Generate | Using ... | randomly select 5 items from a list | Close

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```
import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, classification_report
from sklearn.datasets import load_iris
```

```
df = pd.read_csv("/content/iris.zip", encoding = 'latin-1')
df.head()
```

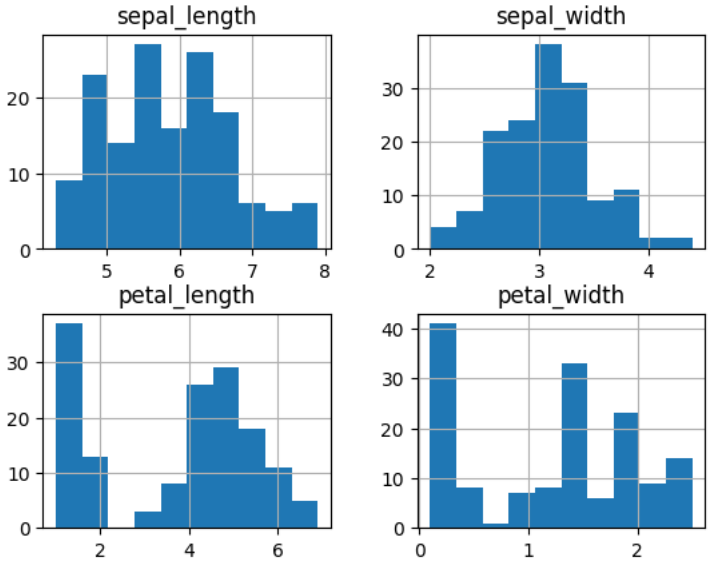
	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   sepal_length  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
 4   species       150 non-null    object
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

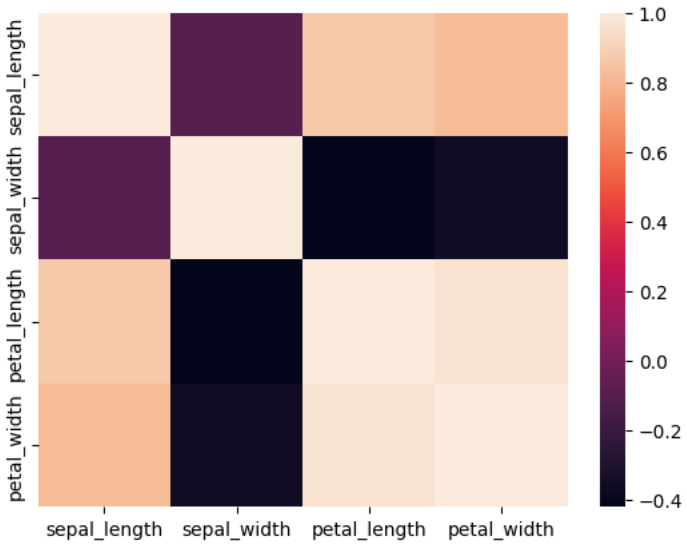
```
df.hist()
```

```
array([[<Axes: title={'center': 'sepal_length'}>,
        <Axes: title={'center': 'sepal_width'}>],
       [<Axes: title={'center': 'petal_length'}>,
        <Axes: title={'center': 'petal_width'}>]], dtype=object)
```




```
import seaborn as sns
sns.heatmap(df.corr())
```

```
<ipython-input-6-534f4f3c80b7>:2: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future vers
  sns.heatmap(df.corr())
<Axes: >
```




```
iris = load_iris()
data = pd.DataFrame(data= np.c_[iris['data'], iris['target']], columns= iris['feature_names'] + ['target'])
```

```
X = data.drop('target', axis=1)
y = data['target']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

```
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

```
k = 3
knn_classifier = KNeighborsClassifier(n_neighbors=k)
knn_classifier.fit(X_train_scaled, y_train)
```

```
KNeighborsClassifier
KNeighborsClassifier(n_neighbors=3)
```

```
y_pred = knn_classifier.predict(X_test_scaled)
```

```
accuracy = accuracy_score(y_test, y_pred)
report = classification_report(y_test, y_pred)

print(f"Accuracy: {accuracy}")
print("Classification Report:\n", report)
```

```
Accuracy: 1.0
Classification Report:
              precision    recall  f1-score   support

         0.0       1.00      1.00      1.00        10
         1.0       1.00      1.00      1.00         9
         2.0       1.00      1.00      1.00        11

    accuracy                           1.00        30
   macro avg       1.00      1.00      1.00        30
weighted avg       1.00      1.00      1.00        30
```