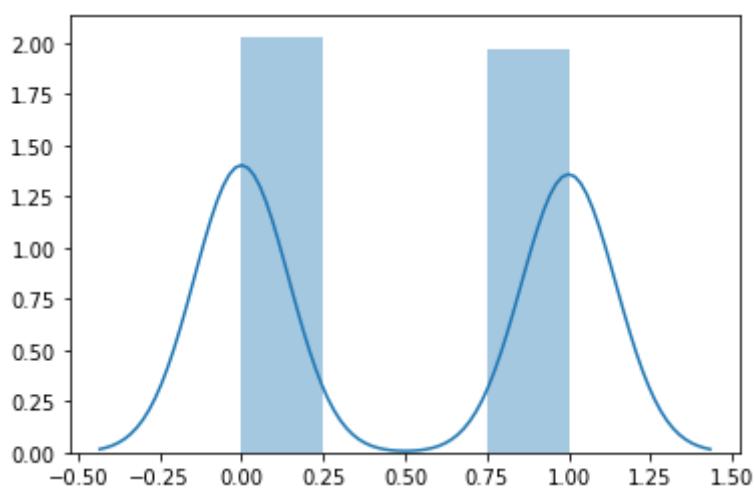
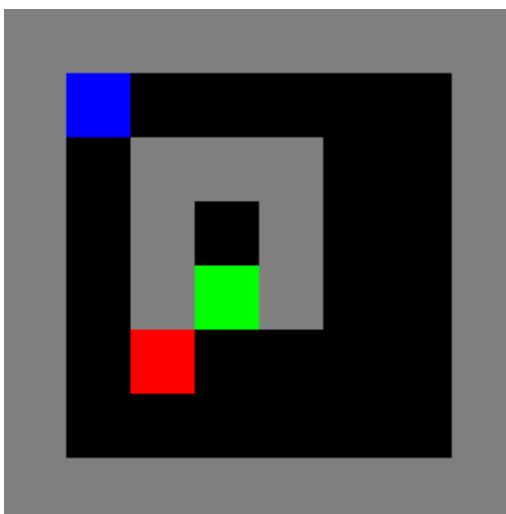
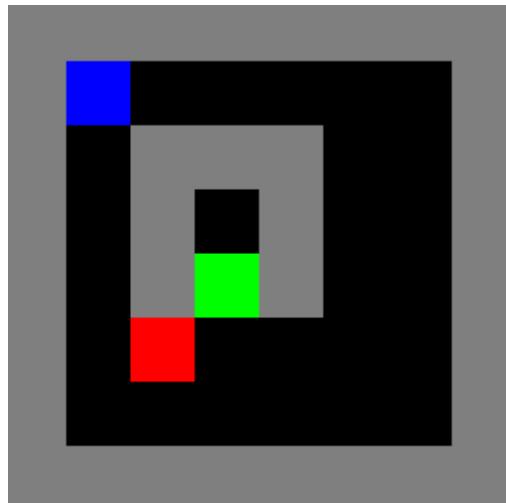
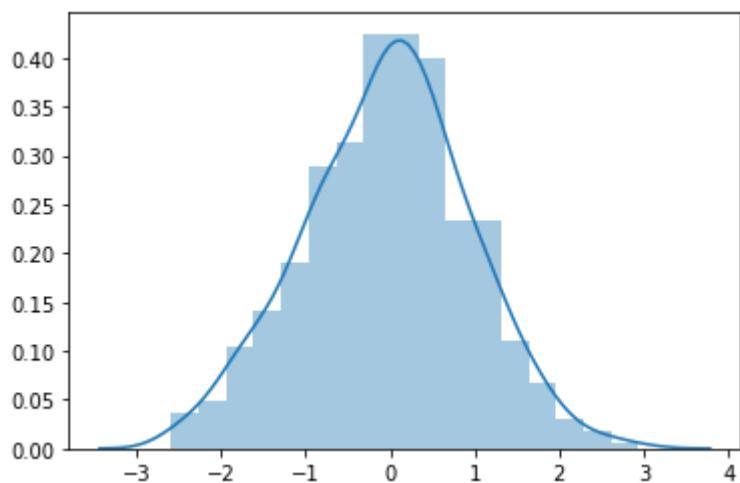
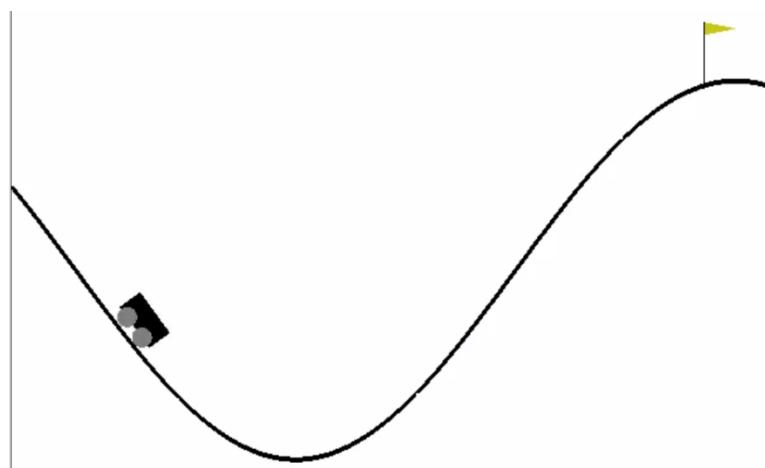
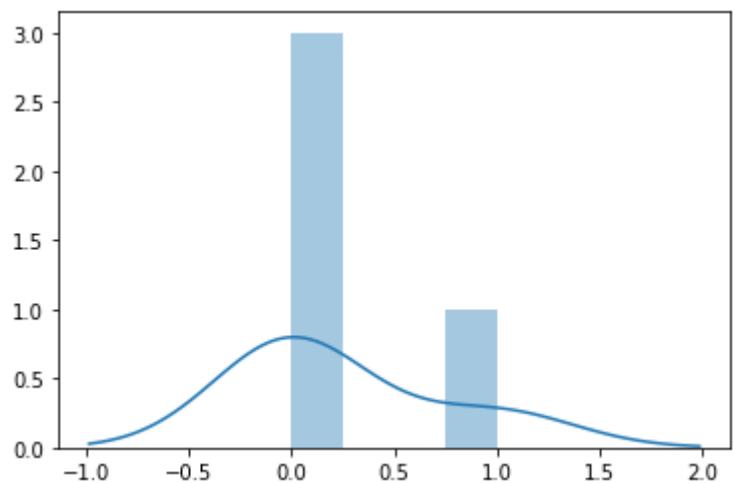
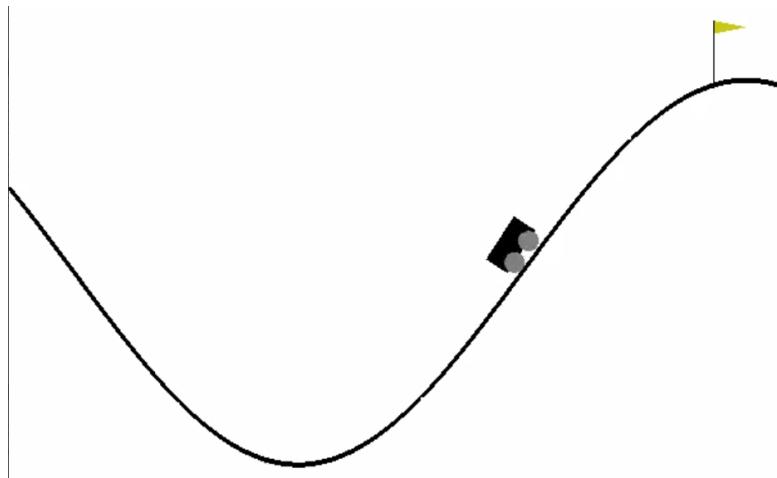
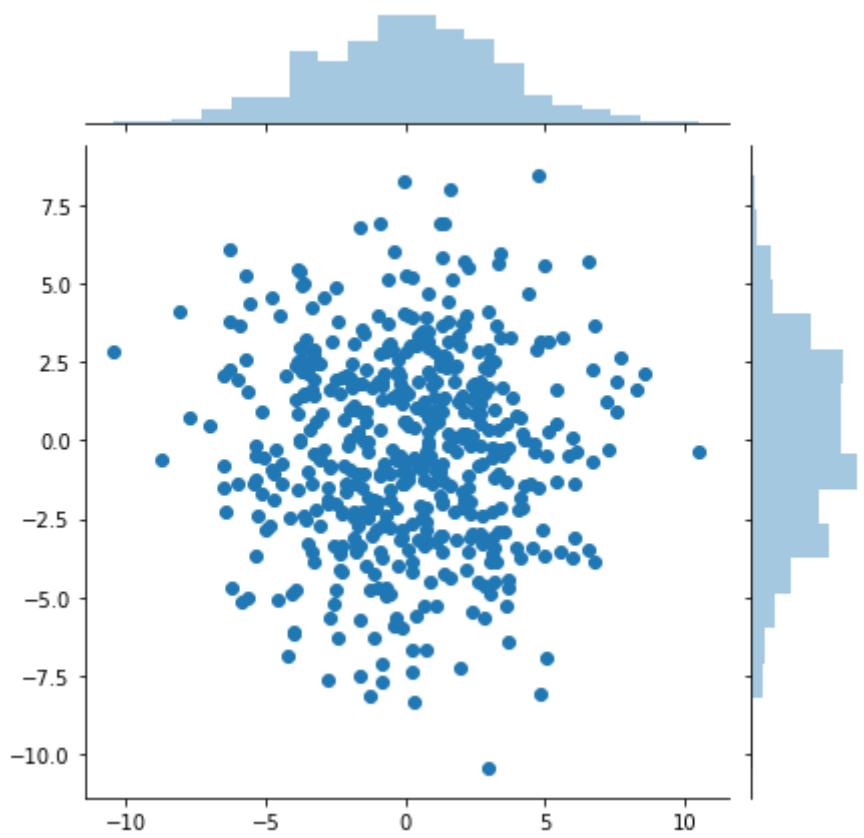


