You are taking "Final Exam" as a timed exam. The timer on the right shows the time remaining in the exam. To receive credit for problems, you must select "Submit" for each problem before you select "End My Exam".

End My Exam 0:34:22

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

Submit You have used 1 of 1 attempt

✔ 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)

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

- ☑ K needs to be initialized in K-Nearest Neighbor.
- ☑ 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 1 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)

Question 5

1/1 point (graded)

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 1 of 2 attempts

✔ Correct (1/1 point)

Question 6

1/1 point (graded)

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

Submit You have used 1 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)

Question 8

1/1 point (graded)
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.

✔

Submit You have used 1 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 θ^$T.X$, 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

✔ Correct (1/1 point)

Question 10

1/1 point (graded)

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 1 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)

Question 12

1/1 point (graded)

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 1 of 2 attempts

✔ Correct (1/1 point)

Question 13

1/1 point (graded)

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.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Question 14

1/1 point (graded)

Which of the following are types of supervised learning?

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

✔

Submit You have used 1 of 2 attempts

✔ Correct (1/1 point)

Question 15

1/1 point (graded)

A Bottom-Up version of hierarchical clustering is known as Divisive clustering. It is a 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.

- [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.

✔

Submit You have used 1 of 2 attempts

✔ Correct (1/1 point)

Question 17

1/1 point (graded)
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.

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)

Question 19

1/1 point (graded)
Which of the following statements are true about DBSCAN? (Select all that apply)

- [x] DBSCAN can be used when examining spatial data.
- [x] 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.
- [x] DBSCAN can find any arbitrary shaped cluster without getting affected by noise.

✔

Submit You have used 1 of 2 attempts

✔ Correct (1/1 point)

Question 20

0/1 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

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)