# Variance

Given a nonempty list of integers, the **variance** of the list can be computed as follows:

1. Determine the **average** of the list (denoted by $\mu$).
2. For each item $x$ in the list, compute $(x - \mu)^2$
3. Take the average of the squared differences.

For example, the variance of the list `[1,2,3,4]` can be computed as follows:

1. The average of `[1,2,3,4]` is $\mu = (1 + 2 + 3 + 4)/4 = 2.5$
2. $(1 - 2.5)^2 = (-1.5)^2 = 2.25$
3. $(2 - 2.5)^2 = (-0.5)^2 = 0.25$
4. $(3 - 2.5)^2 = (0.5)^2 = 0.25$
5. $(4 - 2.5)^2 = (1.5)^2 = 2.25$
6. The average of `[1,2,3,4]` is $(2.25 + 0.25 + 0.25 + 2.25)/4 = 5/4 = 1.25$. Therefore, the variance of `[1,2,3,4]` is 1.25

As another example, the variance of the first 1000 cubes `[1,8,27,...,1000000000]` is about $8.060727 * 10^{16}$.

Write a function `public static double variance(double[] nums)` that receives as input an array of integers, and returns the variance of that list, or 0 if the array has length 0.