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Title : Mechanical\_Engineering

Category : Reverse Engineering

Git-Hub Links :

<https://github.com/Jayesh-2003>

<https://github.com/ATHARVA-GAWAS>

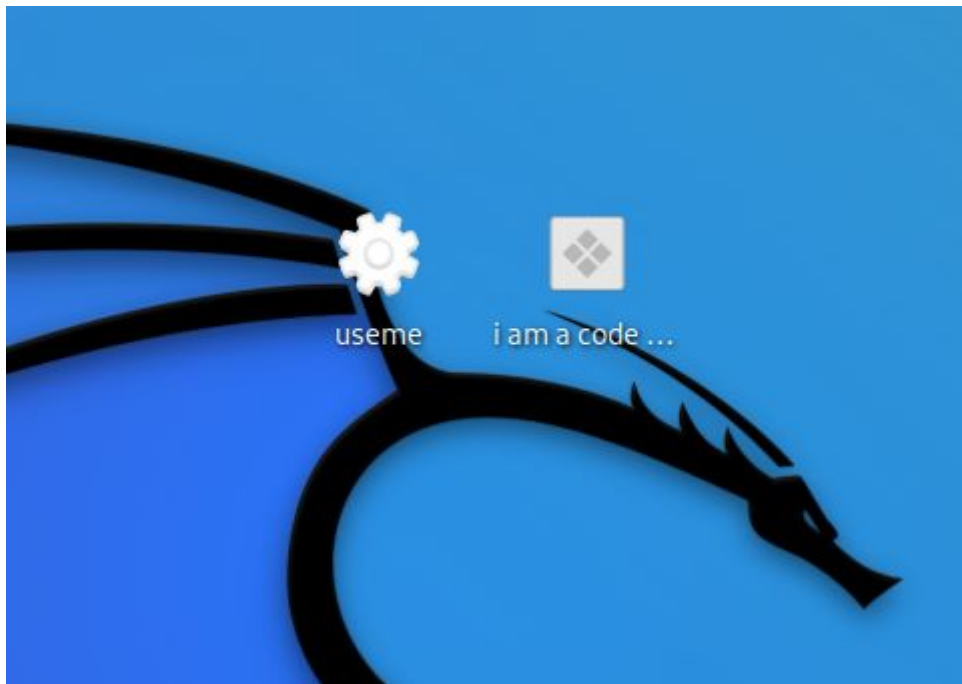
Description : don't you think code looks like path of coordinates but really impurities sucks.

Flag - VishwaCTF{n0\_g1rl5\_d3p4rtm3nt}

## Writeup

---

1. Download the given files



- 2.
3. The given description mentions about some impurities, so we must analyze the text in "i am a code with impurities.exe"

4. 

```
(root@kali)-[/home/atharva2143/Desktop]  
# strings i\ am\ a\ code\ with\ some\ impurities.exe | tee out.txt
```

5. We get the result as:

```
1 G1 F5
2 G21
3 G90
4 X0 Y1
5 M02 S500
6 G1 X0 Y8
7 G1 X1 Y9
8 G1 X3 Y9
9 G1 X4 Y8
10 G1 X4 Y1
11 G1 X3 Y0
12 G1 X1 Y0
13 G1 X0 Y1
14 M05 S0
15 G1 X7 Y1
16 M02 S500
17 G1 X7 Y8
18 G1 X8 Y9
19 G1 X10 Y9
20 G1 X11 Y8
21 G1 X11 Y1
22 G1 X10 Y0
23 G1 X8 Y0
24 G1 X7 Y1
25 M05# S0
26 G1 X16 Y0
27 M02$ S5#00
28 G1 X16 Y9
29 M05# S0
30 G1 X2$1 Y1
31 M02$ S5#00
32 G1 X2$1 Y8
33 G1 X2$2$ Y9
34 G1 X2$4 Y9
35 G1 X2$5# Y8
36 G1 X2$5# Y1
37 G1 X2$4 Y0
38 G1 X2$2$ Y0
39 G1 X2$1 Y1
40 M05# S0
41 G1 X2$8 Y1
42 M02$ S5#00
43 G1 X2$8 Y8
44 G1 X2$9 Y9
45 G1 X31 Y9
46 G1 X32$ Y8
```

- 6.
7. Upon analyzing the code we can clearly see its a gcode.
8. Upon executing the code, we get a messy diagram, which implies that there are some impurities in the code(also as per hint).
9. So we need to remove the unwanted text from the code from an online tool

World's simplest online text replacement tool for web developers and programmers. Just paste your text in the form below, press the Replace Text button, and you'll get a replaced string. Press a button - get a string. No ads, nonsense, or garbage.

