In [1]:
```
import pandas as pd
import numpy as np
```

In [2]:
```
data = pd.read_csv("C:\\Users\\amang\\Downloads\\advertising.csv")
```

In [3]:
```
data.head()
```

Out[3]:

| | TV | Radio | Newspaper | Sales |
|---|---|---|---|---|
| **0** | 230.1 | 37.8 | 69.2 | 22.1 |
| **1** | 44.5 | 39.3 | 45.1 | 10.4 |
| **2** | 17.2 | 45.9 | 69.3 | 12.0 |
| **3** | 151.5 | 41.3 | 58.5 | 16.5 |
| **4** | 180.8 | 10.8 | 58.4 | 17.9 |

In [4]:
```
data.isnull().sum()
```

Out[4]:
```
TV           0
Radio        0
Newspaper    0
Sales        0
dtype: int64
```

In [9]:
```
print(data.dtypes)
```

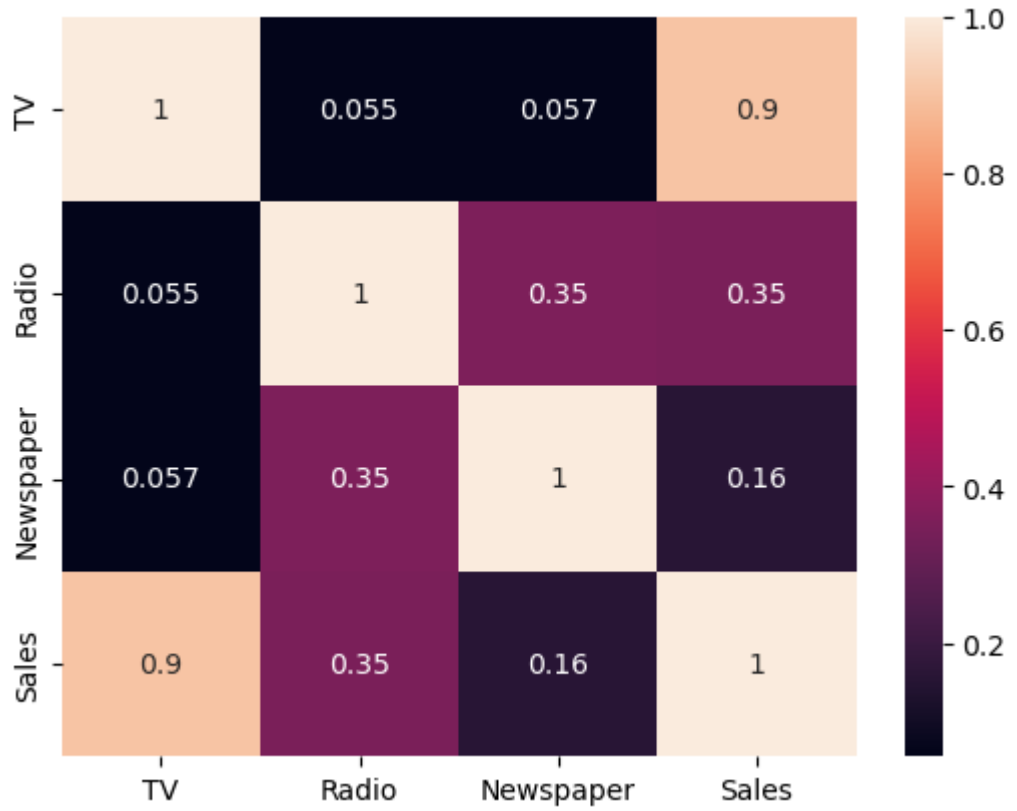
```
TV           float64
Radio        float64
Newspaper    float64
Sales        float64
dtype: object
```

In [10]:
```
import seaborn as sns
import matplotlib.pyplot as plt
```

```
C:\ProgramData\Anaconda3\lib\site-packages\scipy\__init__.py:155: UserWarnin
g: A NumPy version >=1.18.5 and <1.25.0 is required for this version of SciPy
(detected version 1.25.0
  warnings.warn(f"A NumPy version >={np_minversion} and <{np_maxversion}"
```

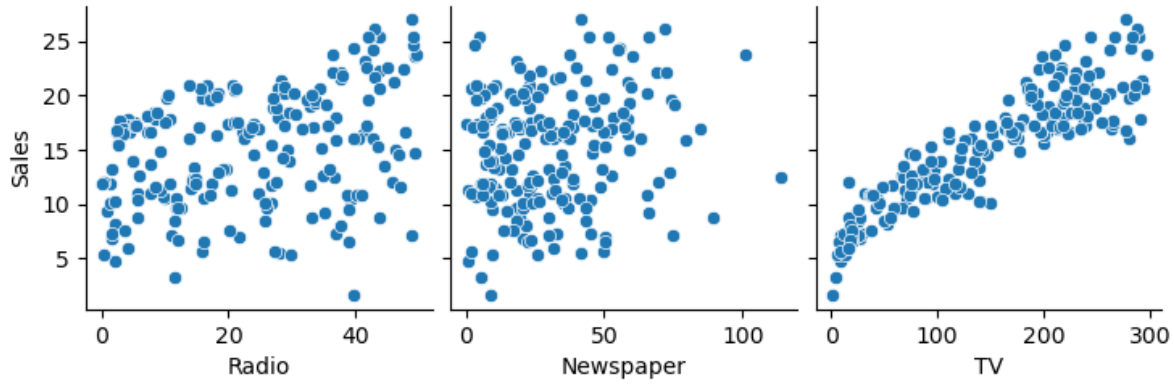
In [12]:
```
sns.heatmap(data.corr(), annot=True)
```

Out[12]: <AxesSubplot:>




In [16]:
```
sns.pairplot(data, x_vars=["Radio","Newspaper","TV"],y_vars="Sales")
```

Out[16]: <seaborn.axisgrid.PairGrid at 0x1817e806850>




In [19]:
```
from sklearn.model_selection import train_test_split
from sklearn.impute import SimpleImputer
from sklearn.metrics import accuracy_score
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error,r2_score, mean_absolute_error
```

In [20]:
```
X = data.drop(["Sales"],axis=1)
y = data["Sales"]
```

In [37]:
```
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.4,random_stat
```

In [38]:
```
model=LinearRegression()
```

In [40]:
```
model.fit(X_train,y_train)
```

Out[40]:
```
LinearRegression()
```

In [41]:
```
y_pred = model.predict(X_test)
mse = mean_squared_error(y_test,y_pred)
rmse = np.sqrt(mse)
print(mse)
print(rmse)
```

```
2.140264162566618
1.4629641699531188
```