In [1]:

```
import numpy as np
from scipy import stats
from scipy.stats import norm
```

I. If the sample were based on 2,000 users, could Microsoft conclude that Mozilla has a less than 5% share of the market? Now suppose the population proportion share of market by the Mozilla is p = 0.5 then sample proportion share of market by the Mozilla is $\hat{p}$ = 0.46. Assume Null Hypothesis as Ho: p >= 5% market share Thus Alternate Hypothesis as Ha: p < 5% market share

In [2]:

```
#apply one-sample One Tail z-test
```

calculate z-score or value z_scores = $(\hat{p}-p)/\sqrt{(p(1-p)/n)}$ ...N(0,1)

In [6]:

```
z_score = (0.046-0.05)/(np.sqrt((0.05*(1-.05))/2000))
z_score
```

Out[6]:

```
-0.820782681668124
```

In [ ]:

```
# Find Probability assuming null hyposthesis, so as to compare with Type-1 error α = 0.05
```

In [7]:

```
p_value = 1-stats.norm.cdf(abs(z_score))
p_value
```

Out[7]:

```
0.20588503245107104
```

As (p_value = 0.2058) > (α = 0.05) ; Accept Null Hypothesis i.e. Mozilla market share > 5% Thus, Microsoft can not conclude that Mozilla has a less than 5% share of the marketII. WebSideStory claims that its sample includes all the daily Internet users. If that's the case, then can Microsoft conclude that Mozilla has a less than 5% share of the market?We are given that WebSideStory claims that its sample includes all the daily Internet users. This means that the 4.6% is the population percentage. Comparing it with Microsoft's claim that Mozilla has a less than 5% share of the whole market is True. Hence, we can conclude that Mozilla has a less than 5% share of the market.

In [ ]: