

gym_experiments

January 11, 2021

```
[ ]: import gym
import random
```

```
[ ]: def make_env():
    return gym.make("CartPole-v0")
```

```
[ ]: def cartpole_random(env):
    total_reward = 0.0
    total_steps = 0
    obs = env.reset()

    while True:
        action = env.action_space.sample()
        obs, reward, done, _ = env.step(action)
        total_reward += reward
        total_steps += 1
        if done:
            break

    print("Episode done in %d steps, total reward %.2f" % (total_steps,
→total_reward))
```

```
[ ]: cartpole_random(make_env())
```

Episode done in 21 steps, total reward 21.00

```
[ ]: def cartpole_action_wrapper(env):

    class RandomActionWrapper(gym.ActionWrapper):
        def __init__(self, env, epsilon=0.1):
            super(RandomActionWrapper, self).__init__(env)
            self.epsilon = epsilon

        def action(self, action):
            if random.random() < self.epsilon:
                print("Random!")
                return self.env.action_space.sample()
            return action
```

```
env = RandomActionWrapper(env)

obs = env.reset()

total_reward = 0.0

while True:
    obs, reward, done, _ = env.step(0)
    total_reward += reward
    if done:
        break

    print("Reward got: %.2f" % total_reward)
```

```
[ ]: cartpole_action_wrapper(make_env())
```

```
Random!
Reward got: 1.00
Reward got: 2.00
Reward got: 3.00
Reward got: 4.00
Reward got: 5.00
Random!
Reward got: 6.00
Reward got: 7.00
Reward got: 8.00
Reward got: 9.00
Reward got: 10.00
Reward got: 11.00
```