Class 15

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March 21, 2023

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Stochastic Approximation

$$\begin{aligned} X_n &= \frac{1}{n}\sum_{i=1}^{n} x_i \\ X_{n+1} &= \frac{1}{n+1}\sum_{i=1}^{n+1} x_i \\ &= \frac{n}{n+1}X_n + \frac{x_{n+1}}{n+1} \end{aligned}$$

Similarly for Q value we can define:

$$Q(s_i, a_i) = Q(s_i, a_i) + \alpha\left[T - Q(s_i, a_i)\right]$$

where T is the **Target Value**.

SARSA

$$Q(s_i, a_i) = Q(s_i, a_i) + \alpha\left[r + \gamma * (Q(s_j, a_j)) - Q(s_i, a_i)\right]$$