Lab 2 Report – Ryan King

Lab 2.1:

Compute 1st argument is 0 and is passed via register x10

Compute 2nd argument is -1 and is passed via register x11

Computer 3rd argument is 4 and is passed via register x12

Return value is 1070123128 and is returned via register x10

The entry point of the "compute" function is at address 0x4200bb8a

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Breakpoint 1, 0x4200bc0c in app_main ()
(gdb) n
Single stepping until exit from function app_main,
which has no line number information.
0x4200bb8a in compute ()
(gdb) info registers a0 a1 a2
a0             0x0      0
a1             0xffffffff       -1
a2             0x4      4
(gdb) disassemble 0x4200bb8a
Dump of assembler code for function compute:
   0x4200bb7e <+0>:     lw      ra,12(sp)
   0x4200bb80 <+2>:     li      a0,0
   0x4200bb82 <+4>:     addi    sp,sp,16
   0x4200bb84 <+6>:     ret
   0x4200bb86 <+8>:     li      a0,0
   0x4200bb88 <+10>:    ret
=> 0x4200bb8a <+12>:    addi    sp,sp,-16
   0x4200bb8c <+14>:    lui     a0,0x3fc8d
   0x4200bb90 <+18>:    lui     a5,0x4200c
   0x4200bb94 <+22>:    sw      s0,8(sp)
   0x4200bb96 <+24>:    lui     a4,0x3fc8d
   0x4200bb9a <+28>:    addi    s0,a0,-1928 # 0x3fc8c878
   0x4200bb9e <+32>:    addi    a5,a5,-1322 # 0x4200bad6 <uart_tcdrain+44>
   0x4200bba2 <+36>:    li      a2,0
   0x4200bba4 <+38>:    li      a1,4
   0x4200bba6 <+40>:    addi    a0,a0,-1928
End of assembler dump.
(gdb) step
Single stepping until exit from function compute,
which has no line number information.
0x4200bbaa in app_main ()
(gdb) info registers a0
a0             0x3fc8c878       1070123128
```

Note: when running monitor, the result of compute is said to be 37. Not sure why this happens, but I ran checked the assembler code for compute, and the output is the same as gdb reports in a0 (and no other registers contain the value 37).

Setups Used

I used both the raspberry pi and WSL. I found gdb didn't work in WSL.

Resources used:

GitHub Copilot was used to create the crc8 checksum algorithm. (Prompt was "unit8_t" to start and the rest of the lab2_2.c file.)