# Week 04W: Sorting Encrypted Text

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# Reminders

- Assignment 4
  - `web.cs.ucla.edu/classes/winter17/cs35L/assign/assign4.html`
  - Time due 23:55 this Friday, February 10
- Assignment 10 Sign-up
  - `https://goo.gl/794MQM`

```
df -ℓ
mount -l | grep ...
```

On ∼

```
[me@lnx∼/Lab04]$ touch -d '1918-11-11 11:00 GMT' wwi-armistice
[me@lnx∼/Lab04]$ ls -l wwi-armistice
-rw-r--r-- 1 me taaccts 0 Dec 17 2054 wwi-armistice
```

On tmp

```
[me@lnx∼/Lab04]$ touch -d '1918-11-11 11:00 GMT' /tmp/wwi-armistice
[me@lnx∼/Lab04]$ ls -l /tmp/wwi-armistice
-rw-r--r-- 1 me taaccts 0 Nov 11 1918 /tmp/wwi-armistice
```

# GDB

1. Compile: `gcc [...] -g [...] -o [...]`
2. Debug: `gdb <executable>` (or in gdb, use `file <excutable>`)
3. While in gdb:
   - Breakpoint: in gdb, use:
     - `break file.c:6` // break at
     - `break my_function` // break when function is called
     - `break [position] if <expression>` // break if condition
       `e.g.: break file.c:6 if i > 5`
     - `info breakpoints/break/br/b` // get the info
     - `delete`, `disable`, `enable`, `ignore`
     - at breakpoint, `c`-ontinue, `n`-next, `s`-tep, `f`-inish
   - Execute: `run [arguments]`
   - Display: in gdb, use:
     - `print [/format] <expression>` // format: d-x-o-t
     - `display` // auto-print
   - Watch: in gdb, use:
     - `watch my_var` // watch-out for changes on `my_var`
     - `rwatch <expression>` // watch-out for changes on expr evaluation
   - Stack Frames:
     - `backtrace/bt`
     - `info frame/locals/args/functions`; `list`; `where`
   - `set var my_var=the_value`
   - Otherwise, `help` / Google
4. Release: `gcc -O# -fstack-protector-strong [...] -o [...]`
   `https://gcc.gnu.org/onlinedocs/gcc/Optimize-Options.html`

## Lab

1. Remember to answer all the questions
2. Submit the right patch

## Exercise

1. exclusive-ORing 42
2. use `exit(?)`, not `return ?;` when exiting with error
3. test your code with `od -c`
   - `echo -e "1\t2\n3" | od -c`
4. test cases
   - run with `/proc/self/maps`
   - encounter an error? $\longrightarrow$ report error to `stderr` and `exit` with status 1
     - `fprintf(stderr, "something wrong!\n");`

# Week#5 – What To Expect

1. Function Call vs. System Call
2. Laboratory: Buffered versus Unbuffered I/O
3. Homework: Encrypted Sort Revisited