“Smashing the Stack for Fun and Profit”

(aka Project 1)
A Crash Course in x86

• General-purpose registers:
  – EAX, EBX, ECX, EDX, ESI, EDI, …

• Stack registers:
  – EBP – Stack frame pointer.
    Used to address locals, arguments, etc.

• EIP – Instruction Pointer/Program Counter
A Crash Course in x86

- Stack manipulation instructions:
  - PUSH arg: ESP - 4 -> ESP, arg -> @ESP
  - POP arg: @ESP -> arg, ESP + 4 -> ESP

- Function call instructions:
  - CALL addr: PUSH EIP, JMP addr
  - RET: POP EIP
  - LEAVE: EBP -> ESP, POP EBP
A Crash Course in GDB

• info reg: Dump registers
• disassemble (Only for the current function)
• run: (re)start program
• continue
• break: set a breakpoint:
  – b foo
  – b foo+10
  – b *0x080fcde8
• step, stepi
A Crash Course in GDB

• x: Examine
  – x buf
  – x $esp
  – x 0x0804face
  – x/20i main
  – x/40x buf
  – ...

Let’s h4x0r!!!11