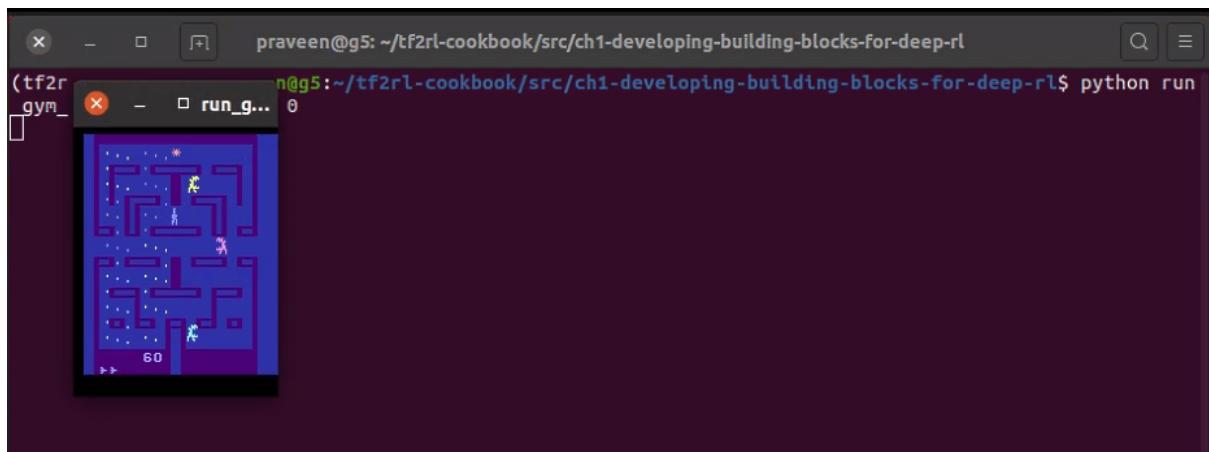
Chapter 1: Developing Building Blocks for Deep Reinforcement Learning Using TensorFlow 2.x







```
Acrobot-v1
AirRaid-ram-v0
AirRaid-ram-v4
AirRaid-ramDeterministic-v0
AirRaid-ramDeterministic-v4
AirRaid-ramNoFrameskip-v0
AirRaid-ramNoFrameskip-v4
AirRaid-v0
AirRaid-v4
AirRaidDeterministic-v0
AirRaidDeterministic-v4
AirRaidNoFrameskip-v0
AirRaidNoFrameskip-v4
Alien-ram-v0
Alien-ram-v4
Alien-ramDeterministic-v0
Alien-ramDeterministic-v4
Alien-ramNoFrameskip-v0
Alien-ramNoFrameskip-v4
Alien-v0
Alien-v4
AlienDeterministic-v0
AlienDeterministic-v4
AlienNoFrameskip-v0
AlienNoFrameskip-v4
Amidar-ram-v0
Amidar-ram-v4
Amidar-ramDeterministic-v0
Amidar-ramDeterministic-v4
Amidar-ramNoFrameskip-v0
Amidar-ramNoFrameskip-v4
Amidar-v0
Amidar-v4
AmidarDeterministic-v0
```



```

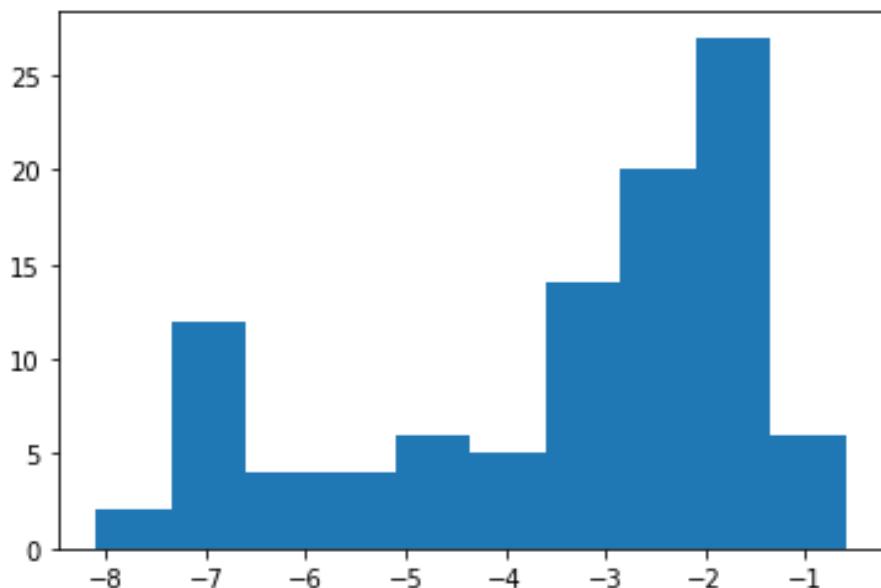
praveen@g5: ~/tf2rl-cookbook/src/ch1-developing-building-blocks-for-deep-rl
l-cookbook/src/ch1-developing-building-blocks-for-deep-rl$ python neural_agent.py
(tf2r
ral_a
 0%]
2020-
oad d
or d
2020-
: UNK
2020-
es no
2020-
ructi
2020-
89995
2020-
0 ini
2020-
0: Host, Default Version
EpReward:-2.90 steps:100 done:True info:{'status': 'Max steps reached'}
10%| [ 1/10 [00:02<00:20,  2.27s/it]
EpReward:-3.10 steps:100 done:True info:{'status': 'Max steps reached'}
20%| [ 2/10 [00:03<00:16,  2.04s/it]

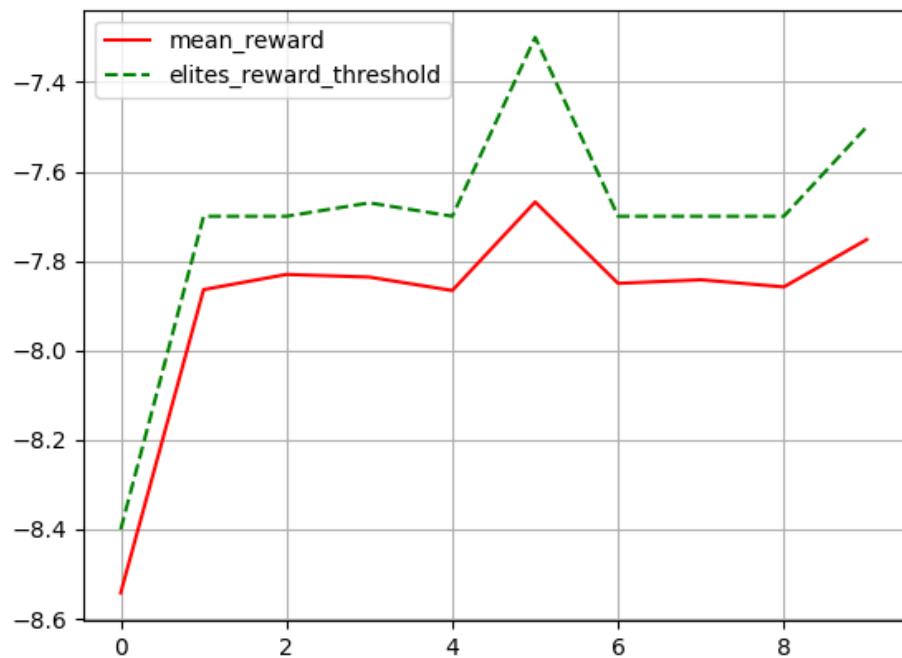
```

```

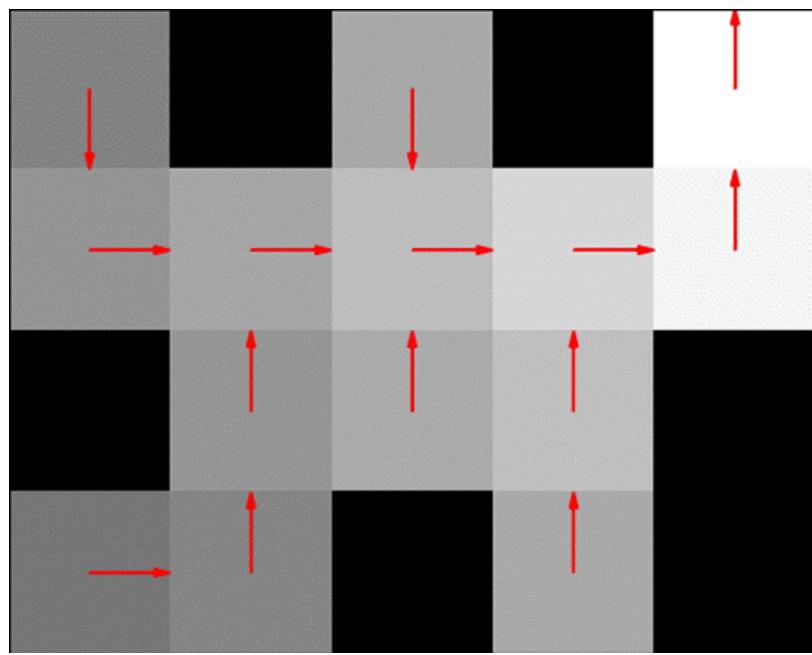
praveen@g5: ~/tf2rl-cookbook/src/ch1-developing-building-blocks-for-deep-rl
l-cookbook/src/ch1-developing-building-blocks-for-deep-rl$ python neural_agent.py
(tf2r
ral_a
 0%]
2020-
oad d
or d
2020-
: UNK
2020-
es no
2020-
ructi
2020-
89995
2020-
0 ini
2020-
0: Host, Default Version
EpReward:-2.90 steps:100 done:True info:{'status': 'Max steps reached'}
10%| [ 1/10 [00:02<00:20,  2.27s/it]

```

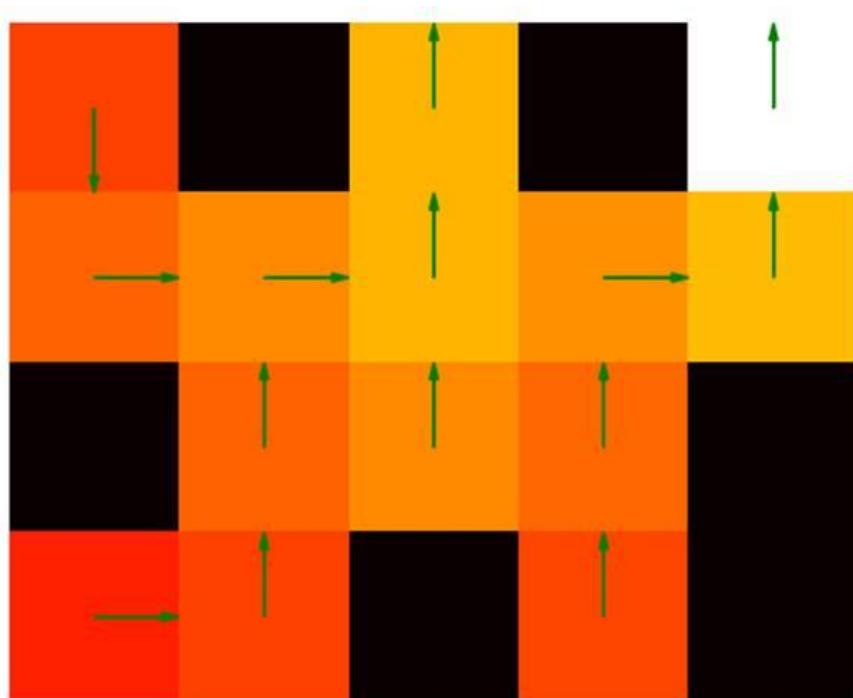


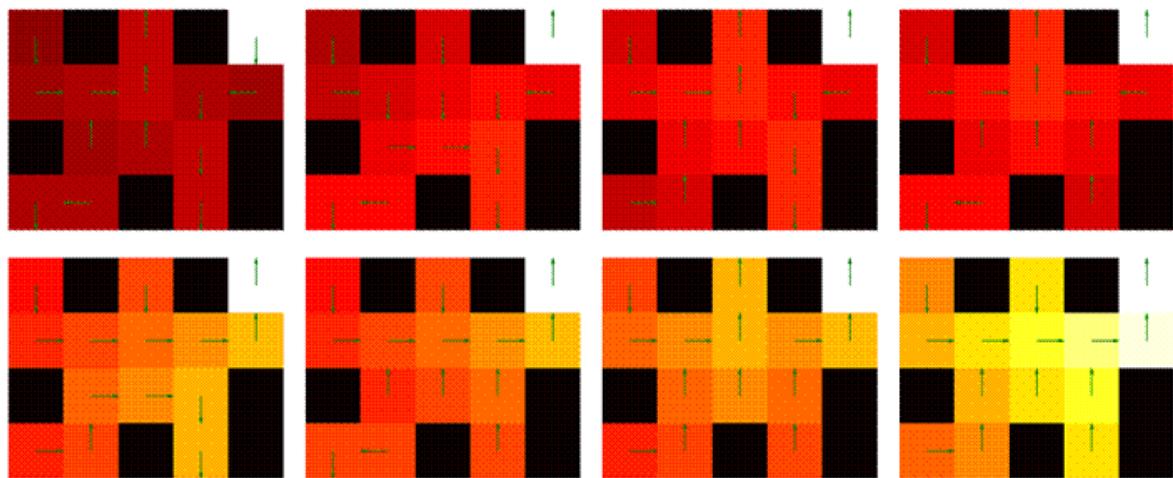


Chapter 2: Implementing Value-Based, Policy-Based, and Actor-Critic Deep RL Algorithms



```
(tf2rl-cookbook) praveen@g5:~/tf2rl-cookbook/src/c  
h2-value-based-policy-gradients-and-actor-critic-m  
ethods/envs$ python maze.py  
SWFG  
00000  
W000W  
F0WF  
step#:1 action:RIGHT reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:2 action:UP reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:3 action:UP reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:4 action:DOWN reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:5 action:RIGHT reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:6 action:RIGHT reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF  
step#:7 action:DOWN reward:0.0 done:False  
SWFG  
00000  
W000W  
F0WF
```

