Null hypothesis: Revenue of February 2017 is lower than January 2017

Alternative Hypothesis: Revenue of February 2017 is not lower than January 2017

Two-sample T-test  
  
*Treatment 1*  
  
*N*1: 124  
*df*1 = *N* - 1 = 124 - 1 = 123  
*M*1: 682.41 (Sample Mean)  
*SS*1: 23883272.02  
*s*21 = *SS*1/(*N* - 1) = 23883272.02/(124-1) = 194172.94 (Sample Variances)  
  
  
*Treatment 2*  
  
*N*2: 112  
*df*2 = *N* - 1 = 112 - 1 = 111  
*M*2: 655.69  
*SS*2: 25902098.06  
*s*22 = *SS*2/(*N* - 1) = 25902098.06/(112-1) = 233352.23  
  
  
T-value Calculation  
  
*s*2*p* = ((*df*1/(*df*1 + *df*2)) \* *s*21) + ((*df*2/(*df*2 + *df*2)) \* *s*22) = ((123/234) \* 194172.94) + ((111/234) \* 233352.23) = 212757.99  
  
*s*2*M1* = *s*2*p*/*N*1 = 212757.99/124 = 1715.79  
*s*2*M2* = *s*2*p*/*N*2 = 212757.99/112 = 1899.62  
  
*t* = (*M*1 - *M*2)/√(*s*2*M1* + *s*2*M2*) = 26.72/√3615.42 = 0.44

P-Value=0.328565

The result is *not* significant at *p* < .05.

So, we have to reject the null hypothesis which is Revenue in Feb 2017 is lower than Jan 2017. Therefore, the concern is not valid.

Null hypothesis: Revenue of Desktop is higher than Mobile

Alternative Hypothesis: Revenue of Desktop is not higher than Mobile

*Treatment 1*  
  
*N*1: 118  
*df*1 = *N* - 1 = 118 - 1 = 117  
*M*1: 1120.53  
*SS*1: 1243957.42  
*s*21 = *SS*1/(*N* - 1) = 1243957.42/(118-1) = 10632.11  
  
  
*Treatment 2*  
  
*N*2: 118  
*df*2 = *N* - 1 = 118 - 1 = 117  
*M*2: 218.93  
*SS*2: 624089.46  
*s*22 = *SS*2/(*N* - 1) = 624089.46/(118-1) = 5334.1  
  
  
T-value Calculation  
  
*s*2*p* = ((*df*1/(*df*1 + *df*2)) \* *s*21) + ((*df*2/(*df*2 + *df*2)) \* *s*22) = ((117/234) \* 10632.11) + ((117/234) \* 5334.1) = 7983.11  
  
*s*2*M1* = *s*2*p*/*N*1 = 7983.11/118 = 67.65  
*s*2*M2* = *s*2*p*/*N*2 = 7983.11/118 = 67.65  
  
*t* = (*M*1 - *M*2)/√(*s*2*M1* + *s*2*M2*) = 901.59/√135.31 = 77.51

P Value < 0.000001

The result is significant. And we cannot reject the null Hypothesis.

Therefore, we can say that the revenue of desktop generated is much higher than the mobile.

Then, we can compare the revenue generated based on different landing page. We can use similar approach.

Null hypothesis: Revenue of Home is higher than Product

Alternative Hypothesis: Revenue of Product is not higher than Home

*t* = (*M*1 - *M*2)/√(*s*2*M1* + *s*2*M2*) = 25.27/√3606.38 = 0.42

The *t*-value is 0.42081. The *p*-value is .337139. The result is *not* significant at *p* < .05.

Therefore, we can tell that the landing page didn’t have much influence on revenue.