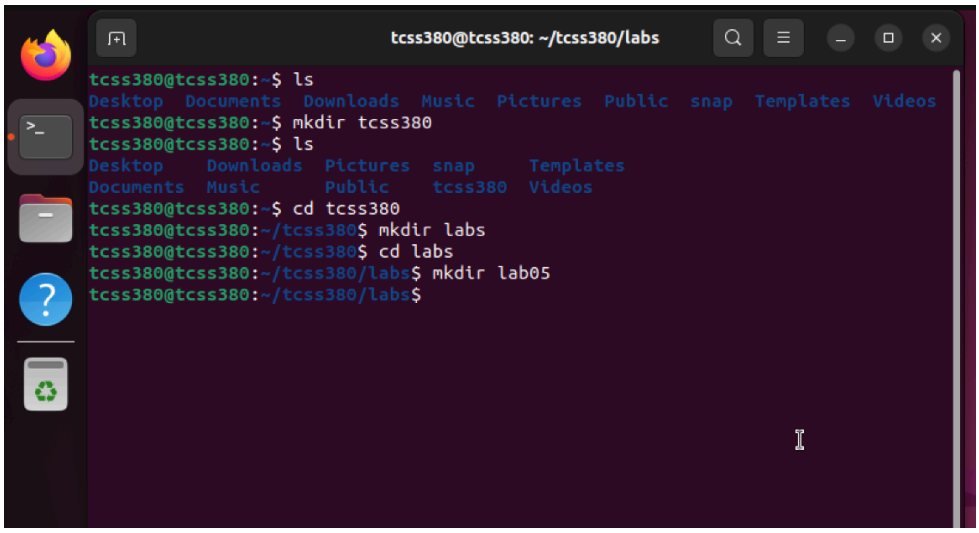
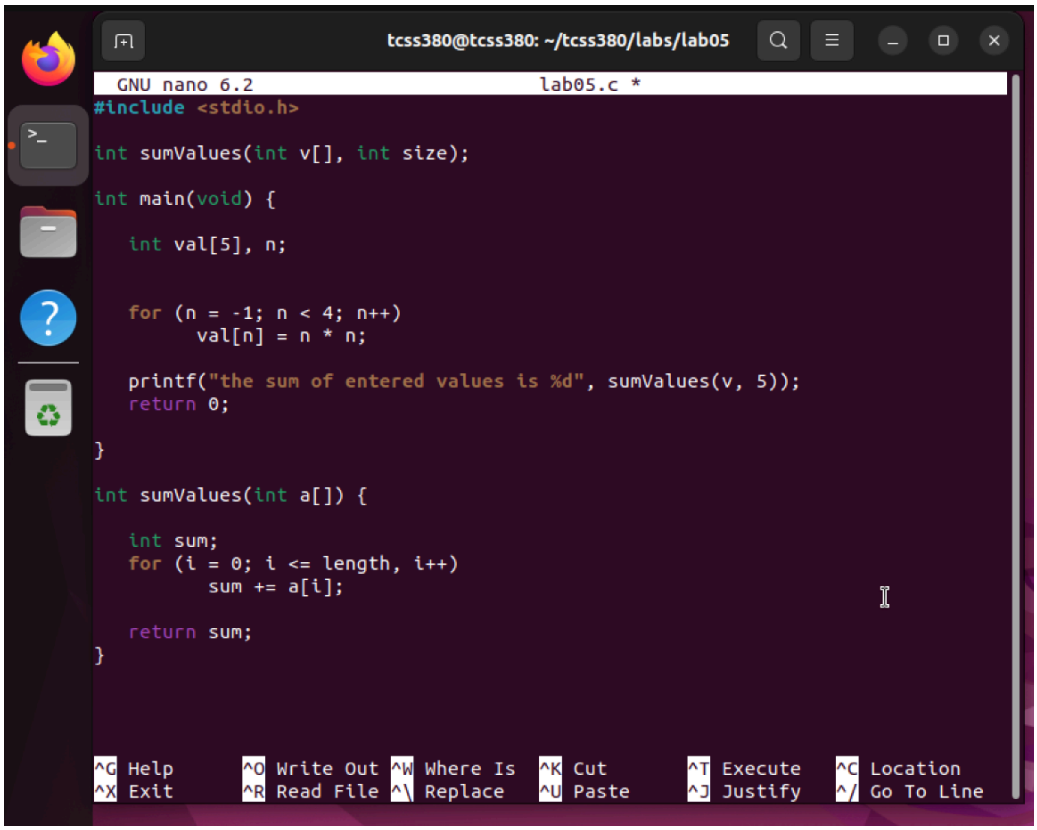
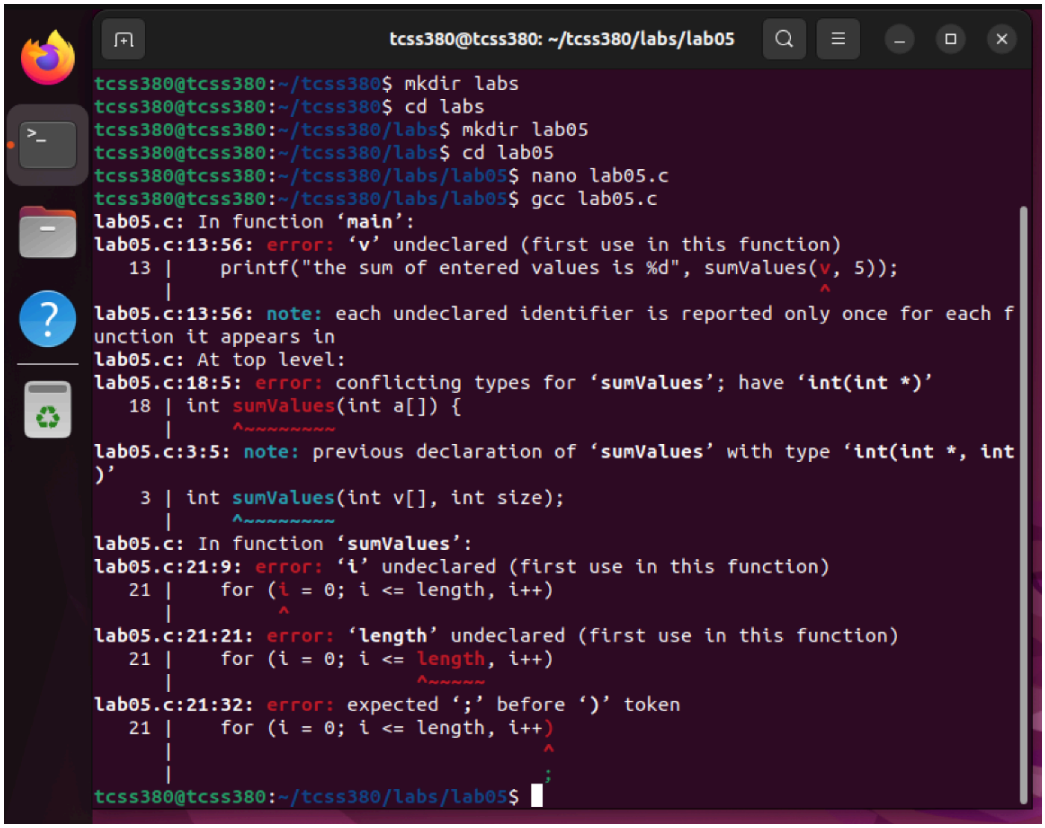
TCSS 380
lab05 - SCs
Corey Young & Caleb Krauter