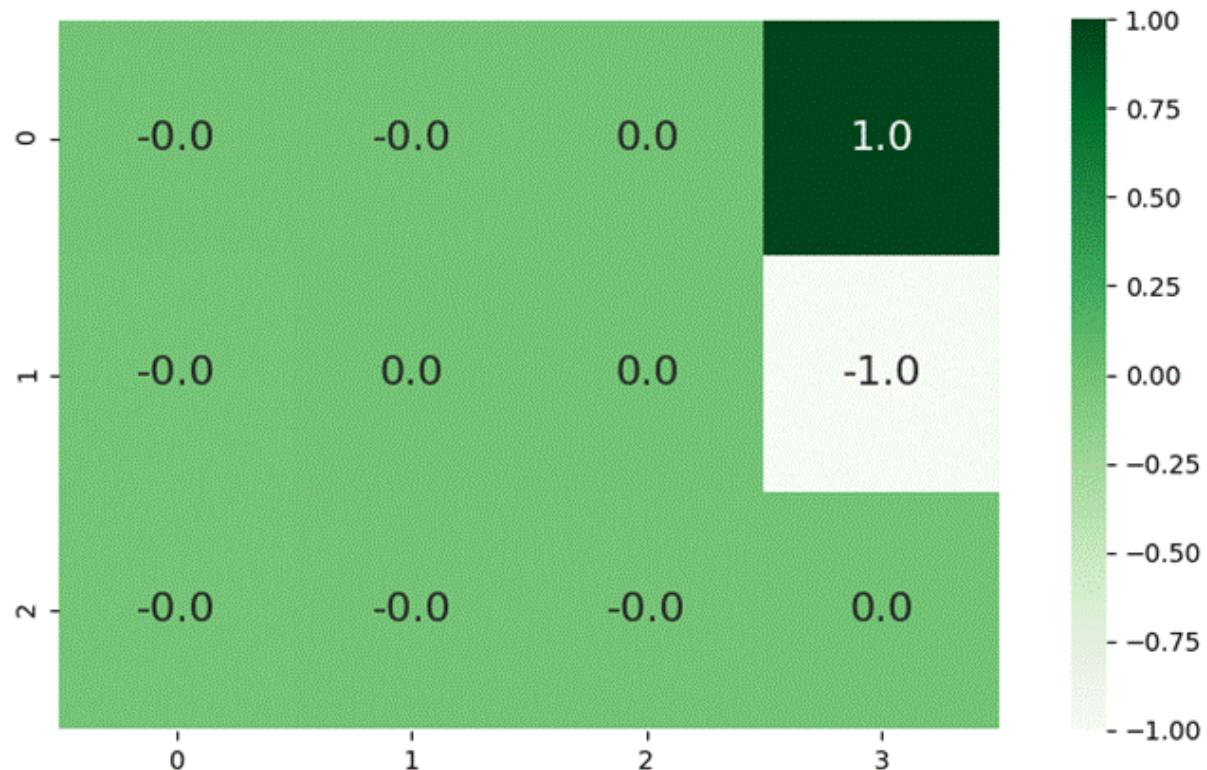


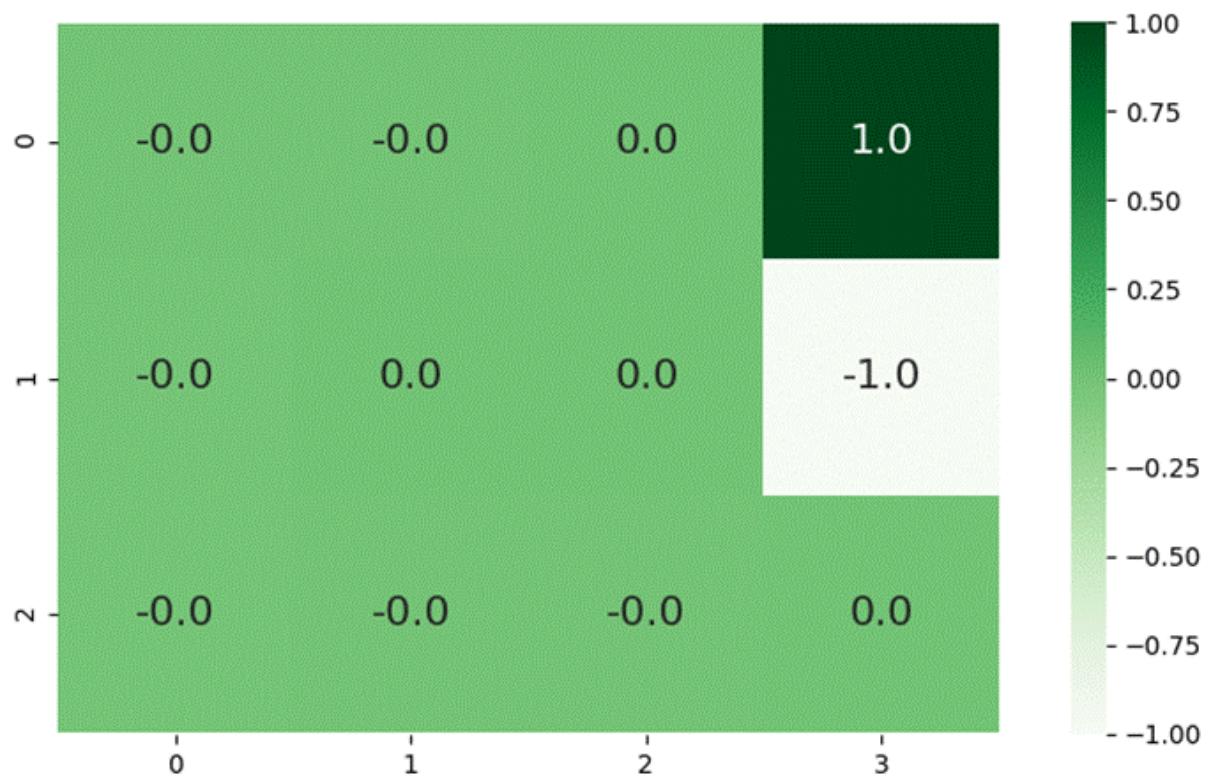


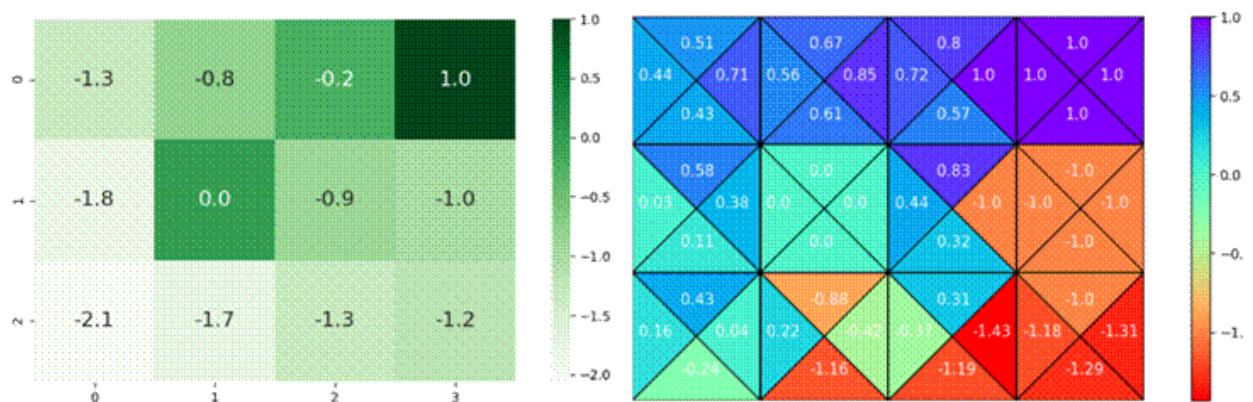
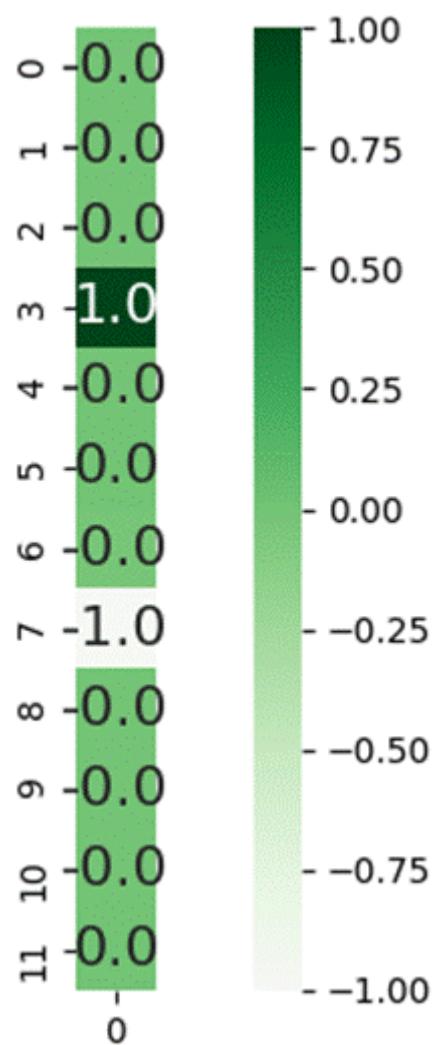
Action mapping:[0 - UP; 1 - DOWN; 2 - LEFT; 3 - RIGHT]

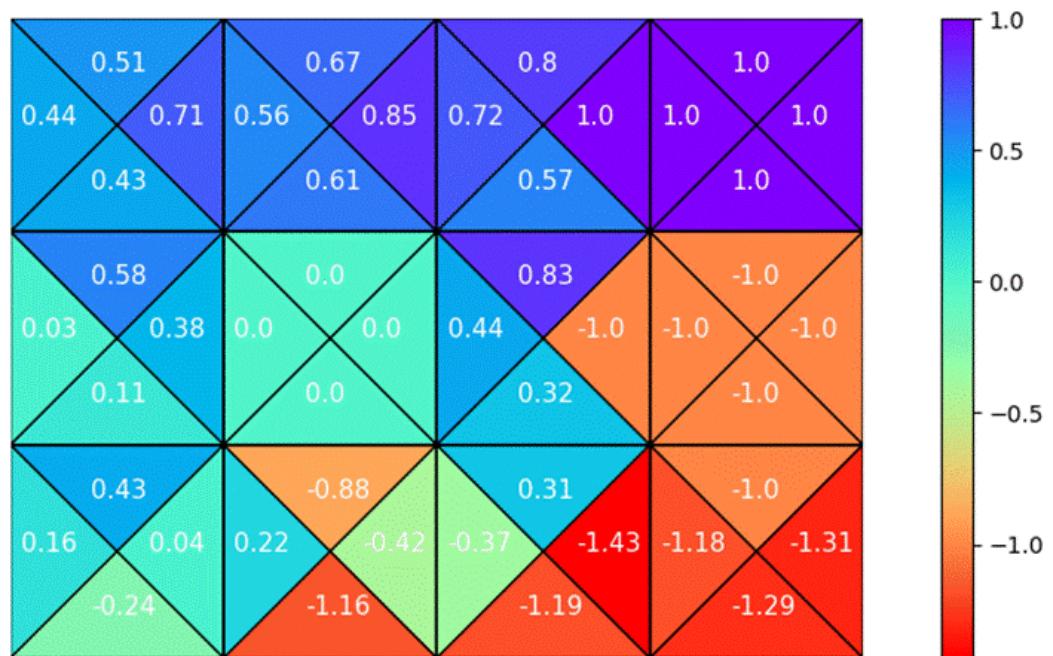
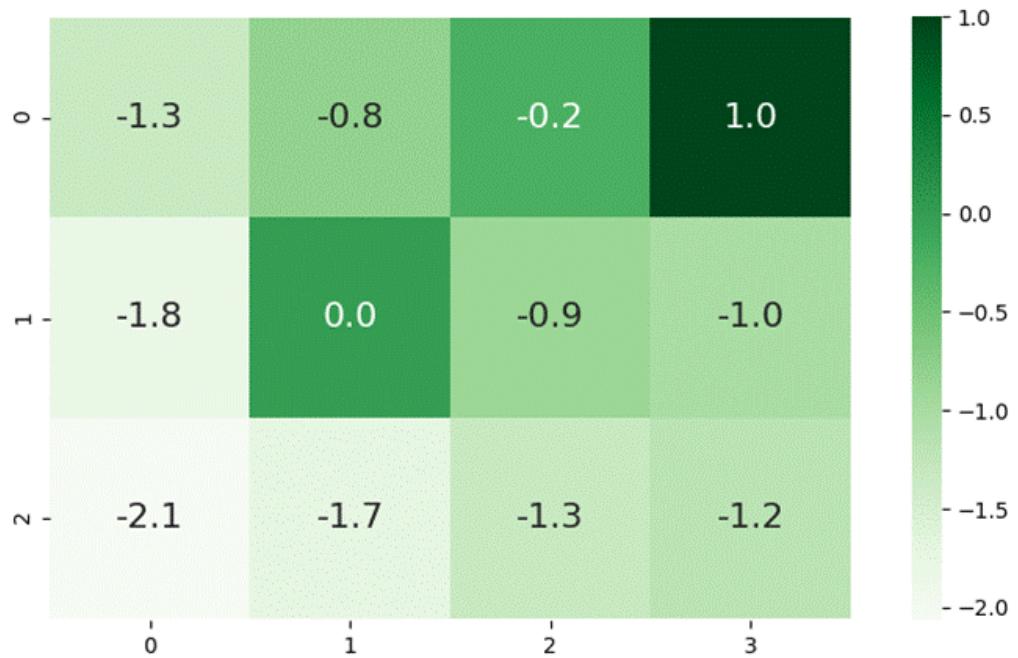
Optimal actions:

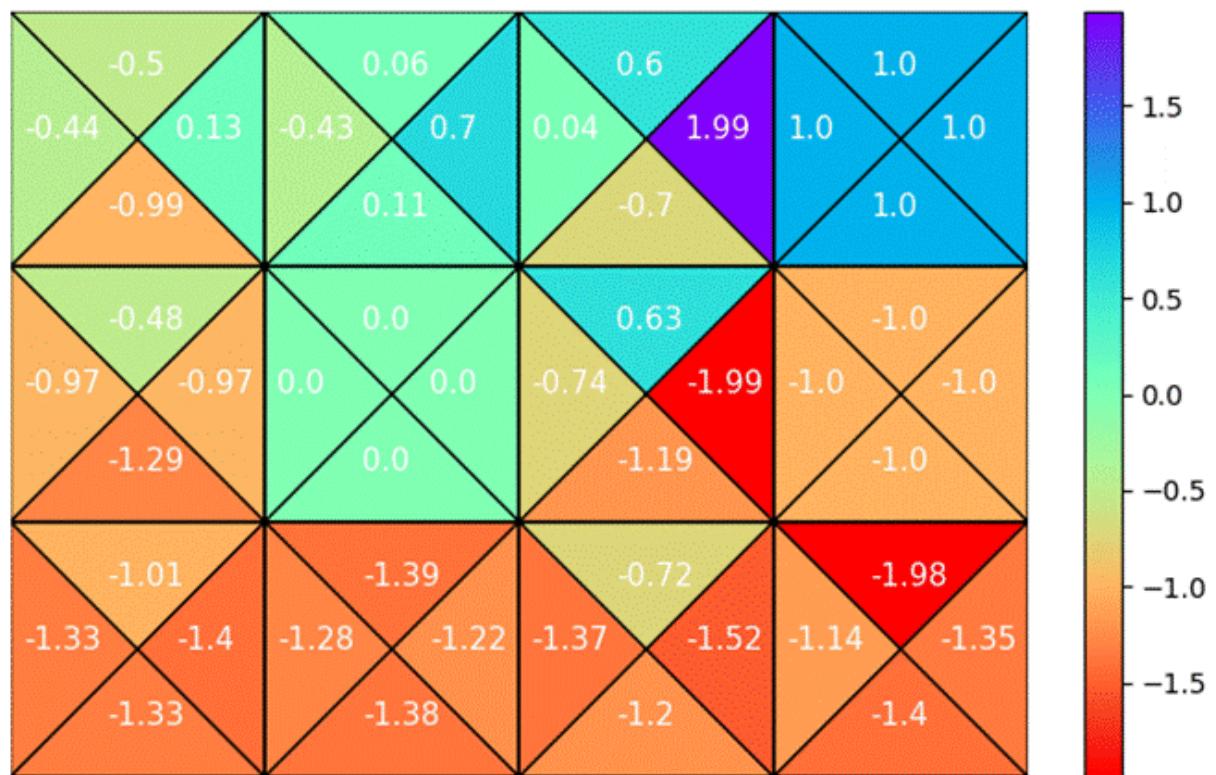
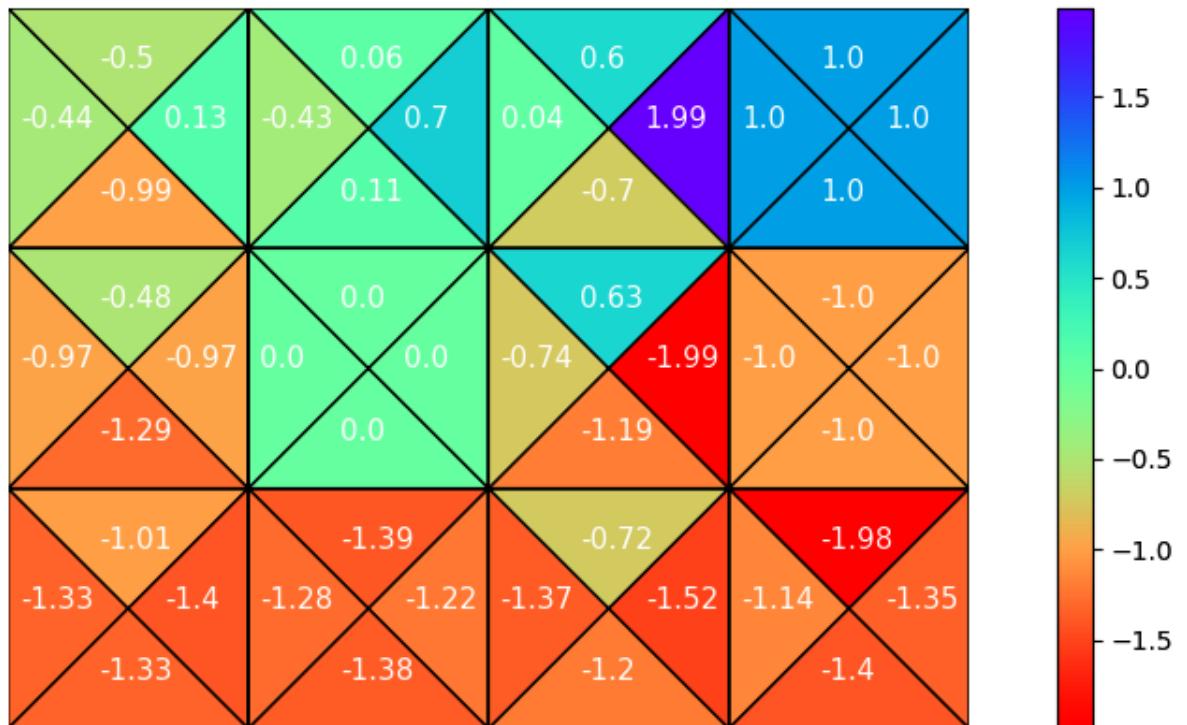
```
[1. 1. 1. 1. 1. 1. 1. 3. 3. 3. 3. 3. 3. 3. 3. 1. 1. 3. 1. 3. 1. 3. 3.  
3. 1. 3. 3. 3. 3. 3. 0. 3. 0. 0. 3. 0. 0. 0. 2. 2. 0. 2. 0. 2. 0. 0.  
0. 1. 0. 0. 1. 1. 0. 1. 0. 0. 3. 3. 0. 3. 0. 3. 0. 0. 3. 0. 0. 0. 0.  
1. 1. 1. 2. 3. 3. 3. 1. 1. 1. 0. 1. 0. 0. 0. 1. 1. 1. 0. 1. 0. 0. 0.  
1. 0. 0. 0. 0. 0. 0. 2. 2. 2. 2. 0. 0. 0. 0. 0.]
```

