W5b-Variables AL program

1. Create run.sh file

Terminal: nano run.sh

#!/bin/bash

nasm -f elf ./$1.asm

ld -m elf\_i386 ./$1.o -o ./$1

./$1

2. Change Access permission for run.sh

Terminal: chmod 777 run.sh

3. Create file in Assembly Language code to run

Terminal : nano result.asm

section .text

global \_start

\_start:

mov eax,[var1] ;load var1 to eax

mov ebx,[var2] ;load var2 to ebx

add eax,ebx ;update eax result by adding var1 and var2

mov [result], eax ;store eax value to result variable

mov eax,1 ;set eax register to 1

int 0x80 ;interrupt 0x80

section .bss

result resb 1 ;define uninitialized variable result.

section .data

var1 dd 10 ;initialize var1 to be 10.

var2 dd 15 ;initialize var2 to be 15.

4. Change Access permission for result.asm

Terminal: chmod 777 result.asm

4. Run the result code with run.sh

Terminal: ./run.sh result

5. GDB debugging and checking register process

gdb result

layout asm

layout regs

watch (int) result

break \_start

run

stepi <execute step by step.>

A screenshot of a computer

Description automatically generated A screenshot of a computer

Description automatically generated

Watchpoint 2: (int) result

Old value = 0

New value =25

\*\*\*Challenge: While initializing variables, I got very large number for var1, which is supposed to be 10.

Some attempts: 1. Change var1 and var2 data type from db to dd.

2. Change result resb from 1 to 4.

3. Add or remove [] for var1 and var2 between values and address pointer.

It took me hours to fix this issue.