Language Models and Evaluation of IR Systems

Please note: Even though the homework assignments are optional and will be neither corrected nor graded, you are encouraged to answer them, as they will help you prepare for your final exam. Send your homework by email to: usman@ifis.cs.tu-bs.de. Please write your solutions in English. Due date: before the next lecture. Please do not forget your **Matrikelnummer** and your **full name** on your solutions.

1. (Probabilistic Ranking Principle)
   Discuss and explain: How can user-feedback influence the ranking of the result set?

2. (Indexing-1)
   Referring to the document collection discussed in the fourth lecture: Indexing. Compute the number of bits that are required to store the eighth index term, namely the term: old for the following index representations:
   a) Fixed-bit code.
   b) Elias gamma bit code.
   c) Elias gamma bit code with stored gaps.
3. Indexing-2
   To make your index efficient, the number of disk accesses should be kept minimal, how can this be attained? Apply the proposed operation on the index representation you built in Exercise 2.c for the term: old.