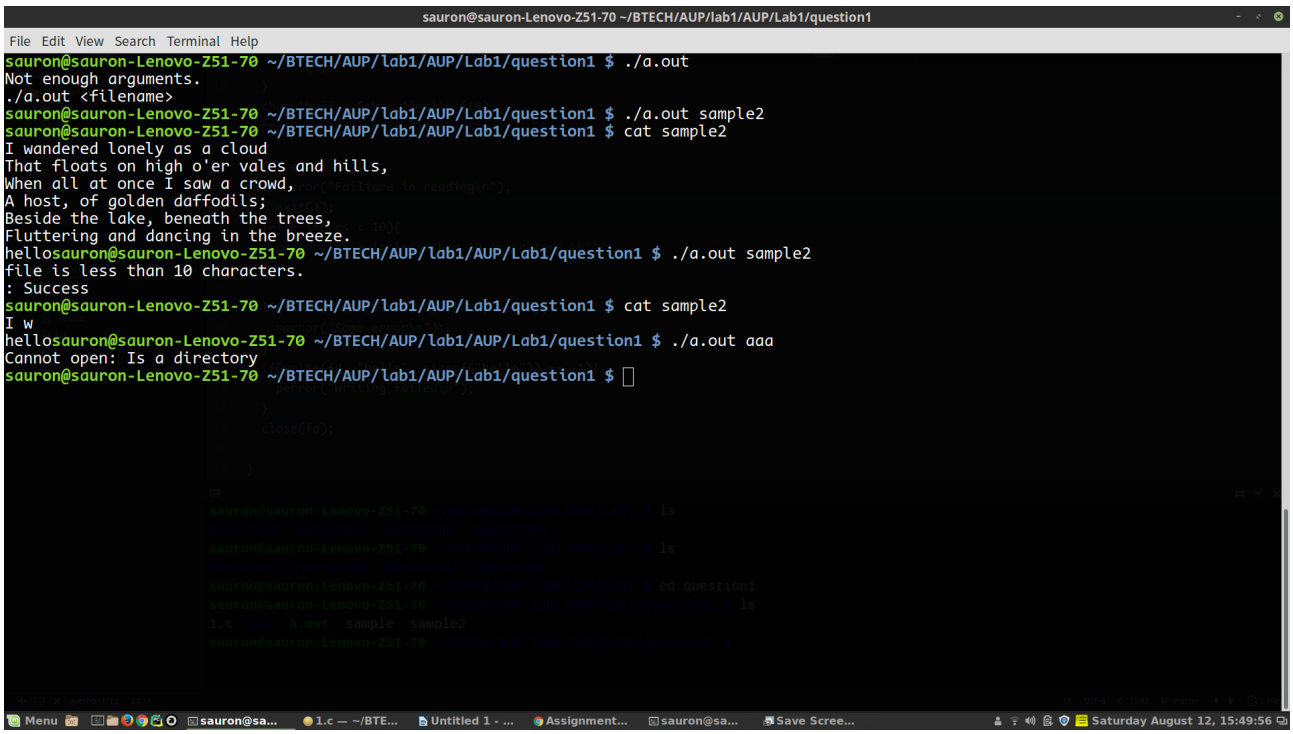
ADVANCED UNIX PROGRAMMING 2017 - LAB 1

Akash Sarda 111403003
Aditya Malu 111403023
Jassim Adbul Rehman 111403019

1.Assume that you have to read 10 characters from the beginning of an existing file and then to write “hello” to the end of the file. Write a program to achieve this without using lseek function.

