

pa2-dqn-cartpole

March 29, 2023

```
[ ]: import numpy as np
import random
import torch
import torch.nn as nn
import torch.nn.functional as F
from collections import namedtuple, deque
import torch.optim as optim
import datetime
import gym
from gym.wrappers.record_video import RecordVideo
import glob
import io
import base64
import matplotlib.pyplot as plt
from IPython.display import HTML
from pyvirtualdisplay import Display
import tensorflow as tf
from IPython import display as ipythondisplay
from PIL import Image
import tensorflow_probability as tfp
```

```
[ ]: env = gym.make('CartPole-v1')
env.seed(0)

state_shape = env.observation_space.shape[0]
no_of_actions = env.action_space.n

print(state_shape)
print(no_of_actions)
print(env.action_space.sample())
print("----")

state = env.reset()

print(state)
print("----")
```

```

action = env.action_space.sample()

print(action)
print("----")

next_state, reward, done, info = env.step(action)

print(next_state)
print(reward)
print(done)
print(info)
print("----")

```

```

4
2
1
----
[ 0.01369617 -0.02302133 -0.04590265 -0.04834723]
----
1
----
[ 0.01323574  0.17272775 -0.04686959 -0.3551522 ]
1.0
False
{}
----

```

```

[ ]: sweep_config = {
    'method': 'bayes'
}

```

```

[ ]: metric = {
    'name' : 'num_episodes_tosolve_cartpole',
    'goal' : 'minimize'
}
sweep_config['metric'] = metric

```

```

[ ]: '''BATCH_SIZE= 64
EPS_DECAY= 0.995
GAMMA= 0.99
LR= 5e-4
MAX_TRUNCATION= 1
NUM_LAYERS= 2
NUM_NEURONS_EACH_LAYER= 90
UPDATE_EVERY= 20
a_TUNE= 0.7

```

```
'''
parameters_dict = {
    'NUM_NEURONS_EACH_LAYER' : {
        'values': [64,90,128]
    },
    'NUM_LAYERS' :{
        'values': [2,4,8,10]
    },
}
sweep_config['parameters'] = parameters_dict
```

```
[ ]: import math
parameters_dict.update({
    'LR': {

        'distribution': 'uniform',
        'min': (0.00001),
        'max': (0.0001)
    },
    'BATCH_SIZE': {

        'distribution': 'q_log_uniform_values',
        'q' : 1,
        'min': (64),
        'max': (512),
    },
    'UPDATE_EVERY': {

        'distribution': 'q_log_uniform_values',
        'q' : 1,
        'min': (10),
        'max': (200),
    },
    'GAMMA': {

        'distribution': 'uniform',
        'min': 0.8,
        'max': 1,
    },
    'MAX_TRUNCATION': {

        'distribution': 'uniform',
        'min': (0.5),
        'max': (2),
    },
    'EPS_DECAY': {
```

```

        'distribution': 'uniform',
        'min': 0.9,
        'max': 0.995,
    },
    'a_TUNE': {

        'distribution': 'uniform',
        'min': 0,
        'max': 1,
    }
}
})

```

```
[ ]: import pprint
```

```
pprint.pprint(sweep_config)
```

```

{'method': 'bayes',
 'metric': {'goal': 'minimize', 'name': 'num_episodes_tosolve_cartpole'},
 'parameters': {'BATCH_SIZE': {'distribution': 'q_log_uniform_values',
                                'max': 512,
                                'min': 64,
                                'q': 1},
                 'EPS_DECAY': {'distribution': 'uniform',
                                'max': 0.995,
                                'min': 0.9},
                 'GAMMA': {'distribution': 'uniform', 'max': 1, 'min': 0.8},
                 'LR': {'distribution': 'uniform', 'max': 0.0001, 'min': 1e-05},
                 'MAX_TRUNCATION': {'distribution': 'uniform',
                                    'max': 2,
                                    'min': 0.5},
                 'NUM_LAYERS': {'values': [2, 4, 8, 10]},
                 'NUM_NEURONS_EACH_LAYER': {'values': [64, 90, 128]},
                 'UPDATE_EVERY': {'distribution': 'q_log_uniform_values',
                                   'max': 200,
                                   'min': 10,
                                   'q': 1},
                 'a_TUNE': {'distribution': 'uniform', 'max': 1, 'min': 0}}}

```

```
[ ]: sweep_id = wandb.sweep(sweep_config, project="Hyper parameter tuning Cartpole - v1")
```

Failed to detect the name of this notebook, you can set it manually with the WANDB_NOTEBOOK_NAME environment variable to enable code saving.

Create sweep with ID: pkvb7dv1

Sweep URL: <https://wandb.ai/me19b190/Hyper%20parameter%20tuning%20Cartpole%20-%20v1/sweeps/pkvb7dv1>

```
[ ]: import torch
import torch.nn as nn
import torch.nn.functional as F

class QNetwork1(nn.Module): #take state s and outputs Q(s,a)

    def __init__(self,seed, state_size, action_size,
↳num_layers,neurons_each_layer): #num_layers = number of hidden
↳layers,neurons_each_layer = number of neurons in hidden layers
        super(QNetwork1,self).__init__()
        self.seed = torch.manual_seed(seed)
        self.input_size = state_size
        self.output_size = action_size
        self.num_layers = num_layers
        self.neurons_each_layer = neurons_each_layer
        self.linears = nn.ModuleList([nn.Linear(self.input_size, self.
↳neurons_each_layer[0])])
        self.linears.extend([nn.Linear(self.neurons_each_layer[i-1], self.
↳neurons_each_layer[i]) for i in range(1, self.num_layers)])
        self.linears.append(nn.Linear(self.neurons_each_layer[-1], self.
↳output_size))

    def forward(self,state):
        h=None
        for i in range(self.num_layers+1):
            if i == 0:
                h = F.relu(self.linears[0](state))
            elif i<(self.num_layers):
                h = F.relu(self.linears[i](h))
            else:
                return self.linears[self.num_layers](h)
```

0.0.1 Replay Buffer:

This is a ‘deque’ that helps us store experiences. Recall why we use such a technique.

```
[ ]: import random
import torch
import numpy as np
from collections import deque, namedtuple

device = torch.device("cuda:0" if torch.cuda.is_available() else "cpu")

class ReplayBuffer:
    """Fixed-size buffer to store experience tuples."""
```

```

def __init__(self, action_size, buffer_size, batch_size, seed):
    """Initialize a ReplayBuffer object.

    Params
    =====
        action_size (int): dimension of each action
        buffer_size (int): maximum size of buffer
        batch_size (int): size of each training batch
        seed (int): random seed
    """
    self.action_size = action_size
    self.priorities = None #self.experience = namedtuple("Experience",
↪field_names=["state", "action", "reward", "next_state", "done"]) #added TD
    self.batch_size = batch_size
    self.buffer_size = buffer_size
    self.curr_mem_counter = 0
    self.start = True
    self.seed = random.seed(seed)

def add(self, state, action, reward, next_state, done): #added TD
    """Add a new experience to memory."""
    if self.start:
        self.memory = np.array([state, action, reward, next_state, done])
        self.priorities = np.array([1.0])
        self.curr_mem_counter += 1
        self.start = False
    else:
        if self.curr_mem_counter > self.buffer_size:
            self.curr_mem_counter = 0
        if self.curr_mem_counter == 0:
            self.memory[self.curr_mem_counter] = np.array([state, action,
↪reward, next_state, done])
            self.priorities[self.curr_mem_counter] = max(self.priorities,
↪default = 1.0)
            self.curr_mem_counter += 1
        else:
            self.memory = np.vstack([self.memory , np.array([state, action,
↪reward, next_state, done])])
            self.priorities = np.append(self.priorities,max(self.priorities,
↪default = 1.0))
            self.curr_mem_counter += 1

def modify_priorities(self, indices, TD_errors, offset=0.001):#
    np.put(self.priorities ,indices, np.abs(TD_errors).flatten()+offset)

def return_probabilities(self, a):#a = priority scale
    arr = np.array(self.priorities)**a #modify a

```

```

        probab = arr/arr.sum()
        return probab

    def return_importance_weights(self,probabilities):
        importance_weights = 1/(probabilities*len(self.memory))
        normalized_weights = importance_weights/max(importance_weights)
        return normalized_weights

    def sample(self,batch_size=None,a=1.0):
        """Randomly sample a batch of experiences from memory."""
        num_samples = self.batch_size if batch_size ==None else batch_size
        probab = self.return_probabilities(a)
        #print(probab,len(probab))
        #print(len(self.memory))
        get_sample_indxs = np.random.choice(np.arange(len(self.memory)), size =
↪num_samples,replace = False,p = probab)

        importance_weights = self.
↪return_importance_weights(probab[get_sample_indxs])
        experiences = self.memory[get_sample_indxs]
        #print(experiences)
        #print(type(experiences[:,0]))
        states = torch.from_numpy(np.vstack([e[0] for e in experiences if e is
↪not None])).float().to(device)
        actions = torch.from_numpy(np.vstack([e[1] for e in experiences if e is
↪not None])).long().to(device)
        rewards = torch.from_numpy(np.vstack([e[2] for e in experiences if e is
↪not None])).float().to(device)
        next_states = torch.from_numpy(np.vstack([e[3] for e in experiences if
↪e is not None])).float().to(device)
        dones = torch.from_numpy(np.vstack([e[4] for e in experiences if e is
↪not None])).astype(np.uint8).float().to(device)
        #TDS = torch.from_numpy(np.vstack([e.TD for e in experiences if e is
↪not None])).float().to(device) #added TD
        return (states, actions, rewards, next_states,
↪dones),importance_weights,get_sample_indxs

    def __len__(self):
        """Return the current size of internal memory."""
        return len(self.memory)

```

```

[ ]: #performance of cartpole with hyperparameters given in tutorial

```

```

reward_,error_reward = calculate_mean(rewards_list)

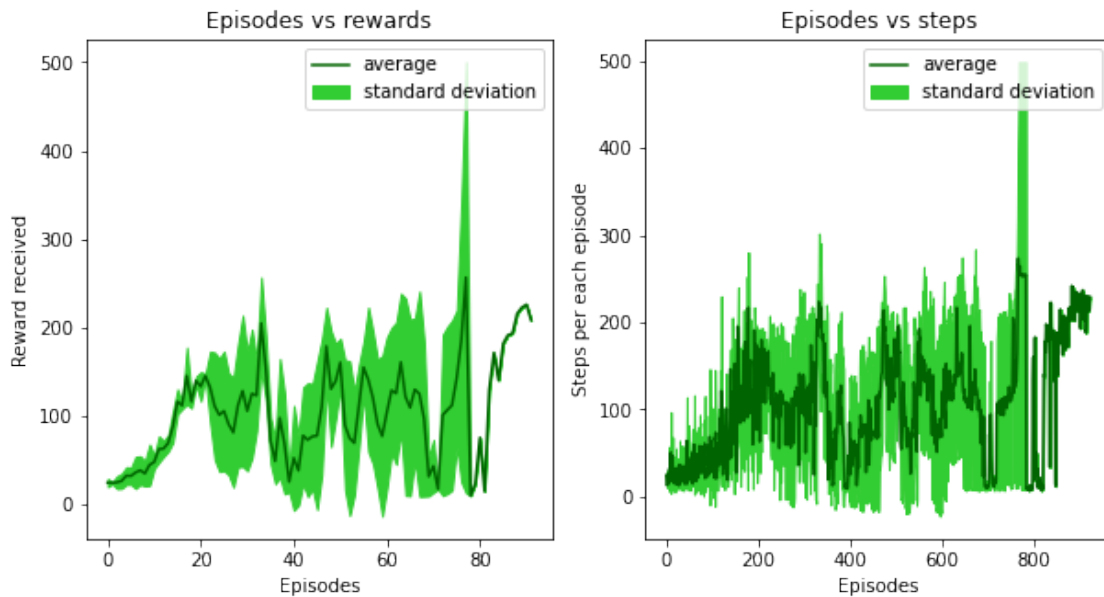
```

```

plt.figure(figsize = (10,5))
plt.subplot(121)
plt.plot(np.arange(len(reward_)),reward_, color = 'darkgreen',label = 'average')
plt.fill_between(np.
    ↳arange(len(reward_)),reward_-error_reward,reward_+error_reward, color =
    ↳'limegreen',label = 'standard deviation')
plt.legend()
plt.title("Episodes vs rewards")
plt.xlabel("Episodes")
plt.ylabel("Reward received")
steps,error_steps = calculate_mean(steps_list)
plt.subplot(122)
plt.plot(np.arange(len(steps)),steps, color = 'darkgreen',label = 'average')
plt.fill_between(np.arange(len(steps)),steps-error_steps,steps+error_steps,
    ↳color = 'limegreen',label = 'standard deviation')
plt.title("Episodes vs steps")
plt.xlabel("Episodes")
plt.ylabel("Steps per each episode")
plt.legend()
plt.show()

print("Average number of episodes: ", round(np.mean(avg_episodes)))

```



Average number of episodes: 685

```

[ ]: def train(config = None):
    with wandb.init(config = config):

