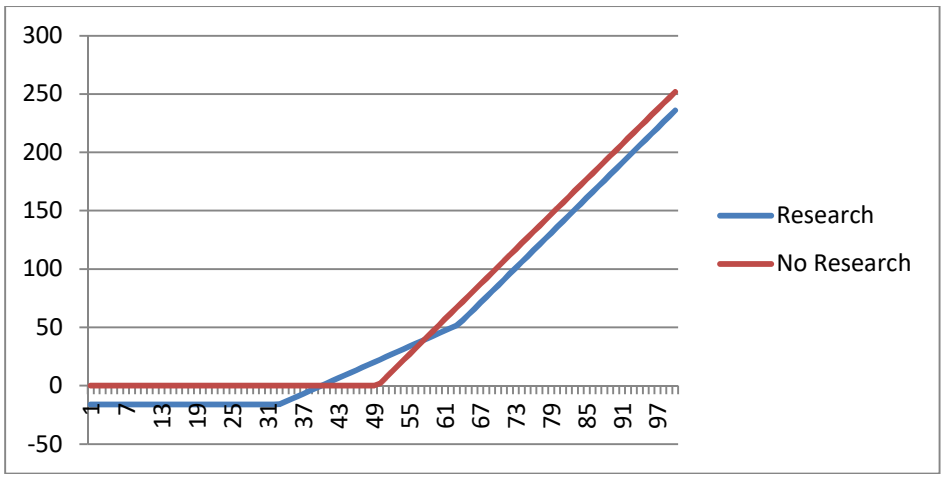
Assignment11

1. A. Use SensIt to perform Sensitivity Analysis:
   Ans: I got the following graph by using the SensIt Add-In tool of Excel.



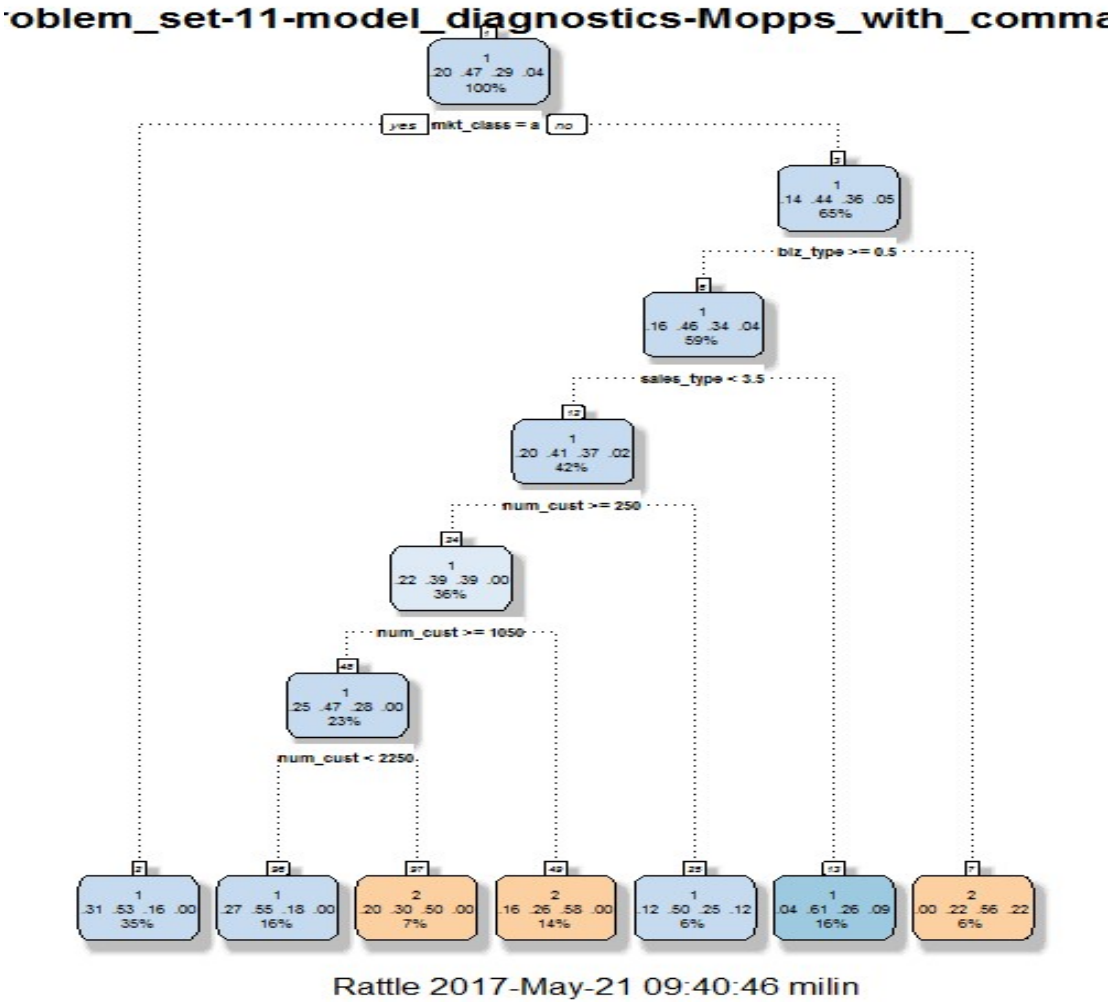
According to the graph above, it can be seen that there is a section where the EV of doing research is better than that of no research(probability of viable is between 39% and 57%): when the probability of business being viable(PV) is below the lower threshold value(39%) or above the higher threshold value (57%), the EV of doing research is less(worse) than that of no research; when the PV is between the lower threshold and higher threshold, the EV of doing research is more(better) than that of no research. It can be concluded, therefore, that the strategy of doing research is better strategy only when the PV is located between 39% and 57%.