Like 51K

**Announcement:** We just added another two new tools categories -

[PNG Tools](#) and [UTF8 Tools](#). Check them out!

```
G1 X12$66 Y1
M05# S0
G1 X12$73 Y1
M02$ S5#00
G1 X12$73 Y8
G1 X12$74 Y9
G1 X12$76 Y9
G1 X12$77 Y8
G1 X12$77 Y1
G1 X12$76 Y0
G1 X12$74 Y0
G1 X12$73 Y1
M05# S0
```

Replace this:

With this:

Replace Text

Copy to clipboard

- 10.

World's simplest online text replacement tool for web developers and programmers. Just paste your text in the form below, press the Replace Text button, and you'll get a replaced string. Press a button – get a string.  
No ads, nonsense, or garbage.

Like 51K

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```
G1 X1266 Y1
M05 S0
G1 X1273 Y1
M02 S500
G1 X1273 Y8
G1 X1274 Y9
G1 X1276 Y9
G1 X1277 Y8
G1 X1277 Y1
G1 X1276 Y0
G1 X1274 Y0
G1 X1273 Y1
M05 S0
```

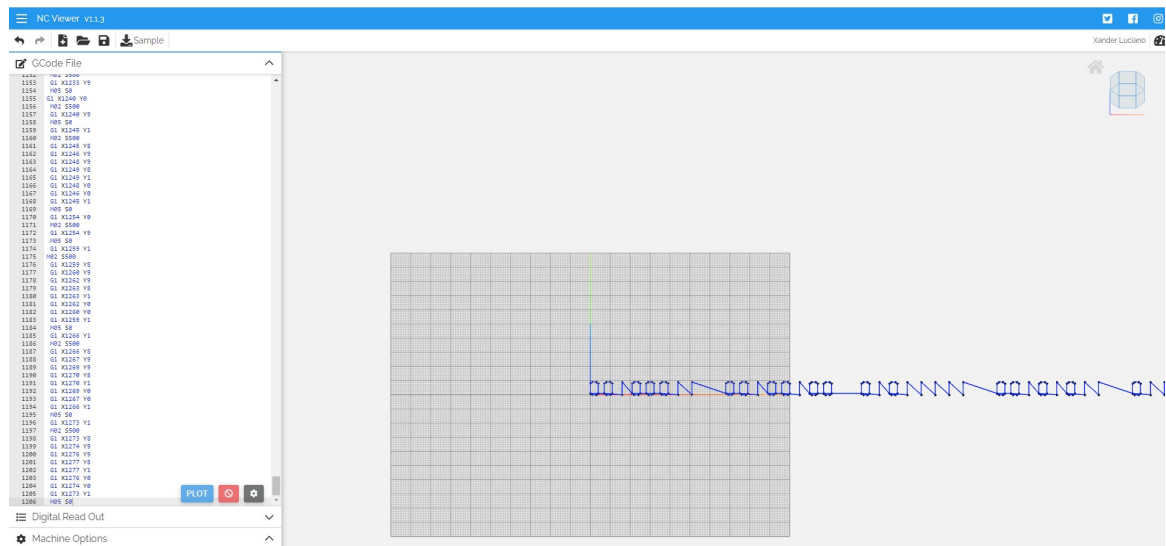
Replace this: #

With this:

Replace Text Copy to clipboard (undo)

11.

12. Now the code is pure, so we must execute it.



13.

14. We can see a binary code in the graph plot. Use it and decode it to text

## Binary to Text Translator

Enter binary numbers with any prefix / postfix / delimiter and press the *Convert* button  
(E.g: 01000101 01111000 01100001 01101101 01110000 01101100 01100101):

From

To

Binary

Text

Open File

Open Bin File

Q

Paste binary numbers or drop file:

00100011 00100100 01011111 00101011 01100110 01000000 01111000  
00100110 01011111 01100011 01110110 01101001 00100101 01000000  
01101000 01100010 01110110 00100011 01101000

Character encoding (optional)

ASCII/UTF-8

Convert

Reset

Swap

