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I have created HoneyWord based system as suggested by Imran Ergular in C language.
The main file is HoneyWordSystem.c.

The partner files are :

F1.txt

F2.txt

HCTestServer.txt (Acts as HoneyChecker Server)

PasswordFile.txt (Contains 10 very common password)

temp.txt (stores password to hash)

Makefile (contains instruction to make object file)

Assumptions :

1. There are 10 honeypots accounts created at the very beginning of code execution. Common passwords of PasswordFile are used for that. There indices are 1 to 10 respectively.
2. MD5 hashing is used.
3. Username and password have $1 \leq \text{length} \leq 12$.
4. You cannot login first. You need to register to the system first.
5. If 5 wrong passwords (Honeypot password or Honeyword password) is provided, system ends the program.

Instructions to run:

Compile : make

Run : ./HoneyWordSystem

After running,

Program is made in such a way that it will guide you entirely.

Instructions are there to tell you how to login and register.

Screenshots are attached below :

```
Terminal
Apr 11 19:55
saubhik@saubhik-virtual-machine: ~/SSD_Programs/Assign2

saubhik@saubhik-virtual-machine:~/SSD_Programs/Assign2$ ./first
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
1
Enter Username : saubhik
Enter Password : saubhikl
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
1
Enter Username : sahil
Enter Password : sahill
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
1
Enter Username : sawan
Enter Password : sawanl
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
1
Enter Username : roshan
Enter Password : roshani
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
1
Enter Username : sunil
Enter Password : sunil
-----Enter-----
1 for Registration
```

Fig1 : 5 users registered

```
first.c x F1.txt x F2.txt x HCServer.txt x hashfile.txt x temp.txt x Pas
1 saubhik 9 8 1 4 7 11
2 sahil 5 3 1 2 11 12
3 sawan 2 1 3 8 11 13
4 roshan 8 10 7 11 5 14
5 sumit 5 7 9 12 4 15
6
```

```
first.c x F1.txt x F2.txt x HCServer.txt x hashfile.txt x temp.txt x
1 1 e10adc3949ba59abbe56e057f20f883e
2 2 25f9e794323b453885f5181f1b624d0b
3 3 2712e0b4e97c4a17a90a6417ccf757ba
4 4 5f4dcc3b5aa765d61d8327deb882cf99
5 5 25d55ad283aa400af464c76d713c07ad
6 6 96e79218965eb72c92a549dd5a330112
7 7 4297f44b13955235245b2497399d7a93
8 8 827ccb0eea8a706c4c34a16891f84e7b
9 9 e807f1fcf82d132f9bb018ca6738a19f
10 10 e8d95a51f3af4a3b134bf6bb680a213a
11 11 7f95c3921d914831bf60d48689720ed4
12 12 ef4abee1800e03e0783836da9a4374c5
13 13 a6906ba971bba01532048642936ce43c
14 14 df23a65a4c4ee9e29ef2bcb94d70874
15 15 1d6c537928e9713ded0fd6abb7db740
16
```

```
first.c x F1.txt x F2.txt x HCServer.txt x hashfile.txt x temp.t
1 saubhik 11
2 sahil 12
3 sawan 13
4 roshan 14
5 sumit 15
6
```

