Task 1 Discuss advantages and disadvantages of randomized approaches for join-order optimization compared to deterministic approaches.
Why are randomized approaches need in practice?

Task 2 Which problem does the iterative Improvement have?
How can this problem be solved?

Task 3 How can the join order be encoded within genetic algorithms?
Which properties do mutation and crossover operations need to fulfill with respect to this encoding?

Task 4 Programming Project
(a) Present your code and explain your concept for implementing the compression techniques. Discuss alternative implementations.
(b) The unit tests of the programming task have generated random data.
How efficient are the implemented compression techniques for this case? In which case do the implemented compression techniques provide a better compression rate? Why?
(c) What have you learned by implementing the compression techniques. What would you do differently in future projects?

Good Luck!