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#include <stdio.h>
#include <string.h>
#include <errno.h>
#include <stdlib.h>
#include <unistd.h>
#include <fcntl.h>

#define BUFF_SIZE 16

int main(int argc, char* argv[]) {
    int ifd, ofd;
    char* buff;
    ssize_t nreads, nwrites;

    if (argc < 2) {
        fprintf(stdout, "No arguments\n");
        return 0;
    }

    else if (argc == 2) {
        // output to stdout file
        ifd = open(argv[1], O_RDONLY);
        if (ifd < 0) {
            perror("open");
            return errno;
        }

        buff = (char*)malloc(sizeof(char) * BUFF_SIZE);
        if (!buff) {
            fprintf(stdout, "Failed to allocate memory\n");
            return -1;
        }

        while ((nreads = read(ifd, buff, BUFF_SIZE)) > 0) {
            if (write(STDOUT_FILENO, buff, nreads) < 0) {
                perror("write");
                return errno;
            }
        }
        free(buff);
        close(ifd);
    }
}

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else if (argc == 4 && !strcmp(argv[2], "into")) {
    // output to redirection file
    ifd = open(argv[1], O_RDONLY);
    if (ifd < 0) {
        perror("open");
        return errno;
    }

    buff = (char*)malloc(sizeof(char) * BUFF_SIZE);
    if (!buff) {
        fprintf(stdout, "Failed to allocate memory\n");
        return -1;
    }

    ofd = open(argv[3], O_WRONLY | O_CREAT | O_TRUNC, 0666);
    if (ofd < 0) {
        perror("open");
        return errno;
    }

    while ((nreads = read(ifd, buff, BUFF_SIZE)) > 0) {
        if ((nwrites = write(ofd, buff, nreads)) < 0) {
            perror("write");
            return errno;
        }
    }
    free(buff);
    close(ifd);
    close(ofd);
}

else {
    fprintf(stdout, "Wrong arguments\n");
    return 0;
}
}

```

실행화면

```
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ ls
Makefile bert.trc mary.txt mycat.c
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ make
gcc -o mycat mycat.c
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ ls
Makefile bert.trc mary.txt mycat mycat.c
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ ./mycat mary.txt
Mary had a little lamb,
Its fleece was white as snow, yeah.
Everywhere the child went,
The little lamb was sure to go, yeah.
He followed her to school one day,
And broke the teacher's rule.
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ ./mycat mary.txt into bob.txt
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ cat bob.txt
Mary had a little lamb,
Its fleece was white as snow, yeah.
Everywhere the child went,
The little lamb was sure to go, yeah.
He followed her to school one day,
And broke the teacher's rule.
user@DESKTOP-2UNLTD8: /mnt/c/Users/roseh/OneDrive/바탕 화면/대학 과제/2학년_2학기/시스템_프로그래밍/src/io$ |
```