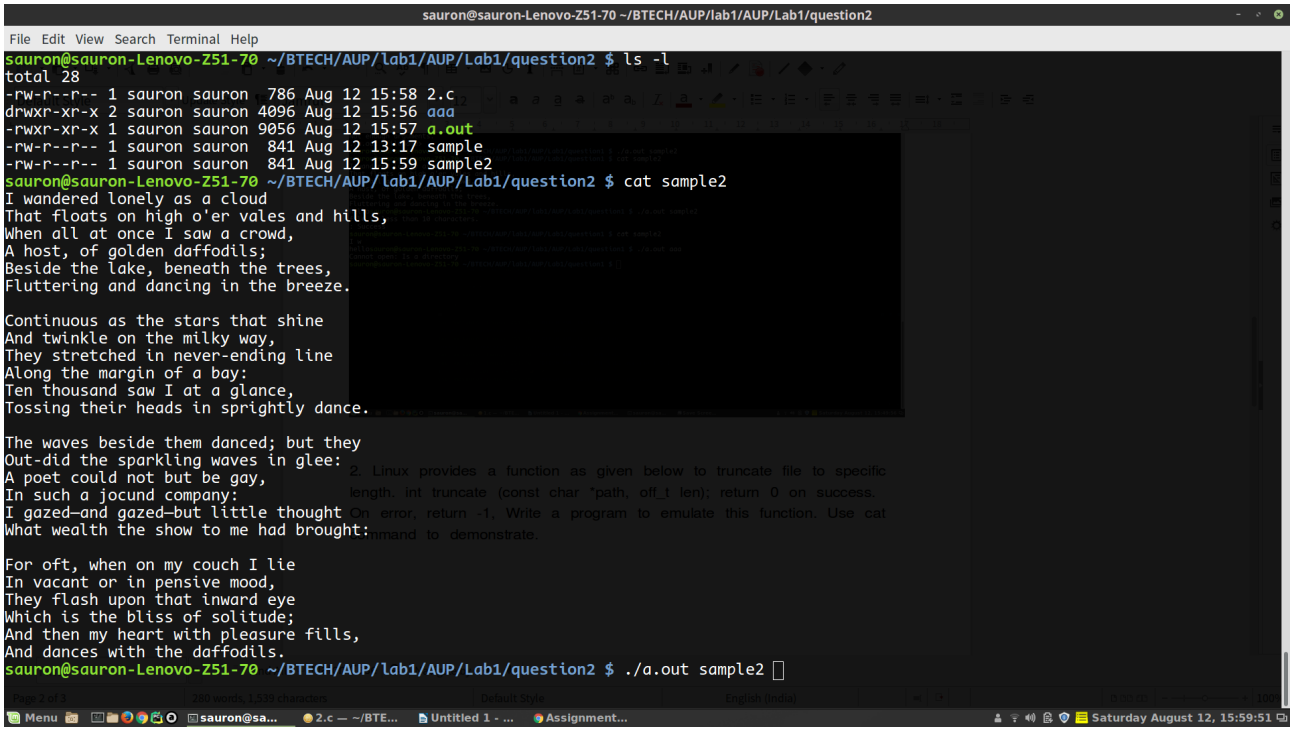
Test Case1:

```
>./a.out
Not enough arguments.
./a.out <filename>

>./a.out sample2
I wandered lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host, of golden daffodils;
Beside the lake, beneath the trees,
Fluttering and dancing in the breeze.
Hello

>./a.out sample2
file is less than 10 characters.
: Success

>cat sample2
I w
hello

>./a.out aaa
Cannot open: Is a directory
```