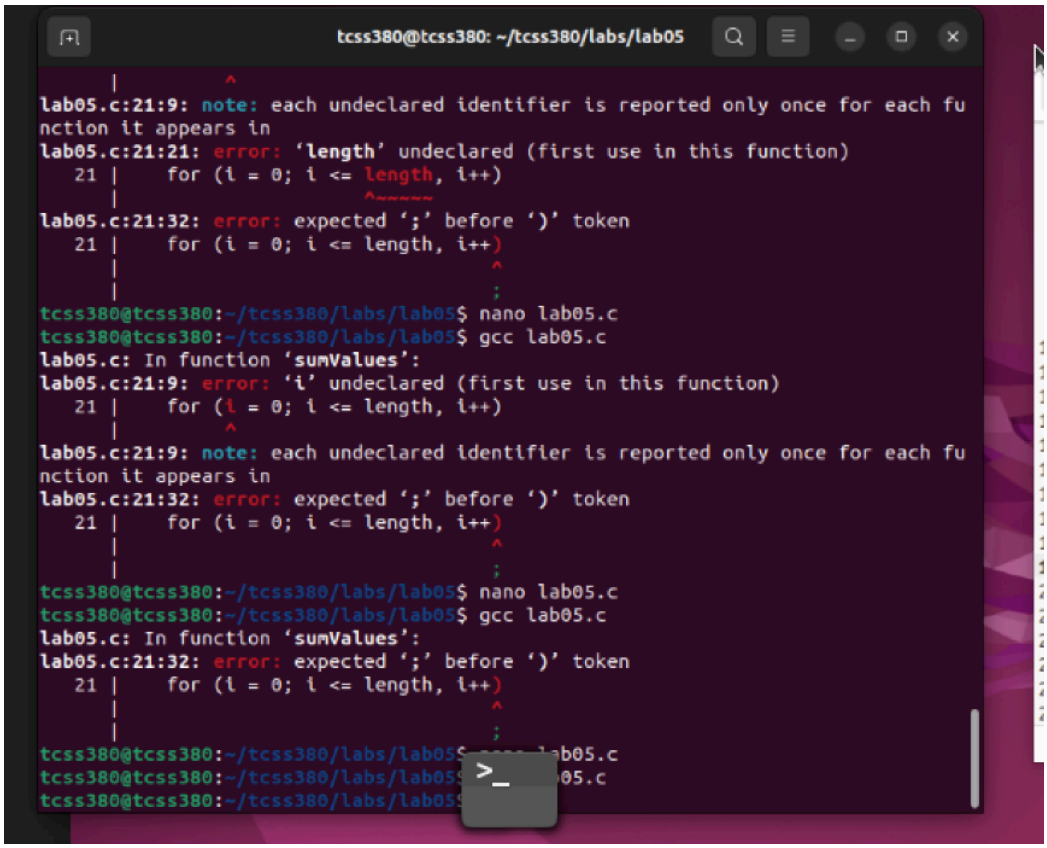


- Using terminal commands to make folders -



- Initial program entered in -


tcss380@tcss380: ~/tcss380/labs/lab05
tcss380@tcss380:~/tcss380$ mkdir labs
tcss380@tcss380:~/tcss380$ cd labs
tcss380@tcss380:~/tcss380/labs$ mkdir lab05
tcss380@tcss380:~/tcss380/labs$ cd lab05
tcss380@tcss380:~/tcss380/labs/lab05$ nano lab05.c
tcss380@tcss380:~/tcss380/labs/lab05$ gcc lab05.c
lab05.c: In function 'main':
lab05.c:13:56: error: 'v' undeclared (first use in this function)
13 | printf("the sum of entered values is %d", sumValues(v, 5));
lab05.c:13:56: note: each undeclared identifier is reported only once for each function it appears in
lab05.c: At top level:
lab05.c:18:5: error: conflicting types for 'sumValues'; have 'int(int *)'
18 | int sumValues(int a[]) {
lab05.c:3:5: note: previous declaration of 'sumValues' with type 'int(int *, int)'
3 | int sumValues(int v[], int size);
lab05.c: In function 'sumValues':
lab05.c:21:9: error: 'i' undeclared (first use in this function)
21 | for (i = 0; i <= length, i++)
lab05.c:21:21: error: 'length' undeclared (first use in this function)
21 | for (i = 0; i <= length, i++)
lab05.c:21:32: error: expected ';' before ')' token
21 | for (i = 0; i <= length, i++)
tcss380@tcss380:~/tcss380/labs/lab05$


tcss380@tcss380: ~/tcss380/labs/lab05
lab05.c:21:9: note: each undeclared identifier is reported only once for each function it appears in
lab05.c:21:21: error: 'length' undeclared (first use in this function)
21 | for (i = 0; i <= length, i++)
lab05.c:21:32: error: expected ';' before ')' token
21 | for (i = 0; i <= length, i++)
tcss380@tcss380:~/tcss380/labs/lab05$ nano lab05.c
tcss380@tcss380:~/tcss380/labs/lab05$ gcc lab05.c
lab05.c: In function 'sumValues':
lab05.c:21:9: error: 'i' undeclared (first use in this function)
21 | for (i = 0; i <= length, i++)
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tcss380@tcss380:~/tcss380/labs/lab05$ nano lab05.c
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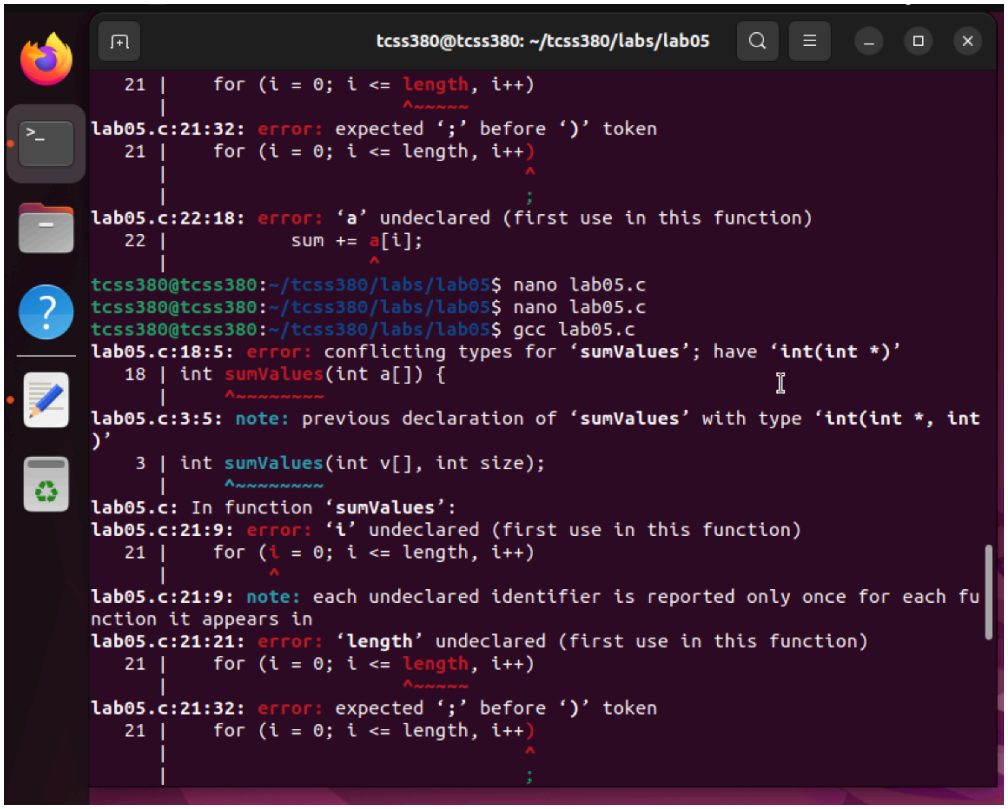
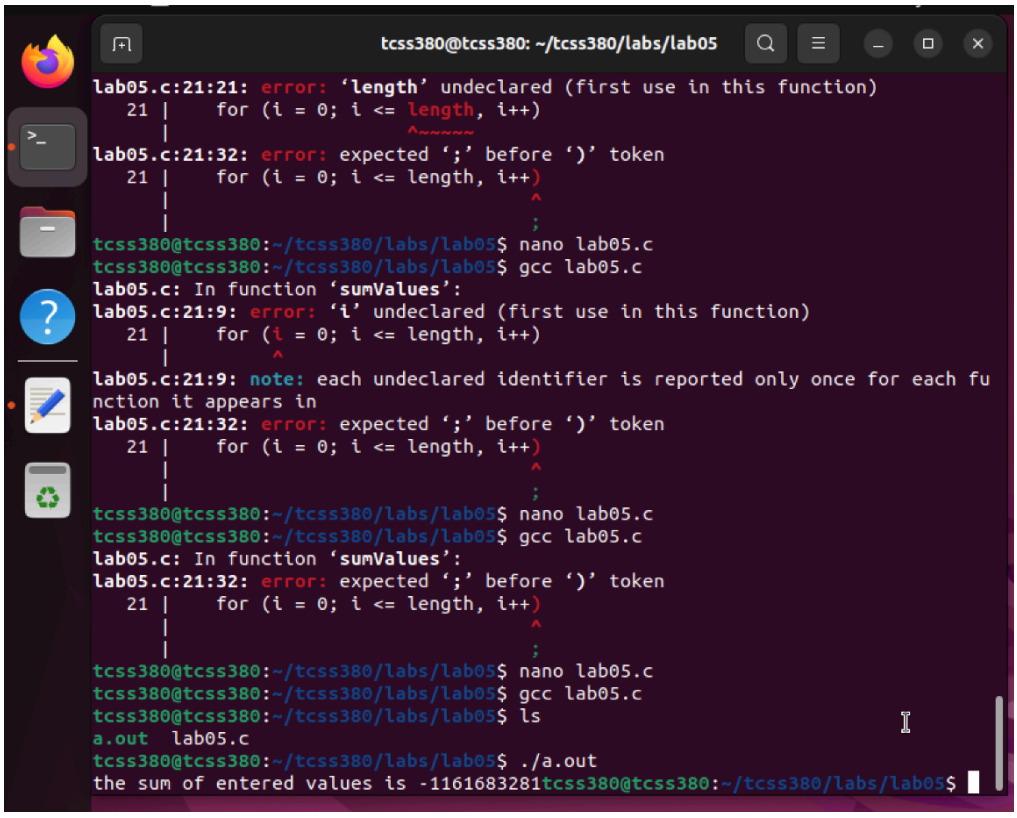
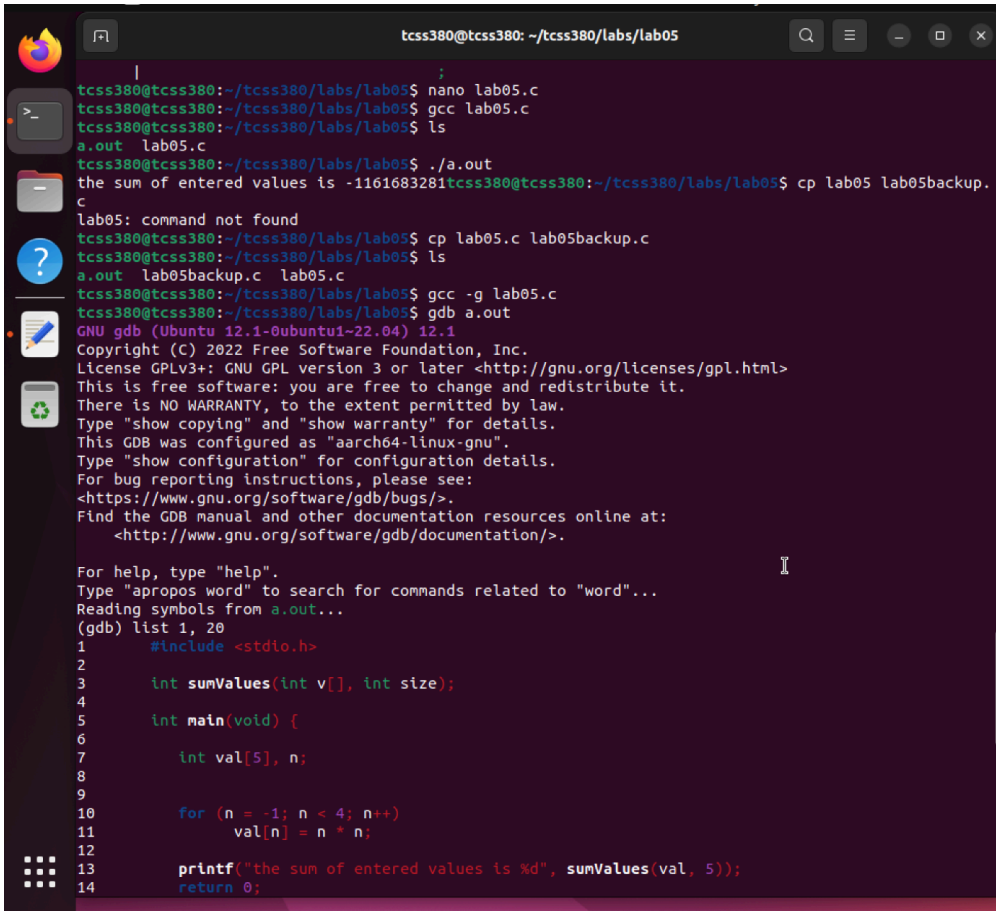
lab05.c:21:32: error: expected ';' before ')' token
21 | for (i = 0; i <= length, i++)

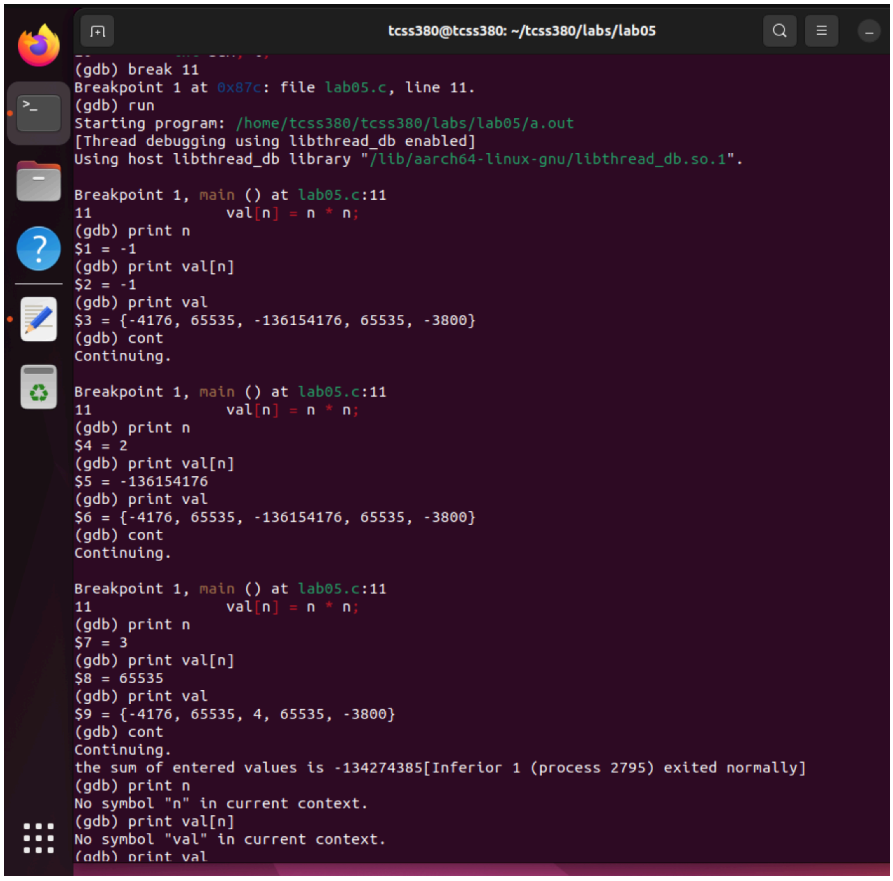


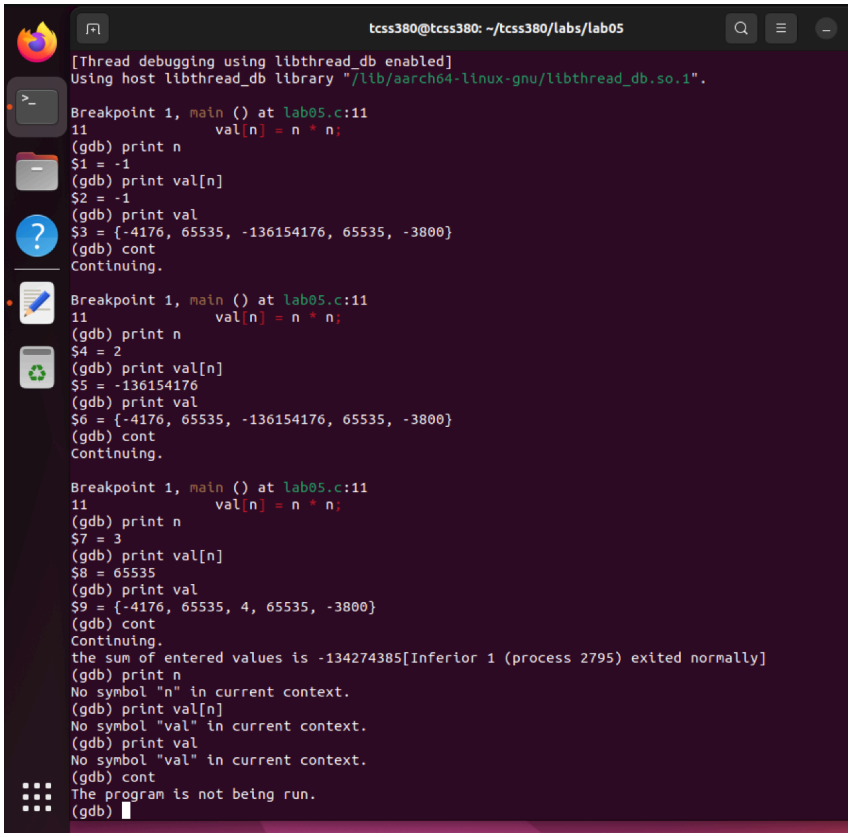


- Compiles without errors here -

- GDB debugging below ↓ -




tcss380@tcss380: ~/tcss380/labs/lab05
(gdb) break 11
Breakpoint 1 at 0x87c: file lab05.c, line 11.
(gdb) run
Starting program: /home/tcss380/tcss380/labs/lab05/a.out
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$1 = -1
(gdb) print val[n]
$2 = -1
(gdb) print val
$3 = {-4176, 65535, -136154176, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$4 = 2
(gdb) print val[n]
$5 = -136154176
(gdb) print val
$6 = {-4176, 65535, -136154176, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$7 = 3
(gdb) print val[n]
$8 = 65535
(gdb) print val
$9 = {-4176, 65535, 4, 65535, -3800}
(gdb) cont
Continuing.
the sum of entered values is -134274385[Inferior 1 (process 2795) exited normally]
(gdb) print n
No symbol "n" in current context.
(gdb) print val[n]
No symbol "val" in current context.
(gdb) print val


