Bicryption

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- This is a multi-pass problem!
- Anna and Ben each have a lowercase word w of length $\leq 10^5$.
- Each independently encrypts their input by outputting two lowercase words x and y of the same length as w, such that for each position i, w_i, x_i, and y_i are all pairwise distinct.
- In a third pass, Charlotte gets the two output words of either Anna or Ben in arbitrary order. She must then output who sent them and the decrypted original word.



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    Anna  koeri ⇝ curyr wrust
     Ben  plaintext ⇝ notreally encyrpted
Charlotte  wrust curyr ⇝ Anna  koeri
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