Unit 10_010 – About Stacks

1. What is a stack?

2. What are the two main operations that may be performed on a stack?

3. What does LIFO mean? (I forgot to use the term in the video, but it is in the notes. Look it up in the notes or do a web search.) Explain in paragraph form what LIFO means.

4. Stacks have a top. Doe they have a bottom? Explain your answer.

5. Can stacks logically grow downward?

6. What is "RPN arithmetic?" Why does almost every discussion of stacks include at least a mention of RPN logic?

Unit 10_020 – Functions and the Stack

Video Length

7. How are function calls in high level languages similar to function calls in assembly language from the perspective of the operating system?

8. How are function calls in high level languages different than function calls in assembly language from the perspective of the programmer?

9. What is the stack frame? (Give a general description, not just list of the information included in the stack frame.)

10. What information is stored in the stack frame?

11. In the video, I recorded the value of the rsp in each function. What is the rsp register, and why was I focused on just that register?

12. In the video, I was writing the values of the rsp in the text editor. To what extent was I simulating the stack when I did this?

13. In the video, I mentioned that the stack grows down in memory. Did using the editor reflect the "downward" growth of the stack? ?

14. In the video, did each new value of the rsp get larger or smaller than its previous value?

15. In homework 9, I cautioned you to make sure that you always pushed an even number of quads onto the stack. Based on what you know now, why did I give this advice?

Unit 10_030 – Stack Frames

Video Length

16. What is the relationship between a function and the stack frame?   What is the first item

pushed onto the stack when a function is called?

17. What is the "Red Zone" of the stack frame?

18. What is the RBP register? How is it related to the stack and functions?

19. What does ABI stand for? Explain why it is important to the assembly language programmer.

20. What does the ABI say about the alignment of the RSP when the function is called.

21. When I ran kdbg, what digit did all the RPB values end with. Why was this significant? Would I have gotten the same result if I had had been displaying the address in decimal (explain)?