```



```

config = wandb.config
BUFFER_SIZE = int(1e5) # replay buffer size
BATCH_SIZE = config.BATCH_SIZE ## minibatch size
GAMMA = config.GAMMA      ## discount factor
LR = config.LR             ## learning rate
UPDATE_EVERY = config.UPDATE_EVERY      ## how often to update the network
↳ (When Q target is present)
    NUM_NEURONS_EACH_LAYER = config.NUM_NEURONS_EACH_LAYER      ##number of
↳neurons in each hidden layer
    NUM_LAYERS = config.NUM_LAYERS      ##number of layers for the
↳neural network
    MAX_TRUNCATION = config.MAX_TRUNCATION      ##max number of
↳steps in each episode(needed only for cartpole, acrobot and mountain car
↳these are already defined)
    EPS_DECAY = config.EPS_DECAY      ##epsilon decay for
↳epsilon exploration
    a_TUNE = config.a_TUNE
    steps_over_10_runs = []
    rewards_over_10_runs = []
    episodes = []
    min_len = np.inf
    bad = False
    for run in range(10):
        print("Run: ",run+1,"
↳-----")
        env = gym.make('CartPole-v1')

        seed = run
        env.seed(seed)
        state_shape = env.observation_space.shape[0]
        action_shape = env.action_space.n

        begin_time = datetime.datetime.now()
        agent = TutorialAgent(state_size=state_shape,action_size =
↳action_shape,seed =
↳seed,num_layers=NUM_LAYERS,neurons_each_layer=[NUM_NEURONS_EACH_LAYER]*NUM_LAYERS,lr
↳= LR,gamma= GAMMA,update_every=UPDATE_EVERY,batch_size =
↳BATCH_SIZE,max_truncation = MAX_TRUNCATION)
        steps_eps_greedy,reward_eps_greedy, episodes_eps_greedy,bad =
↳dqn(agent,eps_decay = EPS_DECAY, a = a_TUNE)
        steps_over_10_runs.append(steps_eps_greedy)
        rewards_over_10_runs.append(reward_eps_greedy)
        episodes.append(episodes_eps_greedy)
        if len(reward_eps_greedy) < min_len:
            min_len = len(reward_eps_greedy)
        time_taken = datetime.datetime.now() - begin_time

```

```

print(time_taken)

rewards = np.array(rewards_over_10_runs)
avg_episodes = int(np.array(episodes).mean())
steps = np.array(steps_over_10_runs)

y, error = calculate_mean(rewards)
plt.figure(figsize = (15,8))
plt.subplot(121)
# for i in range(len(rewards_over_10_runs)):
#     plt.plot(np.
↪arange(len(rewards_over_10_runs[i])),rewards_over_10_runs[i],label='run_
↪'+str(i))
    plt.plot(np.arange(len(y))+1, y, color='darkblue',label='average')
    plt.fill_between(np.arange(len(y))+1, y-error, y+error,color =
↪'lightskyblue',label = 'standard deviation')
    plt.title("Episodes vs rewards")
    plt.xlabel("Number of episodes(x10)")
    plt.ylabel("Reward per episode")
    plt.legend()
    plt.subplot(122)
    y, error = calculate_mean(steps)
    plt.plot(np.arange(len(y))+1, y, color='darkblue',label='average')
    plt.fill_between(np.arange(len(y))+1, y-error, y+error,color =
↪'lightskyblue',label = 'standard deviation')
    plt.title("Episodes vs steps ")
    plt.xlabel("Number of episodes")
    plt.ylabel("Steps taken per episode")
    plt.legend()
    plt.savefig('run-hyp'+str(LR)+'.jpg', dpi = 250)
    plt.show()

for i in range(avg_episodes):
    print("Episode: ",i+1, 'Number of steps: ',round(y[i]))
    if bad == False:
        wandb.log({"num_episodes_tosolve_cartpole":avg_episodes-100})
    else:
        wandb.log({"num_episodes_tosolve_cartpole":5000})

```

```
[ ]: wandb.agent(sweep_id, train, count=12)
```

wandb: Agent Starting Run: qsd0uop7 with config:

wandb: BATCH_SIZE: 185

wandb: EPS_DECAY: 0.9644579630338428

wandb: GAMMA: 0.9433158694098552

wandb: LR: 9.118256798600293e-05

```
wandb:      MAX_TRUNCATION: 1.0748454901220397
wandb:      NUM_LAYERS: 10
wandb:      NUM_NEURONS_EACH_LAYER: 128
wandb:      UPDATE_EVERY: 12
wandb:      a_TUNE: 0.2463750982411671
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
wandb: Currently logged in as: me19b190. Use `wandb
```

```
login --relogin` to force relogin
```

```
<IPython.core.display.HTML object>
```

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<IPython.core.display.HTML object>
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<IPython.core.display.HTML object>
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<IPython.core.display.HTML object>
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<IPython.core.display.HTML object>
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<IPython.core.display.HTML object>
```

```
Run:  1  -----
```

```
Episode 100      Average Score: 16.24
Episode 200      Average Score: 27.63
Episode 300      Average Score: 187.58
Episode 308      Average Score: 196.06
Environment solved in 208 episodes!      Average Score: 196.06
0:05:21.804678
```

```
Run:  2  -----
```

```
Episode 100      Average Score: 15.57
Episode 200      Average Score: 28.98
Episode 300      Average Score: 174.96
Episode 400      Average Score: 157.92
Episode 500      Average Score: 192.45
Episode 515      Average Score: 195.58
Environment solved in 415 episodes!      Average Score: 195.58
0:14:52.494393
```

```
Run:  3  -----
```

```
Episode 100      Average Score: 13.96
Episode 200      Average Score: 12.66
Episode 299      Average Score: 195.31
Environment solved in 199 episodes!      Average Score: 195.31
0:04:37.283560
```

```
Run:  4  -----
```

```
Episode 100      Average Score: 15.34
Episode 200      Average Score: 12.83
Episode 300      Average Score: 140.19
Episode 355      Average Score: 195.78
Environment solved in 255 episodes!      Average Score: 195.78
```

0:06:35.743286

Run: 5 -----
Episode 100 Average Score: 14.44
Episode 200 Average Score: 12.18
Episode 300 Average Score: 11.94
Episode 400 Average Score: 54.05
Episode 500 Average Score: 150.78
Episode 600 Average Score: 139.44
Episode 700 Average Score: 167.28
Episode 762 Average Score: 195.12
Environment solved in 662 episodes! Average Score: 195.12
0:20:13.428771

Run: 6 -----
Episode 100 Average Score: 15.14
Episode 200 Average Score: 14.84
Episode 300 Average Score: 13.68
Episode 400 Average Score: 116.89
Episode 500 Average Score: 173.30
Episode 600 Average Score: 191.82
Episode 603 Average Score: 196.20
Environment solved in 503 episodes! Average Score: 196.20
0:15:07.133645

Run: 7 -----
Episode 100 Average Score: 15.64
Episode 200 Average Score: 53.80
Episode 271 Average Score: 196.42
Environment solved in 171 episodes! Average Score: 196.42
0:05:22.001649

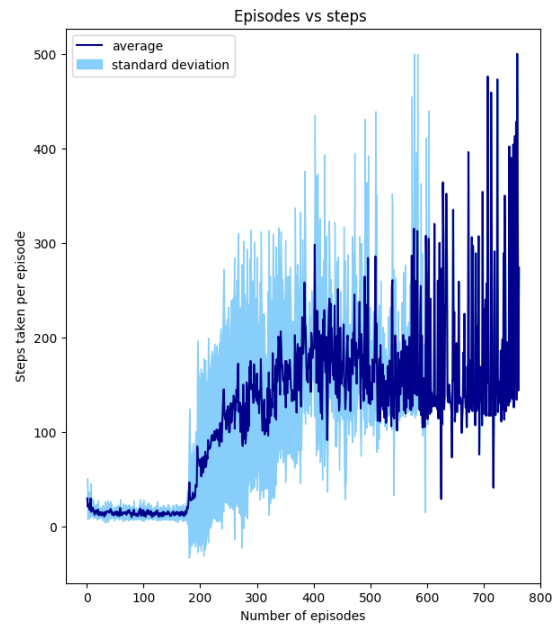
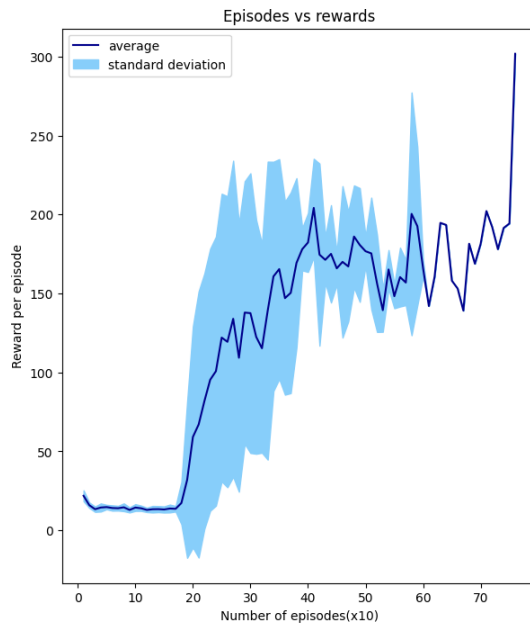
Run: 8 -----
Episode 100 Average Score: 15.28
Episode 200 Average Score: 12.68
Episode 300 Average Score: 49.17
Episode 385 Average Score: 196.80
Environment solved in 285 episodes! Average Score: 196.80
0:05:42.941373

Run: 9 -----
Episode 100 Average Score: 13.31
Episode 200 Average Score: 12.95
Episode 300 Average Score: 100.67
Episode 400 Average Score: 168.70
Episode 422 Average Score: 195.55
Environment solved in 322 episodes! Average Score: 195.55
0:08:13.557635

Run: 10 -----
Episode 100 Average Score: 15.22
Episode 200 Average Score: 13.89
Episode 300 Average Score: 47.86
Episode 386 Average Score: 196.35

Environment solved in 286 episodes!
0:05:18.287580

Average Score: 196.35



Episode:	1	Number of steps:	30
Episode:	2	Number of steps:	21
Episode:	3	Number of steps:	24
Episode:	4	Number of steps:	23
Episode:	5	Number of steps:	18
Episode:	6	Number of steps:	21
Episode:	7	Number of steps:	30
Episode:	8	Number of steps:	15
Episode:	9	Number of steps:	20
Episode:	10	Number of steps:	18
Episode:	11	Number of steps:	20
Episode:	12	Number of steps:	17
Episode:	13	Number of steps:	14
Episode:	14	Number of steps:	12
Episode:	15	Number of steps:	16
Episode:	16	Number of steps:	17
Episode:	17	Number of steps:	17
Episode:	18	Number of steps:	15
Episode:	19	Number of steps:	13
Episode:	20	Number of steps:	18
Episode:	21	Number of steps:	12
Episode:	22	Number of steps:	12
Episode:	23	Number of steps:	15
Episode:	24	Number of steps:	13

Episode: 25 Number of steps: 15
Episode: 26 Number of steps: 12
Episode: 27 Number of steps: 14
Episode: 28 Number of steps: 15
Episode: 29 Number of steps: 13
Episode: 30 Number of steps: 14
Episode: 31 Number of steps: 10
Episode: 32 Number of steps: 15
Episode: 33 Number of steps: 12
Episode: 34 Number of steps: 13
Episode: 35 Number of steps: 16
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Episode: 37 Number of steps: 16
Episode: 38 Number of steps: 16
Episode: 39 Number of steps: 16
Episode: 40 Number of steps: 14
Episode: 41 Number of steps: 16
Episode: 42 Number of steps: 18
Episode: 43 Number of steps: 16
Episode: 44 Number of steps: 16
Episode: 45 Number of steps: 12
Episode: 46 Number of steps: 14
Episode: 47 Number of steps: 14
Episode: 48 Number of steps: 12
Episode: 49 Number of steps: 15
Episode: 50 Number of steps: 13
Episode: 51 Number of steps: 16
Episode: 52 Number of steps: 13
Episode: 53 Number of steps: 16
Episode: 54 Number of steps: 11
Episode: 55 Number of steps: 14
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Episode: 57 Number of steps: 12
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Episode: 61 Number of steps: 14
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Episode: 70 Number of steps: 12
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Episode: 75 Number of steps: 17
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Episode: 78 Number of steps: 14
Episode: 79 Number of steps: 10
Episode: 80 Number of steps: 14
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Episode: 83 Number of steps: 18
Episode: 84 Number of steps: 14
Episode: 85 Number of steps: 13
Episode: 86 Number of steps: 12
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Episode: 89 Number of steps: 13
Episode: 90 Number of steps: 11
Episode: 91 Number of steps: 12
Episode: 92 Number of steps: 16
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Episode: 94 Number of steps: 19
Episode: 95 Number of steps: 14
Episode: 96 Number of steps: 11
Episode: 97 Number of steps: 12
Episode: 98 Number of steps: 17
Episode: 99 Number of steps: 12
Episode: 100 Number of steps: 17
Episode: 101 Number of steps: 11
Episode: 102 Number of steps: 13
Episode: 103 Number of steps: 15
Episode: 104 Number of steps: 10
Episode: 105 Number of steps: 14
Episode: 106 Number of steps: 14
Episode: 107 Number of steps: 17
Episode: 108 Number of steps: 13
Episode: 109 Number of steps: 17
Episode: 110 Number of steps: 16
Episode: 111 Number of steps: 14
Episode: 112 Number of steps: 12
Episode: 113 Number of steps: 16
Episode: 114 Number of steps: 13
Episode: 115 Number of steps: 10
Episode: 116 Number of steps: 12
Episode: 117 Number of steps: 14
Episode: 118 Number of steps: 12
Episode: 119 Number of steps: 11
Episode: 120 Number of steps: 14

Episode: 121 Number of steps: 15
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wandb: Agent Starting Run: hljmaezw with config:

wandb: BATCH_SIZE: 64

wandb: EPS_DECAY: 0.98723893737738

wandb: GAMMA: 0.9032139723471868

wandb: LR: 3.1900755954006034e-05

wandb: MAX_TRUNCATION: 0.7043922740013564

wandb: NUM_LAYERS: 10

wandb: NUM_NEURONS_EACH_LAYER: 64

wandb: UPDATE_EVERY: 22

wandb: a_TUNE: 0.8408808506168791

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run:  1  -----
Episode 100      Average Score: 15.28
Episode 200      Average Score: 11.74
Episode 300      Average Score: 12.79
Episode 400      Average Score: 15.11
Episode 500      Average Score: 10.32
Episode 501      Average Score: 10.30
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:14.577481
```

```
Run:  2  -----
Episode 100      Average Score: 15.38
Episode 200      Average Score: 11.81
Episode 300      Average Score: 12.80
Episode 400      Average Score: 10.60
Episode 500      Average Score: 10.68
Episode 501      Average Score: 10.67
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:09.245623
```

```
Run:  3  -----
Episode 100      Average Score: 17.54
Episode 200      Average Score: 13.79
Episode 300      Average Score: 13.38
Episode 400      Average Score: 14.24
Episode 500      Average Score: 12.51
Episode 501      Average Score: 12.51
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:19.753112
```

```
Run:  4  -----
Episode 100      Average Score: 14.89
Episode 200      Average Score: 12.78
Episode 300      Average Score: 14.47
Episode 400      Average Score: 10.10
Episode 500      Average Score: 9.623
Episode 501      Average Score: 9.61
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:07.443216
```

```
Run:  5  -----
Episode 100      Average Score: 17.14
Episode 200      Average Score: 11.59
Episode 300      Average Score: 11.04
Episode 400      Average Score: 10.88
Episode 500      Average Score: 13.68
```