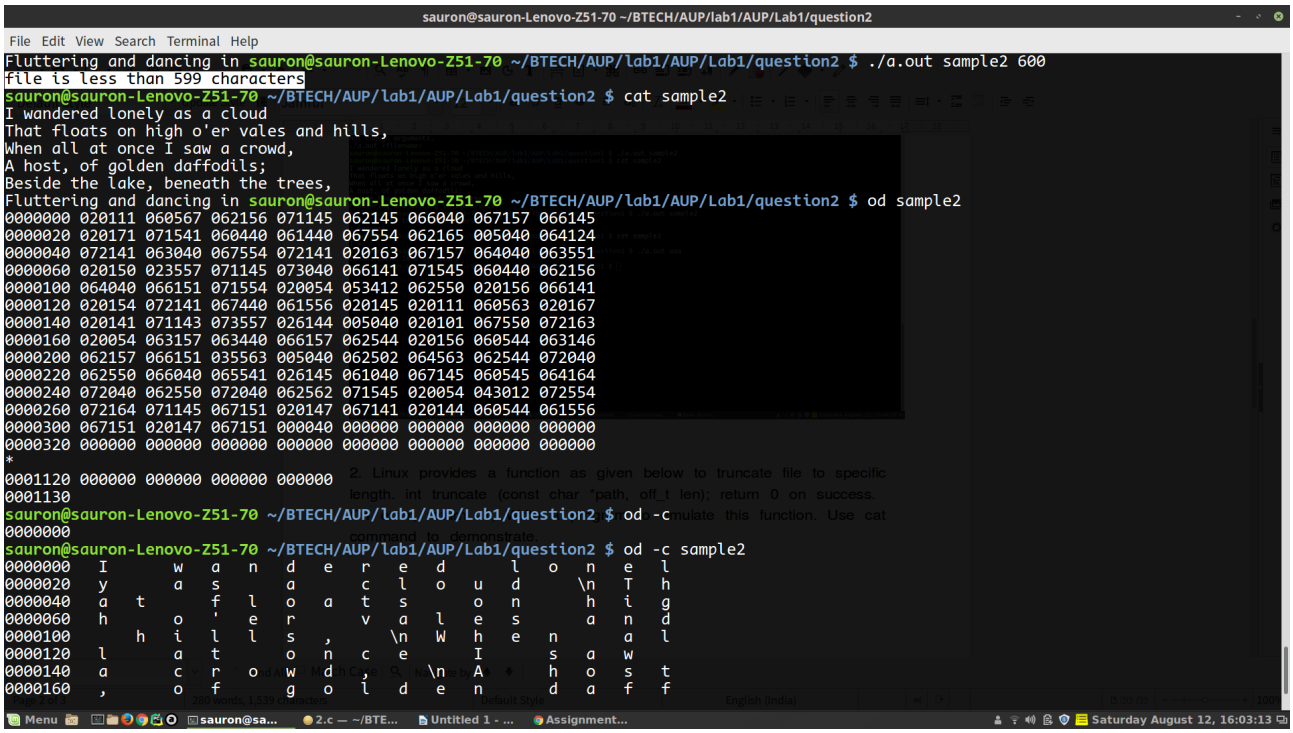


2. Linux provides a function as given below to truncate file to specific length. int truncate (const char *path, off_t len); return 0 on success. On error, return -1, Write a program to emulate this function. Use cat command to demonstrate.

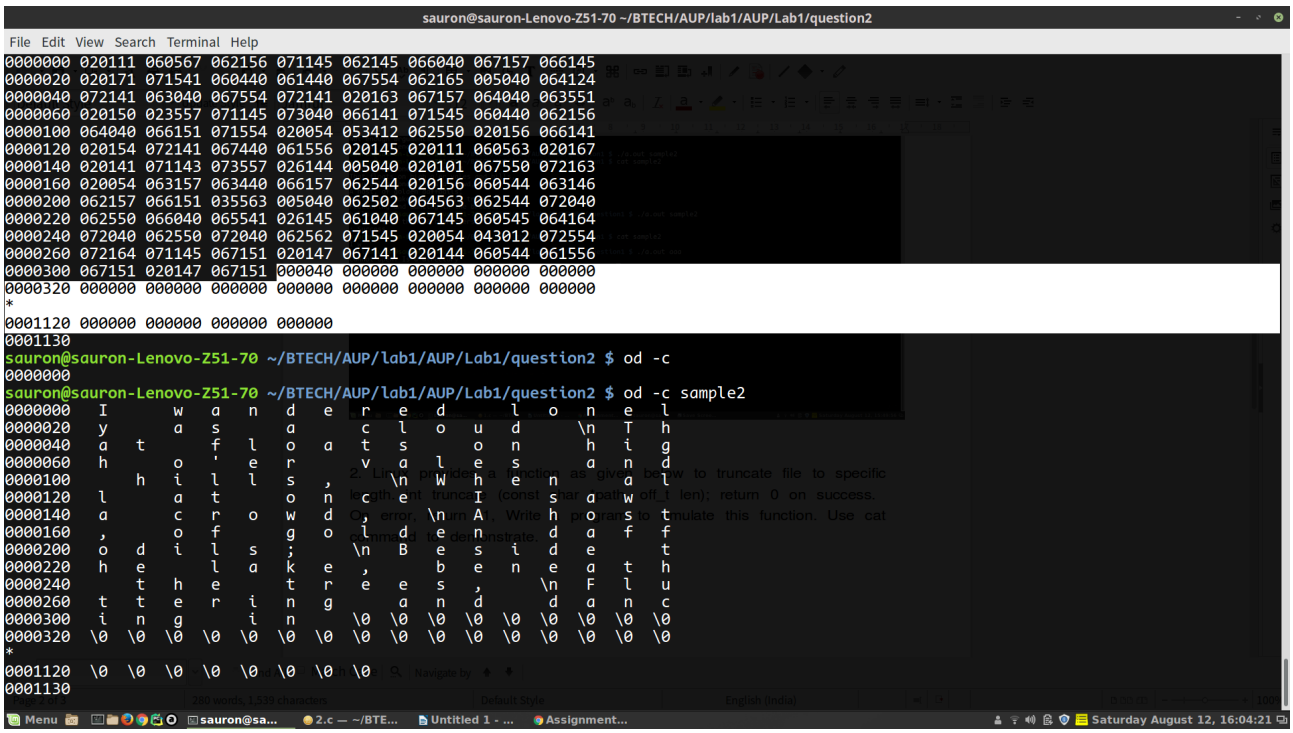
Case 1: Normal Character file truncation.



