Assignment 1 by Timofei Podkorytov

for operating systems course:

Task 1:

a) for command /bin/date we have the following number of calls:

system calls: **47** total system calls

library calls: **48** total library calls

b) The top 3 most frequent calls for system and library are the following:

System:

1. 9 calls of mmap - it maps the files into the memory in this case the date file
2. 6 calls of fstat - this gets file status. It was called to check the status if the file containing the date.
3. 6 calls of close - closes the file descriptor. We needed to close the file in the directory

Library:

1. 6 calls of fputc - this function writes a character to a stream. We needed to output the date to a stream.
2. 6 calls of fwrite – this function writes a string to a stream and was needed to print the date.
3. 4 calls of __freading – check the status of the stream for which we were writing if the writing operation occurred or if it is read-only.

Task 2:

a)

Here I tried to make a function call and print the errno value.

Initially the value was 0 when no call was made. If attempt a open call
for a non existing file we get errno 2 which means no such file in directory. This was caused by the requested file not being preset here. Meanwhile the return value also went to -1 meaning an error.

For the close call we get 9 as error, meaning bad file descriptor. This makes sense as we could not open the file that is not there.

b)

After I created the file however the value went back to 0. The call was successful.

The fact that this was initial value and that when I fixed the directory to include the file it went to **0** makes me conclude that this is the value when no errors were detected.

Task 3:

I created the program to complete this task. It can be found in the env.c file. Both task 2 and 3 can be compiled using make all(defined in the Makefile that is provided).

Comments and explanations of the code are inside the file.