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

IMPORTING DATA

```
In [2]:   df = pd.read_csv('Ads_Optimisation.csv')
```

```
In [4]:   df.shape
```

```
Out[4]:   (10000, 10)
```

IMPLEMENTING THOMPSON SAMPLING

```
In [36]:  import random

          N = df.shape[0]
          d = df.shape[1]
          ads_selected = []
          number_of_rewards_1 = [0] * d
          number_of_rewards_0 = [0] * d
          total_reward = 0

          for n in range(10000):
              ad = 0
              max_random_beta = 0
              for i in range(d):
                  random_beta = random.betavariate(number_of_rewards_1[i] + 1, number_of_rewards_0[i] + 1)
                  if random_beta > max_random_beta:
                      max_random_beta = random_beta
                      ad = i
              ads_selected.append(ad)
              reward = df.iloc[n, ad]
              if reward == 1:
                  number_of_rewards_1[ad] += 1
              else:
                  number_of_rewards_0[ad] += 1
```

```
        total_reward += reward
print(total_reward)
```

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In [37]:
```
print(ads_selected)
```

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4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4]
```

In [38]:
```python
plt.hist(ads_selected)
plt.title('Histogram of ads selections')
plt.xlabel('ads')
plt.ylabel('Number of times each ad was selected by the selected by the algorithm')
```

Out[38]:
Text(0, 0.5, 'Number of times each ad was selected by the selected by the algorithm')

In [ ]: