Module Description

- Some evil entity has put a binary bomb on your workstation. You're not quite sure what it is, but it has "bomb" in the name, so it has to be serious!
- Take on the challenge of defusing it and save everybody! Or well, at least your PC...

Binary Bomb

- There is a binary file named **bomb** located in your "/home/student/Desktop" directory. Your task is to reverse engineer it and get the flag without setting it up.

Note: Watch out! The executable will self-destruct if the bomb explodes!

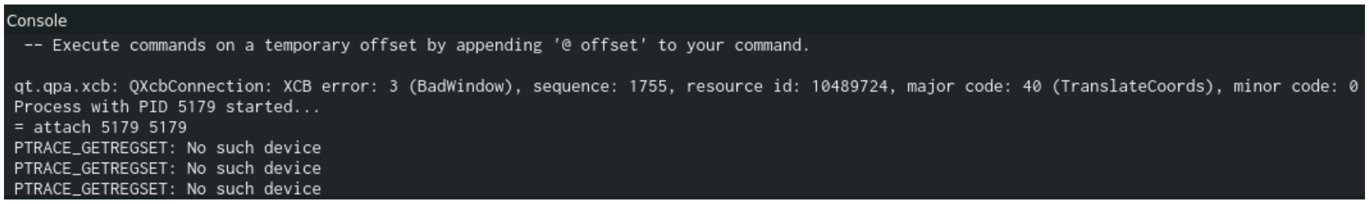
→ Write all the local variables addresses on a different text file!

Observations:

1. Allocates 800 bytes for the main function.
2. There are four circumstances that the bomb will explode. I think I have to create a reason to use the conditional jumps to avoid the "call explode" instructions until I reach the last instruction in the main function.
3. "some_eight_letter_pass" is the password for the first one.
4. Length of the pass_2 is 14.
5. The second key requires **three integer** inputs.
6. When using Cutter, the bomb does NOT detonate when you restart it!

Note: In Cutter, you have to ENABLE the "console" at the beginning to interact with the ELF file if it need inputs! (Windows→Console enable THEN start debugging the ELF file!)

The console should look like this at the beginning to make sure it works:



```
Console
 -- Execute commands on a temporary offset by appending '@ offset' to your command.

qt.qpa.xcb: QXcbConnection: XCB error: 3 (BadWindow), sequence: 1755, resource id: 10489724, major code: 40 (TranslateCoords), minor code: 0
Process with PID 5179 started...
= attach 5179 5179
PTRACE_GETREGSET: No such device
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PTRACE_GETREGSET: No such device
```
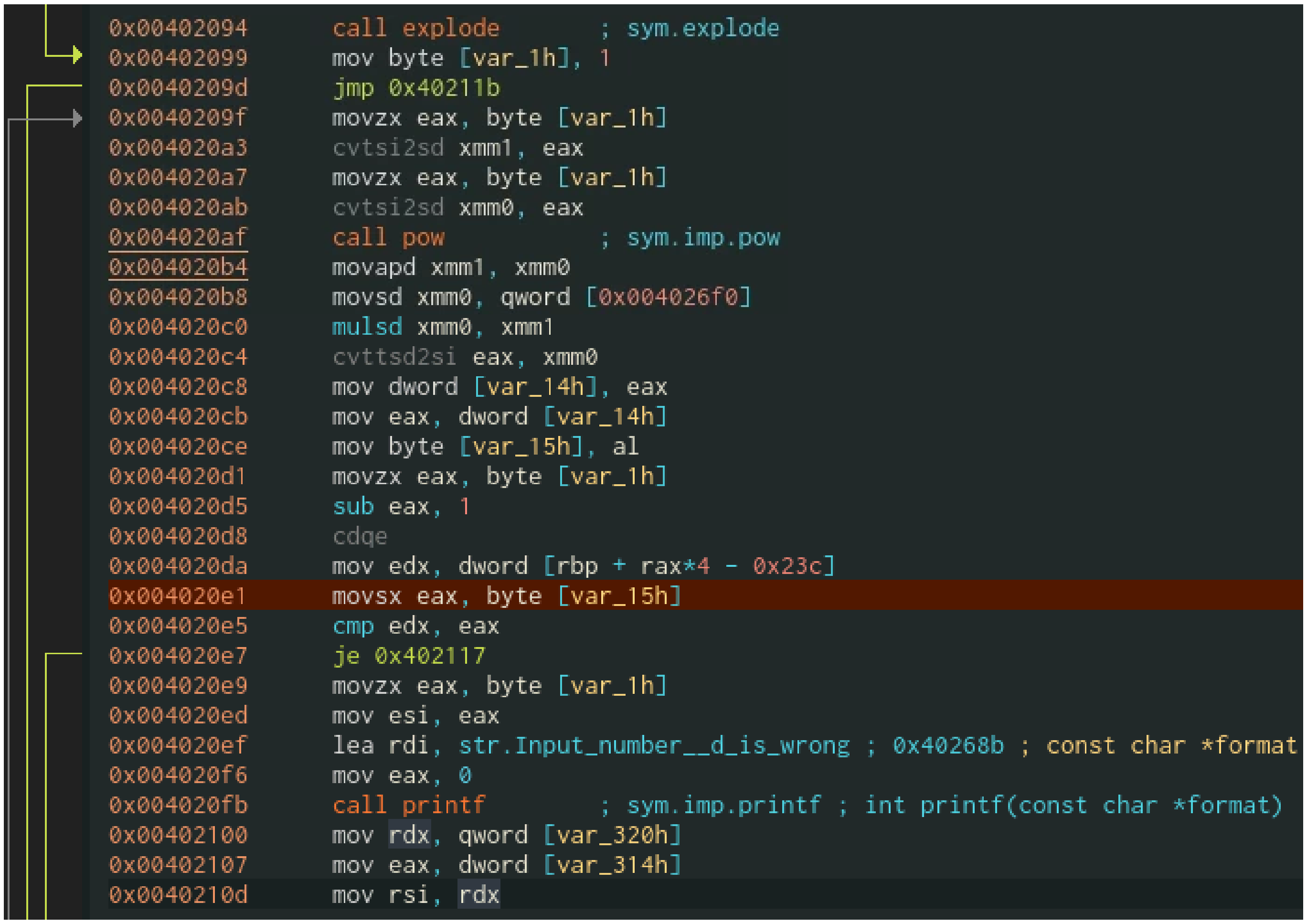

→ Also, make sure its in "Debugee Input" instead of "Rizin console" when inputting data to the ELF file!

Note: This is the LOOP that rechecks each 3 inputs that we placed for Key no. 2!



```
0x00402094      call explode        ; sym.explode
0x00402099      mov byte [var_1h], 1
0x0040209d      jmp 0x40211b
0x0040209f      movzx eax, byte [var_1h]
0x004020a3      cvtsi2sd xmm1, eax
0x004020a7      movzx eax, byte [var_1h]
0x004020ab      cvtsi2sd xmm0, eax
0x004020af      call pow            ; sym.imp.pow
0x004020b4      movapd xmm1, xmm0
0x004020b8      movsd xmm0, qword [0x004026f0]
0x004020c0      mulsd xmm0, xmm1
0x004020c4      cvttsd2si eax, xmm0
0x004020c8      mov dword [var_14h], eax
0x004020cb      mov eax, dword [var_14h]
0x004020ce      mov byte [var_15h], al
0x004020d1      movzx eax, byte [var_1h]
0x004020d5      sub eax, 1
0x004020d8      cdqe
0x004020da      mov edx, dword [rbp + rax*4 - 0x23c]
0x004020e1      movsx eax, byte [var_15h]
0x004020e5      cmp edx, eax
0x004020e7      je 0x402117
0x004020e9      movzx eax, byte [var_1h]
0x004020ed      mov esi, eax
0x004020ef      lea rdi, str.Input_number__d_is_wrong ; 0x40268b ; const char *format
0x004020f6      mov eax, 0
0x004020fb      call printf         ; sym.imp.printf ; int printf(const char *format)
0x00402100      mov rdx, qword [var_320h]
0x00402107      mov eax, dword [var_314h]
0x0040210d      mov rsi, rdx
```

→ We can know what possibly the 2nd input is! (and 3rd one!)

Final Tip

- You just have to figure out the keys, other than that, if you encounter segmentation fault by any chance, just execute the "bomb" ELF in terminal and place your answer there cause for some reason, the fread gives out seg fault!