B. How do you explain the usefulness of the information in this sensitivity analysis?
Ans: Using this sensitivity analysis, you could get to know in which situation one strategy is superior to the alternative one, and when this strategy lost its advantage over the alternative one, namely you could identify what condition the superiority of one strategy is sensitive to and how degree the sensitivity is , so the decision maker could make wiser decision no matter how the situation varies along time(the change on the probability of viable of the business in this case)

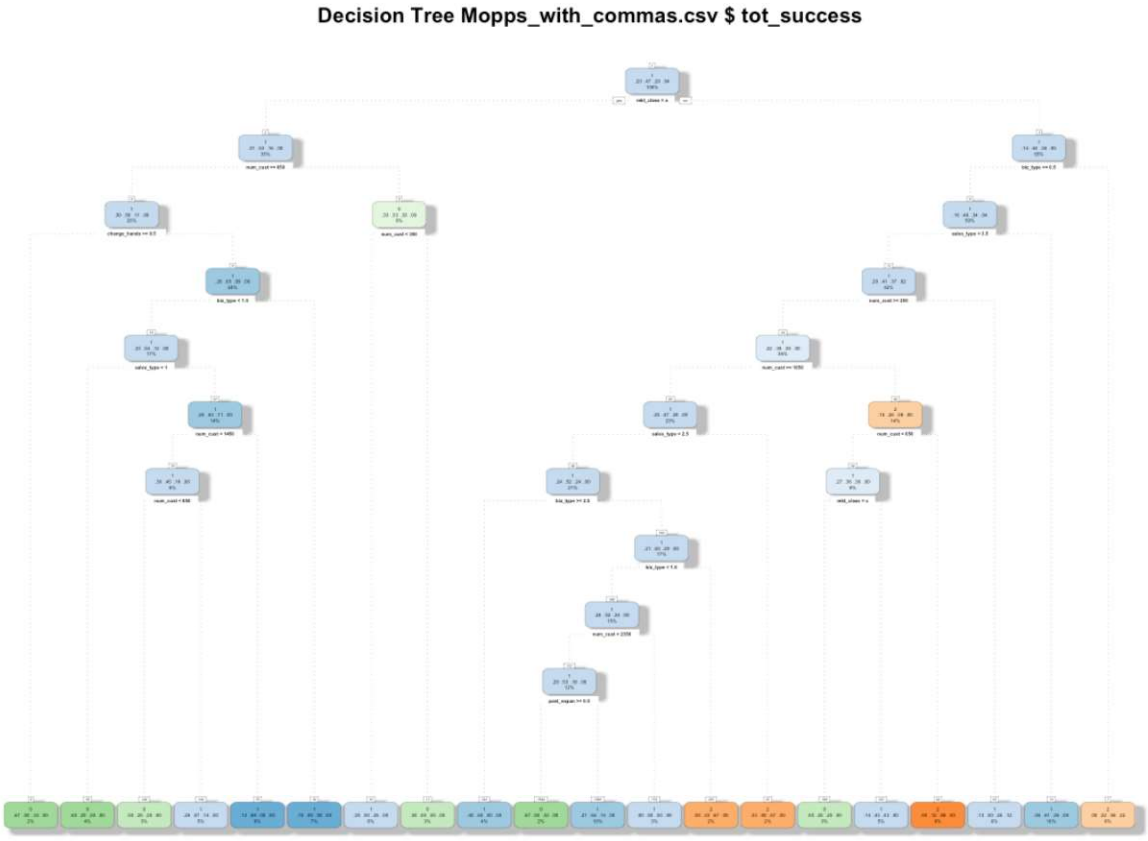
2. Use R and Rattle to Perform Bottom-up Tree Model Diagnostics:

a. Using complexity and the other tuning parameters you learned about in section 11.5 of Data Mining with Rattle and R, explain what combination of tweaks gets you the lowest overall crossvalidation error. This is found as the last value in the “xerror” column?
   Ans: I use parameter combinations of Complexity=0.0068, MinSplit=16, MinBucket=8 to get the xerror=1.0405, this is the lowest overall crossvalidation error I obtained

b. Using the Draw button, copy your ideal Rattle decision tree from the Mopps data set into your assignment document, and interpret what it means.



c. When your tree looks like the image below, it may need to be simplified! What would you suggest doing to help this tree?



Ans: in order to simplify that decision tree, the parameter ‘min bucket’ should be increased and the parameter ‘complexity’ should be increased