IE 345 - K “Introduction to Deep Learning: Fundamentals Concepts”

Prof. Yuzo

Reinforcement Learning

pg. 117 - 119

In [1]:
```
import matplotlib.pyplot as plt
import pandas as pd
import random
```

In [2]:
```
dataset = pd.read_csv('Ads_CTR_Optimisation.csv')
dataset.head(10)
```

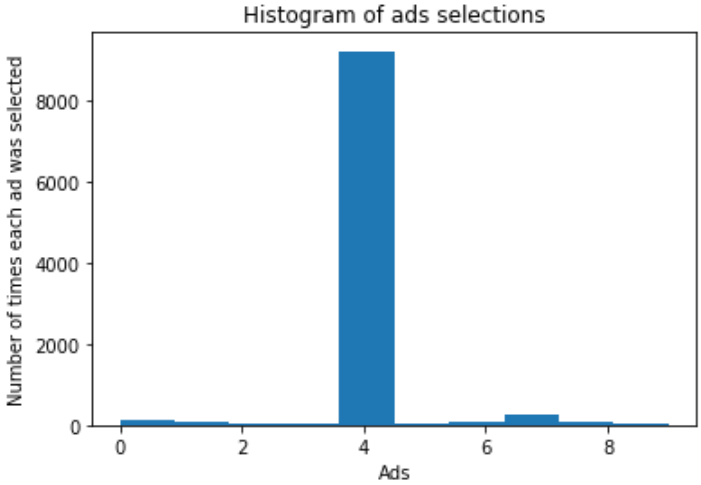
Out[2]:

	Ad 1	Ad 2	Ad 3	Ad 4	Ad 5	Ad 6	Ad 7	Ad 8	Ad 9	Ad 10
0	1	0	0	0	1	0	0	0	1	0
1	0	0	0	0	0	0	0	0	1	0
2	0	0	0	0	0	0	0	0	0	0
3	0	1	0	0	0	0	0	1	0	0
4	0	0	0	0	0	0	0	0	0	0
5	1	1	0	0	0	0	0	0	0	0
6	0	0	0	1	0	0	0	0	0	0
7	1	1	0	0	1	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	0	1	0	0	0	0	0	0	0

In [3]:
```
N = 10000
d = 10
ads_selected = []
numbers_of_rewards_1 = [0] * d
numbers_of_rewards_0 = [0] * d
total_reward = 0

for n in range(0, N):
    ad = 0
    max_random = 0
    for i in range(0, d):
        random_beta = random.betavariate(numbers_of_rewards_1[i] + 1, numbers_of_rewards_
0[i] + 1)
        if random_beta > max_random:
            max_random = random_beta
            ad = i
    ads_selected.append(ad)
    reward = dataset.values[n, ad]
    if reward == 1:
        numbers_of_rewards_1[ad] = numbers_of_rewards_1[ad] + 1
    else:
        numbers_of_rewards_0[ad] = numbers_of_rewards_0[ad] + 1
        total_reward = total_reward + reward
```

In [4]:
```
plt.hist(ads_selected)
plt.title('Histogram of ads selections')
plt.xlabel('Ads')
plt.ylabel('Number of times each ad was selected')
plt.show()
```



Pablo David Minango Negrete

$pablodavid218@gmail.com$

Lisber Arana Hinostroza

$lisberarana@gmail.com$