Assignment 1: Classify the index structures discussed in the lecture!

Assignment 2: Define the properties of an ideal index for data warehouses.

Assignment 3: Compare the resource consumption of B+- and standard bitmap indexes for the following data:

1. number of tuples: 5000000; number of key values: 100; resource consumption for 1 TID in Byte: 1;
2. number of tuples: 5000000; number of key values: 3; resource consumption for 1 TID in Byte: 1;
3. number of tuples: 5000000; number of key values: 3; resource consumption for 1 TID in Byte: 4;

Assignment 4: Transform the postal code 39106 into a bitmap index using the Standard-Bitmap-Index and the Multi-Component-Bitmap-Index. How can Bitmap-Indexes be used to support range queries for postal codes?

Assignment 5: Construct a R-Tree for the following data. Insert the data in the order of the given list. A node has at most 3 entries, thus a MBR is described. Outline the insertion process. Assume an approach to minimize the number of boxes.

(10 Z), (20 K), (30 A), (40 L), (50 M), (60 N), (70 D), (80 X)

Assignment 6: What is a Gridfile? How is it created? Which are its advantages compared to tree based approaches? Use the information of exercise 5 to create a grid file.

Assignment 7: Describe the functional principle of kd-Trees.

Assignment 8: What is a join index?