Episode 501 Average Score: 13.68
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:10.769966
 Run: 6 -----
 Episode 100 Average Score: 15.10
 Episode 200 Average Score: 11.48
 Episode 300 Average Score: 11.04
 Episode 400 Average Score: 12.05
 Episode 500 Average Score: 11.67
 Episode 501 Average Score: 11.66
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:07.384203
 Run: 7 -----
 Episode 100 Average Score: 15.28
 Episode 200 Average Score: 11.84
 Episode 300 Average Score: 11.11
 Episode 400 Average Score: 11.36
 Episode 500 Average Score: 12.49
 Episode 501 Average Score: 12.49
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:08.966362
 Run: 8 -----
 Episode 100 Average Score: 14.31
 Episode 200 Average Score: 10.90
 Episode 300 Average Score: 10.81
 Episode 400 Average Score: 11.71
 Episode 500 Average Score: 13.24
 Episode 501 Average Score: 13.18
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:09.746736
 Run: 9 -----
 Episode 100 Average Score: 15.80
 Episode 200 Average Score: 11.99
 Episode 300 Average Score: 11.96
 Episode 400 Average Score: 12.92
 Episode 500 Average Score: 10.65
 Episode 501 Average Score: 10.66
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:14.089716
 Run: 10 -----
 Episode 100 Average Score: 15.12
 Episode 200 Average Score: 11.26
 Episode 300 Average Score: 12.09

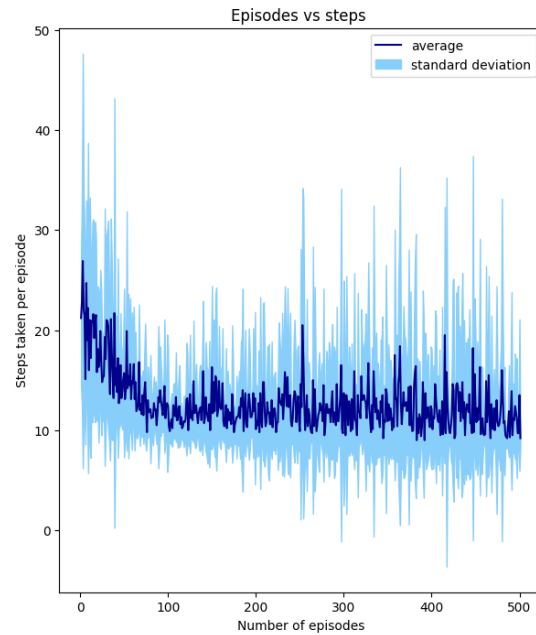
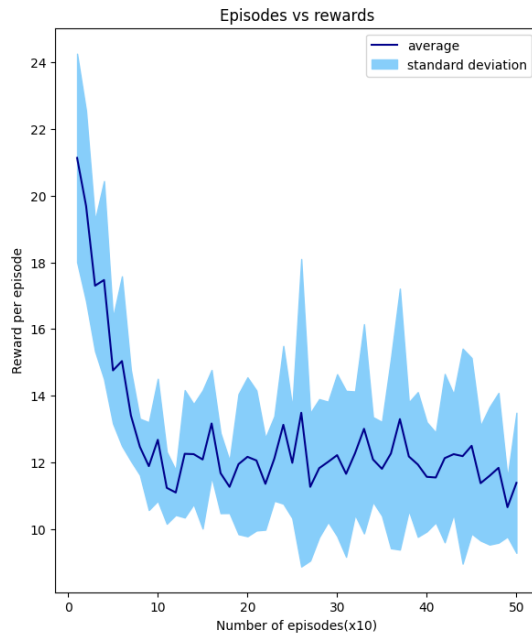
Episode 400 Average Score: 13.14

Episode 500 Average Score: 12.63

Episode 501 Average Score: 12.64

Experiment ended because of bad results, no significant improvement of the agent performance

0:01:14.020700



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Episode: 501 Number of steps: 9
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<IPython.core.display.HTML object>

wandb: Agent Starting Run: 79z8l1on with config:
wandb: BATCH_SIZE: 431
wandb: EPS_DECAY: 0.9674236948730496
wandb: GAMMA: 0.8213264938905515
wandb: LR: 9.505280432729254e-05
wandb: MAX_TRUNCATION: 1.362855508717414
wandb: NUM_LAYERS: 2
wandb: NUM_NEURONS_EACH_LAYER: 64
wandb: UPDATE_EVERY: 45
wandb: a_TUNE: 0.19329279204531247
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----
Episode 100      Average Score: 12.22
Episode 200      Average Score: 11.13
Episode 300      Average Score: 172.67
Episode 311      Average Score: 195.64
Environment solved in 211 episodes!      Average Score: 195.64
0:03:45.455866
Run: 2 -----
Episode 100      Average Score: 12.88
Episode 200      Average Score: 60.45
Episode 273      Average Score: 195.07
Environment solved in 173 episodes!      Average Score: 195.07
0:03:43.348392
Run: 3 -----
Episode 100      Average Score: 13.49
Episode 200      Average Score: 55.15
Episode 269      Average Score: 195.89
Environment solved in 169 episodes!      Average Score: 195.89
0:03:47.562342

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Run: 4 -----

Episode 100	Average Score: 11.91
Episode 200	Average Score: 10.18
Episode 300	Average Score: 106.13
Episode 400	Average Score: 124.27
Episode 500	Average Score: 127.85
Episode 600	Average Score: 131.18
Episode 700	Average Score: 131.55
Episode 800	Average Score: 128.72
Episode 900	Average Score: 159.12
Episode 1000	Average Score: 133.67
Episode 1100	Average Score: 134.52
Episode 1200	Average Score: 139.41
Episode 1300	Average Score: 142.73
Episode 1400	Average Score: 156.79
Episode 1500	Average Score: 157.18
Episode 1600	Average Score: 145.50
Episode 1700	Average Score: 141.07
Episode 1800	Average Score: 142.29
Episode 1900	Average Score: 140.96
Episode 2000	Average Score: 142.88
Episode 2100	Average Score: 145.21
Episode 2200	Average Score: 143.95
Episode 2300	Average Score: 138.50
Episode 2400	Average Score: 139.03
Episode 2500	Average Score: 141.08
Episode 2600	Average Score: 136.82
Episode 2700	Average Score: 138.26
Episode 2800	Average Score: 135.88
Episode 2900	Average Score: 132.44
Episode 3000	Average Score: 136.14
Episode 3100	Average Score: 135.45
Episode 3200	Average Score: 133.33
Episode 3300	Average Score: 133.12
Episode 3400	Average Score: 132.09
Episode 3500	Average Score: 133.54
Episode 3600	Average Score: 128.60
Episode 3700	Average Score: 123.72
Episode 3800	Average Score: 128.82
Episode 3900	Average Score: 124.57
Episode 4000	Average Score: 125.46
Episode 4100	Average Score: 128.56
Episode 4200	Average Score: 124.28
Episode 4300	Average Score: 123.98
Episode 4400	Average Score: 125.92
Episode 4500	Average Score: 123.03
Episode 4600	Average Score: 126.67
Episode 4700	Average Score: 127.69

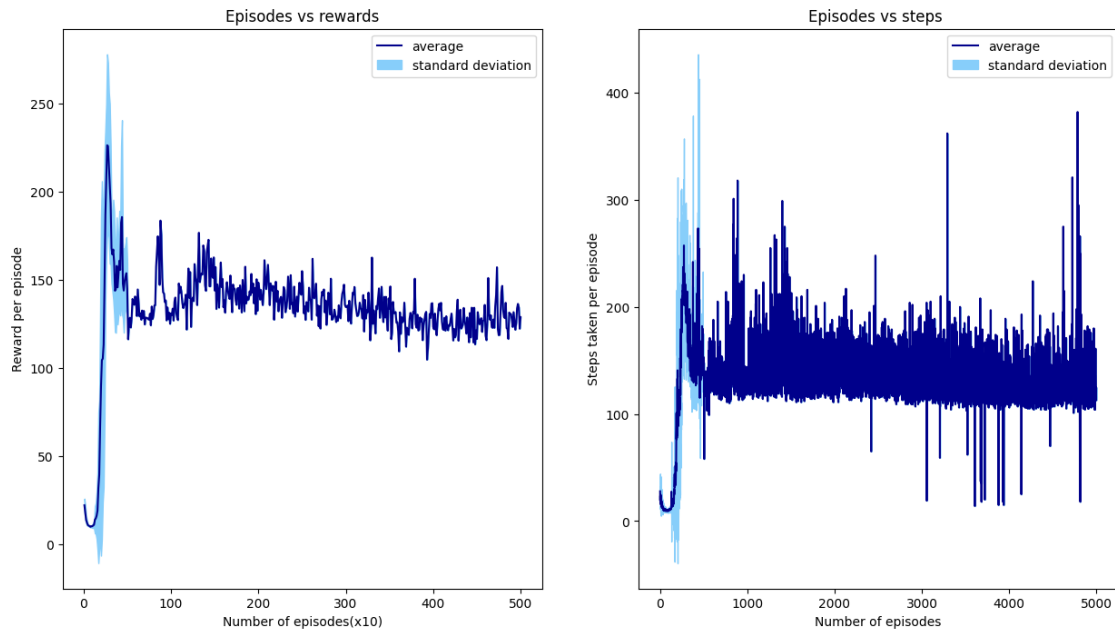
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Episode 4800    Average Score: 134.55
Episode 4900    Average Score: 127.48
Episode 5000    Average Score: 128.36
11:00:03.131933
Run:  5  -----
Episode 100     Average Score: 12.16
Episode 200     Average Score: 13.63
Episode 300     Average Score: 145.68
Episode 344     Average Score: 195.08
Environment solved in 244 episodes!      Average Score: 195.08
0:04:03.177864
Run:  6  -----
Episode 100     Average Score: 11.78
Episode 200     Average Score: 36.74
Episode 300     Average Score: 191.02
Episode 400     Average Score: 175.26
Episode 500     Average Score: 170.15
Episode 501     Average Score: 169.87
Experiment ended because of bad results, no significant improvement of the agent
performance
0:12:40.449570
Run:  7  -----
Episode 100     Average Score: 12.73
Episode 200     Average Score: 13.95
Episode 300     Average Score: 176.47
Episode 312     Average Score: 196.64
Environment solved in 212 episodes!      Average Score: 196.64
0:03:37.330931
Run:  8  -----
Episode 100     Average Score: 12.17
Episode 200     Average Score: 13.74
Episode 300     Average Score: 185.24
Episode 307     Average Score: 196.61
Environment solved in 207 episodes!      Average Score: 196.61
0:03:34.112307
Run:  9  -----
Episode 100     Average Score: 14.93
Episode 200     Average Score: 86.70
Episode 300     Average Score: 175.25
Episode 400     Average Score: 169.79
Episode 449     Average Score: 195.38
Environment solved in 349 episodes!      Average Score: 195.38
0:12:00.359563
Run: 10  -----
Episode 100     Average Score: 11.92
Episode 200     Average Score: 10.07
Episode 300     Average Score: 151.86
Episode 319     Average Score: 196.87

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Environment solved in 219 episodes!
0:03:32.177871

Average Score: 196.87



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Episode: 1 Number of steps: 28
Episode: 2 Number of steps: 19
Episode: 3 Number of steps: 24
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wandb: Agent Starting Run: Otniv4zd with config:

wandb: BATCH_SIZE: 100

wandb: EPS_DECAY: 0.947156368286084

wandb: GAMMA: 0.8495150839507726

wandb: LR: 6.143882538508602e-05

wandb: MAX_TRUNCATION: 1.4553132406153464

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 128

wandb: UPDATE_EVERY: 139

wandb: a_TUNE: 0.8559516443565589

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----
Episode 100 Average Score: 12.13
Episode 200 Average Score: 11.01
Episode 300 Average Score: 169.23


