



Modules



Grades



Inbox



Discuss



Calc

Graded
Assignment

9.4 - Decision Trees for
Classification - Iris
Video

AQ 9.4: Activity Question 4 - Not
Graded
Assignment

Practice Assignment 9.1 - Not
Graded
Assignment

Graded Assignment - 9 (PART - A)
Assignment

9.5 Confusion Matrix
Video

9.6 Accuracy
Video

9.7 Precision
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Graded Assignment - 9 (PART - A)

The due date for submitting this assignment has passed.

Due on 2024-03-27, 23:59 IST.

You may submit any number of times before the due date. The final submission will be considered for grading.

You have last submitted on: 2024-03-27, 23:11 IST

It is mandatory to use `sklearn.__version__ = 1.2.2` for solving all the questions

Instructions for Graded Questions 1-3

Load sklearn's Wine dataset.

Split the dataset into train and test set with 70:30 ratio with

```
1 random_state = 1
```

Use DecisionTreeClassifier with

```
1 random_state = 1
```

Hyperparameter tuning to be done over the following parameters:

-- Use criterion as 'entropy' or 'gini'

-- Use splitter as 'random' or 'best'

-- Use minimum number of samples per leaf as [2,4,6,8,10]

-- Use maximum depth as [3,4,5,6]

-- Use cross validation = 4

-- Train the 'model'

1) Enter the value of the 'score' on testing set.

0.907

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Range) 0.90,0.91

1 point

2) Enter the value of best max_depth of the model after training with GridSearchCV.

4

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Numeric) 4

1 point

3) Enter the value of best min_samples_leaf of the model after training with GridSearchCV

2

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Numeric) 2

1 point

Instructions for Graded Questions 4-7

Load sklearn's Diabetes dataset.

Split the dataset into train and test set with 70:30 ratio with

```
1 random_state = 1
```

Use DecisionTreeRegressor with

```
1 random_state = 1
```

and the following parameters:

-- Use criterion as 'squared_error'

-- Use splitter as 'random'

-- Use max_leaf_nodes= 10

-- Train the 'model' and compute the 'score' on training data and test data

4) Enter the value of the 'score' on training set.

0.592

0.5022

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Range) 0.5022 , 0.5042

1 point

5) Enter the value of the 'score' on testing set.

0.218

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Range) 0.2178 , 0.2198

1 point

6) What is the value of squared_error at the root node.

6302.895

Hint

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Range) 6300 , 6304

1 point

7) What is the ratio of number of samples in the left child node to the number of samples in the right child node of root (i.e., one level down the root node)?

0.183

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Range) 0.18 , 0.2

1 point

Instructions for Graded Questions 8-10

Load the diabetes dataset from sklearn.

Split the dataset into train and test set with 70:30 ratio with

```
1 random_state = 1
```

.

Use DecisionTreeRegressor with

```
1 max_depth = 4
```

and

```
1 random_state = 1
```

and other values being default.

Perform Hyperparameter tuning over the following parameters:

– Use criterion as ['squared_error', 'friedman_mse', 'absolute_error', 'poisson']

– Use splitter as 'random' or 'best'

– Use max number of features as [4,5,6,'sqrt', 'log2'],

– Use cost complexity pruning parameter as [0.001,0.01,0.02,0.05]

– Use cross validation = 4

8) Enter the value of the 'score' on testing set.

0.227

Yes, the answer is correct.

Score: 0

Accepted Answers:

(Type: Range) 0.20 , 0.24

0 points

9) Enter the value of the best ccp_alpha of the model after performing GridSearchCV.

0.001

Yes, the answer is correct.

Score: 0

Accepted Answers:

(Type: Range) 0 , 0.02

0 points

10) What is the value of the best max_features criteria after performing GridSearchCV?

1 point

- ☐ 4
- ☒ 5
- ☐ 6
- ☐ 'sqrt'
- ☐ 'log2'

Yes, the answer is correct.

Score: 1

Accepted Answers:

5