

Group 7 Proof of code running on one of our computer.  
 It might look a little different than the picture in the report, as the details are to minor changes  
 E1Run1

```

# Project: Experiment 1
import ...

class El:
    show = Visual()
    agent = Agent(0, 4, False)
    havePackageWorld = World()
    noPackageWorld = World()

    resetNumber = 0
    previousTermination = 0
    terminationSteps = 0
    terminationList = []

    for i in range(4000):
        oldAgent = copy.deepcopy(agent)
        if not agent.havePackage():
            world = noPackageWorld
            world.worldUpdate(havePackageWorld, noPackageWorld)
        else:
            world = havePackageWorld
            world.worldUpdate(noPackageWorld, havePackageWorld)

        SelectAction(RAND)(agent, world, False)
        newAgent = copy.deepcopy(agent)
        updateMatrix.QUpdate(oldAgent, newAgent, world, -3, -5)
        if world.isCompleteDelivery():
            noPackageWorld.mapReset()
            havePackageWorld.mapReset()
            resetNumber += 1

```

Welcome, Vincent  
 Chung Hei Poon!

Running of Group 7 Computer

Agent without package

Operator Counter: 2000

Agent Reward: -1216

Map Reset Counter: 1

Steps taken to reach terminal state: 1078

Load Settings

Cannot load settings from file C:\Users\boy19\Desktop\4360\Project\label.work

Agent with package

Operator Counter: 2000

Agent Reward: -1216

Map Reset Counter: 1

Steps taken to reach terminal state: 1078

Load Settings

Cannot load settings from file C:\Users\boy19\Desktop\4360\Project\label.work

Agent without package

Operator Counter: 4000

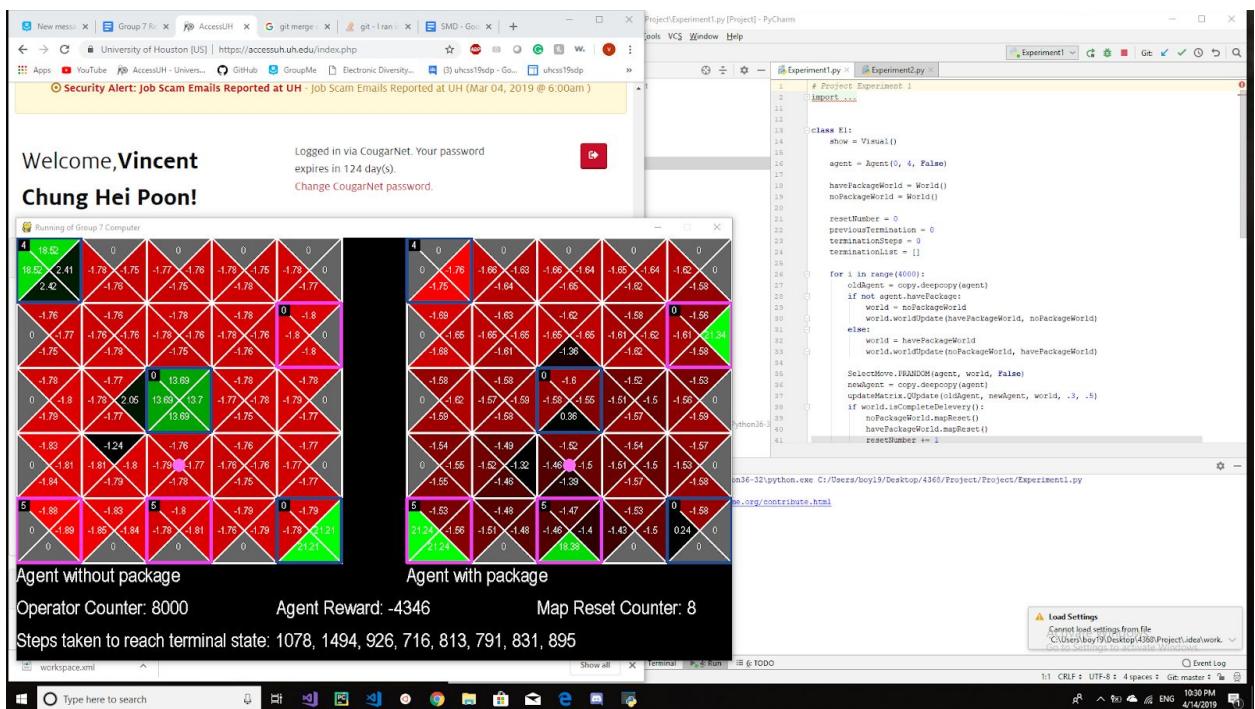
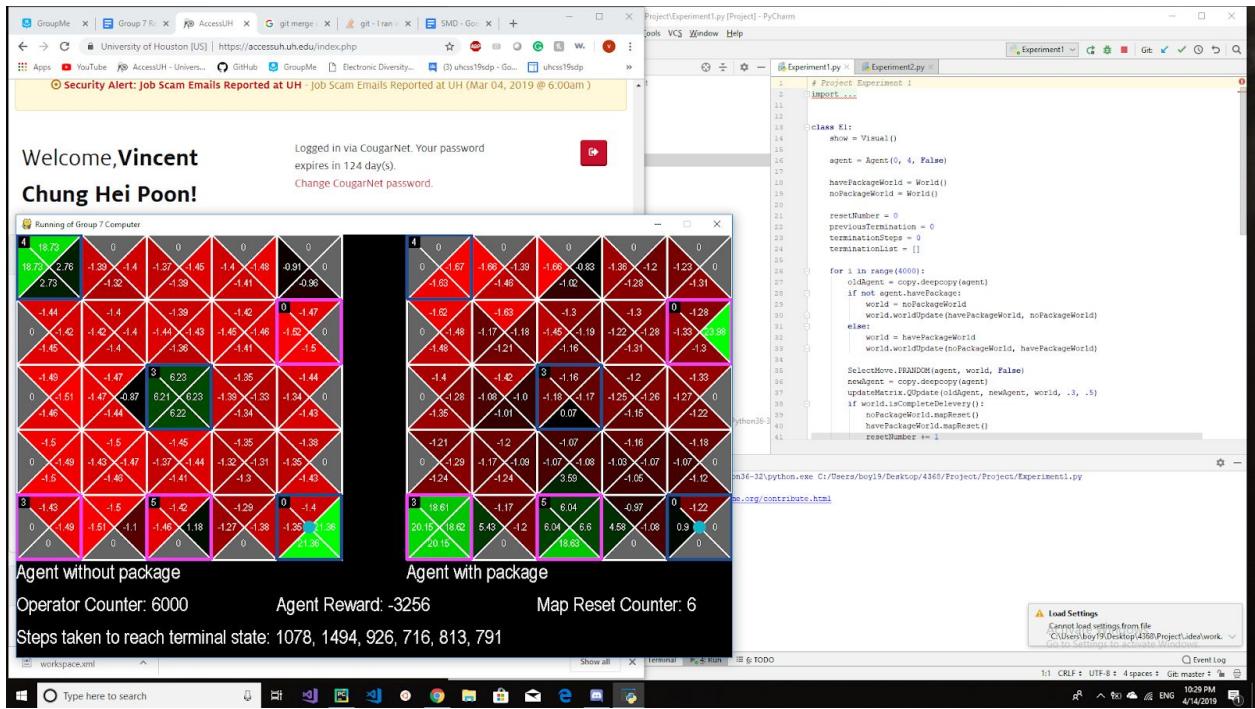
Agent Reward: -2376

Map Reset Counter: 3

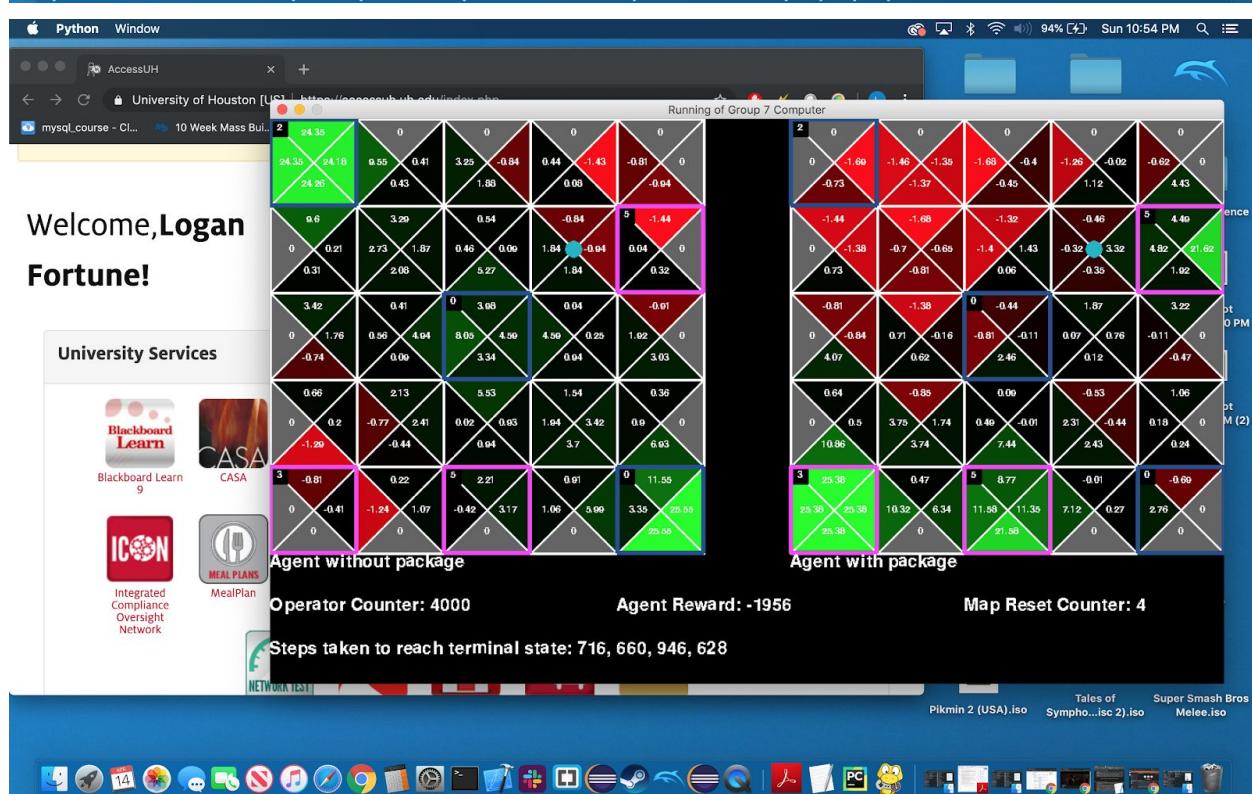
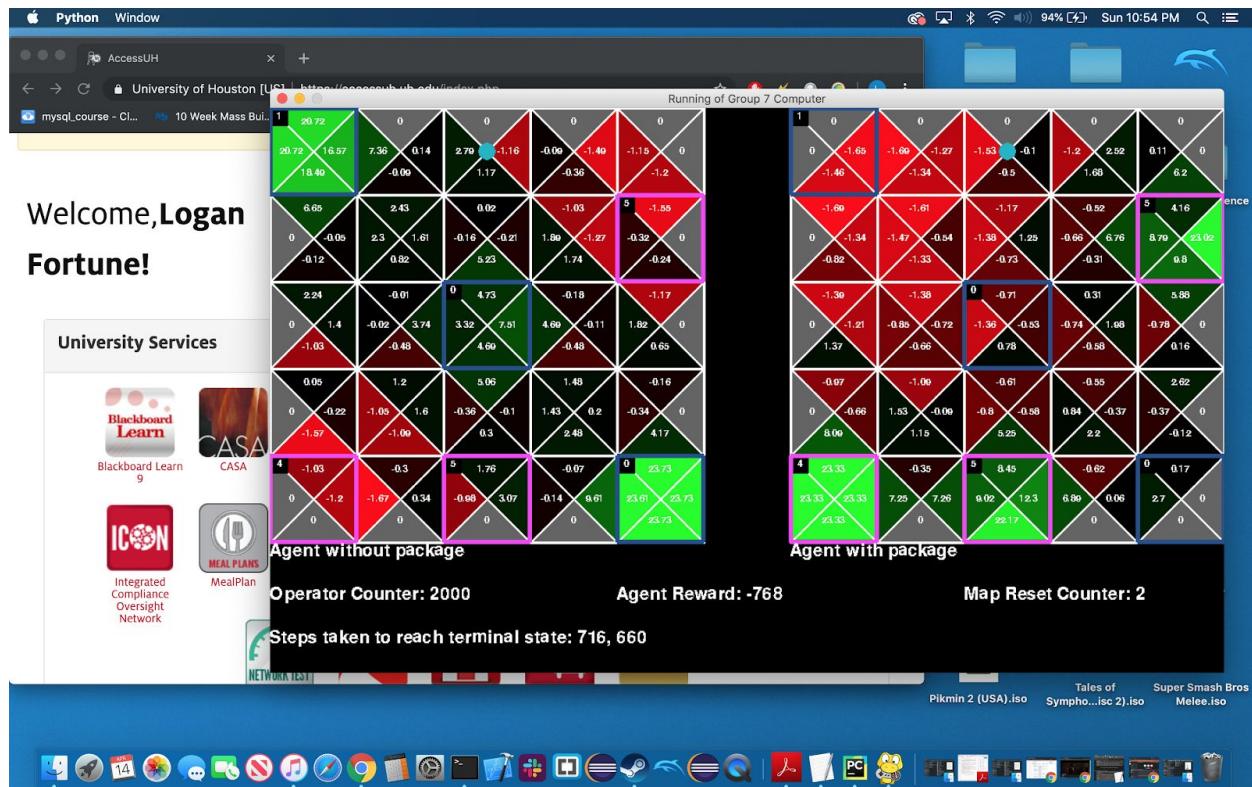
Steps taken to reach terminal state: 1078, 1494, 926

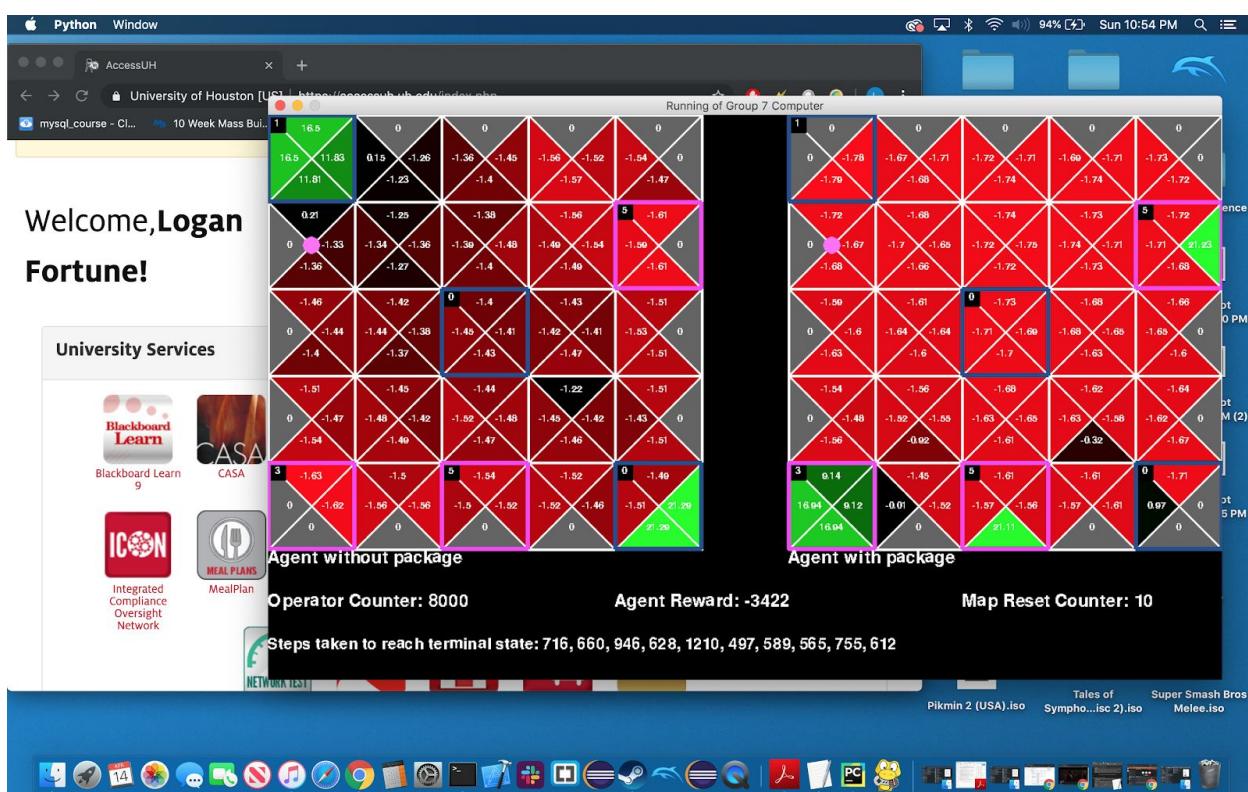
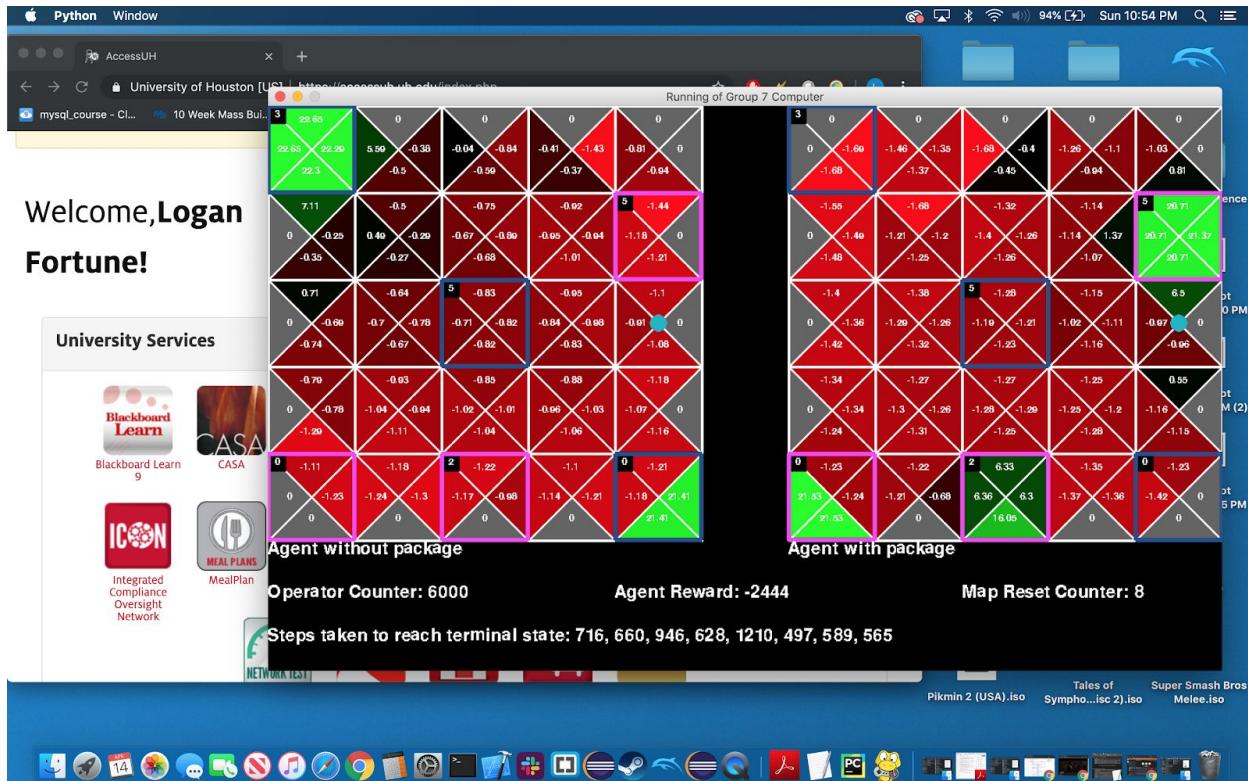
Load Settings

