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| --- | --- |
| Bits | The smallest data item in a computer can assume the value 0 or the value 1. |
| Characters | Digits, letters and special symbols |
| Fields | group of characters or bytes that conveys meaning. |
| Records | Several related fields can be used to compose a record. |
| Database | An electronic collection of data |

* **Programming Languages Paradigms**:
  + Modular Programming
  + Logical Programming
  + Unstructured Programming
  + Procedural Programming
  + Object-Oriented Programming
* **Operating System:** 
  + An operating system is the most fundamental set of programs on a computer.
* **Utility Programs:**
  + They perform a specialized task that enhances the computer’s operation or safeguards data (e.g., virus scanners, data backup programs, etc.)
* **Software Development Tools:** 
  + The programs that programmers use to create, modify, and test software (e.g., assemblers, compilers, and interpreters).

**Programming Midterm Cheat Sheet**

A default argument is a value provided in function declaration that is automatically assigned by the compiler if caller of the function doesn’t provide a value for the argument with default value. return \_type f\_name (arg1,arg2,arg3=value)

* Call-by-value parameters are "local copies" in receiving function body ▪ Actual argument cannot be modified
* Call-by-reference passes memory address of actual argument
* Actual argument can be modified
* Argument MUST be variable, not constant
* Setprecision(2)<<average
* C++ programs typically go through six phases:
  1. Edit
  2. Preprocess
  3. Compile
  4. Link
  5. Load
  6. And Execute.
* **Computer** is an Electronic Device that performs computations and logical calculations.
* 0 means power off and 1 means power on
* **Compilation**: Each instruction of the high-level language is replaced by the equivalent sequence of machine language instructions.
* **Hardware** are the part of Computer with Physical Structure.
  + Examples: Central Processing Unit (CPU) Motherboard Memory (RAM) Graphics Processing Unit (GPU) Keyboard Screen
* **Software** is any computer program (or any set of instructions) that guides the hardware.
* **Input Unit**: This unit receives information from Input Devices (mouse, keyboard, scanner)
* **Output Unit**: This unit sends information from the computer to Output Devices (screen, printer, speakers
* **Algorithms**: methods used to solve problems Data structure: organizations of data that the algorithms use
* **Arithmetic and Logic Unit** (ALU): This unit performs all arithmetic and logical operations (part of the CPU)

A signature is a combination of a function’s name and its parameter types (in order).

• Function overloading is used to create several functions of the same name that perform similar tasks, but on different data types.

•Use caution when overloading functions with default parameters, because this may cause ambiguity

* Formal paraments/arguments:
* In function declaration
* In the function implementation's header
* With pass-by-reference, the caller gives the called function the ability to access the caller’s data directly, and to modify that data.
* The original variable can be modified directly by the called function (call by reference)
* Example: void Twice(int& a, int& b)
* Pass-by-value makes a copy of the variable
* The call to setprecision (with an argument of 2) indicates that double values should be printed with two digits of precision to the right of the decimal point (e.g., 92.37)
* #include <iomanip> (to use it)
* Static\_cast<datatype>(expression)
* If else statement: Var= (x<10)? 20:30;