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Fundamentals of Reinforcement Learning

Programming Exercise 2

Task 1 – Programming: Confidence Intervals using Hoeffding's Inequality

Numerically examine the properties of the confidence interval computed in Task 4 of Theory Exercise 2. Let $\alpha = 0.05$ and $p = 0.4$.

- 1.1 Conduct a simulation study to see how often the confidence interval contains p (called the coverage). Do this for various values of n between 1 and 1000. Plot the coverage versus n .
- 1.2 Plot the length of the interval versus n . Suppose we want the length of the interval to be no more than 0.05. How large should n be?