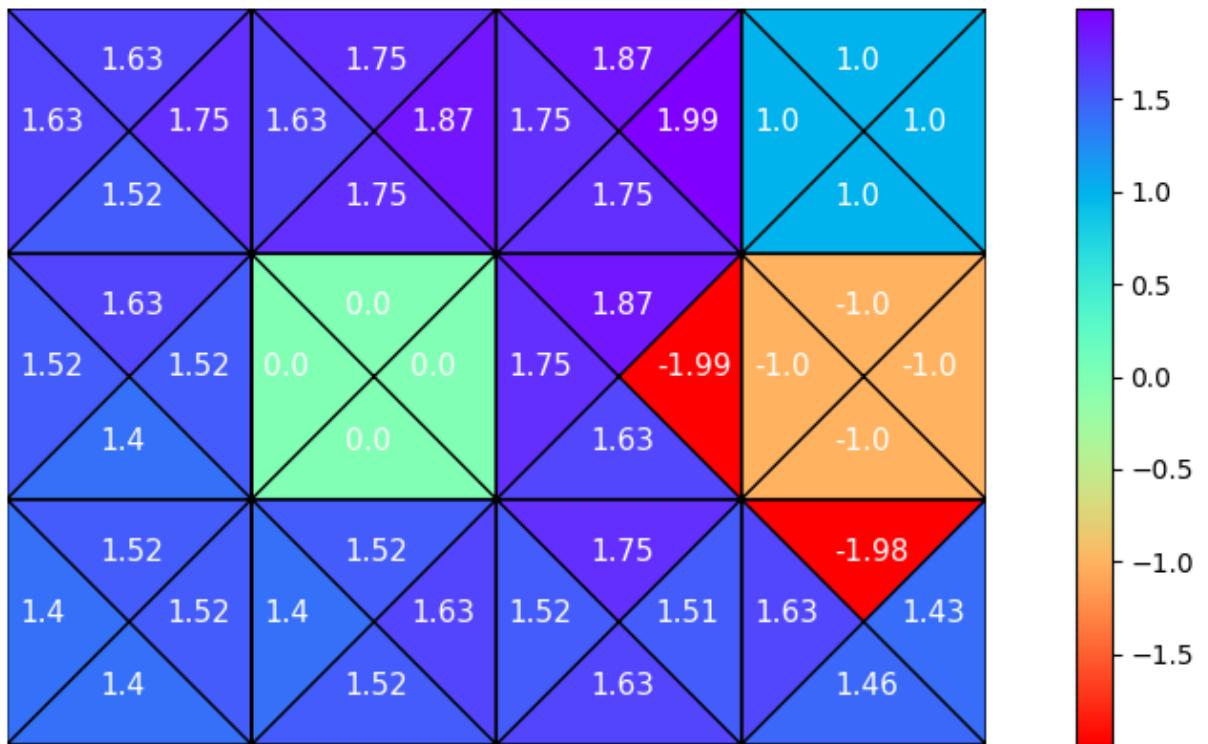
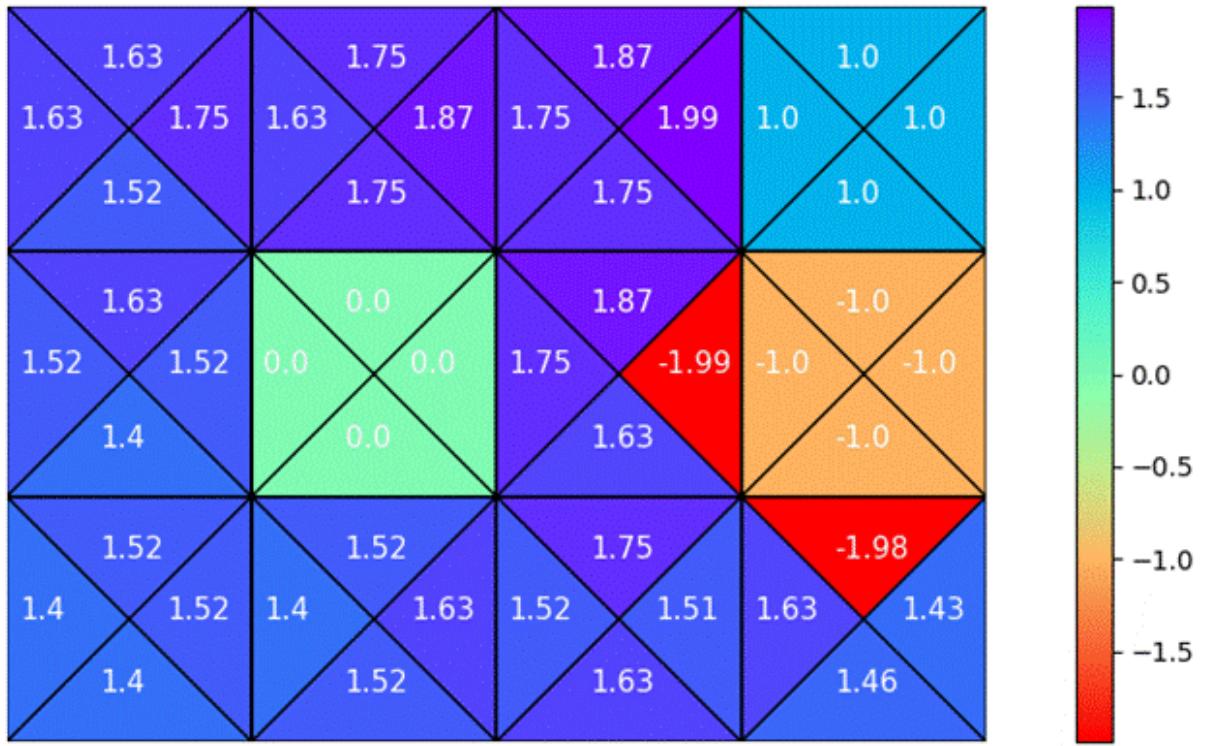


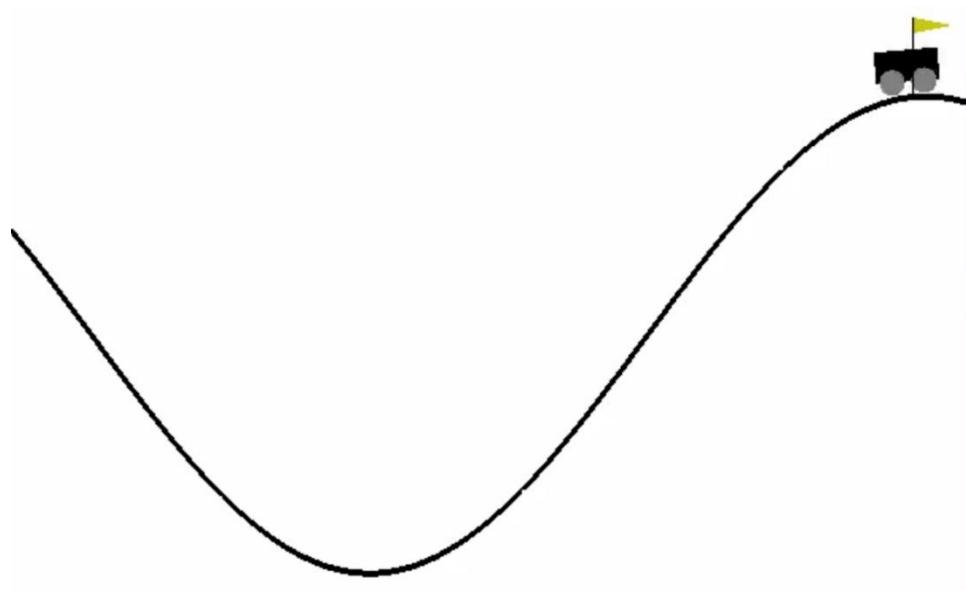




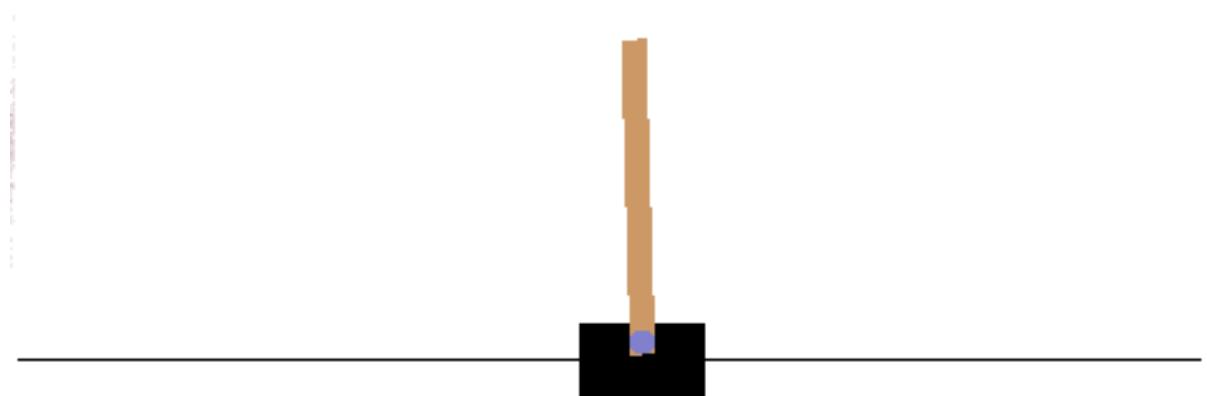




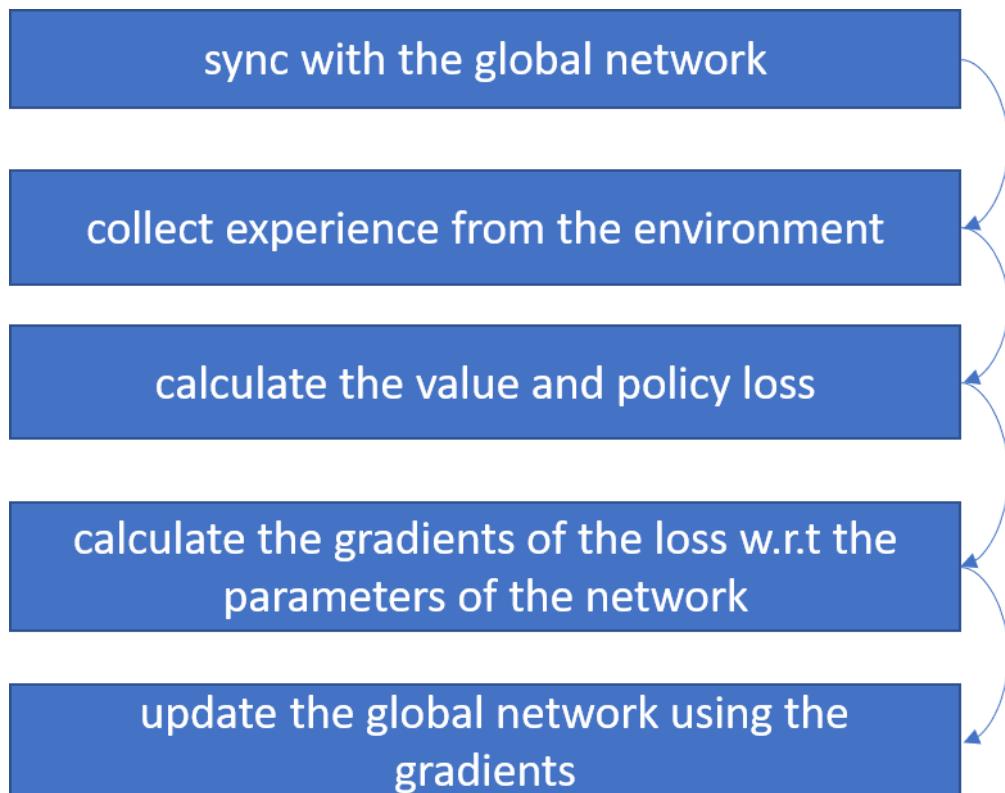
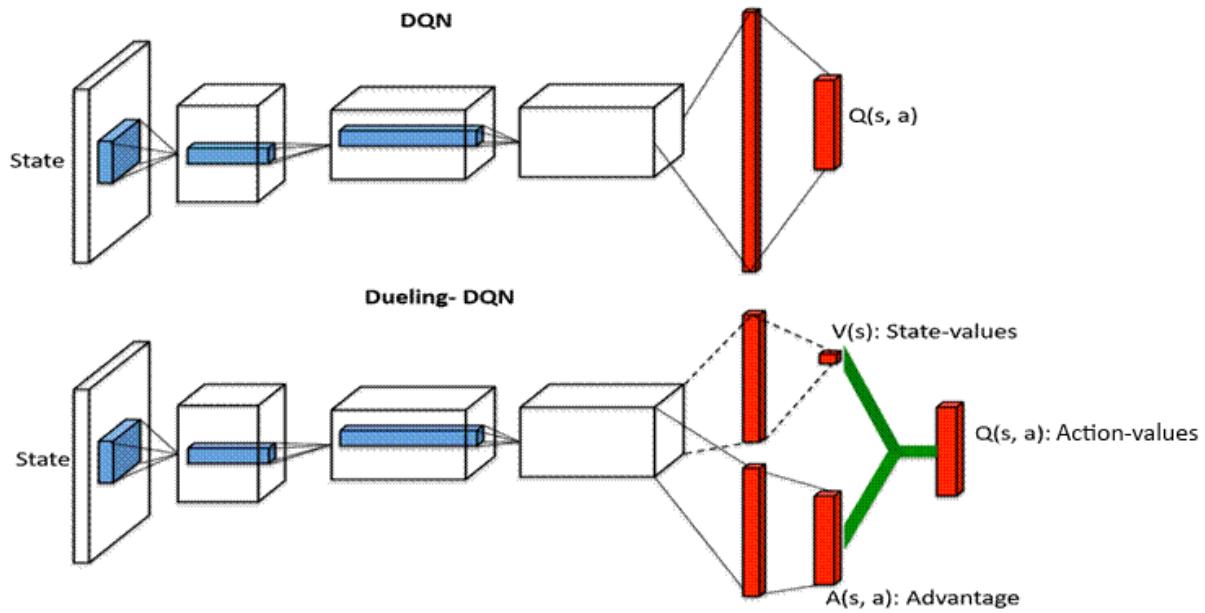




