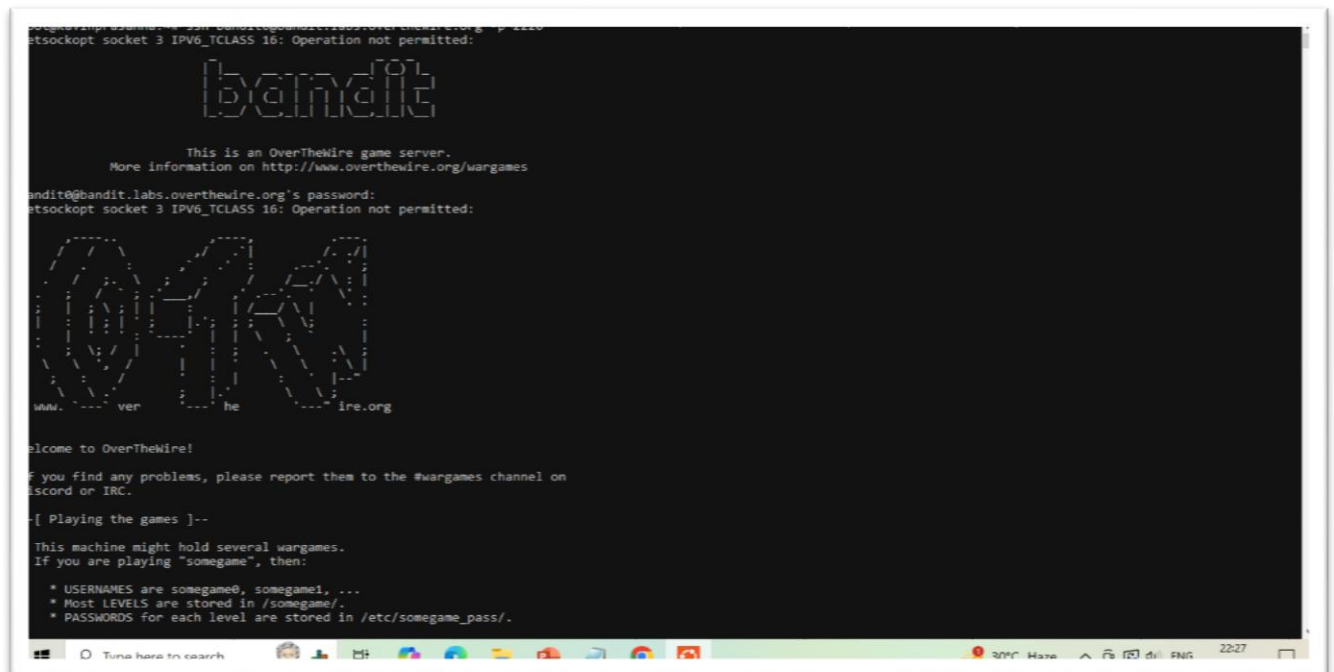


TEAM BIOS WRITEUP



The host to which you need to connect is **bandit.labs.overthewire.org**, on port **2220**. The username is **bandit0** and the password is **bandit0**. The password for the next level is stored in a file called **readme** located in the home directory.

```
$ ssh bandit0@bandit.labs.overthewire.org -p 2220
```

Command cat is used to read the file

The cat command reads each File parameter in sequence and writes it to standard output. If you do not specify a file name, the cat command reads from standard input. You can also specify a file name of - (dash) for standard input

```
* gdbinit (https://github.com/gdbinit/Gdbinit) in /opt/gdbinit/  
* pwntools (https://github.com/Gallopsled/pwntools)  
* radare2 (http://www.radare.org/)
```

--[More information]--

For more information regarding individual wargames, visit
<http://www.overthewire.org/wargames/>

For support, questions or comments, contact us on discord or IRC.

Enjoy your stay!

```
bandit0@bandit:~$ ls
```

```
readme
```

```
bandit0@bandit:~$ cat readme
```

Congratulations on your first steps into the bandit game!!

Please make sure you have read the rules at <https://overthewire.org/rules/>

If you are following a course, workshop, walkthrough or other educational activity,
please inform the instructor about the rules as well and encourage them to
contribute to the OverTheWire community so we can keep these games free!

