Question 1

Meets Expectation

You correctly identify what HAL stands for. You are correct that it abstracts hardware operations. I’d like to see more information about what you mean about “low level functions” and “bit operations”.

Question 2

Meets Expectation\*

This answer is entirely correct. I would like to see you specify how it was used in our lab, specifically by explaining that we used it for getting printf working.

Question 3

Meets Expectation\*\*

Your answer is mostly correct. It is true that the debugger is used for observing the contents of the registers, it’s not really clear how you could store a register’s value into a variable, especially if doing so would modify the contents of other registers. However, you correctly mentioned that the primary reason we used the debugger in the lab was to make sure that we observe the values in registers before continuing to run the code.

Question 4

Does not meet expectation

What you’ve written in your answer is entirely correct here, and you are correct in that you must subtract the offset to get the new location of the stack. However, you did not answer the second part of the question, which is to explain why we needed to know MSP’s initial value for this to work.

Question 5

Meets Expectation

You answer is mostly correct but could use more detail. I think you need to give more information about how you are counting your threads (for instance, does the main stack get thread number of 0?) otherwise your scheme for finding new stack locations will work.

**Mike’s Notes:**

* This took me 4 minutes and 40 seconds, and I am 100% familiar with the rubric and the assignment.
* \*GPT4 decided that this answer did not meet expectations. The student was advised to clearly explain that printf should be used. Here, I put it as “meets expectation”, perhaps because I am aware of what the student means – that a “specified output channel” was used in this lab. Looking back at it, I agree with GPT4’s assessment, although I think the student could probably argue for the mark back.
* \*\*Both GPT4 and I told the student that he met expectation, and we both picked up on the fact that the student wasn’t clear. GPT4 focused on getting the student to answer the question more fully, by explaining why it was important to extend the functionality of printf, while I focused on whether printf would even be appropriate here.
* I had difficulty giving the feedback detail that GPT4 did. This is especially obvious in Question 4, where my feedback is only a couple of lines whereas GPT4 goes in depth. Both GPT4 and myself noted that the student missed the second part of the question.

**Comparison to Llama 70B**

I won’t go into much detail here, but Llama70B actually said that question 4 is the only one that met expectations! In fact, Llama70B made up a reason why, and claims that the student *did* answer the second part of the question where he clearly did not.