tcss380@tcss380: ~/tcss380/labs/lab05
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$1 = -1
(gdb) print val[n]
$2 = -1
(gdb) print val
$3 = {-4176, 65535, -136154176, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
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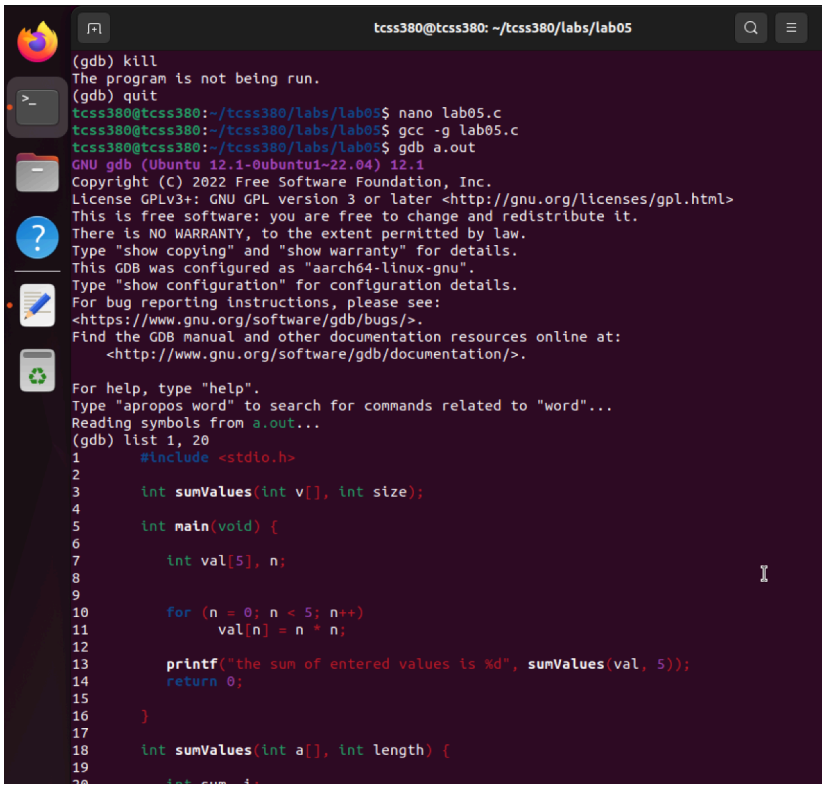
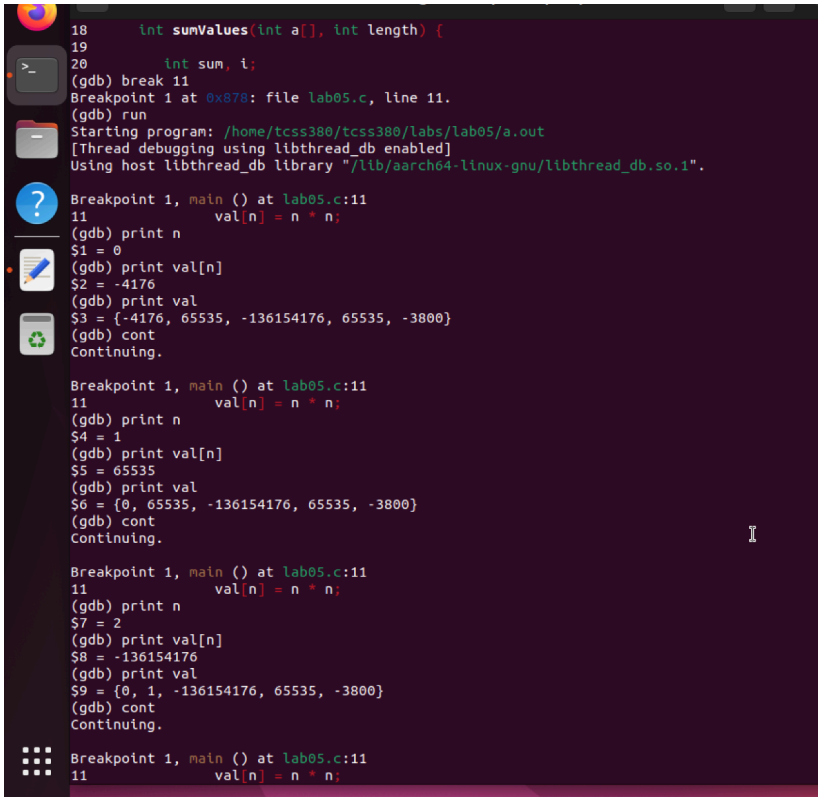
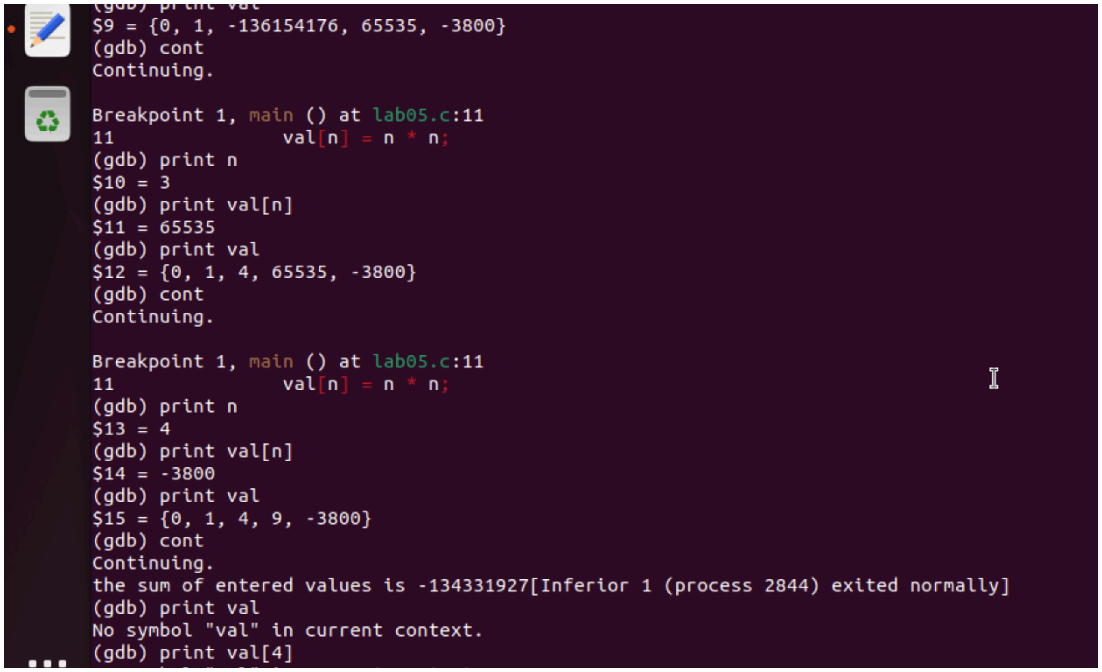
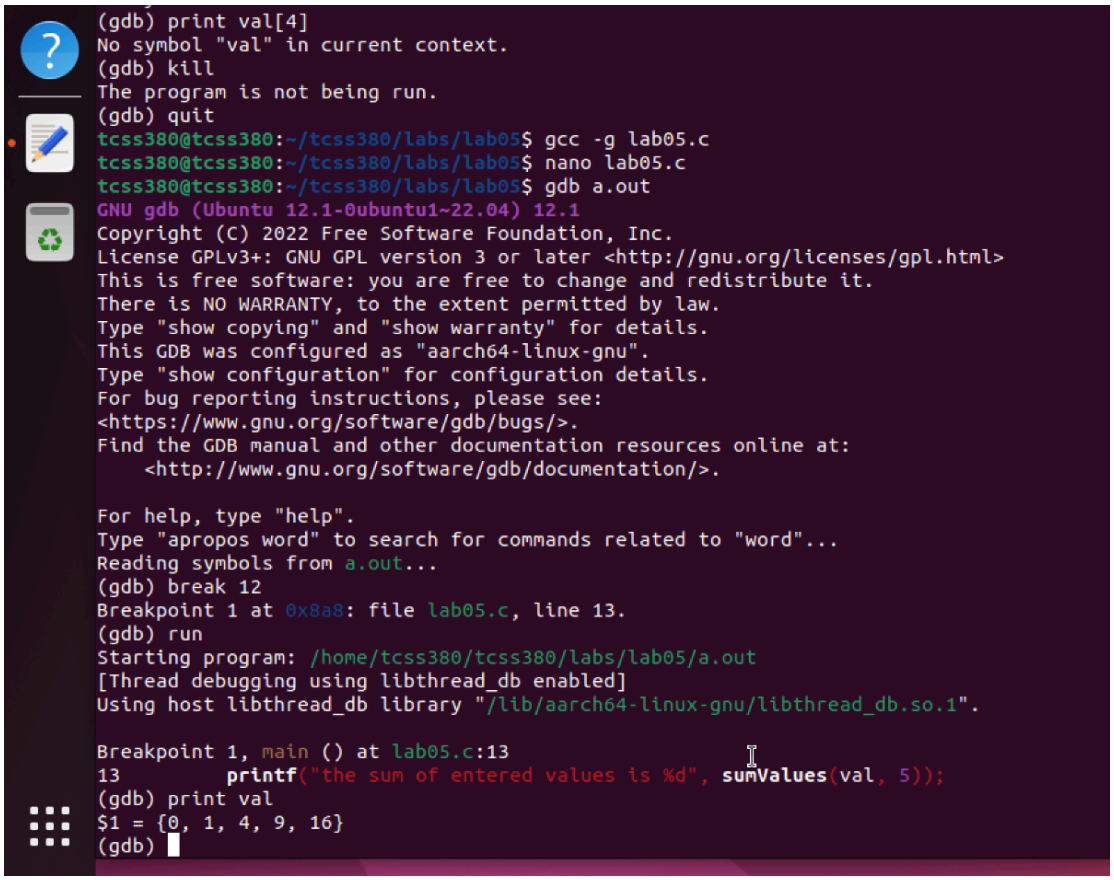
(gdb) print n
$4 = 2
(gdb) print val[n]
$5 = -136154176
(gdb) print val
$6 = {-4176, 65535, -136154176, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$7 = 3
(gdb) print val[n]
$8 = 65535
(gdb) print val
$9 = {-4176, 65535, 4, 65535, -3800}
(gdb) cont
Continuing.
the sum of entered values is -134274385[Inferior 1 (process 2795) exited normally]
(gdb) print n
No symbol "n" in current context.
(gdb) print val[n]
No symbol "val" in current context.
(gdb) print val
No symbol "val" in current context.
(gdb) cont
The program is not being run.
(gdb)