Case 2:


sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2
File Edit View Search Terminal Help
Fluttering and dancing in sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ ./a.out sample2 600
file is less than 599 characters
sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ cat sample2
I wandered lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host, of golden daffodils;
Beside the lake, beneath the trees,
Fluttering and dancing in sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ od sample2
0000000 020111 060567 062156 071145 062145 066040 067157 066145
0000020 020171 071541 060440 061440 067554 062165 005040 064124
0000040 072141 063040 067554 072141 020163 067157 064040 063551
0000060 020150 023557 071145 073040 066141 071545 060440 062156
0000100 064040 066151 071554 020054 053412 062550 020156 066141
0000120 020154 072141 067440 061556 020145 020111 060563 020167
0000140 020141 071143 073557 026144 005040 020101 067550 072163
0000160 020054 063157 063440 066157 062544 020156 060544 063146
0000200 062157 066151 035563 005040 062502 064563 062544 072040
0000220 062550 066040 065541 026145 061040 067145 060545 064164
0000240 072040 062550 072040 062562 071545 020054 043012 072554
0000260 072164 071145 067151 020147 067141 020144 060544 061556
0000300 067151 020147 067151 000040 000000 000000 000000 000000
0000320 000000 000000 000000 000000 000000 000000 000000 000000
*
0001120 000000 000000 000000 000000
0001130
sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ od -c
0000000
sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ od -c sample2
0000000 I w a n d e r e d l o n e l
0000020 y a s a c l o u d \n T h
0000040 a t f l o a t s o n h i g
0000060 h o ' e r v a l e s a n d
0000100 h i l l s , \n W h e n a l
0000120 l a t o n c e I s a w
0000140 a c r o w d , \n A h o s t
0000160 , o f g o l d e n d a f f
Menu sauron@sa... 2.c — ~/BTE... Untitled 1 - ... Assignment... Saturday August 12, 16:03:13

Case 3:


sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2
File Edit View Search Terminal Help
0000000 020111 060567 062156 071145 062145 066040 067157 066145
0000020 020171 071541 060440 061440 067554 062165 005040 064124
0000040 072141 063040 067554 072141 020163 067157 064040 063551
0000060 020150 023557 071145 073040 066141 071545 060440 062156
0000100 064040 066151 071554 020054 053412 062550 020156 066141
0000120 020154 072141 067440 061556 020145 020111 060563 020167
0000140 020141 071143 073557 026144 005040 020101 067550 072163
0000160 020054 063157 063440 066157 062544 020156 060544 063146
0000200 062157 066151 035563 005040 062502 064563 062544 072040
0000220 062550 066040 065541 026145 061040 067145 060545 064164
0000240 072040 062550 072040 062562 071545 020054 043012 072554
0000260 072164 071145 067151 020147 067141 020144 060544 061556
0000300 067151 020147 067151 000040 000000 000000 000000 000000
0000320 000000 000000 000000 000000 000000 000000 000000 000000
*
0001120 000000 000000 000000 000000
0001130
sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ od -c
0000000
sauron@sauron-Lenovo-Z51-70 ~/BTECH/AUP/lab1/AUP/Lab1/question2 $ od -c sample2
0000000 I w a n d e r e d l o n e l
0000020 y a s a c l o u d \n T h
0000040 a t f l o a t s o n h i g
0000060 h o ' e r v a l e s a n d
0000100 h i l l s , \n W h e n a l
0000120 l a t o n c e I s a w
0000140 a c r o w d , \n A h o s t
0000160 , o f g o l d e n d a f f
0000200 o d i l s ; \n B e s i d e t
0000220 h e l a k e , b e n e a t h
0000240 t h e t r e e s , \n F l u
0000260 t t e r i n g a n d d a n c
0000300 i n g i n \0 \0 \0 \0 \0 \0 \0 \0
0000320 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0 \0
*
0001120 \0 \0 \0 \0 \0 \0 \0 \0
0001130
Menu sauron@sa... 2.c — ~/BTE... Untitled 1 - ... Assignment... Saturday August 12, 16:04:21

