K-MEANS CLUSTERING

In [ ]:
```
import warnings
warnings.filterwarnings("ignore")
```

In [ ]:
```
from sklearn.datasets import load_iris
```

In [ ]:
```
iris = load_iris()
```

In [ ]:
```
import pandas as pd
```

In [ ]:
```
data = pd.DataFrame(iris.data,columns = iris.feature_names)
```

In [ ]:
```
data.head()
```

In [ ]:
```
from sklearn.cluster import KMeans
```

In [ ]:
```
model = KMeans(n_clusters = 3,init = "random",algorithm = "full")
model.fit(data)
```

In [ ]:
```
from matplotlib import pyplot as plt
%matplotlib inline
```

In [ ]:
```
print(model.labels_)
```

In [ ]:
```
plt.scatter(data.iloc[:,0], data.iloc[:,1], c = model.labels_, cmap = 'brg')
plt.xlabel(iris.feature_names[0])
```

```
plt.ylabel(iris.feature_names[1])
plt.show()
```

In [ ]:

```
from sklearn.metrics.cluster import silhouette_score
print(silhouette_score(data,model.labels_))
```

In [ ]:

```
k_range = range(2,50)
score = []
for k in k_range:
    model = KMeans(n_clusters = k,init = "random",algorithm = "full")
    model.fit(data)
    score.append(silhouette_score(data,model.labels_))
```

In [ ]:

```
plt.figure(figsize=(20,10))
plt.bar(k_range,score)
plt.xticks(k_range)
plt.xlabel('Clusters')
plt.ylabel('Silhouette Score')
plt.show()
```

In [ ]: