CS201 Final Term Solved Short Notes

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(Graphics Designing, web development, Composing)

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#includes:

The #include directive instructs the preprocessor to read and include a file into a source code file. The file name istypically enclosed with < and > if the file is a system providedfile, or in quotes if the file is user provided.

Abstract class:
A class that can only be used as a base class for some other class. Aclass is abstract if it has at least one pure virtual function.

Aggregate:

An array or object of a class with no constructors, no private or protected members, no base classes, and no virtual functions. Also seeinitializer and initialization.

Alias:

Defining an alias for a structure or built-in type allows use of the aliasas if it were a new type. In C, the keyword is typedef. It's a bad idea toalias (have two objects pointing to the same data) unless one of those objects is a temporary variable.

Allocation:

The process of giving memory space to an object. Also see dynamicstorage, static storage, and deallocation.

Argument:

When calling a function, refers to the actual values passed to the function. Also see parameter.

Array:

An ordered and indexable sequence of values. C++ supports arrays ofa single dimension (a vector) or of multiple dimensions.

Assignment:

The process of giving a value to a pre-existing object. Also see copy constructor and initialization.

Base class:

A class that serves as a base for a derived class to inherit membersfrom. Also see inheritance.

Bit:

A bit is the smallest unit of memory that can be manipulated. It has a binary or Boolean value of 0 or 1. Within memory bits are combine edto form bytes and words. Depending on its type, a variable in a program is stored in some number of bytes.

Bool:

C++ keyword used to declare a Boolean data type.

Break:

C++ keyword used to specify a statement that is used to break out of afor or while loop or out of a switch statement.

Byte:

A byte is a grouping of eight bits which a computer typically groupsas one logical unit. It is usually the smallest addressable unit of memory.

Call by reference:

Passing a pointer to an argument to a function. The function can thenchange the argument value. Also see call by value. http://www.vustudents.net

Call by value:

Passing a copy of an argument to a function. The function cannot thenchange the argument value. C and C++ use call by value argument passing. But also see pointer and reference, also see call by reference.**Case:**

A C++ keyword used to denote an individual element of a switch statement.

Char:

A C++ keyword used to declare an object of character type. Often considered the same as a byte, though it is possible to have multi-bytecharacters. c**in:**

In C++ stream I/O, the standard input stream.

Class:

A C++ keyword used to declare the fundamental building block ofC++ programs. A class has a tag, members, access control mechanisms, and so on.

Class layout:

The way in which data class members are arranged in a class object

Class member:

A constituent member of a class, such as a data declaration, a function, or a nested class.

Class template:

A template used for generating class types.

Comments:

C++ has C-style comments delimited with /* and */, and new C++-style line-oriented comments starting with //.

Compiler:

A software tool that converts a language such as C++ into a differentform, typically assembly language. http://www.vustudents.net **Const:**

A C++ keyword used to declare an object as constant or used todeclare a constant parameter.

Constructor:

A function called when a class object comes into scope. The constructor is used to initialize the object. See allocation, copy constructor, and destructor.

Continue:

C++ keyword used with for and while statements to continue the iteration at the top of the loop.

Copy constructor:

A special type of constructor that is called when an object is copied.

cout:

In C++ stream I/O, the standard output stream.

Data structure:

The term data structure refers to the way data is organized for use within a program. Correct organization of data can lead to simpler andmore efficient algorithms. Common data structures are linked-lists, stacks, queues and trees.

Debugger:

A tool for stepping through the execution of a program, examining variables, setting breakpoints, and so on.

Declaration:

A C++ entity that introduces one or more names into a program. declaration specifies to the compiler the types of all the elements of anidentifier; "this function or this piece of data exists somewhere else, and here is what it should look like." See also definition for definition.**Default argument:**

An optional argument to a function. A value specified in the function declaration is used if the argument is not given. http://www.vustudents.net

Definition:

Instantiates an identifier, allocating its memory. A declaration can alsobe a definition.

You can declare data or a function in many difference places, but candefine it only once.

Delete operator:

C++ keyword and operator used to delete dynamic storage.

Derived class:

A class that inherits members from a base class.

Destructor:

A function called when a class object goes out of scope. It cleans upthe object, freeing resources like dynamic storage.

Do:

A C/C++ reserved word that allows construction of an iterative loop.The statements in the body always execute at least once. Also see while.

Double:

A fundamental data type in C and C++. Double variables are used to store floating-point values. They offer greater precision and can storelarger numbers than floats.

Dynamic memory allocation:

The process of dynamically creating objects in the heap or free storeduring program runtime. Statically created objects, created by the compiler, are put on the program stack.

Else:

C++ keyword, part of the if statement, that allows conditional execution of code. **endl**:

The standard C++ library provides a set of manipulator functions thatcan modify the state of iostream objects. endl writes a new line to output.

Explicit:

A C++ keyword used in the declaration of constructors to indicate that conversion of an initializer should not take place.

Expression:

A combination of constants, variables, and operators used to produce avalue of some type.

Expression statement:

A statement that is an expression, such as a function call or assignment.

Float:

A C++ keyword used to declare a floating-point type.

For:

A C++ keyword used to specify an iteration or looping statement.

Friend:

A type of declaration used within a class to grant other classes or functions access to that class.

Function:

A C++ entity that is a sequence of statements. It has its own scope, accepts a set of argument values, and returns a value on completion.**Function overloading:**

The capability of having several routines in a program with the samename. The different functions are distinguished by their parameter types, return value types, or both; the compiler automatically selectsthe correct version, based on parameter types and return types.

Garbage collection:

A way of automatically managing dynamic storage such that explicitcleanup of storage is not required. C++ does not have garbage collection.

Global variable:

A variable that is accessible throughout the whole program, whoselifetime is that of the program.

goto:

C++ keyword, used to transfer control within a C++ function.

Header file:

A file containing class declarations, preprocessor directives, and soon, and included in a translation unit. It is expanded by the preprocessor.

Heap:

A pool of memory used for dynamic memory allocation. Blocks of memory from this area are allocated for program use during executionusing the new operator in C++ and the malloc function in C.

If:

C++ keyword used in conditional statements, that allows conditional

execution of code.

Inheritance: The process whereby a derived class inherits members

from a base class. A derived class will also add its own members tothose of

the base class.

Inline:

C++ keyword used to declare an inline function.

Inline function:

A function that can be expanded by a compiler at the point of call, thereby saving the overhead time required to call the function. Best forrecursive and loop calls. Provides type safety and side-effects protection not afforded by #define.

int:

The C/C++ keyword int is used to declare an integer variable.

Interface:

C++ separates its interface from its implementation. The interface in C++ is the class definition of an object, and its methods. The interfacedoesn't specify how the methods work; this is done in the class implementation. Only the interface need be compiled at compile time.The implementation can be linked (or even written) at any time. You can compile a system to make sure it all fits together without writing its implementation.

Keyword: http://www.vustudents.net

A reserved identifier in C++, used to denote data types, statements ofthe language, and so on. Keywords are reserved words that serve a special purpose within a programming language. They may declare the type or properties of an object, or allow creation of program structure such as branches or loops. They may not be used as identifiers or object (variable) names.

Label:

A name that is the target of a goto statement.

Linker:

A program that combines object files and library code to produce an executable program.

Macro:

A preprocessor feature that supports parameter substitution and expansion of commonly used code sequences. Also see inline function.

Main:

Every C or C++ program must have one and only one main function.Program execution begins with the first statement in main **malloc**:

malloc is used to dynamically allocate memory in the C programming language. malloc returns a pointer of type void to a memory buffer ofa requested size, or null if it fails. It may also be used in C++, although new is preferred.

Manipulators:

Special iostream functions permitting specific i/o operations while inthe middle of stream insertion or extraction. These functions switch appropriate iostream format flags.