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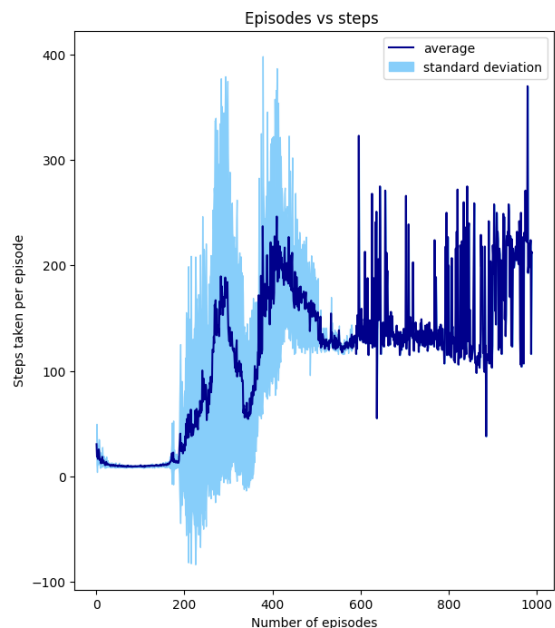
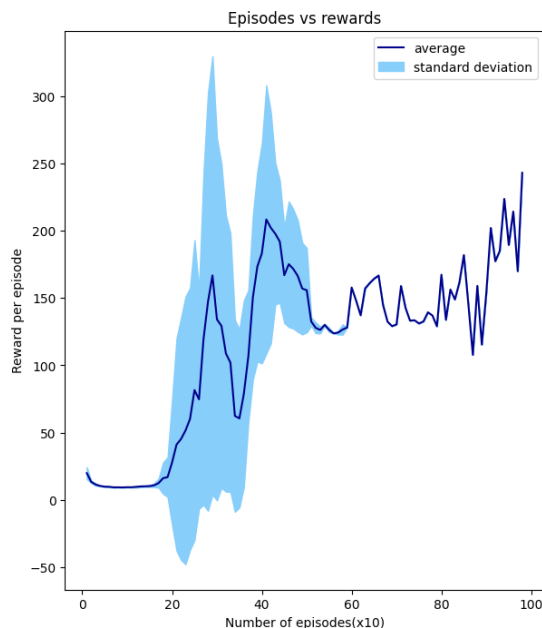
Episode 313      Average Score: 195.79
Environment solved in 213 episodes!      Average Score: 195.79
0:02:35.271032
Run:  2  -----
Episode 100      Average Score: 11.20
Episode 200      Average Score: 9.950
Episode 300      Average Score: 11.82
Episode 400      Average Score: 24.33
Episode 500      Average Score: 192.38
Episode 503      Average Score: 195.28
Environment solved in 403 episodes!      Average Score: 195.28
0:03:06.956181
Run:  3  -----
Episode 100      Average Score: 10.85
Episode 200      Average Score: 10.50
Episode 300      Average Score: 121.32
Episode 330      Average Score: 196.81
Environment solved in 230 episodes!      Average Score: 196.81
0:02:36.039205
Run:  4  -----
Episode 100      Average Score: 12.48
Episode 200      Average Score: 36.52
Episode 250      Average Score: 196.18
Environment solved in 150 episodes!      Average Score: 196.18
0:02:27.945379
Run:  5  -----
Episode 100      Average Score: 10.79
Episode 200      Average Score: 9.741
Episode 300      Average Score: 10.35
Episode 400      Average Score: 92.91
Episode 433      Average Score: 196.57
Environment solved in 333 episodes!      Average Score: 196.57
0:02:44.736167
Run:  6  -----
Episode 100      Average Score: 11.36
Episode 200      Average Score: 11.22
Episode 300      Average Score: 14.42
Episode 400      Average Score: 87.78
Episode 446      Average Score: 196.80
Environment solved in 346 episodes!      Average Score: 196.80
0:02:51.253722
Run:  7  -----
Episode 100      Average Score: 11.08
Episode 200      Average Score: 10.91
Episode 299      Average Score: 198.66
Environment solved in 199 episodes!      Average Score: 198.66
0:02:33.135549
Run:  8  -----

```

Episode 100 Average Score: 10.89
 Episode 200 Average Score: 9.800
 Episode 300 Average Score: 13.78
 Episode 400 Average Score: 103.87
 Episode 500 Average Score: 148.80
 Episode 600 Average Score: 132.11
 Episode 700 Average Score: 147.10
 Episode 800 Average Score: 140.47
 Episode 900 Average Score: 146.38
 Episode 989 Average Score: 195.09
 Environment solved in 889 episodes! Average Score: 195.09
 0:23:40.300515

Run: 9 -----
 Episode 100 Average Score: 10.87
 Episode 200 Average Score: 12.25
 Episode 300 Average Score: 127.37
 Episode 333 Average Score: 196.81
 Environment solved in 233 episodes! Average Score: 196.81
 0:02:32.956508

Run: 10 -----
 Episode 100 Average Score: 11.38
 Episode 200 Average Score: 12.80
 Episode 300 Average Score: 56.97
 Episode 400 Average Score: 181.02
 Episode 500 Average Score: 139.18
 Episode 581 Average Score: 125.55
 Experiment ended because of bad results, no significant improvement of the agent
 performance
 0:07:47.184405



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wandb: Agent Starting Run: u2fvnof2 with config:
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wandb:   BATCH_SIZE: 236
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wandb:   EPS_DECAY: 0.9304010177021712
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wandb:   GAMMA: 0.8563815339181461
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wandb:   LR: 5.005234263690648e-05
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wandb:   MAX_TRUNCATION: 0.95776310243926
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wandb:   NUM_LAYERS: 2
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wandb:   NUM_NEURONS_EACH_LAYER: 128
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wandb:   UPDATE_EVERY: 59
```

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wandb:   a_TUNE: 0.8528776935471074
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Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
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```
Run: 1 -----
Episode 100      Average Score: 14.24
```

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Episode 200      Average Score: 15.34
Episode 300      Average Score: 180.88
Episode 308      Average Score: 195.93
Environment solved in 208 episodes!      Average Score: 195.93
0:03:03.446410
Run:  2  -----
Episode 100      Average Score: 10.47
Episode 200      Average Score: 9.530
Episode 300      Average Score: 10.34
Episode 400      Average Score: 23.83
Episode 475      Average Score: 196.92
Environment solved in 375 episodes!      Average Score: 196.92
0:03:13.998769
Run:  3  -----
Episode 100      Average Score: 10.37
Episode 200      Average Score: 9.493
Episode 300      Average Score: 10.53
Episode 400      Average Score: 132.37
Episode 429      Average Score: 196.41
Environment solved in 329 episodes!      Average Score: 196.41
0:03:08.257866
Run:  4  -----
Episode 100      Average Score: 10.67
Episode 200      Average Score: 9.701
Episode 300      Average Score: 11.76
Episode 400      Average Score: 161.41
Episode 413      Average Score: 197.72
Environment solved in 313 episodes!      Average Score: 197.72
0:03:11.846283
Run:  5  -----
Episode 100      Average Score: 10.94
Episode 200      Average Score: 10.13
Episode 300      Average Score: 11.26
Episode 400      Average Score: 29.08
Episode 441      Average Score: 196.65
Environment solved in 341 episodes!      Average Score: 196.65
0:03:11.776267
Run:  6  -----
Episode 100      Average Score: 10.66
Episode 200      Average Score: 10.24
Episode 300      Average Score: 123.73
Episode 331      Average Score: 196.17
Environment solved in 231 episodes!      Average Score: 196.17
0:03:00.982341
Run:  7  -----
Episode 100      Average Score: 10.65
Episode 200      Average Score: 9.960
Episode 300      Average Score: 10.71

```

Episode 400 Average Score: 13.81
 Episode 499 Average Score: 197.32
 Environment solved in 399 episodes! Average Score: 197.32
 0:03:20.460227

Run: 8 -----

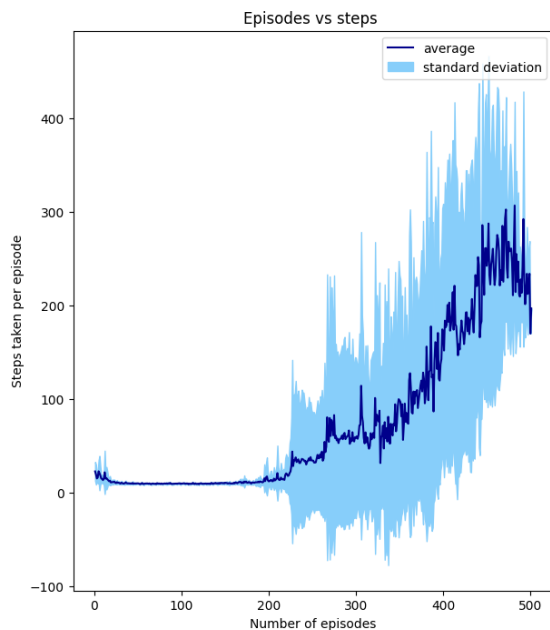
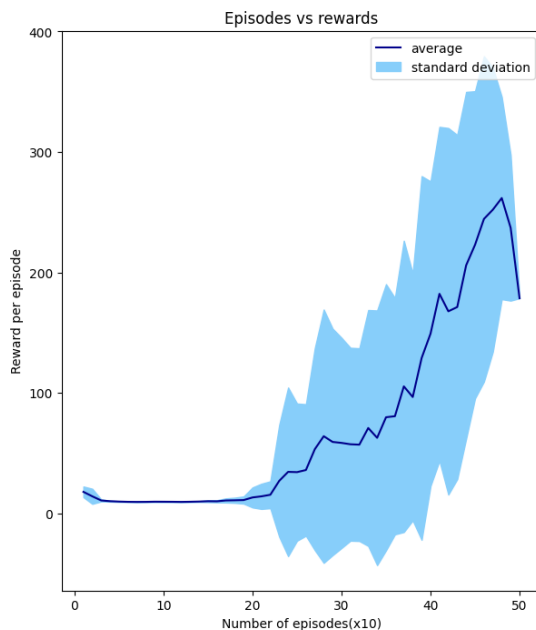
Episode 100 Average Score: 10.99
 Episode 200 Average Score: 9.910
 Episode 300 Average Score: 12.22
 Episode 400 Average Score: 61.15
 Episode 474 Average Score: 196.08
 Environment solved in 374 episodes! Average Score: 196.08
 0:03:30.279011

Run: 9 -----

Episode 100 Average Score: 10.24
 Episode 200 Average Score: 9.603
 Episode 300 Average Score: 10.69
 Episode 400 Average Score: 13.32
 Episode 500 Average Score: 82.22
 Episode 501 Average Score: 84.10
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:31.740843

Run: 10 -----

Episode 100 Average Score: 10.47
 Episode 200 Average Score: 9.680
 Episode 300 Average Score: 13.37
 Episode 374 Average Score: 198.11
 Environment solved in 274 episodes! Average Score: 198.11
 0:03:03.921496



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wandb: Agent Starting Run: sdijs95 with config:

wandb: BATCH_SIZE: 82

wandb: EPS_DECAY: 0.994562051633274

wandb: GAMMA: 0.8958667088537814

wandb: LR: 6.191606487231409e-05

wandb: MAX_TRUNCATION: 1.542127674530617

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 64

wandb: UPDATE_EVERY: 22

wandb: a_TUNE: 0.38708164195434613

Failed to detect the name of this notebook, you can set it manually with the WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100 Average Score: 18.34

Episode 200 Average Score: 47.05

Episode 266 Average Score: 195.36

Environment solved in 166 episodes! Average Score: 195.36

0:02:39.843572

Run: 2 -----

Episode 100 Average Score: 19.35

Episode 200 Average Score: 44.89

Episode 248 Average Score: 195.64

Environment solved in 148 episodes! Average Score: 195.64

0:02:35.743138

Run: 3 -----

Episode 100 Average Score: 19.65

Episode 200 Average Score: 48.69

Episode 300 Average Score: 179.46

Episode 400 Average Score: 184.22

Episode 500 Average Score: 185.30

Episode 501 Average Score: 185.21

Experiment ended because of bad results, no significant improvement of the agent performance

0:10:36.021004

Run: 4 -----

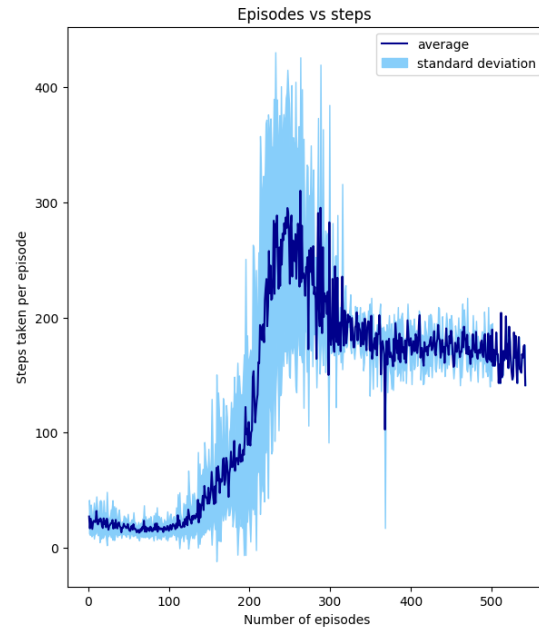
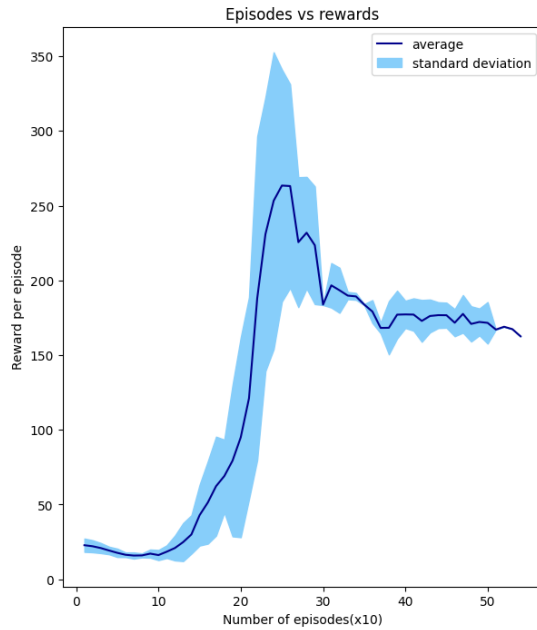
Episode 100 Average Score: 17.03