Cannot load settings from file C:\Users\boy19\Desktop\4360\Project\label.work

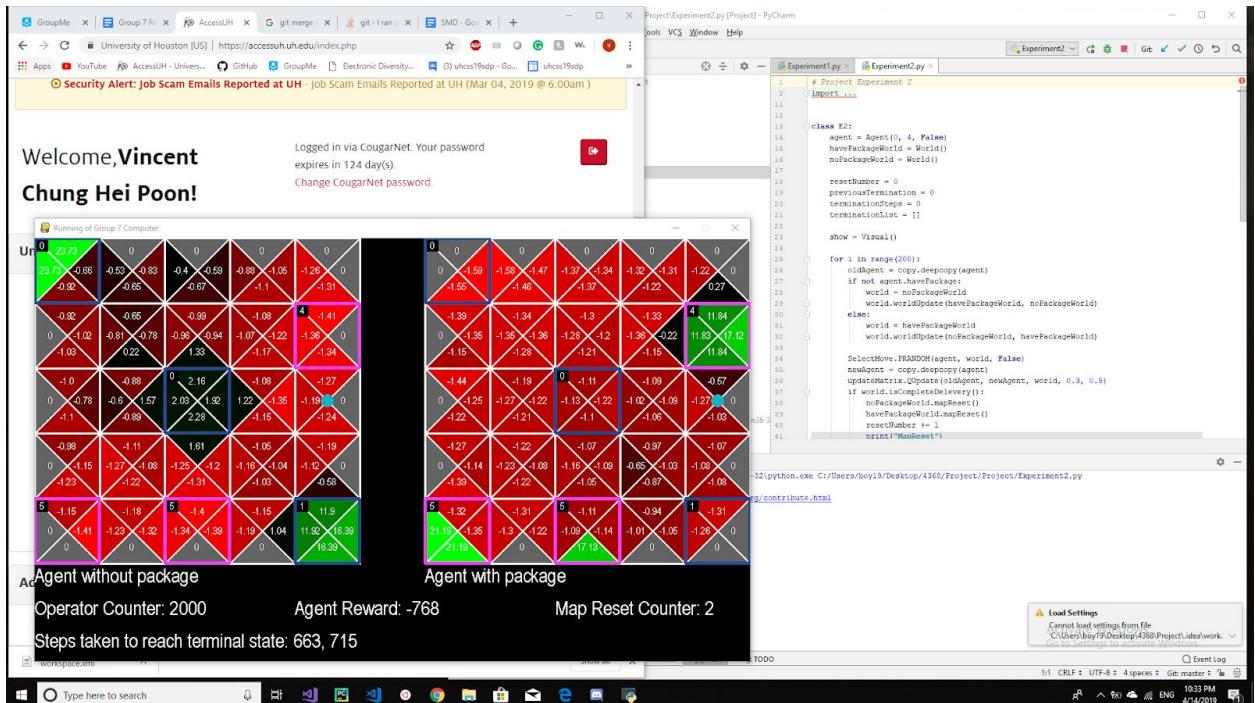
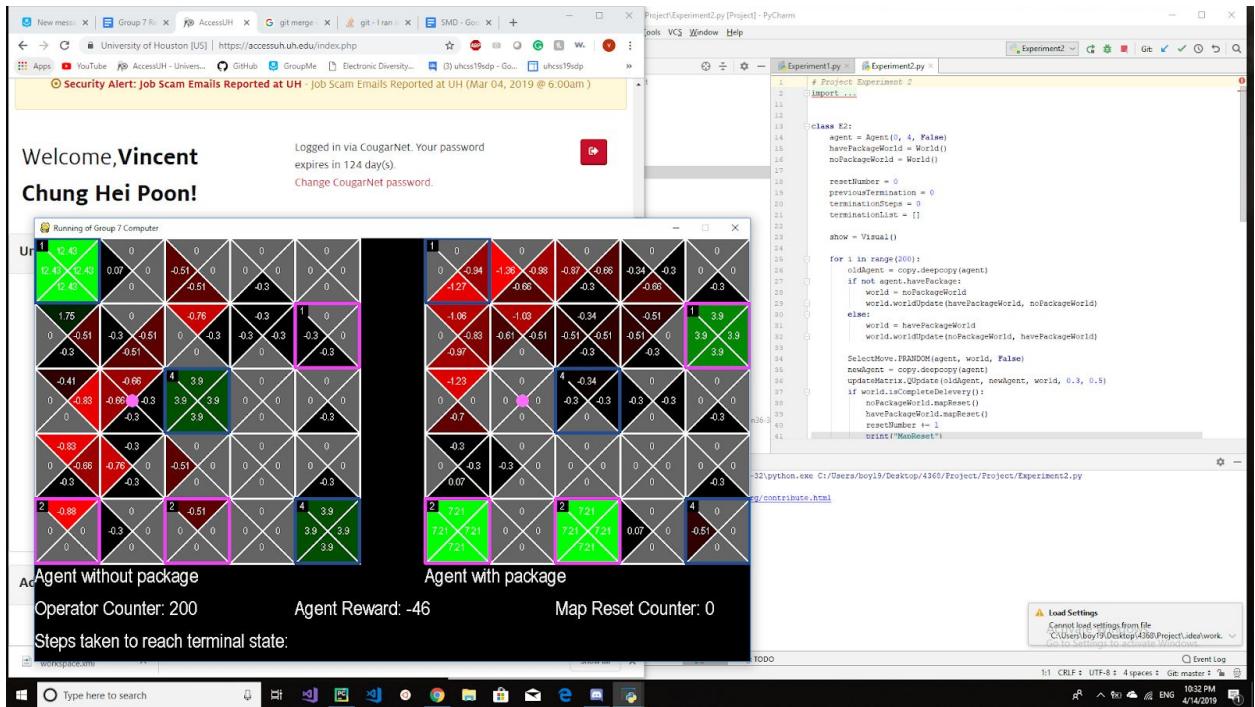


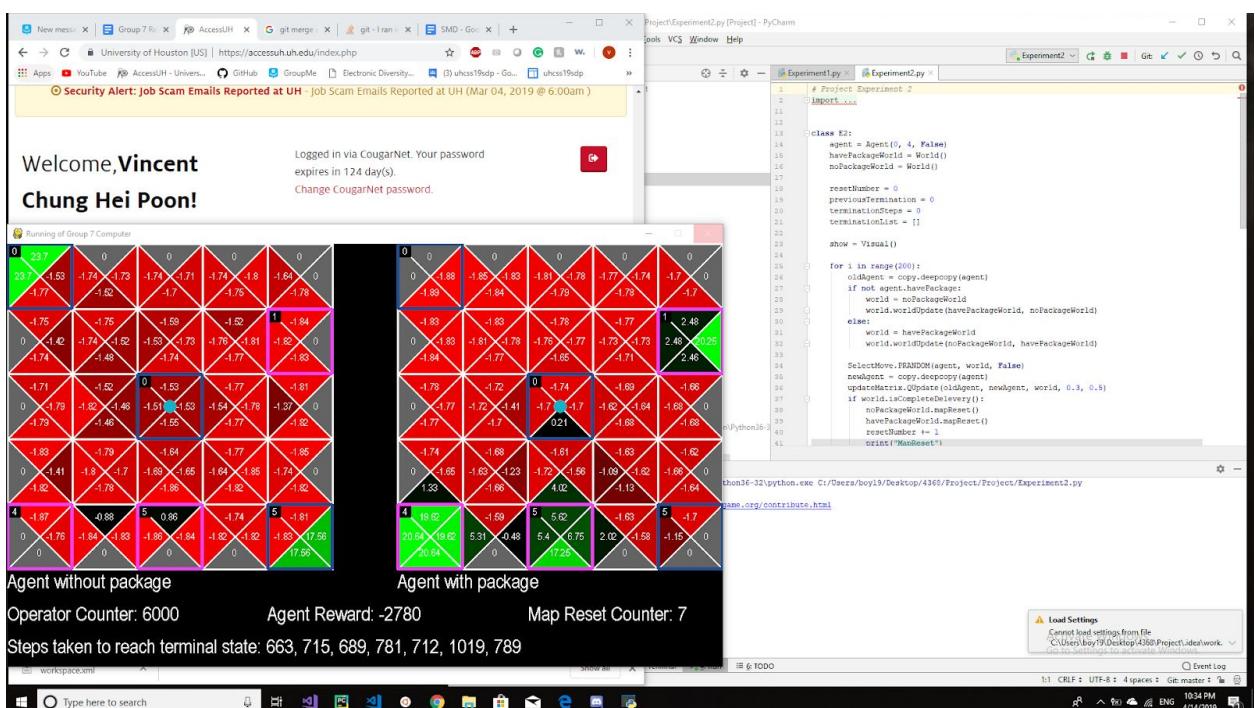
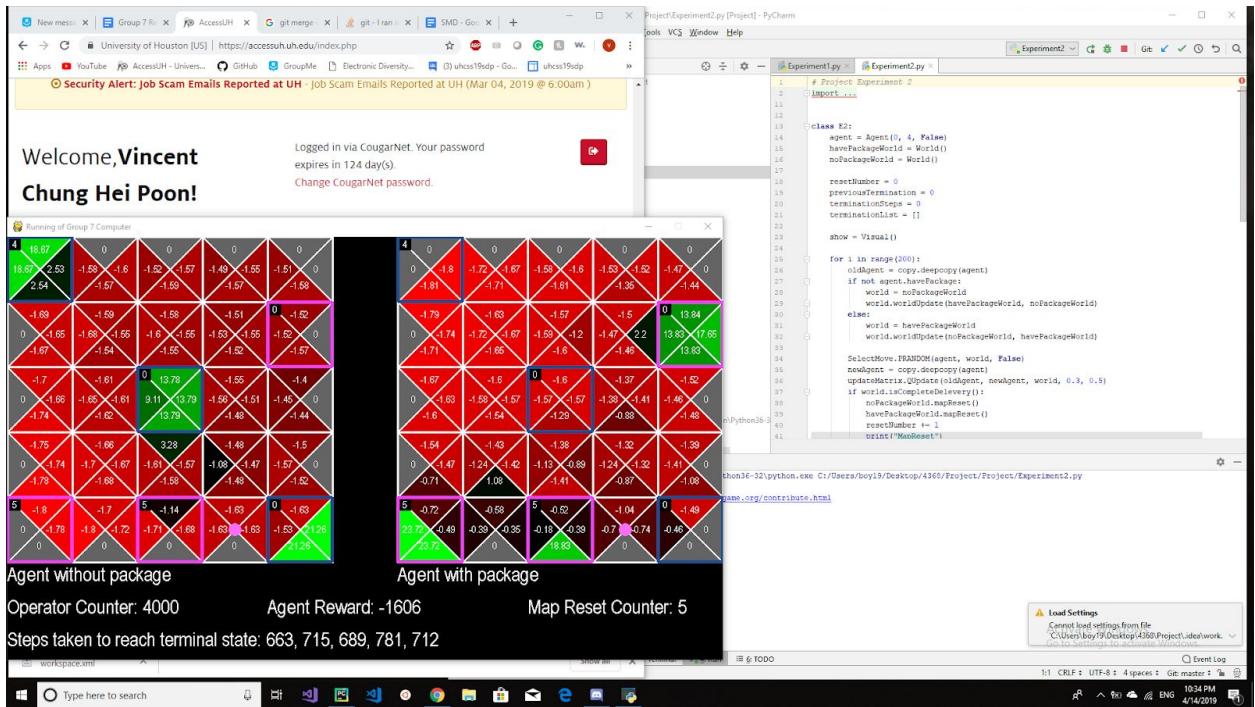
## E1Run2

