

# Assignment 4

Statistics 4420/8426

Exploratory Data Visualization and Quantification

Due on: April 11, 2017 by midnight

1. **Visual quantification:** To visualize the following quantity, mention what plot you will generate

	Quantity	Plot
1	Association between two variables when a) both are numeric b) one numeric and one categorical c) both are categorical	
2	Association of a categorical variable with many numerical variables together	
3	Difference of two variables in terms of a) spread b) center c) overall distribution	
4	Proportion of categories of a variable	
5	Spatial dependency of a variable	

2. Credit card balances of 400 individuals are given in the data file Credit.csv. The goal is to find which explanatory variables are affecting the card balance. Based on this data, answer the following questions. Justify your answer by providing a suitable plot in each case.
- Do you think number of cards has anything to do with higher balance?
  - Do you think that higher balances can be attributed to individual's studentship status?
  - Does higher limit causes higher balance?
  - Is there any interaction effect of Student and limit on Balance?
  - Is there any interaction effect of Income and Ethnicity on Balance?
  - Is there any 3-way interaction effect of Income, Ethnicity and Student on Balance?
3. Creating dashboard. For this problem you will start with dashboard.R as a template. Modify this template and create a new dashboard according to the instruction below;
- Inside sidebarMenu, create a new menuItem called "My state crime"
  - Inside dashboardBody tabItems, create a new tabItem and make the header "My state crime map goes here"
  - Inside the newly created tabItem create a fluidRow using column instead of box which has following features. For example codes, review the link <https://github.com/mamajumder/usa-crime/blob/master/ui.R>
    - Use first 5 columns to create a wellPanel where there will be one selectInput and one sliderInput. selectInput should allow to select a specific crime rate to display while sliderInput will use a specific year of crime rate. For this use usaCrimeDat.rds
    - Use 6 columns to show the state crime map of USA colored by crime rate.
  - Inside server add a new output of the state crime map so that map can be interactively generated based on crime rate and the year selected.