CptS 121 – Program Design and Development

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Quiz 1

1. (4 pts) Using your own words, what is an algorithm? Explain.

* An algorithm is a well ordered set of instructions designed to solve the problem. Then it halts in a finite amount of time.

Explain:

Almost process in life has its step-by-step things to complete. The algorithm is that process; do the instructions in order. The order is very important. And the process will stop once completed.

1. (8 pts) Provide an algorithm for tying one shoe when half the shoe lace is red and the other half is white. Be sure to number your steps.

+List of steps:

- Step 1: Take both laces and cross them over to make it look like an X with the red lace in front.

- Step 2: Pull the red lace through the bottom of the white lace.

- Step 3: Tighten the laces.

- Step 4: Loop the laces into bunny ears.

- Step 5: Cross the bunny ears over each other so that the right ear is in front of the left.

- Step 6: Under the top one to create the first knot, then pull the ears to tighten the knot.

+ The process finishes.

1. (3 pts) What is a compiler? Explain.

* Compiler is a program that reads a computer code written in a high-level programming language (source code) and translates it into another language (the target language) to create an executable program.
* Explain:

The computer cannot read source code that we program. So the compiler helps translate that source language into machine language so that the computer can read and execute the program.

Simple representation:

Source code 🡪 Compiler 🡪 Machine code 🡪 Output