CS Basics - Exercises
APIs & Tools

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1 Reference code

Implement a prime sieve to count the number of primes below a given number read from `stdin`. Print the result to `stdout`.

Create a build system using autotools for your project.

2 Compile your project with clang's scan-build

Install `clang-7` and `clang-tools-7`.

- Run `scan-build-7 ./configure` to adapt your build process to use clang.
- Recompile your code, check for warnings.

3 Dynamic analysis

Run your code under `valgrind --leak-check=yes` and `strace -f`. Try to understand the output.

4 Performance analysis

Use Valgrind (`--tool=callgrind` and `--tool=cachegrind`), kcachegrind, time and/or gprof to understand the performance of your "Prime" program. Then try to make it faster! Also try different C compilers and optimization options!

Compare the result with the provided Java reference implementation.