Memory leak:

In C/C++, it is possible to allocate space for objects (variables) dynamically during program execution. After finishing use of a dynamically allocated object, it is necessary to explicitly release the

memory consumed by the object, particularly before pointers to the object go out of scope. Failure to do so results in a memory leak. Longrunning programs or those that allocate memory extensively can consume or occupy enough of a computer's memory to seriously hinder performance when memory leaks are present.

Name mangling:

A way of encoding an external name representing a function so as tobe able to distinguish the types of its parameters.

New operator:

C++ keyword and operator used to allocate dynamic storage.

Null pointer:

A pointer value that evaluates to zero.

Object:

In C++, often refers to an instance of a class. Also more loosely refersto any named declaration of a variable or other entity that involves storage.

OOP:

Acronym for object-oriented programming.

Operator:

A built-in operation of the C++ language, like addition, or an overloaded operator corresponding to a member function of a class.**Operator overloading:**

To treat a C++ operator like << as a function and overload it for particular parameter types. The assignment of more than one functionto a particular operator, with the implication that the operation performed will vary depending on the data type (operands) involved. **Overload**:

To specify more than one function of the same name, but with varyingnumbers and types of parameters.

Parameter:

Refers to the variables passed into a function.

Pointer:

An address of an object.

Pointer to data member:

A pointer that points at a data member of a class.

Pointer to function:

An address of a function or a member function.

Preprocessing:

A stage of compilation processing that occurs before the compilerproper is invoked. Preprocessing handles macro expansion amongother things. In C++ use of const and inline functions makes preprocessing less important.

Preprocessor:

A device or routine that performs preliminary operations on input before passing it on for further processing. See also preprocessing.**Private**:

A C++ keyword used to specify that a class member can only be accessed from member functions and friends of the class. See accesscontrol, protected, and public.

Protected:

A C++ keyword used to specify that a class member can only be accessed by member functions and friends of its own class and by member functions and friends of classes derived from this class. Seealso private and public.

Prototype:

A prototype is a function declaration. Function declarations are generally placed in header files.

Public:

A C++ keyword used to specify that class members are accessiblefrom any (nonmember) function.

Queue:

A queue is a data structure that supports FIFO, first in first out processing. Objects will be processed in the order they enter a queue.Conceptualize a queue as a water pipe. The first water to flow in willbe the first water to flow out of the other end.

Reference:

Another name for an object. Access to an object via a reference is like manipulating the object itself. References are typically implemented as pointers in the underlying generated code.

Register:

C++ keyword used as a hint to the compiler that a particular localvariable should be placed in a machine register.

Reserved word:

Keywords that serve a special purpose within a programming language. They may declare the type or properties of an object, or allow creation of program structure such as branches or loops. Theymay not by used as identifiers or object (variable) names.

Return:

C++ keyword used for returning values from a function.

Return value:

The value returned from a function.

Scope:

The region of a program where a name has visibility. Generally, the domain of objects and calls within which an object can exist. A structname or Enum in an inner scope can obscure a global of the same name in an outer scope. In C++, Enum constants embedded in a structdef have the same scope as that strut's fields. http://www.vustudents.net

Short:

A C++ fundamental type used to declare small integers.

Signed:

C++ keyword used to indicate a signed data type.

String:

A set of consecutive characters treated by a computer as a single item.In C, strings are represented in null, '\0', terminated character arrays.
In C++, it is common to use the string class, which is part of the standard C++ library to hold and manipulate strings.

Switch:

C++ keyword denoting a statement type, used to dispatch to one of several sequences of statements based on the value of an expression.**Template**:

A parameterized type. A template can accept type parameters that areused to customize the resulting type.

Template argument:

An actual value or type given to a template to form a template class.

Template class: A combination n of a template with a template argument list via the process of template instantiation.

This:

C++ keyword used in a member function to point at the object currently being operated on.

Union: A structure somewhat like a class or struct, except that individual union members share the same memory.

Virtual function: A member function whose interpretation when called depends on the type of the object for which it is called; a function for an object of a derived class will override a function of itsbase class.

While:

C++ keyword used to declare an iteration statement. It means 'do untilthe condition is true'.