The password you are looking for is: ZjLjTmM6FvvyRnrb2rfNW0Z0Ta6ip5If

```
bandit0@bandit:~$ exit
```

```
logout
```

Connection to bandit.labs.overthewire.org closed.

```
root@Kavinprasanna:~# D
```



```
root@Kavinprasanna: ~  
  
For your convenience we have installed a few useful tools which you can find  
in the following locations:  
  
* gef (https://github.com/hugsy/gef) in /opt/gef/  
* pwndbg (https://github.com/pwndbg/pwndbg) in /opt/pwndbg/  
* peda (https://github.com/longld/peda.git) in /opt/peda/  
* gdbinit (https://github.com/gdbinit/Gdbinit) in /opt/gdbinit/  
* pwntools (https://github.com/Gallopsled/pwntools)  
* radare2 (http://www.radare.org/)  
  
--[ More information ]--  
  
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Enjoy your stay!  
  
bandit3@bandit:~$ ls  
inhere  
bandit3@bandit:~$ cd inhere  
bandit3@bandit:~/inhere$ ls  
bandit3@bandit:~/inhere$ ls -al  
total 12  
drwxr-xr-x 2 root root 4096 Jul 17 15:57 .  
drwxr-xr-x 3 root root 4096 Jul 17 15:57 ..  
-rw-r----- 1 bandit4 bandit3 33 Jul 17 15:57 ...Hiding-From-You  
bandit3@bandit:~/inhere$ cat ...Hiding-From-You  
2WmrDFRmJIq3IPxneAaMGhap0pPhF3NJ  
bandit3@bandit:~/inhere$ exit  
logout  
Connection to bandit.labs.overthewire.org closed.  
root@Kavinprasanna:~#
```

```
root@Kavinprasanna: ~  
  
* gdbinit (https://github.com/gdbinit/Gdbinit) in /opt/gdbinit/  
* pwntools (https://github.com/Gallopsled/pwntools)  
* radare2 (http://www.radare.org/)  
  
--[ More information ]--  
  
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Enjoy your stay!  
  
bandit4@bandit:~$ ls  
inhere  
bandit4@bandit:~$ cd inhere/  
bandit4@bandit:~/inhere$ ls  
-file00 -file01 -file02 -file03 -file04 -file05 -file06 -file07 -file08 -file09  
bandit4@bandit:~/inhere$ find . -type f | xargs file  
./-file00: data  
./-file03: data  
./-file08: data  
./-file02: data  
./-file04: data  
./-file01: data  
./-file07: ASCII text  
./-file06: data  
./-file05: data  
./-file09: data  
bandit4@bandit:~/inhere$ man xarg  
No manual entry for xarg  
bandit4@bandit:~/inhere$ man xargs  
bandit4@bandit:~/inhere$ cat ./-file07  
4oQYVPKxZ00E005pTW81F88j81xGUQw  
bandit4@bandit:~/inhere$ exit  
logout  
Connection to bandit.labs.overthewire.org closed.  
root@Kavinprasanna:~#
```

```
bandit5@bandit: ~/inhere
* gef (https://github.com/hugsy/gef) in /opt/gef/
* pwndbg (https://github.com/pwndbg/pwndbg) in /opt/pwndbg/
* peda (https://github.com/longld/peda.git) in /opt/peda/
* gdbinit (https://github.com/gdbinit/gdbinit) in /opt/gdbinit/
* pwntools (https://github.com/Gallopsled/pwntools)
* radare2 (http://www.radare.org/)

--[ More information ]--

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Enjoy your stay!

bandit5@bandit:~$ ls
inhere
bandit5@bandit:~$ cd inhere/
bandit5@bandit:~/inhere$ find . -type f -size 1033c ! -executable
find: Must separate multiple arguments to -type using: ','
bandit5@bandit:~/inhere$ find . -type f -size 1033c ! -executable
./maybehere07/.file2
bandit5@bandit:~/inhere$ cat ./maybehere07/.file2
H4sNtPhtq9AVKe0dmk45nxy20cvUa6EG

bandit5@bandit:~/inhere$
```

```
bandit6@bandit: ~
compiler flags might be interesting:

-m32             compile for 32bit
-fno-stack-protector  disable ProPolice
-Wl,-z,norelro    disable relro

In addition, the execstack tool can be used to flag the stack as
executable on ELF binaries.

Finally, network-access is limited for most levels by a local
firewall.

--[ Tools ]--

For your convenience we have installed a few useful tools which you can find
in the following locations:

* gef (https://github.com/hugsy/gef) in /opt/gef/
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* gdbinit (https://github.com/gdbinit/gdbinit) in /opt/gdbinit/
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* radare2 (http://www.radare.org/)

--[ More information ]--

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For support, questions or comments, contact us on discord or IRC.

Enjoy your stay!

bandit6@bandit:~$ find / -type f -user bandit7 -group bandit6 -size 33
find: '/sys/kernel/tracing': Permission denied
find: '/sys/kernel/debug': Permission denied
find: '/sys/fs/pstore': Permission denied
find: '/sys/fs/bpf': Permission denied
find: '/snap': Permission denied
find: '/run/lock/lvm': Permission denied
find: '/run/systemd/inaccessible/dir': Permission denied
find: '/run/systemd/propagate/systemd-udev.service': Permission denied
find: '/run/systemd/propagate/systemd-resolved.service': Permission denied
find: '/run/systemd/propagate/systemd-networkd.service': Permission denied
```

```
bandit6@bandit:~  
compiler flags might be interesting:  
  
-m32                compile for 32bit  
-fno-stack-protector  disable ProPolice  
-Wl,-z,norelro       disable relro  
  
In addition, the execstack tool can be used to flag the stack as  
executable on ELF binaries.  
  
Finally, network-access is limited for most levels by a local  
firewall.  
  
--[ Tools ]--  
  
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* gdbinit (https://github.com/gdbinit/gdbinit) in /opt/gdbinit/  
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--[ More information ]--  
  
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For support, questions or comments, contact us on discord or IRC.  
  
Enjoy your stay!  
  
bandit6@bandit:~$ find / -type f -user bandit7 -group bandit6 -size 33  
find: '/sys/kernel/tracing': Permission denied  
find: '/sys/kernel/debug': Permission denied  
find: '/sys/fs/pstore': Permission denied  
find: '/sys/fs/bpf': Permission denied  
find: '/snap': Permission denied  
find: '/run/lock/lvm': Permission denied  
find: '/run/systemd/inaccessible/dir': Permission denied  
find: '/run/systemd/propagate/systemd-udev.service': Permission denied  
find: '/run/systemd/propagate/systemd-resolved.service': Permission denied  
find: '/run/systemd/propagate/systemd-networkd.service': Permission denied
```

```
bandit6@bandit:~  
find: '/drifter/drifter14_src/axTLS': Permission denied  
find: '/etc/stunnel': Permission denied  
find: '/etc/multipath': Permission denied  
find: '/etc/sudoers.d': Permission denied  
find: '/etc/credstore.encrypted': Permission denied  
find: '/etc/ssl/private': Permission denied  
find: '/etc/credstore': Permission denied  
find: '/etc/xinetd.d': Permission denied  
find: '/etc/polkit-1/rules.d': Permission denied  
find: '/root': Permission denied  
find: '/tmp': Permission denied  
find: '/lost+found': Permission denied  
find: '/dev/shm': Permission denied  
find: '/dev/mqueue': Permission denied  
find: '/var/spool/bandit24': Permission denied  
