Unfair Santa Claus

Solution
The final absolute difference can never be greater than n. This can be shown by induction: if the current absolute difference does not exceeds n, after giving a chocolate piece with at most n bars to the one who has less chocolate bars, the absolute difference is still bounded by n. Therefore Alice can receive at most n chocolate bars more than Bob after all.

To achieve the difference n, we must give out the n-bar chocolate piece at last. Right before that, Alice and Bob should have exactly same total number of chocolate bars. However, $1 + 2 + \cdots + n - 1$ is not always divided by 2. Which is the case when the remainder of n divided by 4 equals 2 or 3. Then it is not possible to distribute the 1 to $n - 1$-bar chocolate to Alice and Bob evenly. Therefore, the maximum difference upper bound reduced to $n - 1$ in this case.

The rest is to find a sequence results in the maximum difference. There are many approaches, we give one here:

When the remainder of n divides $4 = 0$ or 1: `n-1 n-2 n-3 ... 3 2 1 n`
When the remainder of n divides $4 = 2$: `n-1 n-2 n-3 ... 3 2 n 1`
When the remainder of n divides $4 = 3$: `n-1 n-2 n-3 ... 3 1 2 n`