Assignment A2 - Synonyms

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A word may have a number of synonyms. The word and its synonyms can be specified on a line — a synonym line. The word *beautiful* and its synonyms can be specified as the following:

beautiful | lovely, pretty, pleasing, graceful, appealing, charming

In a synonym line there is at least one synonym.

Several synonym lines can be combined and form synonym data. That can be done in the following way:

merciful | gracious, kindly, compassionate, forgiving, charitable

powerful | mighty, vigorous, forceful, energetic

beautiful | lovely, pretty, pleasing, graceful, appealing, charming

clever | wise, knowing, capable, smart, sharp, intelligent

Synonym data can be managed in several ways. It is possible to select a synonym line, and to add and remove synonym lines. Individual synonyms can be added or removed. Synonym data can be sorted: both synonym lines and the synonyms inside the lines are to be sorted.

Files

The file `SynonymData1.txt` contains synonym data.

The file `SynonymHandler.java` contains the class `SynonymHandler`. This class has a number of static methods which manages synonym data in different ways. The file `RemoveSynonymAlgorithm.txt` contains an algorithm which is to be used in a method in class `SynonymHandler`.

The file `SynonymUser.java` contains the class `SynonymUser`, which has the

method `main`. In this method, synonym data from the file `SynonymData1.txt` are read and managed in various ways. Modified synonym data are saved to the file `SynonymData2.txt`. To manage the synonym data the methods in class `SynonymHandler` are used.

The file `SynonymDataHandling.txt` contains the printout which is sent to the standard output device when the program `SynonymUser` is executed.

During the development of class `SynonymHandler` the file `SynonymData3.txt` should be used instead of `SynonymData1.txt`. The file `SynonymDataRepresentation.pdf` illustrates how synonym data is represented in the program.

Assignment

Complete the class `SynonymHandler` so that its methods perform the work as intended. Upon completion the program `SynonymUser` should be possible to run, and should on execution create the printout given in the file `SynonymDataHandling.txt`.

Study the code that already exists. Class `SynonymHandler` must not use classes from package `java.util`, nor the method `contains` from class `java.lang.String`.

The student shall be able to explain the different operations by referring to the figures in file `SynonymDataRepresentation.pdf`. Custom figures may support the explanations.

Comment

The given programs are not to be altered, only extended. Write your code in the places marked `add code here`.

Some methods in class `SynonymHandler` are declared as `private` and are therefore not possible to call from another class. To be able to test these methods during development, temporarily declare the methods as `public`. Also test various exceptional situations during development.

The file `HandleStrings.java` illustrates the handling of character strings, and shall be studied first.