Exercise 4

- Find all the Armstrong numbers which are *less than 1000* and print out the results by descending order.
- Armstrong number is a number that in a given base is the sum of its own digits to the power of the number of digits.

Eg: 153 is an Armstrong numbers that

$$153 = 1^3 + 5^3 + 3^3$$

Exercise 5

- Common word frequency: for the two articles of this exercise, count the total frequency of each common word that appear in both articles and print them in alphabetical order and store the result to a file result.txt.

  E.g., "a" appears in Paragraph 1 2 times and Paragraph 2 3 times, the output should be "a 5".

  Hint: first put two paragraphs in two txt files, then use data structure map to store the word and frequency.

  Java Map tutorial is here:
  http://docs.oracle.com/javase/7/docs/api/java/util/Map.html

Exercise 5: Paragraph1

Carbon labels have yet to become as widely recognized by consumers as other eco-labels, however. A survey carried out in 2010 by Which?, a British consumer group, found that just a fifth of British shoppers recognized the carbon footprint label, compared with recognition rates of 82% for Fairtrade and 54% for organic labelling. This is understandable, because carbon labelling is a much more recent development—organic labelling dates back to the 1970s, and Fairtrade to the late 1980s—and the right ways to do it are still being worked out. Adding a carbon label to a product is a complex and often costly process that involves tracing its ingredients back up their respective supply chains and through their manufacturing processes, to work out their associated emissions. According to 3M, an American industrial giant that makes over 55,000 different products, this can cost $30,000 for a single product. To further confuse matters, different carbon foot printing and labelling standards have emerged in different countries, preventing direct comparisons between the various types of label.

Exercise 5: Paragraph 2

The value of carbon foot printing and labelling lies in identifying these sorts of savings, rather than informing consumers or making companies look green. According to a report issued in 2009 by the Tyndall Centre for Climate Change Research at the University of Manchester, in England, “the main benefits of carbon labelling are likely to be incurred not via communication of emissions values to consumers, but upstream via manufacturers looking for additional ways to reduce emissions.” It is not so much the label itself that matters, in other words, but the process that must be gone through to create it. Walkers has reduced the footprint of its crisps by 7% since the introduction of its first carbon labels. Indeed, to use the Carbon Trust’s label, companies must do more than just measure the footprint of a product: they must commit themselves to reducing it.