Episode 200 Average Score: 109.97


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Episode 234      Average Score: 195.60
Environment solved in 134 episodes!      Average Score: 195.60
0:02:25.109739
Run:  5  -----
Episode 100      Average Score: 18.80
Episode 200      Average Score: 51.37
Episode 265      Average Score: 198.15
Environment solved in 165 episodes!      Average Score: 198.15
0:02:49.778305
Run:  6  -----
Episode 100      Average Score: 19.03
Episode 200      Average Score: 31.71
Episode 299      Average Score: 197.61
Environment solved in 199 episodes!      Average Score: 197.61
0:02:51.817765
Run:  7  -----
Episode 100      Average Score: 16.41
Episode 200      Average Score: 35.36
Episode 300      Average Score: 132.97
Episode 400      Average Score: 180.40
Episode 500      Average Score: 163.44
Episode 542      Average Score: 164.17
Experiment ended because of bad results, no significant improvement of the agent
performance
0:10:04.121300
Run:  8  -----
Episode 100      Average Score: 16.32
Episode 200      Average Score: 39.21
Episode 282      Average Score: 196.63
Environment solved in 182 episodes!      Average Score: 196.63
0:02:46.426055
Run:  9  -----
Episode 100      Average Score: 18.14
Episode 200      Average Score: 30.69
Episode 268      Average Score: 195.19
Environment solved in 168 episodes!      Average Score: 195.19
0:02:32.873491
Run: 10  -----
Episode 100      Average Score: 20.99
Episode 200      Average Score: 55.14
Episode 277      Average Score: 197.05
Environment solved in 177 episodes!      Average Score: 197.05
0:02:58.597294

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Episode: 1 Number of steps: 27
Episode: 2 Number of steps: 17
Episode: 3 Number of steps: 25
Episode: 4 Number of steps: 21
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wandb: Sweep Agent: Waiting for job.

wandb: Job received.

wandb: Agent Starting Run: y6aweian with config:

wandb: BATCH_SIZE: 445

wandb: EPS_DECAY: 0.9539558814765162

wandb: GAMMA: 0.8074208494107936

wandb: LR: 6.720252804661174e-05

wandb: MAX_TRUNCATION: 1.3790537169095152

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 128

wandb: UPDATE_EVERY: 14

wandb: a_TUNE: 0.17577417109251392

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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<IPython.core.display.HTML object>

Run: 1 -----

Episode 100 Average Score: 39.62

Episode 190 Average Score: 195.21

Environment solved in 90 episodes! Average Score: 195.21

0:03:33.442156

Run: 2 -----

Episode 100 Average Score: 11.41

Episode 200 Average Score: 58.86

Episode 258 Average Score: 196.72

Environment solved in 158 episodes! Average Score: 196.72

0:03:26.001477

Run: 3 -----

Episode 100 Average Score: 11.48

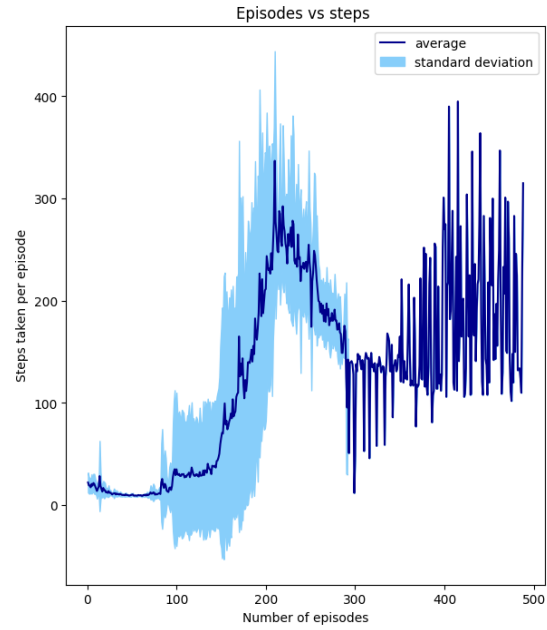
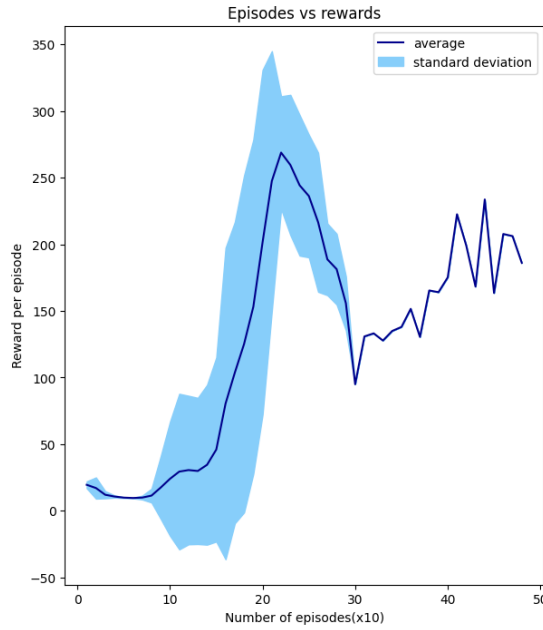
Episode 200 Average Score: 184.00

Episode 204 Average Score: 195.88

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Environment solved in 104 episodes!      Average Score: 195.88
0:03:17.828633
Run:  4  -----
Episode 100      Average Score: 11.10
Episode 200      Average Score: 37.55
Episode 256      Average Score: 197.39
Environment solved in 156 episodes!      Average Score: 197.39
0:03:25.879450
Run:  5  -----
Episode 100      Average Score: 11.43
Episode 200      Average Score: 24.14
Episode 283      Average Score: 196.43
Environment solved in 183 episodes!      Average Score: 196.43
0:03:32.950045
Run:  6  -----
Episode 100      Average Score: 12.15
Episode 200      Average Score: 112.57
Episode 238      Average Score: 195.17
Environment solved in 138 episodes!      Average Score: 195.17
0:03:23.222850
Run:  7  -----
Episode 100      Average Score: 10.93
Episode 200      Average Score: 16.74
Episode 264      Average Score: 196.84
Environment solved in 164 episodes!      Average Score: 196.84
0:03:26.778653
Run:  8  -----
Episode 100      Average Score: 10.81
Episode 200      Average Score: 26.51
Episode 292      Average Score: 195.10
Environment solved in 192 episodes!      Average Score: 195.10
0:03:39.199737
Run:  9  -----
Episode 100      Average Score: 11.40
Episode 200      Average Score: 150.32
Episode 210      Average Score: 195.01
Environment solved in 110 episodes!      Average Score: 195.01
0:03:18.547795
Run: 10  -----
Episode 100      Average Score: 11.62
Episode 200      Average Score: 23.99
Episode 300      Average Score: 162.23
Episode 400      Average Score: 145.17
Episode 488      Average Score: 195.38
Environment solved in 388 episodes!      Average Score: 195.38
0:10:26.797661

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Episode: 1 Number of steps: 22
Episode: 2 Number of steps: 19
Episode: 3 Number of steps: 19
Episode: 4 Number of steps: 18
Episode: 5 Number of steps: 21
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Episode: 7 Number of steps: 22
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wandb: Agent Starting Run: a6snkxdg with config:

wandb: BATCH_SIZE: 109

wandb: EPS_DECAY: 0.9381989534050912

wandb: GAMMA: 0.8869649295017897

wandb: LR: 6.791548514344285e-05

wandb: MAX_TRUNCATION: 1.176591109915182

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 128

wandb: UPDATE_EVERY: 39

wandb: a_TUNE: 0.32047596981992543

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100 Average Score: 14.13

Episode 200 Average Score: 125.06

Episode 300 Average Score: 173.29

Episode 400 Average Score: 158.97

Episode 457 Average Score: 195.64

Environment solved in 357 episodes! Average Score: 195.64

0:10:10.907421

Run: 2 -----

Episode 100 Average Score: 11.97

Episode 200 Average Score: 57.28

Episode 259 Average Score: 195.85

Environment solved in 159 episodes! Average Score: 195.85

0:02:30.052855

Run: 3 -----

Episode 100 Average Score: 11.90

Episode 200 Average Score: 163.82

Episode 210 Average Score: 196.86

Environment solved in 110 episodes! Average Score: 196.86

0:02:21.222862

Run: 4 -----

Episode 100 Average Score: 10.71

Episode 200 Average Score: 46.80

Episode 250 Average Score: 195.07

Environment solved in 150 episodes! Average Score: 195.07

0:02:22.446287

Run: 5 -----

Episode 100 Average Score: 11.58

Episode 200 Average Score: 19.65

Episode 285 Average Score: 196.72

Environment solved in 185 episodes! Average Score: 196.72

0:02:33.833807

Run: 6 -----

Episode 100 Average Score: 10.94

Episode 200 Average Score: 66.00

Episode 268 Average Score: 195.86

Environment solved in 168 episodes! Average Score: 195.86

0:02:29.883043

Run: 7 -----

Episode 100 Average Score: 10.52

Episode 200 Average Score: 21.82

Episode 269 Average Score: 196.09

Environment solved in 169 episodes! Average Score: 196.09

0:02:25.836937

Run: 8 -----

Episode 100 Average Score: 11.02

Episode 200 Average Score: 42.09

Episode 300 Average Score: 192.26

Episode 400 Average Score: 157.47

Episode 500 Average Score: 163.01

Episode 600 Average Score: 190.10

Episode 622 Average Score: 195.33

Environment solved in 522 episodes! Average Score: 195.33

0:16:09.318909

Run: 9 -----

Episode 100 Average Score: 11.76

Episode 200 Average Score: 54.61

Episode 282 Average Score: 195.18

Environment solved in 182 episodes! Average Score: 195.18

0:02:38.089668

Run: 10 -----

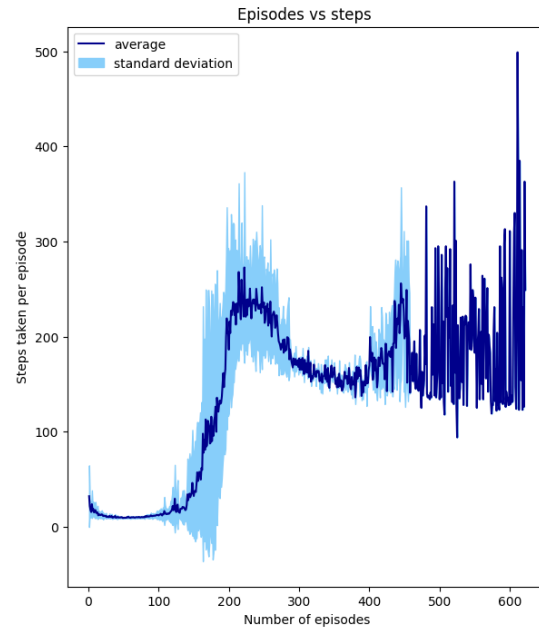
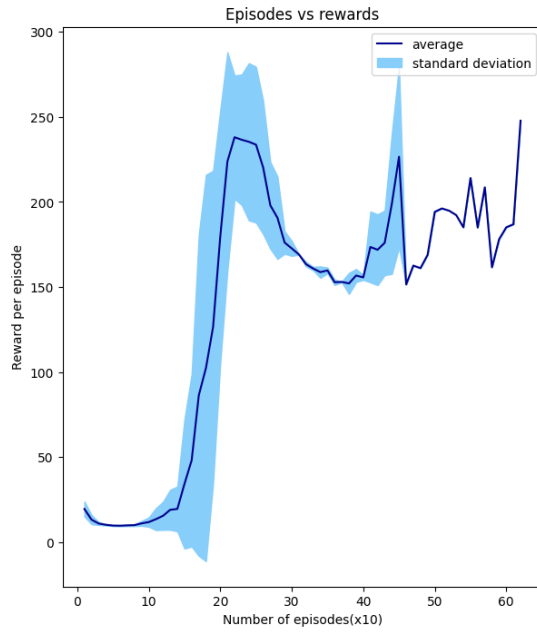
Episode 100 Average Score: 11.33

Episode 200 Average Score: 47.71

Episode 268 Average Score: 195.33

Environment solved in 168 episodes! Average Score: 195.33

0:02:35.855145



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wandb: Agent Starting Run: orbkgolu with config:

wandb: BATCH_SIZE: 432

wandb: EPS_DECAY: 0.9582095570720294

wandb: GAMMA: 0.9715704993413474

wandb: LR: 1.8422788619594917e-05

wandb: MAX_TRUNCATION: 0.6481935369515359

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 64

wandb: UPDATE_EVERY: 11

wandb: a_TUNE: 0.6612431162655902

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WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100 Average Score: 11.01

Episode 200 Average Score: 9.440

Episode 300 Average Score: 9.25

Episode 400 Average Score: 9.43

Episode 500 Average Score: 9.46

Episode 501 Average Score: 9.47

Experiment ended because of bad results, no significant improvement of the agent
performance

0:00:35.626038

Run: 2 -----

Episode 100 Average Score: 11.43

Episode 200 Average Score: 9.323

Episode 300 Average Score: 9.26

Episode 400 Average Score: 9.48

Episode 500 Average Score: 9.36

Episode 501 Average Score: 9.36

Experiment ended because of bad results, no significant improvement of the agent

performance

0:00:35.888097

Run: 3 -----

Episode 100	Average Score: 11.72
Episode 200	Average Score: 9.430
Episode 300	Average Score: 9.40
Episode 400	Average Score: 9.44
Episode 500	Average Score: 9.47
Episode 501	Average Score: 9.47

Experiment ended because of bad results, no significant improvement of the agent performance

