In [1]:

```
#importando as bibliotecas
import pandas as pd
from sklearn.tree import DecisionTreeClassifier
from sklearn.model_selection import train_test_split
from sklearn import metrics
```

In [2]:

```
dados = pd.read_csv('iris.csv')
dados.head()
```

Out[2]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	setosa
1	4.9	3.0	1.4	0.2	setosa
2	4.7	3.2	1.3	0.2	setosa
3	4.6	3.1	1.5	0.2	setosa
4	5.0	3.6	1.4	0.2	setosa

In [3]:

```
#Substituindo os valores texto do rotulo por numero
dados = dados.replace({'species':{'setosa':1}})
dados = dados.replace({'species':{'versicolor':2}})
dados = dados.replace({'species':{'virginica':3}})
```

In [4]:

```
atributos = ['sepal_length','sepal_width','petal_length','petal_width']
x = dados[atributos]
y = dados.species #rotulo
```

In [5]:

```
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.3, random_state=1
) # 70% training and 30% test
```

In [6]:

```
clf = DecisionTreeClassifier()
clf = clf.fit(x_train,y_train)
y_pred = clf.predict(x_test)
print("Precisão:",metrics.accuracy_score(y_test, y_pred))
```

```
Precisão: 0.9555555555555556
```

In [7]:

```
pip install pydot
```

```
Requirement already satisfied: pydot in c:\users\daniel\anaconda3\lib\site
-packages (1.4.1)
Requirement already satisfied: pyparsing>=2.1.4 in c:\users\daniel\anacond
a3\lib\site-packages (from pydot) (2.4.0)
Note: you may need to restart the kernel to use updated packages.
```

In [8]:

```
pip install graphviz
```

```
Requirement already satisfied: graphviz in c:\users\daniel\anaconda3\lib\s
ite-packages (0.13.2)
Note: you may need to restart the kernel to use updated packages.
```

In [9]:

```
pip install pydotplus
```

```
Requirement already satisfied: pydotplus in c:\users\daniel\anaconda3\lib
\site-packages (2.0.2)
Requirement already satisfied: pyparsing>=2.0.1 in c:\users\daniel\anacond
a3\lib\site-packages (from pydotplus) (2.4.0)
Note: you may need to restart the kernel to use updated packages.
```

In [10]:

```
pip install pydot
```

```
Requirement already satisfied: pydot in c:\users\daniel\anaconda3\lib\site
-packages (1.4.1)
Requirement already satisfied: pyparsing>=2.1.4 in c:\users\daniel\anacond
a3\lib\site-packages (from pydot) (2.4.0)
Note: you may need to restart the kernel to use updated packages.
```

In [11]:

```
from sklearn.tree import export_graphviz
from sklearn.externals.six import StringIO
from IPython.display import Image
import pydotplus
import pydot
```

```
C:\Users\Daniel\Anaconda3\lib\site-packages\sklearn\externals\six.py:31: D
eprecationWarning: The module is deprecated in version 0.21 and will be re
moved in version 0.23 since we've dropped support for Python 2.7. Please r
ely on the official version of six (https://pypi.org/project/six/).
  "(https://pypi.org/project/six/).", DeprecationWarning)
```

In [12]:

```
dot_data = StringIO()
```

In [13]:

```
export_graphviz(clf, out_file=dot_data,
                filled=True, rounded=True,
                special_characters=True,feature_names = atributos,class_names=['1','2',
'3'])
```

In [14]:

```
(graph,) = pydot.graph_from_dot_data(dot_data.getvalue())
clf = DecisionTreeClassifier(criterion="entropy", max_depth=3)
clf = clf.fit(x_train,y_train)
y_pred = clf.predict(x_test)
```

In [15]:

```
print("Precisao:",metrics.accuracy_score(y_test, y_pred))
```

```
Precisao: 0.9555555555555556
```

In [16]:

```
from sklearn.externals.six import StringIO
from IPython.display import Image
from sklearn.tree import export_graphviz
import pydotplus
import pydot
```