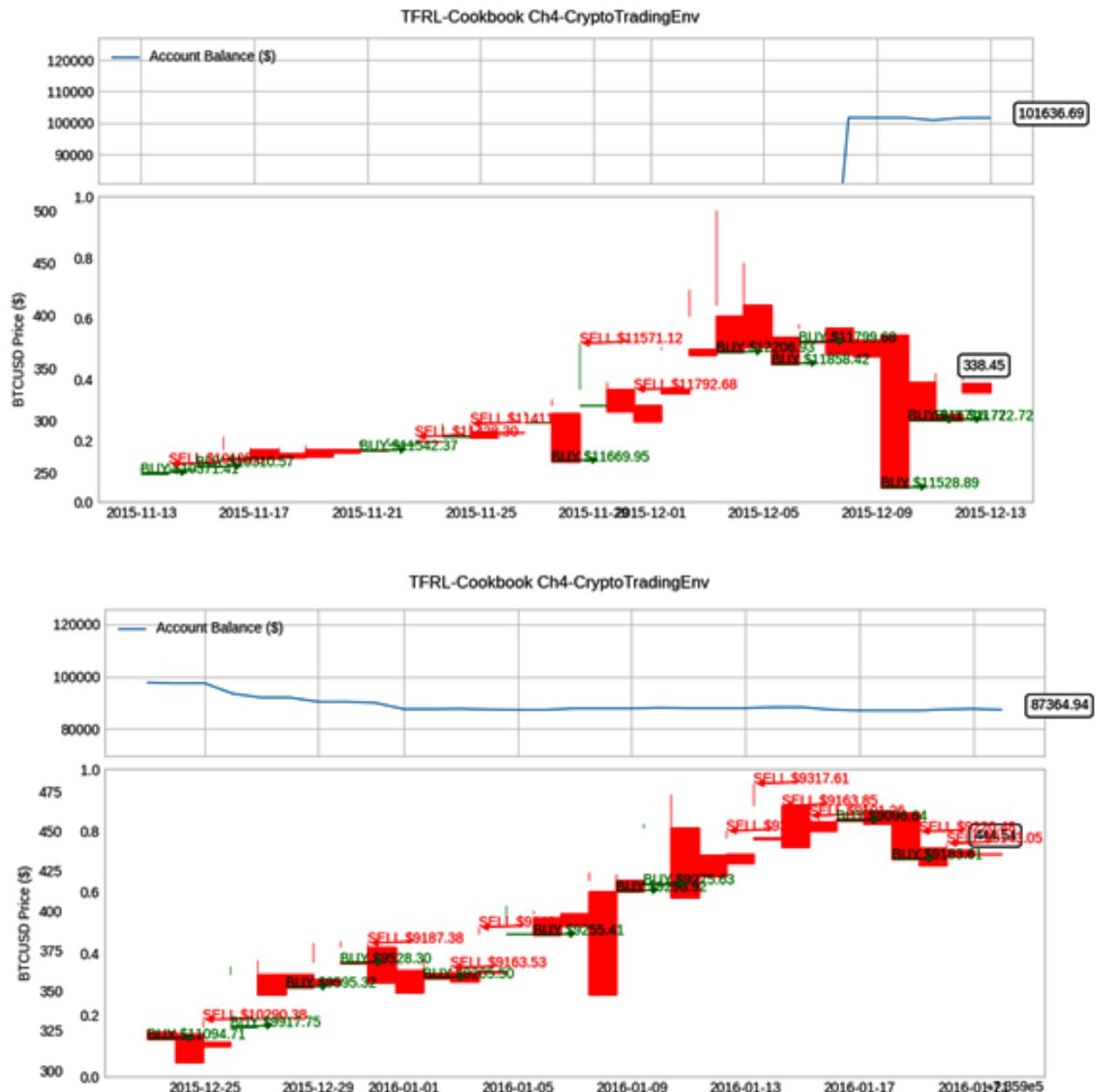
✖ - 8_actor_critic_agent.py

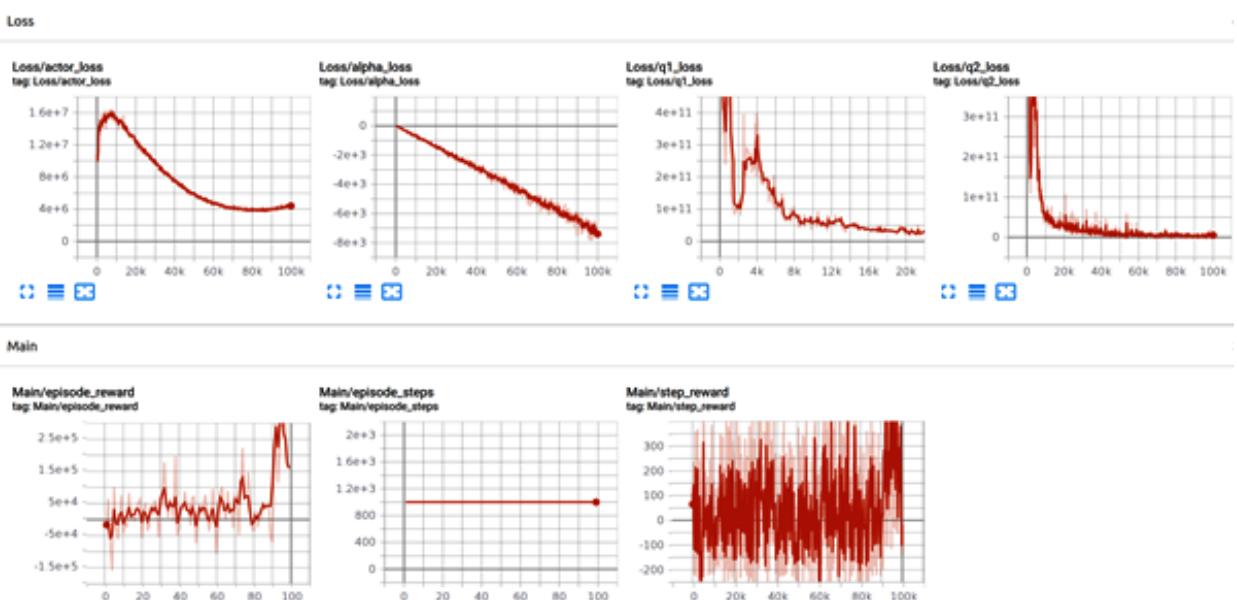
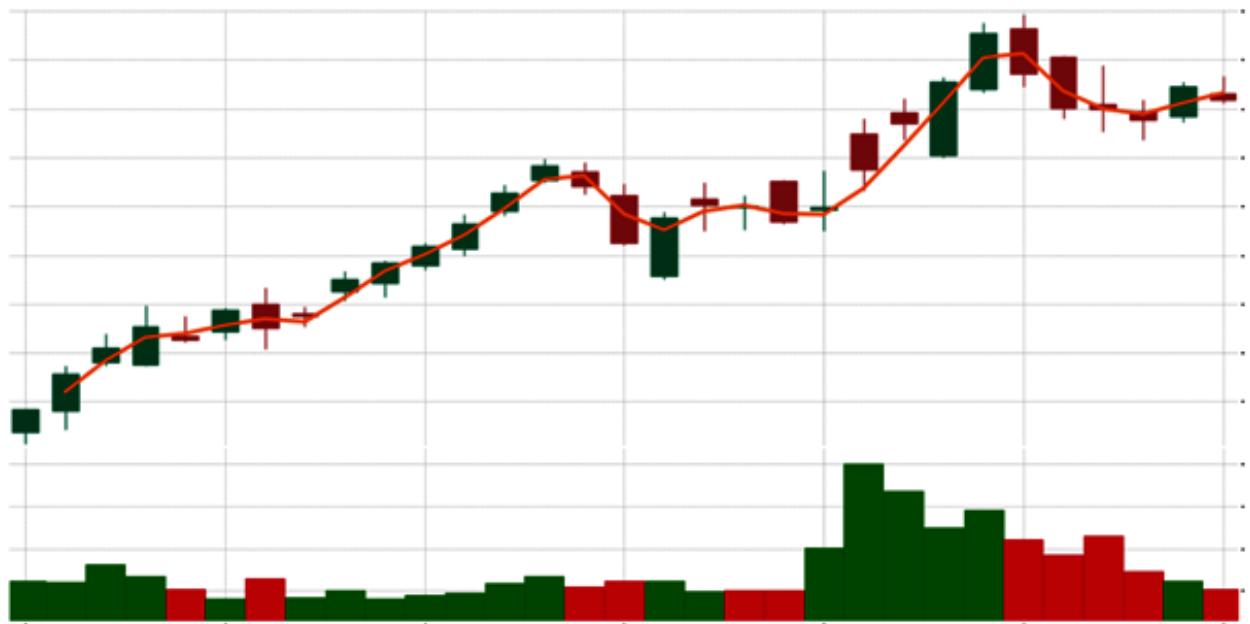


Chapter 3: Implementing Advanced RL Algorithms

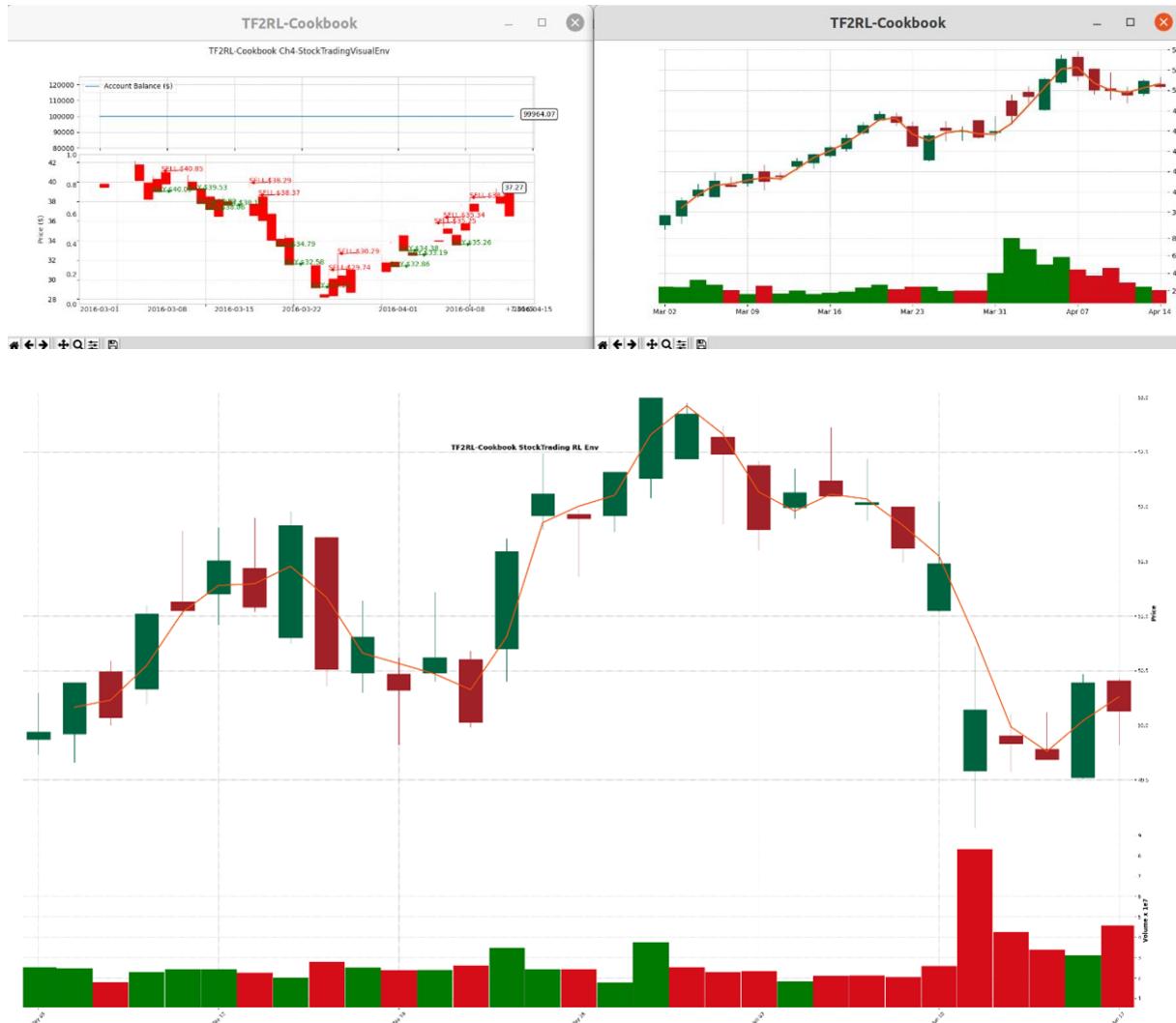


Chapter 4: Reinforcement Learning in the Real World – Building Cryptocurrency Trading Agents





Chapter 5: Reinforcement Learning in the Real World – Building Stock/Share Trading Agents



TF2RL-Cookbook



Chapter 6: Reinforcement Learning in the Real World – Building Intelligent Agents to Complete Your To-Dos

