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LABTEST -> 2

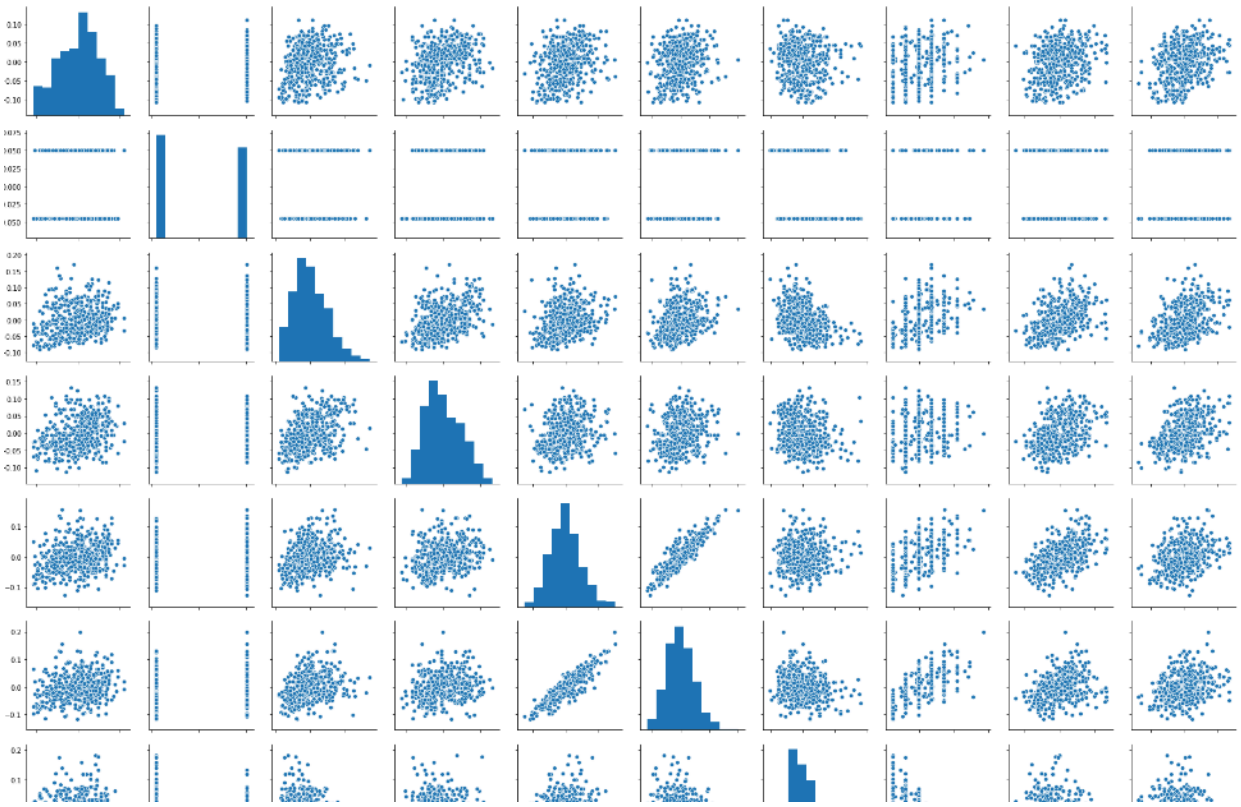
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn import datasets
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.naive_bayes import GaussianNB
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import accuracy_score, precision_score, recall_score, f1_score
import seaborn as sns


diabetes = datasets.load_diabetes()
X = diabetes.data
y = diabetes.target

print(f"Number of features: {X.shape[1]}")

df = pd.DataFrame(X, columns=diabetes.feature_names)
sns.pairplot(df)
plt.show()

if np.any(np.isnan(X)):
    nan_indices = np.isnan(X)
    X[nan_indices] = np.nanmean(X, axis=0)[nan_indices]
```



```
X_train_60, X_test_60, y_train_60, y_test_60 = train_test_split(X, y, test_size=0.60, random_state=42)

X_train_80,X_test_80,y_train_80,y_test_80 = train_test_split(X, y, test_size=0.80, random_state=42)
```

```
scaler = StandardScaler()
X_train_60 = scaler.fit_transform(X_train_60)
X_test_60 = scaler.transform(X_test_60)
X_train_80 = scaler.fit_transform(X_train_80)
X_test_80 = scaler.transform(X_test_80)

knn = KNeighborsClassifier()
knn.fit(X_train_60, y_train_60)
y_pred_knn_60 = knn.predict(X_test_60)

knn.fit(X_train_80, y_train_80)
y_pred_knn_80 = knn.predict(X_test_80)
```

```
nb = GaussianNB()
nb.fit(X_train_60, y_train_60)
y_pred_nb_60 = nb.predict(X_test_60)

nb.fit(X_train_80, y_train_80)
y_pred_nb_80 = nb.predict(X_test_80)
```

```
accuracy_knn_80 = accuracy_score(y_test_80,y_pred_knn_80)
precision_score_knn_80 = precision_score(y_test_80,y_pred_knn_80)
recall_score_knn_80 = recall_score(y_test_80,y_pred_knn_80)
f1_score_knn_80 = f1_score(y_test_80,y_pred_knn_80)



accuracy_knn_60 = accuracy_score(y_test_60,y_pred_knn_60)
precision_score_knn_60 = precision_score(y_test_60,y_pred_knn_60)
recall_score_knn_60 = recall_score(y_test_60,y_pred_knn_60)
f1_score_knn_60 = f1_score(y_test_60,y_pred_knn_60)
```

```
accuracy_knn_80 = accuracy_score(y_test_80,y_pred_knn_80)
precision_score_knn_80 = precision_score(y_test_80,y_pred_knn_80)
recall_score_knn_80 = recall_score(y_test_80,y_pred_knn_80)
f1_score_knn_80 = f1_score(y_test_80,y_pred_knn_80)



accuracy_knn_60 = accuracy_score(y_test_60,y_pred_knn_60)
precision_score_knn_60 = precision_score(y_test_60,y_pred_knn_60)
recall_score_knn_60 = recall_score(y_test_60,y_pred_knn_60)
f1_score_knn_60 = f1_score(y_test_60,y_pred_knn_60)



accuracy_nb_80 = accuracy_score(y_test_80,y_pred_nb_80)
precision_score_nb_80 = precision_score(y_test_80,y_pred_nb_80)
recall_score_nb_80 = recall_score(y_test_80,y_pred_nb_80)
f1_score_nb_80 = f1_score(y_test_80,y_pred_nb_80)



accuracy_nb_60 = accuracy_score(y_test_60,y_pred_nb_60)
precision_score_nb_60 = precision_score(y_test_60,y_pred_nb_60)
recall_score_nb_60 = recall_score(y_test_60,y_pred_nb_60)
f1_score_nb_60 = f1_score(y_test_60,y_pred_nb_60)
```