OUTPUT FOR HAYES ROTH DATA SET
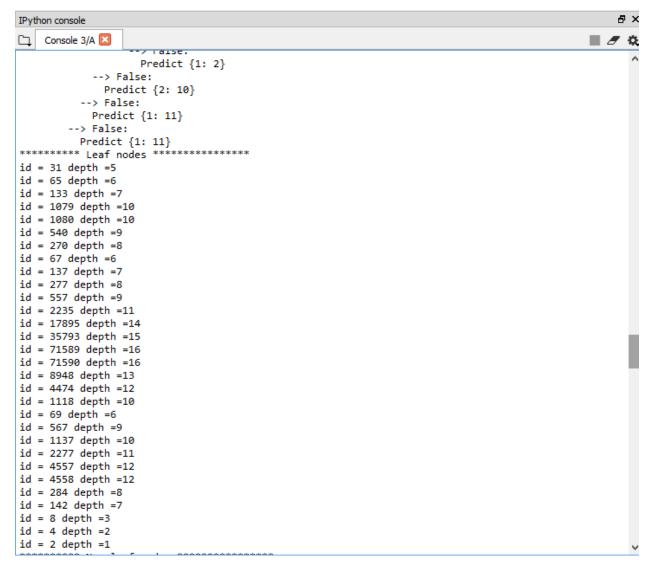
Console 3/A ✕

Accuracy on train = 95.0

In [20]: runfile('C:/Users/Dell/.spyder-py3/driver.py', wdir='C:/Users/Dell/.spyder-py3')
Reloaded modules: DecisionTree
Is Marital status >= 4?
--> True:
 Predict {3: 12}
--> False:
 Is Educational Level >= 4?
 --> True:
  Predict {3: 10}
 --> False:
  Is Age >= 4?
  --> True:
   Predict {3: 8}
  --> False:
   Is Marital status >= 2?
   --> True:
    Is Educational Level >= 2?
    --> True:
     Is Educational Level >= 3?
     --> True:
      Is Name >= 119?
      --> True:
       Predict {1: 3}
      --> False:
       Is Age >= 2?
       --> True:
        Predict {2: 3}
       --> False:
        Is Name >= 20?
        --> True:
         Is Name >= 41?
         --> True:
          Is Hobby >= 3?
          --> True:
           Is Name >= 89?
           --> True:
            Predict {1: 1}

IPython console

Console 3/A ✕

          --> False:
           Predict {1: 2}
         --> False:
          Predict {2: 2}
       --> False:
        Predict {2: 13}
     --> False:
      Is Age >= 2?
      --> True:
       Is Marital status >= 3?
       --> True:
        Is Name >= 16?
        --> True:
         Is Name >= 23?
         --> True:
          Is Age >= 3?
          --> True:
           Predict {1: 1}
          --> False:
           Is Name >= 35?
           --> True:
            Is Name >= 115?
            --> True:
             Predict {2: 1}
            --> False:
             Is Name >= 114?
             --> True:
              Predict {1: 1}
             --> False:
              Is Name >= 37?
              --> True:
               Is Hobby >= 2?
               --> True:
                Is Name >= 109?
                --> True:
                 Predict {2: 1}
                --> False:
                 Predict {1: 1}
               --> False:

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                              Is Hobby >= 2?
                              --> True:
                                Is Name >= 109?
                                --> True:
                                  Predict {2: 1}
                                --> False:
                                  Predict {1: 1}
                              --> False:
                                Predict {2: 1}
                          --> False:
                            Predict {1: 1}
                        --> False:
                          Predict {2: 1}
                    --> False:
                      Predict {1: 2}
                  --> False:
                    Predict {2: 1}
                --> False:
                  Predict {2: 10}
            --> False:
              Predict {1: 11}
      --> False:
        Is Educational Level >= 2?
        --> True:
          Is Age >= 2?
          --> True:
            Is Age >= 3?
            --> True:
              Is Name >= 111?
              --> True:
                Predict {2: 2}
              --> False:
                Is Name >= 68?
                --> True:
                  Predict {1: 4}
                --> False:
                  Is Hobby >= 2?
                  --> True:
                    Predict {2: 3}
```
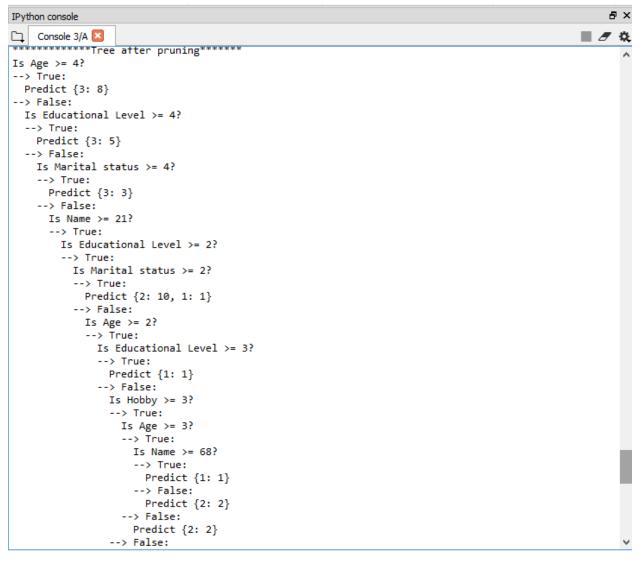
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                --> False:
                  Predict {1: 2}
              --> False:
                Predict {2: 10}
          --> False:
            Predict {1: 11}
      --> False:
        Predict {1: 11}
********** Leaf nodes ****************
id = 31 depth =5
id = 65 depth =6
id = 133 depth =7
id = 1079 depth =10
id = 1080 depth =10
id = 540 depth =9
id = 270 depth =8
id = 67 depth =6
id = 137 depth =7
id = 277 depth =8
id = 557 depth =9
id = 2235 depth =11
id = 17895 depth =14
id = 35793 depth =15
id = 71589 depth =16
id = 71590 depth =16
id = 8948 depth =13
id = 4474 depth =12
id = 1118 depth =10
id = 69 depth =6
id = 567 depth =9
id = 1137 depth =10
id = 2277 depth =11
id = 4557 depth =12
id = 4558 depth =12
id = 284 depth =8
id = 142 depth =7
id = 8 depth =3
id = 4 depth =2
id = 2 depth =1
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********** Non-leaf nodes ****************
id = 539 depth =9
id = 269 depth =8
id = 134 depth =7
id = 66 depth =6
id = 32 depth =5
id = 15 depth =4
id = 35794 depth =15
id = 17896 depth =14
id = 8947 depth =13
id = 4473 depth =12
id = 2236 depth =11
id = 1117 depth =10
id = 558 depth =9
id = 278 depth =8
id = 138 depth =7
id = 68 depth =6
id = 33 depth =5
id = 2278 depth =11
id = 1138 depth =10
id = 568 depth =9
id = 283 depth =8
id = 141 depth =7
id = 70 depth =6
id = 34 depth =5
id = 16 depth =4
id = 7 depth =3
id = 3 depth =2
id = 1 depth =1
id = 0 depth =0
*************Tree before pruning*******
Is Age >= 4?
--> True:
  Predict {3: 8}
--> False:
  Is Educational Level >= 4?
  --> True:
    Predict {3: 5}
  --> False:
```

```
id = 0 depth =0
*************Tree before pruning*******
Is Age >= 4?
--> True:
  Predict {3: 8}
--> False:
  Is Educational Level >= 4?
  --> True:
    Predict {3: 5}
  --> False:
    Is Marital status >= 4?
    --> True:
      Predict {3: 3}
    --> False:
      Is Name >= 21?
      --> True:
        Is Educational Level >= 2?
        --> True:
          Is Marital status >= 2?
          --> True:
            Is Name >= 60?
            --> True:
              Predict {2: 10}
            --> False:
              Predict {1: 1}
          --> False:
            Is Age >= 2?
            --> True:
              Is Educational Level >= 3?
              --> True:
                Predict {1: 1}
              --> False:
                Is Hobby >= 3?
                --> True:
                  Is Age >= 3?
                  --> True:
                    Is Name >= 68?
                    --> True:
                      Predict {1: 1}
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                        --> True:
                          Predict {1: 1}
                        --> False:
                          Predict {2: 2}
                      --> False:
                        Predict {2: 2}
                  --> False:
                    Predict {2: 7}
              --> False:
                Predict {1: 5}
        --> False:
          Is Marital status >= 2?
          --> True:
            Is Age >= 2?
            --> True:
              Is Marital status >= 3?
              --> True:
                Is Hobby >= 2?
                --> True:
                  Predict {1: 1}
                --> False:
                  Predict {2: 1}
              --> False:
                Predict {2: 6}
            --> False:
              Predict {1: 4}
          --> False:
            Predict {1: 5}
      --> False:
        Predict {1: 4}
Accuracy on test = 73.0
Accuracy on train = 100.0
*************Tree after pruning*******
Is Age >= 4?
--> True:
  Predict {3: 8}
--> False:
  Is Educational Level >= 4?
  --> True:
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                            --> True:
                              Is Age >= 3?
                                --> True:
                                  Is Name >= 68?
                                    --> True:
                                      Predict {1: 1}
                                    --> False:
                                      Predict {2: 2}
                                --> False:
                                  Predict {2: 2}
                            --> False:
                              Predict {2: 7}
                    --> False:
                      Predict {1: 5}
            --> False:
              Is Marital status >= 2?
                --> True:
                  Is Age >= 2?
                    --> True:
                      Predict {2: 7, 1: 1}
                    --> False:
                      Predict {1: 4}
                --> False:
                  Predict {1: 5}
        --> False:
          Predict {1: 4}
Accuracy on test = 80.0
Accuracy on train = 97.0

In [21]:
```