0:00:36.507237

Run: 4 -----

Episode 100	Average Score: 11.58
Episode 200	Average Score: 9.391
Episode 300	Average Score: 9.35
Episode 400	Average Score: 9.37
Episode 500	Average Score: 9.44
Episode 501	Average Score: 9.45

Experiment ended because of bad results, no significant improvement of the agent performance

0:00:36.381208

Run: 5 -----

Episode 100	Average Score: 11.25
Episode 200	Average Score: 9.476
Episode 300	Average Score: 9.40
Episode 400	Average Score: 9.38
Episode 500	Average Score: 9.41
Episode 501	Average Score: 9.39

Experiment ended because of bad results, no significant improvement of the agent performance

0:00:35.885097

Run: 6 -----

Episode 100	Average Score: 11.27
Episode 200	Average Score: 9.482
Episode 300	Average Score: 9.51
Episode 400	Average Score: 9.43
Episode 500	Average Score: 9.34
Episode 501	Average Score: 9.34

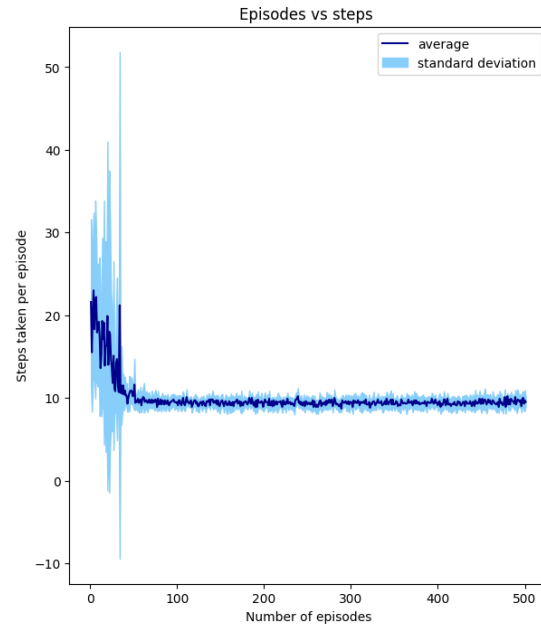
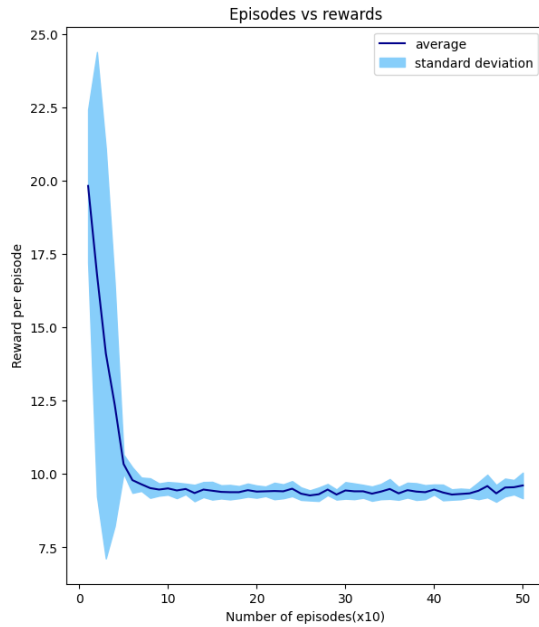
Experiment ended because of bad results, no significant improvement of the agent performance

0:00:35.812080

Run: 7 -----

Episode 100	Average Score: 11.66
Episode 200	Average Score: 9.371
Episode 300	Average Score: 9.39
Episode 400	Average Score: 9.36
Episode 500	Average Score: 9.59

Episode 501 Average Score: 9.58
 Experiment ended because of bad results, no significant improvement of the agent
 performance
 0:00:36.293188
 Run: 8 -----
 Episode 100 Average Score: 11.64
 Episode 200 Average Score: 9.540
 Episode 300 Average Score: 9.43
 Episode 400 Average Score: 9.46
 Episode 500 Average Score: 9.22
 Episode 501 Average Score: 9.22
 Experiment ended because of bad results, no significant improvement of the agent
 performance
 0:00:36.398212
 Run: 9 -----
 Episode 100 Average Score: 18.25
 Episode 200 Average Score: 9.345
 Episode 300 Average Score: 9.38
 Episode 400 Average Score: 9.42
 Episode 500 Average Score: 9.44
 Episode 501 Average Score: 9.45
 Experiment ended because of bad results, no significant improvement of the agent
 performance
 0:00:41.928459
 Run: 10 -----
 Episode 100 Average Score: 11.57
 Episode 200 Average Score: 9.406
 Episode 300 Average Score: 9.49
 Episode 400 Average Score: 9.31
 Episode 500 Average Score: 9.66
 Episode 501 Average Score: 9.66
 Experiment ended because of bad results, no significant improvement of the agent
 performance
 0:00:36.270183



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Episode: 2 Number of steps: 16
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wandb: Agent Starting Run: edylz50k with config:

wandb: BATCH_SIZE: 388

wandb: EPS_DECAY: 0.9213039846395012

wandb: GAMMA: 0.9572341571672266

wandb: LR: 2.062697010822938e-05

wandb: MAX_TRUNCATION: 1.6278695998762147

wandb: NUM_LAYERS: 4

wandb: NUM_NEURONS_EACH_LAYER: 64

wandb: UPDATE_EVERY: 56

wandb: a_TUNE: 0.9867830155324524

Failed to detect the name of this notebook, you can set it manually with the WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100 Average Score: 11.24

Episode 200 Average Score: 9.388

Episode 300 Average Score: 9.37

Episode 400 Average Score: 9.62

Episode 500 Average Score: 9.29

Episode 501 Average Score: 9.30

Experiment ended because of bad results, no significant improvement of the agent performance

0:00:39.086819

Run: 2 -----

Episode 100 Average Score: 10.24

Episode 200 Average Score: 9.414

Episode 300 Average Score: 9.44

Episode 400 Average Score: 10.52

Episode 500 Average Score: 11.04

Episode 501 Average Score: 11.09

Experiment ended because of bad results, no significant improvement of the agent performance

0:00:40.664175

Run: 3 -----

Episode 100 Average Score: 10.95

Episode 200 Average Score: 9.510

Episode 300 Average Score: 9.52

Episode 400 Average Score: 12.87

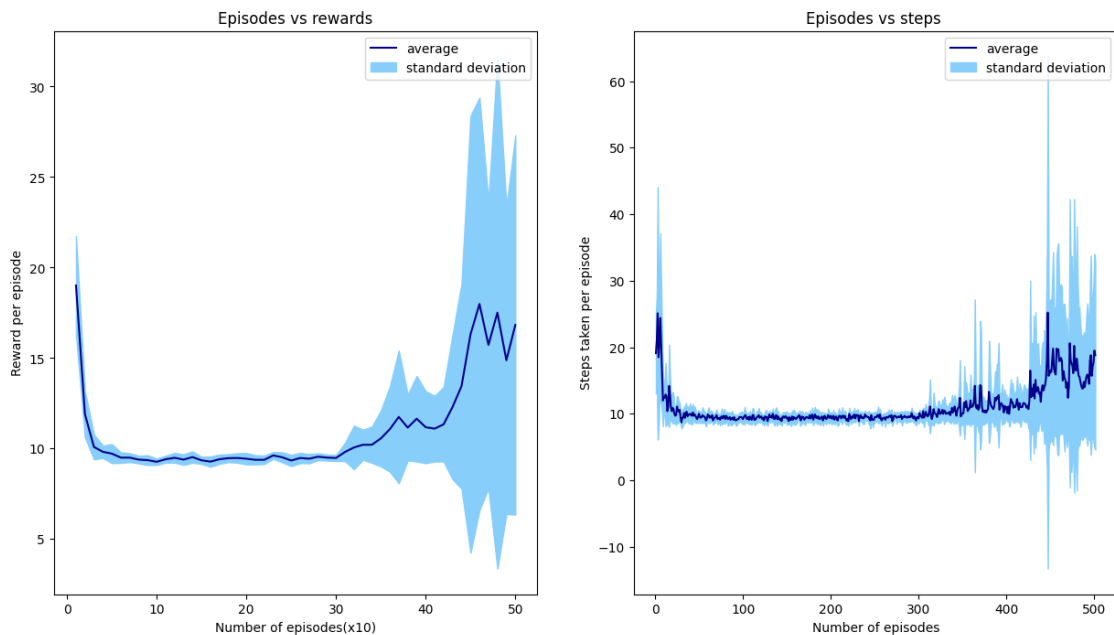
Episode 500 Average Score: 23.48

Episode 501 Average Score: 23.70
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:55.896611
 Run: 4 -----
 Episode 100 Average Score: 11.49
 Episode 200 Average Score: 9.470
 Episode 300 Average Score: 9.41
 Episode 400 Average Score: 11.17
 Episode 500 Average Score: 18.21
 Episode 501 Average Score: 18.18
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:49.532176
 Run: 5 -----
 Episode 100 Average Score: 10.78
 Episode 200 Average Score: 9.436
 Episode 300 Average Score: 9.62
 Episode 400 Average Score: 9.39
 Episode 500 Average Score: 10.05
 Episode 501 Average Score: 10.05
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:39.548923
 Run: 6 -----
 Episode 100 Average Score: 10.33
 Episode 200 Average Score: 9.400
 Episode 300 Average Score: 9.49
 Episode 400 Average Score: 9.98
 Episode 500 Average Score: 9.870
 Episode 501 Average Score: 9.84
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:39.346878
 Run: 7 -----
 Episode 100 Average Score: 10.78
 Episode 200 Average Score: 9.436
 Episode 300 Average Score: 9.45
 Episode 400 Average Score: 11.25
 Episode 500 Average Score: 30.13
 Episode 501 Average Score: 30.39
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:59.570440
 Run: 8 -----
 Episode 100 Average Score: 10.57
 Episode 200 Average Score: 9.421
 Episode 300 Average Score: 9.35

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Episode 400      Average Score: 10.17
Episode 500      Average Score: 16.54
Episode 501      Average Score: 16.95
Experiment ended because of bad results, no significant improvement of the agent
performance
0:00:46.096400
Run:  9  -----
Episode 100      Average Score: 10.41
Episode 200      Average Score:  9.517
Episode 300      Average Score:  9.44
Episode 400      Average Score: 13.29
Episode 500      Average Score:  9.341
Episode 501      Average Score:  9.34
Experiment ended because of bad results, no significant improvement of the agent
performance
0:00:42.182518
Run: 10  -----
Episode 100      Average Score: 10.76
Episode 200      Average Score:  9.291
Episode 300      Average Score:  9.60
Episode 400      Average Score:  9.40
Episode 500      Average Score:  9.49
Episode 501      Average Score:  9.47
Experiment ended because of bad results, no significant improvement of the agent
performance
0:00:39.069815

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wandb: Agent Starting Run: 2kg1599i with config:
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wandb:   BATCH_SIZE: 93
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wandb:   EPS_DECAY: 0.979901757052316
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wandb:   GAMMA: 0.9670269768091512
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wandb:   LR: 5.297330569708928e-05
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wandb:   MAX_TRUNCATION: 1.2639403441561128
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wandb:   NUM_LAYERS: 10
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wandb:   NUM_NEURONS_EACH_LAYER: 64
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wandb:   UPDATE_EVERY: 72
```

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wandb:   a_TUNE: 0.1917370506391084
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Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
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```
Run: 1 -----
Episode 100      Average Score: 13.99
Episode 200      Average Score: 11.19
Episode 300      Average Score: 12.26
Episode 400      Average Score: 13.27
Episode 500      Average Score: 13.33
Episode 501      Average Score: 13.02
Experiment ended because of bad results, no significant improvement of the agent
performance
0:00:59.425407
```

```
Run: 2 -----
Episode 100      Average Score: 14.96
Episode 200      Average Score: 12.17
Episode 300      Average Score: 13.23
Episode 400      Average Score: 13.45
Episode 500      Average Score: 14.05
Episode 501      Average Score: 14.05
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:03.146247
```

```
Run: 3 -----
Episode 100      Average Score: 13.55
Episode 200      Average Score: 11.25
Episode 300      Average Score: 12.09
Episode 400      Average Score: 13.08
Episode 500      Average Score: 15.14
Episode 501      Average Score: 15.16
Experiment ended because of bad results, no significant improvement of the agent
performance
0:01:00.104561
```

```
Run: 4 -----
Episode 100      Average Score: 14.48
Episode 200      Average Score: 12.43
Episode 300      Average Score: 12.13
Episode 400      Average Score: 13.23
Episode 500      Average Score: 11.93
Episode 501      Average Score: 11.98
Experiment ended because of bad results, no significant improvement of the agent
performance
0:00:58.763258
```

```
Run: 5 -----
Episode 100      Average Score: 14.53
Episode 200      Average Score: 11.22
Episode 300      Average Score: 10.55
Episode 400      Average Score: 11.34
Episode 500      Average Score: 11.43
```

Episode 501 Average Score: 11.42
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:53.887158
 Run: 6 -----
 Episode 100 Average Score: 14.85
 Episode 200 Average Score: 12.07
 Episode 300 Average Score: 13.37
 Episode 400 Average Score: 13.44
 Episode 500 Average Score: 13.13
 Episode 501 Average Score: 13.03
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:01.964980
 Run: 7 -----
 Episode 100 Average Score: 13.57
 Episode 200 Average Score: 11.63
 Episode 300 Average Score: 11.75
 Episode 400 Average Score: 12.73
 Episode 500 Average Score: 14.01
 Episode 501 Average Score: 13.88
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:58.841275
 Run: 8 -----
 Episode 100 Average Score: 12.86
 Episode 200 Average Score: 11.03
 Episode 300 Average Score: 12.00
 Episode 400 Average Score: 13.46
 Episode 500 Average Score: 13.08
 Episode 501 Average Score: 12.95
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:57.519978
 Run: 9 -----
 Episode 100 Average Score: 13.98
 Episode 200 Average Score: 12.15
 Episode 300 Average Score: 11.94
 Episode 400 Average Score: 12.36
 Episode 500 Average Score: 12.73
 Episode 501 Average Score: 12.73
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:00:57.951075
 Run: 10 -----
 Episode 100 Average Score: 15.03
 Episode 200 Average Score: 12.39
 Episode 300 Average Score: 12.76