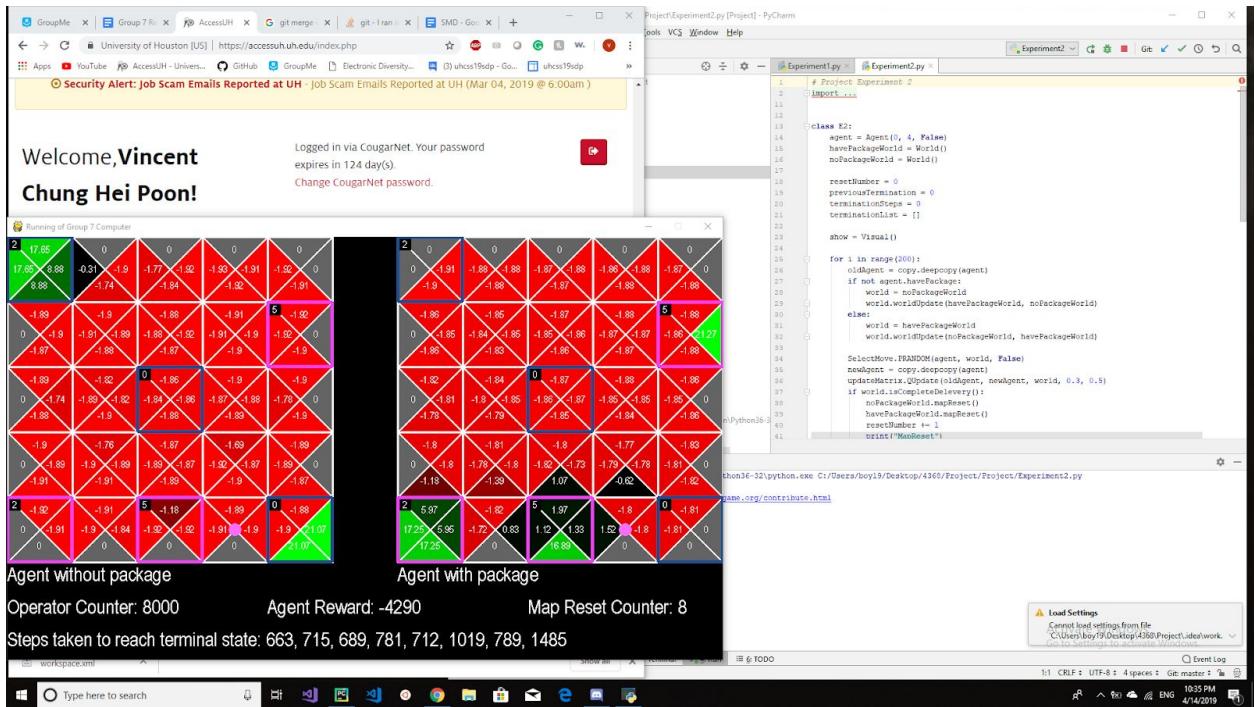




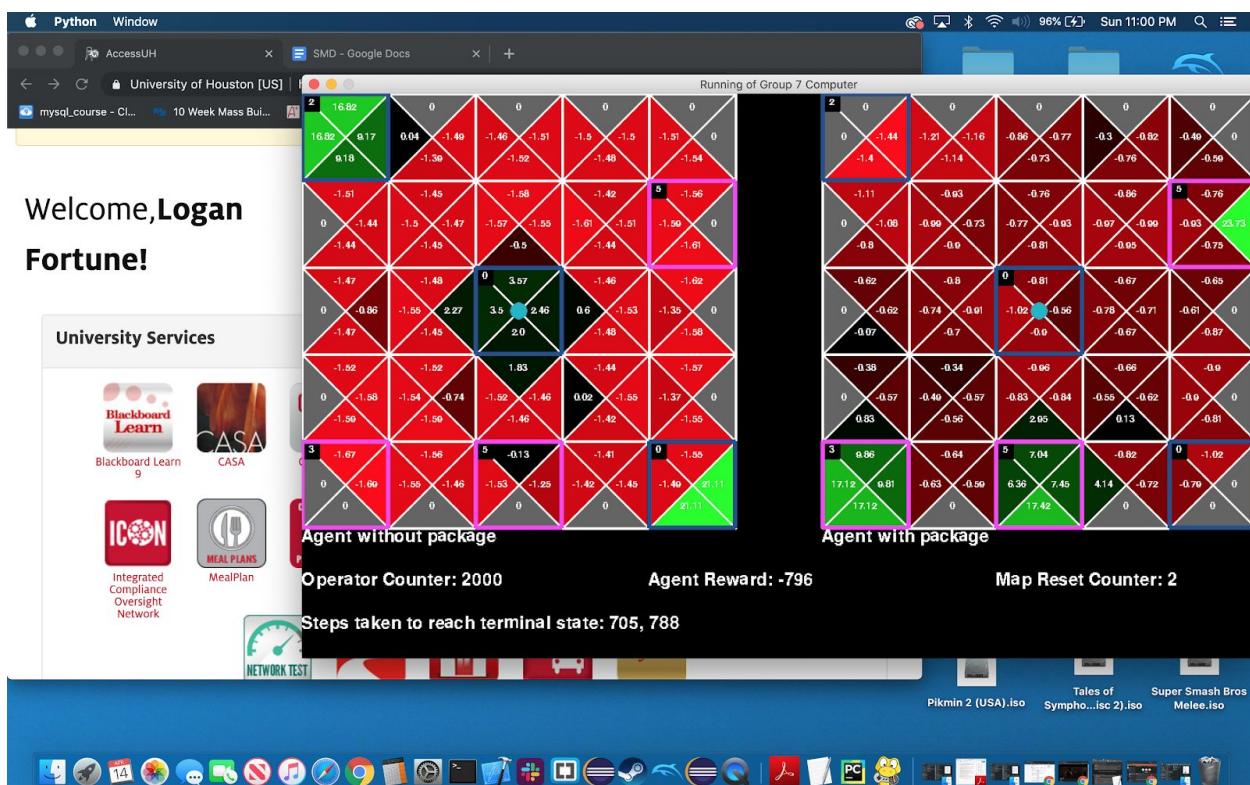
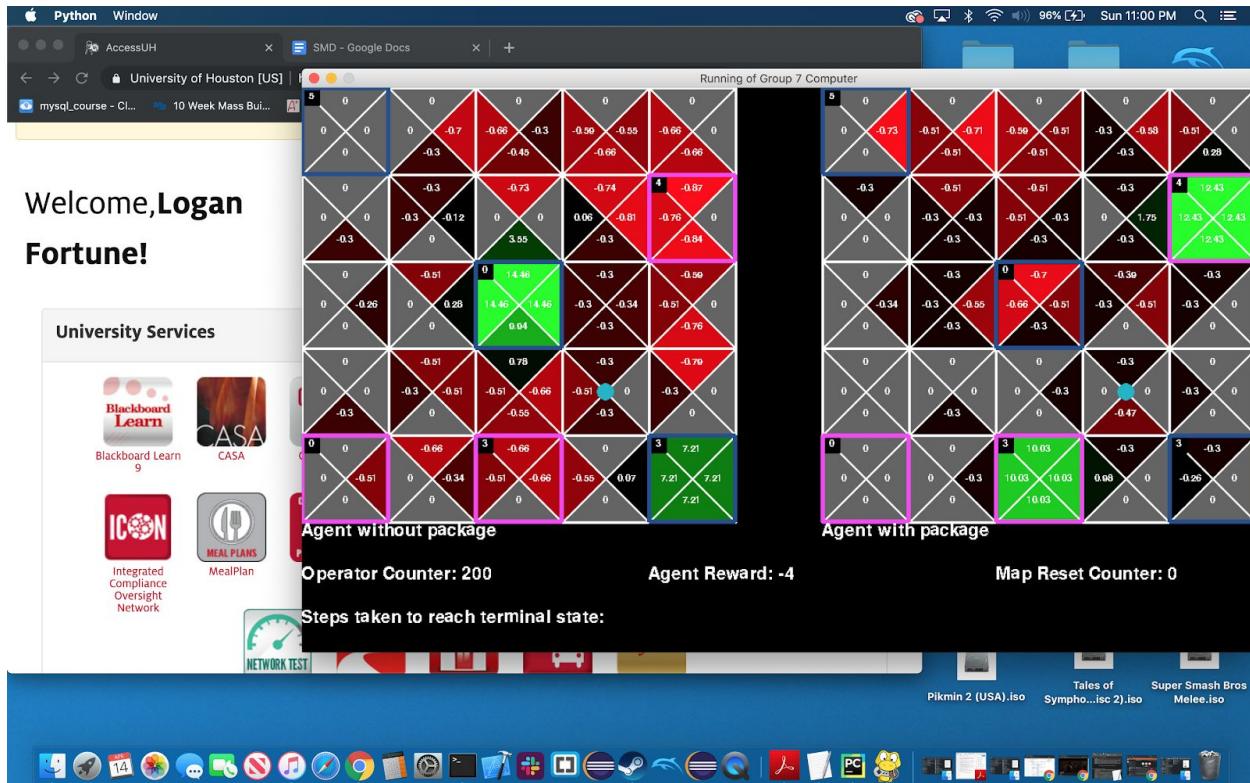
E2Run1

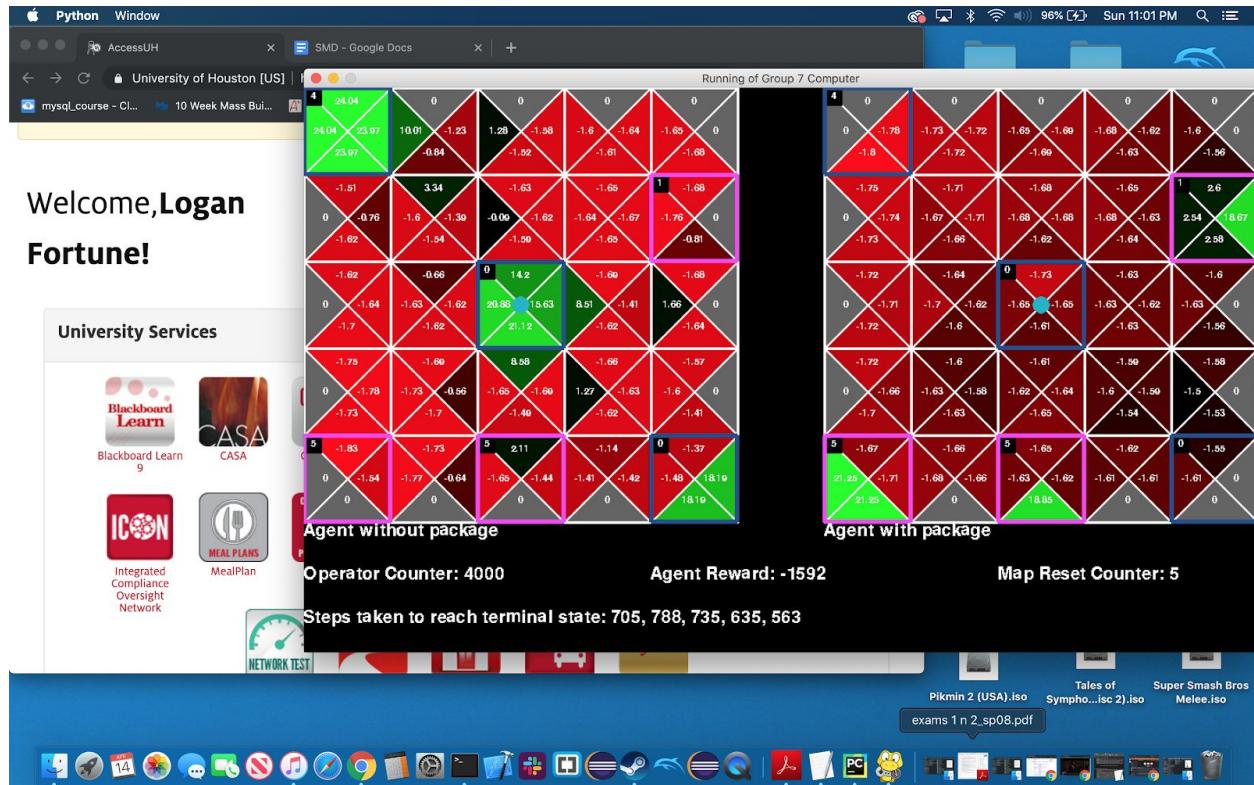


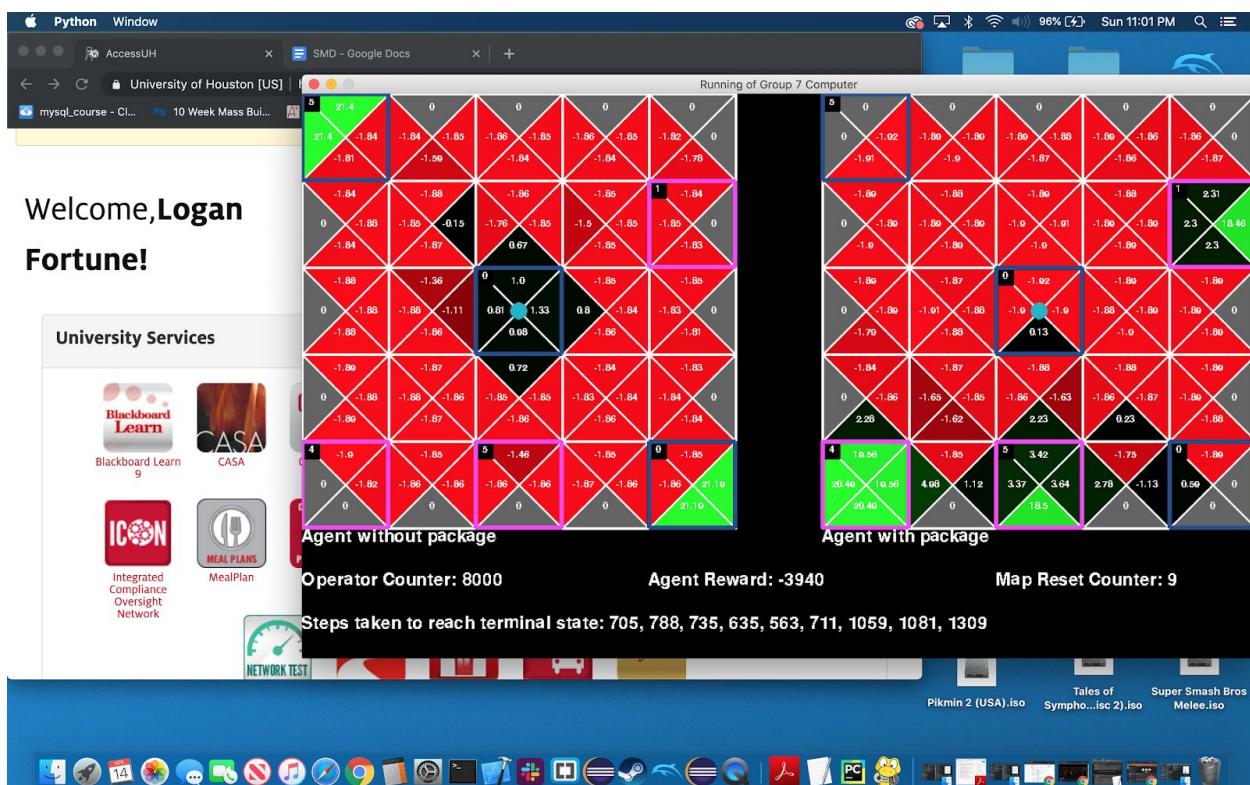
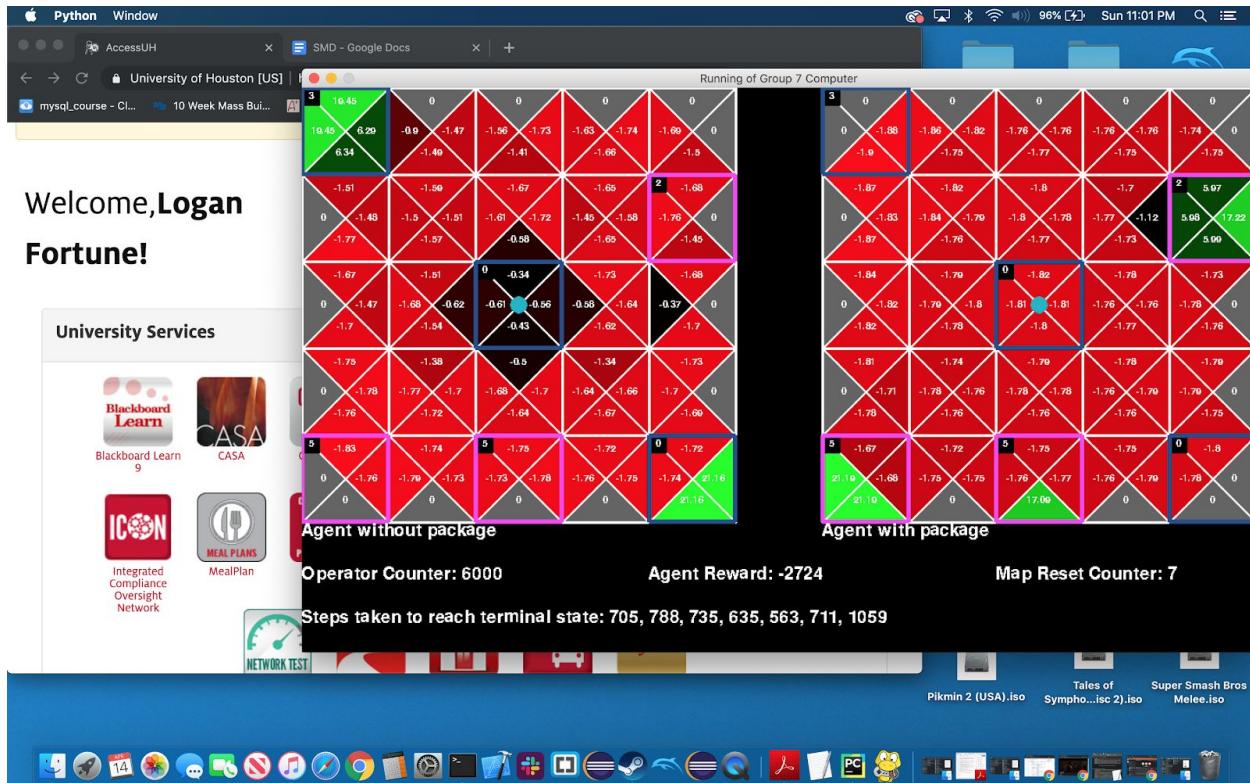




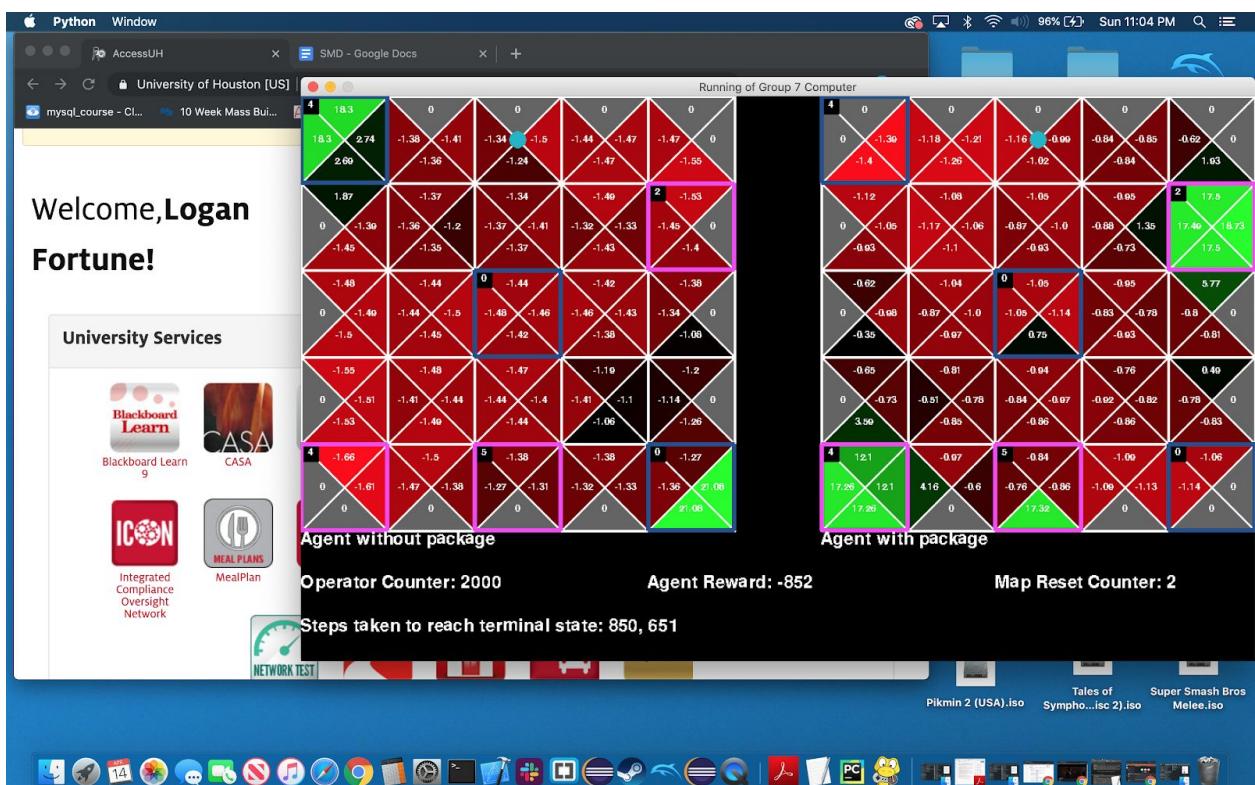
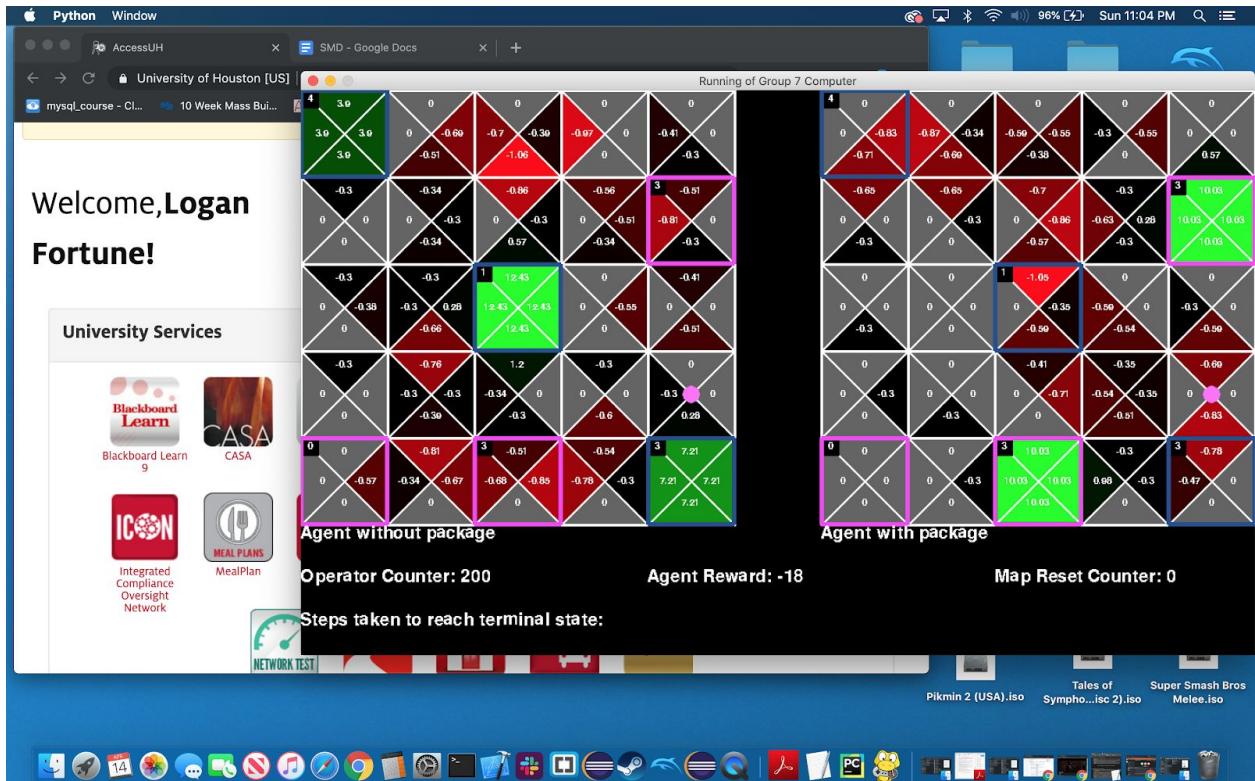
E2Run2

