Assignments: 50%

exams = 30%

Quizees = 20%

Programs/Assignments: 2 day extras if needed
— Tell SAbrina Au (TA) 2 days in advance

C

- memory's important
- pointers
- manipulate bits
- Use Linux
  - git, vim, make, emacs
- VS Code's okay but ~~only~~ in edit mode, not as a dev IDE

UNIX:

- MUST use UNIX
- Designed for programmers
- Must not use Windows IDE
- VirtualBox or VMware, run Linux on that

Projects

- Write design doc first

- Programs assigned Sunday
  - → Design docs due Thurs.
  - → 50% preliminary, 50% final design
  - → Programs due Sunday night

Readme

Design.pdf
  - how you'll approach writing the program
  - should be able to be translated into code
  - Do not include C code
    - pictures, diagrams, psuedocode

Manual: man printf

git commit -am "msg"

With

    #include <stdint.h>,

8 bits | int8_t,   uint8_t   } tells processor to assign
16 bits | int16_t,   uint16_t } fitting data-type

Txtbook Notes:
Functions:

return-type   function name (arguments) {
     statements;
}

    • if return type omitted,   int is default

Compiling:

   cc main.c getline.c
   - compiles both c files

Scope:
  • Default scope is local to function defined w/in
  • if vars defined outside function they're
    available to functions below it
  • extern is used for var to be available above it

• Extern also used for diff files access

<u>Static</u> = local to that file, that var name is not
shared btw files
   • makes vars "hidden"
   • If declared in function, hidden outside
     of function

<u>Register</u> vars stored in registers for
faster access, less room though
   register int x;
      • only on automatic vars & params

• Vars can also be local to if & for statements
<u>Strings</u>: actually array of chars

      char pattern = "would";

<u>File inclusion</u>
   #include <filename>
      - replaced w/ contents of filename

<u>Pointer</u>: a variable that contains the address
of a variable
   • & gives address of an object, so
     p = &c makes p point to c
   • * is inverse of &

. *(address) retrieves contents from address

```
int ip*;
ip = & x
y = *ip // y is now x
```

Formatting: <u>Makefile</u>
- > touch Makefile
  - • Creates Makefile file
- > make
  - • should run Makefile

<u>Scan-build</u>
- only compiles files w/ new changes
- > scan-build make

> [boxed: ✱follow coding.pdf ~~before submit~~]

<u>Order</u>)
- ~~Build~~ > make clean
  - > scan-build ~~make~~ --use-cc=clang make
  - > make all

<u>Design Doc</u>:
- knowledgable programmer should be able to replicate
- add pics, psuedocode, how to solve problem

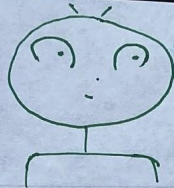- Helper functions before Main
- Refrence Vampire code for asgn 1

Ternary Operator:

```
//give me   next odd #
n = (n%2==1) ? n+2 : n+1;
```

- ?: is ternary op
- like an if-else
- If the 1st part is true, executes 1st value
- If false, 2nd val is chosen

Lecture #4:

`#include <stdio.h>` ← Standard I/O Package

main runs by default

• return val of 0 means success

`> cc -o hello hello.c` ← compile

`> ./hello` ← run

Loops:

```
do {
    i+=1;
} while (i<=10);
```

• do while's good when you want to happen at least once

infinite loops:

```
while (1) {
    if (exit_condition) {
        break; // breaks out of enclosing loop
    }
}
```

Error Handling:

goto error - same as try/catch

Continue: go to next itteration of loop
- skips over rest of loop statements