

# COP-6726 DATABASE SYSTEM IMPLEMENTATION

## **Project-2.2 Report**

### **Group Member Names:**

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### **RUNNING THE CODE:**

->Source code is in the folder "a2test". It contains all the tbl and respective bin files for 7 tables.

-> Unit Testing is done and are presented in gTest.cc

-> To run main.cc, from project root execute command "make main" and then execute "./main" and follow the on-screen instructions.

-> Google test framework has been added in the directory "googletest". This framework is needed to run gtest unit test cases.

-> To run test.cc, from project root execute command "make test.out" and then execute "./test.out" and choose the desired options.

->Test Driver gives a menu on the console for performing testing to the code as below:

1. create sorted dbfile
2. scan a dbfile
3. run some query

### **Steps to run Tests(test.cc):**

Execute the "**make Test**" command from the project root. Then execute "**./test.out**".

### **Steps to run gTests(gtest.cc):**

Execute the "**make gTests**" command from the project root. Then execute "**./gtest.out**".

Output:

Testcase1:

```
ubuntu@primary:~/Home/Desktop/P2-2$ ./test.out
```

```
** IMPORTANT: MAKE SURE THE INFORMATION BELOW IS CORRECT **
```

```
catalog location:      catalog
```

```
tpch files dir:
```

```
heap files dir:
```

```
select test option:
```

```
1. create sorted dbfile
```

```
2. scan a dbfile
```

```
3. run some query
```

```
1
```

```
select table:
```

```
1. nation
```

```
2. region
```

```
3. customer
```

```
4. part
```

```
5. partsupp
```

```
6. supplier
```

```
7. orders
```

```
8. lineitem
```

```
3
```

```
specify sort ordering (when done press ctrl-D):
```

```
(c_phone)
```

```
specify runlength:
```

```
8
```

```
output to dbfile : customer.bin
```

```
input from file : customer.tbl
```

```
select option for : customer.bin
```

```
1. add a few (1 to 1k recs)
```

```
2. add a lot (1k to 1e+06 recs)
```

```
3. run some query
```

```
2
```

```
added 1500 recs..so far 1500
```

```
create finished.. 1500 recs inserted
```

```
ubuntu@primary:~/Home/Desktop/P2-2$ █
```

