

## Project 2: Unix Utilities

Out of the three utility programs I made my-cat and my-grep. These two should work as expected and should meet all requirements.

### My-cat:

my-cat.c consists of one main() -function and reads files given as a command line parameters until all files are printed or an error is encountered. The files are closed after reading. It is quite a simple program.

Screenshots of program and runs

```
1 //my-cat: Made by Anton Helminen
2
3 #include <stdio.h>
4 #include <stdlib.h>
5
6 //Main
7 int main(int argc, char *argv[]) {
8     FILE *file;
9     char c;
10    int i;
11    // If no files are given the program simply exits by returning 0 in main()
12    if (argc == 1) {
13        return 0;
14    }
15    /* Main loop for opening and processing files
16    Works as long as there are files or an error is encountered*/
17    for (i = 1; argv[i] != NULL; i++) {
18        // Opening a given file
19        if ((file = fopen(argv[i], "r")) == NULL) {
20            printf("\nmy-cat: cannot open file\n");
21            exit(1);
22        }
23        // Reading and printing contents one caharacter at a time
24        c = fgetc(file);
25        while(c != EOF) {
26            printf("%c", c);
27            c = fgetc(file);
28        }
29        fclose(file);
30    }
31    return 0;
32 }
33 }
```

Run tests with 2 test files and incorrect inputs:

```
anton@anton-VirtualBox:~/Documents/project_2$ gcc -o my-cat my-cat.c -Wall -Werror
anton@anton-VirtualBox:~/Documents/project_2$ ./my-cat test.txt test2.txt
This
is
a test file
the end.
hello
this is another
te
st

file 2

just for funanton@anton-VirtualBox:~/Documents/project_2$ ./my-cat notafile.txt
my-cat: cannot open file
anton@anton-VirtualBox:~/Documents/project_2$ ./my-cat
anton@anton-VirtualBox:~/Documents/project_2$
```

## My-grep:

my-grep.c also consists of one main() -function. It reads command line parameters as instructed with the first parameter being the search term and rest are files. All errors should be addressed, and all functionalities should be present.

Screenshots of program and test runs:

```
1 //my-grep: Made by Anton Helminen
2
3 #include <stdio.h>
4 #include <stdlib.h>
5 #include <string.h>
6
7 #define buffer_size 2000
8 //Main
9 int main(int argc, char *argv[]) {
10     FILE *file;
11     char buffer[buffer_size]; //getline() is not available for use on my computer, so I had to use fgets with a sufficient buffer.
12     int i;
13     // If no sufficient amount of arguments are given, the program exits with exit(1)
14     if (argc == 1) {
15         printf("my-grep: searchterm [file ...]\n");
16         exit(1);
17     }
18     //if no file was given, the program reads stdin and searches for the given search term.
19     if (argc == 2) {
20         fgets(buffer, buffer_size, stdin);
21         if (strstr(buffer, argv[1]) != NULL) {
22             puts(buffer);
23         }
24     }
25     /* Main loop for opening and processing files
26     Works as long as there are files or an error is encountered*/
27     for (i = 2; argv[i] != NULL; i++) {
28         // Opening a given file
29         if ((file = fopen(argv[i], "r")) == NULL) {
30             printf("my-grep: cannot open file\n");
31             exit(1);
32         }
33         // Printing out relevant lines. If the given search string is empty, no lines are printed.
34         while ((fgets(buffer, buffer_size, file)) != NULL) {
35             if (strstr(buffer, argv[i]) != NULL) {
36                 printf("%s", buffer);
37             }
38         }
39         printf("\n");
40     }
41     return 0;
42 }
```

Run tests with test files and incorrect inputs:

```
anton@anton-VirtualBox:~/Documents/project_2$ gcc -o my-grep my-grep.c -Wall -Werror
anton@anton-VirtualBox:~/Documents/project_2$ ./my-grep this test.txt

anton@anton-VirtualBox:~/Documents/project_2$ ./my-grep This test.txt
This

anton@anton-VirtualBox:~/Documents/project_2$ ./my-grep
my-grep: searchterm [file ...]
anton@anton-VirtualBox:~/Documents/project_2$ ./my-grep This notafilename.txt
my-grep: cannot open file
anton@anton-VirtualBox:~/Documents/project_2$
```