find: '/var/spool/rsyslog': Permission denied  
find: '/var/spool/cron/crontabs': Permission denied  
find: '/var/lib/udisks2': Permission denied  
/var/lib/dpkg/info/bandit7.password  
find: '/var/lib/snapd/void': Permission denied  
find: '/var/lib/snapd/cookie': Permission denied  
find: '/var/lib/ubuntu-advantage/apt-esm/var/lib/apt/lists/partial': Permission denied  
find: '/var/lib/private': Permission denied  
find: '/var/lib/update-notifier/package-data-downloads/partial': Permission denied  
find: '/var/lib/amazon': Permission denied  
find: '/var/lib/chrony': Permission denied  
find: '/var/lib/apt/lists/partial': Permission denied  
find: '/var/lib/polkit-1': Permission denied  
find: '/var/log/unattended-upgrades': Permission denied  
find: '/var/log/private': Permission denied  
find: '/var/log/amazon': Permission denied  
find: '/var/log/chrony': Permission denied  
find: '/var/tmp': Permission denied  
find: '/var/cache/private': Permission denied  
find: '/var/cache/ldconfig': Permission denied  
find: '/var/cache/pollinate': Permission denied  
find: '/var/cache/apt/archives/partial': Permission denied  
find: '/var/cache/apparmor/baad73a1.0': Permission denied  
find: '/var/cache/apparmor/2425d902.0': Permission denied  
bandit6@bandit:~$ cat /var/lib/dpkg/info/bandit7.password  
morbNTDKSw6jrlUc0ymOdMaLn0lFVAaj  
bandit6@bandit:~$
```

```
bandit7@bandit: ~  
longings      K18X1jZxF1eEVbgspXsQ1JH1Vpcqvl  
converged     y1VDXYnHv93YkicJ5438xe5Qsc82dZFh  
gougars      jrhNNpjLh8okpxgVivk3bC27w2pbRw7B  
tragic      wgfcyGp0NzCBnR6tt2Kv0Emb6K3XbIh0  
bubble's     ak2H7f4p0rkQzJZCSMHKukxTh#Nt6T  
chronics     yzrZrWu4g8VL1b10Hjhm6LnVWdAU7p2  
sandy       jzq75MFtcxCKZcDypXsvQZ16VKVQTAkx  
hitchcock's iurP0mf7cfxGkrbzJb1BHF6Da7qS8ZR  
skippers     wQWtNGa2a11cJgEd0Lc01CD0TjXAD09  
glassier     7pcJiNw1oTaDgmMKJkXKk4p00VkeiAT  
sidelining   Clr5wFhjgcG7KZ3HuZ0ZgVoennsf7Btq  
subclass     vtc9y9hHEH6THp11v36exYKjPCUGejdC  
overspending aOH41pYqY152Zag3EdFpVLGyyQquvmz  
segregationist kk3BcRdho75SONLdGmvXPhsCzpC5K54  
crater's     3uZ1CTHu004a0iz1ma0v6VpSfpQQS30n  
dandelion's  nhErc1BcW088hqP4Fcot0d95gkLZDvii  
timberlines  WtGOGFSj3dAxLX11u0dLmo3W05nHmgd  
interbreeds  5GEjAAHKNLj72M1Von88bcEzPyiFCOMd  
chintz's     chEFKSQzzjzVRYXPbK9LV2PgaWz8Z1Cq  
ruddled      OxuUaTwcxhsQZ57nc5UhFO1EA01XtpDZ  
whelp        o7B58nsxATV6zmXz58MwS5tIn7MRDaxP  
diagram      6USbNqnocX7mHkfpX9HV5CmAr1cxHucn  
abnormalities 8EYVhYtRnglk0ZpckSSQ0o28QDyCgW  
burros       Fo88kbzk7bNiWiTJ1zDPEJr0bz8jiHLA  
consonance   g6jQrZRRgxXQf688YpHodAPYqFmaCrE  
snoopy       wPbWdFr620UIHAc1us1bLpazeZjMxbN  
bluejacket   yMV9xQA1PNwU1pUxk38GLU2xtbKEoD  
Hooker       SjX4Ykm7cRcngGvKs99Bi4ag7vjZMo1h  
Brno's       QZZZQvHeAdn0T9F0xLvwBQ8uhXZGTyH  
blenches     hHX0xYvAZNjNSdVY45M6N1K9KgeVsFJa  
awakens     T69VlyghnU7K20U9JUARKYLUyyo3B6Kh  
spanked      655hVQABeyKcN9LpcFjNsTOKQvjGxbn0  
prolongations ozGkWZxuEdjXtmXzPlxwOKDgWbNGZdad  
keisha's     j1P38akUr0dF1q97qKpXQDV7UahGvniT  
forefronts   gyDaNuLrVDYJk1ktFLYGR187LpkJ1izm  
tats         sMU2zalEYeb14i7F9C1NZad0Nm7xVar  
tabulators   9qx9NBn6ahX17siLiECK57yuACJ4r7dq  
boss         5pjt5ggjZwbqYQwV7uwjhFOHQ0S8Dgq  
science's    U6xmyUtzeNBcIRAKmHqYr6Fvj1x0FV4  
lazy         CMK4Tachp5jXat8krFXhsUfyV4Q5Wncf  
