

1. About once every two weeks, SWORD asks its patients how much they would recommend its therapy to someone they know on a scale from 0 to 10. Assume you have a table called *Scores* having a json string containing (among other things) the satisfaction scores of SWORD's patients along with the corresponding date, as follows:

<i>id</i>	<i>patient_id</i>	<i>scores</i>	<i>date</i>
1	1323	{ <i>'satisfaction'</i> : 9, <i>'pain'</i> : 2, <i>'fatigue'</i> : 2}	2020-06-25
2	9032	{ <i>'satisfaction'</i> : 2, <i>'pain'</i> : 7, <i>'fatigue'</i> : 5}	2020-06-30
3	2331	{ <i>'satisfaction'</i> : 7, <i>'pain'</i> : 1, <i>'fatigue'</i> : 1}	2020-07-05
4	2303	{ <i>'satisfaction'</i> : 8, <i>'pain'</i> : 9, <i>'fatigue'</i> : 0}	2020-07-12
5	1323	{ <i>'satisfaction'</i> : 10, <i>'pain'</i> : 0, <i>'fatigue'</i> : 0}	2020-07-09
6	2331	{ <i>'satisfaction'</i> : 8, <i>'pain'</i> : 9, <i>'fatigue'</i> : 5}	2020-07-20

One of our most important metrics is the NPS which is calculated with the following formula:

$$\frac{\text{number of promoters} - \text{number of detractors}}{\text{number of patients}}$$

Patients are classified in the following groups according to **their most recent** satisfaction report:

- > 8 is a promoter
- < 7 is a detractor

Write a SQL query to calculate SWORD's Digital Therapist NPS for each month. E.g.:

<i>month</i>	<i>NPS</i>
<i>January</i>	50
<i>February</i>	45
<i>March</i>	53
...	...

2. Write a python program that takes as input the name of a txt file and creates another file having the number of occurrences of each word in the original file in descending order. E.g.:

*the 563*  
*of 431*  
to 320  
it 210  
*that 109*  
...

Your program should distribute the computation by having 10 worker threads simultaneously building the resulting list.