Advanced Topics in Databases
Exercise 3

1. Why is lightweight data compression so important, especially for main-memory DBMSs? Explain the basic principle of dictionary encoding? Use a self-chosen example. Explain how dictionary encoded data can be processed without decompressing it!

2. Explain and compare different materialization strategies for column-stores. What are their advantages?

3. What alternative design consideration can be made when designing a main-memory DBMS for OLTP?
   Why? What are the benefits?

4. Explain the delta store concept? What is the basic idea? Why can it be used to efficiently support mixed OLTP/OLAP workloads?

Good Luck!