Mars Rover Markov Process python ver

Lee SungHo

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Mar MC simulation

```
import numpy as np

def mar_simul(this_state):

  u=np.random.rand()
  if (this_state == 1):
    if(u<=0.6):
      next_state = this_state
    else:
      next_state = this_state+1

  elif (this_state == 7):
    if(u<=0.4):
      next_state = this_state-1
    else:
      next_state = this_state

  else:
    if(u<=0.4):
      next_state = this_state-1
    elif(u<=0.6 and u>0.4):
      next_state = this_state
    else:
      next_state = this_state+1

  return next_state

def reward_eval(path):
  reward_one_path = path.count(1)*1 + path.count(7)*10
  return reward_one_path

MCN = 10000
spending_record = ['0']*MCN

for i in range(MCN):
  path = [4]
  for t in range(9):
    this_state = path[-1]
```

```
    next_state = mar_simul(this_state)
    path.append(next_state)

  spending_record[i] = reward_eval(path)

spending_record = sum(spending_record)/len(spending_record)

print("Average of Mar simulation reward using MC is",spending_record)
```

```
## Average of Mar simulation reward using MC is 8.3802
```