Estonian Exports

For this assignment, we will analyze some statistics about Estonian Exports. From the technical point of view, you will apply your knowledge on file management and basic python data structures (lists, dictionaries, etc.).

As part of the files provided for this assignment, you will find the statistics of Estonian Exports for years 2011 and 2012. Such information comes, respectively, from the following web pages

http://atlas.media.mit.edu/explore/tree_map/hs/export/est/all/show/2011/
http://atlas.media.mit.edu/explore/tree_map/hs/export/est/all/show/2012/

The information is provided in text files according to the "comma separated values" file format (or CSV file). CSV is a very common format that can be open with software such as EXCEL. As the name indicates, the information is given as a series of rows, with values that are separated by commas. Usually, the first line in a CSV file provides the names for each column. To illustrate this, let us consider the excerpt of the file `EstonianExports2011.csv` :

```
#,HS,Name,Value (USD),Percent
1,2710,Refined Petroleum,"$2,268,911,208.49",13.08%
2,8517,Telephones,"$1,980,592,103.12",11.42%
3,8429,Large Construction Vehicles,"$295,176,015.81",1.70%
```

You should interpret the above as follows. We have a total of 5 columns. The first column is a sequential number identifying the row. The second one is a key value, called HS (I couldn't find its meaning and we will not pay attention to this value). The third column corresponds to the name of the product that is exported. The forth column indicates the overall export value for a given product. We will assume that the rows are ordered with respect to the forth column and, therefore, the first column corresponds to a kind of ranking of the product with repect to the export value. The last column indicates the percentage of the total Estonian exports on a given year associated a product.

Having say that, we can easily see that, for the year 2011, `13.03%` of the Estonian exports are associated with `Refined Petroleum` products with a value of `$2,268,911,208.49` US dollars.

The goal of this assignment is to produce a bar diagram contrasting export value of the 10-top products in 2012 with their corresponding export value in 2011. For convenience, we will decompose the problem in a series of tasks, as described in the following.

1. Selecting the 10-top products among Estonian exports in 2012

Write a function that opens the file `EstonianExports2012.csv` and returns a map for the 10-top products among the Estonian exports. The map should associate the name of the product with: its rank (i.e. column `#` in the CSV file), and its corresponding value in USD.

For convenience, you should covert the string `'$2,268,911,208.49'` into a float value. HINT: Consider using the method `string.replace` to this end (see http://www.tutorialspoint.com/python/string_replace.htm).

2. Crossing the information for exports in 2012 and 2011

Write a function that opens the file `EstonianExports2011.csv` , receives the map containing the 10-top products for 2012, and returns another map with the export values for the same products in 2011.

3. Producing the bar chart

For the last step of this assignment, we will use a python library called `matplotlib.pyplot` . To illustrate its use, we have included a sample program (i.e. file `example.py`). You should adapt the code provided there and use it for producing a bar chart for the information gathered in the previous steps:

1. The 10-top products in 2012 should be rendered as bars in red

2. The export values for the same products, but now in 2011, should be rendered as bars in blue to the left of the bars corresponding to the year 2012.