Assignment 5

Problems:

1. Create a function in “C” that allows swapping of two pointers.  
a. Explain what the “main” function does in order to setup the input arguments prior to calling the swap\_pointer() function?

*The values and their addresses are placed on the Stack.*

b. What are the values in R0 & R1 when swap\_pointer() is called?

*R0 contains 0x200007EC (a\_ptr/x)  
R1 contains 0x200007E8 (b\_ptr/y)*

*These are the pointer addresses.*

c. Share a screen shot of the local variables inside of “main” after the function swap\_pointer() returns showing the values of the pointers and what they are pointing to (similar to the picture below).

Table

Description automatically generated

2. Create a new file divAsm.s and add the file to the same HelloWorld project above.   
a. Start with the Assembly demo code shared in class (available under Module\_06).

b. Write the assembly code to take an input argument, divide it by 2, and return the result.

c. Invoke the function “PrintString” from within divAsm before doing the division computation.

d. Add a comment for every statement in your assembly function code.

e. Invoke divAsm() inside of your main function in main.c

f. Run your program on the board and capture a snapshot image of the output from TeraTerm showing the result of the divAsm.

Text

Description automatically generated

3. Implement a swap function in assembly and call it “swapCharsAsm”:   
a. It takes as input two variables of char data type each and swaps the two chars.

b. Add a comment for every statement in your assembly function code.

c. Bonus: Return 0 if the two chars are identical; otherwise, return 1.