#\$\_+f@x&\_cvi%@h bv#h

15.

16. We get a coded text from it.

17. Now use the useme file for conversion to executable file.

18. 

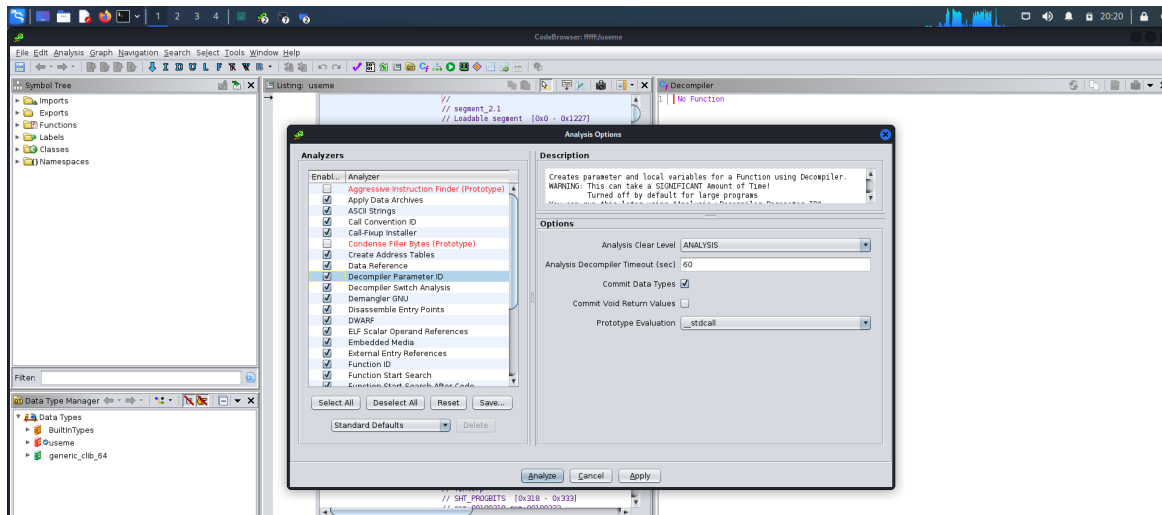
```
(krish@kali)-[~/Desktop]
$ chmod a+x useme
```

19. 

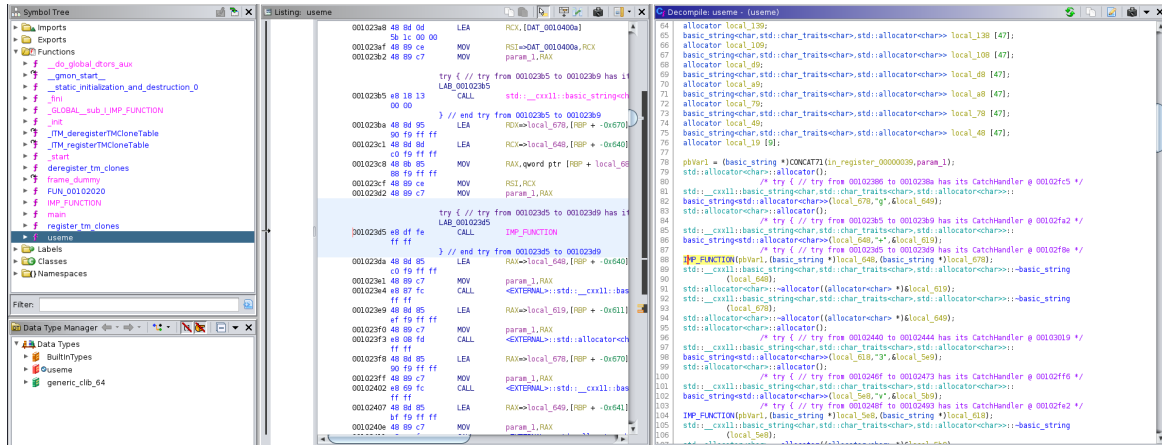
```
(krish@kali)-[~/Desktop]
$ ./useme
Give the String : #$_+f@x&_cvi%@h bv#h
(krish@kali)-[~/Desktop]
$
```

20. Analyze the program

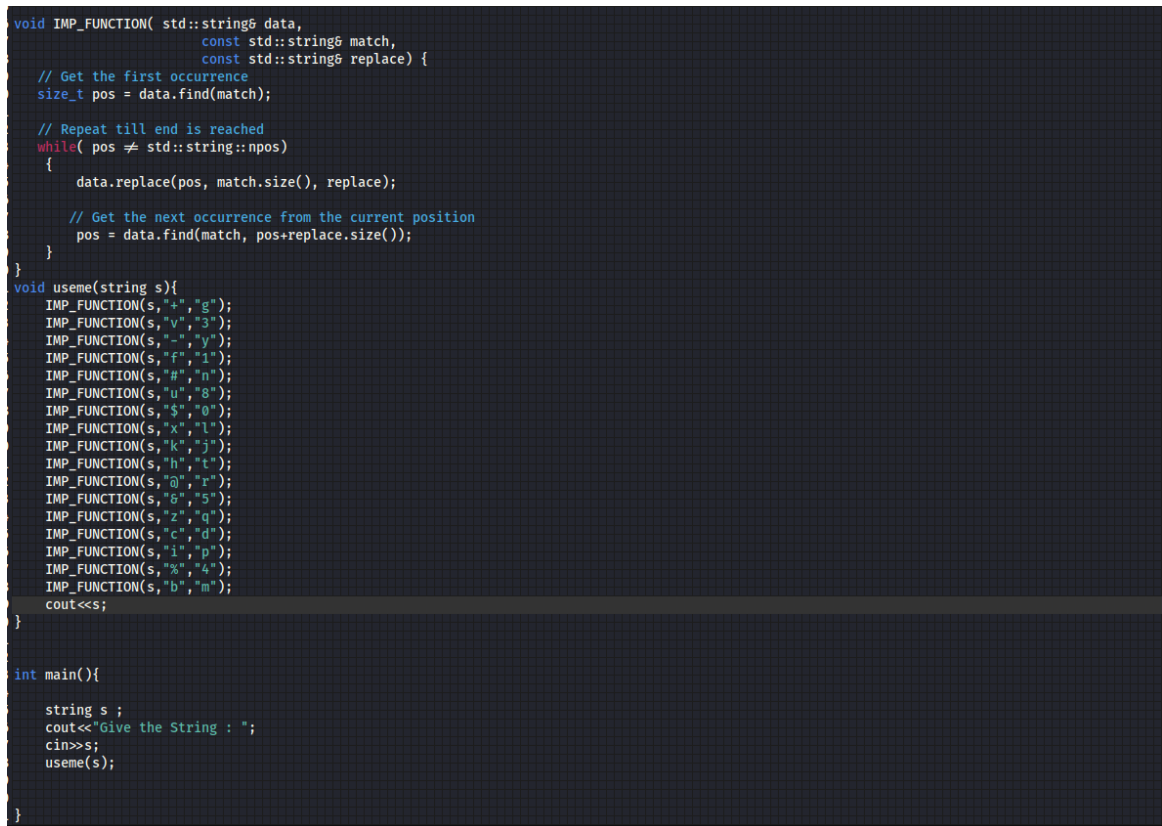
21.



22.



23. After analyzing, build the program



24.

25. Now use the program to decode the string.

```
(krish@kali)-[~/Desktop]
$ g++ useme.cpp -o useme

(krish@kali)-[~/Desktop]
$ ./useme
Give the String : #$_+f@x&_cvi%@h bv#h
n0_g1rl5_d3p4rtm3nt

(krish@kali)-[~/Desktop]
$
```

26.

27) Now the flag will be -

**Flag - VishwaCTF{n0\_g1rl5\_d3p4rtm3nt}**