Suppose you live in an apartment and want to buy renter’s insurance. For the sake of simplicity, assume the history of average yearly payouts of the insurance company you go to is given by the following discrete probability distribution. (In reality it would be far more detailed but the calculations would be the same as we’re about to do.)

\[
x \quad p(x)
\]

\[
10,000 \quad 0.005
\]

\[
2,000 \quad 0.020
\]

\[
0 \quad 0.975
\]

For these values of \(x\), the mean is given by

\[
\bar{x} = \frac{10000 + 2000 + 0}{3} = $4000.
\]

Does this say that their average payout is $4000? If so, why? If not, why? If there average payout is $4000, what would they charge you for the policy? How much does the insurance expect to pay out per policy per year?