Lab 2B Feedback

1. Which parts of the lab *specification* have you found most confusing or difficult to understand?

Well, what I can say is that almost everything is confusing and everything is undetermined unless I asked you for a clarification. Here are the detailed information about each part.

(1) For part 1, this is the part that I didn't feel confused when I started. It's great because I was lectured about the theorem and how it works with some live examples. That means I do have been equipped with the related knowledge and skills to finish this part. I don't have anything to complain about this part but why I list it here is because I want to give you a good example.

(2) From part 2, things started becoming strange. The first thing I am gonna say is the generalization of the REPL, including output, user interface. We do need some specifications like that because the following part is built based on this part's output. That's where I really feel confused. If something I did in this part could not fit the requirement of the following parts, I must go back and fix it. That is really time-spending and makes non-sense. So, we need the specifications like what interface does the following parts need, what data format does the following parts need and so on. Secondly, From the beginning of this part, we had a talk about trying not to build a hammer but use the hammer. I still insist with this point. The whole idea of this part is to let us practice how to use DMA, which we have done in the part 2. After the part 1, we could a) understand how to use DMA, b) understand DMA process. After that, the whole part 2 becomes a programming practice, which I don't think should be the main point of this course.

(3) For part 3-4, the most confusing about this part is the schema and the communication process. First, the question I asked you, python or C. Sure, we could do our own design, but the thing is we could not do our design freely because of the same reason I gave in the part 2, the requirements from the following parts. There do is a requirement and schema for the whole lab, including the communication between the sequencer and the REPL, how REPL process the data, how sequencer processes the data and so on. We need to know the schema and, with that in mind, we could do something like designing some features which are not really important. Otherwise, for example, I couldn't understand why I need to record the keystrokes, what is remapping, why the register read/write commands is both inputs and outputs.

(4) For part 5-10, the specification is good to me. But, since the implementation of these parts is based on the understanding from the previous part, it's hard to implement and I will discuss this in the next section.

2. Which lab topics have you found most confusing or difficult to understand?

I don't think there is a topic that is difficult to understand.From a higher scope, this lab including 4 core topics: DMA, Sequencer, i2c protocol and pio module. None of them are really difficult for me to understand. But, like what I said in the previous question, the schema, the specification of implementing each parts, the requirements of the beginning parts from the later parts are the most confusing thing to me.

3. Which parts of the lab have you found most difficult to implement?

The most difficult lab topic is definitely the pio program which needs to generate the transition version of the data with precise timestamp. To be honest, I understand every commands of the pio program and could understand what a program is doing if you give it to me. However, without any practice of the pio programming, I couldn't just come out such a large pro program. I think we should start from some easy pio programming questions and finally do something difficult. For example, you could give us some assignments on paper with several questions of writing small pio programs after the lecture of the pio module. After that, you could collect some data of how students understand the pio module and adjust the scale of the lab's pio program to make sure most of us could write it on our own. The current lab and lecture is like I have to play NBA and carry a team to win the championship after my first basketball lesson from the high school. Without practice, it is almost impossible.

Also, the REPL needs me to spend a lot of time on C programming with no instruction of what to do and how to do it.

4. What steps have you taken to resolve these difficulties? Any other barriers you have faced to completing this assignment? Mention any students, repos, or other resources you have found helpful in completing the lab so far.

(1) Asking questions, asking questions and asking questions.
(2) A lot of barriers including and not limited to
   ① no OH
   ② limited resources from the professor (I cannot monopolize the prof's time)
   ③ the board doesn't have a lot of resources.
(3) Some students, repos or other resources I have found helpful
   ① Thanks Professor Dalton, I know I have a lot of questions and you are always willing to listen to me and try your best to answer them.
   ② Thanks Junpeng Zhao for his assistance. We discussed a lot about the lab details.
   ③ Thanks google and datasheets. When I was confused about some specific tech details, they are where I go to find answers.

Additionally, I have something to say upon the course design and some other fields.

5. The mismatching problem between the project and the lecture content

In my opinion, the lecture and lab should prepare us for the final project and based on what we learned from the lecture and lab, finally, we could come out a final project. However, in the whole semester, most of the things I learned from the lecture are mainly related to the pio module and I didn't even have any practice to improve my pio programming skill gradually. Thus, from the beginning of the final project, I didn't feel that I was well equipped by this course for the project. To be honest, I do want to learn something from the lecture about my final project like how

to use UART to implement implementation, how to use a TFT screen to show something I want. These ideas are the ones which are really helpful for our final personal-designed project. Unfortunately, I didn't see that except for the pio module.

6. Trying not to Build the hammer but use the hammer, about the lab content

In my understanding, this course is mainly a introduction course of the microprocessor. Also, since this course is a project-aimed course, we need to focus more on how to use the "hammer". Take the REPL as an example, I understand the C programming practice is essential, but it spends such a long time but I didn't really have learned a lot about the microprocessor itself. That makes no sense to somebody who wants to build his toolkit for the final project.

Finally, we had a lot of talk about the course design, the lab design and some specific questions. I can indeed feel that you want to make this course better and the improvement you have done to make it better, although it is not really good right now. I did see your struggle and difficulties that you are facing like has short time to prepare for the course materials. I can feel it and I really appreciate for all the effort you make for this course. To be honest, I cannot give you all the points which need improvement in the whole course at this point because I am limited by my own perspective. But, I also tried my best to engage in this course because I am going to graduate in this semester and I have applied for OPT, which means I have to make sure I could graduate this semester. But, anyway, at this point, I really thanks for your effort and the text I typed above are something I want to say to you. Appreciate for hearing from me with your patience. If you want to talk a point specifically, we could arrange a zoom meeting later to have a discussion.