

## Finding Shoes

Chef has  $N$  friends. Chef promised that he would gift a pair of shoes (consisting of one left shoe and one right shoe) to each of his  $N$  friends. Chef was about to go to the marketplace to buy shoes, but he suddenly remembers that he already had  $M$  left shoes.

What is the minimum number of extra shoes that Chef will have to buy to ensure that he is able to gift a pair of shoes to each of his  $N$  friends?

For example, if  $N = 2$ ,  $M = 4$ , then Chef already has 4 left shoes, so he must buy 2 extra right shoes to form 2 pairs of shoes.

Therefore Chef must buy at least 2 extra shoes to **ensure** that he is able to get  $N = 2$  pairs of shoes.