

תשובות

שאלה 1:

יצירת core ופתיחה ללא debug info:

תוכנית 1:

```
gcc -Wall -o Prog2 Prog2.o
gcc -Wall -c -o Prog3.o Prog3.c
gcc -Wall -o Prog3 Prog3.o
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ ./Prog1
Segmentation fault (core dumped)
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ ls -al
total 8364
drwxrwxr-x 3 aharonba123 aharonba123 4096 May 2 22:36 .
drwxrwxr-x 3 aharonba123 aharonba123 4096 May 2 19:13 ..
-rw-r--r-- 1 aharonba123 aharonba123 8527872 May 2 22:36 core.13095.Prog1.1714689369.aharon
-rw-rw-r-- 1 aharonba123 aharonba123 407 May 2 22:31 makefile
-rwxrwxr-x 1 aharonba123 aharonba123 8840 May 2 22:35 Prog1
-rw-rw-r-- 1 aharonba123 aharonba123 175 May 2 21:16 Prog1.c
-rw-rw-r-- 1 aharonba123 aharonba123 1560 May 2 22:35 Prog1.o
-rwxrwxr-x 1 aharonba123 aharonba123 8880 May 2 22:35 Prog2
-rw-rw-r-- 1 aharonba123 aharonba123 63 May 2 21:28 Prog2.c
-rw-rw-r-- 1 aharonba123 aharonba123 1616 May 2 22:35 Prog2.o
-rwxrwxr-x 1 aharonba123 aharonba123 8880 May 2 22:35 Prog3
-rw-rw-r-- 1 aharonba123 aharonba123 144 May 2 21:04 Prog3.c
-rw-rw-r-- 1 aharonba123 aharonba123 1664 May 2 22:35 Prog3.o
drwxrwxr-x 2 aharonba123 aharonba123 4096 May 2 19:44 .vscode
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ gdb -c core.13095.Prog1.1714689369.aharon Prog1
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 Prog1...
(NB debugging symbols found in Prog1)
[New LWP 13095]
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Core was generated by ./Prog1.
Program terminated with signal SIGSEGV, Segmentation fault.
#0 0x0000aaaae7e0730 in function ()
(gdb)
```

תוכנית 3:

```
gcc -Wall -o Prog2 Prog2.o
gcc -Wall -c -o Prog3.o Prog3.c
gcc -Wall -o Prog3 Prog3.o
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ ./Prog3
Segmentation fault (core dumped)
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ ls -al
total 188
drwxrwxr-x 3 aharonba123 aharonba123 4096 May 2 22:42 .
drwxrwxr-x 3 aharonba123 aharonba123 4096 May 2 19:13 ..
-rw-r--r-- 1 aharonba123 aharonba123 274432 May 2 22:42 core.14152.Prog3.1714689735.aharon
-rw-rw-r-- 1 aharonba123 aharonba123 407 May 2 22:31 makefile
-rwxrwxr-x 1 aharonba123 aharonba123 8840 May 2 22:41 Prog1
-rw-rw-r-- 1 aharonba123 aharonba123 175 May 2 21:16 Prog1.c
-rw-rw-r-- 1 aharonba123 aharonba123 1560 May 2 22:41 Prog1.o
-rwxrwxr-x 1 aharonba123 aharonba123 8880 May 2 22:41 Prog2
-rw-rw-r-- 1 aharonba123 aharonba123 63 May 2 21:28 Prog2.c
-rw-rw-r-- 1 aharonba123 aharonba123 1016 May 2 22:41 Prog2.o
-rwxrwxr-x 1 aharonba123 aharonba123 8880 May 2 22:41 Prog3
-rw-rw-r-- 1 aharonba123 aharonba123 144 May 2 21:04 Prog3.c
-rw-rw-r-- 1 aharonba123 aharonba123 1664 May 2 22:41 Prog3.o
drwxrwxr-x 2 aharonba123 aharonba123 4096 May 2 19:44 .vscode
aharonba123@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel/1$ gdb -c core.14152.Prog3.1714689735.aharon Prog3
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 Prog3...
(NB debugging symbols found in Prog3)
[New LWP 14152]
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Core was generated by ./Prog3.
Program terminated with signal SIGSEGV, Segmentation fault.
#0 0x0000aaaae6e076c in main ()
(gdb)
```

- תוכנית 2 לא קורסת, מכיוון שארכיטקטורת המחשב שלי היא arm אין בה floating point exception (בירתי את זה בתרגול עם עופר).

יצירת core ופתיחה עם debug info:

תוכנית 1:

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS
4 | printf("%d", 5/0);
gcc -Wall -g -o Prog2 Prog2.o
gcc -Wall -g -c -o Prog3.o Prog3.c
gcc -Wall -g -o Prog3 Prog3.o
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ ./Prog1
Segmentation fault (core dumped)
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ ls -al
total 8364
drwxrwxr-x 3 aharonbal23 aharonbal23 4096 May 2 22:45 .
drwxrwxr-x 3 aharonbal23 aharonbal23 4096 May 2 19:13 ..
-rw-r--r-- 1 aharonbal23 aharonbal23 8527872 May 2 22:45 core.14483.Prog1.1714689954.aharon
-rw-rw-r-- 1 aharonbal23 aharonbal23 409 May 2 22:45 makefile
-rwxrwxr-x 1 aharonbal23 aharonbal23 10040 May 2 22:45 Prog1
-rw-rw-r-- 1 aharonbal23 aharonbal23 175 May 2 21:16 Prog1.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3424 May 2 22:45 Prog1.o
-rwxrwxr-x 1 aharonbal23 aharonbal23 10216 May 2 22:45 Prog2
-rw-rw-r-- 1 aharonbal23 aharonbal23 63 May 2 21:28 Prog2.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3872 May 2 22:45 Prog2.o
-rwxrwxr-x 1 aharonbal23 aharonbal23 10272 May 2 22:45 Prog3
-rw-rw-r-- 1 aharonbal23 aharonbal23 144 May 2 21:04 Prog3.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3976 May 2 22:45 Prog3.o
drwxrwxr-x 2 aharonbal23 aharonbal23 4096 May 2 19:44 .vscode
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ gdb -c core.14483.Prog1.1714689954.aharon Prog1
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 Prog1...
[New LWP 14483]
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Core was generated by './Prog1'.
Program terminated with signal SIGSEGV, Segmentation fault.
#0  function (x=0) at Prog1.c:8
8  int function (int x){
Ln 2, Col 15
```

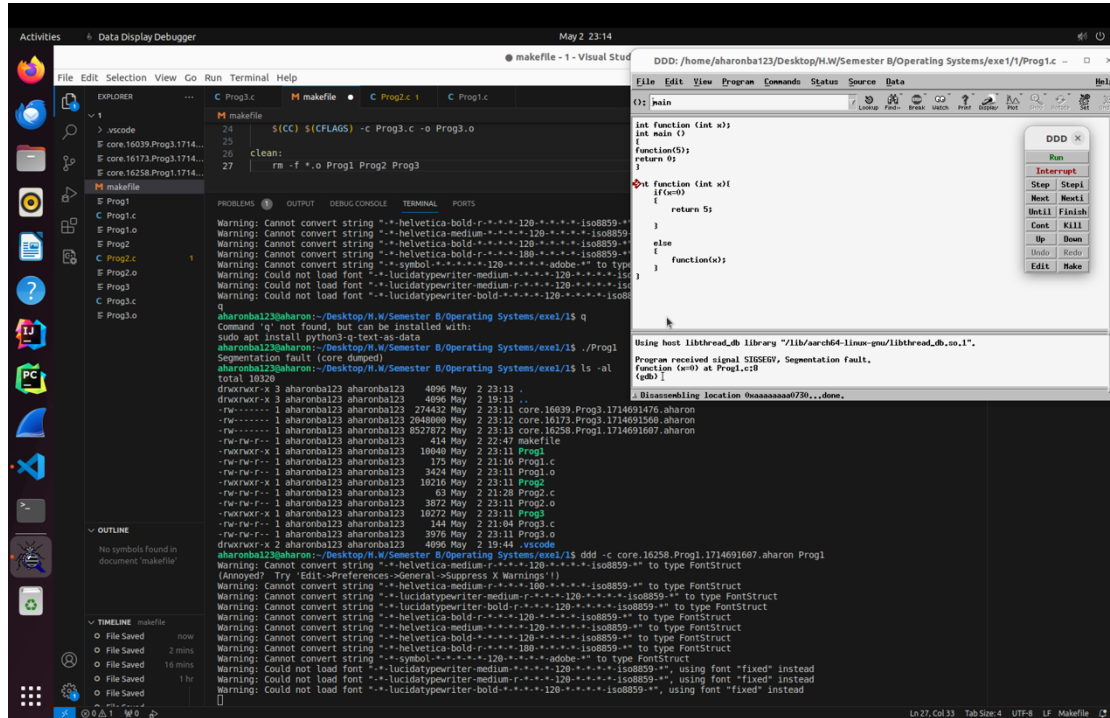
תוכנית 3:

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS
4 | printf("%d", 5/0);
gcc -Wall -g -o Prog2 Prog2.o
gcc -Wall -g -c -o Prog3.o Prog3.c
gcc -Wall -g -o Prog3 Prog3.o
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ ./Prog3
Segmentation fault (core dumped)
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ ls -al
total 188
drwxrwxr-x 3 aharonbal23 aharonbal23 4096 May 2 22:48 .
drwxrwxr-x 3 aharonbal23 aharonbal23 4096 May 2 19:13 ..
-rw-r--r-- 1 aharonbal23 aharonbal23 274432 May 2 22:48 core.14878.Prog3.1714690110.aharon
-rw-rw-r-- 1 aharonbal23 aharonbal23 414 May 2 22:47 makefile
-rwxrwxr-x 1 aharonbal23 aharonbal23 10040 May 2 22:48 Prog1
-rw-rw-r-- 1 aharonbal23 aharonbal23 175 May 2 21:16 Prog1.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3424 May 2 22:48 Prog1.o
-rwxrwxr-x 1 aharonbal23 aharonbal23 10216 May 2 22:48 Prog2
-rw-rw-r-- 1 aharonbal23 aharonbal23 63 May 2 21:28 Prog2.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3872 May 2 22:48 Prog2.o
-rwxrwxr-x 1 aharonbal23 aharonbal23 10272 May 2 22:48 Prog3
-rw-rw-r-- 1 aharonbal23 aharonbal23 144 May 2 21:04 Prog3.c
-rw-rw-r-- 1 aharonbal23 aharonbal23 3976 May 2 22:48 Prog3.o
drwxrwxr-x 2 aharonbal23 aharonbal23 4096 May 2 19:44 .vscode
aharonbal23@aharon:~/Desktop/H.W/Semester B/Operating Systems/exel1$ gdb -c core.14878.Prog3.1714690110.aharon Prog3
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 Prog3...
[New LWP 14878]
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/aarch64-linux-gnu/libthread_db.so.1".
Core was generated by './Prog3'.
Program terminated with signal SIGSEGV, Segmentation fault.
#0  0x0000aaaaac74076c in main () at Prog3.c:10
10  x= "p;
(gdb)
Ln 27, Col 33 Tab 5
```

הדגמת הנפילה בעזרת debugger גרפי:

תוכנית 1:



תוכנית 3:

