This programming problem was assigned in the Fall of 2000. That was the year of the George Bush/Al Gore election, in which the vote count from the state of Florida was highly contested. The ballots from Florida included some ballots that were difficult to evaluate: ballots marked for two candidates at the same time, punch-card ballots with holes only partially punched out, and other irregularities. There were several recounts, and each time the count came out differently. For a while, it seemed that at each recount, a few more votes for Al Gore were found — so that maybe if we were willing to wait for enough hundreds of recounts, Gore would be the winner. In honor of that comically bizarre scenario, I wrote the following programming problem. In the end, this extremely close election was decided by the Supreme Court.

Write a Python program that will read in two numbers: the number of votes received by Bush, and the number of votes received by Gore. (For this problem, we will assume that Bush and Gore were the only candidates, so no other votes were cast.) These numbers will be used to begin the recount process:

The computer should repeatedly perform recounts. Every time the vote is recounted, Bush receives an additional 5 votes, and Gore receives an additional 20 votes. Your program should perform the number of recounts needed to make Gore the winner. (Note that the number of recounts needed could be 0.)

After enough recounts have been performed to make Gore the winner, the program should print the number of recounts that were performed, the final vote count, and the name of the winner of the election.

Example:

If Bush originally received 1000 votes and Gore originally received 980, then the program should print:

After 2 recounts, Gore is the winner.
Final count:
Bush: 1010
Gore: 1020

If Bush originally received 2000 votes and Gore originally received 1000, then the program should print:

After 67 recounts, Gore is the winner.
Final count:
Bush: 2335
Gore: 2340

If Bush originally received 2000 votes and Gore originally received 3000, then the program should print:

After 0 recounts, Gore is the winner.
Final count:
Bush: 2000
Gore: 3000