

CS 240: Programming in C

Lecture 27: Final Exam Review

Announcements

- Final Exam is next week!
- No lectures, labs, or office hours next week

Review Topics

LEC 1

policies

LEC 2

GCC flags

compilation/linking

obj files

function prototypes

LEC 3

#include

fopen()

fclose()

fprintf()

fscanf()

LEC 4

Format strings

field width

EOF

access(), feof(), ferror()

LEC 5

assert

ftell()

fseek()

LEC 6

NUL terminator

typedef

decl vs. def

structs

access, init

assignment

strlen()

LEC 7

array of structs

strncpy()

data layout of memory

sizeof()

padding & alignment

LEC 8

fread() / fwrite()

endianness

union

enum

bitwise operations

bit set/clear/check

LEC 9

bit masks

bit flags

LEC 10

review

LEC 11

pointers

& operator

* operator

pass by value

pointer vs. array

pointer arithmetic

LEC 12

debugger

-> operator

structs containing ptrs

heap

stack vs. heap

malloc(), calloc()

free()

LEC 13

singly-linked lists

growing forward

growing backward

traversal

deletion

create node

LEC 14

valgrind

linked list vs. array

swap nodes

doubly-linked lists

prepend, remove

LEC 15

pointer to pointer

use in functions

array of strings

prepend revisited

internal pointers

function pointers

LEC 16

global variables

local variables

recursion

stack

LEC 17

binary tree

binary search tree

insert, iterative

insert, recursive

search

traversal

Review Topics

LEC 18

review

LEC 19

2D arrays

dynamic 2D allocation

3D arrays

type conversion

signed, unsigned

assignments

const

volatile

const pointer

extern

static local, global

LEC 20

preprocessor

#include

#define

#ifdef

macros

ternary operator

macro side effects

cast

void *

callbacks

LEC 21

gcc optimize flags

code/data efficiency

libraries

static libraries

shared libraries

header guards

LEC 22

random()

srandom()

/dev/urandom

SDL

GTK+

LEC 23

colors

24-bit, 16-bit, 8-bit

palettes

alpha

images, formats

3D pipeline

OpenGL

text encoding

ASCII

Unicode

UTF-8, UTF-16, UTF-32

LEC 24

ANSI escape seq

text formatting

stack dump

frame ptr, return ptr

buffer overflows

core files

LEC 25

assembly output

embedding assembly

goto

Makefile

vars, \$@, \$^, \$<, \$*

LEC 26

hardware interfacing

ports

GPIO

datasheets

LEC 27

review