Summary

- The Markov's inequality or theorem is named after Russian mathematician Andrey Markov

- In Probability Theory, **Markov's inequality** gives an upper bound for the probability that a non-negative function of a random variable is greater than or equal to some positive constant

- The remarkable aspect about Markov's inequality is that the inequality holds for any distribution with positive values, no matter what other features it has

- According to Markov's inequality, suppose X is a non- negative random variable with finite expectation E(x), then for any $\varepsilon > 0$,

$$P(X \geq \varepsilon) \leq \frac{E(X)}{\varepsilon}$$

- According to the inequality, the probability that X takes a value that is greater than twice the expected value is at most half. In other words, if you consider the pmf curve, the area under the curve for values that are beyond 2*E(X) is at most half

- The probability that X takes a value that is greater than thrice the expected value is at most one third