Status	Finished
Started	Monday, 10 March 2025, 5:42 PM
Completed	Monday, 10 March 2025, 5:54 PM
Duration	11 mins 28 secs
Grade	**5.00** out of 5.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

Select the FALSE statements w.r.t Feature Crossing:

1. It is the process of creating new features by combining or crossing existing features.
2. It is limited to numerical features, and has no use when applied to categorical features.
3. As the number of crossed features increases, it becomes easier to interpret the individual impact of each feature on the model's output.
4. Domain knowledge and experimentation are valuable in identifying meaningful feature interactions.

- Only 2
- Both 2 and 3 ✓
- Both 3 and 4
- Both 2 and 4

Your answer is correct.

Feature Crossing is the process of creating new features by combining or crossing existing features. It is not limited to numerical features, and can also be applied to categorical features.

As the number of crossed features increases, it becomes challenging to interpret the individual impact of each feature on the model's output.

Domain knowledge and experimentation are valuable in identifying meaningful feature interactions.

The correct answer is:
Both 2 and 3

Question 2

Correct

Mark 1.00 out of 1.00

Match the following techniques, used for encoding categorical features, with their descriptions:

Technique	Description
a. Ordinal Encoding	**i.** Assigns a unique numerical label to each category
b. Binary Encoding	**ii.** Creates n-1 features for n categories
c. Label Encoding	**iii.** Represents each category as a binary code
d. One-Hot Encoding	**iv.** Assigns numerical values to categories based on their rank

- a-iii, b-ii, c-i, d-iv
- a-iv, b-iii, c-i, d-ii ✓
- a-i, b-iii, c-iv, d-ii
- a-i, b-ii, c-iii, d-iv

Your answer is correct.

- One-Hot Encoding: Creates separate binary columns for each category. If there are n categories, it typically creates n−1 features to avoid multicollinearity in machine learning models. Each row has a 1 in the column corresponding to its category and 0 elsewhere.
- Label Encoding: Assigns a unique numerical label to each category. This method is useful for ordinal data but can introduce unintended relationships in nominal data.
- Ordinal Encoding: Assigns numerical values to categories based on their rank or order, making it suitable for ordinal data where the sequence matters.
- Binary Encoding: Converts each category into binary representation, reducing dimensionality compared to one-hot encoding while still preserving categorical information

The correct answer is:
a-iv, b-iii, c-i, d-ii

Question 3

Correct

Mark 1.00 out of 1.00

Why might continuous positional embeddings be preferred over discrete positional embeddings?

- They explicitly learn positional relationships during training
- They increase the number of parameters, improving model accuracy
- They provide a fixed, smooth representation that generalizes well across different sequence lengths ✓
- They require a unique embedding for each position, making them more precise

Your answer is correct.

Continuous positional embeddings use mathematical functions like sine and cosine to create smooth, continuous representations. They do not change during training, and their fixed nature makes them more memory-efficient and generalizable across different sequence lengths

The correct answer is:
They provide a fixed, smooth representation that generalizes well across different sequence lengths

Question 4

Correct

Mark 1.00 out of 1.00

Perturbation tests and invariance tests are used to evaluate ML models before deployment.

- True ✓
- False

Your answer is correct.

The correct answer is:
True

Question 5

Correct

Mark 1.00 out of 1.00

Non-neural network algorithms tend to be more explainable than deep learning models

- True ✓
- False

Your answer is correct.

The correct answer is:
True