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Assignment: 04
CSC 254: Fall 2015

Assignment #4: Cross-Indexing

Summary:

The purpose of this assignment was to write a scripting program (called "xref") that uses the output of dwarfdump to construct a set of web pages, one per source file, that contains links from uses of identifiers to their declarations.

How I solved the problem:

I solved this problem in 4 steps:

1. Parse the output of "dwarfdump" from executing on the input program.
2. Build a symbol table of identifiers and declarations.
3. Link identifiers and declarations to uses in code
4. Write linked code to ".html" files

When building the symbol table I stored 8 pieces of information

1. Tag
2. DW_AT_name
3. DW_AT_decl_file
4. Declaration Line
5. End Line (If there was one)
6. DW_AT_low_pc
7. DW_AT_high_pc
8. DW_AT_type

In order to link the source code to identifiers I would loop through the symbol table in order to find a matching name. If they were in the same scope and same type, then they were a match, so they could be linked together. After linking each line, I would write that line out to its respective ".html" file.

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How To Run:

1. Open terminal to directory of project
2. Make sure "dwarfdump" is in current directory.
3. type "python2 ./xref.py <program to be indexed>

```
Example:

    Jean-Marcs-MacBook-Air:A4 JeanMarc$ python2 ./xref.py
./myprogram
```

Files Included:

➔ xref.py : Python program to cross index an executable file that's input
➔ dwarfdump : executable used to retrieve valuable information from compiled programs
➔ SampleOutput.txt : A snippet of log messages from my program executing

Extra Credit:

- I've colored certain syntax to to make the ".html" web pages easier to view and read.