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Exercise No. 4

Algorithms and Methods for Distributed Storage

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Exercise 7 *Compute the inverse matrix over $GF[2]$ of*

$$\begin{pmatrix} 0 & 1 & 1 \\ 1 & 1 & 0 \\ 0 & 1 & 0 \end{pmatrix}$$

using the Gaussian elimination method.

Exercise 8 *Consider the Liberation Code for a RAID-6 system with 5 hard disks (three data words and two check words). The word length is three bits.*

1. Give the full $GF[2]$ matrix to compute P and Q.
2. Compute P and Q for the inputs $D_0 = 010, D_1 = 011, D_2 = 100$.
3. Now the hard disks with D_1 and D_2 are not available. Compute their contents based on the knowledge $D_0 = 000$, $P = 110$, $Q = 111$.