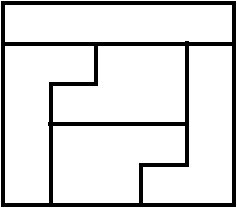
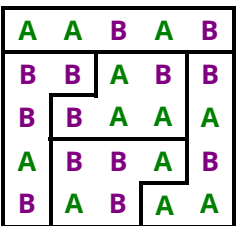


This puzzle is based on voting districts and gerrymandering. There's a 5×5 grid that is divided into 5 voting districts of 5 squares each. Every district is contiguous, so the districts are [pentominoes](#) of some shape. (The same shape might be repeated.) In an election, each square has one voter who votes either **A** or **B**. The votes are tallied within each voting district; whichever candidate wins a majority in the district wins the district. Then the districts are counted, and whichever candidate wins a majority of the districts wins the overall election.

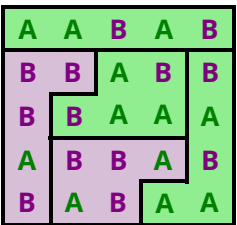
For example, suppose the voting districts look like this:



And suppose that in an election the voters vote like this:



Then when the votes are tallied within each district, we see that **A** wins 3 districts and **B** wins 2 districts:



So **A** is the overall election winner, 3 districts to 2. (Note that **A** did *not* win the popular vote: they got only 12 votes to **B**'s 13. Yay gerrymandering!)

Now, here's the catch: In this puzzle, you don't know what the voting districts look like. You're only given the election results from several elections (all using the same districts): each voter's ballot and the final election winner (but not the intermediate tallies or the number of districts won by each candidate). The goal is to figure out, from those election results, what the voting districts are.

Here's one full puzzle:

<table border="1" style="width: 100%; text-align: center;"> <tr><td>A</td><td>B</td><td>B</td><td>A</td><td>B</td></tr> <tr><td>A</td><td>B</td><td>A</td><td>B</td><td>A</td></tr> <tr><td>A</td><td>A</td><td>A</td><td>A</td><td>B</td></tr> <tr><td>B</td><td>B</td><td>B</td><td>A</td><td>A</td></tr> <tr><td>B</td><td>B</td><td>B</td><td>B</td><td>B</td></tr> </table> <p style="text-align: center;">Winner: A</p>	A	B	B	A	B	A	B	A	B	A	A	A	A	A	B	B	B	B	A	A	B	B	B	B	B	<table border="1" style="width: 100%; text-align: center;"> <tr><td>B</td><td>B</td><td>A</td><td>A</td><td>B</td></tr> <tr><td>B</td><td>A</td><td>A</td><td>B</td><td>B</td></tr> <tr><td>B</td><td>B</td><td>A</td><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td></tr> <tr><td>A</td><td>A</td><td>A</td><td>B</td><td>B</td></tr> </table> <p style="text-align: center;">Winner: A</p>	B	B	A	A	B	B	A	A	B	B	B	B	A	B	B	A	A	A	A	A	A	A	A	B	B	<table border="1" style="width: 100%; text-align: center;"> <tr><td>B</td><td>B</td><td>B</td><td>B</td><td>A</td></tr> <tr><td>B</td><td>B</td><td>A</td><td>B</td><td>B</td></tr> <tr><td>A</td><td>B</td><td>A</td><td>A</td><td>B</td></tr> <tr><td>A</td><td>A</td><td>B</td><td>B</td><td>B</td></tr> <tr><td>A</td><td>A</td><td>A</td><td>B</td><td>B</td></tr> </table> <p style="text-align: center;">Winner: A</p>	B	B	B	B	A	B	B	A	B	B	A	B	A	A	B	A	A	B	B	B	A	A	A	B	B	<table border="1" style="width: 100%; text-align: center;"> <tr><td>B</td><td>B</td><td>A</td><td>B</td><td>A</td></tr> <tr><td>B</td><td>A</td><td>B</td><td>B</td><td>A</td></tr> <tr><td>A</td><td>A</td><td>B</td><td>A</td><td>A</td></tr> <tr><td>A</td><td>A</td><td>B</td><td>A</td><td>B</td></tr> <tr><td>B</td><td>B</td><td>A</td><td>A</td><td>A</td></tr> </table> <p style="text-align: center;">Winner: B</p>	B	B	A	B	A	B	A	B	B	A	A	A	B	A	A	A	A	B	A	B	B	B	A	A	A
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(Supposedly there's a unique answer to this puzzle, according to the program I wrote. But I have no idea how to get started on actually solving it.)