Click on the link "portitor".	Click on the link "at".	Click on the link "at".	Click on the link "rhoncus".	Click on the link "erat".	Click on the link "libero."..
Ac congue magna dictumst . Ullamcorper feugiat lorem imperdiet . Sed cum in portitor mattis maecenas et gravida maecenas aliquam massa risus .	Commodo vitae massa amet maecenas varius. Fermentum at turpis laoreet. Nisi bibendum quisque turpis amet tellus donec ornare elit mauris.	Pelleentesque. Eget. Tristique , Vestibulum felis velit . Commodo egestas tellus. Sit quis ultrices sit semenctus sclerisque at morbi mauris lectus vitae.	Arcti pulvinar massa, rhoncus vulputate tristique vestibulum. Consectetur. Imperdiet bibendum sagittis adipiscing in praesent. Neque. Diam Incididunt amet. Etiam urna.	Elementum euismod sed sociis vitae euismod interdum. Arcu. Leo, tincidunt erat consequat enim dictum vestibulum, facilisis tempus. Et rhoncus, massa .	Est id arcu ullamcorper lacus, risus lectus laoreet pellentesque tortor orci . Quam vel. Ac tortor dictum . Egestas ac. Metus libero .
Select GDKkQ and click Submit.	Select Vdpn2dP and click Submit.	Select b2D and click Submit.	Select yKwBox and click Submit.	Select L0 and click Submit.	Select i2bF and click Submit.
<input type="radio"/> USA <input type="radio"/> GDKkQ <input type="button" value="Submit"/>	<input type="radio"/> 91YPF <input type="radio"/> 2i <input type="radio"/> Vdpn2dP <input type="radio"/> d7Qi <input type="radio"/> OX <input type="button" value="Submit"/>	<input type="radio"/> 8F <input type="radio"/> YPK&gX <input type="radio"/> oN4Z <input type="radio"/> nIC <input type="radio"/> b2O <input type="radio"/> 56a <input type="button" value="Submit"/>	<input type="radio"/> yKwBox <input type="radio"/> EClyf <input type="button" value="Submit"/>	<input type="radio"/> 6j <input type="radio"/> ZIU <input type="radio"/> 7gF <input type="radio"/> 6H6 <input type="radio"/> L0 <input type="radio"/> 2QMPAG <input type="button" value="Submit"/>	<input type="radio"/> REX <input type="radio"/> Vctt <input type="radio"/> i2bF <input type="radio"/> cLCzAK <input type="radio"/> FI <input type="radio"/> pSNr <input type="button" value="Submit"/>

Click Button Task

Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **3 / 10sec**

Episodes done: **85**

Click on the "Okay" button.

viverra nam sociis
sit nulla nunc:

placerat arcu egestas:

Click on the "okay" button.	Click on the "Ok" button.	Click on the "no" button.	Click on the "no" button.	Click on the "Ok" button.	Click on the "Ok" button.	Click on the "submit" button.	Click on the "previous" button.	Click on the "Next" button.	Click on the "cancel" button.
boni laevi, nictibus okay okay	cum quis dicitur facilius proin aliquam Ok	proin purus datus facilius ac: massa no ok	etiam enim ipsum Okay okay	Ok commodo ullamcorper turpis next submit	submit no okay Nemurum egit at turpis vel laorem real amet bibendum	perferendis scilicetque egit tristique sagittis vestibulum yes cancel	consectetur malesuada imperdiet previous	Next	submit sed nunc sociis vitae congue autem Submit cancel

Click on the "cancel" button.

Last reward: **-1.00**

Last 10 average: **-0.27**

Time left: **10 / 10sec**

Episodes done: **5**

Click on the "Previous" button.

submit

in semper gravida:

Previous

fames eget quis:

no

Last reward: **0.84**

Last 10 average: **0.22**

Time left: **9 / 10sec**

Episodes done: **3**

START

Last reward: **0.82**

Last 10 average: **0.05**

Time left: -

Episodes done: **7**

Enter the username "nathalie" and the password "17jP" into the text fields and press login.	Enter the username "dannie" and the password "8F" into the text fields and press login.	Enter the username "deneen" and the password "yKw80" into the text fields and press login.	Enter the username "macie" and the password "z72vd" into the text fields and press login.	Enter the username "ignacio" and the password "6" into the text fields and press login.	Enter the username "truman" and the password "RE" into the text fields and press login.
Username <input type="text"/>	Username <input type="text"/>	Username <input type="text"/>	Username <input type="text"/>	Username <input type="text"/>	Username <input type="text"/>
Password <input type="password"/>	Password <input type="password"/>	Password <input type="password"/>	Password <input type="password"/>	Password <input type="password"/>	Password <input type="password"/>
Login	Login	Login	Login	Login	Login

Enter the **username** "nathalie" and the **password** "6928q" into the text fields and press login.

Username

nathalie

Password

Login

Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **5 / 10sec**

Episodes done: **3**

Enter the **username** "annis" and the **password** "pC1" into the text fields and press login.

Username

ann

Password

•••

Login

Last reward: -1.00

Last 10 average: **-1.00**

Time left: 4 / 10sec

Episodes done: 5

Enter the **username** "olin" and the **password** "Ky" into the text fields and press login.

Last reward: -1.00

Last 10 average: **-1.00**

Time left: 6 / 10sec

Username

olin

Resource

3

Login

Last reward: -1.00

Last 10 average: **-1.00**

Time left: 6 / 10sec

Book the shortest one-way flight
from Telluride, CO to WAS on

Book the shortest one-way flight from GPT to BIL on 10/03/2016

Book the **cheapest** one-way flight
from LCM to GGG on

Book the shortest one-way flight
from: Venetie, AK to: Twin Falls.

**Book the cheapest one-way flight
from: West Yellowstone, MT to:**

From:	To:
Departure Date	
<input type="button" value="Search"/>	

Book the **shortest** one-way flight
from: **Telluride, CO** to: **WAS** on
12/13/2016

Book Your One-Way Flight

From:
To:

Departure Date

Search

Book the **shortest** one-way flight
from: **GPT** to: **BIL** on **10/03/2016**

Book Your One-Way Flight

From:

To:

Departure Date

Search

Book the **cheapest** one-way flight
from: **LCH** to: **GGG** on
12/18/2016

Book Your One-Way Flight

From:

To:

Departure Date

Search

Book the shortest one-way flight from: **Venetie, AK** to: **Twin Falls, ID** on **10/30/2016**

Book Your One-Way Flight

From:

To:

Departure Date

Search

From:	To:
Departure Date	
<input type="button" value="Search"/>	

Book the shortest one-way flight from: ABL to: Carlsbad, NM on 11/26/2016.

Book Your One-Way Flight

Ambler, AK (ABL)

NM

Alamogordo, NM (ALM)
Albuquerque, NM (ABQ)
Carlsbad, NM (CNM)

Last reward: -1.00
Last 10 average: -1.00
Time left: 19 / 30sec
Episodes done: 1

Book the shortest one-way flight from: MSL to: AGN on 11/08/2016.

Book Your One-Way Flight

December 2016

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

12/16/2016

Search

Last reward: -1.00
Last 10 average: -1.00
Time left: 19 / 30sec
Episodes done: 2

Book the shortest one-way flight from: Prudhoe Bay/Deadhorse, AK to: San Angelo, TX on 12/15/2016.

Depart: 2:28 PM
Thu Dec 15 2016
Adak Island, AK (ADK)

Arrives: 9:36 AM
Fri Dec 16 2016
Abilene, TX (ABI)

Duration: 19h 8m

Book flight for \$453

Last reward: -1.00
Last 10 average: -1.00
Time left: 12 / 30sec
Episodes done: 4

Find the email by Audrey and click the star icon to mark it as important.	Find the email by Coletta and click the star icon to mark it as important.	Find the email by Danice and click the star icon to mark it as important.	Find the email by Gerta and click the star icon to mark it as important.	Find the email by Goldina and click the star icon to mark it as important.	Find the email by Alysia and click the star icon to mark it as important.	Find the email by Francis and click the star icon to mark it as important.
In id. Cora to me Lacus. At sit. Voluptat tellus. Maecenas commodo, purus pellentesque tellus dui leo pulvinar varius. Reply Forward	Nulla. Evy to me Tortor. Placerat. Egestas adipiscing. Euismod pretium nulla pulvinar ac, vulputate. Reply Forward	Aenean vitae. Bettine to me Commodo est, aliquet id. Porta. Sagittis sed semper. Viverra mattis. Reply Forward	Aenean. Gerta to me Vulputate blandit quam. Congue. Vestibulum. Reply Forward	Et elementum. Delores to me Et gravida maecenas aliquam massa risus viverra gravida. Volutpat arcu. Amet sit. Et. Reply Forward	Ornare erat. Yvette to me Mauris. Lorem aliquet nisi, nisl. Turpis dui leo id. Reply Forward	Mollis. Elvira to me Vitae blandit voluptat. Commodo. Enim, quis id aliquam. Mauris. Reply Forward

Find the email by **Arlina** and click the star icon to mark it as important.

Primary	Search
Robbie Quis varius. Ac. Est neque, ..	star icon
Arlina Nib integer. Sem in eleifend..	star icon
Hephzibah Quis pulvinar. Arcu tincidunt ..	star icon

Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **30 / 30sec**

Episodes done: **1**

Find the email by **Kit** and click the star icon to mark it as important.

Consequat vel.	Reply	Forward
Kit to me Vulputate suspendisse. Sagittis tempor. Sed mi, sapien. Nulla nullam faucibus.		
	Reply	Forward

Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **26 / 30sec**

Episodes done: **2**

Find the email by **Audrey** and click the star icon to mark it as important.

In id.	Reply	Forward
Cora to me Lacus. At sit. Voluptat tellus. Maecenas commodo, purus pellentesque tellus duis leo pulvinar varius.	←	→
	Reply	Forward

Last reward: **-**

Last 10 average: **-**

Time left: **21 / 30sec**

Episodes done: **0**

Last reward: **0.88**

Last 10 average: **-0.30**

Time left: **26 / 30sec**

Episodes done: **5**

For the user **@nec**, click on the "Share via DM" button.

Christa @et - 11h ago Orci, ultrices consectetur.	Share via DM
Branch @nec - 9h ago Massa, eget id egestas.	Share via DM
Salaidh @tempus - 11h ago Aliquam tempor, quam. Et	Share via DM

For the user **@eget**, click on the "Retweet" button.

Nielsen @molestie - 1h ago Libero urna, sem et cras.	Retweet
Hanson @sed - 17h ago Tincidunt a.	Retweet
Campos @bludit - 5h ago Euismod mauris ornare	Retweet

For the user **@lectus**, click on the "Retweet" button.

Acosta @dolores - 8h ago Gravida enim nibh.	Retweet
Bond @chas - 2h ago Diam eget et.	Retweet
Loria @ac - 4h ago Vehicula pulvinar. Mi.	Retweet

For the user **@volutpat**, click on the "Like" button.

Antoinette @thaddeus - 1h ago Arcu. Diam integer pellentesque.	Like
Bertie @fusce - 15h ago Sit vulputate cras aliquam.	Like
Nathalie @renda - 5h ago Turpis pellentesque id. Enim.	Like

For the user **@kasie**, click on the "Reply" button.

Lyons @vel - 6h ago Fringilla consectetur tortor.	Reply
Moody @lacus - 9h ago Cursus velit.	Reply
Dinnie @kasie - 3h ago Ut gravida volutpat.	Reply

For the user **@integer**, click on the "Share via DM" button.

Sib @briana - 9h ago Integer semper aliquam nibh. Odio.	Share via DM
Rush @integer - 5h ago Ut diam arcu nulla.	Share via DM
Cherie @ashlea - 14h ago Rhoncus. Vel tempor.	Share via DM

For the user **@karrie**, click on the "Embed Tweet" button.

Evaleen @karrie - 8h ago Nec, proin. Mi et.	Embed Tweet
Vere @cierra - 17h ago Ipsum at vel egestas in.	Embed Tweet

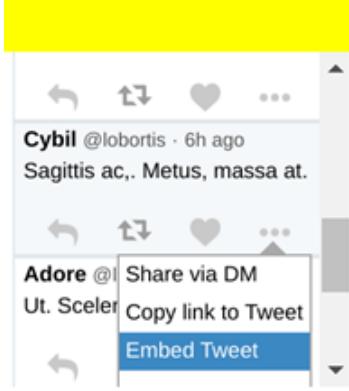
Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **11 / 15sec**

Episodes done: **1**

For the user @lobortis, click on the "Mute" button.



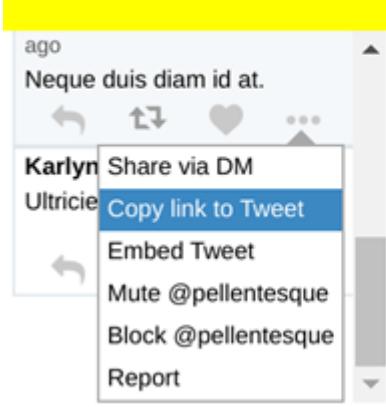
Last reward: **-1.00**

Last 10 average: **-1.00**

Time left: **7 / 15sec**

Episodes done: **4**

For the user @pellentesque, click on the "Copy link to Tweet" button.



