

Report 13

Single and doubly linked lists

In this laboratory work I created two linked lists, single and doubly, close to that one that was create during the lab class. In base they have my work from Lab 11.

Single linked list. It includes some structures, functions and a head pointer, that points to a node.

Here is it's output

```
└─(malex-kali@MA)-[~/Programming/Lab13]
└─$ gcc -g -O0 singleLinkedList.c -o expr

└─(malex-kali@MA)-[~/Programming/Lab13]
└─$ 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 "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/Lab13/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/libthread_db.so.1".
Initial List:
30 -> 20 -> 10 -> 50 -> NULL

Found node with data = 10:
Node at 0x5555555592c0: 10

List after inserting 75 before 10:
30 -> 20 -> 75 -> 10 -> 50 -> NULL
[Inferior 1 (process 27400) exited normally]
(gdb) q
```

Doubly linked list. It includes more high-level and difficult components, requires more memory, but can be used better

Here is it's output

```
└─(malex-kali@MA)-[~/Programming/Lab13]
└─$ gcc -g -O0 doublyLinkedList.c -o expr

└─(malex-kali@MA)-[~/Programming/Lab13]
└─$ gdb ./expr
GNU gdb (Debian 13.2-1+b2) 13.2
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License GPLv3+: GNU GPL version 3 or later http://gnu.org/licenses/gpl.html
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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/.
--Type for more, q to quit, c to continue without paging--c

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/Lab13/expr
[Thread debugging using libthread_db enabled]
Using host libthread_db library "/lib/x86_64-linux-gnu/libthread_db.so.1".
20 <-> 10 <-> 30 <-> NULL
30 <-> 10 <-> 20 <-> NULL
15 <-> 20 <-> 25 <-> 10 <-> 30 <-> NULL 15 <-> 25 <-> 10 <-> 30 <-> NULL
[Inferior 1 (process 28106) exited normally]
(gdb) q
```