HW3

20170275 박정웅

**0.**

Assumptions I made

1. Ignore for(;;) as it does not contain any useful information
2. Ignore ? (Conditional operator) in the enum as enum values should be evaluated in the complie time, I was not able to insert my code.

**1.**

Attached kcov-branch-identify\_comment.cpp file.

kcov-branch-identify.cpp is for problem 4. kcov-branch-identify\_comment.cpp is same file with kcov-branch-identify.cpp but just commented some line as kcov-branch-identify.cpp will not accept .c files.

Samle output for ./kcov-branch-identify\_comment example-kcov.c

function: f2

If ID: 0 Line: 4 Col: 2 Filename: example-kcov/example-kcov.h

function: f1

If ID: 1 Line: 19 Col: 2 Filename: example-kcov/example-kcov.c

function: main

If ID: 2 Line: 30 Col: 2 Filename: example-kcov/example-kcov.c

If ID: 3 Line: 32 Col: 9 Filename: example-kcov/example-kcov.c

For ID: 4 Line: 40 Col: 2 Filename: example-kcov/example-kcov.c

While ID: 5 Line: 45 Col: 2 Filename: example-kcov/example-kcov.c

Do ID: 6 Line: 50 Col: 2 Filename: example-kcov/example-kcov.c

Case ID: 7 Line: 52 Col: 4 Filename: example-kcov/example-kcov.c

Case ID: 8 Line: 55 Col: 4 Filename: example-kcov/example-kcov.c

? ID: 9 Line: 56 Col: 9 Filename: example-kcov/example-kcov.c

Default ID: 10 Line: 59 Col: 4 Filename: example-kcov/example-kcov.c

If ID: 11 Line: 64 Col: 2 Filename: example-kcov/example-kcov.c

? ID: 12 Line: 64 Col: 7 Filename: example-kcov/example-kcov.c

ImpDef. ID: 13 Line: 68 Col: 2 Filename: example-kcov/example-kcov.c

Case ID: 14 Line: 69 Col: 3 Filename: example-kcov/example-kcov.c

Case ID: 15 Line: 72 Col: 3 Filename: example-kcov/example-kcov.c

Do ID: 16 Line: 77 Col: 2 Filename: example-kcov/example-kcov.c

If ID: 17 Line: 77 Col: 2 Filename: example-kcov/example-kcov.c

Total number of branches: 30

**2.**

Attached results2.txt

// Attached kcov-branch-identify.cpp is not direcly applicable for grep.c, as it is targeted for grep.i (Problem 4)

To get the desired output, you should comment some part of kcov-branch-identify.cpp or just use kcov-branch-identify\_comment.cpp attached.

function: Fexecute

For ID: 1653 Line: 10888 Col: 3 Filename: lab02/grep.c

If ID: 1654 Line: 10890 Col: 7 Filename: lab02/grep.c

If ID: 1655 Line: 10893 Col: 7 Filename: lab02/grep.c

If ID: 1656 Line: 10895 Col: 4 Filename: lab02/grep.c

If ID: 1657 Line: 10897 Col: 4 Filename: lab02/grep.c

If ID: 1658 Line: 10901 Col: 12 Filename: lab02/grep.c

For ID: 1659 Line: 10902 Col: 2 Filename: lab02/grep.c

If ID: 1660 Line: 10904 Col: 6 Filename: lab02/grep.c

If ID: 1661 Line: 10906 Col: 6 Filename: lab02/grep.c

If ID: 1662 Line: 10921 Col: 3 Filename: lab02/grep.c

While ID: 1663 Line: 10926 Col: 3 Filename: lab02/grep.c

Total number of branches: 3079

**3.**

Attached test\_script1.sh

**Sorry for inconvenience, but before executing test\_script1.sh, you should change Makefile**

**TARGET := kcov-branch-identify => TARGET := kcov-branch-identify\_comment**

**AS kcov-branch-identify is for problem 4**

Attached kcov-branch-identify.cpp\_comment.gcov, grep.c

It is result of runnnig ./kcov-branch-identify\_comment grep.c

File 'kcov-branch-identify.cpp'

Lines executed:96.61% of 177

Branches executed:97.30% of 74

Taken at least once:87.84% of 74

Calls executed:96.35% of 438

Creating 'kcov-branch-identify\_comment.cpp.gcov'

**4.**

Attached kcov-branch-identify.cpp

To use this cpp file, you should give ~.i file, then it will generate ~-cov.i file.

Example usage)

./kcov-branch-identify grep.i

gcc grep-cov.i -o grep-cov

./grep-cov -n "if" grep.c

If you run above code, you will get coverage.dat file

By the way, my program runs very slowly, please wait for the outcome thank you

**5.**

Attached kcov-branch-identify.cpp

1) ./grep –n "if" grep.c

Attached coverage1.dat

12728 0 0 (end = memchr(beg + len, '

', (buf + size) - (beg + len))) != 0

12733 0 0 beg > buf && beg[-1] != '

'

Covered: 330 / Total: 3079 = 10.717766%

2) ./grep-cov -E "[0-9][0-9]+" lab02/grep.c

Attached coverage2.dat

12705 0 0 try + len < buf + size && ((1 && ((\*\_\_ctype\_b\_loc())[(int)(((unsigned char)try[len]))] & (unsigned short)\_ISalnum)) || ((unsigned char)try[len]) == '\_')

12728 0 0 (end = memchr(beg + len, '

', (buf + size) - (beg + len))) != 0

12733 0 0 beg > buf && beg[-1] != '

'

Covered: 463 / Total: 3079 = 15.037350%

3) ./grep -E "[[:digit:]][[:alpha:]]" grep.c

Attached coverage3.dat

12728 0 0 (end = memchr(beg + len, '

', (buf + size) - (beg + len))) != 0

12733 0 0 beg > buf && beg[-1] != '

'

Covered: 426 / Total: 3079 = 13.835661%

**6.**

Attached test\_script2.sh

**Sorry for inconvenience, but before executing test\_script2.sh, make sure that contents in the Makefile is**

**TARGET := kcov-branch-identify**

Attached kcov-branch-identify.cpp.gcov, grep.c

It is result of runnnig ./kcov-branch-identify grep.i

File 'kcov-branch-identify.cpp'

Lines executed:97.67% of 300

Branches executed:100.00% of 90

Taken at least once:88.89% of 90

Calls executed:98.81% of 1092

Creating 'kcov-branch-identify.cpp.gcov'