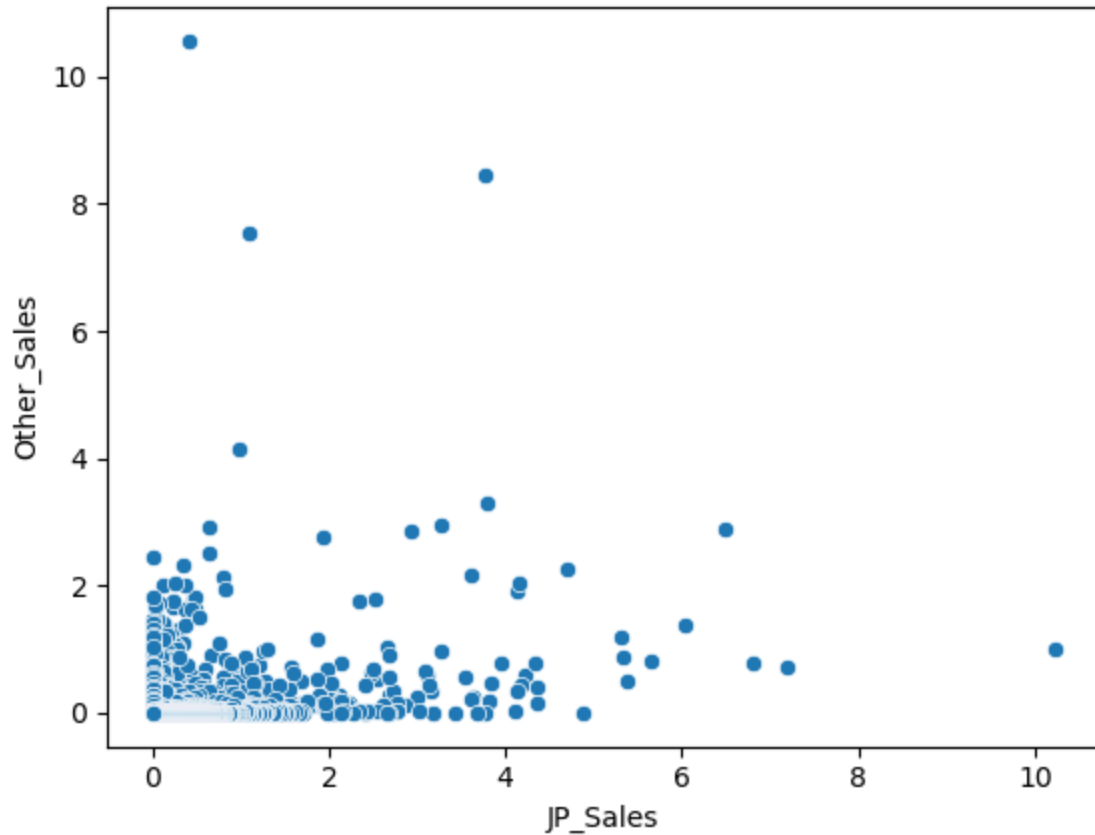


```
In [9]: 1 import numpy as np
        2 import pandas as pd
        3 import matplotlib.pyplot as plt
        4 import seaborn as sns
        5 from sklearn.cluster import KMeans
```

```
In [5]: 1 data = pd.read_csv('vgsales.csv', encoding = 'iso-8859-1')
```

```
In [6]: 1 sns.scatterplot(data = data, x = "JP_Sales", y = "Other_Sales")
```

```
Out[6]: <Axes: xlabel='JP_Sales', ylabel='Other_Sales'>
```



```
In [7]: 1 df2 = data[["JP_Sales", "Other_Sales"]].dropna()
        2 df2.head()
```

```
Out[7]:
```

	JP_Sales	Other_Sales
0	3.77	8.46
1	6.81	0.77
2	3.79	3.31
3	3.28	2.96
4	10.22	1.00

