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247345 (2021SP Microprocessor Assembly Lang (CIS-2420-NET01))

1. The portability of source code written in C++ is written specifically towards the underlying facilities of the operating system. The toolchain (C++ Compiler, assembler, etc) is built to convert all instructions into machine code understood by that computers’ instruction set often times attempting to make optimizations where possible. This could be an instruction set for ARM, x86, or various chips where the type of toolchain used would be included or guided by the Operating Systems needs.  
     
   The portability of the x86 assembly language will only work with an x86 processor. These are the specific instructions that the CPU is capable of executing and are not one for one with other CPU instruction sets.
2. I’m not sure if this is asking for all of the instructions necessary to move the strings into the registers that are used to display characters and point the stream to the terminal output. I’ll give it a shot but assuming it’s just the math operations I’ll leave that as a second answer.  
     
   Assembly Instructions: Moving X into the eax register, divide by a floating point, mov result into a register for printing, interrupt to screen, mov an @data section pointer of the “is the decimal percent value” to the register for printing to screen, interrupt to screen, mov x to the register for printing to screen, interrupt to screen.  
     
   8 Assembly Instructions  
     
   For machine instructions I feel like you are asking me how many 1’s and 0’s. Double and floating point both being DWORDs, string being 33 characters of (assuming) ASCII 8x1 Byte. (33 \* 8 \* 4) + (3 \* 2 \* 8) = 312

3 – 12: **Attached Photo of Paper**

*\*Note:* ***On question 9*** *for the Floating Point I was a little confused because you didn’t say the mantissa was 3 bits etc. like you had done in the Assigned work previously. You used the term “Pure Binary” which I’m guessing you just meant place the decimal where it would go and show the bits as the ½, ¼, etc. I get wrapped around the axle fairly easy so may have misread this.*

**Diagram, schematic

Description automatically generatedA picture containing diagram

Description automatically generated**

13.) String Haiku

firstFiveSyllable BYTE “DANGEROUS ALONE”, 0

secondSevenSyllable BYTE “HERE TAKE THIS TO GO WITH YOU”, 0

thirdFiveSyllable BYTE “YOU ARE NOT ALONE”, 0