In [54]:
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#Import libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.cluster import KMeans
from sklearn.metrics import accuracy_score, confusion_matrix
#import the dataset
df = pd.read_csv(r'C:\Users\Student\Desktop\iris-flower-dataset.csv')
df.head(10)
#Now we select all four features (sepal length, sepal width, petal length, d
x = df.iloc[:, [0,1,2,3]].values
#print(x)
#Initially take K=5
kmeans5 = KMeans(n_clusters=5)
y_kmeans5 = kmeans5.fit_predict(x)
print(y_kmeans5)
kmeans5.cluster_centers_

#Finding Best K Values
Error =[]
for i in range(1, 11):
    kmeans = KMeans(n_clusters = i).fit(x)
    kmeans.fit(x)
    Error.append(kmeans.inertia_)
import matplotlib.pyplot as plt
plt.plot(range(1, 11), Error)
plt.title('Elbow method')
plt.xlabel('No of clusters')
plt.ylabel('Error')
plt.show()
#When K=3 According to graph
kmeans3 = KMeans(n_clusters=3)
y_kmeans3 = kmeans3.fit_predict(x)
print(y_kmeans3)
kmeans3.cluster_centers_
plt.scatter(x[:,0],x[:,1],c=y_kmeans3,cmap='rainbow')


y_true = df['species']

mapping = {species: i for i, species in enumerate(np.unique(y_true))}
y_true = y_true.map(mapping)

# Calculate accuracy
accuracy = accuracy_score(y_true, y_kmeans3)
print(f"Accuracy: {accuracy}")

# Calculate confusion matrix
conf_matrix = confusion_matrix(y_true, y_kmeans3)
print(f"Confusion Matrix: \n{conf_matrix}")
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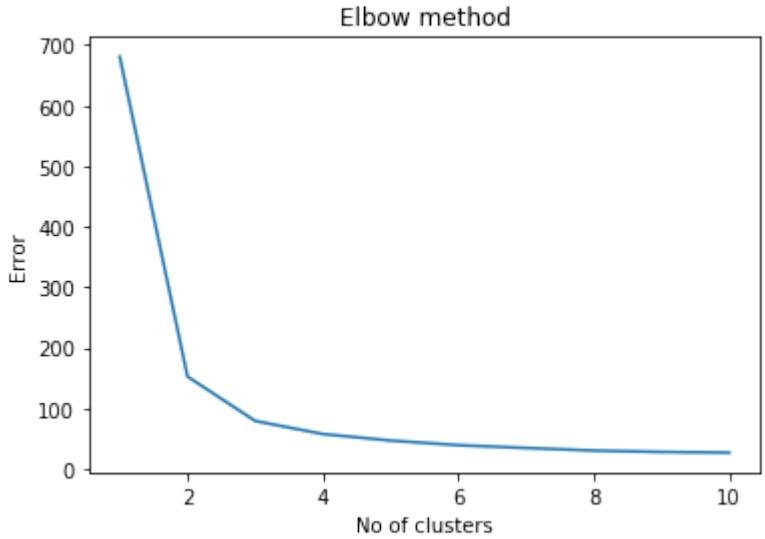


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 2 0]
Accuracy: 0.24
Confusion Matrix:
[[ 0 50  0]
 [48  0  2]
 [14  0 36]]
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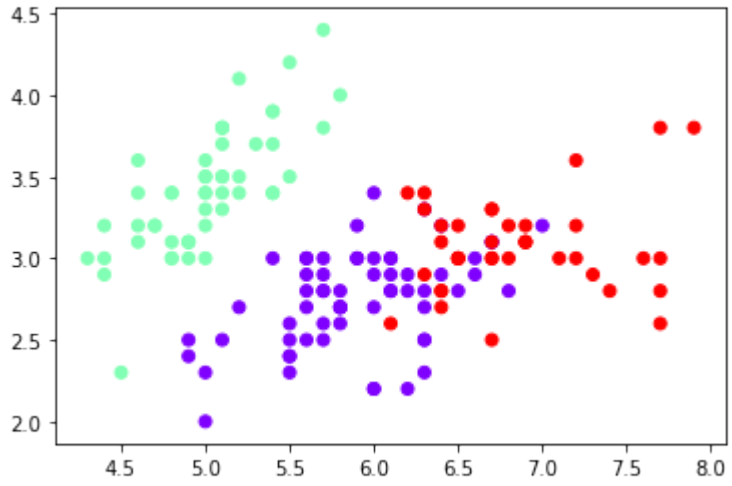

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