

Unit 11_010 – Writing A Function

1. We have been using the `.globl` directive in our assembly language programs for the entire semester. Explain what the `.globl` directive does.

Unit 11_020 – Recap

2. Is `main` going to be a caller or a callee function?
3. In the previous video, were the `quit` functions callers or callees?
4. What is the ABI?

5. For each of the following, write "R" next to registers that belong to the caller function, and "E" next to the registers that belong to the callee

- %rax _____
- %rbx _____
- %rcx _____
- %rdx _____
- %rsi _____
- %rdi _____
- %r8 _____
- %r9 _____
- %r10 _____
- %r11 _____
- %r12 _____
- %r13 _____
- %r14 _____
- %r15 _____
- %rsp _____
- %rbp _____
- %rip _____
- %rflags _____

6. In the previous question, why does ownership matter? Generally, who should save the register?

Unit 11_030 – Stack Recap

7. What two register

8. What is the purpose of the rsp and the rbp registers? If we already have the %rsp register, why do we need the %rbp register?

9. Why does subtracting from the %rsp make the stack get larger?
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Unit 11_040 – Stack Alignment

10. What boundary must the stack be aligned to before a function call?
11. Should the caller or the callee align the stack?
12. The caller is responsible for aligning the stack. Let's assume that the programmer writing the caller function does reliably align the stack. Does that mean that the callee can assume the stack is aligned when the function starts? Explain.
13. What is a leaf function?
14. What are three methods of aligning the stack?
- Method 1:
 - Method 2:
 - Method 3:
15. How can the debugger let you confirm that the stack is aligned?

Unit 11_050 – Real Function

16. Earlier in the semester we wrote a function that converted a string into a number. Write a function that takes a string and returns the equivalent value in the %rax. You may either pass a null-terminated string, or you may pass a string and an integer representing length.