Execution Stack

- The stack is stored in RAM
- Register %rsp   stores address of the top of the current stack frame
- Register %rbp   stores address of the bottom of the current stack frame

Top of the Stack

Callee's Frame or Active Frame (current frame in execution)

Space for local & temporary vars, & saved register values
saved %rbp (Caller's stack frame)

Stack Pointer %rsp

Frame or Base Pointer %rbp

Caller's Frame

Return address (saved program counter)
parameter 7 (first six parameters passed as registers: rdi, rsi, rdx, rcx, r8, r9)
⋮
parameter n

both caller & callee can access these:
push %rip (PC)
push input arguments to callee

Earlier Stack Frames

⋮
⋮

Bottom of Stack

lower memory address

call   return

higher memory address