**Strong password checker**

Approach:

* There are 5 situations in which a modification of the password is required: inappropriate length (less than 6 or more than 20), the absence of an uppercase character, a lowercase character, or a digit, or repeating the same character 3 times in a row. To minimize the number of changes, for every sequence of 3 repeating characters, I would “replace” (the actual replace does not take place; I will just count that as a change that needs to be done) the latter with a character that need to be present in a password.
* In the case of short passwords (less than 6 characters), I can directly know how many changes are required. There needs to be added a character of every missing required type of character, and if the password will still be too short, I need to add until the password has 6 characters.
* In the case of medium passwords (between 6 and 20) every 3rd character in a sequence of repeating chars will be replace with a missing required type of char.
* For long passwords, this will be the approach to minimize the number of changes:
  1. Replace the third character in a sequence of repeating chars with a missing required char (uppercase, lowercase or digit)
  2. Delete (there would be no actual deleting) the third character in the remaining sequences of repeating chars, until the password has 20 characters (a) ( or until there are no more sequences (b) )
     1. If there are still sequences of repeating chars -> replace the third character of each sequence with a different random char
     2. If the password still has more than 20 chars -> delete characters until the password has 20 chars

Tests:

* short password  
    
  Input: “????”  
  Output: 3  
  Changes required: “??1??aA” (added characters)
* medium password  
    
  Input: “Abccc1222e”  
  Output: 2  
  Changes required: “Abcc7122Pe” (modified characters)
* long password  
    
  Input: “??????????????????????”  
  Output: 8

Changes required: “??1??a??A**??**??a??a??a??” (**deleted characters**)

=> “??1??a??A??a??a??a??”