BITTIGER

DS 501 Data scientist express bootcamp

Week 3 [Ella]

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Summary

- Important hypothesis testing in R
  - T test
  - Chi square test
- Steps to build a model
  - Problem statement
  - Feature processing
  - Feature engineering
  - Features selection
  - Model evaluation

Summary

- Build linear regression
  - Coefficient estimation
  - Residual variance, p value, F test
  - Residual diagnostics
  - Model performance

Hypothesis testing

- Two sample t test
  - Welch and student t test
  - Calculate t statistics and p value
  - Exercise
- Chi square test
  - Expected and observed values
  - Calculate t statistics and p value
  - Exercise

How to build model

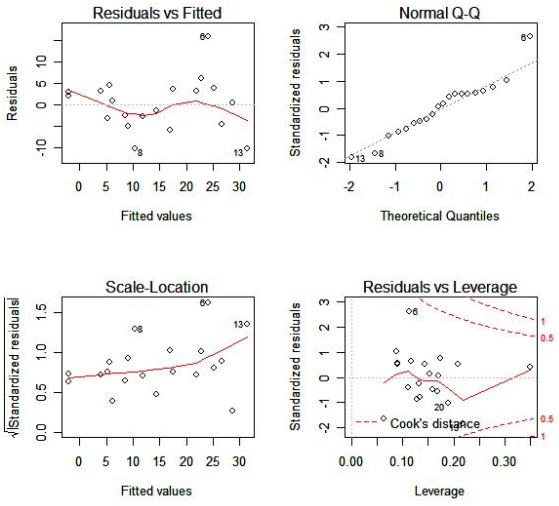
- 1. What features can be included in the model?
  - What features will be available?
    - Example: loan payment related features will not be available when predicting interest rate.
- 2. What features should be included?
  - Remove irrelevant features from intuition
  - Remove features with unique value per row, with same value across rows (no variance): Id, member_id, url...
  - Remove redundant features: dti_joint, annual_income_joint
  - Understand relationship between features and response
    - EDA

How to build model

- 3. Feature processing
  - Missing value imputation
  - Categorical features with too many levels
- 4. Feature engineering
  - Transform/process existing features
  - Generate new features
- 5. Choose models
- 6. Compare results
- Exercise

Linear Regression

- Build linear regression
  - Calculate coefficient LSE/MLE estimation
  - Calculate residual variance, p value, F test, R squared
  - Residual diagnostics
  - Evaluate model performance: RMSE
  - Exercise



https://stats.stackexchange.com/questions/5135/interpretation-of-rs-lm-output?noredirect=1&lq=1