Note

- You will need to submit your assignment as a markdown document that the graders will run on their machine. You need not submit the html files.
- Data are contained in the file - `creditdata.csv`

Instructions

You have been hired as a consultant to a bank to help them predict the credit rating for potential borrowers. The objective of this assignment is to reinforce the workflow that we covered in class. Here is the description of the dataset

Variable	Description
`rating`	credit rating
`experience`	Job experience (in years)
`homeown`	home ownership
`loandurn`	Loan duration
`age`	Age of borrower
`mstat`	Marital status
`rcds`	Existence of records
`jtype`	Job type
`explvl`	Quantum of expenses
`inc`	Level of income
`assts`	Quantum of assets
`debt`	Quantum of debt
`loanamount`	Loan amount requested
`purchprice`	Purchase price of item

Part A (20 marks)

(i) Use the **first half** of this dataset to be the training set and the **second half** of this dataset to be the test set. Your task is to predict the credit rating of an individual.
(ii) Please ensure that the data are clean.
(iii) Please provide the relevant exploratory and descriptive analysis
(iv) Please explain how this descriptive analysis informed your next steps.

Part B (40 marks)

(i) Please make a predictive model using logistic regression.
(ii) Which variables in the logistic regression model are significant or important?
(iii) Please make a predictive model using a decision tree
(iv) Describe and explain the tree. How will you explain the tree to your client (less than 250 words)?

Part C (40 marks)

(i) Please help your client understand which model is better for predicting purposes.

(ii) Find a way to explain sensitivity, specificity and auc in the ROC to your client (in less than 250 words).

(iii) Provide a brief write-up of your findings. How will you present these findings to your clients in less than 250 words?

Name your file as A05_Gwid.rmd. So if your GWID is G19860011 then you should name your submission file as A05_G19860011.rmd. Please make sure that you comment your R code.