**Hypothesis Testing**

For all the hypotheses, mention the following:

Loan\_status:- loan amount

1. Null hypothesis :- mean of loan\_amnt are **NOT EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
2. Alternate hypothesis ; mean of loan\_amnt are **EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- less than 2.2e-16
5. Insight (explain in less than 100 words): From the above calculations we infer that **loan\_amnt** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Loan\_status:- funded\_amnt

1. Null hypothesis :- mean of funded\_amnt are **NOT EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
2. Alternate hypothesis ; mean of funded\_amnt are **EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- less than 2.2e-16
5. Insight (explain in less than 100 words) : From the above calculations we infer that **funded\_amnt** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Loan\_status:- annual\_inc

1. Null hypothesis :- mean of annual\_inc are **NOT EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
2. Alternate hypothesis ; mean of annual\_inc are **EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- 1.892e-15
5. Insight (explain in less than 100 words): From the above calculations we infer that **annual\_inc** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Loan\_status:- DTI

1. Null hypothesis :- mean of DTI are **NOT EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
2. Alternate hypothesis ; mean of DTI are **EQUAL**  for both the loan\_status\_1 levels (default\_new,current\_new)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- 0.002039
5. Insight (explain in less than 100 words) : From the above calculations we infer that of **DTI** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Interest\_group:- loan amount

1. Null hypothesis :- mean of loan\_amnt are **NOT EQUAL**  for both the int\_rate\_grp levels(High, Low)
2. Alternate hypothesis ; mean of loan\_amnt are **EQUAL**  for both int\_rate\_grp levels(High, Low)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- less than 2.2e-16
5. Insight (explain in less than 100 words): From the above calculations we infer that **loan\_amnt** are significant contributor to the loan default. Hence we reject the Null Hypothesis.

Interest\_group:- funded\_amnt

1. Null hypothesis :- mean of funded\_amnt are **NOT EQUAL**  for both int\_rate\_grp levels(High, Low)
2. Alternate hypothesis ; mean of funded\_amnt are **EQUAL**  for both int\_rate\_grp levels(High, Low)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- less than 2.2e-16
5. Insight (explain in less than 100 words) : From the above calculations we infer that **funded\_amnt** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Interest\_group:- annual\_inc

1. Null hypothesis :- mean of annual\_inc are **NOT EQUAL**  for both int\_rate\_grp levels(High, Low)
2. Alternate hypothesis ; mean of annual\_inc are **EQUAL**  for both int\_rate\_grp levels(High, Low)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- less than 2.2e-16
5. Insight (explain in less than 100 words): From the above calculations we infer that **annual\_inc** are significant contributor to the loan default. Hence we reject the Null Hypothesis

Interest\_group:- DTI

1. Null hypothesis :- mean of DTI are **NOT EQUAL**  for both int\_rate\_grp levels(High, Low)
2. Alternate hypothesis ; mean of DTI are **EQUAL**  for both int\_rate\_grp levels(High, Low)
3. Test statistic : t-test , but as the sample size is greater than 30 , so t value = z value
4. p value corresponding to the test statistic:- 1.35e-05
5. Insight (explain in less than 100 words): From the above calculations we infer that of **DTI** are significant contributor to the loan default. Hence we reject the Null Hypothesis