Database System Implementation   Report

GROUP MEMBER NAMES

Individual Project

RUNNING THE CODE

Run Main (main.cc)
make main
./main

Run Test (test.cc)
make test.out
./test.out

Run gtest (dbfile_test.cc)
make dbfile_test.out
./dbfile_test.out

Function Description

1. Create
2. Open
3. EnableWriteMode
4. EnableReadMode
5. GetNext
6. GetNext with CNF
7. MoveFirst
8. Add
9. Load
10. Close

TEST.OUT RESULTS

TPCH Data Size = 1GB

Test 1:
Time: 2530.14 ms
Record Count: 582
Table: LineItem

CNF: (l_quantity > 5.00) AND (l_quantity < 100.00) AND (l_shipmode = 'AIR') AND (l_discount > 0.04) AND (l_tax > 0.07) AND (l_receiptdate > '1996-01-01') AND (l_receiptdate < '1996-02-01')

Test 2:

```
selected Records: 14309 recs
Time: 591.594 ms
Table: Part
CNF:(p_partkey > 1995) AND (p_retailprice > 1900.00) AND
(p_size < 35)
```

```
ubuntu@primary:~/Home/Desktop/UFL/1st Semester/Database Information System/Project/Project-1/src$ ./test.out

** IMPORTANT: MAKE SURE THE INFORMATION BELOW IS CORRECT **
 catalog location:      catalog
 tpch files dir:        ./temp/
 heap files dir:        ./temp/


 select test:
        1. load file
        2. scan
        3. scan & filter
        3

 select table:
        1. nation
        2. region
        3. customer
        4. part
        5. partsupp
        6. orders
        7. lineitem
        8. supplier
        4
 Filter with CNF for : part
 Enter CNF predicate (when done press ctrl-D):
        (p_partkey > 1995) AND (p_retailprice > 1900.00) AND (p_size < 35)
p_partkey: [2999], p_name: [cyan burnished dim red rosy], p_mfgr: [Manufacturer#3], p_brand: [Brand#35], p_type: [LARGE BRUSHED STEEL], p_size: [30], p_conta
iner: [SM CASE], p_retailprice: [1901.99], p_comment: [ages are fluffily a]
p_partkey: [3998], p_name: [dark steel aquamarine cyan moccasin], p_mfgr: [Manufacturer#2], p_brand: [Brand#22], p_type: [LARGE ANODIZED BRASS], p_size: [6],
 p_container: [JUMBO CAN], p_retailprice: [1901.99], p_comment: [eans. bold ]
```

```
p_partkey: [199993], p_name: [bisque tan cyan sky drab], p_mfgr: [Manufacturer#5], p_brand: [Brand#54], p_type: [ECONOMY POLISHED COPPER], p_size: [28], p_co
ntainer: [LG BAG], p_retailprice: [2092.99], p_comment: [ke caref]
p_partkey: [199994], p_name: [snow cyan maroon blue peru], p_mfgr: [Manufacturer#5], p_brand: [Brand#52], p_type: [LARGE BRUSHED COPPER], p_size: [32], p_con
tainer: [MED CAN], p_retailprice: [2093.99], p_comment: [e quickly bold theo]
p_partkey: [199996], p_name: [cream navajo saddle dodger navy], p_mfgr: [Manufacturer#4], p_brand: [Brand#43], p_type: [PROMO PLATED COPPER], p_size: [11], p
_container: [MED PACK], p_retailprice: [2095.99], p_comment: [ silent dep]
p_partkey: [199999], p_name: [goldenrod drab brown salmon mint], p_mfgr: [Manufacturer#5], p_brand: [Brand#55], p_type: [PROMO PLATED BRASS], p_size: [24], p
_container: [LG CASE], p_retailprice: [2098.99], p_comment: [he quickly ironic]
 selected 13503 recs
Time: 525.222 ms
ubuntu@primary:~/Home/Desktop/UFL/1st Semester/Database Information System/Project/Project-1/src$
```

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Test 3:

```
Selected Records: 1 recs
Time: 0.127 ms
Table: Nation
CNF: (n_name = 'CHINA') AND (n_nationkey = 18)
```

Test 4:

```
Selected Records: 1 recs
Time: 0.208 ms
Table: Region
CNF: (r_name='AFRICA')
```

Test 5:

```
selected 30 recs
Time: 1985.5 ms
Table: LineItem
CNF: (l_orderkey > 27) AND (l_orderkey < 40)
```

GTEST RESULTS:

Operations like Open, Create and Close are tested out on the DBFILE and the test results are listed out. It is carried out using GTEST framework. It results out either success or fail. Assert statement in the test cases is performed with the above-mentioned IO operations and gives either 1 or 0 based on the given table and respective filetypes.

```
ubuntu@primary:~/Home/Desktop/UFL/1st Semester/Database Information System/Project/Project-1/src$ ./dbfile_test.out
[==========] Running 3 tests from 3 test suites.
[----------] Global test environment set-up.
[----------] 1 test from CreateTest
[ RUN      ] CreateTest.ReturnValueTest
[       OK ] CreateTest.ReturnValueTest (6 ms)
[----------] 1 test from CreateTest (6 ms total)

[----------] 1 test from OpenTest
[ RUN      ] OpenTest.ReturnValueTest
[       OK ] OpenTest.ReturnValueTest (3 ms)
[----------] 1 test from OpenTest (3 ms total)

[----------] 1 test from CloseTest
[ RUN      ] CloseTest.ReturnValueTest
[       OK ] CloseTest.ReturnValueTest (2 ms)
[----------] 1 test from CloseTest (4 ms total)

[----------] Global test environment tear-down
[==========] 3 tests from 3 test suites ran. (15 ms total)
[  PASSED  ] 3 tests.
ubuntu@primary:~/Home/Desktop/UFL/1st Semester/Database Information System/Project/Project-1/src$
```

CONCLUSION:

A simple prototype of Relational Database is implemented to perform basic operations like load data from the file, scan the data and filter the table records.