

Q5. In January 2005, a company that monitors Internet traffic (WebSideStory) reported that its sampling revealed that the Mozilla Firefox browser launched in 2004 had grabbed a 4.6% share of the market. I. If the sample were based on 2,000 users, could Microsoft conclude that Mozilla has a less than 5% share of the market? II. 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?

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In [1]: import numpy as np
        from scipy import stats
        from scipy.stats import norm
```

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In [5]: # 1.If the sample were based on 2,000 users, could Microsoft conclude that Mozilla
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In [6]: # Apply One-Sample One-Tail z-test
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In [8]: # calculate z-score or value z_scores =  $(\hat{p}-p)/\sqrt{p(1-p)/n}$  ... $N(0,1)$ 
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```
In [9]: z_scores=(0.046-0.05)/(np.sqrt((0.05*(1-0.05))/2000))
        z_scores
```

```
Out[9]: -0.820782681668124
```

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In [10]: # Find Probability assuming null hypothesis, so as to compare with Type-1 error
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In [11]: p_value=1-stats.norm.cdf(abs(z_scores))
        p_value
```

```
Out[11]: 0.20588503245107104
```

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In [15]: # As (p_value = 0.2058) > ( $\alpha$  = 0.05) ; Accept Null Hypothesis i.e. Mozilla market
```

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In [ ]:
```