

# Perbandingan MLP dan LVQ



## Dataset: Video-Store

**1** **Terdiri dari 50 data**

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**2** **Memiliki 5 fitur**  
*Gender, Income, Age, Rentals, Average Visit,  
dan Incidentals*

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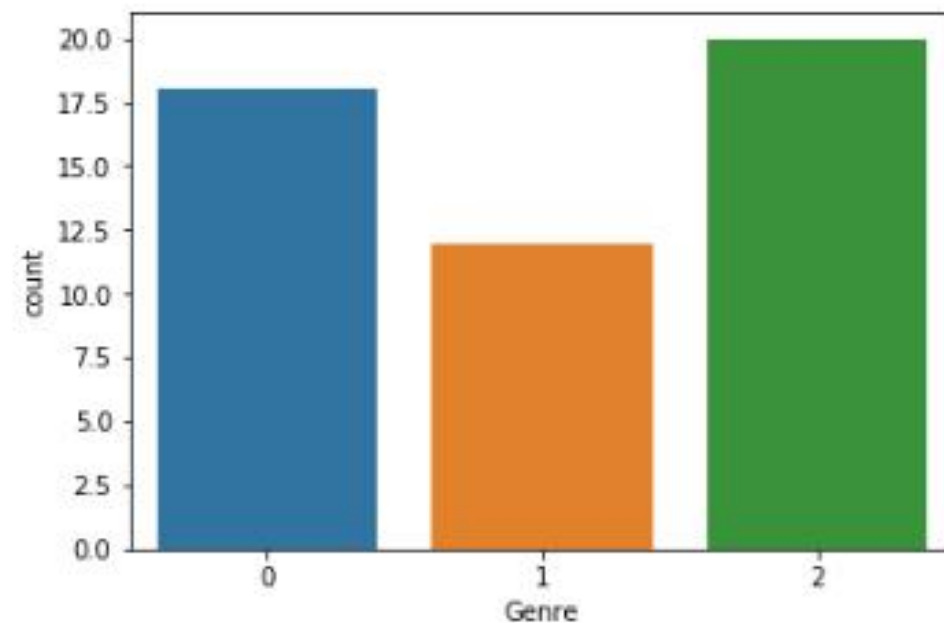
**3** **Memiliki 3 kelas target**  
*Target Action, Drama, dan Comedy*

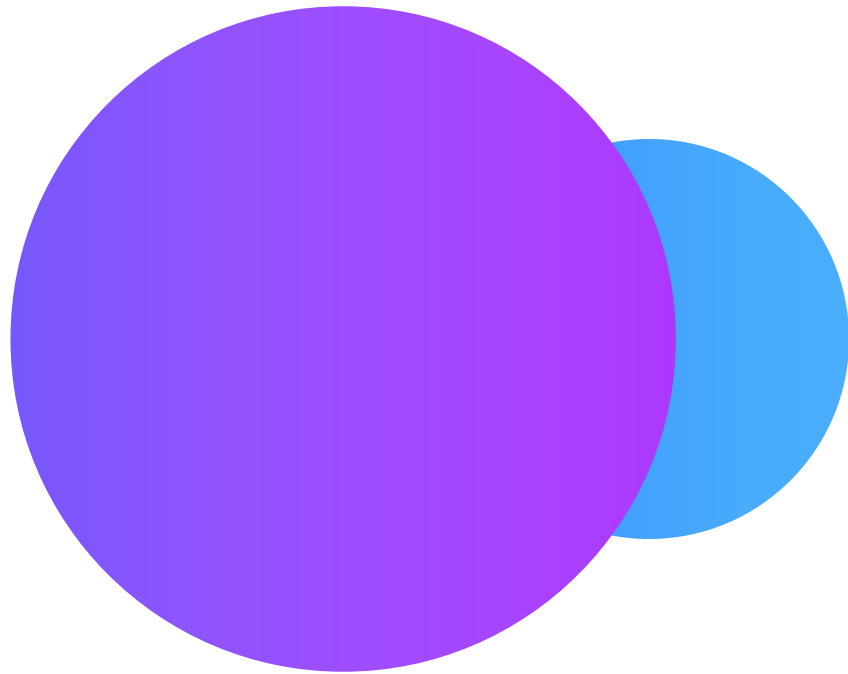
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## DATASET: VIDEO-STORE

	Gender	Income	Age	Rentals	Avg Visit	Incidentals	Genre
0	M	45000	25	27	2.5	Yes	Action
1	F	54000	33	12	3.4	No	Drama
2	F	32000	20	42	1.6	No	Comedy
3	F	59000	70	16	4.2	Yes	Drama
4	M	37000	35	25	3.2	Yes	Action





