1. [3 points] Reversing (1)

Flag: / On the sea of the heavens Waves of \

| cloud arise, The moon-a boat- Amongst a |

| forest of stars Rows on, hidden, or so |

\ it seems. /

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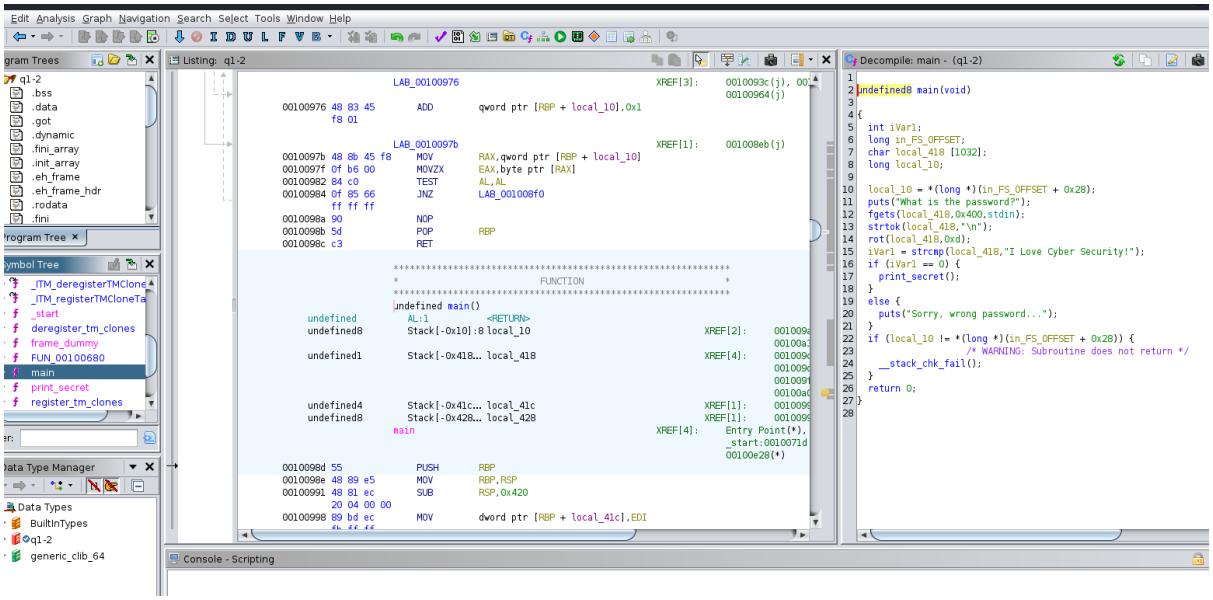
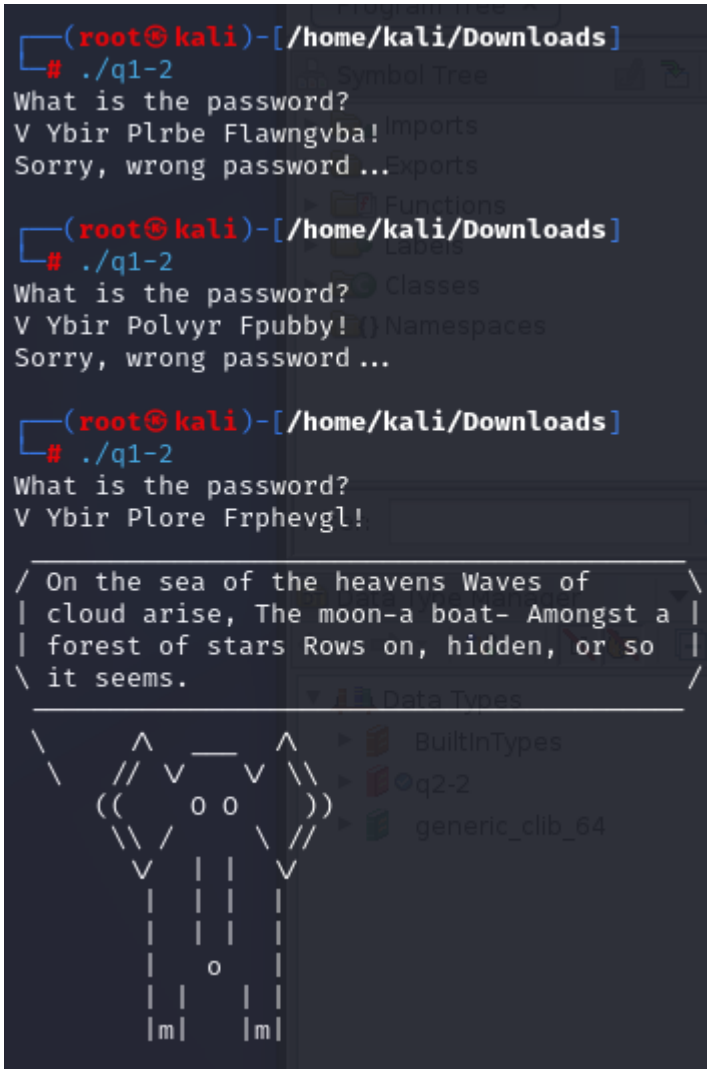
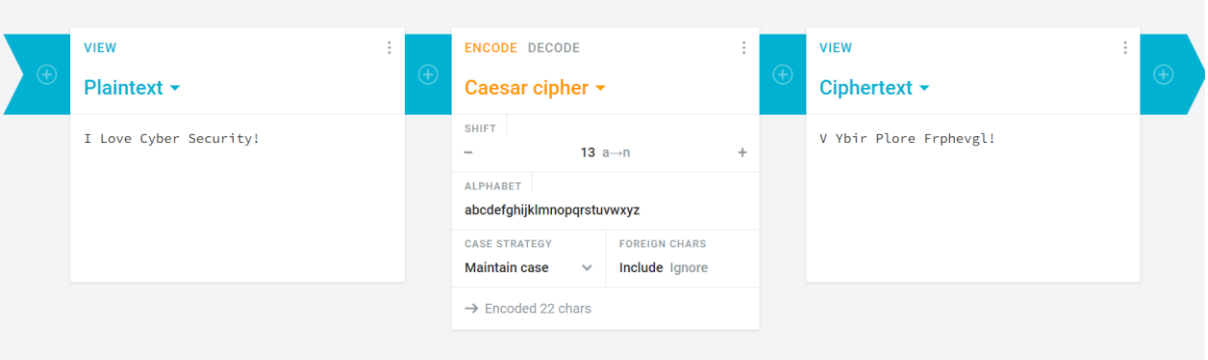
Screenshot:







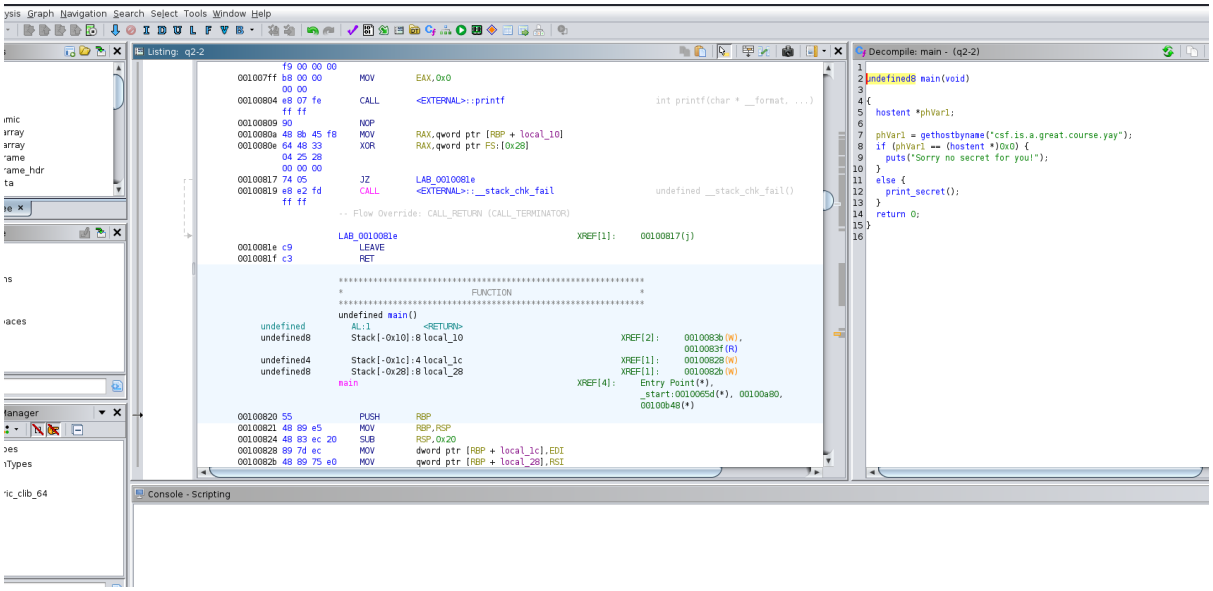
Explanation:

For this question, we have to look at the rot function when reverse-engineering. As it performs a simple rotation cipher by left shifting each character by 13 positions. Then the print_secret function will be executed if the password is correct with the use of the string compare function in main file. I was getting the cipher wrong so I used an online generator as seen in above screenshots.

2. [3 points] Reversing (2)

Flag:

Screenshot:



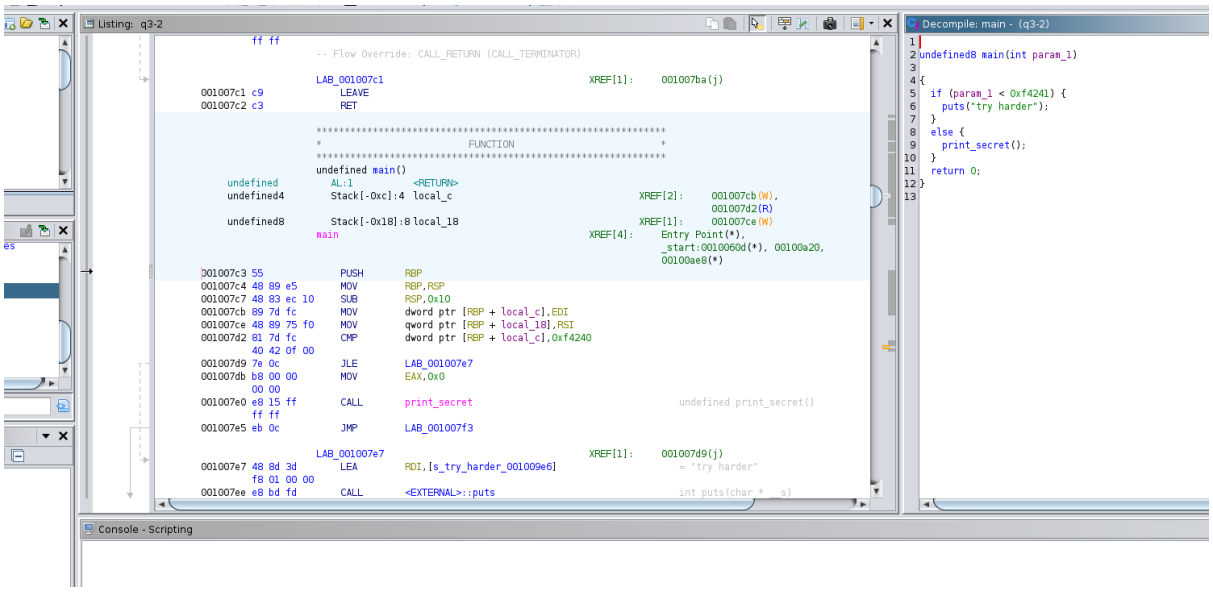
Explanation:

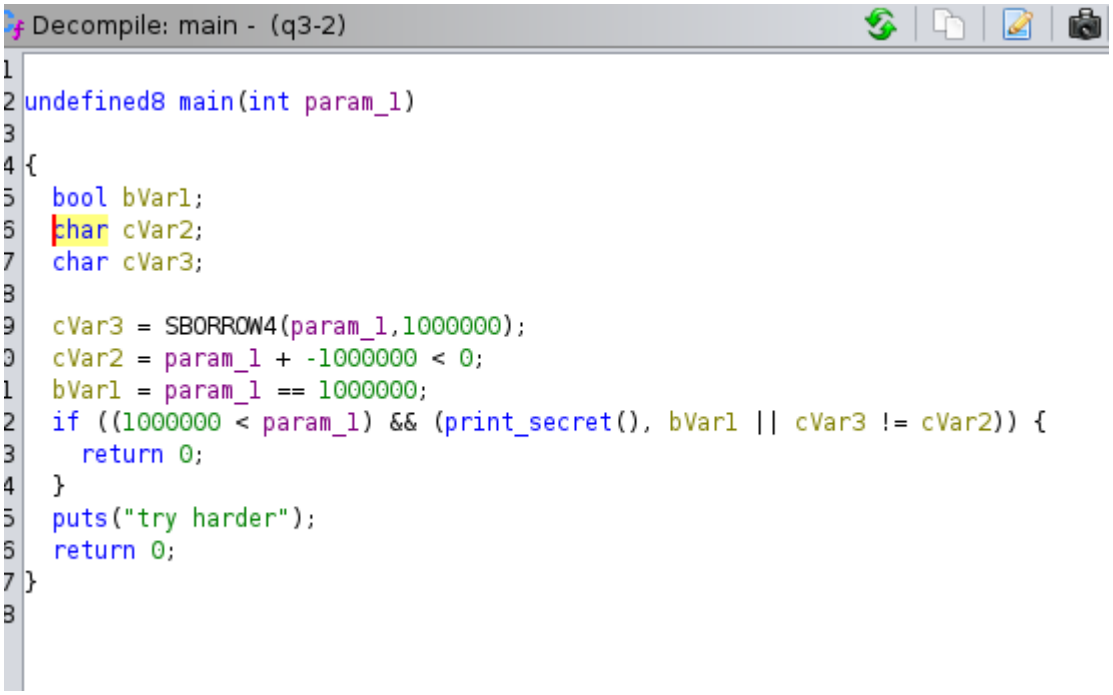
After reversing, the gethostbyname function is called to retrieve the IP address associated with the hostname "csf.is.a.great.course.yay". If the function returns NULL, it means the hostname resolution failed, and the program displays the message "Sorry, no secret for you!". Otherwise, if the function returns a valid pointer, the program calls the print_secret function, indicating that access to the secret area is granted. I was not able to crack this even after I called IP address.

3. [3 points] Reversing (3)

Flag:

Screenshot:





Explanation:

Based on the main file, If the value of param_1 is less than 0xf4241 which is equal to 1,000,001 in decimal. The program prints the string "try harder" using the puts function. Otherwise, it calls a function named print_secret(). I tried to use patching as mentioned in the question however, I was unable too find the secret. I tried to change JMP and JLE but I still couldn't get the answer. The main file did change though as seen above. Maybe I had to look at print_secret() function.

4. [3 points] Matryoshka

Flag:

```
_____________________________________
/ From the mountain's edge Will the   \
| drifting moon Emerge, I wonder? While I |
\ wait Night has fallen.              /
 -------------------------------------
  \   .  _ .
   \  |\_|/__/|
      / / \/ \ \
     /__|O||O|__ \
    |/_ \_/\_/ _\ |
```

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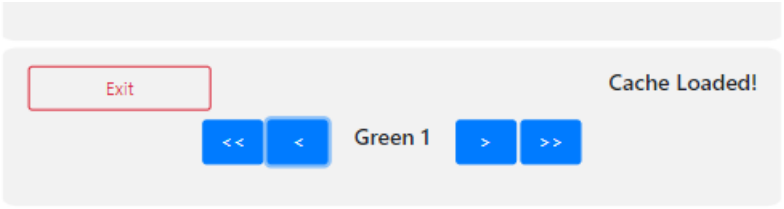
 | | (____) | ||
 \/\___/\__/ //
 (_/       ||
  |        ||
  |        ||\
  \      //_/
   \_____//
  __ || __||
 (____(____)
```

Screenshot:


Exit
Cache Loaded!
<<
<
Green 1
>
>>


THIS IS NOT THE SECRET! THE SECRET
IS IN THE SECOND BITPLANE

Ensure that the image you want to hide is roughly the same size as the original image.

For the best results, use bits planes 0-2.

Select Colour: R

Select Bit Plane: 2

Choose file Hacktivist2-2.png

Go!

Results:

Press "Save" at the bottom to download this image.

Explanation:

Matryoshka is the name of wooden Russian dolls that are stacked inside one another. Similarly, this image contains a file, which then contains another file inside it that needs to be analysed. That file also has another file inside of it. Then I was able to find the secret using of the workshop 10 activities which covered extracting the file from the image, finding and recovering a file inside that file.