

agent_anatomy

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1 Agent Anatomy

This is a modified code version from Chapter 2 of

Lapan, M. (2018). Deep Reinforcement Learning Hands-On. Birmingham, UK: Packt Publishing.

```
[ ]: import random
import gym
from gym import spaces
```

```
[ ]: class Environment(gym.Env):
    def __init__(self):
        self.steps_left = 10

    def get_observation(self):
        return [random.randint(0, 1) for _ in range(3)]

    def get_actions(self):
        return [0, 1]

    def is_done(self):
        return self.steps_left == 0

    def step(self, action):
        if self.is_done():
            raise Exception("Game is over")
        self.steps_left -= action
        return random.random()

    def render(self):
        pass

    def close(self):
        pass
```

```
[ ]: class Agent:
    def __init__(self):
        self.total_reward = 0.0
```

```

def step(self, env):
    current_obs = env.get_observation()
    all_actions = env.get_actions()

    if sum(current_obs) == 3:
        action = all_actions[1]
    else:
        action = random.choice(all_actions)

    reward = env.step(action)
    print(f"Agent: Action {action} : Reward {reward}")
    self.total_reward += reward

```

```

[ ]: env = Environment()
     agent = Agent()

     while not env.is_done():
         agent.step(env)

```

```

Agent: Action 1 : Reward 0.7932088585443122
Agent: Action 0 : Reward 0.42970848353079627
Agent: Action 0 : Reward 0.6970854293445339
Agent: Action 1 : Reward 0.9668478786562057
Agent: Action 0 : Reward 0.2806841263317075
Agent: Action 1 : Reward 0.15210205208611394
Agent: Action 1 : Reward 0.2787187508399356
Agent: Action 1 : Reward 0.16937883974179968
Agent: Action 1 : Reward 0.5865962441732164
Agent: Action 1 : Reward 0.4118013568104596
Agent: Action 1 : Reward 0.4856309054735828
Agent: Action 1 : Reward 0.5943656413857757
Agent: Action 1 : Reward 0.9838598729574723

```

```

[ ]: print("Total reward got: %.4f" % agent.total_reward)

```

```

Total reward got: 6.8300

```