# Multi Layer Perceptron



## MULTI LAYER PERCEPTRON : SCORE

```
mlpmodel = MLPClassifier(hidden_layer_sizes=(20),max_iter=10000)

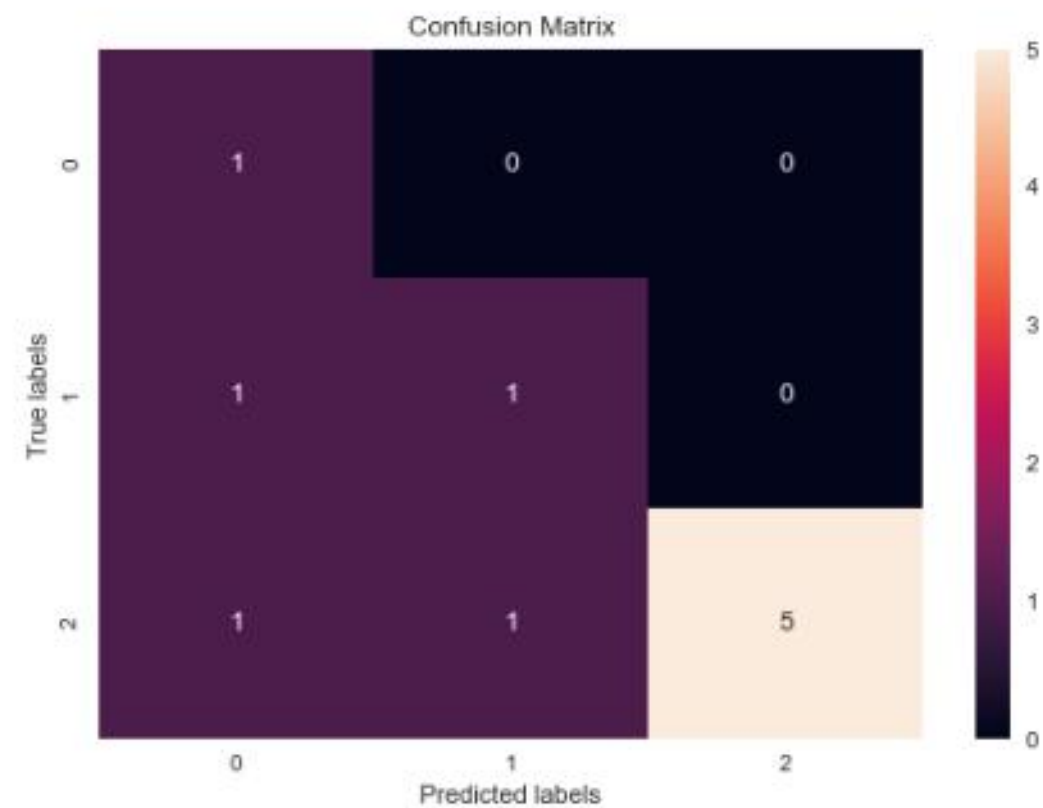
score = cross_val_score(mlpmodel, features, labels, cv=5)
print("CROSS VALIDATION SCORE : ",statistics.mean(score))

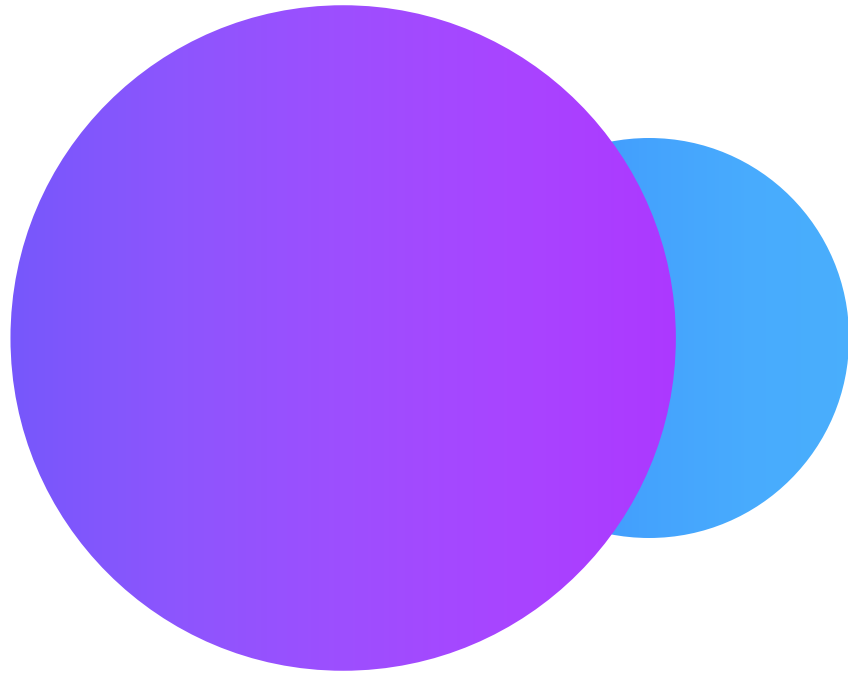
mlpmodel.fit(X_train,y_train)
print("TRAIN SCORE: ",mlpmodel.score(X_train,y_train))
print("TEST SCORE: ",mlpmodel.score(X_test,y_test))
```

```
CROSS VALIDATION SCORE :  0.4903030303030303
TRAIN SCORE:  0.95
TEST SCORE:  0.7
```

