Q4 (optional): Mystery Patches DNA

Your job is to generate 1 row of 4 DNA TextGrid patches. In the first patch, replace all A's with a '?.' In the second patch, replace all T's with a '?'. In the third patch, replace all C's with a '?'. Finally, in the fourth patch, replace all G's with a '?'. Print the resulting grid.

Here is an example. Let's take the following TextGrid (which corresponds to the patch patches/patch1.txt in your workspace):  
**GA**  
**TC**  
  
After running your program on on the TextGrid, your program should print:

**G?GAGA?A**  
**TC?CT?TC**

Mystery Patches DNA Code

We strongly recommend implementing a function called edit\_patch(to\_change) This function will take in a letter called to\_change , which represents the letter in the patch that should be marked with '?'. edit\_patch(to\_change) reads in a TextGrid from a file and changes every instance of the to\_change letter to '?'.

Here is an example run of the function edit\_patch(to\_change). Let's take the following text grid:  
**GA**  
**TC**  
  
After running edit\_patch('A')on the TextGrid, this will be the result:  
**G?**  
**TC**

After running edit\_patch('G')on the TextGrid, this will be the result:  
**?A**  
**TC**

You are also welcome to implement any helper functions that you might find useful. In the main function, you will read in a TextGrid from a file and generate the 4 patches pieced together in one row.

Type python mystery\_patches.py to run your program. We've provided you three patches: patch1.txt, patch2.txt, and patch3.txt, all of which you can test your code on by changing the value of the constant PATCH\_NAME to the name of the file you'd like to run the program on (e.g. PATCH\_NAME = 'patch3.txt' ).