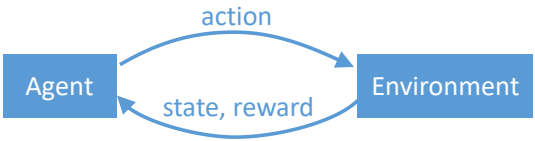
Motivation — Sequential Decision Making



Markov Decision Processes

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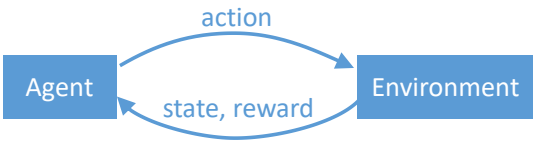

Markov Decision Processes

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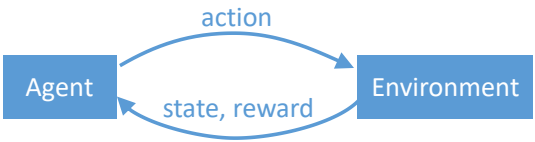

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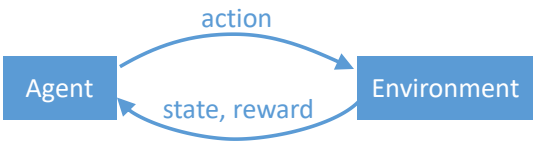

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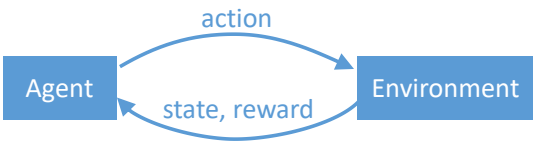

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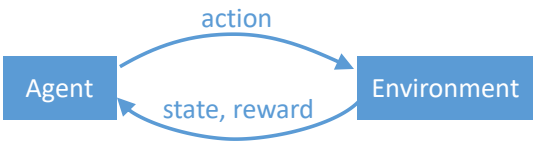

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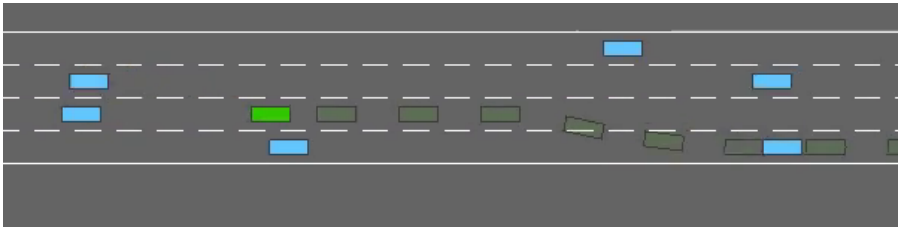
Objective: maximise $\mathrm{V} = \mathbb{E}\left[\sum_{t=0}^{\infty} \gamma^t r_t\right]$

Motivation — Example

The `highway-env` environment

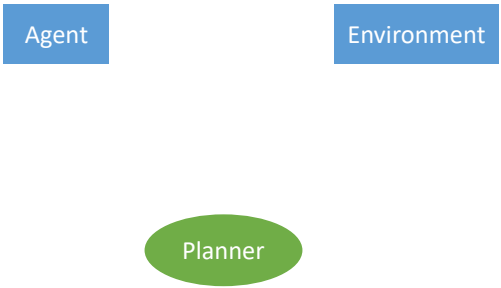


We want to handle stochasticity.

Motivation — How to solve MDPs?

Online *Planning*

- we have access to a generative model:
  - ↳ yields samples of $s', r \sim \mathbb{P}(s', r|s, a)$ when queried



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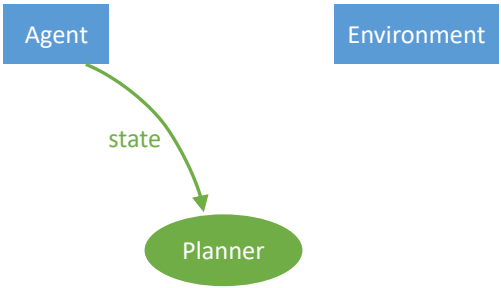

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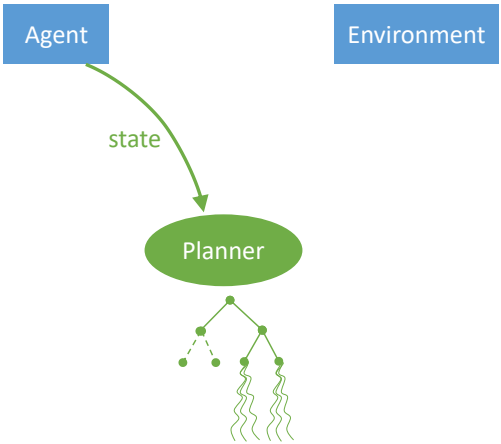

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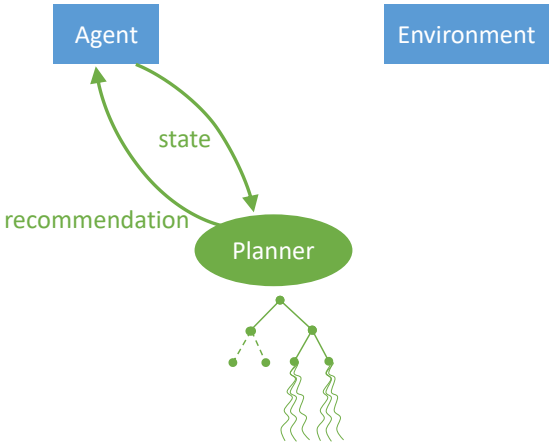

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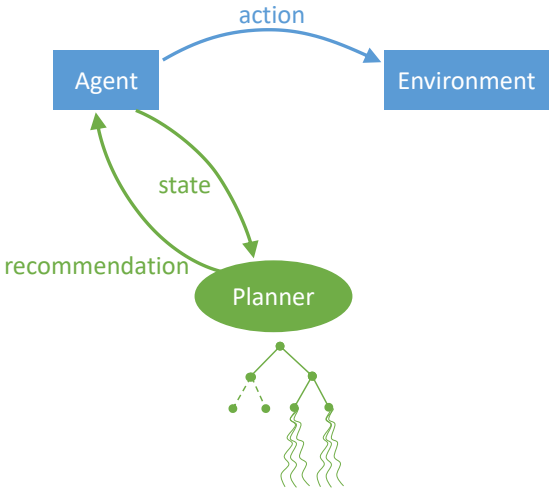

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