

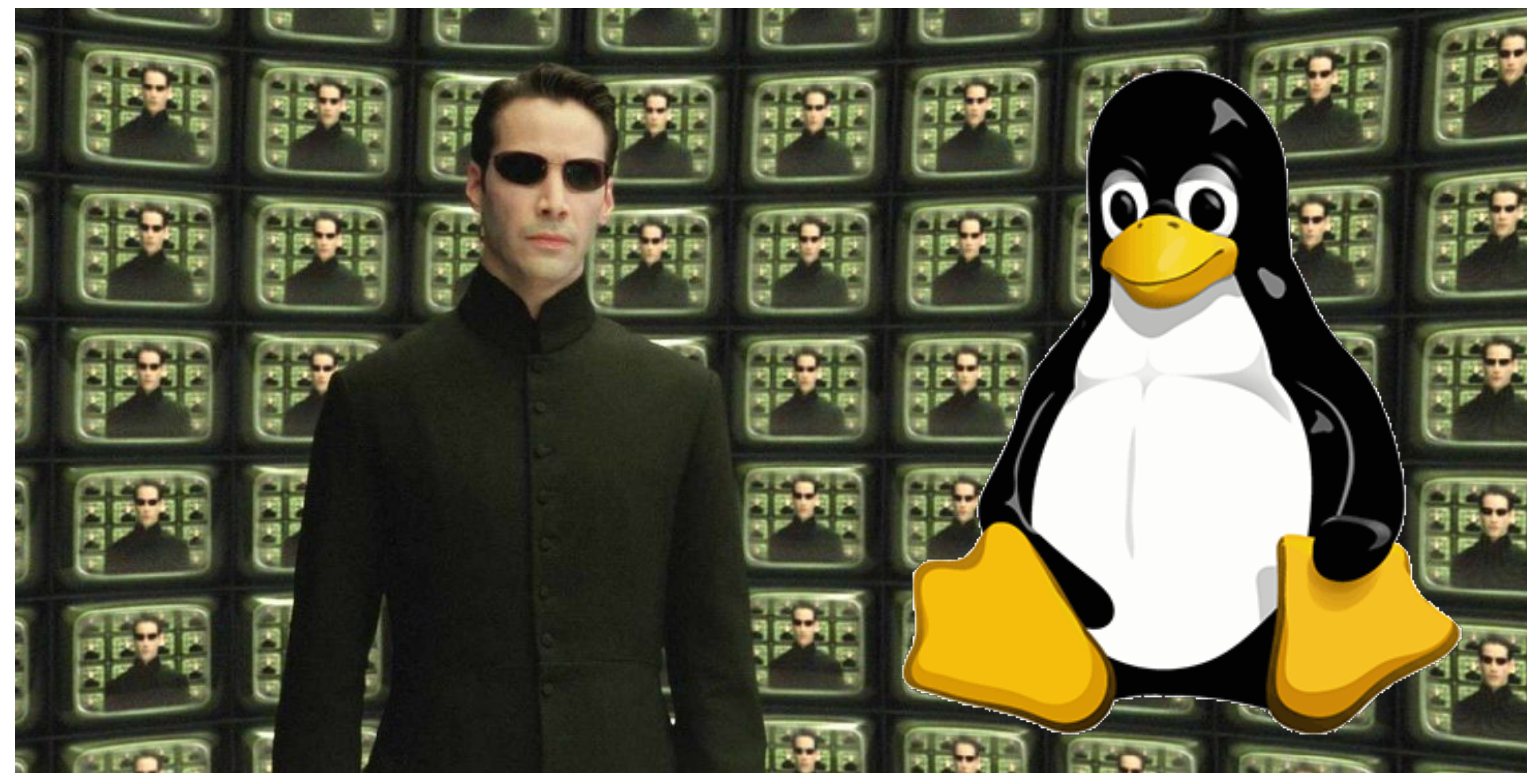


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CSCI 125

Introduction to Computer Science and Programming II

Midterm Review



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2020 Summer Semester (S2)

Overview

- Focus: Basic C/C++ Syntax
- Architecture: Linux/Unix OS
- Core Ideas:
 1. Midterm Structure
 2. Lecture 1-5: Just in case you don't remember!
 3. Continuation of OJ question 010-018

Midterm Structure

- 2.5 Hours
 - OJ Contest: 3 questions, difficulty scale = 1, 2, 2
 - Online 20 MC, 5 QA
 - You decide how to spend your time

Midterm Structure

- Coverage
 - Lecture 0: Linux/Unix command line environment
 - Lecture 1: Basic statements
 - Lecture 2: Arrays
 - Lecture 3: Pointers
 - Lecture 4: Functions
 - Lecture 5: Character Arrays and Strings

Midterm Structure

- Important stuff
 - vim; APT; wget
 - Compiler: g++, object compilation and linking, LLDB operations
 - Pointer
 - Scope
 - Error message interpretation: compilation, execution
 - C and C++ difference

Midterm Structure

- How to study for the midterm? Theory Part:
 - Make sure you understand what the covered linux commands do
 - Make sure you understand how basic C++ statements/instructions are doing
 - Pointer, char array, manual memory management
 - String, char array IO and manipulation
 - Pseudocode

Midterm Structure

- How to study for the midterm? Code Part:
 - Try to finish all the practice problems
 - Read: Pay attention to the details in the I/O specifications
 - Time: Make sure you are not spending too much time on a single problem
 - Think: What data structure to use, what execution flow?
 - Practice Practice Practice: write more code

Midterm Structure

- How to study for the midterm? Code Part:
 - Think about what's been causing you compilation errors
 - Think about what's been causing you TLE
 - Think about what's been causing you segmentation fault
 - Think about what's been causing you WA

Linux Command Line

- File system and File commands
 - Linux file structures
 - Linux permissions: chmod, chgrp, chown
 - Linux file commands: cd, ls, mkdir, rm, rmdir, mv, cat
 - Linux software installation: APT
 - Download and Text editing: wget and vim

Linux Command Line

- Compilation
 - How to compile C++ programme
 - Compiler arguments
 - 3 steps: preprocessing, compiling, linking

Basic C/C++ Programme

- Preprocessing directive: #include
- Variable declaration
- if statement: conditional statements
- for loops
- cstdio library: scanf and printf

Basic C/C++ Programme

- Comment
- Identifier criteria
- Basic data types: primary, derived, user defined
- Arithmetics, operator precedence
- iostream: cin and cout usage, std namespace

Array

- Array memory arrangement
- Declaration and Manipulation
 - Initialisation, partial initialisation
- Pseudocode

Pointer

- Automatic memory management, scope
- Pointer data type
 - Manual memory management
 - Void pointers
 - Reference

Functions

- Function calls and declarations: value returning and void function
- Parameters
- Const and Static variables
- Function overloading

Character Array and Strings

- Memory management of character array and strings
- IO using `cstdio` and `iostream`
- Basic `std::string` manipulations
- IO stream, file stream
- ANSI will NOT be part of the exam