In [17]:

```
dot_data = StringIO()
```

In [18]:

```
export_graphviz(clf, out_file=dot_data,
                filled=True, rounded=True,
                special_characters=True,feature_names = atributos,class_names=['1','2',
'3'])
```

In [19]:

```
(graph,) = pydot.graph_from_dot_data(dot_data.getvalue())
print('IRIS')
```

```
IRIS
```

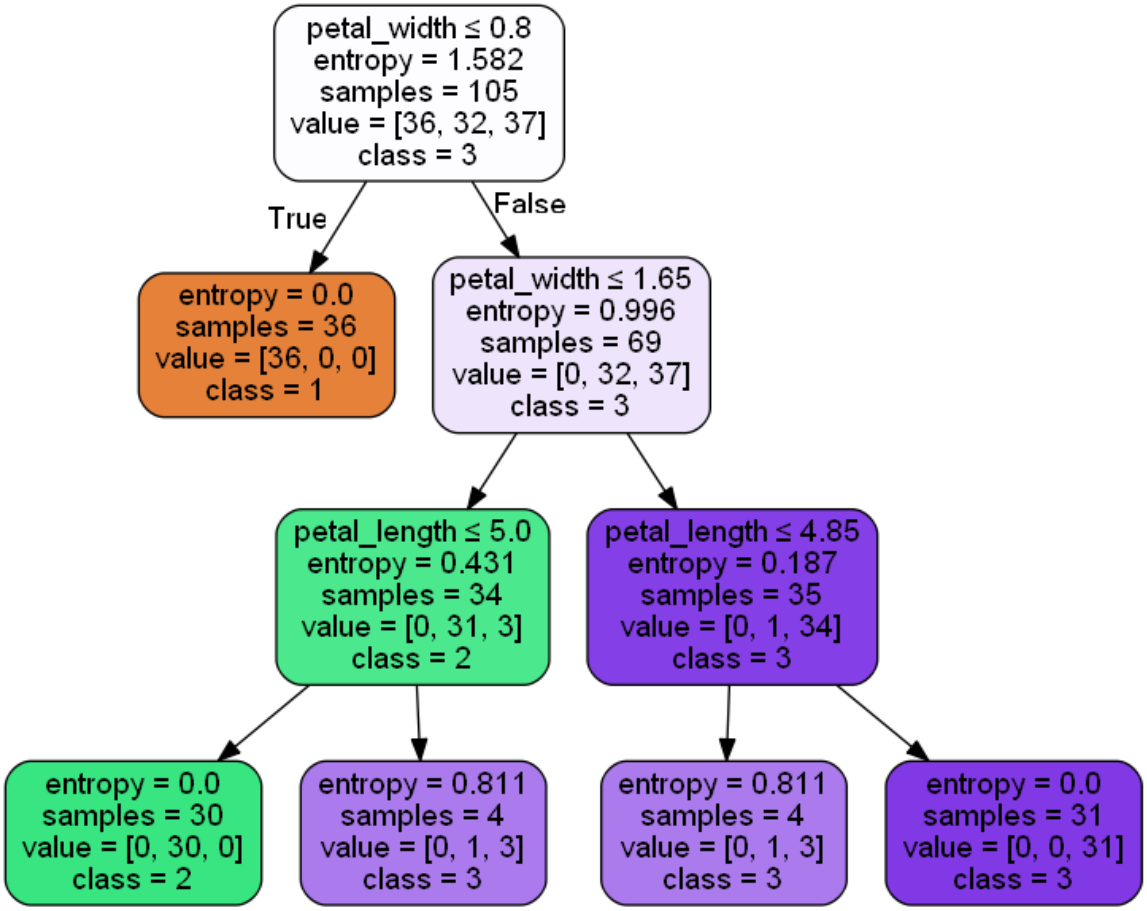
In [20]:

```
graph.write_png('iris.png')
```

In [21]:

```
Image(graph.create_png())
```

Out[21]:



In [ ]:

```
```