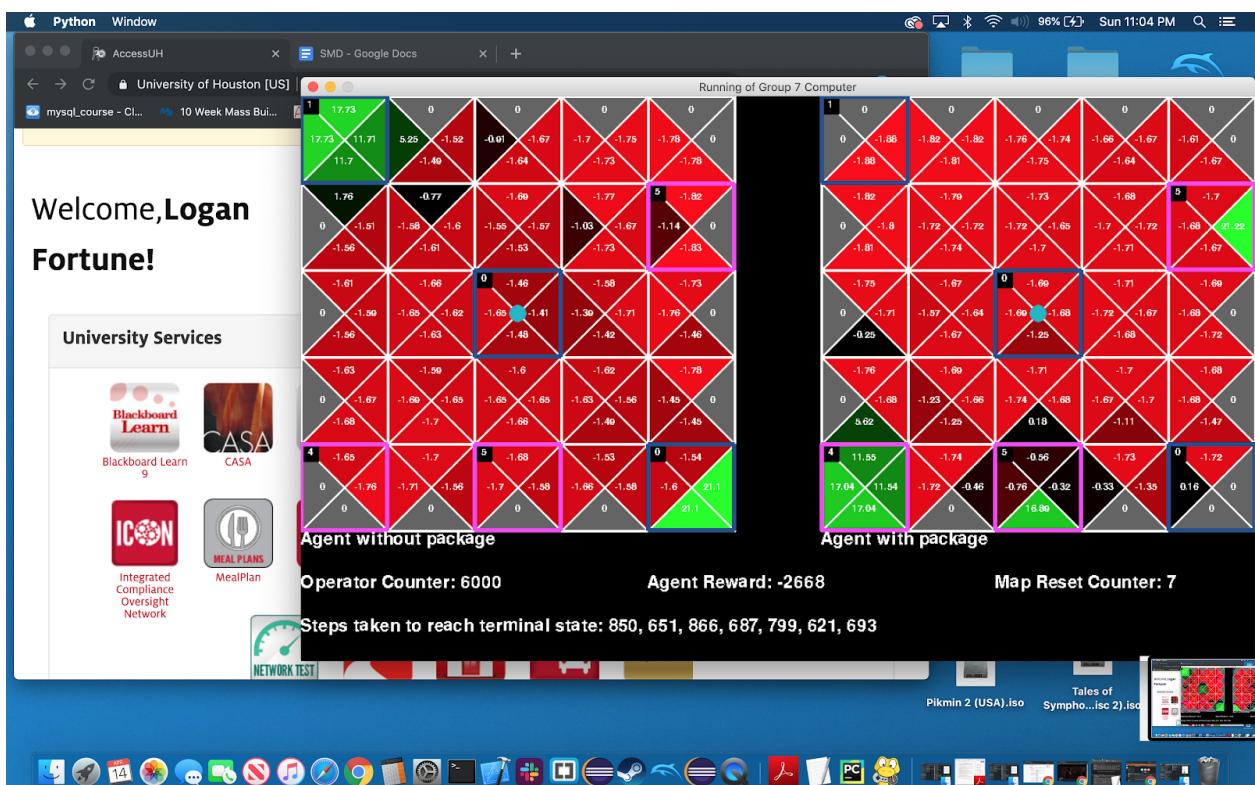
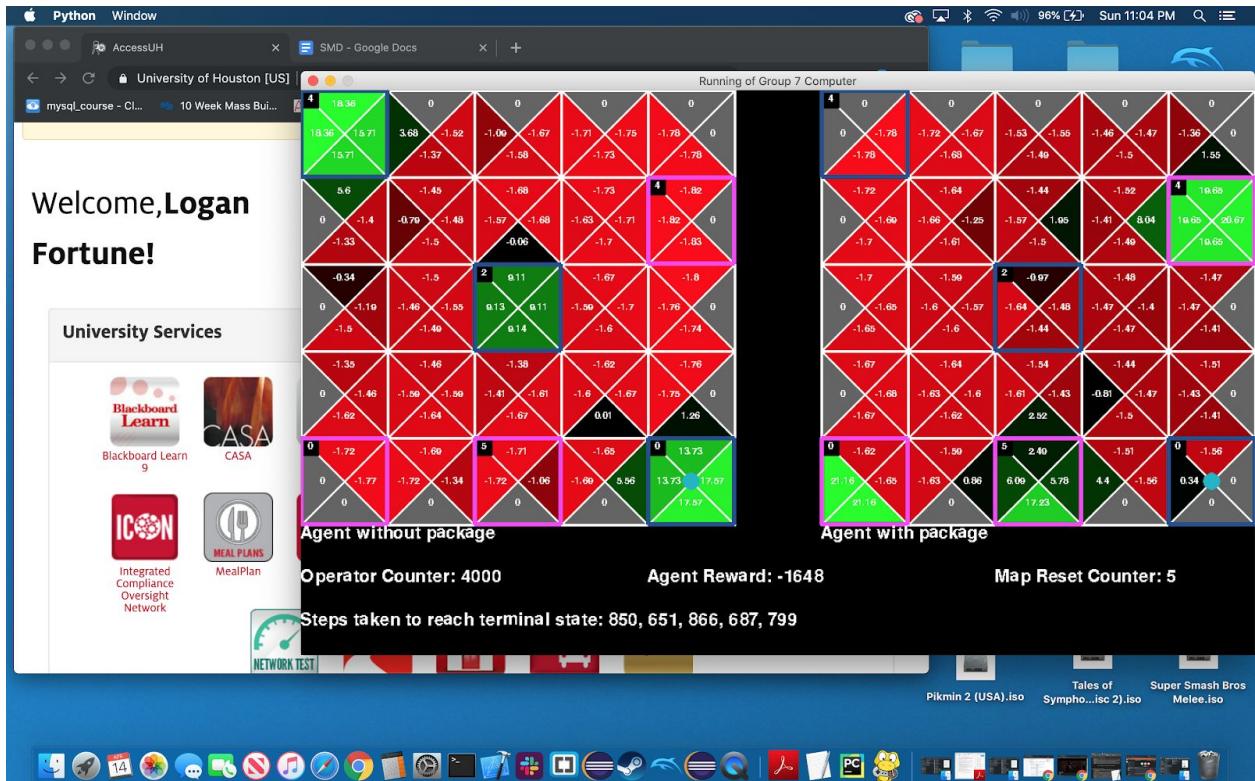


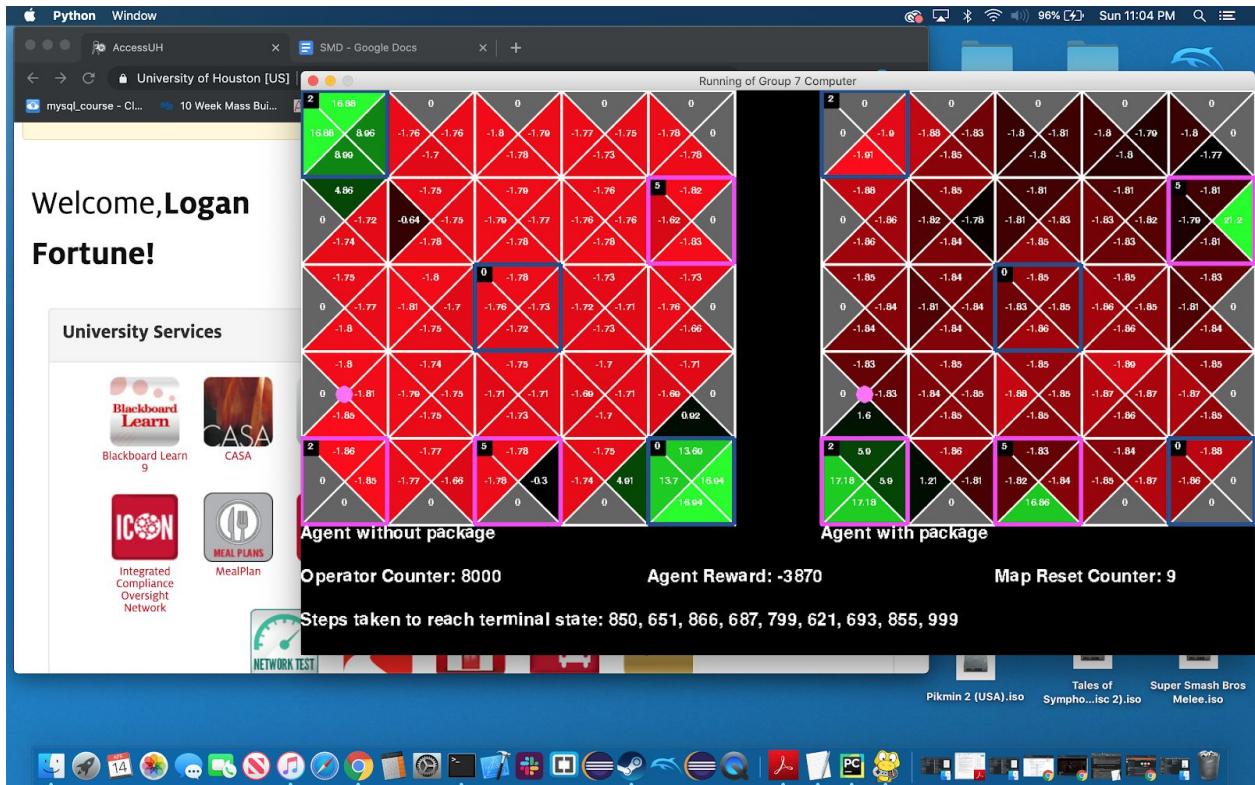




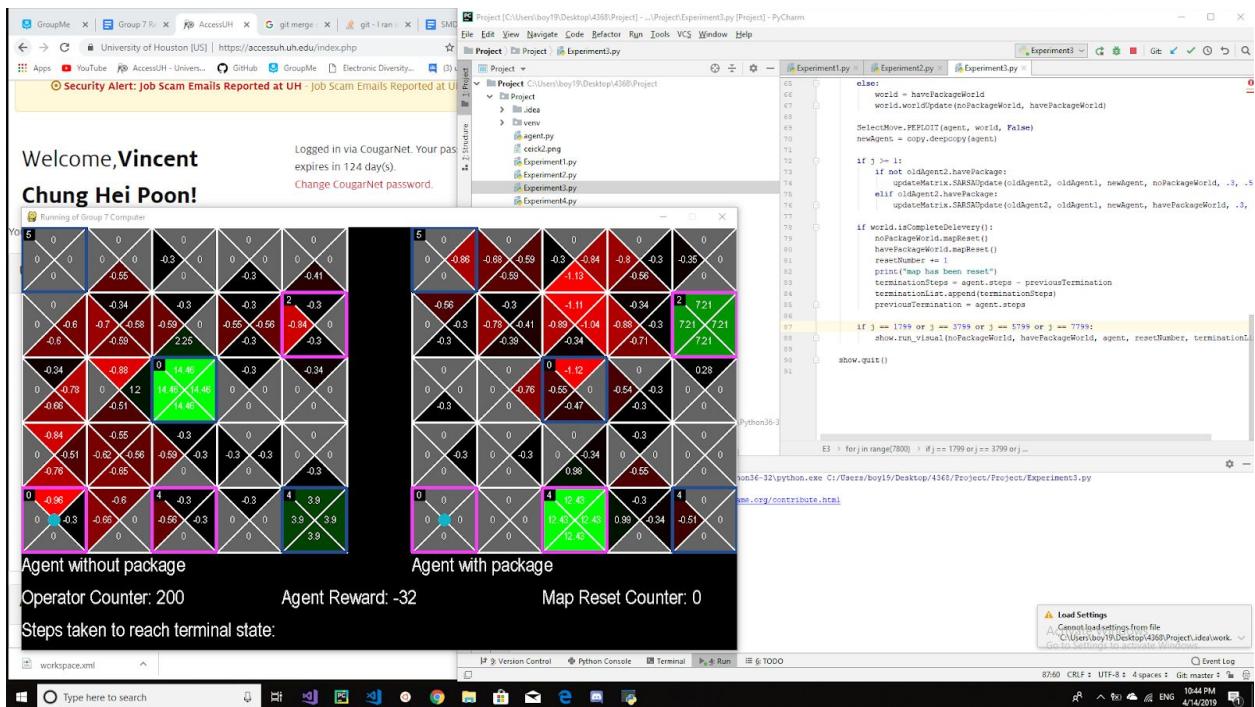
E3Run1

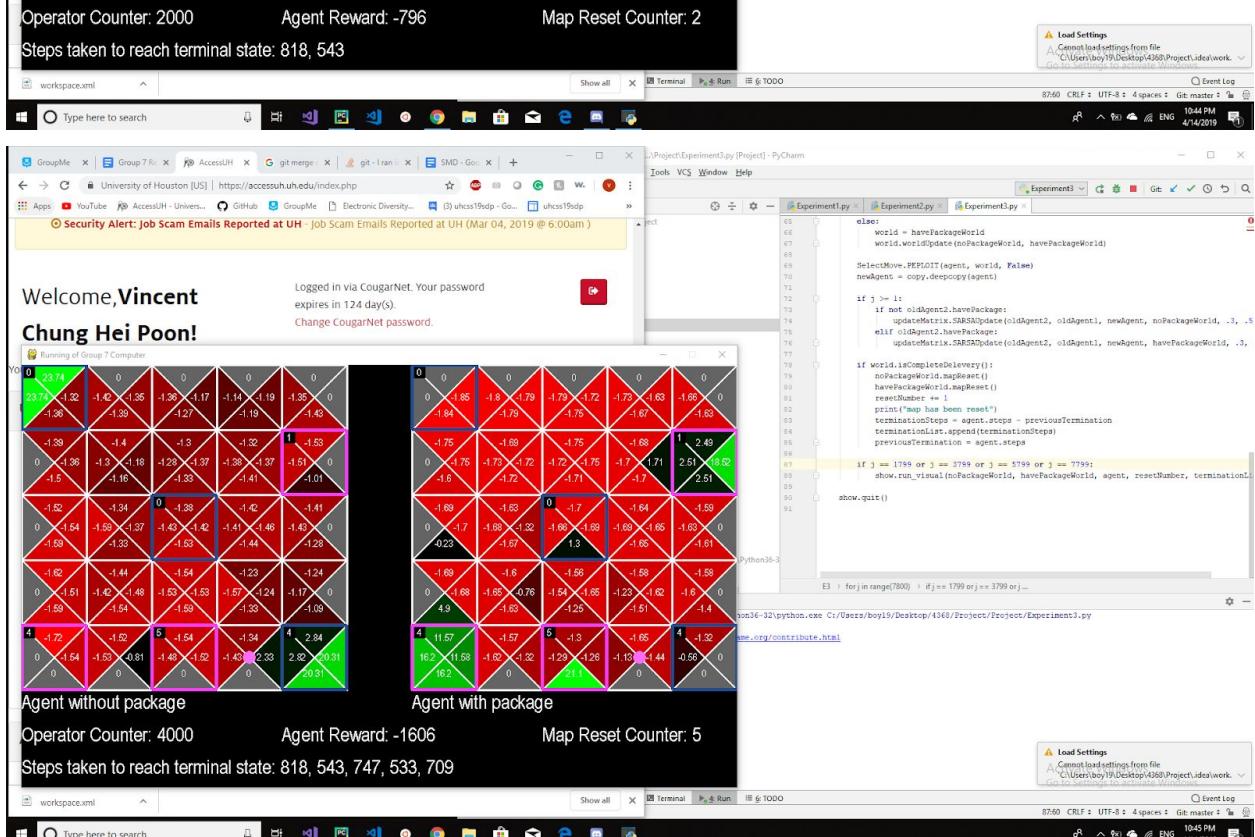
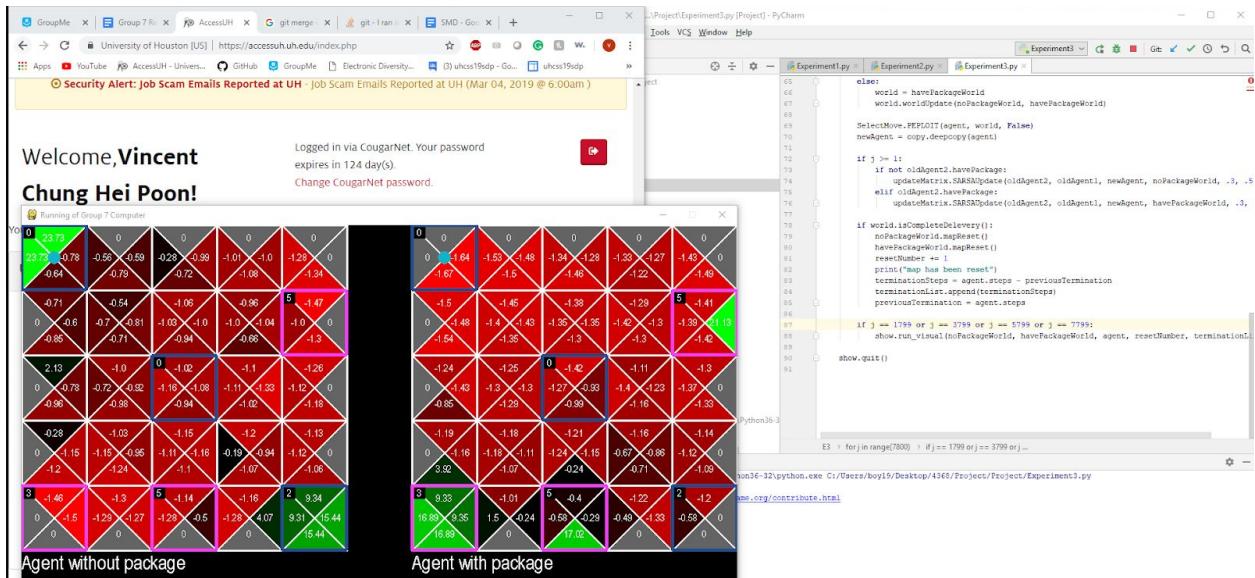


