

Midterm Review

- I. Introduction
- II. Unix Basics
 - A. Unix Directories
 - 1. pwd, ls, mkdir, cd, cp, mv
 - 2. user/group/world
 - 3. read/write/execute
 - 4. rm, ps, kill
- III. Introduction to C
 - A. C input/output
 - 1. printf, scanf
 - B. Type declarations
 - 1. sizeof
 - 2. address of a variable
 - C. preprocessor directives
 - 1. #include
 - 2. #define
 - D. C constructs
 - 1. if, while, for, switch
 - 2. promotion, casting, operator precedence
- IV. Functions
 - A. A Simple Function Example
 - 1. function prototypes
 - B. Math Library Functions
 - C. Header Files
 - D. Random Number Generation Example
 - E. Call by Value
 - F. Call by Reference
 - G. Scope
 - 1. Global variables
 - 2. Local variables
 - 3. auto versus static variables
- V. Arrays
 - A. Initialization
 - B. Array Example
 - C. Subscripting Out-of-Range Example
 - D. Passing Arrays to Functions
 - E. Multiple Dimensional Arrays
 - 1. Double-Subscripted Arrays
 - 2. enum and switch Example
- III. Pointers
 - A. Addresses and typed (& *)
 - B. Indirection
 - C. Using pointers in call-by-reference Example

- D. Swap with Pointers Example
- E. Pointers and Arrays
- F. Operator Precedence with Pointers Example
- IV. Strings
 - A. Strings as arrays of characters ending with “\0”
 - B. Pointers to Strings
 - C. An Array of Strings Example
- V. Make
 - A. A make Example
- VI. Structures
 - A. Definitions and Typedefs
 - B. Structure member operator (.)
 - C. Structure pointer operator (->)
 - D. Structures with Functions
 - E. A Structure Example
- VII. Command Line Arguments
 - A. argc and argv, atoi function
- VIII. Introduction to Data Structures
 - A. Self-Referential Structures
 - B. malloc and free
 - C. Linked Lists
 - 1. Insertion Example
 - 2. Linked List Example
- IX. Computer System Performance and Simulation
 - A. Performance Metrics
 - 1. Utilization, throughput, response time and delay
 - B. System queue model versus queue data structure
 - C. Event lists and script driven simulations
- X. Data Structures
 - A. Queues