In [16]:

```
#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 [18]:

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

Out[18]:

	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 [22]:

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

In [44]:

```
#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 [45]:

```
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 [46]:

```
clf = DecisionTreeClassifier()
```

In [47]:

```
clf = clf.fit(x_train,y_train)
```

In [48]:

```
y_pred = clf.predict(x_test)
```

In [49]:

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

```
Precisão: 0.9555555555555556
```

In [50]:

```
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 [51]:

```
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 [52]:

```
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 [53]:

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

In [54]:

```
dot_data = StringIO()
```

In [55]:

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

In [59]:

```
graph = pydot.graph_from_dot_data(dot_data.getvalue())
```

In [60]:

```
clf = DecisionTreeClassifier(criterion="entropy", max_depth=3)
```

In [62]:

```
clf = clf.fit(x_train,y_train)
```

In [63]:

```
y_pred = clf.predict(x_test)
```

In [64]:

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

```
Precisao: 0.9555555555555556
```

In [65]:

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

In [68]:

```
dot_data = StringIO()
```

In [70]:

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

In [72]:

```
graph = pydotplus.graph_from_dot_data(dot_data.getvalue())
```

In [ ]:

```

```