# MULTI LAYER PERCEPTRON : CLASSIFICATION REPORT

	precision	recall	f1-score	support
0	0.33	1.00	0.50	1
1	0.50	0.50	0.50	2
2	1.00	0.71	0.83	7
micro avg	0.70	0.70	0.70	10
macro avg	0.61	0.74	0.61	10
weighted avg	0.83	0.70	0.73	10





# Learning Vector Quantization



## LEARNING VECTOR QUANTIZATION : SCORE

```
lvqmodel = LVQ(n_components=3, epochs=10000)

score = cross_val_score(lvqmodel, features, labels, cv=5)
print("CROSS VALIDATION SCORE : ", statistics.mean(score))

lvqmodel.fit(X_train, y_train)
print("TRAIN SCORE: ", lvqmodel.score(X_train, y_train))
print("TEST SCORE: ", lvqmodel.score(X_test, y_test))
```

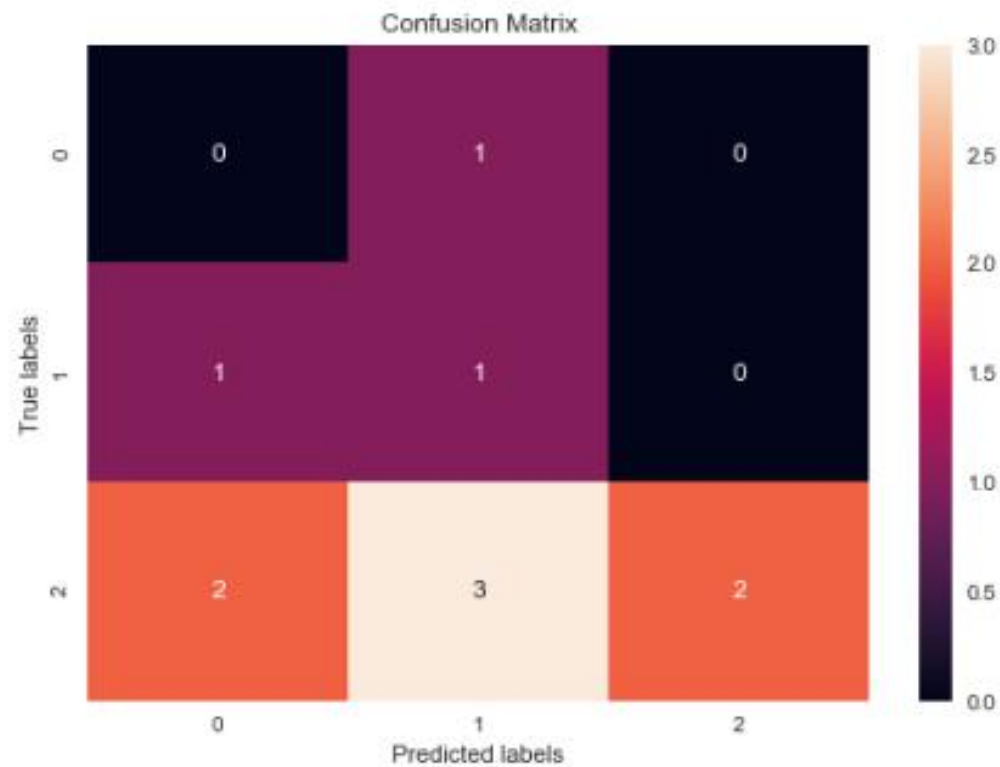
```
CROSS VALIDATION SCORE :  0.4818181818181818
TRAIN SCORE:  0.525
TEST SCORE:  0.3
```





# LEARNING VECTOR QUANTIZATION : CLASSIFICATION REPORT

	precision	recall	f1-score	support
0	0.00	0.00	0.00	1
1	0.20	0.50	0.29	2
2	1.00	0.29	0.44	7
micro avg	0.30	0.30	0.30	10
macro avg	0.40	0.26	0.24	10
weighted avg	0.74	0.30	0.37	10





## Kesimpulan

1

Pada dataset Video-Store arsitektur MLP menghasilkan performa yang lebih baik daripada LVQ

*MLP Train: 0.95                      Test : 0.7*

*LVQ Train: 0.525                      Test : 0.3*

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2

5-Fold Cross Validation pada kedua model menghasilkan hasil yang tidak jauh berbeda

*MLP : 0.4903030303030303*

*LVQ : 0.4818181818181818*

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**TERIMA KASIH**

Repository:

<https://github.com/vincentmichael089/ML-ANN/tree/master/2.MLP-LVQ%20Comparison>