quatrain     S40TPe3nvtgSaepXxXWS25eELr1c8JYi  
bandit7@bandit:~$ strings data.txt | grep "millionth"  
millionth    dfwvzFQ14mU0wFNbFOe9R0wskMLg7eEc  
bandit7@bandit:~$
```

```
bandit9@bandit: ~  
--[ More information ]--  
  
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For support, questions or comments, contact us on discord or IRC.  
  
Enjoy your stay!  
  
bandit9@bandit:~$ ls  
data.txt  
bandit9@bandit:~$ strings data.txt | grep "="  
-aA" f  
\\a!;===== the  
PwAF=1  
M),\\)=  
2Y6=  
g';?e=  
===== passwordf  
===== isc  
* .N6  
m=</  
E=Bty  
-sw  
"M1=  
===== FGUWS11LV3rxX9kMYMmLN4MgbpfMiqey  
l&-u84$  
*XA=  
bandit9@bandit:~$
```

```
bandit10@bandit: ~  
* pwndbg (https://github.com/pwndbg/pwndbg) in /opt/pwndbg/  
* peda (https://github.com/longld/peda.git) in /opt/peda/  
* gdbinit (https://github.com/gdbinit/gdbinit) in /opt/gdbinit/  
* pwntools (https://github.com/gallopsled/pwntools)  
* radare2 (http://www.radare.org/)  
  
--[ More information ]--  
  
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Enjoy your stay!  
  
bandit10@bandit:~$ ls  
data.txt  
bandit10@bandit:~$ cat data.txt  
VGhlIH8hc3N3b3JkIGlzIGR0UjE3M2Za52IwU1JzREZTR3NnMlJXbn80VmozCv3YyCg==  
bandit10@bandit:~$ base  
Command 'base' not found, did you mean:  
  command 'bake' from snap bake (0.1.3)  
  command 'basez' from deb basez (1.6.2-3)  
  command 'bash' from deb bash (5.2.21-2ubuntu1)  
  command 'basex' from deb basex (10.5-1)  
  command 'ase' from deb ase (3.22.1-3)  
See 'snap info <snapname>' for additional versions.  
bandit10@bandit:~$ base64 -d data.txt  
The password is dR173fZKb0RRsDFSgSg2RMnpNVj3qRr  
bandit10@bandit:~$
```

```
root@Kavinprasanna: ~  
Enjoy your stay!  
  
bandit15@bandit:~$ cat /etc/bandit_pass/bandit15  
8xCjnmgoKbGLhHFAZlGESTmu4M2tKJQo  
bandit15@bandit:~$ man nc  
bandit15@bandit:~$ ncat --ssl localhost 30001  
^C  
bandit15@bandit:~$ man ncat | grep ssl  
--ssl Connect or listen with SSL  
--ssl-cert Specify SSL certificate file (PEM) for listening  
--ssl-key Specify SSL private key (PEM) for listening  
--ssl-verify Verify trust and domain name of certificates  
--ssl-trustfile PEM file containing trusted SSL certificates  
--ssl-ciphers Cipherlist containing SSL ciphers to use  
--ssl-servername Request distinct server name (SNI)  
--ssl-alpn ALPN protocol list to use  
  
--ssl (Use SSL)  
--ssl-verify (Verify server certificates)  
In client mode, --ssl-verify is like --ssl except that it also requires verification of  
these will also be used if available. Use --ssl-trustfile to give a custom list. Use -v  
--ssl-cert certfile.pem (Specify SSL certificate)  
--ssl-key, certificate named with --ssl-cert.  
--ssl-trustfile cert.pem (List trusted certificates)  
verification. It has no effect unless combined with --ssl-verify. The argument to this  
--ssl-ciphers cipherlist (Specify SSL ciphersuites)  
--ssl-servername name (Request distinct server name)  
--ssl-alpn ALPN list (Specify ALPN protocol list)  
http://www.openssl.org  
bandit15@bandit:~$ ncat --ssl localhost 30001  
^C  
bandit15@bandit:~$ cat /etc/bandit_pass/bandit15 | ncat --ssl localhost 30001  
Correct!  
kSkvUpM071BYyCM4G8PvCvT1BfVRy0Dx  
bandit15@bandit:~$ exit  
logout  
Connection to bandit.labs.overthewire.org closed.  
root@Kavinprasanna:~$
```

