Kevin Lopez

CIS341

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Week 6 Assignment

1. (100 points) The assembly code for two functions foo and bar is shown below, along with the code for a call of foo by function main:

```
400000 <bar>:
    400000: 48 89 f8           movq    %rdi, %rax
    400003: 48 0f af c6        imulq   %rsi, %rax
    400007: c3                 retq
400008 <foo>:
    400008: 48 8d 77 01        leaq    1(%rdi), %rsi
    40000c: 48 83 c7 02        addq    $2, %rdi
    400010: e8 eb ff ff ff     callq   bar
    400015: c3                 retq
400016 <main>:
    400016: e8 e3 ff ff ff     callq   foo
    40001b: 48 89 c2           movq    %rax, %rdx
```

Starting with the calling of foo(5) by main, fill in the following table to trace instruction execution through to the point where the program returns back to main.

	Instruction	Start value at beginning				
		%rdi	%rsi	%rax	%rsp	(%rsp)
1	callq	5	—	—	0x7fff3410	—
2						
3						
4						
5						
6						
7						
8						
9						

1.

1	callq	-	-	-	0x7fff3410	-
2	leaq	5	-	-	0x7fff3408	40001b
3	Addq	5	6	-	0x7fff3408	40001b
5	Movq	7	6	-	0x7fff3408	40004b
6	Movq	7	6	7	0x7fff3408	40004b
7	Retq	7	6	42	0x7fff3400	40001b
8	Retq	7	6	42	0x7fff3408	34443b
9	Movq	7	6	42	0x7fff3410	34443b