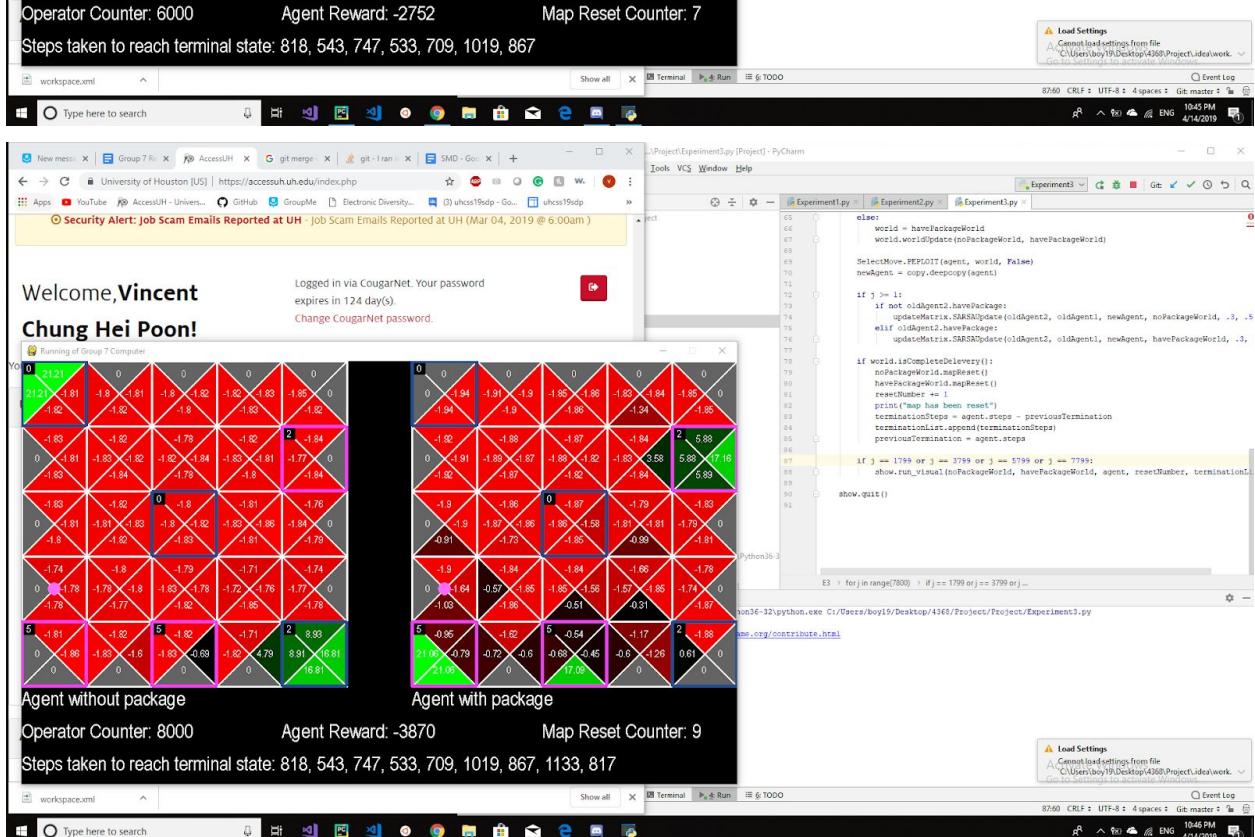
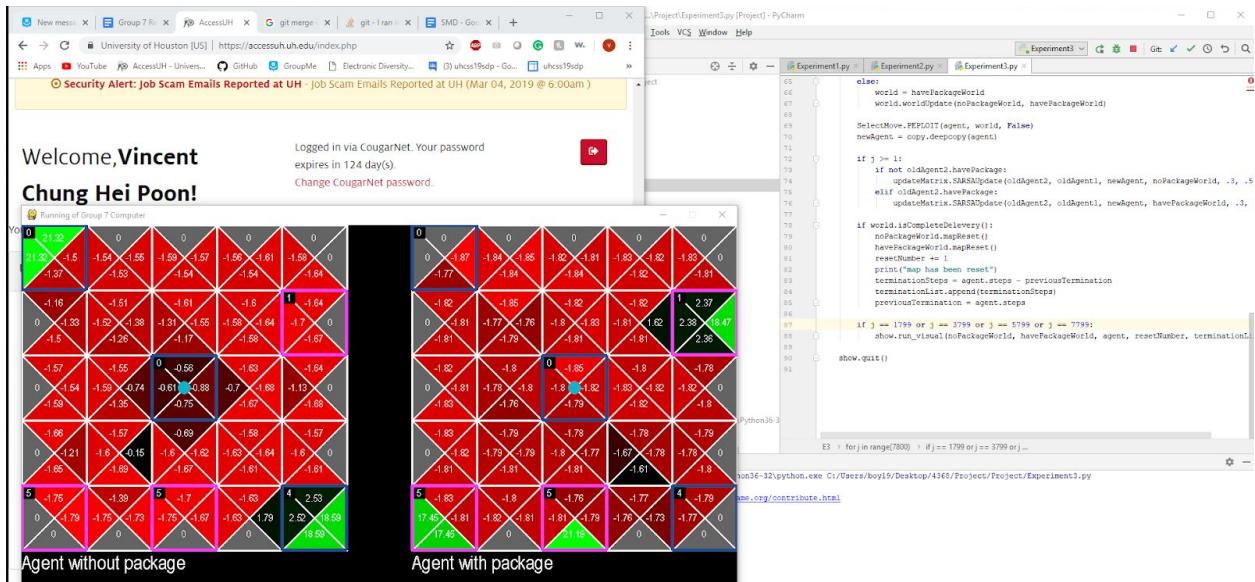




E3Run2







E3Run2

Project [C:\Users\boy19\Desktop\4360\Project] - ...[Project]\Experiment3.py [Project] - PyCharm

Welcome, Vincent Chung Hei Poon!

Logged in via CougarNet. Your password expires in 124 day(s). Change CougarNet password.

Running in Group 7 Computer

Agent without package

Agent with package

Operator Counter: 200 Agent Reward: -18 Map Reset Counter: 0

Steps taken to reach terminal state:

Type here to search

File Edit View Navigate Code Refactor Run Tools VCS Window Help

Project Experiment1.py Experiment2.py Experiment3.py Experiment4.py Experiment5.py

```

else:
    world = havePackageWorld
    world.world.update(noPackageWorld, havePackageWorld)

SelectMove.PERFECT(agent, world, False)
newAgent = copy.deepcopy(agent)

if j >= 1:
    if not oldAgent2.havePackage:
        updateMatrix.SASAUpdate(oldAgent2, oldAgent1, newAgent, noPackageWorld, .3, .5
    elif oldAgent2.havePackage:
        updateMatrix.SASAUpdate(oldAgent2, oldAgent1, newAgent, havePackageWorld, .3, .5

if world.isCompletedDelivery():
    noPackageWorld.mapReset()
    havePackageWorld.mapReset()
    resetNumber += 1
    print("map has been reset")
    terminationSteps = agent.steps - previousTermination
    terminationList.append(terminationSteps)
    previousTermination = agent.steps

if j == 1799 or j == 3799 or j == 5799 or j == 7799:
    show.run_visual(noPackageWorld, havePackageWorld, agent, resetNumber, terminationList)
show.quit()

```

E3 > for j in range(7000) > if j == 1799 or j == 3799 or j == 5799 or j == 7799:

python3-32\python.exe C:/Users/boy19/Desktop/4360/Project/Project/Experiment3.py

http://www.org/contribute.html

Load Settings

Cannot load settings from file: C:/Users/boy19/Desktop/4360/Project/idea/work/

Event Log

8:56 CRIF : UTF-8 : 4 spaces : Git master : 1051 PM 4/14/2019

New message in Coug...

Group 7 Report - Gou...

AccessUH

SMD - Google Docs

File VCS Window Help

Project Experiment1.py Experiment2.py Experiment3.py

Welcome, Vincent Chung Hei Poon!

Logged in via CougarNet. Your password expires in 124 day(s). Change CougarNet password.

Running in Group 7 Computer

Agent without package

Agent with package

Operator Counter: 2000 Agent Reward: -824 Map Reset Counter: 2

Steps taken to reach terminal state: 706, 771

Type here to search

File VCS Window Help

Project Experiment1.py Experiment2.py Experiment3.py

```

else:
    world = havePackageWorld
    world.world.update(noPackageWorld, havePackageWorld)

SelectMove.PERFECT(agent, world, False)
newAgent = copy.deepcopy(agent)

if j >= 1:
    if not oldAgent2.havePackage:
        updateMatrix.SASAUpdate(oldAgent2, oldAgent1, newAgent, noPackageWorld, .3, .5
    elif oldAgent2.havePackage:
        updateMatrix.SASAUpdate(oldAgent2, oldAgent1, newAgent, havePackageWorld, .3, .5

if world.isCompletedDelivery():
    noPackageWorld.mapReset()
    havePackageWorld.mapReset()
    resetNumber += 1
    print("map has been reset")
    terminationSteps = agent.steps - previousTermination
    terminationList.append(terminationSteps)
    previousTermination = agent.steps

if j == 1799 or j == 3799 or j == 5799 or j == 7799:
    show.run_visual(noPackageWorld, havePackageWorld, agent, resetNumber, terminationList)
show.quit()

```

E3 > for j in range(7000) > if j == 1799 or j == 3799 or j == 5799 or j == 7799:

python3-32\python.exe C:/Users/boy19/Desktop/4360/Project/Project/Experiment3.py

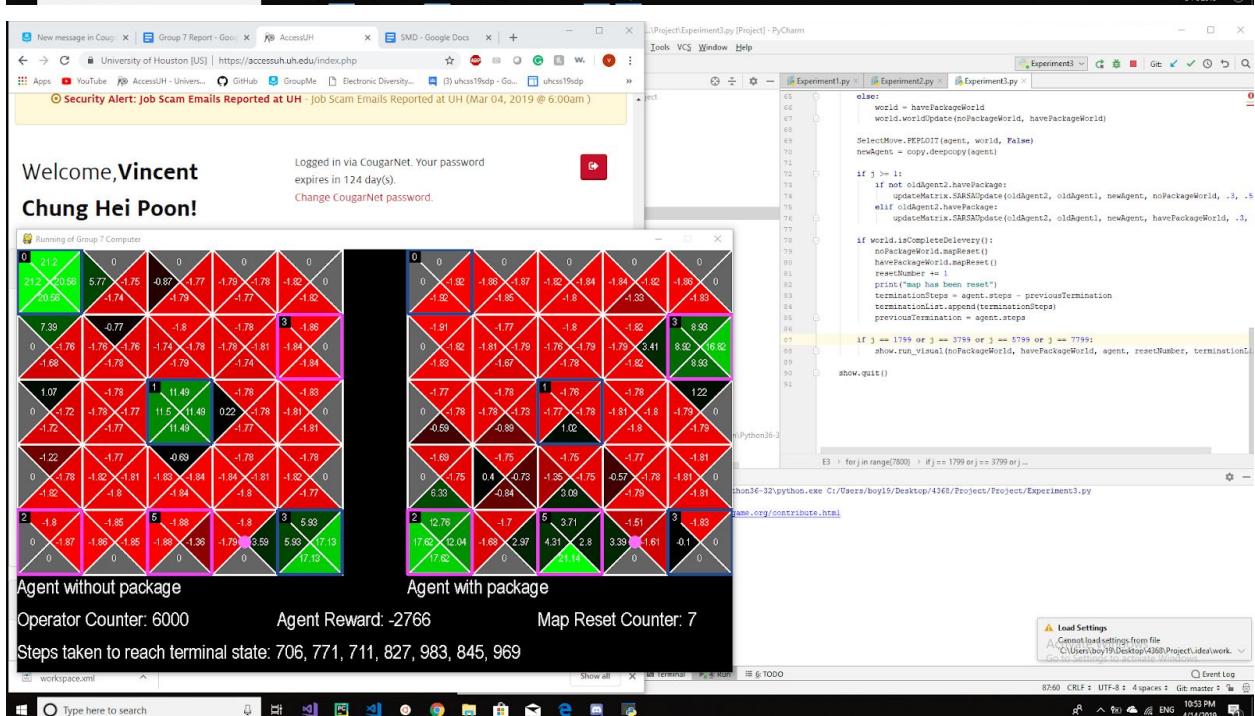
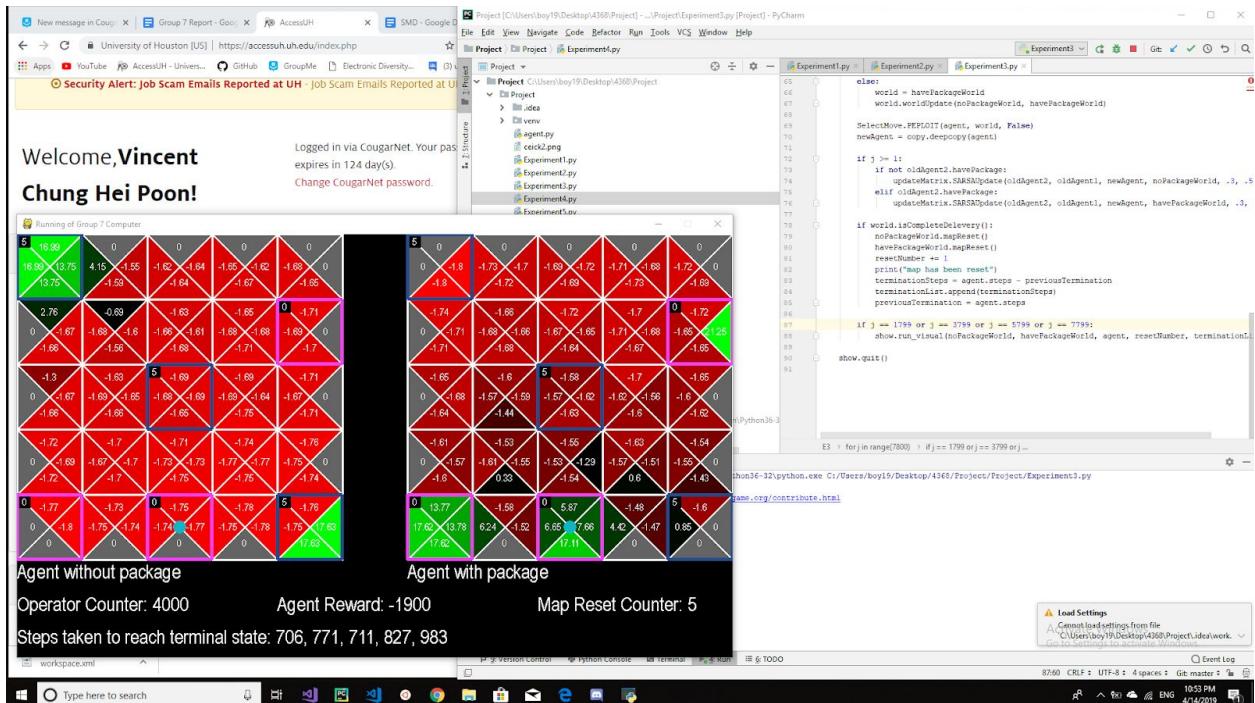
http://www.org/contribute.html

