given text file a
among the words in the file. For example, if the file contains the text: `Listen, the cat act was silent.`
`post.`, your program should print:

```
1    Found anagrams:
2    - cat act
3    - listen silent
4    - stop spot post
```

Your program must also report (1) the largest set of words that are all anagrams of each other, and (2) the
the anagrams. For example, here is the sample output generated my my solution on the text file `words-sh`

```
1    Found anagrams:
2    -  meat team
3    -  mean name
4    -  expect except
5    -  cloud could
6    -  how who
7    -  seat east
8    -  no on
9    -  sign sing
10   -  earth heart
11   -  salt last
12   -  horse shore
13   -  night thing
14   -  read dear
15   -  deal lead
16   -  these sheet
17   -  there three
18   -  note tone
19   -  stream master
20   -  form from
21   -  act cat
22   -  add dad
23   -  broad board
```

```
1    javac Anagrams.java
2    java Anagrams words-short.txt
```

Suggestions & Resources

You may use any data structures that you wish to find anagrams. For efficiency's sake, you might consider
structures. Below are links to some that might be useful to you. Note that these are links to *interfaces*, but
documentation for various classes implementing the interface.

- [List](#)
- [Map](#)
- [Set](#)

Additionally, you might find some functionality in the `Arrays` class useful. For example, the class offers (st
sorting arrays:

- [Arrays](#)

Note that since the methods are static, you can invoke them by calling, for example, `Arrays.hashCode(so`
`String` documentation helpful:

- [String](#)

Code

Here are some file to get you started, as well as several texts to test your program on:

- [Anagrams.java](#)
- [RunTimer.java](#) - [WordReader.java](#)
- [words-short.txt](#)
- [words-long.txt](#)
- [words-all.txt](#)

Or download everything as [hw11-anagrams.zip](#)

What to Submit

Submit your `Anagrams.java` as well as any other files needed to run your program.

Evaluation

Your submission will receive a score out of 10 points, broken down as follows:

- 10 points for `Anagrams.java`:
    - 5 points program compiles, runs, and produces the expected output
    - 3 code is well-organized and commented