BitWith Bite

AI & MACHINE LEARNING WORKSHEET

Feature Engineering

Chapter: AI & Machine Learning · Level ★★☆ · Time: 30 min

SCORE ___ / 20

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

✓ Create informative features ✓ Handle missing values ✓ Encode dates and text ✓ Feature selection basics

Section A · Concept Check • BEGINNER 4 × 1 = 4

1 Feature engineering means:

- ◯ A. crafting better model inputs
- ◯ B. buying GPUs ◯ C. more epochs
- ◯ D. bigger disks

2 Missing numeric values are often filled with:

- ◯ A. median/mean ◯ B. zero always
- ◯ C. random text ◯ D. deletion always

3 From a date you can extract:

- ◯ A. day-of-week, month, is-weekend ◯ B. pixels
- ◯ C. colors ◯ D. IP

4 Too many useless features cause:

- ◯ A. overfitting/noise ◯ B. speedups
- ◯ C. clarity ◯ D. nothing

Section B · Problem Solving • INTERMEDIATE 2 + 3×3 = 11

5 Filling missing values is called _____.

6 price_per_sqft = price / area is a _____ feature.

7 Three features from a raw timestamp?

_____

8 Impute income sensibly - how and why?

_____

9 Why can great features beat fancier models?

_____

Section C · Challenge • CHALLENGE 5

10 One risky feature practice?

_____

Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 Total ___/20

Teacher's Signature

Parent's Signature

✂ ANSWER KEY — FOLD OR CUT BEFORE HANDING OUT

1-A 2-A 3-A 4-A | 5 imputation 6 derived/ratio 7 = Hour, weekday, is_weekend (also month/holiday) 8 = Median - robust to outliers vs mean 9 = Models can only use signal present in inputs | 10 = Using future/target-derived info (leakage)