Advanced Topics in Databases
Exercise 6

Task 1 Classify BitWeaving, Column Imprints based on the following features:
- storage structure vs access path
- one- vs multi-dimensional

Explain your categorization.

Task 2 Given the following data set
\[ C = [1, 0, 0, 1, 2, 3, 2, 3, 1, 0, 2, 3] \]
(a) Build BitWeaving/H for the given data set. Assume a word size of 8-bit. What is the storage saving compared to storing each value as an 8-bit value?
(b) Execute the query \( C < 1 \) and create the resulting bit mask.

Task 3 Given the following data set:
\[ C = [1, 0, 0, 1, 2, 3, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3] \]
(a) Build BitWeaving/V for the given data set. Assume a word size of 8-bit. What is the storage saving compared to storing each value as an 8-bit value?
(b) Execute the query \( C < 1 \) and create the resulting bit mask.
(c) Where is an early pruning possible?

Good Luck!