Consider the noisy typewriter channel, mapping

\[ \mathcal{A}_Z = \{A, B, C, \ldots, Y, Z, -\} \]

with \(|\mathcal{A}_Z| = 27\), into \(\mathcal{A}_Y = \mathcal{A}_Z\), where each letter is mapped with equal probabilities into the preceding, the following or the same letter (p. 41-44 of the notes). Design an efficient code by which to reliably send symbols from \(\mathcal{A}_X = \mathcal{A}_Z\) through the channel (i.e., you should be able to send and retrieve a text using the 27 symbols with no error). Write a program implementing the channel and the code, and test it.