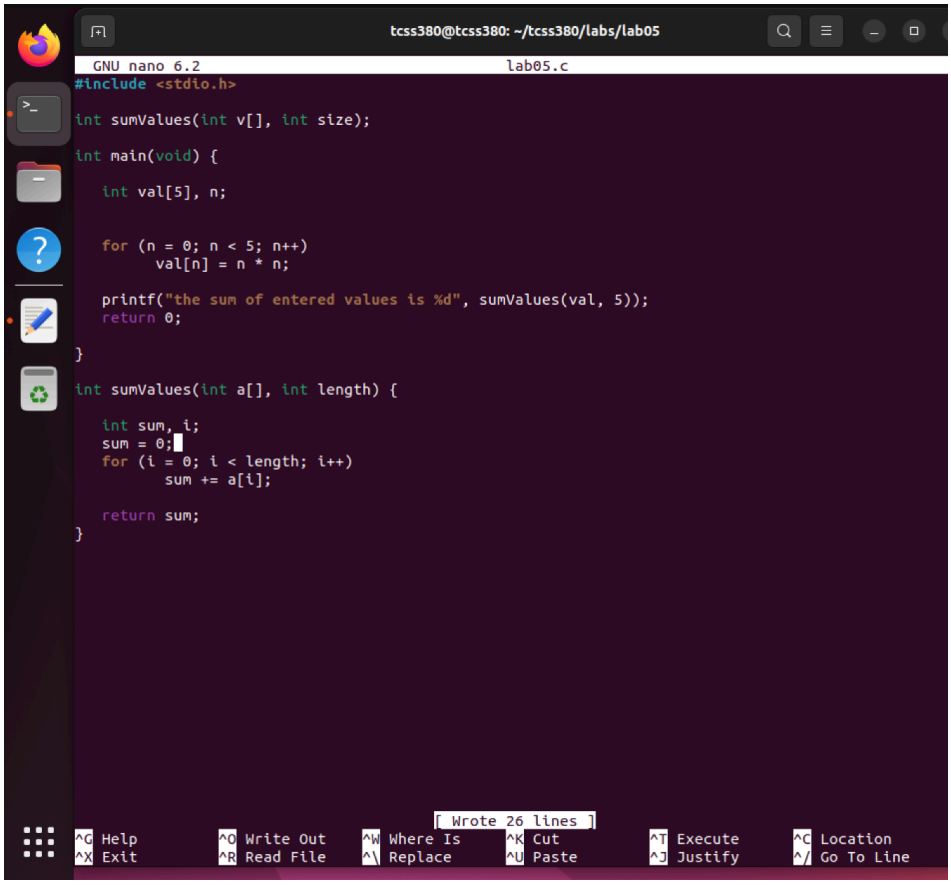
- More debugging with GDB ↓



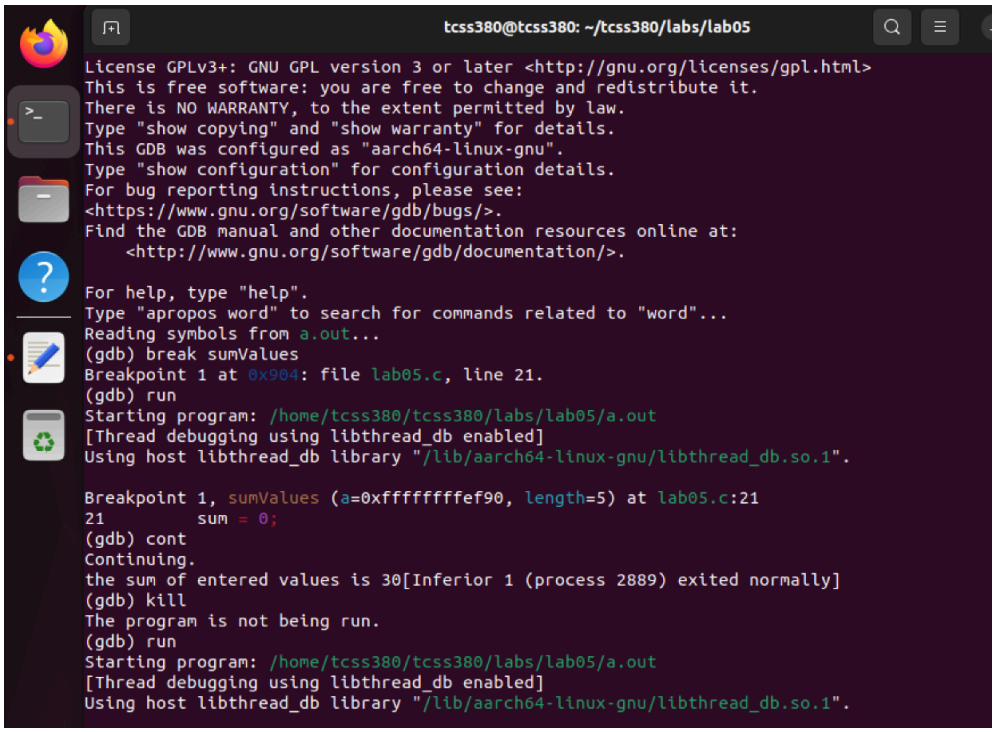



$9 = {0, 1, -136154176, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$10 = 3
(gdb) print val[n]
$11 = 65535
(gdb) print val
$12 = {0, 1, 4, 65535, -3800}
(gdb) cont
Continuing.
Breakpoint 1, main () at lab05.c:11
11 val[n] = n * n;
(gdb) print n
$13 = 4
(gdb) print val[n]
$14 = -3800
(gdb) print val
$15 = {0, 1, 4, 9, -3800}
(gdb) cont
Continuing.
the sum of entered values is -134331927[Inferior 1 (process 2844) exited normally]
(gdb) print val
No symbol "val" in current context.
(gdb) print val[4]


(gdb) print val[4]
No symbol "val" in current context.
(gdb) kill
The program is not being run.
(gdb) quit
tcss380@tcss380:~/tcss380/labs/lab05$ gcc -g lab05.c
tcss380@tcss380:~/tcss380/labs/lab05$ nano lab05.c
tcss380@tcss380:~/tcss380/labs/lab05$ 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 "aarch64-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) break 12
Breakpoint 1 at 0x8a8: file lab05.c, line 13.
(gdb) run
Starting program: /home/tcss380/tcss380/labs/lab05/a.out
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Breakpoint 1, main () at lab05.c:13
13 printf("the sum of entered values is %d", sumValues(val, 5));
(gdb) print val
$1 = {0, 1, 4, 9, 16}
(gdb)



- Final working version of lab05.c
- GDB showing correct output (sum of 0,1,4,9,16 = 30)



- pointerTests.c being compiled successfully and returning the correct results