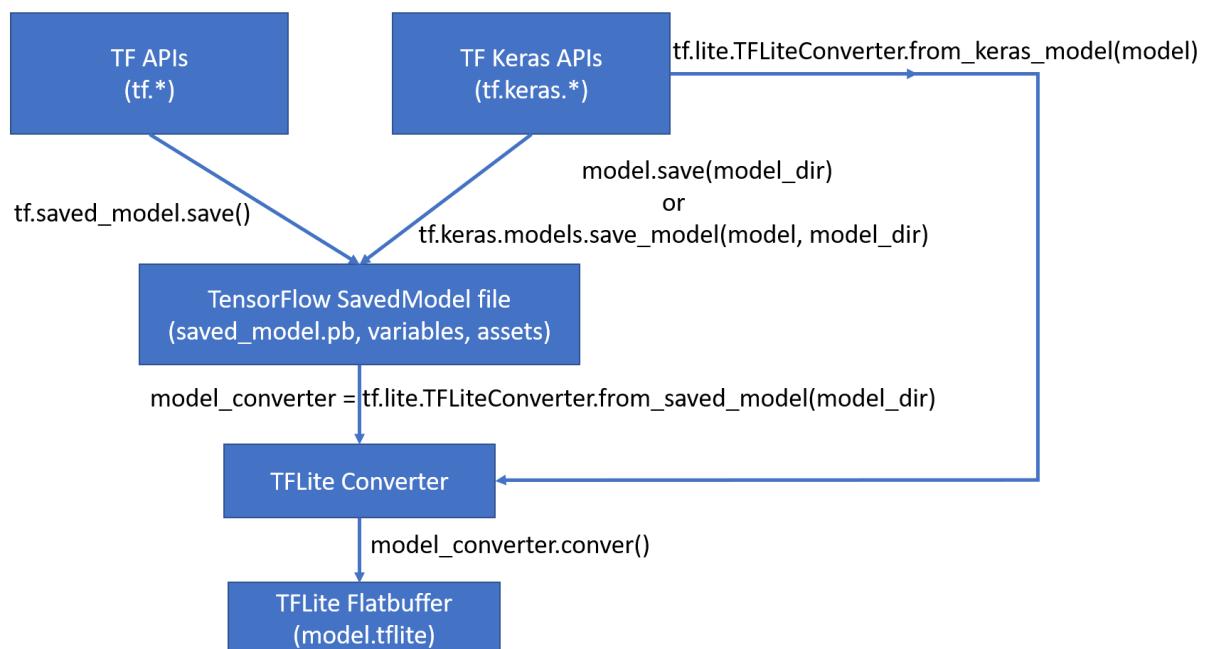
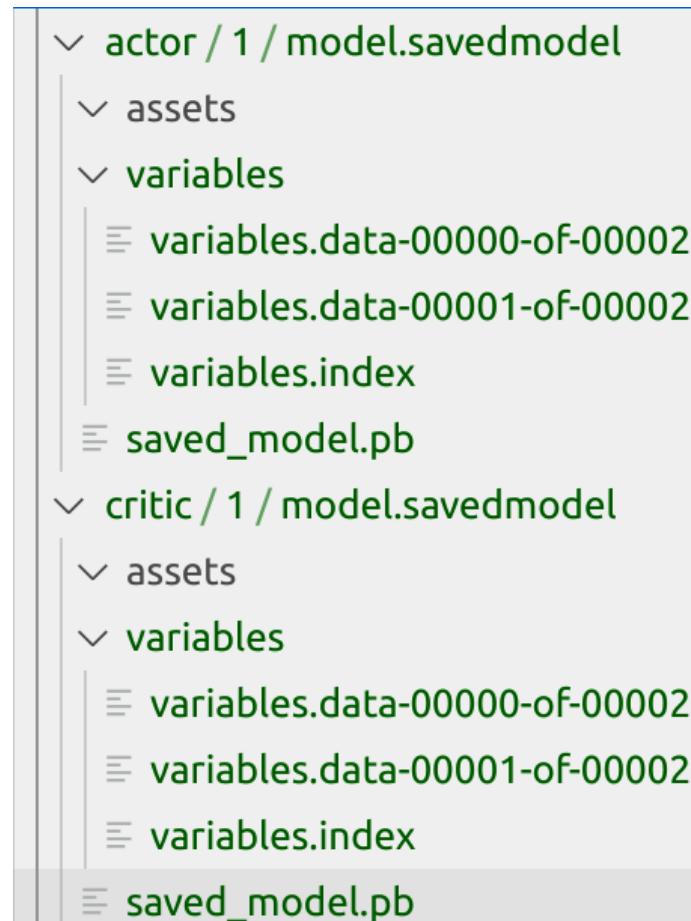
Last reward: **-1.00**

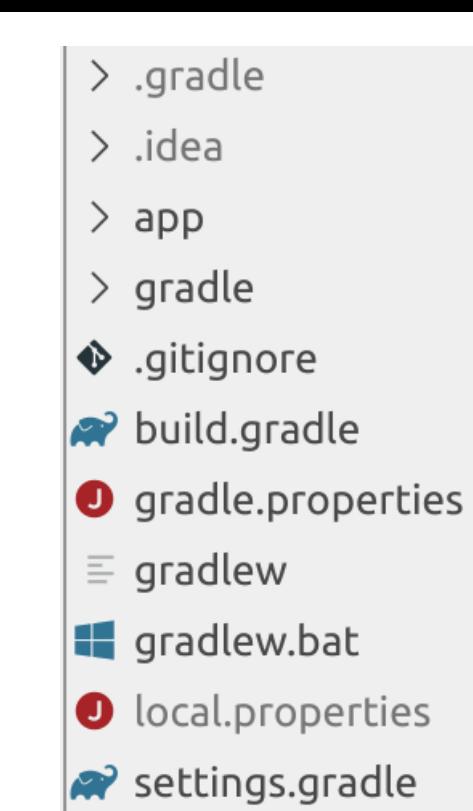
Last 10 average: **-1.00**

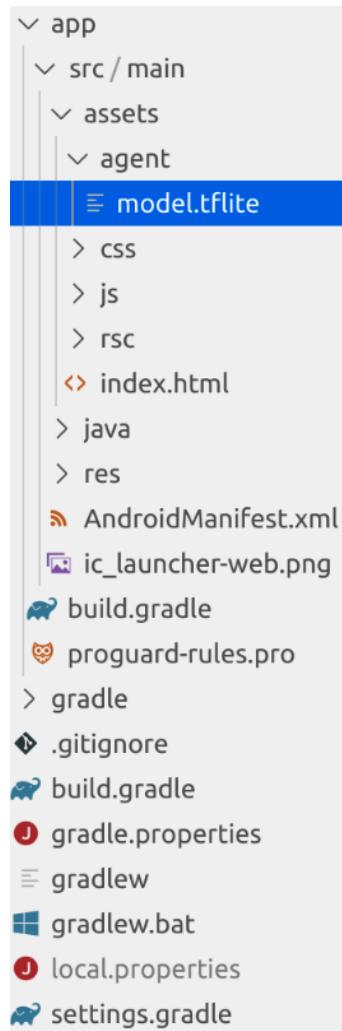
Time left: **4 / 15sec**

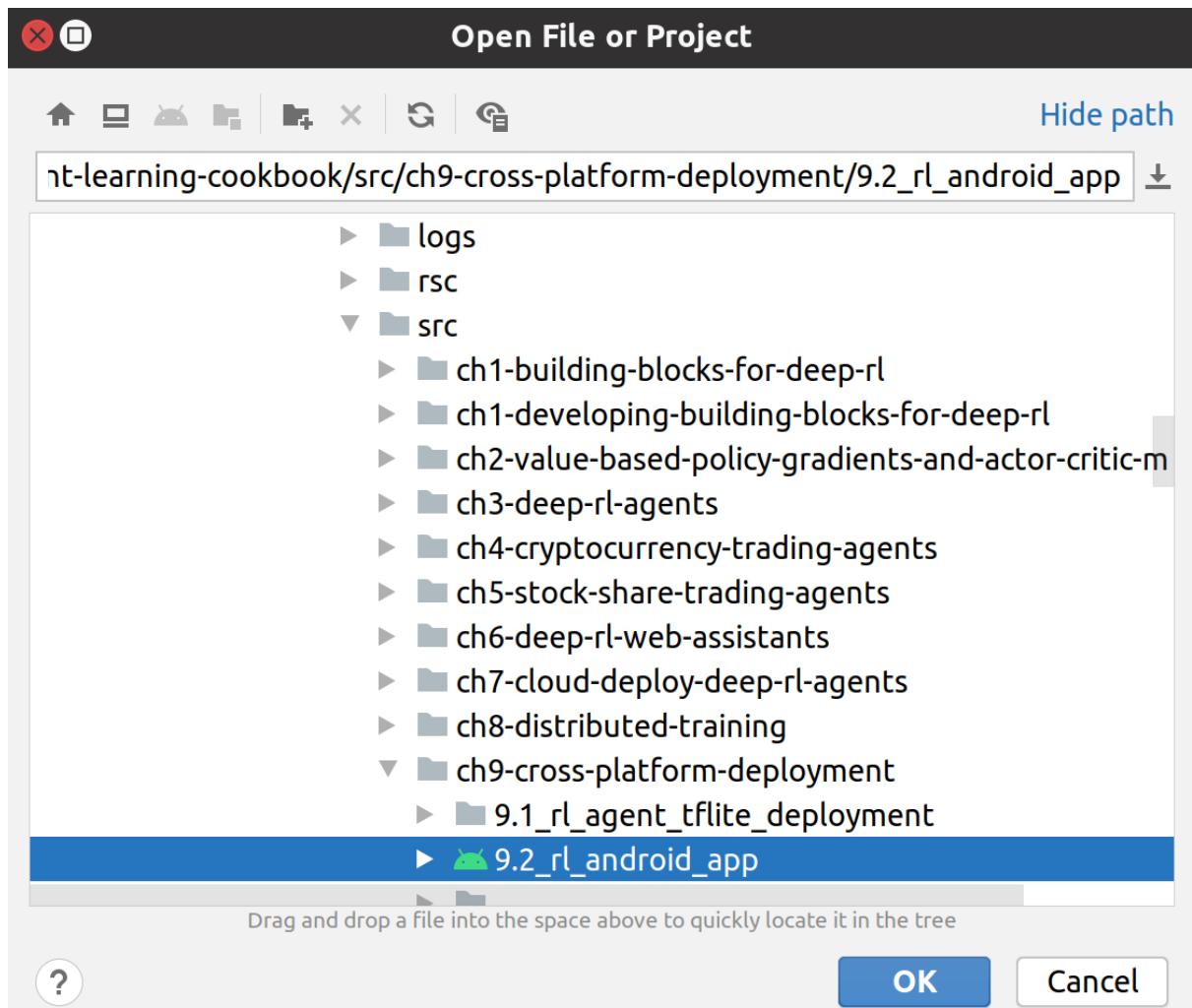
Episodes done: **6**

Chapter 9: Deploying Deep RL Agents on Multiple Platforms









9.2_rl_android_app – build.gradle (:app)

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

app Pixel XL API 30 Git: Ok, apply suggestion! Open (Ctrl+Alt+Shift+S) Hide notification

Project 9.2_rl_android_app .gradle .idea app build src build.gradle proguard-rules.pro gradle .gitignore build.gradle gradle.properties gradlew gradlew.bat local.properties settings.gradle External Libraries

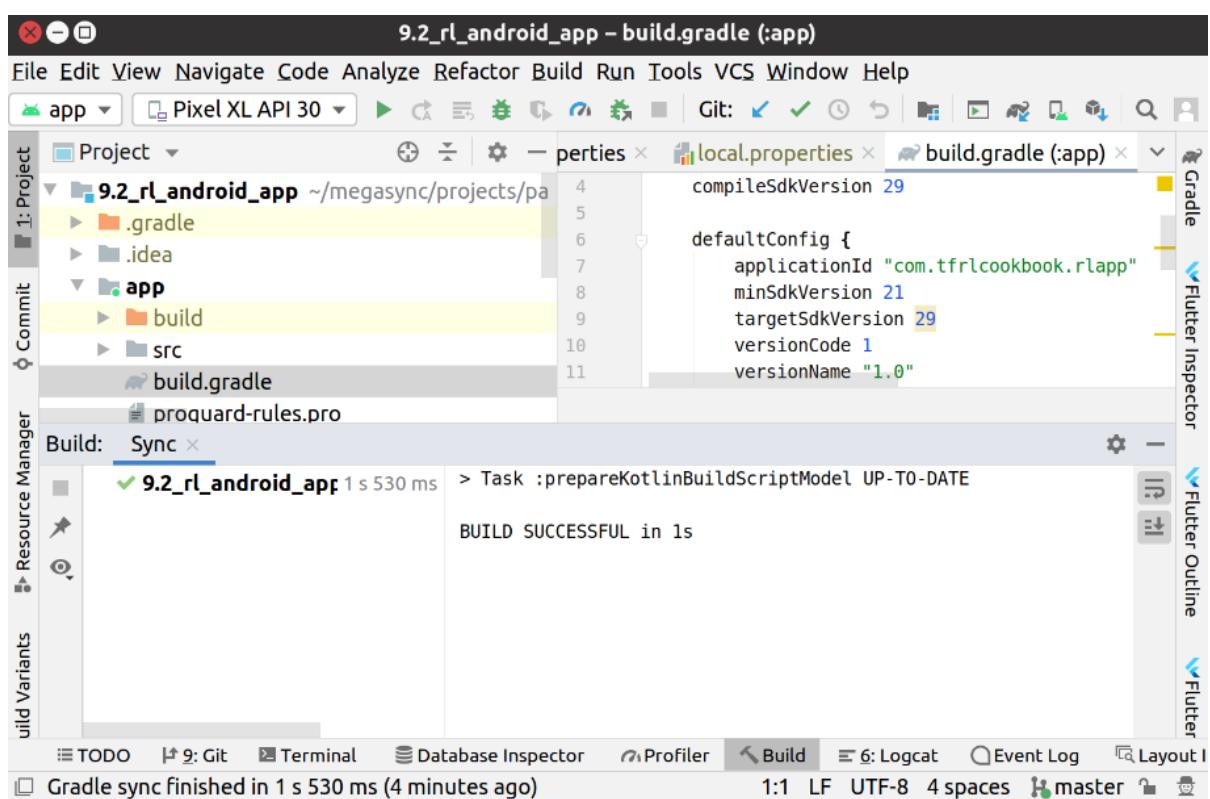
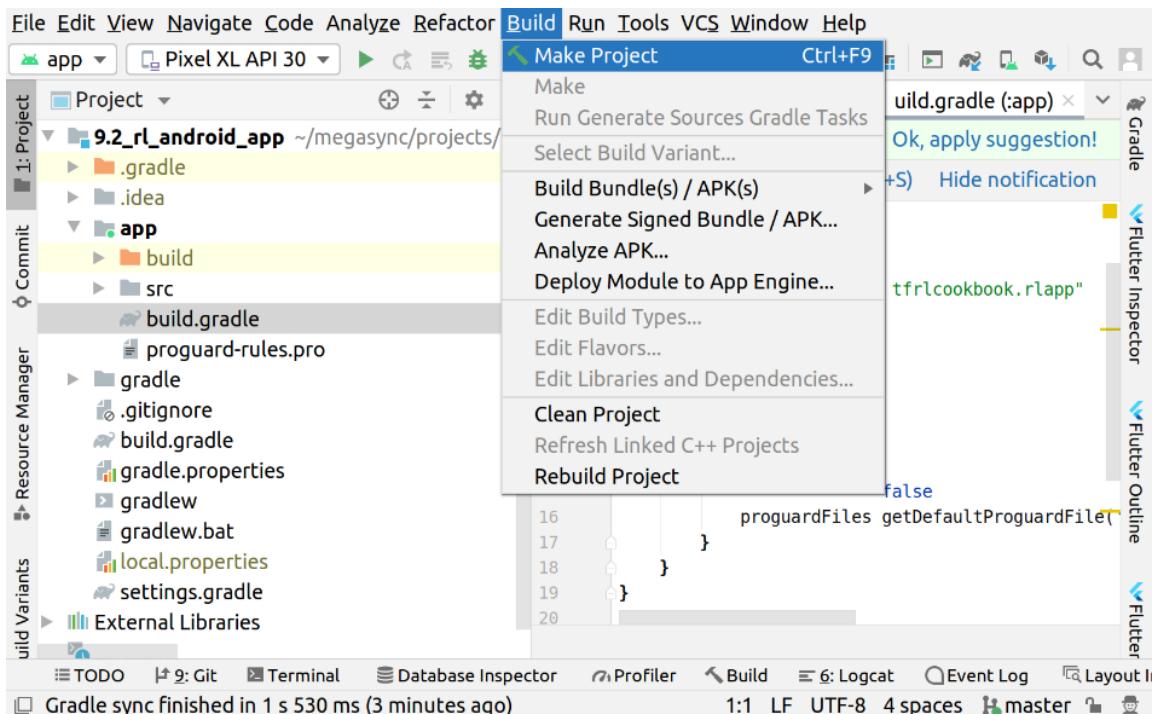
Properties local.properties build.gradle (app)

