**Constructing a Decision Tree**

Using ID3 algorithm, construct (by hand, show detail work) a decision tree for below dataset. Is your decision tree overfitting? Can you use Pruning technique to reduce the problem? Explain your work.

mpg cylinders displacement horsepower weight acceleration modelyear maker

good 4 low low low high 75to78 asia

bad 6 medium medium medium medium 70to74 america

bad 4 medium medium medium low 75to78 europe

bad 8 high high high low 70to74 america

bad 6 medium medium medium medium 70to74 america

bad 4 low medium low medium 70to74 asia

bad 4 low medium low low 70to74 asia

bad 8 high high high low 75to78 america

bad 8 high high high low 70to74 america

good 8 high medium high high 79to83 america

bad 8 high high high low 75to78 america

good 4 low low low low 79to83 america

bad 6 medium medium medium high 75to78 america

good 4 medium low low low 79to83 america

good 4 low low medium high 79to83 america

bad 8 high high high low 70to74 america

good 4 low medium low medium 75to78 europe

bad 5 medium medium medium medium 75to78 europe

Predict Miles-per-gallon?