Step 1: Importing the required Libraries

```
import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
import matplotlib.pyplot as plt
import seaborn as sns
```

Step 2: Reading the Dataset

```
df = pd.read_csv('https://www.kaggle.com/datasets/yasserh/breast-cancer-dataset.csv')

# Separate dependent and independent variables
y = df['diagnosis']
X = df.drop('diagnosis', axis = 1)
X = X.drop('Unnamed: 32', axis = 1)
X = X.drop('id', axis = 1)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.3, random_state = 0)
```

Step 3: Training the model

```
K = []
training = []
test = []
scores = {}
for k in range(2, 21):
    clf = KNeighborsClassifier(n_neighbors = k)
    clf.fit(X_train, y_train)
    training_score = clf.score(X_train, y_train)
    test_score = clf.score(X_test, y_test)
    K.append(k)
    training.append(training_score)
    test.append(test_score)
    scores[k] = [training_score, test_score]
```

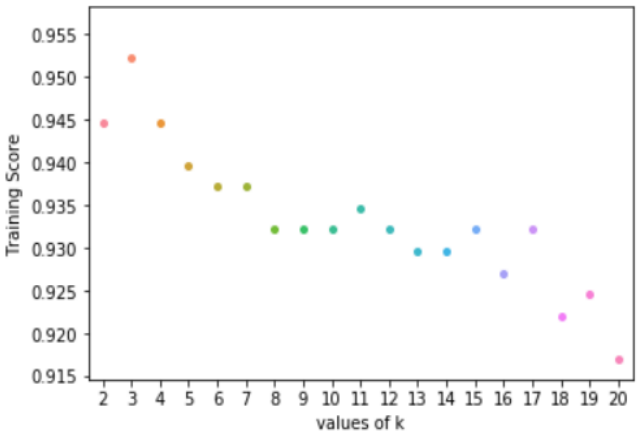
Step 4: Evaluating the model

```
 for keys, values in scores.items():
    print(keys, ':', values)
```

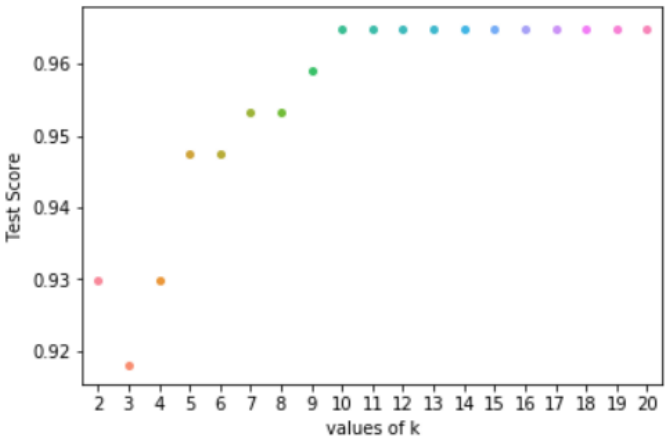
```
2 : [0.9447236180904522, 0.9298245614035088]
3 : [0.9522613065326633, 0.9181286549707602]
4 : [0.9447236180904522, 0.9298245614035088]
5 : [0.9396984924623115, 0.9473684210526315]
6 : [0.9371859296482412, 0.9473684210526315]
7 : [0.9371859296482412, 0.9532163742690059]
8 : [0.9321608040201005, 0.9532163742690059]
9 : [0.9321608040201005, 0.9590643274853801]
10 : [0.9321608040201005, 0.9649122807017544]
11 : [0.9346733668341709, 0.9649122807017544]
12 : [0.9321608040201005, 0.9649122807017544]
13 : [0.9296482412060302, 0.9649122807017544]
14 : [0.9296482412060302, 0.9649122807017544]
15 : [0.9321608040201005, 0.9649122807017544]
16 : [0.9271356783919598, 0.9649122807017544]
17 : [0.9321608040201005, 0.9649122807017544]
18 : [0.9221105527638191, 0.9649122807017544]
19 : [0.9246231155778895, 0.9649122807017544]
20 : [0.9170854271356784, 0.9649122807017544]
```

Step 5: Plotting the training and test scores graph

```
ax = sns.stripplot(x=K, y=training)
ax.set(xlabel='Values of k', ylabel='Training Score')
plt.show()
```




```
ax = sns.stripplot(x=K, y=test
ax.set(xlabel='Values of k', ylabel='Test Score')
lt.show()
```




```
plt.scatter(K, training, color='k')
plt.scatter(K, test, color='g')
plt.show()
```