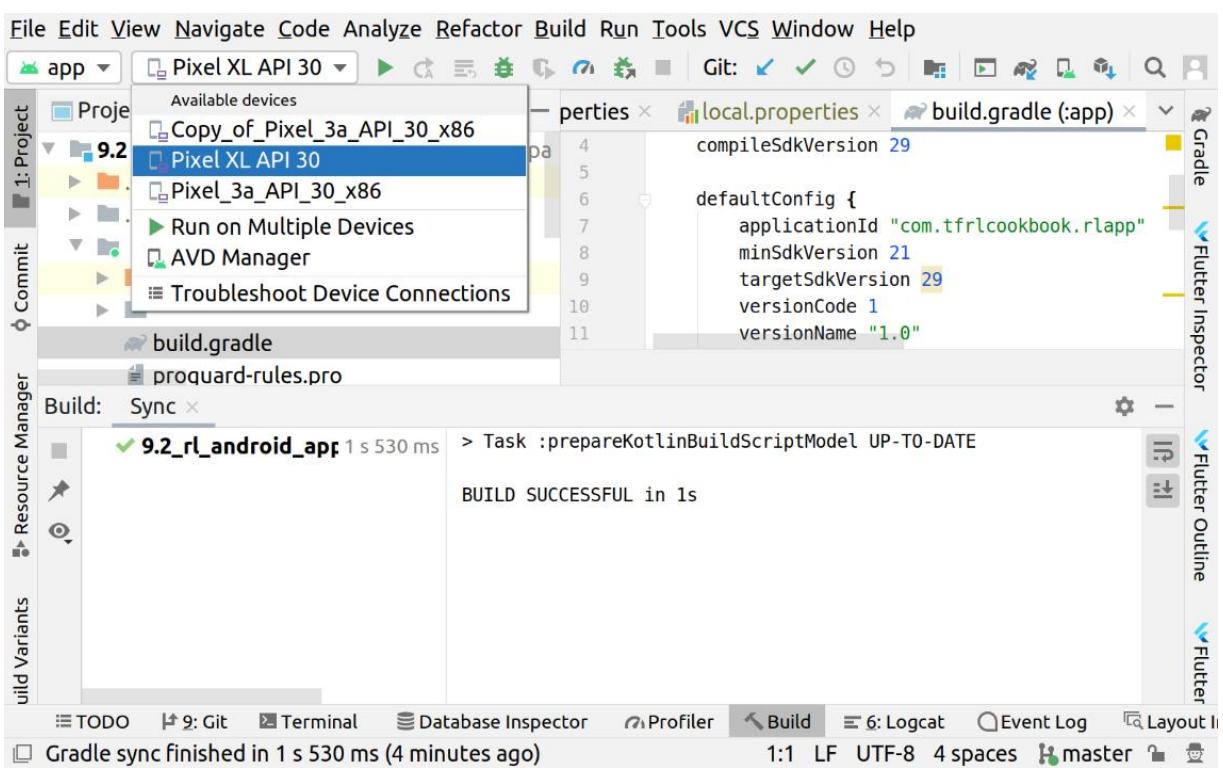
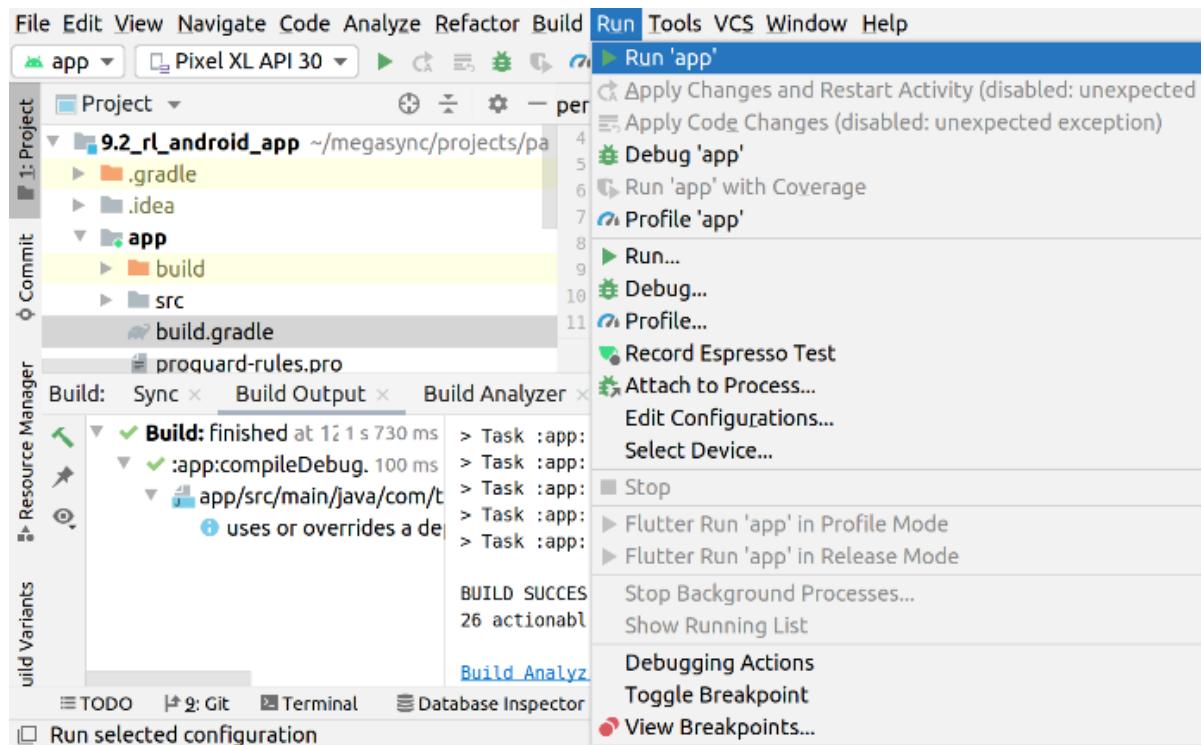
```
4 compileSdkVersion 29
5
6 defaultConfig {
7     applicationId "com.tfrlcookbook.rlapp"
8     minSdkVersion 21
9     targetSdkVersion 29
10    versionCode 1
11    versionName "1.0"
12 }
13 buildTypes {
14     release {
15         minifyEnabled false
16         proguardFiles getDefaultProguardFile("proguard-rules.pro")
17     }
18 }
19
20 }
```

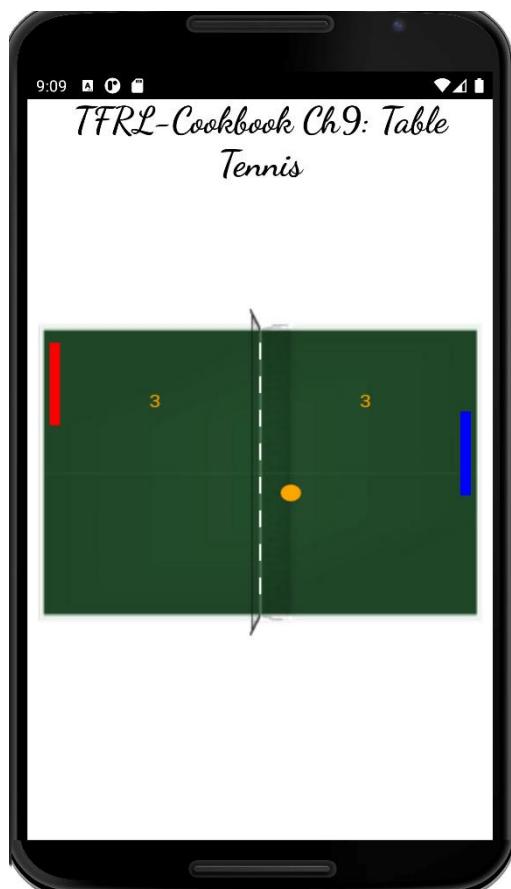
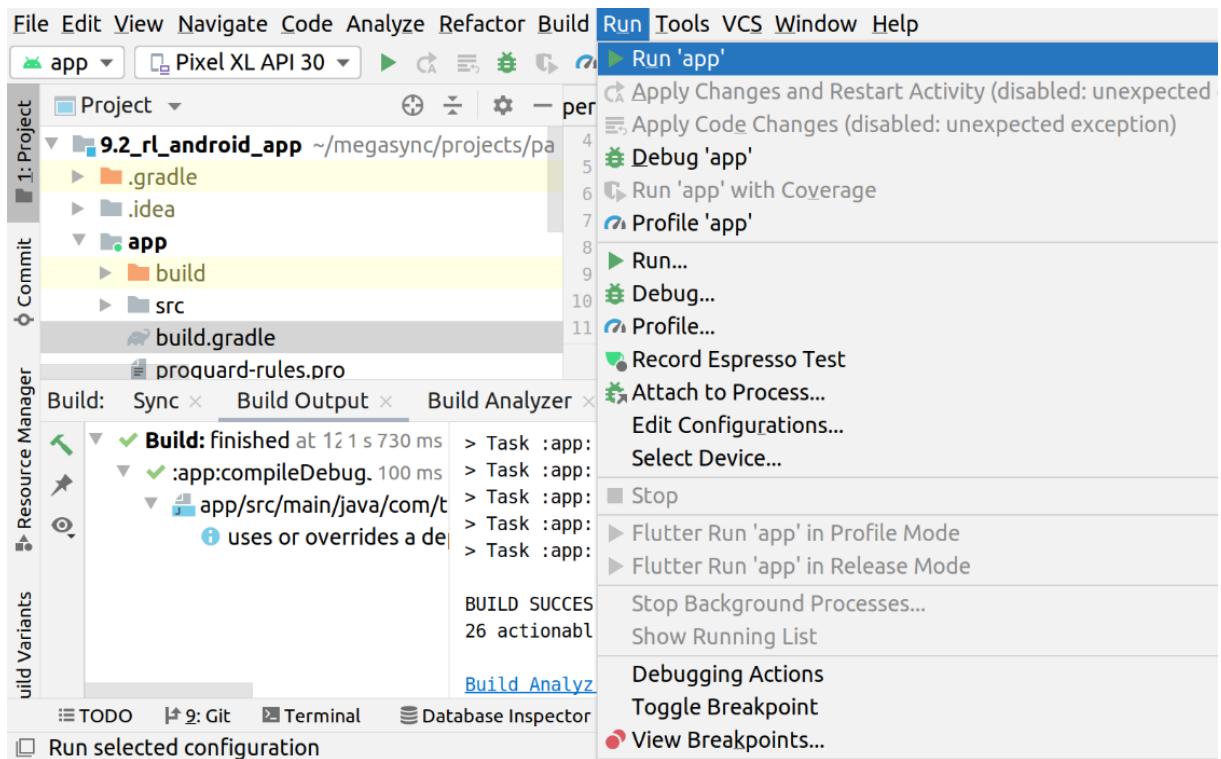
Gradle Flutter Inspector Flutter Outline Flutter

TODO 9: Git Terminal Database Inspector Profiler Build 6: Logcat Event Log Layout 1 Gradle sync finished in 1 s 530 ms (2 minutes ago) 1:1 LF UTF-8 4 spaces master

The screenshot shows the Android Studio interface with the title '9.2_rl_android_app – build.gradle (:app)'. The left sidebar shows the project structure with '9.2_rl_android_app' selected. The main editor pane displays the build.gradle file content. The code defines a compileSdkVersion of 29, a defaultConfig block with an application ID of 'com.tfrlcookbook.rlapp', a minSdkVersion of 21, a targetSdkVersion of 29, a versionCode of 1, and a versionName of '1.0'. It also defines a buildTypes block with a release configuration that disables minification and uses the default proguard file. The bottom status bar indicates a successful sync completed in 1 second, 530 milliseconds ago. The bottom navigation bar includes tabs for TODO, Git, Terminal, Database Inspector, Profiler, Build, Logcat, Event Log, Layout, and a Gradle sync status.







```
    < trained_models
        < DDPG_MiniWoBSocialMediaMuteUserVisualEnv-v0
            < actor / 1
                ≡ model.h5
            < critic / 1
                ≡ model.h5

    < DDPG_MiniWoBSocialMediaMuteUserVisualEnv-v0
        < actor / 1 / model.tfjs
            ≡ group1-shard1of1.bin
            {} model.json
        < critic / 1 / model.tfjs
            ≡ group1-shard1of1.bin
            {} model.json

    < trained_models
        > dqn-cartpole
        < PPO-MiniWoBSocialMediaMuteUserVisualEnv-v0
            < actor / 1 / model.savedmodel
                > assets
                > variables
                ≡ saved_model.pb
            > critic
```

```
trained_models / PPO_procgen:procgen-ninja-v0
  actor / 1
    model.savedmodel
      assets
      variables
        variables.data-00000-of-00001
        variables.index
        saved_model.pb
    model.tfjs
      group1-shard1of1.bin
      model.json
      model.h5
      model.onnx
      model.tflite
  critic / 1
    > model.savedmodel
    > model.tfjs
    model.h5
    model.onnx
    model.tflite
```

