**Section 3: ARM Assembly Programming**

**Part 1: Second Program**

First, I composed the file,

then I assembled and linked it in order the receive an executable file. However, there was no output. The entire program takes place in the registry, so we did not expect to receive any output.

Next, I practiced utilizing the GDB (GNU DeBugger),

A screenshot of a cell phone

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A screenshot of a computer

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Then I set a breakpoint to see how the program completing took place. To stop debugging I get a breakpoint at “b 15”as shown in the below image. With the help of run I executed the program. To execute the program step by step I used “stepi” command as shown in the image below.

A screenshot of a computer

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This command x/3xw 0x100990 was used to generate three words in hexadecimal: 0xe5821000, 0xe3a07001, 0xef000000.

**Part 2: Calculate the Expression**

I had to write the program for the following: Register = val2 + 9 + val3 – val1, where val1=6, val2=11, and val3=16.

First, I composed the file,

then I assembled and linked it in order the receive an executable file. However, there was no output. The entire program takes place in the registry, so I did not expect to receive any output.

Next, I practiced utilizing the GDB (GNU DeBugger) as I did in the above example.

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As I did in the earlier example, I thent set a breakpoint to see how the program completing took place. To stop debugging I get a breakpoint at “b 19”as shown in the below image. With the help of run I executed the program. I also used the command “info registers” to make sure my code is correct. To execute the program step by step I used “stepi” command as shown in the image below.

A screenshot of a computer screen

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This command x/3xw 0x10098 was used to generate three words in hexadecimal: 0xe5811000, 0xe3a07001, 0xef000000.

A screenshot of a computer

Description automatically generated

🡪To make sure the code and the answer for the equation is correct I compared the values in the register and all of them were correct.

🡪Register 1 has the assigned value because the answer for the equation: val2 + 9 + val3 – val1 is 30. Also, Registers 1 to 3 has the values 30, 16, and 6 which were the values assigned to them.