Algorithmics

Bactracking

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Brief description of the solution.

The problem consists on creating a given number of random passwords. The process basically creates a password by appending random characters (first letters and then non letters) and checking if the current string is a solution. This does not mean that a password created by appending one character is a valid password, only that it does fulfill the conditions so far.

If it is not a solution, it does backtrack, deleting the lest appended letter that caused the password not to be a solution and another one is randomly selected and inserted while the password is not a solution.

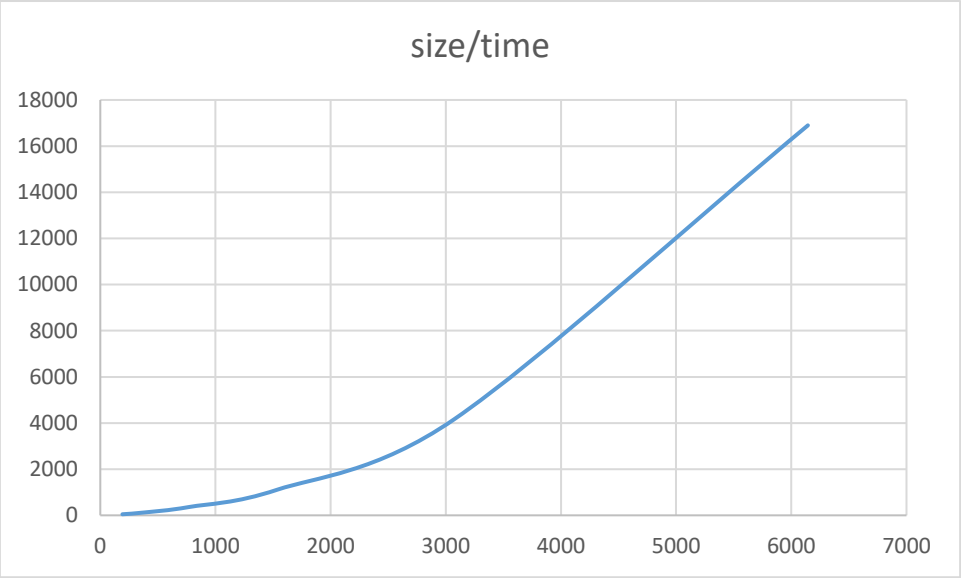
For the letters' part of the password, it has to fulfill that neither three vowels or three consonants can be consecutive.

Fort the vowels the condition is that they are not equal and for the consonants that if there are two consecutive, this pair must be on a text file containing the allowed pairs.

For the non letters part of the password it just inserts random characters as there are no restrictions until the number of total characters is reached.

This is the data obtained, by generating each time 1000 passwords of size n characters.

size	time
192	47
384	125
768	359
1536	1110
3072	4161
6144	16898


size/time
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
7000