AM Layer System Report

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1. Environment

Ubuntu and Windows WSL

2. Compile method

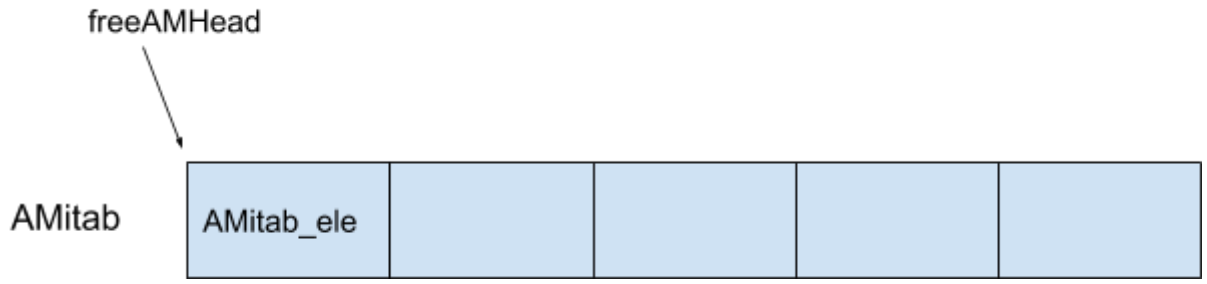
make

- It uses libpf-Moon.a and libbf-Moon.a which might be different from test environment, so it must be changed
- Added -no-pie flag so that it will compile

3. File Structure

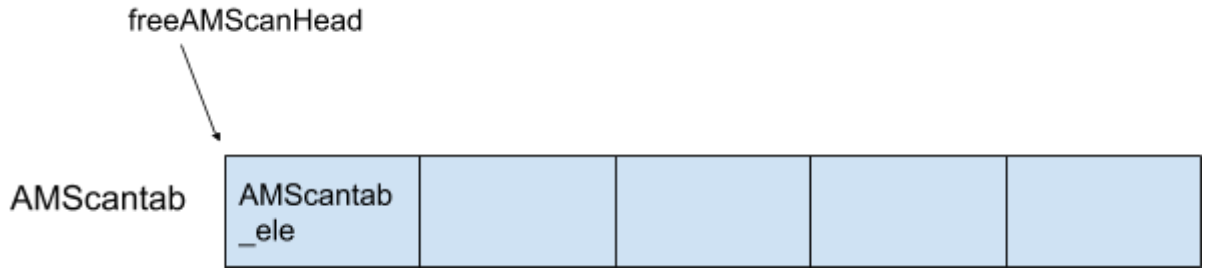
Am.c - contains implementations for am.h
Aminternal.h - contains prototypes for functions that are used in am.c
Aminternal.c - contains implementations for functions in aminternal.h
amHash.h - contains prototypes for hashing with filenames
amHash.c - contains implementations for hashing

4. Data Structures



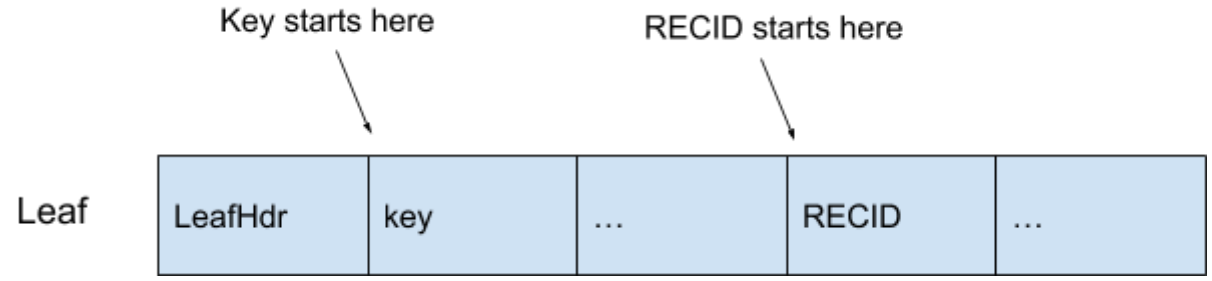
AM index table

- Contains open index files
- Does not prevent opening file with the same name



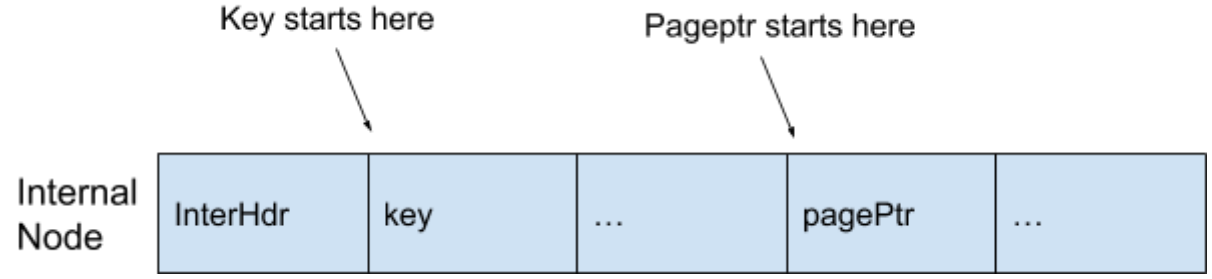
AM Scan table

- Contains scan table elements
- Does not prevent opening file with the same name



Leaf Node

- Contains whether it is leaf or not/ number of keys
- Contains info about previous and next leaf
- Contains recid of the keys



Internal nodes

- Contains whether it is leaf or not / number of keys
- Contains pointer to pages (which is just integer)

5. Implementations

aminternal.c/AMcmp

- Compares value according to attrType

aminternal.c/BtreeIns

- Inserts into Btree
- Checks if root is full
- If full, splits the root. Else, calls BtreeInsNonFull

aminternal.c/BtreeInsNonFull

- Assumes that the the node is not full
- If it was full the node must be split
- Checks if the child is full. If full, split.

aminternal.c/splitChild

- Splits child
- Although split point is usually the middle, if the middle divides between records with same values, it might adjust splitting point

aminternal.c/findNext

- Find next record from the leaf satisfying op

- Checks from left to right

aminternal.c/BtreeSearchOp

- Tries to find the value from root then utilizes findNext function to find the matching record

aminternal.c/BtreeDelete

- Find the record with matching key using btreeSearchOP
- If the record is not the same, use findNext function to find the next value with the same value