



Exercises for  
Database Implementation  
TUM



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### Assignment 4

#### Info

- Send an email with information about your git repository or send your submission as a zip or tar.gz file to Viktor.Leis@in.tum.de by 27 May 2014, 10:00am.

#### Exercise 1

Implement a B<sup>+</sup>-Tree index for your database system on top of the segments. Your tree should ...

...support different (opaque) key<sup>1</sup> types. Parameterize the B<sup>+</sup>-Tree with a key type and a comparator. You can assume that all key types have fixed length.

...offer the following **reentrant** operations (using lock-coupling)

- **insert** Inserts a new key/TID pair into the tree.
- **erase** Deletes a specified key. You may simplify the logic by accepting underfull pages.
- **lookup** Returns a TID or indicates that the key was not found.

Use the concurrency control techniques from the slides “Concurrent Access (2)” and “Concurrent Access (3)”.

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<sup>1</sup>Your tree does not need to support non-unique entries.