**calculate\_entropy**

import math

from collections import Counter

def calculate\_entropy(data):

"""

Calculate the Shannon entropy of the input data.

Parameters:

- data: list or string of discrete symbols

Returns:

- entropy: float

"""

if not data:

return 0.0

counter = Counter(data)

total = len(data)

entropy = 0.0

for count in counter.values():

p = count / total

entropy -= p \* math.log2(p)

return entropy

# Example usage

if \_\_name\_\_ == "\_\_main\_\_":

sample = ['BUY', 'SELL', 'BUY', 'BUY', 'SELL', 'HOLD']

entropy = calculate\_entropy(sample)

print(f"Entropy: {entropy:.4f}")