README

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/*****************************************************************************/
/*                                                                           */
/*    The Multilevel Grid File (MLGF)                                        */
/*    Version 4.0                                                            */
/*                                                                           */
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/*                                                                           */
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/*                                                                           */
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Introduction
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MLGF 4.0 is an implementation of the Multilevel Grid File, which is a dynamic
multidimensional hashed file organization. The Multilevel Grid File (MLGF)
dynamically modifies its structure by means of splitting and merging. It is a
point data structure where an n-dimensional maximum bounding rectangle (MBR)
can be represented as a 2n-dimensional point through corner transformation.
Compared with R* tree, MLGF 4.0 provides significantly faster (approx. 3 times)
performance for insert, faster performance for delete (approx. 30%), and
comparable performance for search.
MLGF 4.0 has following features:
 (1) Creating an MLGF
 (2) Opening an MLGF for reading or writing
 (3) Closing an open MLGF
 (4) Inserting a record into the MLGF
 (5) Deleting a record from the MLGF
 (6) Retrieving records in a given region from the MLGF


Directory structures
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$(MLGF_HOME_DIR) contains following directories:
        ./bin           : contains executable files of useful tools for MLGF (cr
eated by compiling the tools).
        ./doc           : contains documents of MLGF
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        ./example       : contains the example program that uses the MLGF API.
        ./include       : contains the MLGF header file (craeted by compiling ML
GF).
        ./lib           : contains the MLGF library file (craeted by compiling M
LGF).
        ./src           : contains the MLGF source files.
        ./test          : contains the program that generates various datasets t
o test MLGF.
        ./tool          : contains source files of useful tools for MLGF.


How to compile the MLGF
-----------------------------
1. (Optional) Compile DsM and BfM to use the buffer manager.
        1-1. cd $(MLGF_HOME_DIR)/src/DsM
        1-2. make clean; make
        1-3. cd $(MLGF_HOME_DIR)/src/BfM
        1-4. make
2. Compile the MLGF
        1-1. cd $(MLGF_HOME_DIR)/src/MLGF
        1-2. make clean; make (* if you want to use the buffer manager, modify M
akefile to use the option -DMBR_MLGF_BUFFER.)
        1-3. make install


How to compile useful tools for MLGF
-----------------------------
1. cd $(MLGF_HOME_DIR)/tool
2. make
3. make install


How to compile your program that uses the MLGF API
-----------------------------
1. In your source files that use the MLGF API, include the MLGF header file as f
ollows:
        #include "mlgf.h"
2. Compile the source files with following including and linking option:
        -I$(MLGF_HOME_DIR)/include -L$(MLGF_HOME_DIR)/lib -lmlgf
```