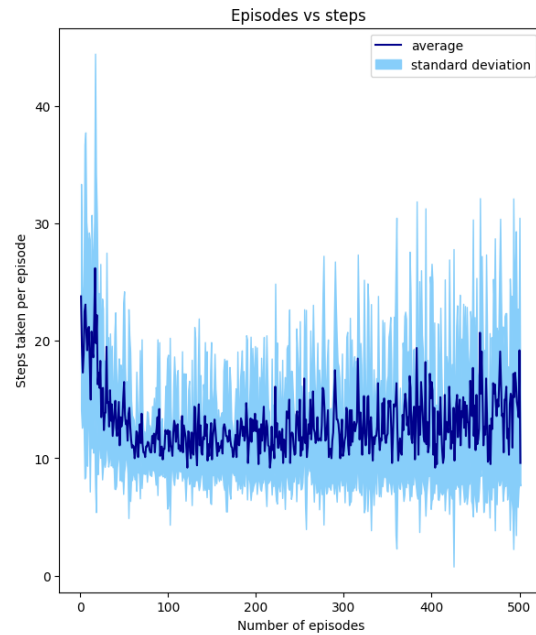
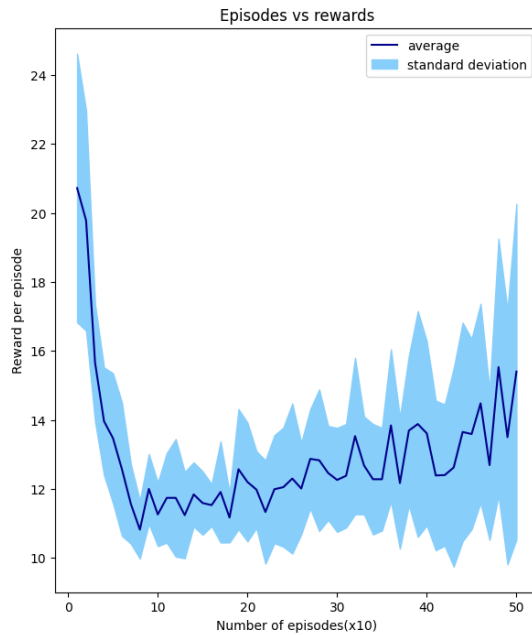
Episode 400 Average Score: 13.98

Episode 500 Average Score: 17.42

Episode 501 Average Score: 17.41

Experiment ended because of bad results, no significant improvement of the agent performance

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wandb: Agent Starting Run: a8rrj7n9 with config:

wandb: BATCH_SIZE: 79

wandb: EPS_DECAY: 0.9668218493647328

wandb: GAMMA: 0.826315409059545

wandb: LR: 8.465776832274467e-05

wandb: MAX_TRUNCATION: 0.6375798571314568

wandb: NUM_LAYERS: 8

wandb: NUM_NEURONS_EACH_LAYER: 90

wandb: UPDATE_EVERY: 37

wandb: a_TUNE: 0.28647247279686106

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100	Average Score: 15.67
Episode 200	Average Score: 119.76
Episode 300	Average Score: 155.65
Episode 400	Average Score: 151.83
Episode 500	Average Score: 148.42
Episode 600	Average Score: 136.23
Episode 700	Average Score: 142.59
Episode 800	Average Score: 143.72
Episode 900	Average Score: 146.18
Episode 1000	Average Score: 156.12
Episode 1100	Average Score: 156.91
Episode 1200	Average Score: 134.98
Episode 1300	Average Score: 156.03
Episode 1400	Average Score: 158.28
Episode 1500	Average Score: 165.79
Episode 1600	Average Score: 151.05
Episode 1700	Average Score: 151.81
Episode 1800	Average Score: 160.16

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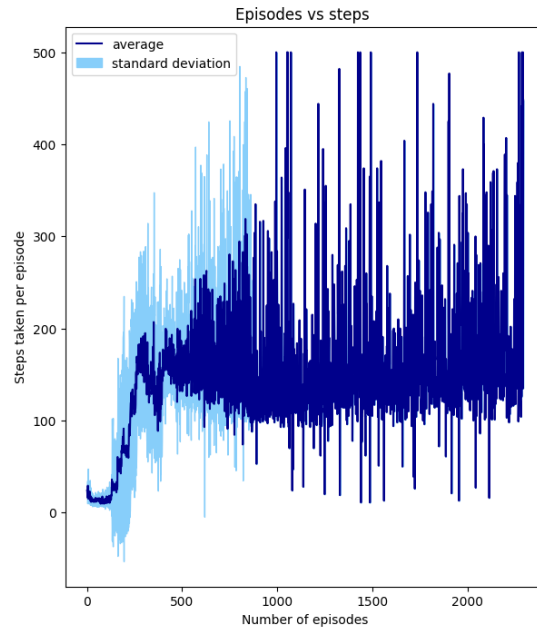
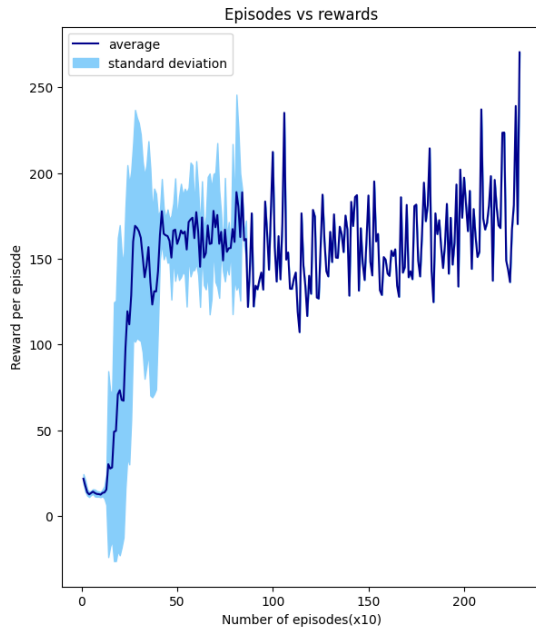
Episode 1900    Average Score: 163.65
Episode 2000    Average Score: 170.36
Episode 2100    Average Score: 173.91
Episode 2200    Average Score: 179.18
Episode 2293    Average Score: 196.80
Environment solved in 2193 episodes!    Average Score: 196.80
3:28:16.888986
Run:  2  -----
Episode 100     Average Score: 13.60
Episode 200     Average Score: 11.64
Episode 300     Average Score: 97.13
Episode 351     Average Score: 195.42
Environment solved in 251 episodes!    Average Score: 195.42
0:03:38.314815
Run:  3  -----
Episode 100     Average Score: 15.19
Episode 200     Average Score: 11.60
Episode 300     Average Score: 12.59
Episode 400     Average Score: 20.32
Episode 500     Average Score: 171.57
Episode 600     Average Score: 160.26
Episode 700     Average Score: 189.25
Episode 716     Average Score: 196.01
Environment solved in 616 episodes!    Average Score: 196.01
0:13:17.942423
Run:  4  -----
Episode 100     Average Score: 14.98
Episode 200     Average Score: 12.53
Episode 300     Average Score: 105.30
Episode 351     Average Score: 195.28
Environment solved in 251 episodes!    Average Score: 195.28
0:03:24.536286
Run:  5  -----
Episode 100     Average Score: 13.36
Episode 200     Average Score: 12.33
Episode 300     Average Score: 75.97
Episode 400     Average Score: 147.82
Episode 500     Average Score: 157.67
Episode 600     Average Score: 190.17
Episode 615     Average Score: 196.02
Environment solved in 515 episodes!    Average Score: 196.02
0:12:43.401445
Run:  6  -----
Episode 100     Average Score: 14.08
Episode 200     Average Score: 13.57
Episode 300     Average Score: 145.33
Episode 400     Average Score: 167.87
Episode 500     Average Score: 181.99

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Episode 545      Average Score: 196.02
Environment solved in 445 episodes!      Average Score: 196.02
0:12:24.578990
Run:  7  -----
Episode 100      Average Score: 14.17
Episode 200      Average Score: 60.15
Episode 274      Average Score: 195.98
Environment solved in 174 episodes!      Average Score: 195.98
0:03:35.225559
Run:  8  -----
Episode 100      Average Score: 13.99
Episode 200      Average Score: 12.23
Episode 300      Average Score: 161.96
Episode 320      Average Score: 195.86
Environment solved in 220 episodes!      Average Score: 195.86
0:03:28.419023
Run:  9  -----
Episode 100      Average Score: 14.41
Episode 200      Average Score: 104.75
Episode 247      Average Score: 195.61
Environment solved in 147 episodes!      Average Score: 195.61
0:03:25.363334
Run: 10  -----
Episode 100      Average Score: 15.32
Episode 200      Average Score: 13.29
Episode 300      Average Score: 138.50
Episode 400      Average Score: 167.91
Episode 500      Average Score: 158.43
Episode 600      Average Score: 168.19
Episode 700      Average Score: 152.26
Episode 800      Average Score: 175.69
Episode 866      Average Score: 195.44
Environment solved in 766 episodes!      Average Score: 195.44
0:32:59.172131

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```
[ ]: wandb.agent(sweep_id, train, count=9)
```

```
wandb: Agent Starting Run: s6wtmtgi with config:
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```
wandb:   BATCH_SIZE: 469
```

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wandb:   EPS_DECAY: 0.972692143062009
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wandb:   GAMMA: 0.8736173045407283
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wandb:   LR: 1.4731831999979211e-05
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wandb:   MAX_TRUNCATION: 0.9112273414866644
```

```
wandb:   NUM_LAYERS: 8
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wandb:   NUM_NEURONS_EACH_LAYER: 90
```

```
wandb:   UPDATE_EVERY: 59
```

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wandb:   a_TUNE: 0.39984112749615386
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```
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
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Run: 1 -----
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```
Episode 100      Average Score: 13.46
```

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Episode 200      Average Score: 9.452
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Episode 300      Average Score: 9.47
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Episode 400      Average Score: 11.29
```

```
Episode 500      Average Score: 12.66
```

```
Episode 501      Average Score: 12.68
```

```
Experiment ended because of bad results, no significant improvement of the agent
performance
```

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0:01:11.437117
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```
Run: 2 -----
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Episode 100 Average Score: 12.82
 Episode 200 Average Score: 9.680
 Episode 300 Average Score: 9.66
 Episode 400 Average Score: 9.36
 Episode 500 Average Score: 9.37
 Episode 501 Average Score: 9.38
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:04.830627
 Run: 3 -----
 Episode 100 Average Score: 12.71
 Episode 200 Average Score: 9.532
 Episode 300 Average Score: 9.35
 Episode 400 Average Score: 9.54
 Episode 500 Average Score: 11.90
 Episode 501 Average Score: 11.92
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:07.678269
 Run: 4 -----
 Episode 100 Average Score: 13.39
 Episode 200 Average Score: 9.382
 Episode 300 Average Score: 9.72
 Episode 400 Average Score: 12.08
 Episode 500 Average Score: 11.62
 Episode 501 Average Score: 11.61
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:11.750188
 Run: 5 -----
 Episode 100 Average Score: 11.64
 Episode 200 Average Score: 9.491
 Episode 300 Average Score: 9.56
 Episode 400 Average Score: 11.78
 Episode 500 Average Score: 11.42
 Episode 501 Average Score: 11.49
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:01:09.337643
 Run: 6 -----
 Episode 100 Average Score: 13.30
 Episode 200 Average Score: 9.580
 Episode 300 Average Score: 9.40
 Episode 400 Average Score: 11.31
 Episode 500 Average Score: 10.58
 Episode 501 Average Score: 10.57
 Experiment ended because of bad results, no significant improvement of the agent performance

0:01:09.058580

Run: 7 -----

Episode 100	Average Score: 12.68
Episode 200	Average Score: 9.489
Episode 300	Average Score: 9.35
Episode 400	Average Score: 11.44
Episode 500	Average Score: 10.56
Episode 501	Average Score: 10.35

Experiment ended because of bad results, no significant improvement of the agent performance

0:01:09.524687

Run: 8 -----

Episode 100	Average Score: 13.16
Episode 200	Average Score: 9.440
Episode 300	Average Score: 10.78
Episode 400	Average Score: 10.10
Episode 500	Average Score: 11.06
Episode 501	Average Score: 11.06

Experiment ended because of bad results, no significant improvement of the agent performance

0:01:10.632936

Run: 9 -----

Episode 100	Average Score: 13.50
Episode 200	Average Score: 9.602
Episode 300	Average Score: 9.64
Episode 400	Average Score: 12.24
Episode 500	Average Score: 13.10
Episode 501	Average Score: 13.04

Experiment ended because of bad results, no significant improvement of the agent performance

