CSc 10200
Introduction to Computing

Final Review
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Exam Format

• Part 1: Written (no computers and closed book)
  • Definitions and Programming Concepts
  • Short Answers (what does a piece of code do?)
  • Find bugs in a piece of code

• Part 2: Programming (in the lab, no internet access)
  • Two problems
Topics

• Everything covered by the lecture notes

• Everything covered by the homeworks

• Examples from recitation
Topics
Types and Variables

- int -- long int
- float -- double
- boolean
- char
- string
- Variable naming rules
Arithmetic Operators

- +, -, *, /, %, ++, --

- **Shortcut operators** +=, -=, *=, /=

- **Assignment** =

- Understanding **modulo** to
  
  - determine even or odd (x%2)

  - or if a number is a multiple of another (x%y == 0)

  - we can use this to factor numbers as well
Relational and Logical Operators

- **Relational** <, >, <=, >=, ==, !=

- **Logical** and (&&), or (||), not (!)
Operators

• Operator Precedence

• Integer division (3 / 2 == 1)

• Type casting
Selection and Loops

• if - else statements

• while loops

• do-while loops

• for loops

• switch

• break and continue
Functions

• naming convention

• parameters
  • naming
  • default values
  • pass by value vs. pass by reference

• return types and statements
Variable Scopes

- global variables
- local variables
- proper use of statement bodies using braces { }
Input and Output

• From a user
  • cin, cout

• From a file, using filestreams

• getline() function vs. stream operator (>>)
  • one reads up to new line, the other up to whitespace
Arrays

- declaring arrays

- indexing into arrays

- always start with 0 index

- arrays are passed by reference
Character and Strings

• Understand the difference between string "10" and integer 10

• Using strings as character arrays

• Ascii values

• character manipulation functions
Classes (Abstract Data Types)

- Member variables
- Member functions (methods)
- Public/Private
- Constructors
- using the dot (.) operator
- Operator Overloading
Recursion

- Understand the following concepts
  - Base cases
  - Recursive steps
  - Order of statements and recursive calls matter