

CS 4501

HW1

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The purpose of HW1 is to get yourself familiar with clang basics. It contains 10 points.

You are going to finish three tasks.

1. Install Clang and LLVM

You can follow instructions on this page to get started: [https://clang.llvm.org/get\\_started.html](https://clang.llvm.org/get_started.html).

Please note that you have to build clang in debug version in order to finish Q3.

Do not install it with "sudo apt install".

2. **(5 points)** Dump AST of two programs attached here: [bubblesort](#), [shift](#).

This page (<http://clang.llvm.org/docs/IntroductionToTheClangAST.html>) introduces how to dump the AST representation of a program with clang.

3. **(5 points)** Visualize AST

In this task, you are going to generate ASTs in the Graphviz dotty format. There are a ton of tutorials online about how to do so. You can find one and follow it. This is a web-based Graphviz viewer: <http://www.webgraphviz.com>. You can use it to test your outputs. When you use "-ast-view" option, Clang will generate a .dot file for every single function in a program.

#### How to submit?

For Q2, submit text files showing the AST dump. Name your files Q2\_bubblesort.txt and Q2\_shift.txt. For Q3, compress the .dot files of each program to a single .zip file. Name them as Q3\_bubblesort.zip and Q3\_shift.zip.

Submit your code using Github. You have to create your own repository by following this link: <https://classroom.github.com/a/xnl6-tpH>

If you don't have a Github account, please register one. After you login, you can create a repository for this homework if you follow the instructions. Please push the generated text and dot files to this repository.

**THE DEADLINE IS 4th February, 11pm.**

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