LAB 4 : COL728

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This assignment includes code for LLVM passes to perform common sub-expression elimination and copy propagation. The transformation is divided into steps:

1. **Local CSE**: This performs common sub-expression elimination and copy propagation transformations inside each basic block. This doesn’t reason across basic blocks.
2. **Global CSE**: This assumes CSE is done locally inside each basic block and no expression is used multiple times inside each basic block. It reasons about usage of expressions inside a function across all its basic blocks and performs common sub-expression elimination and copy propagation transformations appropriately.

**Checklist before running**

1. This project is tested with LLVM 3.5.

**To run**

1. $ cd `llvm-config --src-root`/lib/Transforms/
2. Copy LocalCSE and GlobalCSE directories here.
3. Add these two in the sub-directory listing in CMakeLists.txt.
4. Build and install LLVM again so that LLVMLocalCSE.so and LLVMGlobalCSE.so is generated.
5. Make sure these shared object files are present in `llvm-config --libdir`.
6. Use –lcse and –gcse options with opt to use these passes.

To run all tests:

1. cd tests
2. ./run\_tests.csh

Note that in all the tests, first local cse is performed and then, global cse.