Overall Commands I learnt is :

to check all the files inside it is command:file ./-file*

to read the file command:cat ./-file(number)

description:human readable,1033 bytes in size,not executable

answer:find . -size 1033c \! -executable or find /(given properties)

COMMANDS:

grep:It is an primary search tool used to find the specific strings or specific configuration file.

sort:identical lines of text or identical passwords into groups

uniq:remove all the duplicates which are similar

pipeline operator:output of one process and set into the other process

command u(unique):Which print only unique lines

strings:strings prints the printable character sequences that are

atleast 4 characters,and strings are mainly useful for determining the contents of non text files and also show the human readable contents

base64:If we didnt know that the string is base 64 we can find it by seeing the equal signs of of the string

translate (tr):Used to translate the first set of characters and after by using tr with a-zA-Z n-za-mN-ZA-M

xxd:creates a hex dump of a given file or standard output

what is hexdump?

Hexdump is used to examine the contents of files, particularly binary files or unknown file formats.

It helps programmers and analysts understand the structure and data stored in the file.

Debugging. Programmers use Hexdump to investigate issues in their code.

xxd -r:xxd -r [hexadecimal dump file path] Converting hexadecimal dump to the original file.

The hexadecimal dump was saved in a file called "hexdump. txt," and we used the '-r' option to reverse this process,

converting the hex dump back into its original format.

gzip,gunzip,zcat -compress or expand files

gzip(with an letter d means)-helps to decompress

netcat(nc):This command is used to in variety of network related tasks.Reading and writing data: The nc command can read and write data between two computer networks.

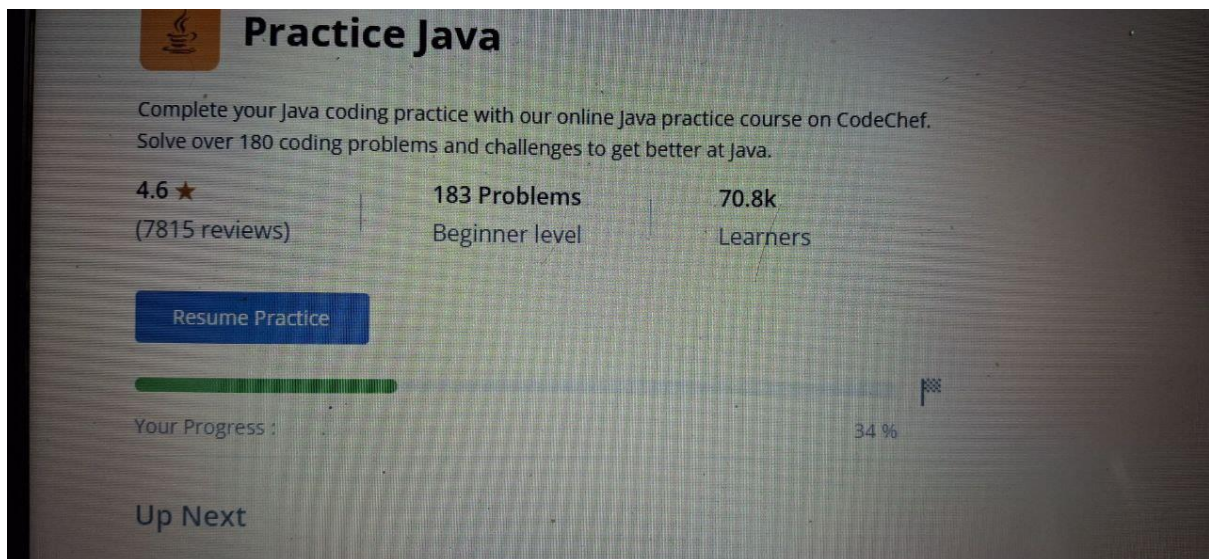
Creating sockets: The nc command can create TCP and UDP sockets for network communication.

