Python Problems: Categorical Data

Problem 1: Basic Label Encoding  
Given a list of categorical values ['low', 'medium', 'high', 'low'], encode them using label encoding.

Problem 2: One-Hot Encoding with Pandas  
Convert a list of categorical values ['red', 'blue', 'green', 'blue'] into one-hot encoded variables using pandas.

Problem 3: Filling Missing Categorical Values  
Given a column with categorical values ['A', 'B', 'A', None, 'C', 'A', None], fill missing values with the mode (most frequent value).

Problem 4: Frequency Encoding  
Replace the categorical values ['A', 'B', 'A', 'C', 'B', 'A'] with their frequency counts.

Problem 5: Combining Rare Categories  
Given a list of categorical values ['A', 'B', 'A', 'C', 'D', 'A', 'D', 'C'], combine categories that occur fewer than 2 times into a new category called 'Other'.

Problem 6: Inverse Label Encoding  
Given a list of encoded values [0, 1, 2, 0], decode it back into ['A', 'B', 'C', 'A'].

Problem 7: Mapping Categories  
Given a column of values ['small', 'medium', 'large'], map them to ['S', 'M', 'L'] using a

Problem 8: Ordinal Encoding  
Encode the categorical list ['cold', 'warm', 'hot'] into ordinal values, where 'cold' < 'warm' < 'hot'.