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Final Exam
Final Exam Instructions

1. Time allowed: **1 hour**

2. Attempts per question:

   - One attempt - For True/False questions

   - Two attempts - For any question other than True/False

3. Clicking the "**Final Check**" button when it appears, means your submission is **FINAL**. You will **NOT** be able to resubmit your answer for that question ever again

IMPORTANT: Do not let the time run out and expect the system to grade you automatically. You must explicitly submit your answers, otherwise they would be marked as incomplete.

Question 1

1/1 point (graded)
You can define Jaccard as the size of the intersection divided by the size of the union of two label sets.

- ◉ True ✔

- ○ False

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✔ Correct (1/1 point)

Question 2

1/1 point (graded)

When building a decision tree, we want to split the nodes in a way that increases entropy and decreases information gain.

○ True

● False ✔

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

Question 3

1/1 point (graded)

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☑ Supervised learning works on labelled data.

☐ A high value of K in KNN creates a model that is over-fit

☐ KNN takes a bunch of unlabelled points and uses them to predict unknown points.

☑ Unsupervised learning works on unlabelled data.

✔

| Submit | You have used 2 of 2 attempts |

✔ Correct (1/1 point)

Question 4

1/1 point (graded)

To calculate a model's accuracy using the test set, you pass the test set to your model to predict the class labels, and then compare the predicted values with actual values.

◉ True ✔

◯ False

| Submit | You have used 1 of 1 attempt |

✔ Correct (1/1 point)

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Which is the definition of entropy?

○ The purity of each node in a decition tree.

○ Information collected that can increase the level of certainty in a particular prediction.

○ The information that is used to randomly select a subset of data.

◉ The amount of information disorder in the data. ✔

Submit   You have used 2 of 2 attempts

✔ Correct (1/1 point)

Question 6

1/1 point (graded)

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point in another cluster ▼

○ Complete linkage is the shortest distance between a point in two clusters

○ Centroid linkage is the distance between two randomly generated centroids in two clusters

○ Single linkage is the distance between any points in two clusters

Submit   You have used 2 of 2 attempts

✔ Correct (1/1 point)

Question 7

1/1 point (graded)

The goal of regression is to build a model to accurately predict the continues value of a dependent variable for an unknown case.

⦿ True ✔

○ False

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

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apply)

☑ With linear regression, you can fit a line through the data.

☑ y=a+b_x1 is the equation for a straight line, which can be used to predict the continuous value y.

☐ In y=θ^T.X, θ is the feature set and X is the "weight vector" or "confidences of the equation", with both of these terms used interchangeably.

✔

Submit	You have used 2 of 2 attempts

✔ Correct (1/1 point)

Question 9

1/1 point (graded)

The Sigmoid function is the main part of logistic regression, where Sigmoid of $\theta{^\wedge}T.X$, gives us the probability of a point belonging to a class, instead of the value of y directly.

⦿ True ✔

◯ False

Submit	You have used 1 of 1 attempt

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In comparison to supervised learning, unsupervised learning has:

- ◉ Less tests (evaluation approaches) ✔
- ○ More models
- ○ A better controlled environment
- ○ More tests (evaluation approaches), but less models

Submit   You have used 2 of 2 attempts
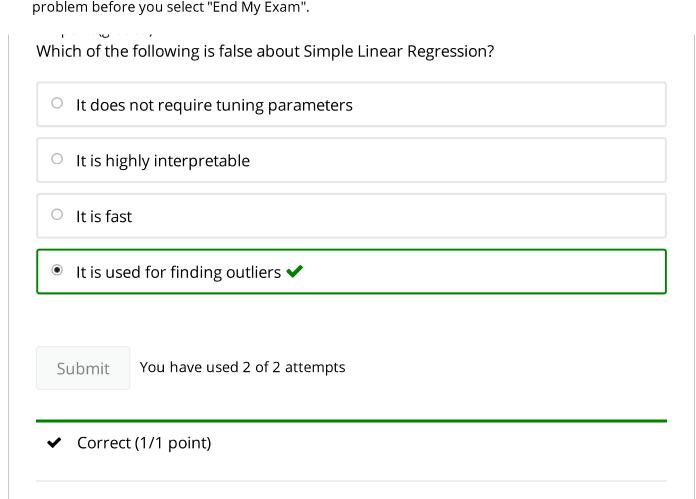
✔ Correct (1/1 point)

Question 11

1/1 point (graded)
The points that are classified by Density-Based Clustering and do not belong to any cluster, are outliers.

- ◉ True ✔
- ○ False

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

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Which of the following is false about Simple Linear Regression?

○ It does not require tuning parameters

○ It is highly interpretable

○ It is fast

◉ It is used for finding outliers ✔

Submit   You have used 2 of 2 attempts

✔ Correct (1/1 point)

Question 13

1/1 point (graded)

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part of artificial intelligence. ▼

○ Deep Learning is a branch of Artificial Intelligence where computers learn by being explicitly programmed.

○ Artificial Intelligence is a branch of Machine Learning that covers the statistical part of Deep Learning.

○ Artificial Intelligence is the branch of Deep Learning that allows us to create models.

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

Question 14

1/1 point (graded)

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☑ Regression

☑ KNN

☐ K-Means

☐ Clustering

✔

Submit	You have used 2 of 2 attempts

✔ Correct (1/1 point)

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more popular method than the Agglomerative method.

○ True

◉ False ✔

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

Question 16

1/1 point (graded)

Select all the true statements related to Hierarchical clustering and K-Means.

☑ Hierarchical clustering does not require the number of clusters to be specified.

☐ Hierarchical clustering always generates different clusters, whereas k-Means returns the same clusters each time it is run.

☑ K-Means is more efficient than Hierarchical clustering for large datasets.

✔

Submit   You have used 2 of 2 attempts

✔ Correct (1/1 point)

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○ Content-based recommendation system tries to recommend items to the users based on their profile built upon their preferences and taste. ✔

○ Content-based recommendation system tries to recommend items based on similarity among items.

○ Content-based recommendation system tries to recommend items based on the similarity of users when buying, watching, or enjoying something.

Submit   You have used 1 of 1 attempt

✔ Correct (1/1 point)

Question 18

1/1 point (graded)
Before running Agglomerative clustering, you need to compute a distance/proximity matrix, which is an n by n table of all distances between each data point in each cluster of your dataset.

◉ True ✔

○ False

Submit   You have used 1 of 1 attempt

Correct (1/1 point)

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Which of the following statements are true about DBSCAN? (Select all that apply)

☑ DBSCAN can be used when examining spatial data.

☑ DBSCAN can be applied to tasks with arbitrary shaped clusters, or clusters within clusters.

☐ DBSCAN is a hierarchical algorithm that finds core and border points.

☑ DBSCAN can find any arbitrary shaped cluster without getting affected by noise.

✔

Submit   You have used 2 of 2 attempts

✔ Correct (1/1 point)

Question 20

1/1 point (graded)

In recommender systems, "cold start" happens when you have a large dataset of users who have rated only a limited number of items.

○ True

◉ False ✔

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✔ Correct (1/1 point)

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