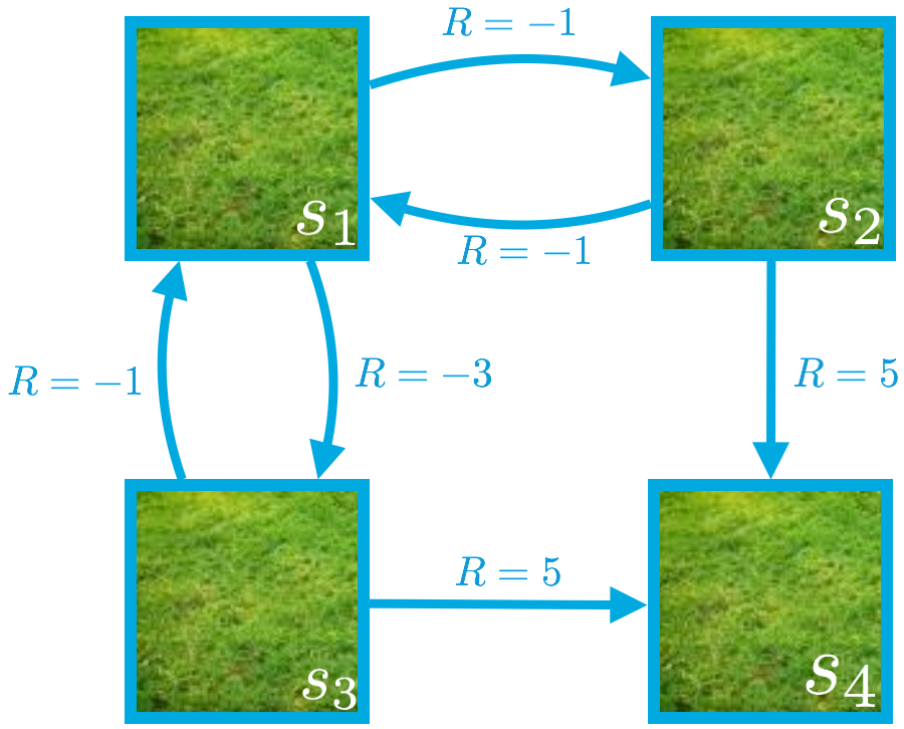
An Iterative Method

In this concept, we will examine some ideas from the last video in more detail.



Notes on the Bellman Expectation Equation

In the previous video, we derived one equation for each environment state. For instance, for state s_1, we saw that:

$$v_\pi(s_1) = \tfrac{1}{2}(-1 + v_\pi(s_2)) + \tfrac{1}{2}(-3 + v_\pi(s_3)).$$

We mentioned that this equation follows directly from the Bellman expectation equation for v_π.

> $v_\pi(s) = \mathbb{E}_\pi[R_{t+1} + \gamma v_\pi(S_{t+1})|S_t = s] = \sum_{a\in\mathcal{A}(s)} \pi(a|s) \sum_{s'\in\mathcal{S}, r\in\mathcal{R}} p(s', r|s, a)(1$
> **(The Bellman expectation equation for v_π)**