

Project 2 Part 1

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COP6726 - Database System Implementation
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Steps to run the code

- run make
- run cmake with output dir as "build"
- gtests will be built as an executable in build/gtests
- run *a2_1_gtest*

Summary of code

Major part of the code is in BigQ.cc and some in Run.cpp

0.1 BigQ.cc

tpmmp: This the function that is called that is run by the pthread created in the BiqQ's constructor.

pass1: In this function we go over all the records in the input pipe and add them to a buffer vector of pages with len = runlen. When this vector is filled we sort it and write it to the file. The sort and write part is done by a helper fuction with name sortAndWrite. SortandWrite function returns a Run reference. We add this the vector of runs maintained by pass1. ANd

we finally return the vector of Runs.

pass2 Pass two creates a priority queue with one element from each of the runs. once it pops out and pushes a record to the out pipe, it adds an element from the same run.

init This file just creates the tmp file in which all the data is written in pass1.

cleanup This function deletes the created tmp file and close the output file.

0.2 Run.cpp

Run: This is class with tells the start page and end page of every run.

RunRecord : This is just a wrapper for a record with the id of the the run that it is in.

Output screen shots

```
gtest/CMakeLists.txt  CMakeLists.txt  testHelper.cpp  Pipe.cc  h BigQ.h  h Run.h  Run.cpp  BigQ.cc  output.txt
1  n_nationkey: [9], n_name: [INDONESIA], n_regionkey: [2], n_comment: [ slyly express asymptotes. regular deposits haggle slyly. carefully ironic hockey players sle
2  n_nationkey: [8], n_name: [INDIA], n_regionkey: [2], n_comment: [ss excuses cajole slyly across the packages. deposits print aroun]
3  n_nationkey: [9], n_name: [GERMANY], n_regionkey: [3], n_comment: [l platelets. regular accounts x-ray: unusual, regular acco]
4  n_nationkey: [6], n_name: [FRANCE], n_regionkey: [3], n_comment: [refully final requests. regular, iron]
5  n_nationkey: [5], n_name: [ETHIOPIA], n_regionkey: [6], n_comment: [ven packages wake quickly. regu]
6  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]
7  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]
8  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]
9  n_nationkey: [1], n_name: [ARGENTINA], n_regionkey: [1], n_comment: [at foxes promise slyly according to the regular accounts. bold requests alon]
10 consumer: removed 25 recs from the pipe
11
12 producer: opened DBFile /home/adisuper/Courses/DBI/Project/tpch-dgen/uf/customer.bin
13 producer: inserted 150000 recs into the pipe
14 consumer: removed 150000 recs from the pipe
15
16 o_orderkey: [565189], o_custkey: [113746], o_orderstatus: [F], o_totalprice: [272158], o_orderdate: [1992-02-13], o_orderpriority: [4-NOT SPECIFIED], o_clerk: [Clerk#00000003],
17 o_orderkey: [565189], o_custkey: [749408], o_orderstatus: [O], o_totalprice: [97959.3], o_orderdate: [1994-08-26], o_orderpriority: [2-HIGH], o_clerk: [Clerk#0000000324], o_shi
18 o_orderkey: [565187], o_custkey: [99109], o_orderstatus: [O], o_totalprice: [271328], o_orderdate: [1994-04-26], o_orderpriority: [8-LOW], o_clerk: [Clerk#0000000288], o_shi
19 o_orderkey: [565186], o_custkey: [44551], o_orderstatus: [O], o_totalprice: [93380.0], o_orderdate: [1995-11-07], o_orderpriority: [3-MEDIUM], o_clerk: [Clerk#0000000025], o_a
20 o_orderkey: [565183], o_custkey: [109832], o_orderstatus: [O], o_totalprice: [64592.1], o_orderdate: [1994-02-09], o_orderpriority: [3-MEDIUM], o_clerk: [Clerk#0000000051], o_a
21 o_orderkey: [565184], o_custkey: [143028], o_orderstatus: [O], o_totalprice: [241656], o_orderdate: [1998-03-11], o_orderpriority: [2-HIGH], o_clerk: [Clerk#0000000011], o_shi
22 o_orderkey: [565159], o_custkey: [138211], o_orderstatus: [F], o_totalprice: [308591], o_orderdate: [1993-09-04], o_orderpriority: [1-URGENT], o_clerk: [Clerk#0000000039], o_a
23 o_orderkey: [565186], o_custkey: [133186], o_orderstatus: [F], o_totalprice: [213722], o_orderdate: [1993-01-13], o_orderpriority: [4-NOT SPECIFIED], o_clerk: [Clerk#0000000090], o_a
24 o_orderkey: [565159], o_custkey: [29794], o_orderstatus: [O], o_totalprice: [149229], o_orderdate: [1994-08-19], o_orderpriority: [1-URGENT], o_clerk: [Clerk#0000000443], o_shi
25 consumer: removed 150000 recs from the pipe
26
27 n_nationkey: [9], n_name: [INDONESIA], n_regionkey: [2], n_comment: [ slyly express asymptotes. regular deposits haggle slyly. carefully ironic hockey players sleep blithely]
28 n_nationkey: [8], n_name: [INDIA], n_regionkey: [2], n_comment: [ss excuses cajole slyly across the packages. deposits print aroun]
29 n_nationkey: [9], n_name: [GERMANY], n_regionkey: [3], n_comment: [l platelets. regular accounts x-ray: unusual, regular acco]
30 n_nationkey: [6], n_name: [FRANCE], n_regionkey: [3], n_comment: [refully final requests. regular, iron]
31 n_nationkey: [5], n_name: [ETHIOPIA], n_regionkey: [6], n_comment: [ven packages wake quickly. regu]
32 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]
33 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]
34 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]
35 n_nationkey: [1], n_name: [ARGENTINA], n_regionkey: [1], n_comment: [at foxes promise slyly according to the regular accounts. bold requests alon]
36 consumer: removed 25 recs from the pipe
```

Figure 1: Screen shot of output.txt

```
Terminal: Local +
q ~/Courses/DBI/Project/Project1 mvp project2 75 > cd ./cmake-build-debug/gtest
q ~/Courses/DBI/Project/Project1/cmake-build-debug/gtest mvp project2 75 > ./a2_1_gtest
Running main() from /home/adisuper/Courses/DBI/Project/Project1/cmake-build-debug/_deps/googletest-src/googletest/src/gtest_main.cc
[=====] Running 3 tests from 2 test suites.
[-----] Global test environment set-up.
[-----] 1 test from HelloTest
[ RUN ] HelloTest.BasicAssertions
[ OK ] HelloTest.BasicAssertions (0 ms)
[-----] 1 test from HelloTest (0 ms total)

[-----] 2 tests from BigQTestSuite
[ RUN ] BigQTestSuite.init
[ OK ] BigQTestSuite.init (0 ms)
[ RUN ] BigQTestSuite.cleanup
[ OK ] BigQTestSuite.cleanup (0 ms)
[-----] 2 tests from BigQTestSuite (0 ms total)

[-----] Global test environment tear-down
[=====] 3 tests from 2 test suites ran. (0 ms total)
[ PASSED ] 3 tests.
q ~/Courses/DBI/Project/Project1/cmake-build-debug/gtest mvp project2 75 >
```

Figure 2: Screen shot gtest execution