Port scanning: The nc command can scan ports.

File transfer: The nc command can transfer files.

Port listening: The nc command can listen on arbitrary TCP and UDP ports.

Network debugging: The nc command can be used for network debugging and investigation



COMPLETED JAVA;

```
root@Kavinprasanna: ~  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 12  
Enter the second number: 12  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 1  
bash.sh: line 17: bc: command not found  
Result of Addition:  
root@Kavinprasanna:~# sudo apt-get install bc  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  libnet-ssleay-perl libwhisker2-perl perl-openssl-defaults  
Use 'sudo apt autoremove' to remove them.  
The following NEW packages will be installed:  
  bc  
0 upgraded, 1 newly installed, 0 to remove and 127 not upgraded.  
Need to get 87.6 kB of archives.  
After this operation, 220 kB of additional disk space will be used.  
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 bc amd64 1.07.1-3build1 [87.6 kB]  
Fetched 87.6 kB in 4s (21.7 kB/s)  
Selecting previously unselected package bc.  
(Reading database ... 39640 files and directories currently installed.)  
Preparing to unpack .../bc 1.07.1-3build1_amd64.deb ...  
Unpacking bc (1.07.1-3build1) ...  
Setting up bc (1.07.1-3build1) ...  
Processing triggers for install-info (6.8-4build1) ...  
Processing triggers for man-db (2.10.2-1) ...  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 12  
Enter the second number: 12  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 1  
Result of Addition: 24
```

```
root@Kavinprasanna: ~  
Result of Addition: 24  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 24  
Enter the second number: 12  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 2  
Result of Subtraction: 12  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 3  
Enter the second number: 3  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 3  
Result of Multiplication: 9  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 24  
Enter the second number: 12  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 3  
Result of Multiplication: 288  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 24  
Enter the second number: 12  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 4
```

```
root@Kavinprasanna: ~  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 4  
Result of Division: 2.00  
root@Kavinprasanna:~# bash bash.sh  
Enter the first number: 50  
Enter the second number: 50  
Select an operation:  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Average  
Enter your choice (1-5): 5  
Average of the two numbers: 50.00  
root@Kavinprasanna:~#
```

```
root@Kavinprasanna: ~  
root@Kavinprasanna:~# bash bash.sh  
Enter a number to check if it is a palindrome: 20  
20 is a palindrome.  
root@Kavinprasanna:~# bash bash.sh  
Enter a number to check if it is a palindrome: -20  
Error: Please enter a valid non-negative integer.  
root@Kavinprasanna:~#
```

```
root@Kavinprasanna:~# bash bash.sh
Select an option:
1. ROT13 Encode
2. ROT13 Decode
Enter your choice (1 or 2): 1
Enter the text: Team bios
Encoded text: Gnnz ovbf
root@Kavinprasanna:~# bash bash.sh
Select an option:
1. ROT13 Encode
2. ROT13 Decode
Enter your choice (1 or 2): 2
Enter the text: Gnnz ovbf
Decoded text: Team bios
root@Kavinprasanna:~#
```

```
root@Kavinprasanna:~# bash bash.sh
Select an option:
1. ROT13 Encode
2. ROT13 Decode
Enter your choice (1 or 2): 1
Enter the text: Team bios
Encoded text: Gnnz ovbf
root@Kavinprasanna:~# bash bash.sh
Select an option:
1. ROT13 Encode
2. ROT13 Decode
Enter your choice (1 or 2): 2
Enter the text: Gnnz ovbf
Decoded text: Team bios
root@Kavinprasanna:~# bash bash.sh
Checking for the presence of file named 'persistence'...
find: '/mnt/c/$Recycle.Bin/S-1-5-18*': Permission denied
find: '/mnt/c/$Recycle.Bin/S-1-5-21-2933172996-681703702-2648395118-1000*': Permission denied
find: '/mnt/c/PerfLogs*': Permission denied
find: '/mnt/c/Program Files/WindowsApps*': Permission denied
find: '/mnt/c/Program Files (x86)/Google/CrashReports*': Permission denied
find: '/mnt/c/ProgramData/HP/HP Touchpoint Analytics Client*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Crypto/PCPKSP/WindowsAI*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Diagnosis*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Network/Downloader*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Provisioning/AssetCache*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Search/Data*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/SmsRouter*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Spectrum*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/AppRepository*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/LfsSvc*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/Models*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/PackagedEventProviders*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/Power Efficiency Diagnostics*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/SystemData*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/WER/ReportArchive/Critical_10.0.19041.1220_638ec2facfcc2cedcdc84f1aa57268d2e7bee67_00000000_a3ac5463-88f2-4838-b32e-ff36407fceca*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/WER/ReportArchive/Critical_10.0.19041.4769_78852661f47127b35f3e47dc6caa389691d6c3_00000000_1b35169e-b588-4c23-8110-7040e18099a6*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/WER/ReportArchive/Critical_10.0.19041.4769_c1aa257f63093e98f48e135cd9cb4503da79f66_00000000_0525d3f8-fab2-4eb1-a5e0-b6e0dcc98fc0*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/WER/ReportArchive/Critical_10.0.19041.4892_619fbb435abf399522bd46398dd7864de12d0d7_00000000_0c4d7d28-8ee3-4dce-92de-e6a831faa4fa*': Permission denied
find: '/mnt/c/ProgramData/Microsoft/Windows/WER/ReportArchive/Kernel_1a_51dbcca05a7cbda368d569bb761ca6bff8e29e73_00000000_cab_70071143-fb99-46e7-9467-89199c1cf502*': Per
```