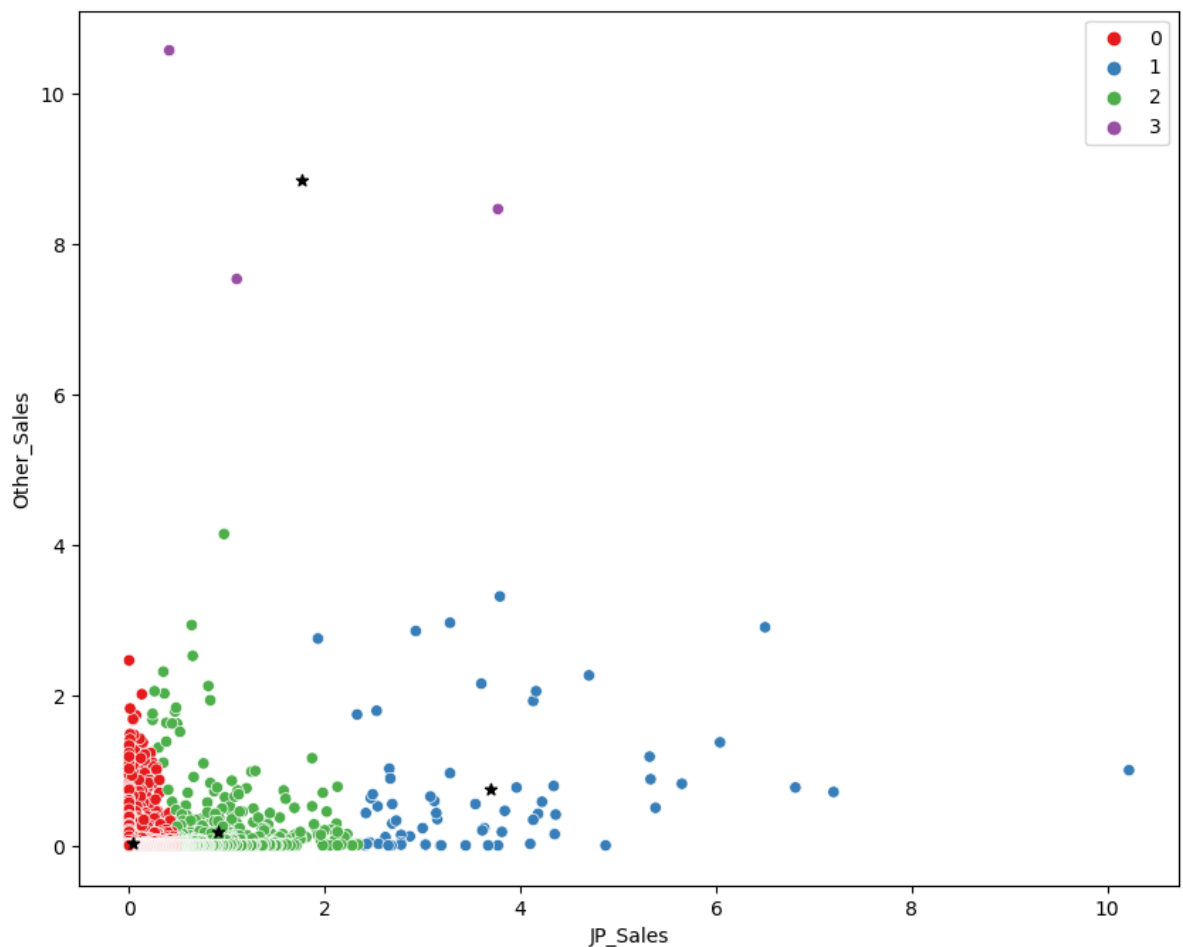
```
In [10]: 1 model = KMeans(n_clusters = 4, random_state = 0)
          2 model.fit(df2)
```

C:\Users\dekdo\anaconda3\Lib\site-packages\sklearn\cluster\\_kmeans.py:1412: FutureWarning: The default value of `n\_init` will change from 10 to 'auto' in 1.4. Set the value of `n\_init` explicitly to suppress the warning  
 super().\_check\_params\_vs\_input(X, default\_n\_init=10)

```
Out[10]: KMeans
KMeans(n_clusters=4, random_state=0)
```

```
In [12]: 1 plt.figure(figsize = [10, 8])
          2 sns.scatterplot(data = df2, x = "JP_Sales", y = "Other_Sales", hue = model
          3 plt.scatter(model.cluster_centers_[0], model.cluster_centers_[1], color
```

```
Out[12]: <matplotlib.collections.PathCollection at 0x1c877dab250>
```



```
In [13]: 1 model.predict([[0, 1],[2, 4]])
```

C:\Users\dekdo\anaconda3\Lib\site-packages\sklearn\base.py:464: UserWarning: X does not have valid feature names, but KMeans was fitted with feature names  
 warnings.warn(

```
Out[13]: array([0, 1])
```

In [ ]:

1