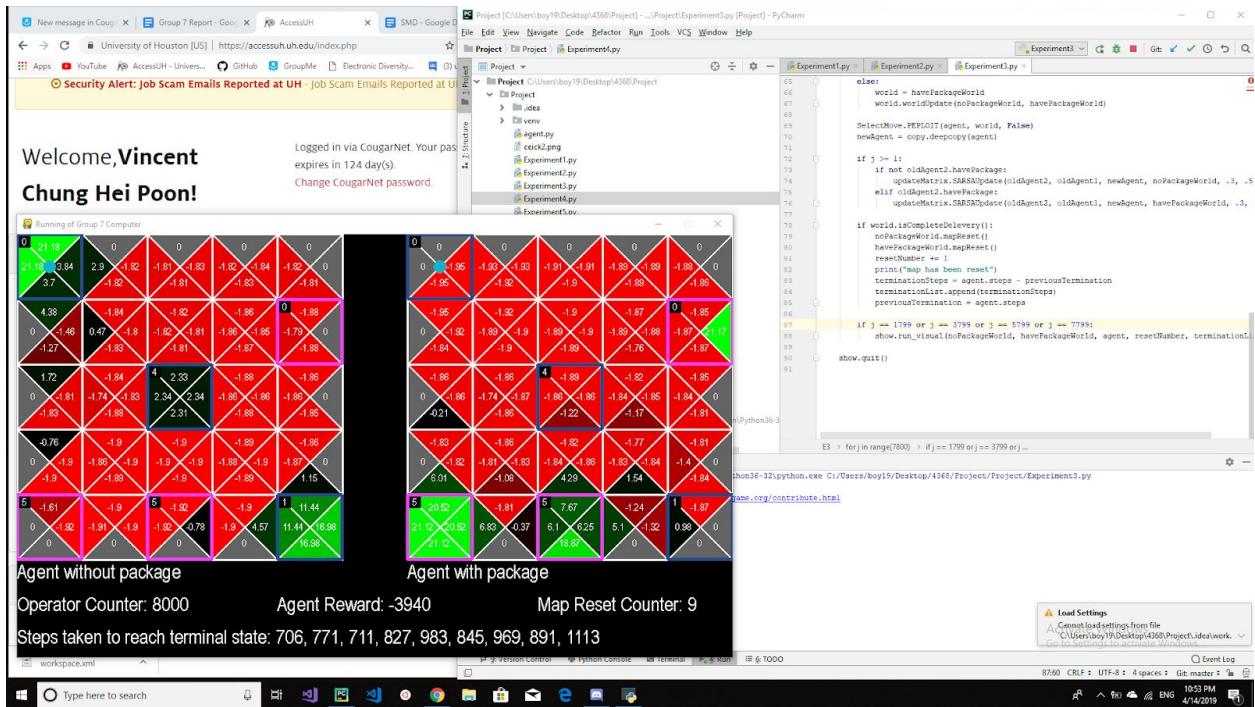
Load Settings

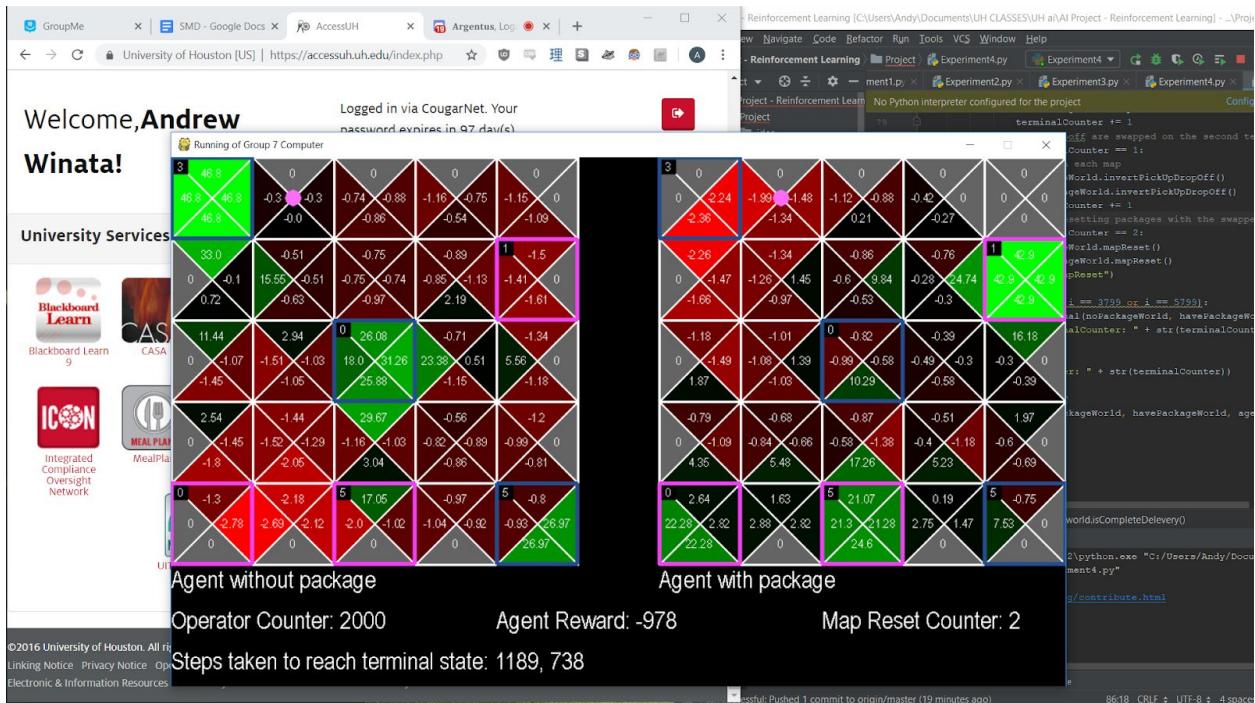
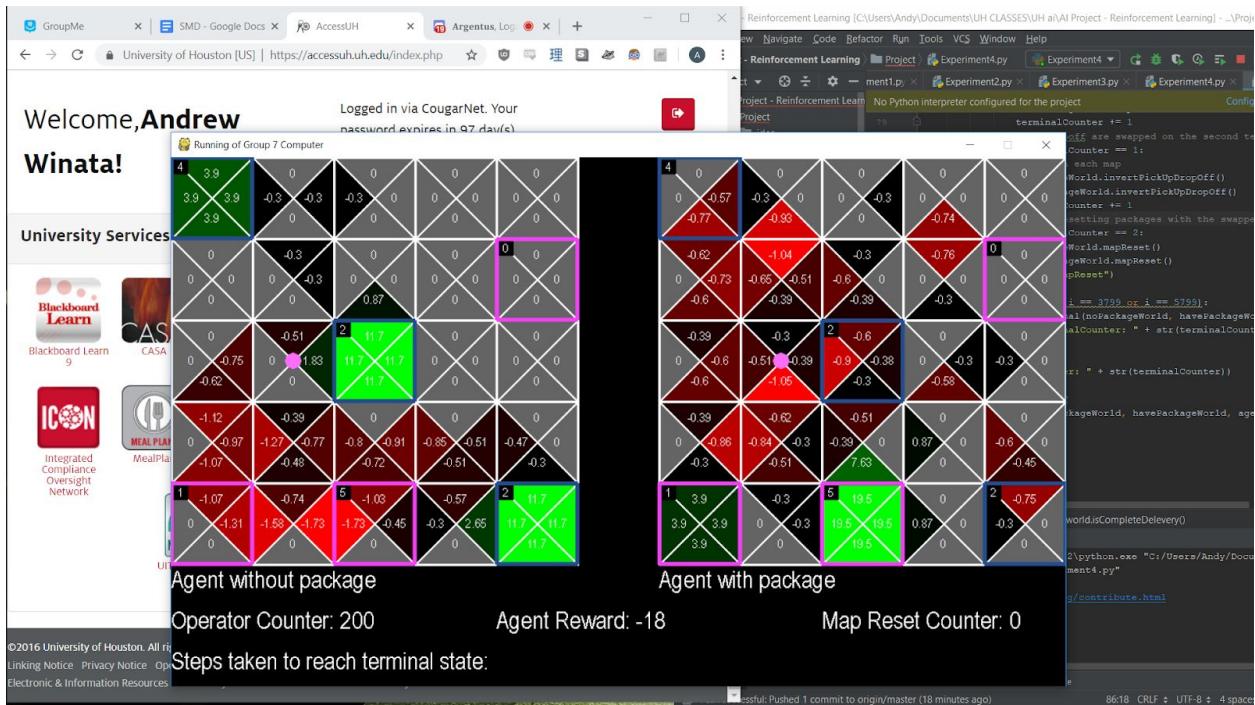
Cannot load settings from file: C:/Users/boy19/Desktop/4360/Project/idea/work/

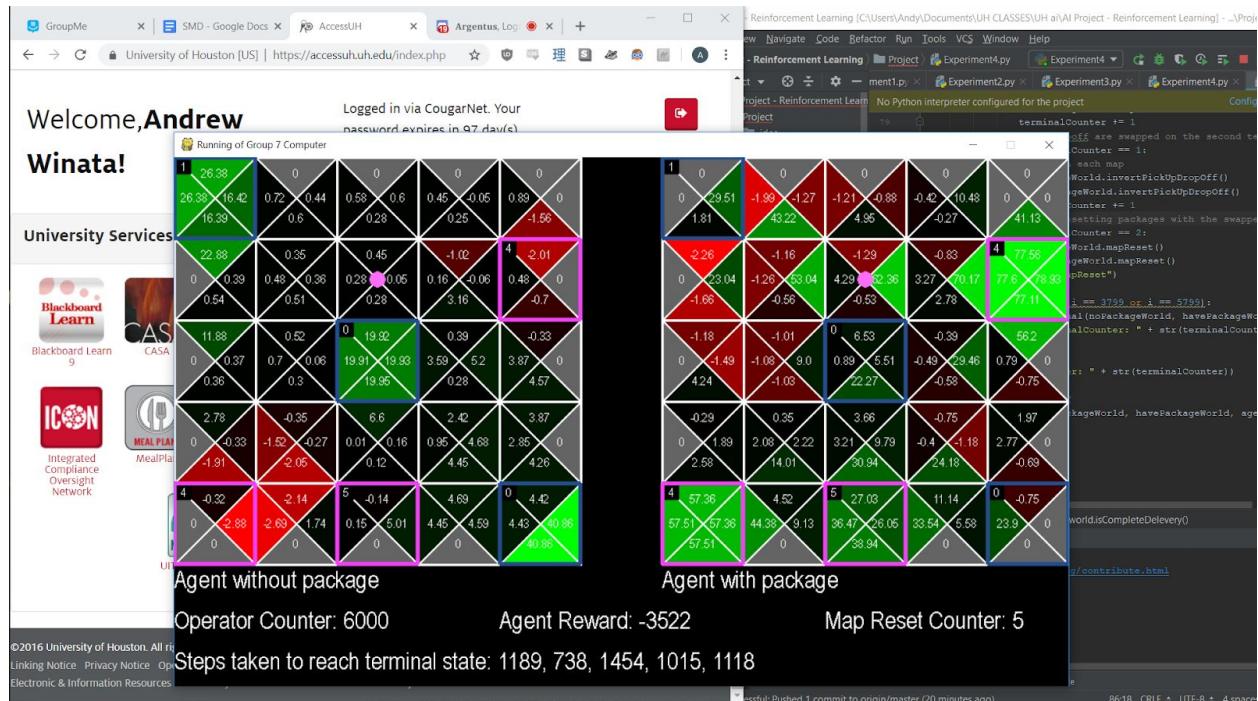
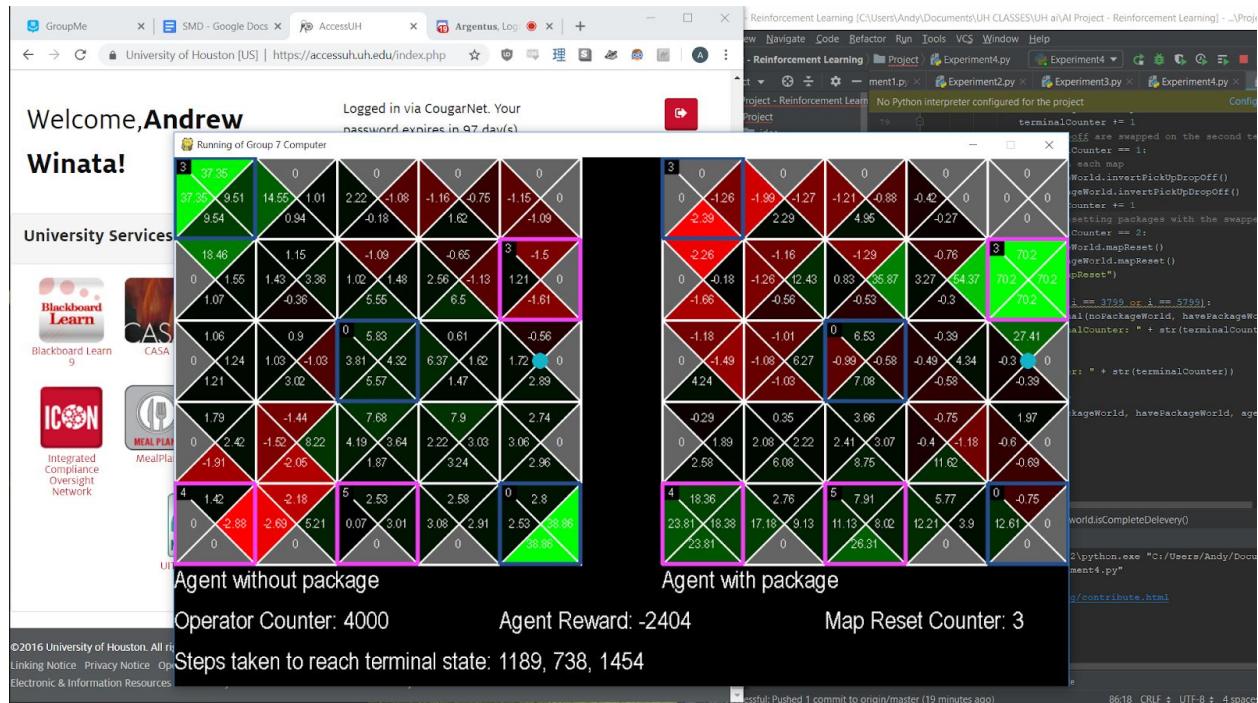
Event Log

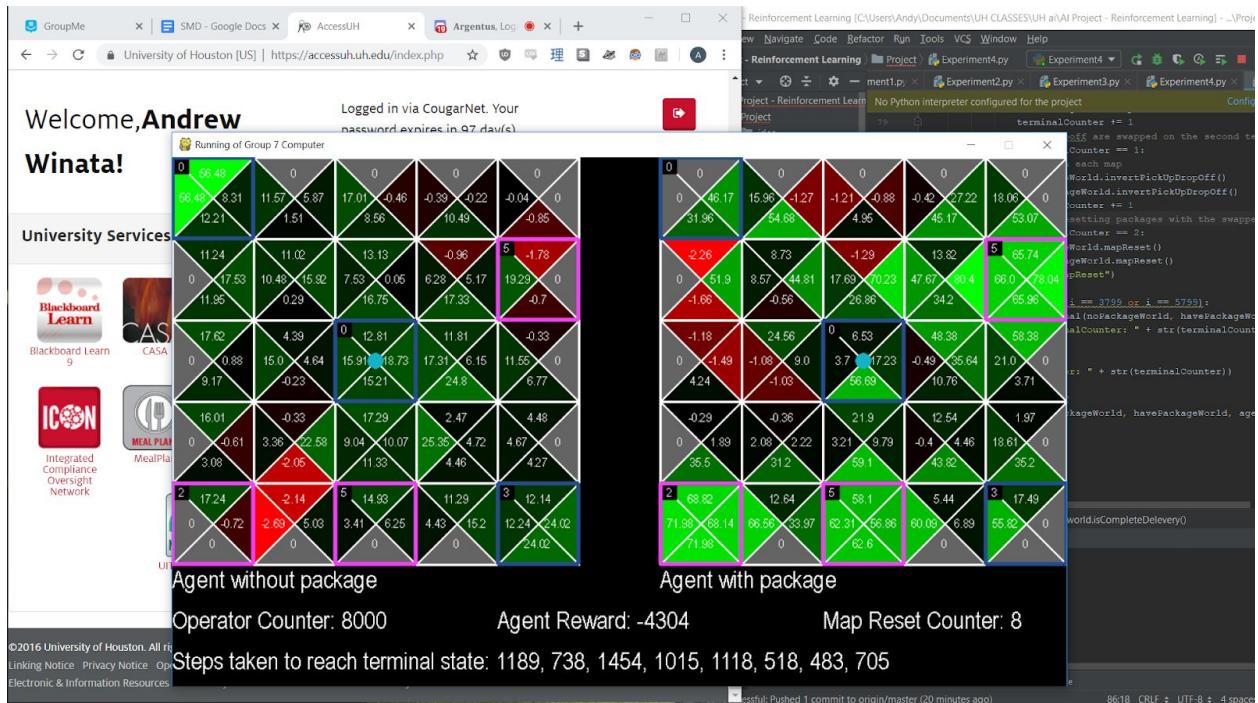
8:56 CRIF : UTF-8 : 4 spaces : Git master : 1051 PM 4/14/2019



