ASSIGNMENT NO:- 03

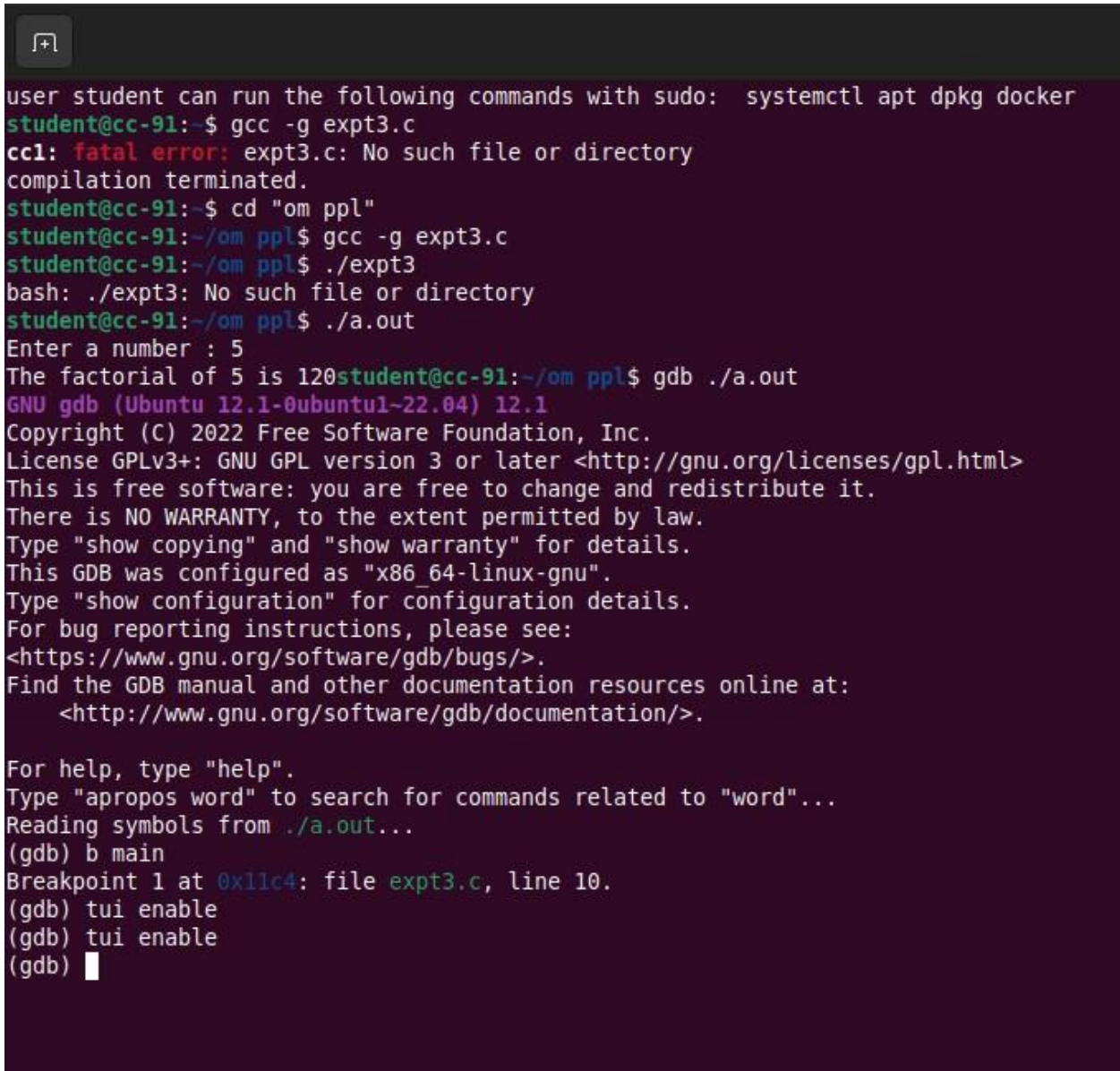**PROGRAM:**

```c
#include<stdio.h>

int factorial(int a){
if(a==1){
return 1;
}
return a*factorial(a-1);
}

int main(){
int a;
printf("Enter a number : ");
scanf("%d",&a);
printf("The factorial of %d is %d",a,factorial(a));
}
```

OUTPUT:

```
user student can run the following commands with sudo:  systemctl apt dpkg docker
student@cc-91:~$ gcc -g expt3.c
cc1: fatal error: expt3.c: No such file or directory
compilation terminated.
student@cc-91:~$ cd "om ppl"
student@cc-91:~/om ppl$ gcc -g expt3.c
student@cc-91:~/om ppl$ ./expt3
bash: ./expt3: No such file or directory
student@cc-91:~/om ppl$ ./a.out
Enter a number : 5
The factorial of 5 is 120student@cc-91:~/om ppl$ gdb ./a.out
GNU gdb (Ubuntu 12.1-0ubuntu1~22.04) 12.1
Copyright (C) 2022 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "x86_64-linux-gnu".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<https://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
    <http://www.gnu.org/software/gdb/documentation/>.

For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./a.out...
(gdb) b main
Breakpoint 1 at 0x11c4: file expt3.c, line 10.
(gdb) tui enable
(gdb) tui enable
(gdb)
```

```
b+      4    if(a==1){
B >     5    if(a==1){
        6    }
        7    return a*factorial(a-1);
        8    }
        9
B+     10    int main(){
       11    int a;
 >     12    printf("Enter a number : ");
       13    printf("Enter a number : ");
       14    printf("The factorial of %d is %d",a,factorial(a));
       15    }
       16
       17
       18
       19
       20
       21
       22
       23
       24
       25
       26
       27
       28
       29
       30
       31
       32
       33
       34
       35
       36
       37
       38
       39
```

```
multi-thre Thread 0x7ffff7f997 In: main
Breakpoint 2, factorial (a=1) at exfactorial
Starting program: /home/student/om ppl/a.out
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/libthread_db.so.1".

Breakpoint 1, main () at expt3.c:10
(gdb) n
(gdb) c
Continuing.
Enter a number : 5

Breakpoint 2, factorial (a=5) at expt3.c:4
(gdb) p a
$4 = 5
(gdb) c
Continuing.

Breakpoint 2, factorial (a=4) at expt3.c:4
(gdb) p a
$5 = 4
(gdb)
```