Thompson Sampling

Importing the libraries

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

Importing the dataset

```
dataset = pd.read_csv('Ads_CTR_Optimisation.csv')
```

Implementing Thompson Sampling

```
import random
N = 500
d = 10
ads_selected = []
number_of_rewards_1=[0]*d
number_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_data=random.betavariate(number_of_rewards_1[i]+1,number_of_rewards_0[i]+
    if(random_data>max_random):
      max_random=random_data
      ad=i
  ads_selected.append(ad)
  reward=dataset.values[n,ad]
  if reward==1:
    number_of_rewards_1[ad]=number_of_rewards_1[ad]+1
  else:
    number_of_rewards_0[ad]=number_of_rewards_0[ad]+1
  total_reward=total_reward+1
```

Visualising the results - Histogram

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