

To decompile the pyc, I used **pylingual.io**. Inside, we find a lot of obfuscated strings, which are easy to reverse since they are simply xored with a string we know. After we deobfuscate them, we can understand the logic of the code.

```
def deobfuscate(byt):
    mask = b'ctf{tryharderdontstring}'
    lmask = len(mask)
    return bytes((c ^ mask[i % lmask] for i, c in enumerate(byt)))

# Obfuscated byte strings from the script
obfuscated_strings = [
    b'\x17\x1b\r\x1e\x1a', # Token key
    b'\x13\x1b\x08\x1c',   # Flag
    b'B\x04\x0f\x15\x13',  # Trigger string 1
    b'L\x13\x03\x0f\x12\x1e\x18\x0f', # Trigger string 2
    b'\x07\x17\x12\x1dFBKX0\x11\x1d\x07\x17\x16\n\n\x01]\x06\x1d', # Role name
    b'L\x1c\x03\x17\x04',  # Trigger string 3
    b'7\x06\x1f[\x1c\x13\x0b\x0c\x04\x00E' # Another response
]

print("Decoded strings:")
for i, obf in enumerate(obfuscated_strings, start=1):
    decoded = deobfuscate(obf)
    print(f"String {i}: {decoded}")
```

To retrieve the flag, we need to give the bot the role **dctf2020.cyberedu.ro**, then make it send **/getflag** to itself. To do this, we need to utilize **/s基ay**, since this commands allows us to execute commands as the bot.

**Step 1: Inviting the bot.** To invite the bot to a server we own, we need to invite him using the user id we know:

[https://discord.com/oauth2/authorize?client\\_id=783473293554352141&permissions=0&scope=bot](https://discord.com/oauth2/authorize?client_id=783473293554352141&permissions=0&scope=bot)

By doing this, we can put the bot into any server we have.

**Step 2: Making the bot work.** For this, we need to make sure the bot has permission to send messages and ping it before sending commands. For example, typing **/help** will not work, we need to type **@DCTFTargetWhyNot /help** instead. Also, at this step I gave the bot the role I mentioned previously, since that is needed to obtain the flag.

**Step 3: Retrieving the flag.** **@DCTFTargetWhyNot /s基ay /getflag** will not work, as the bot filters out **/getflag**. However, the bot changes all characters in the command to lowercase AFTER the check is made, so **@DCTFTargetWhyNot /s基ay /Getflag** will work. We receive the flag encoded, so all we need to do is to use the function defined in the previous program to decode it.

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