

CSE2005L - Operating Systems Lab

Lab 3 - Implementing MyCat

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C Code : (mycat.c)

```
#include <fcntl.h>
#include <unistd.h>

static int
cat_fd(int fd) {
    char buf[4096];
    ssize_t nread;

    while ((nread = read(fd, buf, sizeof buf)) > 0) {
        ssize_t ntotalwritten = 0;
        while (ntotalwritten < nread) {
            ssize_t nwritten = write(STDOUT_FILENO, buf + ntotalwritten,
nread - ntotalwritten);
            if (nwritten < 1)
                return -1;
            ntotalwritten += nwritten;
        }
    }

    return nread == 0 ? 0 : -1;
}

static int
cat(const char *fname) {
    int fd, success;

    if ((fd = open(fname, O_RDONLY)) == -1)
        return -1;

    success = cat_fd(fd);
}
```

```

    if (close(fd) != 0)
        return -1;

    return success;
}

int
main(int argc, char **argv) {
    int i;

    if (argc == 1) {
        if (cat_fd(STDIN_FILENO) != 0)
            goto error;
    } else {
        for (i = 1; i < argc; i++) {
            if (cat(argv[i]) != 0)
                goto error;
        }
    }
    return 0;

error:
    write(STDOUT_FILENO, "error\n", 6);
    return 1;
}

```

Makefile

```

obj-m += mycat.o
all:
    make -C /lib/modules/$(shell uname -r)/build M=$(PWD)
modules

clean:
    make -C /lib/modules/$(shell uname -r)/build M=$(PWD)
clean

```

Execution :

A sample text file hello.txt was created for testing of mycat and was called on the file

```
root@oslab-15bce1097:~/Desktop# nano hello.txt
root@oslab-15bce1097:~/Desktop# ./mycat hello.txt
Hello ! I am a text file.
```

