# Computer Science 3401

Decision Tree Project

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```
>>> v1 = growTree.main()
>>> evaluate.main(v1)
Error rate: 0.18571428571428572

>>> disp.showIt(v1)
Plot un-pruned tree. Plot (Y/N)?Y
>>> v2 = pruneTree.main(v1)
[0.8142857142857143, 0.8142857142857143, 0.8142857142857143, 0.8, 0.8142857142857143, 0.8142857142857143, 0.8142857
142857143, 0.8142857142857143, 0.8142857142857143, 0.8142857142857143, 0.8142857142857143, 0.8142857142857143, 0.81
42857142857143]
>>> evaluate.main(v2)
Error rate: 0.18571428571428572

>>> disp.showIt(v2)
Plot un-pruned tree. Plot (Y/N)?Y
>>> 
```

Full Tree File (treeOriginal.txt):

["CRED_HIS", {"1": ["AGE", {"1": ["INCOME", {"1": ["HEALTH", {"1": 1, "2": 2}], "2": 2}], "2": ["HEALTH", {"1": ["RACE", {"1": 2, "2": 2, "3": 2}], "2": ["RACE", {"1": 2, "2": 2, "3": 1}]}], "3": ["RACE", {"1": ["HEALTH", {"1": 1, "2": 2}], "2": ["HEALTH", {"1": 1, "2": 1}], "3": ["HEALTH", {"1": 2, "2": 1}]}]}], "2": ["RACE", {"1": ["AGE", {"1": ["HEALTH", {"1": 1, "2": 1}], "2": ["INCOME", {"1": 1, "2": 1}], "3": 1}], "2": 1, "3": ["HEALTH", {"1": ["AGE", {"1": 1, "2": 1, "3": 1}], "2": 1}]}]}]

Full Tree:

```
CRED_HIS
 !--poor--AGE
 !          !--youth--INCOME
 !          !            !--low--HEALTH
 !          !            !         !--normal--L
 !          !            !         !--poor--H
 !          !            !--high--H
 !          !--mid_age--HEALTH
 !          !            !--normal--RACE
 !          !            !          !--white--H
 !          !            !          !--asian--H
 !          !            !          !--black--H
 !          !            !--poor--RACE
 !          !                       !--white--H
 !          !                       !--asian--H
 !          !                       !--black--L
 !          !--senior--RACE
 !                       !--white--HEALTH
 !                       !         !--normal--L
 !                       !         !--poor--H
 !                       !--asian--HEALTH
 !                       !         !--normal--L
 !                       !         !--poor--L
 !                       !--black--HEALTH
 !                                 !--normal--H
 !                                 !--poor--L
 !--good--RACE
          !--white--AGE
          !         !--youth--HEALTH
          !         !           !--normal--L
          !         !           !--poor--L
          !         !--mid_age--INCOME
          !         !             !--low--L
          !         !             !--high--L
          !         !--senior--L
          !--asian--L
          !--black--HEALTH
                    !--normal--AGE
                    !          !--youth--L
                    !          !--mid_age--L
                    !          !--senior--L
                    !--poor--L
```

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Pruned Tree:

```
CRED_HIS
 !--poor--AGE
 !            !--youth--H
 !            !--mid_age--HEALTH
 !            !              !--normal--H
 !            !              !--poor--RACE
 !            !                            !--white--H
 !            !                            !--asian--H
 !            !                            !--black--L
 !            !--senior--L
 !--good--L
```