CS 115 Final Terminology and Topics

Please note this is simply an outline of topics covered during class that may be used for the final exam questions, and is simply a studying tool. It may not be a comprehensive list and you will need to refer to your course notes in order to find out more information on these topics.

Introduction

- function calling
- sequence control structure
- repetition control structure
- call-by-value
- **call-by-reference, pass by reference (including constant)**
- concatenation
- helper function
- top-down design
- bottom-up approach
- module
- separate compilation
- object file
- linking
- assert

Arrays

- aggregate data type
- **array**
- **two dimensional array**
- index
- row
- column
- multi-dimensional array
- n-dimensional array
- row-major order
- column-major order

Records

- **record or struct**
- field
- initialization by copying
- default initialization

Program Organization and Abstract Data Types

- layering
- modularity

software reuse
modular programming
client software
interface (Application Program Interface)
implementation
.h file or header file
.cpp file
side effect
abstraction of a module
data encapsulation
file scope
design by contract
contract
supplier
client
precondition
postcondition
invariant
object-oriented design
object
abstract data type
accessor
creator
mutator

Classes

member function
Constant Member Function
class scope
scope resolution operator
public member
private member
public and private sections
class invariant
constructor
default constructor
initializing constructor
copy constructor

Searching and Sorting

linear search
binary search
selection sort
insertion sort

unsorted array
sorted array
average case
worst case
loop invariant

Overloading
- overloading
- function disambiguation
- overloaded function
- **overloaded operator**
- type coercion
- assignment operator

Program Organization and Abstract Data Types
- separation of concerns
- concern
- levels of abstraction
- principle of information hiding
- coupling
- cohesion
- model transformation

Object-Oriented Design
- composition
- inheritance
- derived class or subclass or child class
- base class or superclass or parent class
- class hierarchy
- implementation inheritance
- interface inheritance
- **polymorphism**
- **abstract class**
- **purely virtual function**
- **virtual function**
- concrete derived class
- static binding
- dynamic binding
- hidden function

Pointers
- **pointer**
- address
- getting a reference (or pointer) to a value

dereferencing a pointer or address
address operator
pointer arithmetic
null pointer

Canonical Form

canonical form of a C++ class
copy constructor
destructor

Dynamic Memory

dynamic allocation
deallocation
new operator
delete operator
dynamic memory management
memory leak
shallow copy
deep copy
virtual destructor

Linked Lists

linked data structures
linked list
singly linked list
successor
predecessor