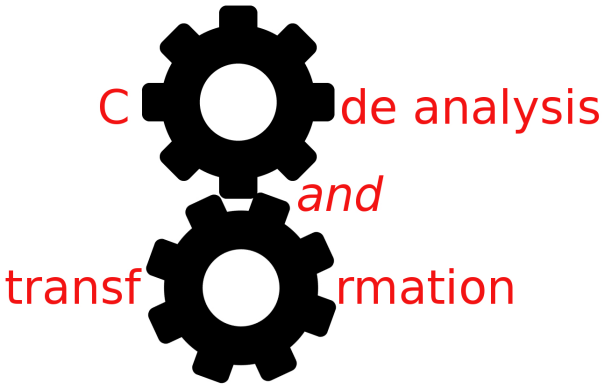

Homework H3

1 Description

Write an LLVM pass starting from the code you have developed for H2.

The goal of this new pass is to compute the IN and OUT sets of reaching definition data-flow analysis **for the CAT language** starting from the GEN and KILL sets you've already defined for H2. As it was the case for H2, the definitions you need to analyze are only those related to CAT variables.

You need to compute the IN and OUT sets for every instruction of a program given as input. At the end of your pass, you need to have stored all IN and OUT sets in your data structures. Before ending your pass, you need to print the IN and OUT sets of each instruction.

1.1 Assumptions

You can make the same code assumptions that you had for the H2 homework.

Run all tests Go to `H3/tests` and run

```
make
```

to test your work.

2 LLVM API and Friends

This section lists the set of LLVM APIs and headers I have used in my (multiple) H3 solutions that I did not use for the past assignments. You can choose whether or not using these APIs.

- Methods `predecessors()` and `successors()`
- Method `getTerminator` of the class `BasicBlock`

3 What to submit

Submit via Canvas the C++ file you've implemented (CatPass.cpp).

For your information: my solution for H3 added 57 lines of C++ code to H2 (computed by `sloccount`).

Good luck with your work!