Assignment 1
Branch Chaining
COP6622
Summer 2018


For this assignment you should modify the *remvbranchchains()* function in the *chains.c* file to perform branch chaining, as described in class. You should just set the target of the branch or jump to the end of the jump chain. Do not consider empty blocks as part of the jump chain. Not only are you responsible for eliminating branch chains, but you are also responsible for ensuring that the control flow is in a consistent state. You should call *check_cf()*, which is in *flow.c*, after performing branch chaining. You should also call *incropt()* each time you are able to success-fully apply an optimization. You will likely need to use the following structs and fields within these structs.

    assemline
            text
            type
            items
    bblk
            label
            lines
            lineend
            preds
            succs
            up
            down
            status
    blist

You will also need to call the following routines.

    addtoblist()
    allocstring()
    check_cf()
    delfromblist()

You should e-mail to me (*whalley@cs.fsu.edu*) your solution of *remvbranchchains()* by sending me the file *chains.c* as an attachment. You should also use good indentation and style and you should place meaningful comments in your code. In all of your assignments this semester, you should identify yourself and the assignment in the file that you are submitting. This assignment is due before class on May 30.

Be sure to assemble, link, and execute the code you generate on either *oldiablo.cs.fsu.edu* or *pro-gram.cs.fsu.edu*. In all of your assignments this semester where you are developing a compiler optimization, you can use the ~*whalley/cop6622proj/run* script to gather measurements when you are on *oldiablo.cs.fsu.edu*. This script will tell you the number of instructions executed and memory references performed. The code size can be obtained from messages emitted during the

compilation. You can determine the impact of the optimization by gathering measurements without and with applying the optimization. In other words, the baseline should not include the current optimization, but should include all previously assigned optimizations.