Fig 2,3,4 : F1,F2 and Honeychecker file after 5 registration respectively

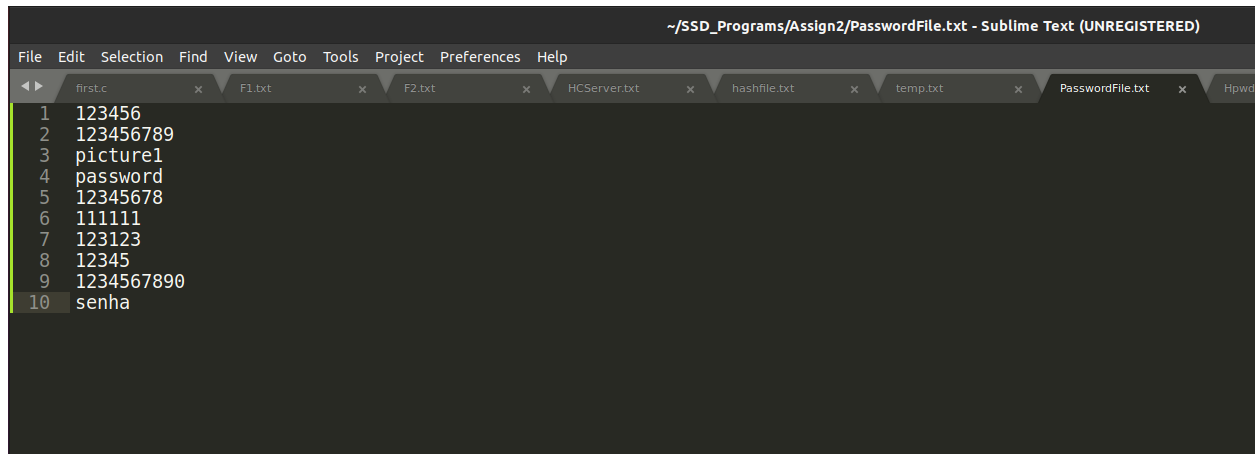


Fig 5. Common Password Files

```
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
Enter Username : saubhik
Enter Password : 123456
[!!] Attempt to login with HoneyPot account
```

Fig 6. User tries to login with HoneyPot account

```
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
2
Enter Username : sahil
Enter Password : saubhiki
[-] Attempt to login with honeyword account
```

Fig 7. User tries to login with HoneyWord account

```
-----Enter-----  
1 for Registration  
2 for Login  
3 for Program Termination  
-----  
2  
Enter Username : saubhik  
Enter Password : sahdjsjks  
[-]Password Incorrect
```

```
-----Enter-----  
1 for Registration  
2 for Login  
3 for Program Termination  
-----  
2  
Enter Username : sjdhfgjs  
Enter Password : ashdjgsj  
[-]Username and/or Password Not Found
```

Fig 8,9 : Username and Password Incorrect

```
-----Enter-----  
1 for Registration  
2 for Login  
3 for Program Termination  
-----  
2  
Enter Username : saubhik  
Enter Password : saubhiki  
11  
[+] Login successful. Access Granted  
Enter
```

Fig. 10 : Successful Login

```
-----Enter-----
1 for Registration
2 for Login
3 for Program Termination
-----
2
Enter Username : sawan
Enter Password : saubhiki
[-]Attempt to login with honeyword account

!!-----!!
[!!] Attempt to hack detected
Terminating

Program Terminated
saubhik@saubhik-virtual-machine:~/SSD_Programs/Assign2$
```

Fig 11 : Program terminates after 5 wrong passwords

Part 2:

As per the instruction provided in assignment doc, I downloaded John the Ripper tool in my system. However, I got to know that the version downloaded (1.8.0) doesn't work with MD5 hashing. Community support over this tool is also not huge.

I also tried alternative of 'John the Ripper' - 'Hashcat'. After downloading it in my system, there were some space issues it encountered and killed the process.

However,

I added user Alice with password Alice in my linux system by adduser command. After adding, I unshadowed both file to passwords.txt by

Unshadow /etc/shadow /etc/passwd > passwords.txt

After downloading rockyou wordlist,

Then I run using 'john --wordlist=rockyou.txt passwords.txt'

2 Cracked passwords were shown using 'john --show passwords.txt' and output is given :

```
root@saubhik-virtual-machine:/home/saubhik/SSD_Programs/Assign2/test# john --show passwords.txt
saubhik:root123:1000:1000:Saubhik,,,:/home/saubhik:/bin/bash
alice:alice:1001:1001:,,,:/home/alice:/bin/bash

2 password hashes cracked, 0 left
root@saubhik-virtual-machine:/home/saubhik/SSD_Programs/Assign2/test#
```

Fig 12 : Both Cracked Passwords

