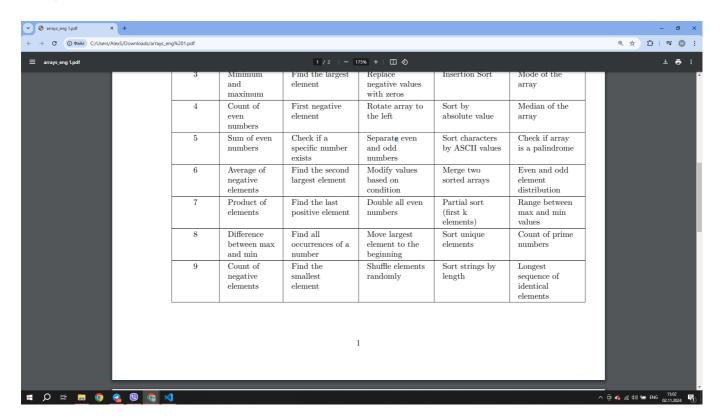# Report 7

Recursion

In this laboratory work I created a programm, which can do five different tasks with arrays.

Here is my task - option number 6.

In this programm I have main function, and five other. Each is called from main and get amount of symbols for array from there.

First function - it can find the average value of negative values in created array

Output

```
┌──(malex-kali㋡MA)-[~/Programming/Lab08]
└─$ gcc -g -O0 main.c -o expr

┌──(malex-kali㋡MA)-[~/Programming/Lab08]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2 Copyright (C) 2023 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 for more, q to quit, c to continue without paging--c
```

```
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 ./expr...
(gdb) r
Starting program: /home/malex-kali/Programming/Lab08/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/ libthread_db.so.1".
0 14 -2 3 2 6 -2 12 -8 11
Average of negative elements in this array is -4.00

[Inferior 1 (process 3753) exited normally]
(gdb)
```

Second function - it find second biggest value in created array

Output

```
┌──(malex-kali㉿MA)-[~/Programming/Lab08]
└─$ gcc -g -O0 main.c -o expr

┌──(malex-kali㉿MA)-[~/Programming/Lab08]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2 Copyright (C) 2023 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.
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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 ./expr...
(gdb) r
Starting program: /home/malex-kali/Programming/Lab08/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/ libthread_db.so.1".
```

```
3 -7 8 0 6 13 12 15 13 -4
Second greatest element is 13

[Inferior 1 (process 3753) exited normally]
(gdb)
```

Third function - it can change elements of created array in 4 different ways - addition, multiplication, subtraction and dividing

Output

```
┌──(malex-kali㊜MA)-[~/Programming/Lab08]
└─$ gcc -g -O0 main.c -o expr

┌──(malex-kali㊜MA)-[~/Programming/Lab08]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2 Copyright (C) 2023 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.
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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 ./expr...
(gdb) r
Starting program: /home/malex-kali/Programming/Lab08/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/ libthread_db.so.1".

Old array
3 12 1 7 -9 -9 2 6 -9 -3
New array
6 15 4 10 -6 -6 5 9 -6 0

[Inferior 1 (process 3753) exited normally]
(gdb)
```

Fourth function - it can create and sort two different arrays, and than create a new one from them - merge sorted array

Output

```
┌──(malex-kali㊉MA)-[~/Programming/Lab08]
└─$ gcc -g -O0 main.c -o expr

┌──(malex-kali㊉MA)-[~/Programming/Lab08]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2 Copyright (C) 2023 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 for more, q to quit, c to continue without paging--c
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 ./expr...
(gdb) r
Starting program: /home/malex-kali/Programming/Lab08/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/ libthread_db.so.1".

First array
-9 -9 -9 -3 1 2 3 6 7 12
Second array
-10 -8 -7 0 0 4 7 12 14 15
Merged array
-10 -9 -9 -9 -8 -7 -3 0 0 1 2 3 4 6 7 7 12 12 14 15
[Inferior 1 (process 8768) exited normally]
(gdb)
```

Fifth function - it can find odd and even values in created arrays and create with them two other arrays

Output

```
┌──(malex-kali㊉MA)-[~/Programming/Lab08]
└─$ gcc -g -O0 main.c -o expr

┌──(malex-kali㊉MA)-[~/Programming/Lab08]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2 Copyright (C) 2023 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 for more, q to quit, c to continue without paging--c
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 ./expr...
(gdb) r
Starting program: /home/malex-kali/Programming/Lab08/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/ libthread_db.so.1".

Original array
3 12 1 7 -9 -9 2 6 -9 -3
Even elements:
12 2 6
Odd elements:
3 1 7 -9 -9 -9 -3 [Inferior 1 (process 9062) exited normally]
(gdb)
```

I have also created additional programm, called "mainScanf.c". Its idea is that it can ask user for values- size of array, min and max values and so on. With a command "scanf" it get value and do operations according to them.