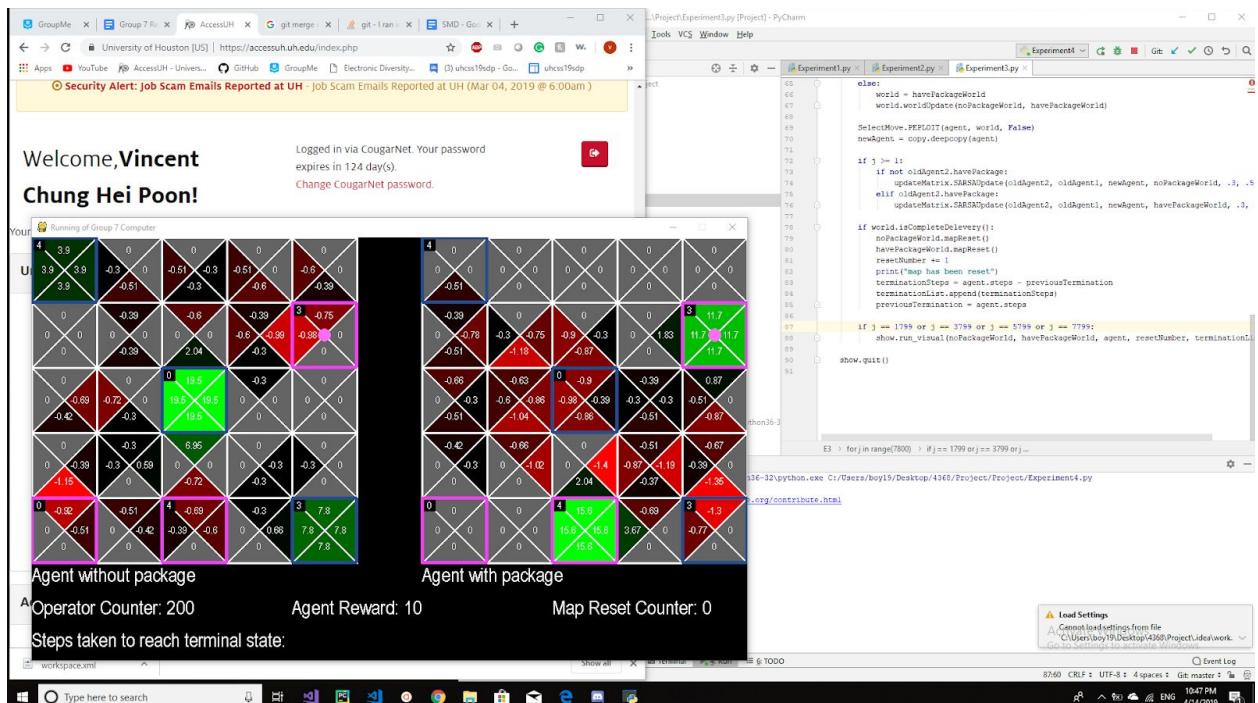


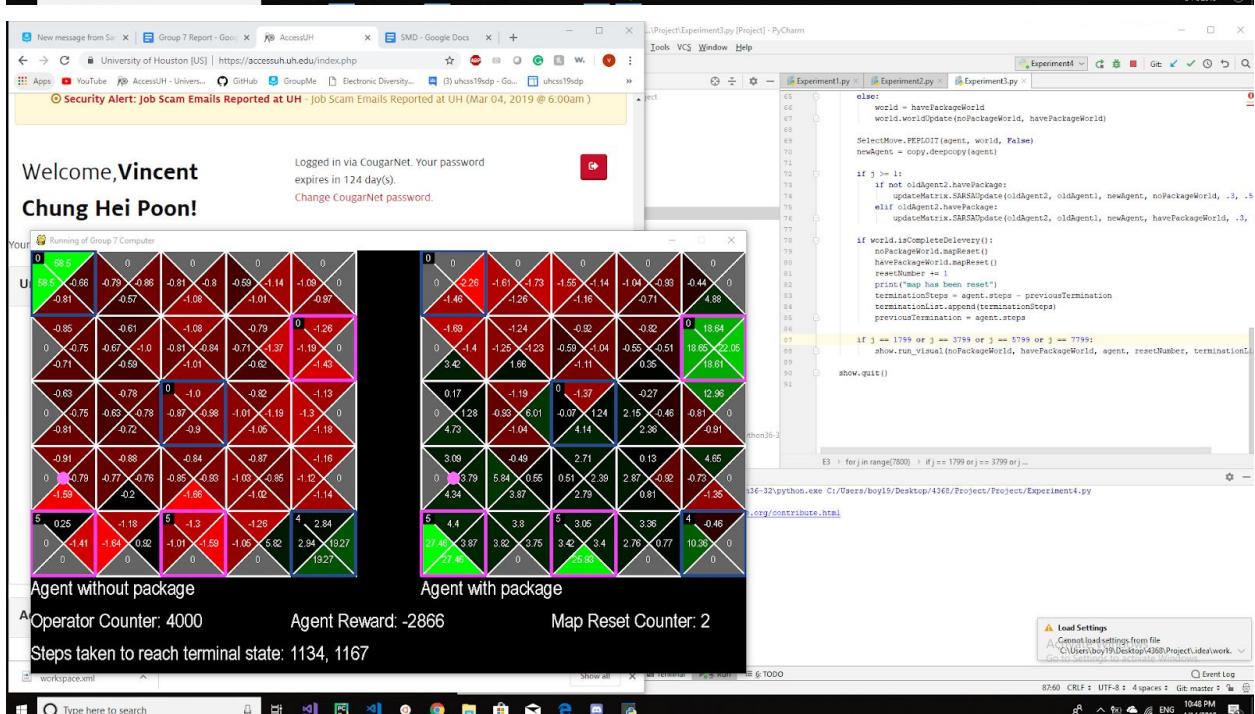
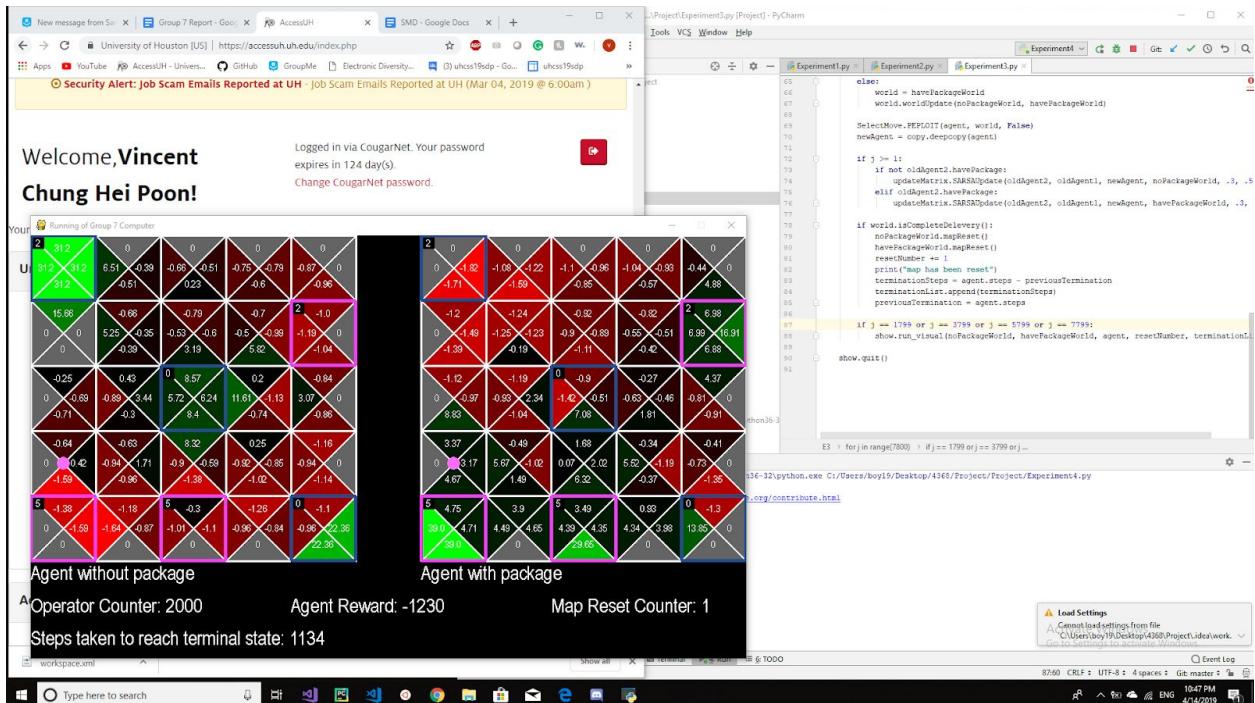


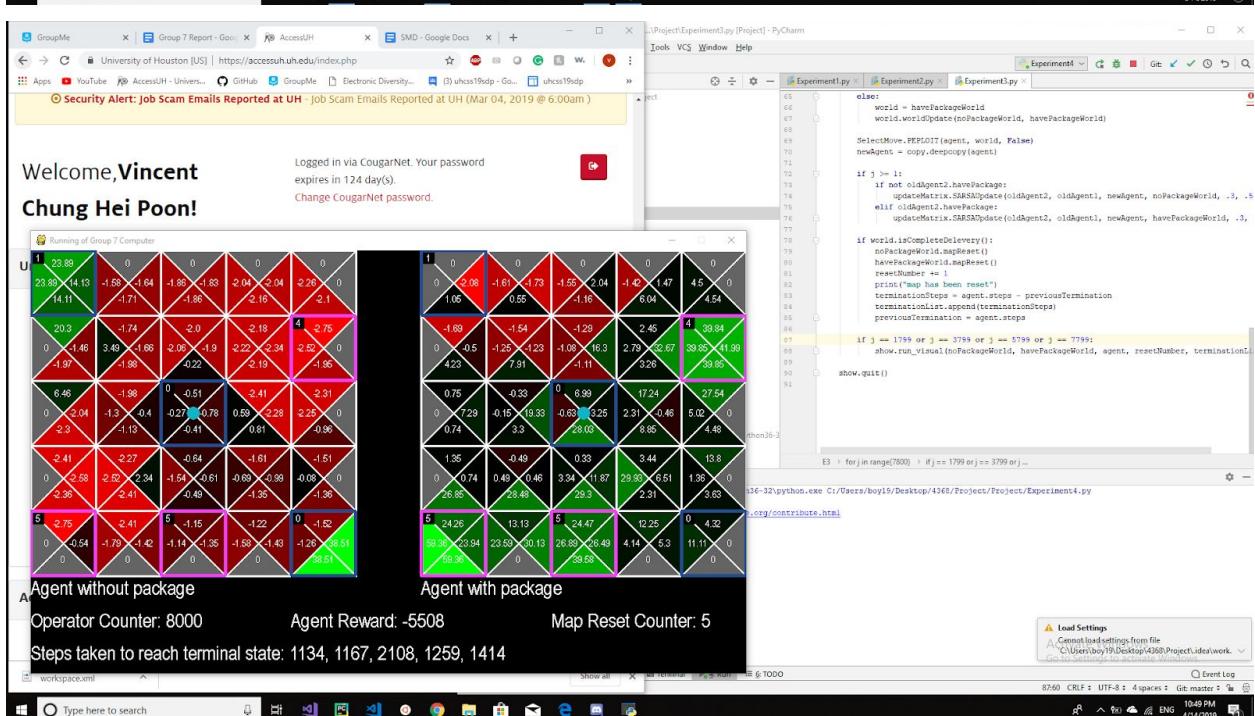
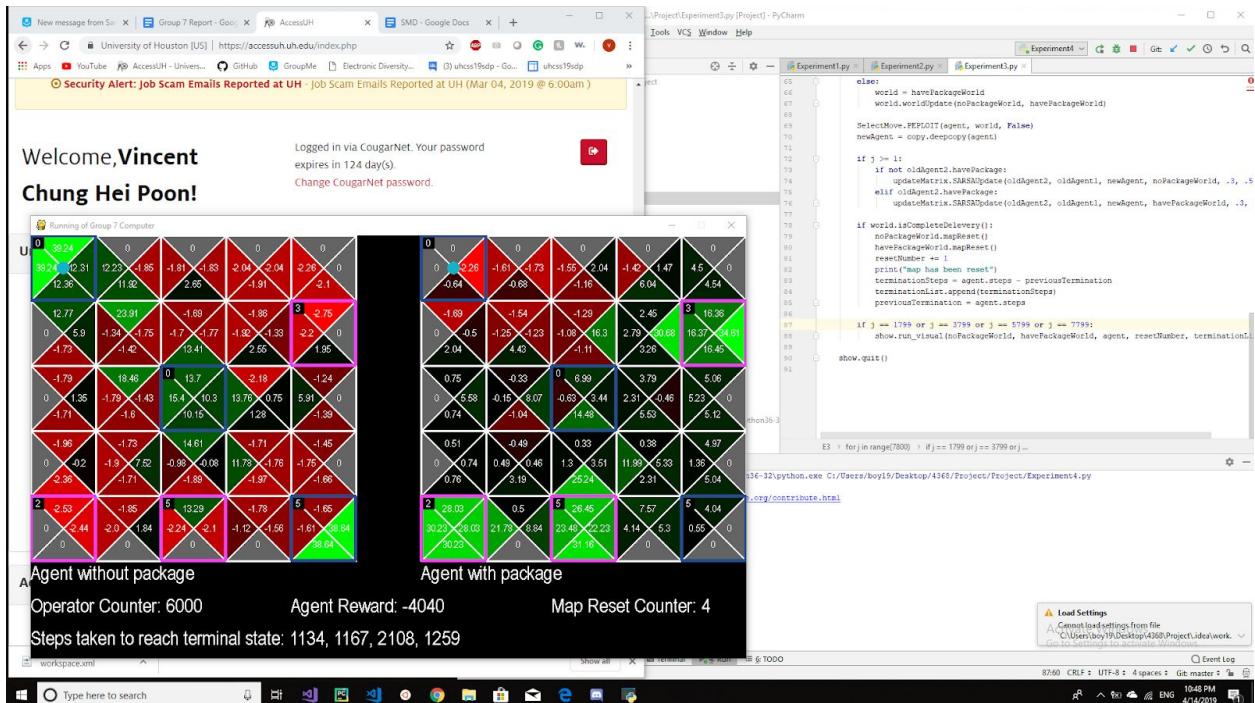




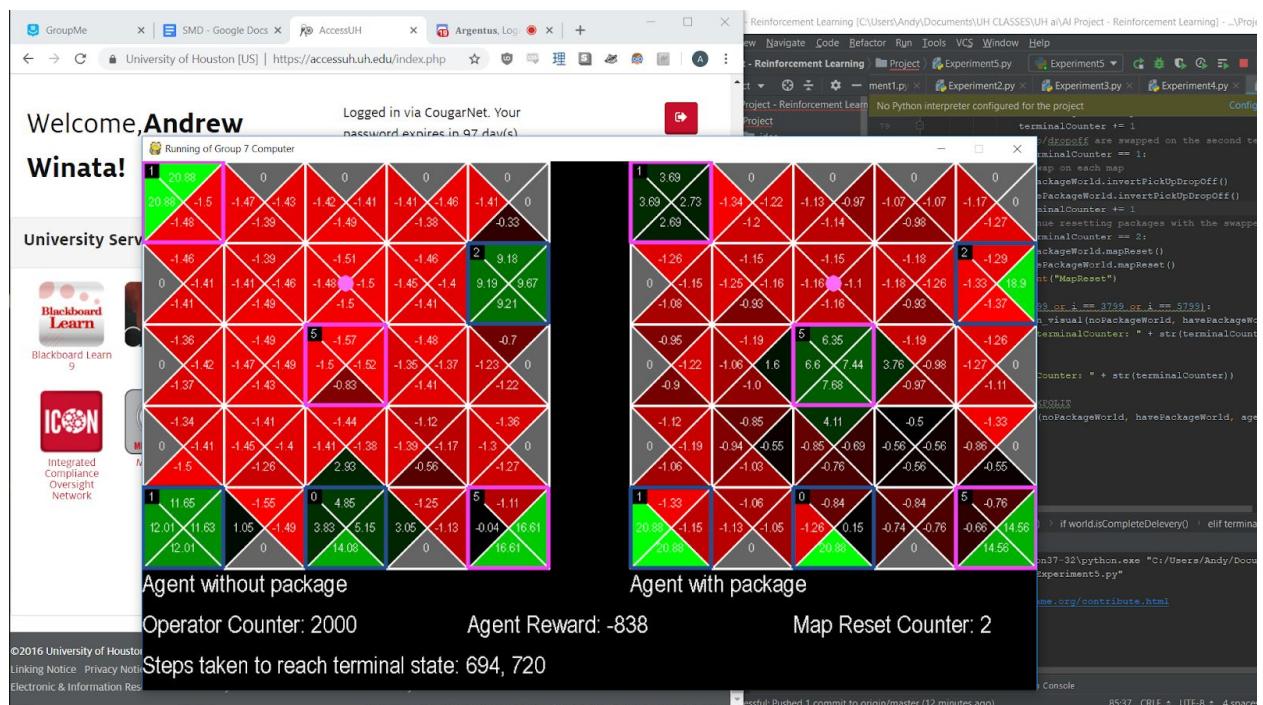
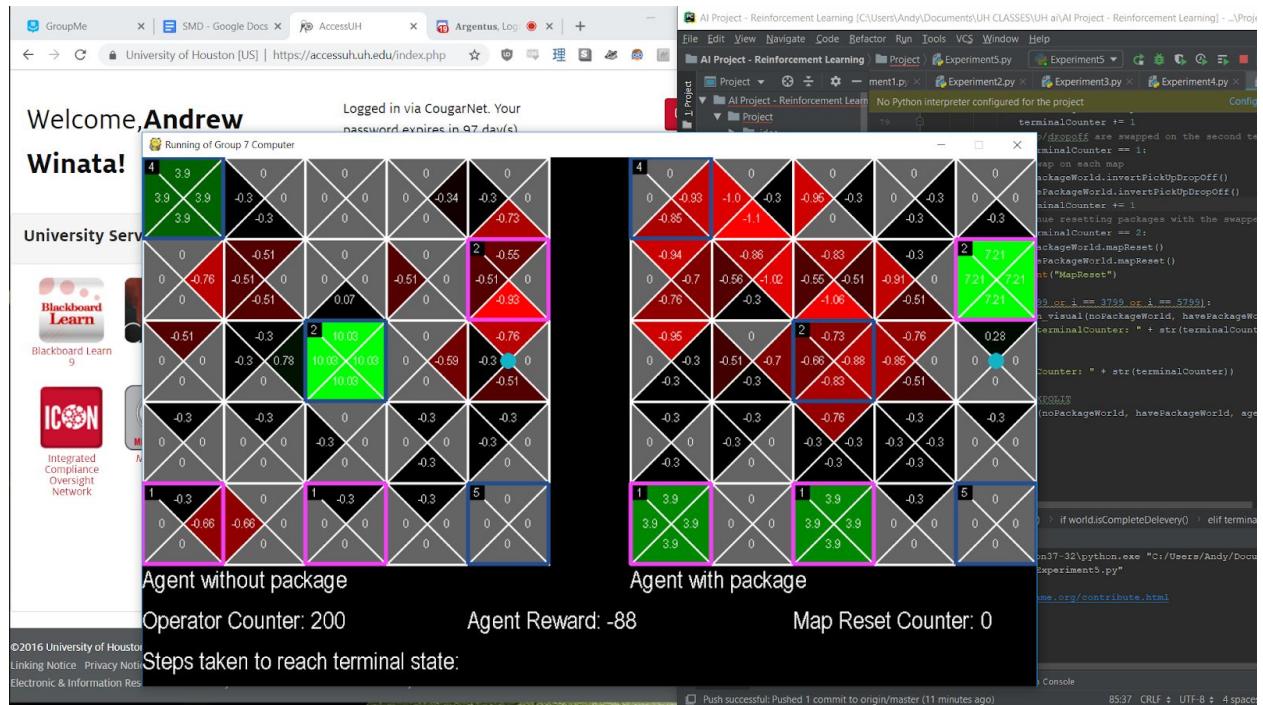
## E4Run2

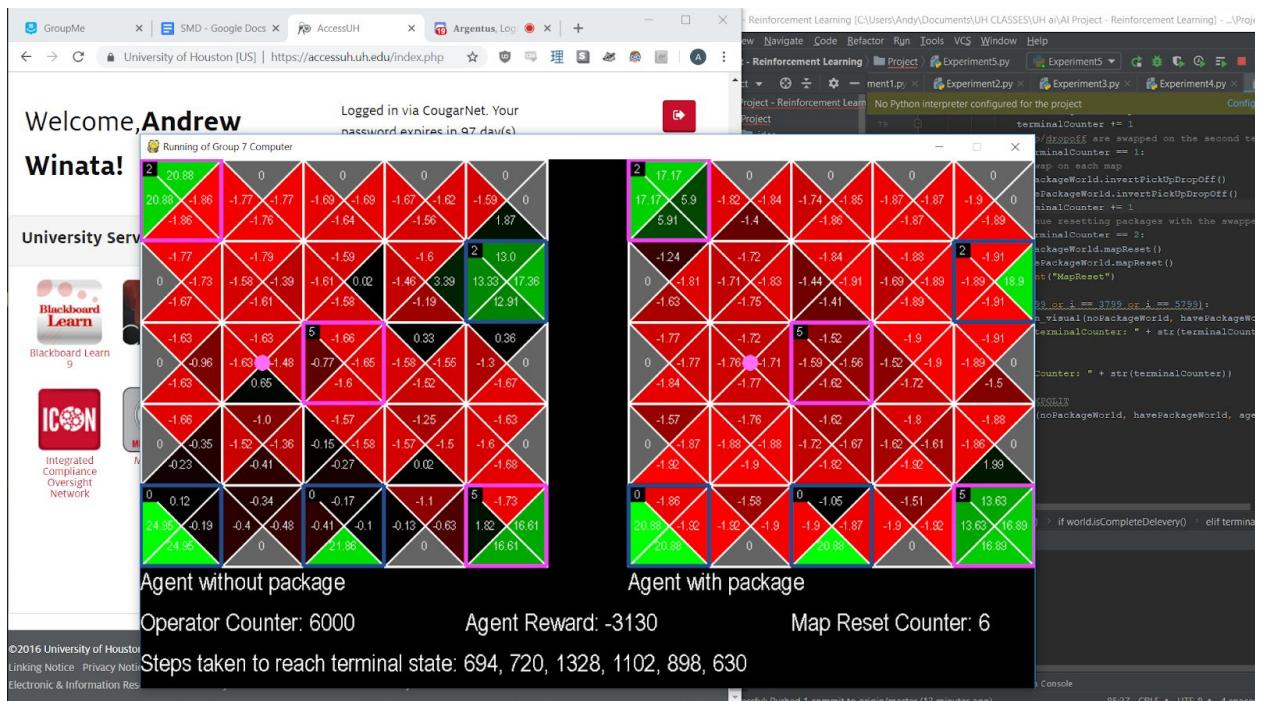
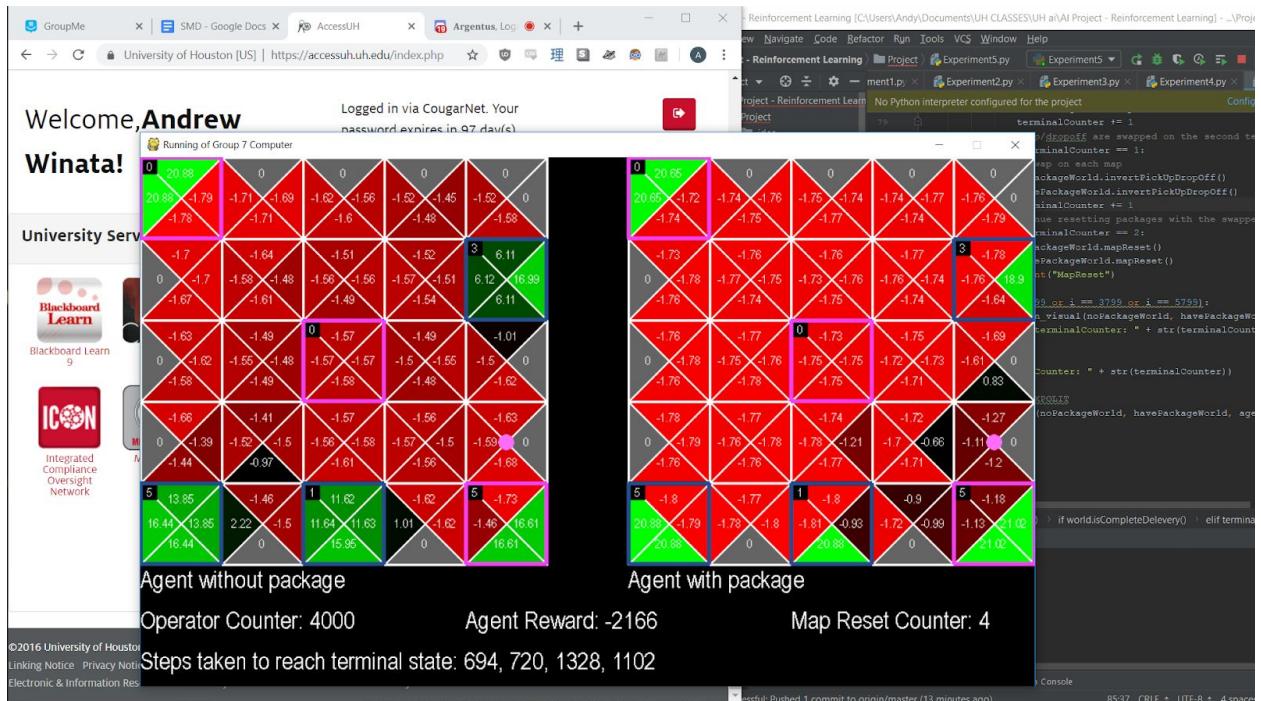


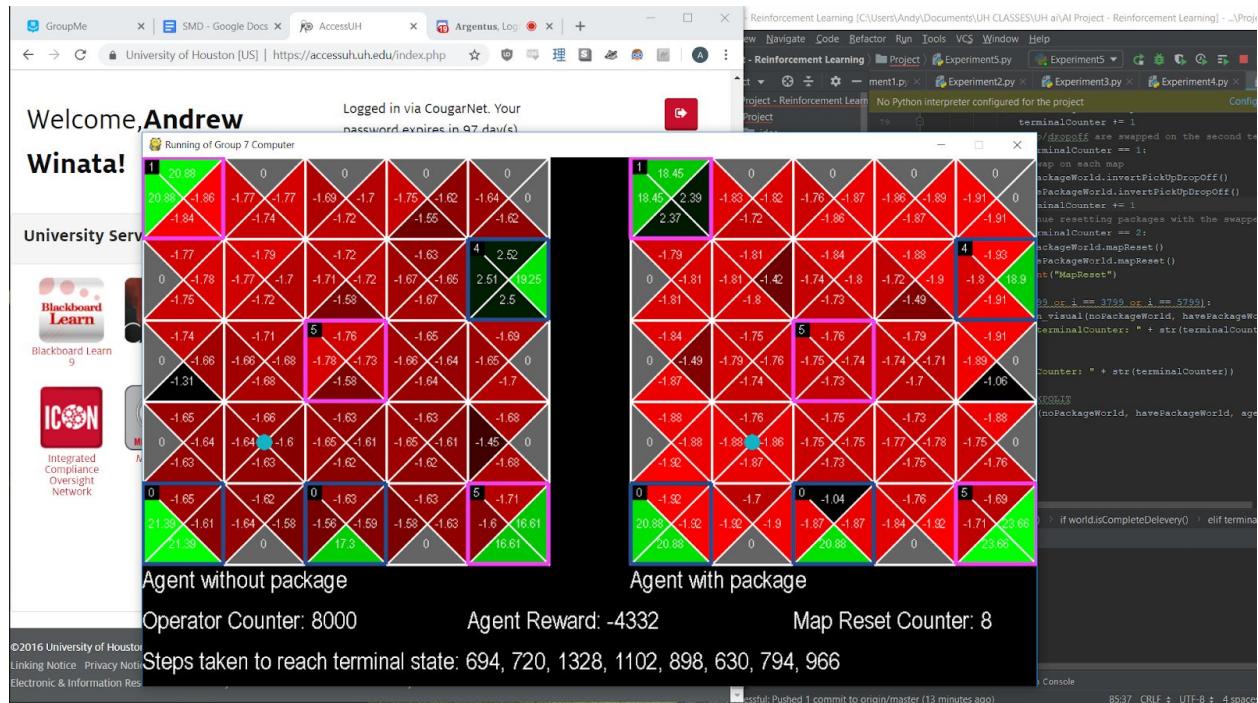




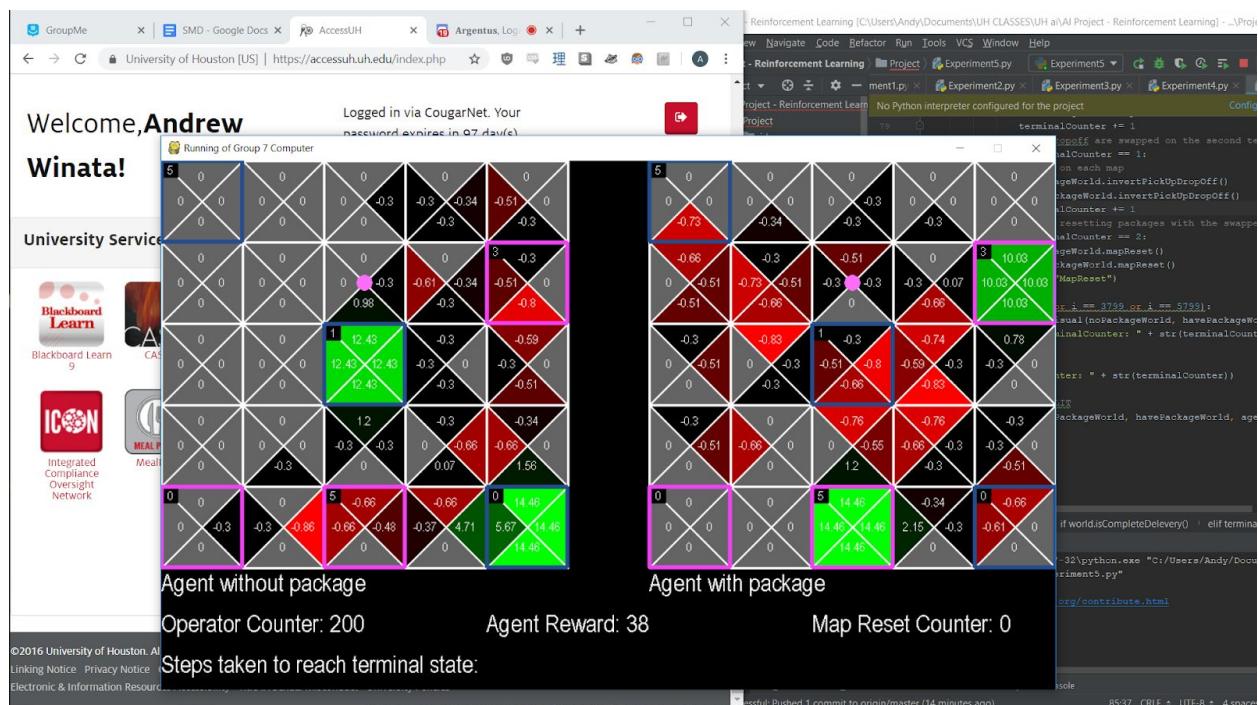
E5R1

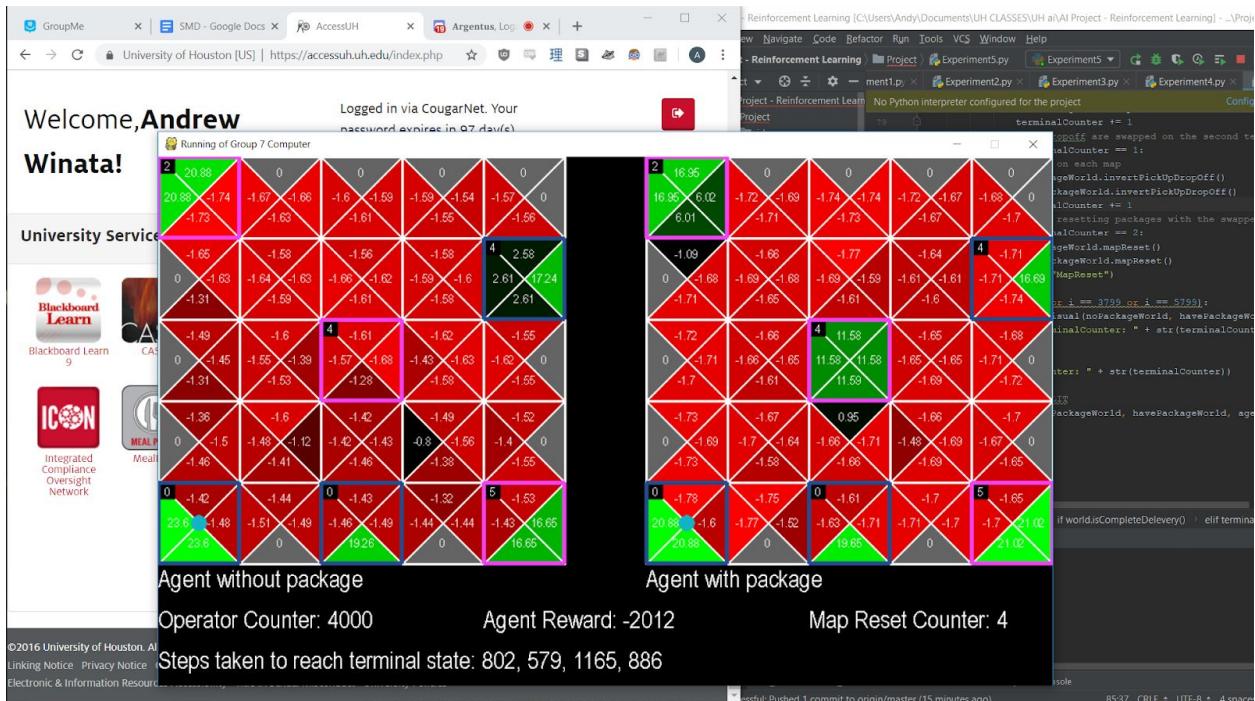
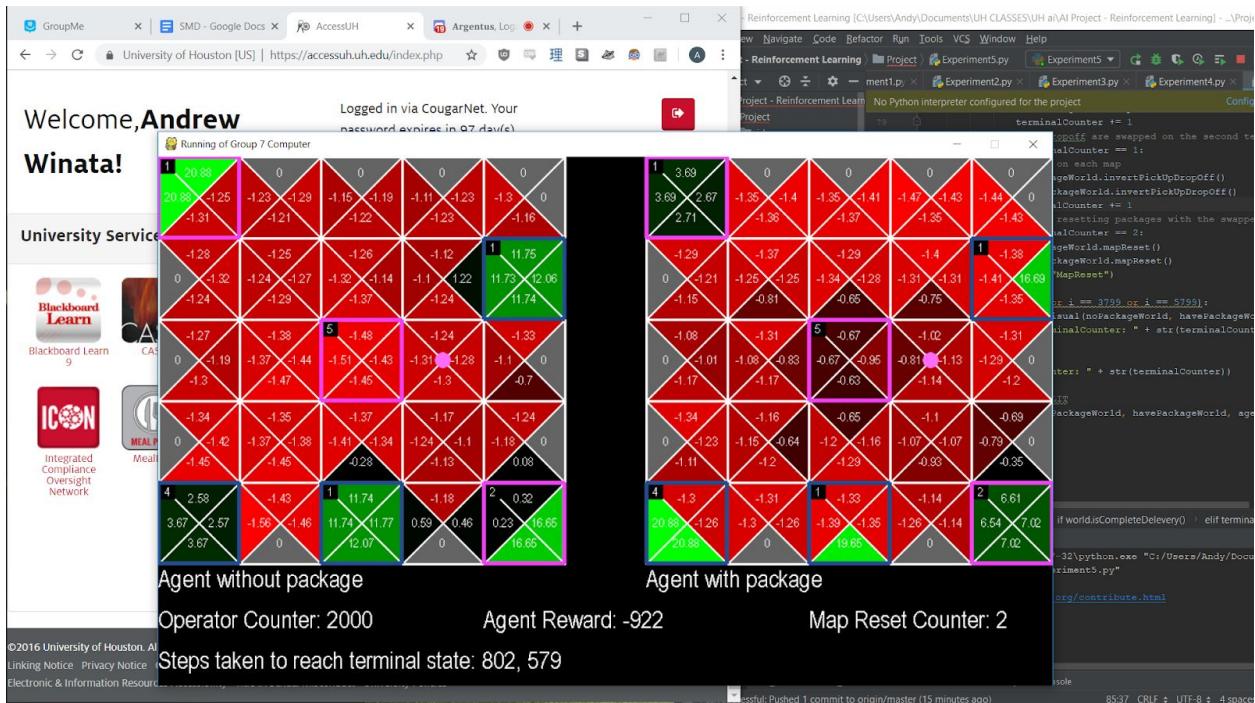






E5R2





Welcome, Andrew

Logged in via CougarNet. Your password expires in 97 days.

**Winata!**

University Services

Blackboard Learn 9

ICON Integrated Compliance Oversight Network

CA CAS

Agent without package

Operator Counter: 8000

Agent Reward: -4710

Map Reset Counter: 7

Steps taken to reach terminal state: 802, 579, 1165, 886, 1192, 744, 1406

Reinforcement Learning [C:\User\Andy\Documents\UH CLASSES\UH ai\AI Project - Reinforcement Learning] - Python 3.7.4 (64-bit) [MSCV 2017] (ipython)

No Python interpreter configured for the project

terminalCounter += 1  
topLeft are swapped on the second call  
alCounter == 1:  
    on each map  
        ageWorld.invertPickUpDropOff()  
        ageWorld.invertPickUpDropOff()  
        alCounter += 1  
        resetting packages with the swap  
        alCounter == 2:  
            ageWorld.mapReset()  
            ageWorld.mapReset()  
            MapReset()  
  
        x\_3 == 3795 or x\_3 == 5759:  
            visual(noPackageWorld, havePackageWorld, ageWorld, alCounter = str(terminalCounte  
            text = " + str(terminalCounter))  
  
        packageWorld, havePackageWorld, ageWorld, havePackageWorld, ageWorld, alCounter = str(terminalCounte  
            text = " + str(terminalCounter))  
  
        if world.isCompleteDelivery():  
            elif termina