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Static library vs Dynamic library

Statically Linking Libraries is the result of the linker making copy of all used library functions to the executable file. Static Linking creates larger binary files, and need more space on disk and main memory. Examples :- ***.a*** files in Linux and ***.lib*** files in Windows.

Dynamically linking Libraries doesn't require the code to be copied, it is done by just placing name of the library in the binary file. The actual linking happens when the program is run, when both the binary file and the library are in memory. Examples :- ***.so*** in Linux and ***.dll*** in Windows.

Example take blur function

The statically linked library complied executable has the complete code of the function itself.

```
0000000000001b9e <blur>:
    1b9e:       f3 0f 1e fa             endbr64
    1ba2:       55                      push   %rbp
    1ba3:       48 89 e5                mov    %rsp,%rbp
    1ba6:       48 83 ec 70             sub    $0x70,%rsp
    1baa:       48 89 7d 98             mov    %rdi,-0x68(%rbp)
    1bae:       64 48 8b 04 25 28 00    mov    %fs:0x28,%rax
    1bb5:       00 00
    1bb7:       48 89 45 f8             mov    %rax,-0x8(%rbp)
    1bbb:       31 c0                   xor    %eax,%eax
    1bbd:       f3 0f 10 05 a3 05 00    movss  0x5a3(%rip),%xmm0        # 2168
```

Where as the dynamically-linked library complied executable has set of instructions with different values for every function in the library.

Referred to

https://stackoverflow.com/questions/2693631/read-ppm-file-and-store-it-in-an-array-coded-with-c

https://rosettacode.org/wiki/Grayscale_image

and some simple internet for blur code.