You are taking "Final Exam" as a timed exam. The timer on the right shows the time remaining in the exam.

End My Exam **0:36:19**

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)

You can define Jaccard as the size of the intersection divided by the size of the union of two label sets.

- (•) True ✔
- ( ) False

You have used 1 of 1 submissions

QUESTION 2 (1/1 point)

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

- ( ) True
- (•) False ✔

QUESTION 3 (1/1 point)

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

- [x] K needs to be initialized in K-Nearest Neighbor.
- [x] 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.
- [x] Unsupervised learning works on unlabelled data.

✔

You have used 2 of 2 submissions

QUESTION 4 (1/1 point)

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

You have used 1 of 1 submissions

QUESTION 5 (1/1 point)

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. ✔

You have used 2 of 2 submissions

QUESTION 6 (1/1 point)

Which of the following is true about hierarchical linkages?

- ◉ Average linkage is the average distance of each point in one cluster to every 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

You have used 2 of 2 submissions

QUESTION 7 (1/1 point)

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

QUESTION 8 (1/1 point)

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

- [x] With linear regression, you can fit a line through the data.
- [x] 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.

✔

You have used 2 of 2 submissions

QUESTION 9 (1/1 point)

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

- (•) True ✔
- ( ) False

You have used 1 of 1 submissions

QUESTION 10 (1 point possible)

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

You have used 2 of 2 submissions

QUESTION 11 (1/1 point)

The points that are classified by Density-Based Clustering and do not belong to any cluster, are outliers.

- ◉ True ✔
- ○ False

You have used 1 of 1 submissions

QUESTION 12 (1/1 point)

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 ✔

You have used 2 of 2 submissions

QUESTION 13 (1/1 point)

Which one of the following statements is the most accurate?

- ◉ Machine Learning is the branch of AI that covers the statistical and learning part of artificial intelligence. ✔
- ○ Deep Learning is a branch of Artificial Intelligence where computers learn by being explicitely 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.

You have used 1 of 1 submissions

QUESTION 14 (1/1 point)

Which of the following are types of supervised learning?

- [x] Classification
- [x] Regression
- [x] KNN
- [ ] K-Means
- [ ] Clustering

✔

You have used 2 of 2 submissions

QUESTION 15 (1/1 point)

A Bottom-Up version of hierarchical clustering is known as Divisive clustering. It is a more popular method than the Agglomerative method.

- ○ True
- ◉ False ✔

You have used 1 of 1 submissions

QUESTION 16 (1/1 point)

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

- [x] 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.
- [x] K-Means is more efficient than Hierarchical clustering for large datasets.

✔

You have used 2 of 2 submissions

QUESTION 17 (1 point possible)

What is a content-based recommendation system?

- ○ 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.

You have used 1 of 1 submissions

QUESTION 18 (1/1 point)

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

You have used 1 of 1 submissions

QUESTION 19 (1/1 point)

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.

✔

You have used 2 of 2 submissions

QUESTION 20 (1/1 point)

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 ✔

You have used 1 of 1 submissions