BASH SCRIPTING COMPLETED;

```
Python 3.12 (64-bit)
Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> def count_vowels(s):
...     # Define vowels
...     vowels = 'aeiou'
...     # Count vowels
...     return sum(1 for char in s.lower() if char in vowels)
...
>>> # Example usage:
>>> print(count_vowels("Hello World")) # 3
3
>>> print(count_vowels("Python")) # 1
1
>>>
```

PYTHON;

```
Python 3.12 (64-bit)
Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
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...     # Define vowels
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...     # Count vowels
...     return sum(1 for char in s.lower() if char in vowels)
...
>>> # Example usage:
>>> print(count_vowels("Hello World")) # 3
3
>>> print(count_vowels("Python")) # 1
1
>>>
```

```
Python 3.12 (64-bit)
Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> def are_anagrams(s1, s2):
...     # Remove any non-alphanumeric characters and convert to lowercase
...     cleaned_s1 = ''.join(char.lower() for char in s1 if char.isalnum())
...     cleaned_s2 = ''.join(char.lower() for char in s2 if char.isalnum())
...
...     # Check if sorted characters of both strings are the same
...     return sorted(cleaned_s1) == sorted(cleaned_s2)
...
>>> # Example usage:
>>> print(are_anagrams("Listen", "Silent")) # True
True
>>> print(are_anagrams("hello", "world")) # False
False
>>>
```

```
Python 3.12 (64-bit)
Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> def is_palindrome(s):
...     # Remove any non-alphanumeric characters and convert to lowercase
...     cleaned = ''.join(char.lower() for char in s if char.isalnum())
...     # Check if the cleaned string is equal to its reverse
...     return cleaned == cleaned[::-1]
...
>>> # Example usage:
>>> print(is_palindrome("A man, a plan, a canal, Panama")) # True
True
>>> print(is_palindrome("hello")) # False
False
>>>
```

```
Python 3.12 (64-bit)
Python 3.12.6 (tags/v3.12.6:a4a2d2b, Sep  6 2024, 20:11:23) [MSC v.1940 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> def flatten_list(nested_list):
...     flat_list = []
...     for item in nested_list:
...         if isinstance(item, list):
...             flat_list.extend(flatten_list(item)) # Recursively flatten
...         else:
...             flat_list.append(item)
...     return flat_list
...
>>> # Example usage:
>>> print(flatten_list([1, [2, [3, 4], 5], 6])) # [1, 2, 3, 4, 5, 6]
[1, 2, 3, 4, 5, 6]
>>> _
```

PYTHON PROGRAMMING LANGUAGES COMPLETED;