❖ Problem Set 8:

```
Problem Set due Jul 31, 2023 20:06 PDT Completed
```

Consider the following C code and several possible assembly language translations:

```
// C Code

void strcpy(char dst[], char src[]){

int i = 0;

do {

dst[i] = src[i];

} while (src[i++]);

}
```

Consider the following C code and several possible assembly language translations. Assume dst[] and src[] are passed in a0 and a1, and i is stored in s2.

```
strepy1:
   addi sp, sp, -4
      sw s2, 0(sp)
       addi s2, zero, 0
loop1:
  lw t1, s2(a1)
  sw t1, s2(a0)
  heq t1, zero, done1
  addi s2, s2, 1
  j loop1
done1:
  lw s2, 0(sp)
  addi sp, sp, 4
  jr ra
strepy2:
   addi s2, zero, 0
loop2:
   add t1, s2, a1
  add t2, s2, a0
  my t2, t1
  beq t1, zero, done2
  addi s2, s2, 1
  j loop2
done2:
  jr ra
strepy3:
      sw s2, 0(sp)
       addi s2, s2, 0
loop3:
  add t1, s2, a1
  add t2, s2, a0
  my t2, t1
  beq t1, zero, done3
   addi s2, s2, 1
  j loop3
done3:
  addi sp, sp, 4
```

```
strepy4:
  addi sp, sp, -4
    sw s2, 0(sp)
     addi s2, zero, 0
loop4:
  add t0, s2, a1
  lb t1, 0(t0)
  add t2, s2, a0
  sb t1, 0(t2)
  addi s2, s2, 1
  beq 11, zero, done4
  j loop4
  lw s2, 0(sp)
  addi sp, sp, 4
  jr ra
C to Assembly Language
1/1 point (graded)
Which is the simplest correct implementation of the strcpy function?
  ○ strcpy1
  O strcpy2
  O strcpy3
```

strcpy4

Submit You have used 1 of 2 attempts

Save Show answer

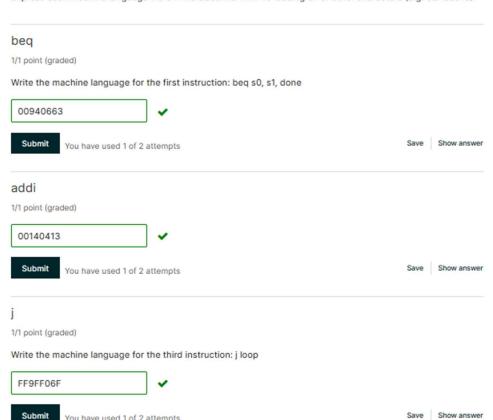
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You have used 1 of 2 attempts

Translate the following RISC-V assembly language code to machine language:

```
beq s0, s1, done
addi s0, s0, 1
j loop
```

Express each machine language word in hexadecimal with no leading 0x or other characters (e.g. 02A2E313).



Problem Set due Jul 31, 2023 20:06 PDT Completed Translate the following machine language code to RISC-V assembly language:		
08042283 40B553B3		
Machine Language 1		
1/1 point (graded)		
Which of the following assembly language instructions corresponds to 08042283?		
O lb t0, 128(s0)		
O lb s0, 256(t0)		
O lb t0, 256(s0)		
Iw to, 128(so)		
O addi s0, t0, 256		
Submit You have used 1 of 2 attempts	Save	Show answer
Machine Language 2		
Machine Language 2 1/1 point (graded)		
1/1 point (graded)		
1/1 point (graded) Which of the following assembly language instructions corresponds to 40B553B3?		
1/1 point (graded) Which of the following assembly language instructions corresponds to 40B553B3? or srl t2, a0, a1		
1/1 point (graded) Which of the following assembly language instructions corresponds to 40B553B3? output srl t2, a0, a1 sra t2, a0, a1		
1/1 point (graded) Which of the following assembly language instructions corresponds to 40B553B3? output srl t2, a0, a1 sub a0, a1, t0	Save	Show answer

funct:

lw t1, 4(a0) blt t0, t1, else

lw t0, 0(a0)

addi a0, zero, 0

ret

else:

addi sp, sp, -12

sw t0, 4(sp)

addi t1, t1, -1

sw t1, 8(sp)

sw ra, 0(sp)

addi a0, sp, 4

jal funct

lw ra, 0(sp)

addi sp, sp, 12

addi a0, a0, 3

ret

main:

addi sp, sp, -12

addi t0, zero, 2

sw t0, 4(sp)

addi t0, zero, 6

sw t0, 8(sp)

sw ra, 0(sp)

addi a0, sp, 4

jal funct

addi a0, a0, 5

lw ra, 0(sp)

addi sp, sp, 12

ret

Assembly Language Operation

1/1 point (graded)

Suppose you call main. What value is in a0 when main returns?