## Testcase2:

```
ubuntu@primary:~/Home/Desktop/P2-2$ ./test.out

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

select test option:
  1. create sorted dbfile
  2. scan a dbfile
  3. run some query
  2

select table:
  1. nation
  2. region
  3. customer
  4. part
  5. partsupp
  6. supplier
  7. orders
  8. lineitem
  3
scan : customer.bin
  c_custkey: [823], c_name: [Customer#000000023], c_address: [HusDuZLv75SDYDchxfIX], c_nationkey: [0], c_phone: [10-109-430-5638], c_acctbal: [738.79], c_mktsegment: [AUTOMOBILE], c_comment: [1 requests
are against the slyly ironic pinto beans. blithely unusual packages wake alongside]
  c_custkey: [1283], c_name: [Customer#000001283], c_address: [6JelWeDERP8,0KxWB,I6Xs8r3XAC8ryFuIWSNPP], c_nationkey: [0], c_phone: [10-203-771-2219], c_acctbal: [2222.71], c_mktsegment: [AUTOMOBILE], c_comment
: [ blithely daringly final theodolites. foxes hal]
  c_custkey: [1408], c_name: [Customer#000001430], c_address: [mv 9MEDw8yPeQj7N], c_nationkey: [0], c_phone: [10-209-317-6929], c_acctbal: [-920.4], c_mktsegment: [BUILDING], c_comment: [nic deposits. bold, eve
n accounts cajole blithely]

asymptotes grow blithely. blithely fluffy deposits boost furiously. busily fu]
  c_custkey: [592], c_name: [Customer#000000592], c_address: [smOGuHj8z1Ru4rPU,0sk:FwV8759wz], c_nationkey: [24], c_phone: [34-832-574-7217], c_acctbal: [9712.75], c_mktsegment: [BUILDING], c_comment: [lithel
y final requests use slyly, special theodolites nag carefully-- carefully pending deposits cajol]
  c_custkey: [1290], c_name: [Customer#000001290], c_address: [8Q9URl8V3rJwT9GVZF], c_nationkey: [24], c_phone: [34-837-161-2672], c_acctbal: [8100.42], c_mktsegment: [MACHINERY], c_comment: [s use across the ex
press requests-- carefully bold foxes cajole slyly slyly express pinto beans. ironic request]
  c_custkey: [804], c_name: [Customer#000000804], c_address: [Ud4YqCLD,V4QODr3], c_nationkey: [24], c_phone: [34-861-740-4796], c_acctbal: [3.43], c_mktsegment: [AUTOMOBILE], c_comment: [usly. final accounts int
egrate slyly above the furiously sly pinto beans. furiously unusual ideas ]
  c_custkey: [1893], c_name: [Customer#000001893], c_address: [LO,qGPiJ5Xr1BqdsAOXLrQkedQB06gb], c_nationkey: [24], c_phone: [34-931-911-6156], c_acctbal: [-273.96], c_mktsegment: [HOUSEHOLD], c_comment: [p fu
riously carefully bold packages. regular escapades breach blithely unusual ideas integrate across t]
  c_custkey: [1447], c_name: [Customer#000001467], c_address: [0E,i0lSol1kzh4]lUct7r 3C50], c_nationkey: [24], c_phone: [34-941-824-8863], c_acctbal: [2857.19], c_mktsegment: [FURNITURE], c_comment: [, final, bo
ld deposits sleep furiously. unusual instructions are final requests. quickly final sentiments ]
  c_custkey: [1265], c_name: [Customer#000001265], c_address: [CTBTIB 2TyxUSY42Ksz F3frKsG0], c_nationkey: [24], c_phone: [34-945-256-3226], c_acctbal: [2633.53], c_mktsegment: [MACHINERY], c_comment: [lyl pen
ding deposits about the regular accounts pri]
  c_custkey: [1493], c_name: [Customer#000001493], c_address: [FbV 8Ug9Gk5FMdesb], c_nationkey: [24], c_phone: [34-947-154-7032], c_acctbal: [7814.12], c_mktsegment: [MACHINERY], c_comment: [carefully quiet requ
ests lose slyly, quickly final pinto beans haggle bil]
  c_custkey: [1393], c_name: [Customer#000001393], c_address: [ZYpSHh8ro,9rTwCYys1JHk], c_nationkey: [24], c_phone: [34-953-819-7858], c_acctbal: [5672.05], c_mktsegment: [FURNITURE], c_comment: [escapades. fluf
fily ironic packages nag among the slyly regular dolphins. special asymptot]
  c_custkey: [1347], c_name: [Customer#000001347], c_address: [7oXery7shMx], c_nationkey: [24], c_phone: [34-956-232-6103], c_acctbal: [8476.43], c_mktsegment: [HOUSEHOLD], c_comment: [ular accounts. furiously f
inal t]
  c_custkey: [1448], c_name: [Customer#000001448], c_address: [4s50D 355bo35zA4qR3v], c_nationkey: [24], c_phone: [34-969-512-1458], c_acctbal: [7756.35], c_mktsegment: [AUTOMOBILE], c_comment: [y ironic instruc
tions? slyly pending platelets hang quickly slyly ironic ideas. blithely ironic instructions a]
  c_custkey: [1268], c_name: [Customer#000001268], c_address: [SHnHq02VX8w3RfJFqGfGanrsndrWRZLWdm], c_nationkey: [24], c_phone: [34-973-735-5374], c_acctbal: [5152.42], c_mktsegment: [BUILDING], c_comment: [y
pending accounts-- blithely unusual ideas wake alongside of the regular, f]
  c_custkey: [1448], c_name: [Customer#000000448], c_address: [BH4vtNDpaBk8Nqo6NjWu4QUXnldrf], c_nationkey: [24], c_phone: [34-985-422-6089], c_acctbal: [8117.27], c_mktsegment: [BUILDING], c_comment: [unts. fina
l pinto beans boost carefully. furiously even foxes according to the express, regular pa]
  c_custkey: [139], c_name: [Customer#00000039], c_address: [Jus1m28bo1dUghp5vbKX58gM5ov7xH96], c_nationkey: [24], c_phone: [34-992-529-2023], c_acctbal: [8438.07], c_mktsegment: [HOUSEHOLD], c_comment: [ix. i
ronic, special tithes detect dog]
  scanned 1500 recs

ubuntu@primary:~/Home/Desktop/P2-2$
```

## Testcase3:

```
ubuntu@primary:~/Home/Desktop/P2-2$ ./test.out

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

select test option:
  1. create sorted dbfile
  2. scan a dbfile
  3. run some query
  2

select table:
  1. nation
  2. region
  3. customer
  4. part
  5. partsupp
  6. supplier
  7. orders
  8. lineitem
  1
scan : nation.bin
  n_nationkey: [0], n_name: [ALGERIA], n_regionkey: [0], n_comment: [ haggle. carefully final deposits detect slyly again]
  n_nationkey: [5], n_name: [ETHIOPIA], n_regionkey: [0], n_comment: [ven packages wake quickly. regu]
  n_nationkey: [14], n_name: [KENYA], n_regionkey: [0], n_comment: [ pending excuses haggle furiously deposits. pending, express pinto beans wake fluffily past t]
  n_nationkey: [15], n_name: [MOROCCO], n_regionkey: [0], n_comment: [rns. blithely bold courts among the closely regular packages use furiously bold platelets?}]
  n_nationkey: [16], n_name: [MOZAMBIQUE], n_regionkey: [0], n_comment: [s. ironic, unusual asymptotes wake blithely ?]
  n_nationkey: [1], n_name: [ARGENTINA], n_regionkey: [1], n_comment: [al foxes promise slyly according to the regular accounts. bold requests alon]
  n_nationkey: [2], n_name: [BRAZIL], n_regionkey: [1], n_comment: [y alongside of the pending deposits. carefully special packages are about the ironic forges. slyly special ]
  n_nationkey: [3], n_name: [CANADA], n_regionkey: [1], n_comment: [eas hang ironic, silent packages. slyly regular packages are furiously over the tithes. fluffily bold]
  n_nationkey: [17], n_name: [PERU], n_regionkey: [1], n_comment: [platelets. blithely pending dependencies use fluffily across the even pinto beans. carefully silent account]
  n_nationkey: [24], n_name: [UNITED STATES], n_regionkey: [1], n_comment: [y final packages. slow foxes cajole quickly. quickly silent platelets breach ironic accounts. unusual pinto be]
  n_nationkey: [21], n_name: [VIETNAM], n_regionkey: [2], n_comment: [holly enticingly express accounts. even, final ]
  n_nationkey: [9], n_name: [INDONESIA], n_regionkey: [2], n_comment: [ slyly express asymptotes. regular deposits haggle slyly. carefully ironic hockey players sleep blithely. careful]
  n_nationkey: [12], n_name: [JAPAN], n_regionkey: [2], n_comment: [ously. final, express gifts cajole al]
  n_nationkey: [18], n_name: [CHINA], n_regionkey: [2], n_comment: [c dependencies. furiously express notornis sleep slyly regular accounts. ideas sleep. depos]
  n_nationkey: [8], n_name: [INDIA], n_regionkey: [2], n_comment: [ss excuses cajole slyly across the packages. deposits print aroun]
  n_nationkey: [19], n_name: [ROMANIA], n_regionkey: [3], n_comment: [ular asymptotes are about the furious multipliers, express dependencies nag above the ironically ironic account]
  n_nationkey: [7], n_name: [GERMANY], n_regionkey: [3], n_comment: [l platelets. regular accounts x-ray: unusual, regular acco]
  n_nationkey: [6], n_name: [FRANCE], n_regionkey: [3], n_comment: [refully final requests. regular, ironi]
  n_nationkey: [22], n_name: [RUSSIA], n_regionkey: [3], n_comment: [ requests against the platelets use never according to the quickly regular pint]
  n_nationkey: [23], n_name: [UNITED KINGDOM], n_regionkey: [3], n_comment: [eans boost carefully special requests. accounts are. careful]
  n_nationkey: [11], n_name: [IRAQ], n_regionkey: [4], n_comment: [nic deposits boost atop the quickly final requests? quickly regula]
  n_nationkey: [18], n_name: [IRAN], n_regionkey: [4], n_comment: [refully alongside of the slyly final dependencies. ]
  n_nationkey: [13], n_name: [JORDAN], n_regionkey: [4], n_comment: [ic deposits are blithely about the carefully regular pa]
  n_nationkey: [20], n_name: [SAUDI ARABIA], n_regionkey: [4], n_comment: [ts. silent requests haggle. closely express packages sleep across the blithely]
  n_nationkey: [4], n_name: [EGYPT], n_regionkey: [4], n_comment: [y above the carefully unusual theodolites. final dugouts are quickly across the furiously regular d]
  scanned 25 recs

ubuntu@primary:~/Home/Desktop/P2-2$
```

**Output1.txt:**

[illegible]

### **GTEST RESULTS:**

Execute the “**make gTests**” command from the project root. Then execute “**./gtest.out**”.

```
[ubuntu@primary:~/Home/Desktop/P2-2$ ./gTest.out
[=====] Running 3 tests from 1 test suite.
[-----] Global test environment set-up.
[-----] 3 tests from DBFile
[ RUN      ] DBFile.metaInfoToStr
[      OK   ] DBFile.metaInfoToStr (0 ms)
[ RUN      ] DBFile.readMetaInfo
[      OK   ] DBFile.readMetaInfo (9 ms)
[ RUN      ] DBFile.Open
[      OK   ] DBFile.Open (69 ms)
[-----] 3 tests from DBFile (81 ms total)

[-----] Global test environment tear-down
[=====] 3 tests from 1 test suite ran. (82 ms total)
[  PASSED  ] 3 tests.
ubuntu@primary:~/Home/Desktop/P2-2$
```

**Result:** All the test cases are Passed.