13SLA4

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§1 Solution

Solution. Couldnt solve it myself. Loved the solution by @randomusername. Represent a_i by a bardiagram P with $P = \{y = a_i; x \in [i-1, i]\}$. Reflect P over line $y = x$ call this P', now translate this such that its base sits on the line $x = -n$. Call the square $\{0 \leq y \leq n; n \leq x \leq n\} = S$ To finish notice that,

$$n^2 \geq [P \cup S] + [P' \cup S] = \sum_{i=1}^{n} \min(a_i, n) + \sum_{i=1}^{n} \max(a_i - n, 0) = \sum_{i=1}^{n} a_i$$

□