Ersatzkurs 2

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Gliederung

1. Closer look at main

2. File I/O

Closer look at main

Main with arguments

The main function does have arguments

- *argc* which is the the count of the given arguments.
- *argv* which is basically an array with the arguments.

```
int main(int argc, char** agrv) {
    /*Code*/
    return expression;
}
```

The first entry in *argv* is the path of the program.

Example

Running a program *a.c*:

```c
int main(int argc, char** agrv) {
    int a = 0;
    while(a <= argc){
        printf("Argument number %d is: %s\n", a, argv[a]);
        ++a;
    }
}
```

will result in the output:

```
    $ ./a.out firstArg secondArg
        Argument number 0 is ./a
        Argument number 1 is firstArg
        Argument number 2 is secondArg
```

Task 1

Write a programm with the shown main function which takes two file names as arguments and and print both.

File I/O

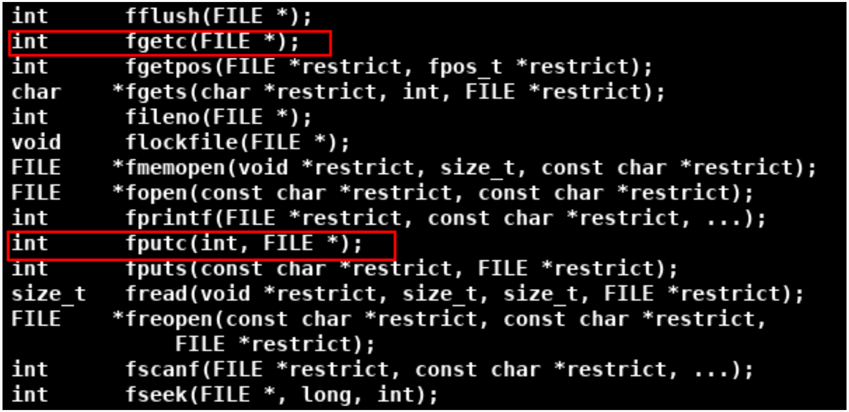
stdio.h with more functions

You already used the header *stdio.h*. It contains much more than *pritnf()* and *scanf()*. With the command

```
    $ man stdio.h
```

you can view the linux man(ual) pages which is the documentation for this files.
You can use any type of online documentation too.

stdio.h with more functions



```
int       fflush(FILE *);
int       fgetc(FILE *);
int       fgetpos(FILE *restrict, fpos_t *restrict);
char     *fgets(char *restrict, int, FILE *restrict);
int       fileno(FILE *);
void      flockfile(FILE *);
FILE     *fmemopen(void *restrict, size_t, const char *restrict);
FILE     *fopen(const char *restrict, const char *restrict);
int       fprintf(FILE *restrict, const char *restrict, ...);
int       fputc(int, FILE *);
int       fputs(const char *restrict, FILE *restrict);
size_t    fread(void *restrict, size_t, size_t, FILE *restrict);
FILE     *freopen(const char *restrict, const char *restrict,
              FILE *restrict);
int       fscanf(FILE *restrict, const char *restrict, ...);
int       fseek(FILE *, long, int);
```

We will use the functions *fegtc* and *fputc*.

How do they work

Both functions take a pointer of type FILE* which they will work with.

fgetc() will return the ASCII number of the read char.

fputc() takes additionally the number which will be written.

Both will return an error code if something wents wrong. So check the returned value!

To open a file use *fopen()* and to close a file after you are done use *fclose()*.

Example

The following example will open a file, read and print a byte:

```c
int main(int argc, char** agrv) {
    FILE *fp;
    unsigned char buff;
    char * fname;
    if(argc > 1)
        fname = argv[1];
    //open file
    if( access( fname, F_OK ) != -1 ) {
        fp = fopen(fname, "r");
        buff = fgetc((FILE*) fp);
        printf("The char which was read: %c", buff);
    }else{
        printf("Could not open file\n");
        return -1;
    }
    return 0;
}
```

Task

You already got a programm which can handle arguments.

Now your programm should except to be called with a file name. Open this file, read and then print the first line. The ASCII-Code for the line ending used in POSIX Systems is 10.