3.What will be the output for the program with following operation?

a.Create a new file “f1” and write “abcde” in it and close

b.Open the file “f1” for writing with O_APPEND flag

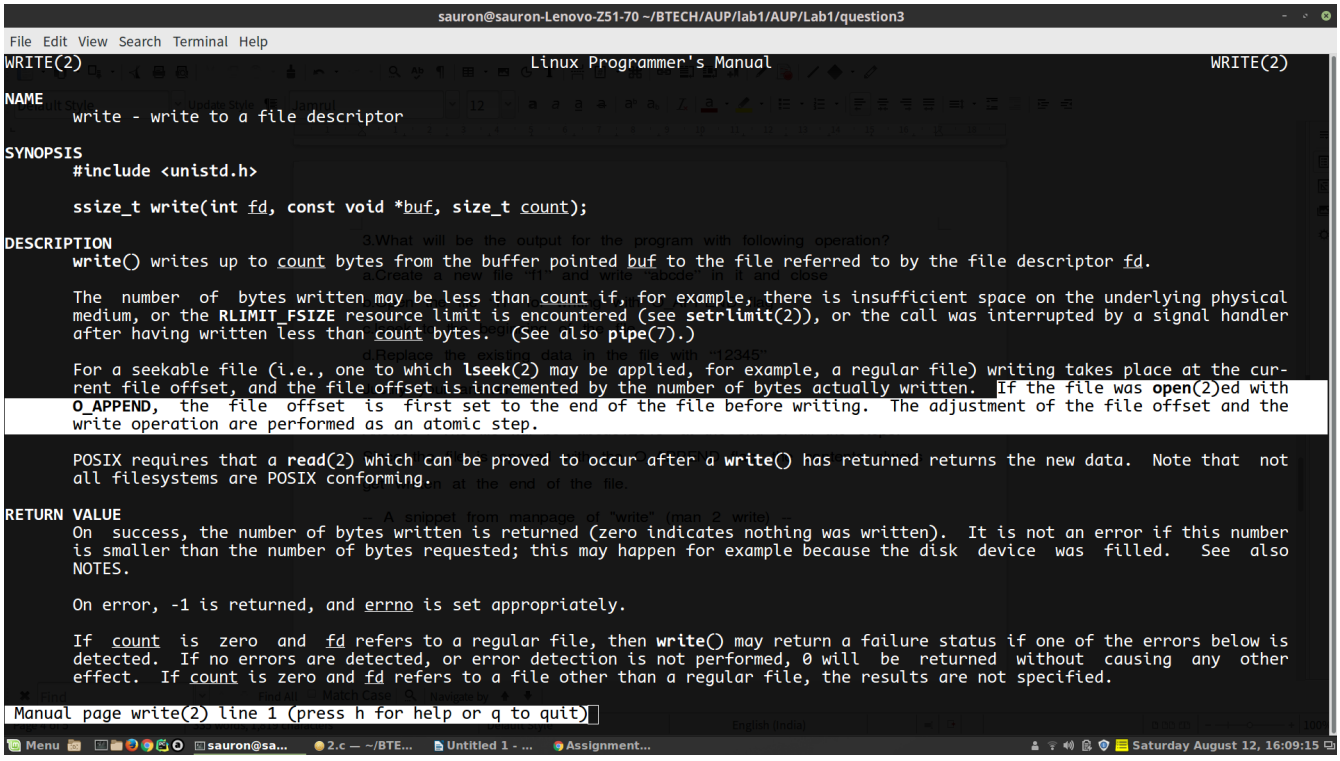
c.lseek to the beginning of the file

d.Replace the existing data in the file with “12345”

