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/* Minicat_basic.c
 * Created on: Sep 15, 2017
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 */
#include <errno.h>
#include <fcntl.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#define EXIT_FAIL -1
void Read_Write(int fd_in,int fd_out,long buffersize, char* buffer, char* argu,
char* write_to_file){ // all used parameters for error and syscalls
int writeout=0,readin=read (fd_in, buffer, buffersize);
while (readin>0){
    writeout=write(fd_out, buffer, readin);
    if(writeout<0) { //
        writing error
        fprintf(stderr, "ERROR-->WRITE_FAILURE: Could not write to file
            (%s): %s\n", write_to_file, strerror(errno));
        exit(EXIT_FAIL);
    }
    else if (readin!=writeout){
        readin-=writeout;
        buffer+=writeout;
        write(fd_out, buffer, readin); //
        try again with buffer offset
        if(readin!=writeout){
            //partial writing error
            fprintf(stderr, "ERROR-->WRITE_FAILURE: Could not write to file
                (%s): %s\n", write_to_file, strerror(errno));
            exit(EXIT_FAIL);
        }
    }
    readin=read (fd_in, buffer, buffersize);
}
if (readin<0) {
    fprintf(stderr,"ERROR-->READ_FAILURE: Could not read from file (%s):
        %s\n",argu, strerror(errno)); //reading error
}
}
int main (int argc, char ** argv){
    int bflags=0, oflags=0,fd_in=-2,fd_out=STDOUT_FILENO,opt=0; //
    initialization
    char* write_to_file=0;
    long buffersize=512;
    while ((opt = getopt(argc, argv, "b:o:")) != -1) {
        switch (opt) {
            case 'b':
                if(!strcmp ("-b", optarg)|| bflags++>0){
                    fprintf(stderr,"ERROR->Invalid argument: only one '-b' flag
                        can be accepted.\n");
                    exit(EXIT_FAIL);
                }else if(!strcmp ("-", optarg) || !strcmp ("-o", optarg)){
                    fprintf(stderr, "ERROR->Void argument: no argument
                        provided!\n");

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        exit(EXIT_FAIL);
    }else if((bufferize= strtol(optarg,NULL,0)) < 1){
        fprintf(stderr, "ERROR->Invalid argument: buffer size must be
            greater than 0\n");
        exit(EXIT_FAIL);
    }break;
case 'o':
    if( !strcmp ("-o", optarg) || oflags++>0){
        fprintf(stderr,"ERROR->Invalid argument: only one '-O' flag
            can be accepted.\n");
        exit(EXIT_FAIL);
    }else if (!strcmp ("- ", optarg)||(!strcmp ("-b", optarg))){
        fprintf(stderr,"ERROR->Void argument: no/invalid argument
            provided!\n");
        exit(EXIT_FAIL);
    }else{
        fd_out = open(optarg, O_RDWR|O_CREAT|O_TRUNC, 0666);
        write_to_file=optarg;
        if(fd_out<0){
            fprintf(stderr, "ERROR->Failed to open file (%s) for
                writing: %s\n", optarg, strerror(errno));
            exit(EXIT_FAIL);
        }
    }break;
case '?':
    fprintf(stderr,"ERROR-->Invalid option(or missing argument):
        %c\nUsage: Minicat [-b ###] [-o outfile] [infile1 [ infile2
        [ ... ]]]\n",optopt);
    exit(EXIT_FAIL);
    break;
default:
    fprintf(stderr,"ERROR-->Incorrect format:%s\nUsage: Minicat [-b
        ###] [-o outfile] [infile1 [ infile2 [ ... ]]]\n",argv[0]);
    exit(EXIT_FAIL);
}
}
char *buffer=malloc(bufferize);
if (write_to_file==0) write_to_file ="STDOUT_FILENO";//in case writing
error
for (; optind < argc; ++optind) { //loop through the
option argument
//fprintf(stdout,"Processing Argument:%s\n",argv[optind]);
if(!strcmp ("- ", argv[optind])) {
    fd_in = STDIN_FILENO;
    argv[optind]="STDIN_FILENO";
}else if((fd_in = open(argv[optind], O_RDONLY)) < 0) {
    if(!strcmp ("-b", argv[optind])||!strcmp ("-o", argv[optind])){
        fprintf(stderr, "ERROR->Possibly Wrong place of option (%s):
            %s\nUsage: Minicat [-b ###] [-o outfile] [infile1 [ infile2
            [ ... ]]]\n:", argv[optind], strerror(errno));
    }else{
        fprintf(stderr, "ERROR->Failed to open file (%s) for reading:
            %s\n", argv[optind], strerror(errno));
    }
    exit(EXIT_FAIL);
}
}
}

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Read_Write(fd_in,fd_out,buffersize,buffer,argv[optind],write_to_file);
if(fd_in!=STDIN_FILENO){
    if((close(fd_in))<0) {
        fprintf(stderr, "ERROR->Failed to close Inputfile (%s): %s\n",
            argv[optind], strerror(errno));
        exit(EXIT_FAIL);
    }
}
}
if(fd_in==-2){
    fd_in = STDIN_FILENO;
    Read_Write(fd_in,fd_out,buffersize,buffer,"STDIN_FILENO",write_to_file)
    ;
}
if(fd_out!=STDOUT_FILENO){
    if ((close (fd_out))<0){
        fprintf(stderr, "ERROR->Failed to close Outputfile (%s):
            %s\n", write_to_file, strerror(errno));
        exit(EXIT_FAIL);
    }
}
}
free(buffer);
return(EXIT_SUCCESS);
}
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