import java.io.\*;

import java.util.ArrayList;

import java.util.HashMap;

import java.util.List;

public class wordsInFiles {

private HashMap<String, ArrayList<String>> wordInFilesMap;

public wordsInFiles() {

wordInFilesMap = new HashMap<String, ArrayList<String>>();

}

private void addWordsFromFile(File file) {

FileResource fileResource = new FileResource(file);

String fileName = file.getName();

for (String word : fileResource.words()) {

if (!wordInFilesMap.containsKey(word)) {

ArrayList<String> newList = new ArrayList<String>();

newList.add(fileName);

wordInFilesMap.put(word, newList);

} else if (wordInFilesMap.containsKey(word)

&& !wordInFilesMap.get(word).contains(fileName)) {

ArrayList<String> currentList = wordInFilesMap.get(word);

currentList.add(fileName);

wordInFilesMap.put(word, currentList);

}

}

}

private void buildWordFileMap() {

wordInFilesMap.clear();

DirectoryResource dirResource = new DirectoryResource();

for (File file : dirResource.selectedFiles()) {

addWordsFromFile(file);

}

}

private int maxNumber() {

//returns the maximum number of files any word appears in, considering

// all words from a group of files.

int highest = 0;

for (String word : wordInFilesMap.keySet()) {

ArrayList<String> currentFileList = wordInFilesMap.get(word);

int currentNum = currentFileList.size();

if (currentNum > highest) {

highest = currentNum;

}

}

return highest;

}

private ArrayList<String> wordsInNumFiles(int number) {

//returns an ArrayList of words that appear in exactly number files

ArrayList<String> wordList = new ArrayList<String>();

for (String word : wordInFilesMap.keySet()) {

ArrayList<String> currentList = wordInFilesMap.get(word);

int currentFileCount = currentList.size();

if (currentFileCount == number) {

wordList.add(word);

}

}

return wordList;

}

private void printFilesIn(String word) {

//prints the names of the files this word appears in, one filename per line

System.out.println("The files contain "+word+" are(is): \t");

ArrayList<String> fileNames = wordInFilesMap.get(word);

for (int index = 0; index < fileNames.size(); index++) {

System.out.println(fileNames.get(index));

}

}

private int countWords() {

int count = 0;

for (String word : wordInFilesMap.keySet()) {

List<String> currentList = wordInFilesMap.get(word);

count += currentList.size();

}

return count;

}

public void tester() {

//call buildWordFileMap to select files and build HashMap of words

buildWordFileMap();

int max = maxNumber();

ArrayList<String> list = wordsInNumFiles(max);

System.out.println("The greatest number of files a word appears in is "+max+", and there are "+list.size()+ " such words: ");

for (int k = 0; k < list.size(); k++) {

System.out.println(list.get(k)+" ");

}

System.out.println("\t");

for (int k = 0; k < list.size(); k++) {

printFilesIn(list.get(k));

}

// ++ Calc count of files in all files

int countAllWordsInAllFiles = countWords();

System.out.println("\nCount of all words that appear in all files: " + countAllWordsInAllFiles);

// -- Calc count of files in all files

}

public static void main(String[] args) {

new wordsInFiles().tester();

}

}