Cscope

Concurrent Programming

Introduction

- What is the Cscope?
- Installing Cscope
- How to use?
- Practice
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What is the Cscope?

- Developer’s tool for browsing source code

- Allows searching code for
  - All references to a symbol
  - Global definition
  - Functions called by a function
  - Functions calling a function
  - Text string
  - Regular expression pattern
  - A file
  - Files including a file

Installing Cscope

```
$ sudo apt-get install cscope
```

- create *mkcscope.sh* file

```
#!/bin/sh
rm -rf cscope.files
find . \( -name '*.c' -o -name '*.cpp' -o -name '*.cc' -o -
name '*.ic' -o -name '*.h' -o -name '*.hpp' -o -name '*.s' -o
-name '*.S' \) -print > cscope.files
cscope -b -q -k
```

- You can just download this file from Piazza page

Installing Cscope

- Set permission & path of mkcscope.sh

```
$ chmod 755 mkcscope.sh
$ sudo mv mkcscope.sh /usr/bin/
```

- Hot key mapping for vim
  - Download '*append_this_to_your_vimrc*' file from the Piazza page, and append it to your ~/.vimrc

How to use?

- Generate Cscope database files

```
$ cd project4/mariadb/server/storage/innobase
$ mkcscope.sh
```

- In the Vim command mode, you can execute the Cscope commands

```
:cs find [c|d|e|f|g|i|s|t] name
```

How to use?

- You can use hotkey to navigate a symbol which is under your cursor
  - Because you've already modified ~/.vimrc to map hotkeys on the Cscope actions below

- Hotkey: Ctrl+\, [s|g|c|t|e|f|i|d]

```
's'   symbol:   find all references to the token under cursor
'g'   global:   find global definition(s) of the token under cursor
'c'   calls:    find all calls to the function name under cursor
't'   text:     find all instances of the text under cursor
'e'   egrep:    egrep search for the word under cursor
'f'   file:     open the filename under cursor
'i'   includes: find files that include the filename under cursor
'd'   called:   find functions that function under cursor calls
```

Practice

- Practice with mariadb (with innodb storage engine)
  1. Find “*srv_start*” function definition
  2. Find “*buf_block_t*” structure definition
  3. Find all functions calling “*buf_chunk_init*” function
  4. Find a function assigning some value into “*buf_pool_ptr*” variable
  5. Set cursor on a function founded in practice 4.
     Using hotkey, Find a code line that is calling this function (Ctrl+\, c)

Tip

- If you add new symbols, you should generate new Cscope databases(running mkcscope.sh again) to navigate the symbols

- You need to open source files from a directory that contains Cscope database files. Otherwise Cscope cannot recognize symbols you want to navigate.

Thank You