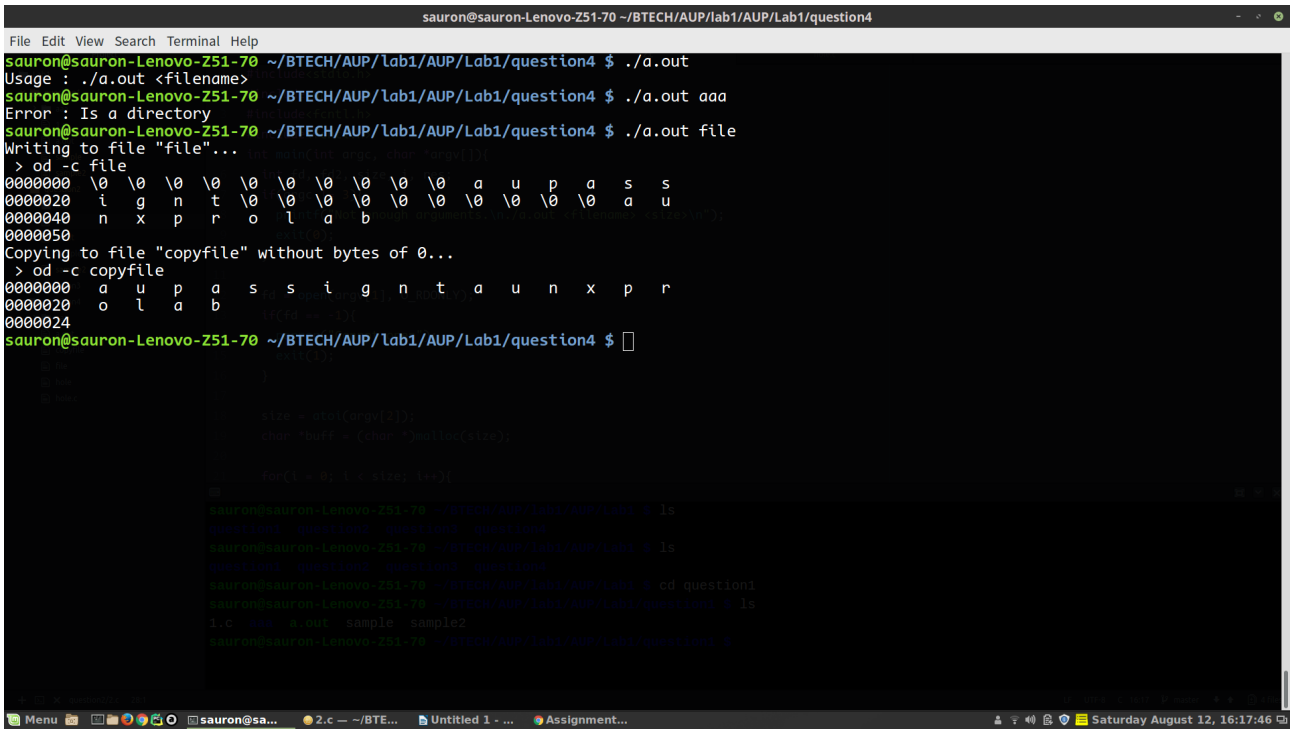
Justify your answer.

Answer : The file will be "abcde12345" at the end of all the steps. Since the file is opened with the O_APPEND flag, the contents always get written at the end of the file.

-- A snippet from manpage of "write" (man 2 write) --



4.Write a program to create a file with a hole: write any 10 bytes at an offset of 10 and another 10 bytes at an offset of 30. Using “system” function, invoke “od” command and view the contents. Later copy the contents of the file to another file without writing the bytes of 0. Once again verify the contents by invoking “system” with “od”.



Case 1:
Without specifying argument.

Case 2:
specifying a directory file.

Case 3:
Output with a normal file.

Our assignment is hosted at:
https://github.com/aditya1904/AUP/tree/master/Lab1