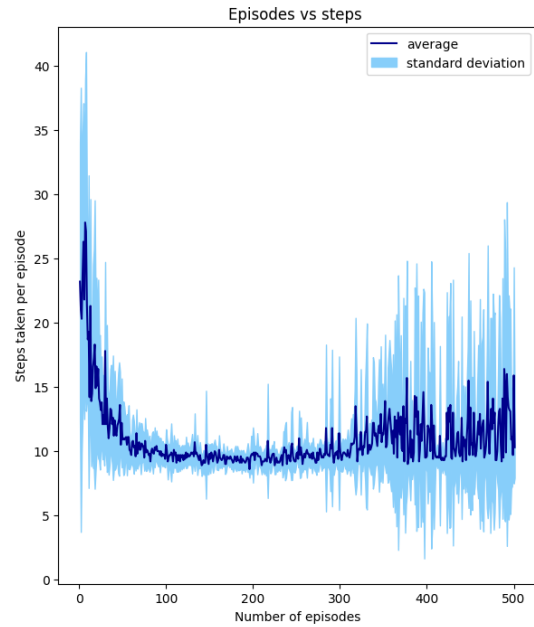
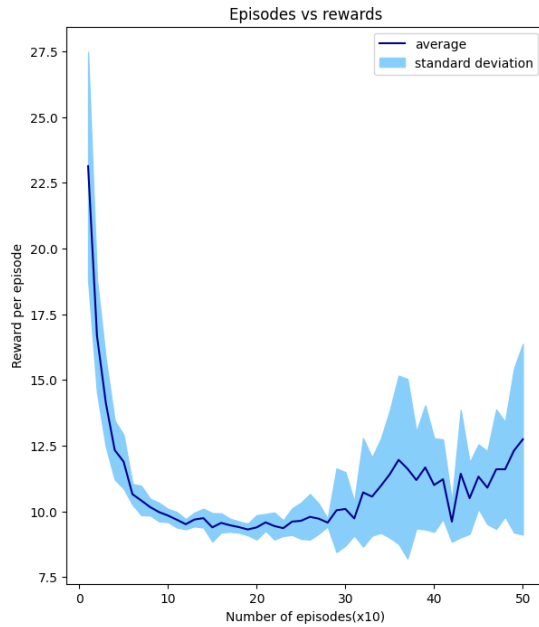
0:01:16.905350

Run: 10 -----

Episode 100	Average Score: 12.52
Episode 200	Average Score: 9.510
Episode 300	Average Score: 9.91
Episode 400	Average Score: 11.69
Episode 500	Average Score: 10.96
Episode 501	Average Score: 10.96

Experiment ended because of bad results, no significant improvement of the agent performance

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wandb: Agent Starting Run: nm060xy1 with config:

wandb: BATCH_SIZE: 183

wandb: EPS_DECAY: 0.9468491721514748

wandb: GAMMA: 0.8240520440566869

wandb: LR: 8.655218080382826e-05

wandb: MAX_TRUNCATION: 0.9146610106262836

wandb: NUM_LAYERS: 4

wandb: NUM_NEURONS_EACH_LAYER: 90

wandb: UPDATE_EVERY: 28

wandb: a_TUNE: 0.3088172437060571

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100 Average Score: 74.07

Episode 146 Average Score: 195.51

Environment solved in 46 episodes! Average Score: 195.51

0:03:31.237168

Run: 2 -----

Episode 100 Average Score: 31.37

Episode 175 Average Score: 197.07

Environment solved in 75 episodes! Average Score: 197.07

0:03:36.566699

Run: 3 -----

Episode 100 Average Score: 34.15

Episode 146 Average Score: 197.07

Environment solved in 46 episodes! Average Score: 197.07

0:03:29.213410

Run: 4 -----

Episode 100 Average Score: 59.89

Episode 160 Average Score: 195.84

Environment solved in 60 episodes! Average Score: 195.84

0:03:22.472681

Run: 5 -----

Episode 100 Average Score: 81.95

Episode 165 Average Score: 196.90

Environment solved in 65 episodes! Average Score: 196.90

0:03:30.565507

Run: 6 -----

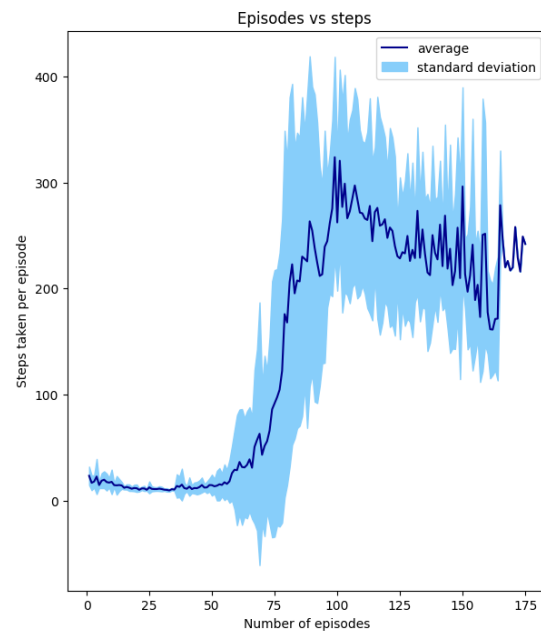
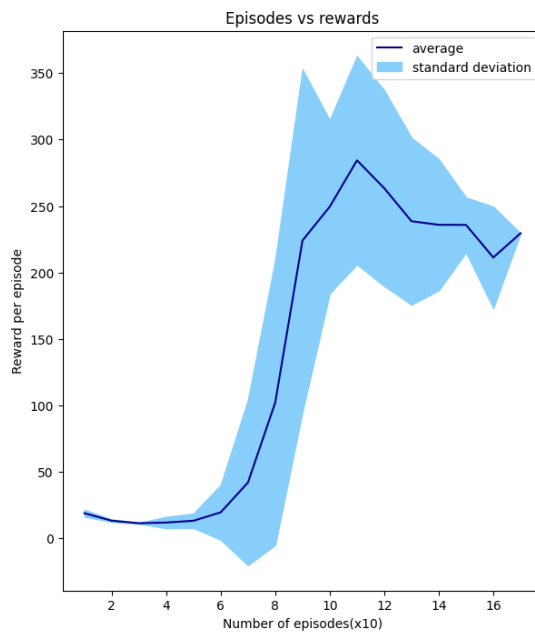
Episode 100 Average Score: 86.09
 Episode 164 Average Score: 195.08
 Environment solved in 64 episodes! Average Score: 195.08
 0:03:31.447707

Run: 7 -----
 Episode 100 Average Score: 106.55
 Episode 146 Average Score: 195.41
 Environment solved in 46 episodes! Average Score: 195.41
 0:03:28.888794

Run: 8 -----
 Episode 100 Average Score: 36.66
 Episode 156 Average Score: 197.40
 Environment solved in 56 episodes! Average Score: 197.40
 0:03:34.279344

Run: 9 -----
 Episode 100 Average Score: 128.94
 Episode 122 Average Score: 196.40
 Environment solved in 22 episodes! Average Score: 196.40
 0:03:35.400064

Run: 10 -----
 Episode 100 Average Score: 65.57
 Episode 160 Average Score: 196.21
 Environment solved in 60 episodes! Average Score: 196.21
 0:04:35.210560



Episode: 1 Number of steps: 24
 Episode: 2 Number of steps: 17

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wandb: Agent Starting Run: mcc51fo0 with config:

wandb: BATCH_SIZE: 105

wandb: EPS_DECAY: 0.96866049894307

wandb: GAMMA: 0.8922694102038022

wandb: LR: 8.48282283103003e-05

wandb: MAX_TRUNCATION: 1.126198293975066

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 90

wandb: UPDATE_EVERY: 13

wandb: a_TUNE: 0.07615397864841289

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----
Episode 100 Average Score: 13.40
Episode 200 Average Score: 175.21
Episode 216 Average Score: 195.06
Environment solved in 116 episodes! Average Score: 195.06
0:04:12.008166

Run: 2 -----
Episode 100 Average Score: 18.49
Episode 200 Average Score: 124.45
Episode 300 Average Score: 169.98
Episode 400 Average Score: 156.79
Episode 500 Average Score: 143.47

Episode 501 Average Score: 143.36
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:18:40.562141
 Run: 3 -----
 Episode 100 Average Score: 12.90
 Episode 179 Average Score: 196.88
 Environment solved in 79 episodes! Average Score: 196.88
 0:02:37.074267
 Run: 4 -----
 Episode 100 Average Score: 13.99
 Episode 167 Average Score: 196.61
 Environment solved in 67 episodes! Average Score: 196.61
 0:04:39.814245
 Run: 5 -----
 Episode 100 Average Score: 13.60
 Episode 192 Average Score: 196.62
 Environment solved in 92 episodes! Average Score: 196.62
 0:05:03.443618
 Run: 6 -----
 Episode 100 Average Score: 13.34
 Episode 200 Average Score: 197.19

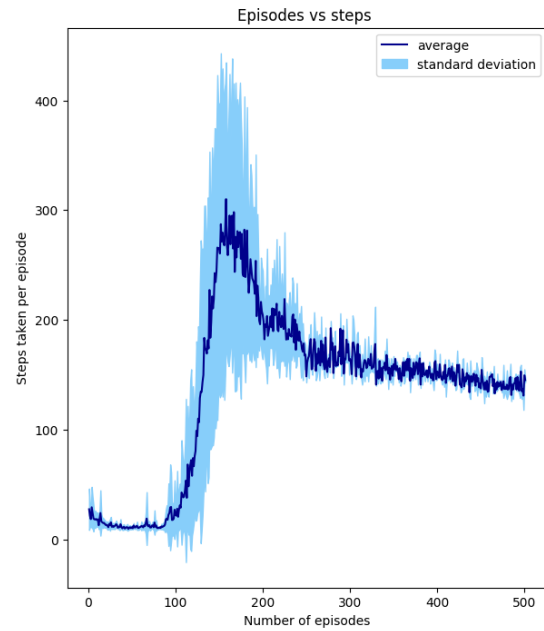
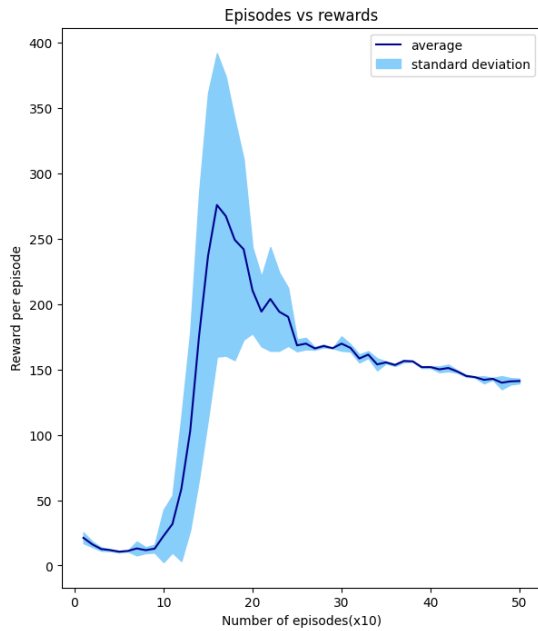
 Environment solved in 100 episodes! Average Score: 197.19
 0:04:59.649063
 Run: 7 -----
 Episode 100 Average Score: 11.59
 Episode 200 Average Score: 102.26
 Episode 244 Average Score: 195.10
 Environment solved in 144 episodes! Average Score: 195.10
 0:05:12.359473
 Run: 8 -----
 Episode 100 Average Score: 13.04
 Episode 200 Average Score: 100.41
 Episode 300 Average Score: 170.82
 Episode 400 Average Score: 156.12
 Episode 500 Average Score: 145.53
 Episode 501 Average Score: 145.50
 Experiment ended because of bad results, no significant improvement of the agent performance
 0:15:36.297018
 Run: 9 -----
 Episode 100 Average Score: 12.43
 Episode 182 Average Score: 196.03
 Environment solved in 82 episodes! Average Score: 196.03
 0:03:58.273264
 Run: 10 -----
 Episode 100 Average Score: 21.31

Episode 185 Average Score: 195.57

Environment solved in 85 episodes!

Average Score: 195.57

0:04:00.698185



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wandb: Agent Starting Run: nagnrs03 with config:

wandb: BATCH_SIZE: 217

wandb: EPS_DECAY: 0.935763658373329

wandb: GAMMA: 0.8340435057709608

wandb: LR: 6.0746454412338274e-05

wandb: MAX_TRUNCATION: 1.317568341594579

wandb: NUM_LAYERS: 2

wandb: NUM_NEURONS_EACH_LAYER: 128

wandb: UPDATE_EVERY: 20

wandb: a_TUNE: 0.3197148634006999

Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.

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Run: 1 -----

Episode 100	Average Score: 12.62
Episode 200	Average Score: 95.02
Episode 300	Average Score: 138.70
Episode 400	Average Score: 159.55
Episode 500	Average Score: 165.88
Episode 600	Average Score: 157.51
Episode 700	Average Score: 164.84
Episode 800	Average Score: 150.65
Episode 900	Average Score: 147.86
Episode 1000	Average Score: 140.70
Episode 1100	Average Score: 147.13
Episode 1200	Average Score: 141.73
Episode 1300	Average Score: 150.09
Episode 1400	Average Score: 149.22
Episode 1500	Average Score: 151.74
Episode 1600	Average Score: 143.88
Episode 1700	Average Score: 158.40
Episode 1800	Average Score: 154.34
Episode 1900	Average Score: 161.95
Episode 2000	Average Score: 152.50
Episode 2100	Average Score: 139.18
Episode 2200	Average Score: 146.48
Episode 2300	Average Score: 172.85
Episode 2400	Average Score: 165.34
Episode 2500	Average Score: 179.30

Episode 2600	Average Score: 175.07
Episode 2700	Average Score: 167.90
Episode 2800	Average Score: 153.85
Episode 2900	Average Score: 147.11
Episode 3000	Average Score: 154.39
Episode 3100	Average Score: 150.92
Episode 3200	Average Score: 144.88
Episode 3300	Average Score: 141.33
Episode 3400	Average Score: 146.81
Episode 3500	Average Score: 137.64
Episode 3600	Average Score: 137.87
Episode 3700	Average Score: 140.28
Episode 3800	Average Score: 143.62
Episode 3900	Average Score: 144.12
Episode 4000	Average Score: 140.73
Episode 4048	Average Score: 139.88