Decision Tree Model

**General Information on dataset:**

|  |  |
| --- | --- |
| DataSet Name | Wine\_Quality\_Data |
| Number of Classes | 2 Classes (red . white) |
| Labels of classes | 2 labels ( 0:red , 1:white) |
| Total number of samples | 13 column , 6497 row |
| Number of samples in Training | 80% from dataset |
| Number of samples in Testing | 20% from dataset |

**Implementation Details:**

Features : **['fixed\_acidity', 'volatile\_acidity', 'citric\_acid', 'residual\_sugar', 'chlorides', 'free\_sulfur\_dioxide', 'total\_sulfur\_dioxide', 'density','pH', 'sulphates', 'alcohol', 'quality']**

Tareget : **['color']**

**Results Details:**

Accuracy of Decision Tree Classifier: 0.9815384615384616

Confusion Matrix as Array :

[[331 10]

[ 14 945]]

A graph of a number of blue squares

Description automatically generated with medium confidence

Roc Curve:

A graph with different colored lines

Description automatically generated

Decision Tree Model:

A diagram of a person

Description automatically generated

SVR Model

**General Information on dataset:**

|  |  |
| --- | --- |
| DataSet Name | California Housing Prices |
| Number of Classes | **5 Classes (<1H OCEAN, INLAND , NEAR OCEAN, NEAR BAY , ISLAND )** |
| Labels of classes | 5 labels ( 0:<1H OCEAN , 1:INLAND ,2:ISLAND,3:NEAR BAY,4:NEAR OCEAN) |
| Total number of samples | 10 column , 20640 row |
| Number of samples in Training | 80% from dataset |
| Number of samples in Testing | 20% from dataset |

**Implementation Details:**

Features : [**longitude**', **latitude**', **housing\_median\_age**, **total\_rooms**', '**total\_bedrooms**', **population**', **households**', **median\_income**', '**ocean\_proximity**']

Tareget : ["**median\_house\_value**"]

**Results Details:**

Cross-validated Mean Squared Error: 9862126012.890188

SVRModel Train Score is : 0.6611308596736698

SVRModel Test Score is : 0.6573523474925589

Mean Absolute Error: 46618.42177399719

Mean Squared Error: 4707815998.409549

data visualization:

A screenshot of a graph

Description automatically generated

Scatter plot

صورة تحتوي على نص, لقطة شاشة, تخطيط, رسم بياني

تم إنشاء الوصف تلقائياً

Artificial Neural Network Model

**Description:** Ai image classification/recognition of cats and dogs model using ANN

**General Information on dataset:**

|  |  |
| --- | --- |
| Name of dataset used | kagglecatsanddogs\_5340 |
| Number of classes and their labels | there are 2 classes, (1=dog, 0=cat) |
| Total number of samples | contains 25,000 images of dogs and cats |
| Dataset\_size | 786.7 MB |
| Number of samples used in training | 80% |
| Number of samples used in validation | 20% |
| Number of samples used in testing | 20% |

**Implementation Details:**

**How many features were extracted:** all features were extracted (pixels)

**Dimensions of resulted features:** 3D

**Hyperparameters of model:** model = keras.Sequential([

keras.layers.Flatten(input\_shape=(IMG\_SIZE, IMG\_SIZE, 3)),

keras.layers.Dense(265, activation='relu'),

keras.layers.Dense(128, activation='relu'),

keras.layers.Dense(2),

keras.layers.Softmax()

])

**model.compile(optimizer='adam', loss='sparse\_categorical\_crossentropy', metrics=['accuracy'])**

**model.fit(X\_train, y\_train, epochs=20,batch\_size=64,validation\_data=(X\_test, y\_test))**

**Results Details:**

Accuracy

A screenshot of a computer

Description automatically generated

Confusion Matrix

A screenshot of a computer

Description automatically generated





