

The Cooper Union

PSET #1: Program Sample Runs

ECE-357

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Test files

Variations of the following commands were used to test the program with binary and text files.

- `time dd if=/dev/urandom of=binaryFile10000000 bs=1 count=10000000`
- `base64 /dev/urandom | head -c 1000000 | tr -d '\n' > file_1MB_1.txt`

Successful runs

- No output file specified, concatenate standard input to the output until EOF twice (due to two hyphens)

```
$ ./kitty - -
hello
hello

Concatentated from input file: <standard input>.
Number of bytes transferred: 6.
Number of read system calls: 1.
Number of write system calls: 1.

world
world

Concatentated from input file: <standard input>.
Number of bytes transferred: 6.
Number of read system calls: 1.
Number of write system calls: 1.

-----
Total number of bytes transferred: 12.
Total number of read system calls: 2.
Total number of write system calls: 2.
```

- Concatenate to an output file with both standard input and input files:

```
$ ./kitty -o output.txt - - text.txt
hello

Concatentated from input file: <standard input>.
Number of bytes transferred: 6.
Number of read system calls: 1.
Number of write system calls: 1.

world

Concatentated from input file: <standard input>.
Number of bytes transferred: 6.
Number of read system calls: 1.
Number of write system calls: 1.

Concatentated from input file: text.txt.
Number of bytes transferred: 38.
Number of read system calls: 1.
Number of write system calls: 1.

-----
Total number of bytes transferred: 50.
Total number of read system calls: 3.
Total number of write system calls: 3.

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ cat output.txt
hello
world
adsjaoidjaofhdsofihdoifhsfioushfoisuh

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ cat text.txt
adsjaoidjaofhdsofihdoifhsfioushfoisuh
```

- Testing concatenation with files larger than the buffer to ensure the entire file gets written.

```
$ ./kitty -o output.txt file_1MB_1.txt file_1MB_2.txt

Concatentated from input file: file_1MB_1.txt.
Number of bytes transferred: 98702.
Number of read system calls: 25.
Number of write system calls: 25.

Concatentated from input file: file_1MB_2.txt.
Number of bytes transferred: 987013.
Number of read system calls: 241.
Number of write system calls: 241.

-----
Total number of bytes transferred: 1085715.
Total number of read system calls: 266.
Total number of write system calls: 266.

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ cat file_1MB_1.txt file_1MB_2.txt > testoutput.txt

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ diff output.txt testoutput.txt
```

- No input file specified:

```
$ ./kitty
hello
hello
world
world

Concatentated from input file: <standard input>.
Number of bytes transferred: 12.
Number of read system calls: 2.
Number of write system calls: 2.
```

```
$ ./kitty -o output.txt
hello
world

Concatentated from input file: <standard input>.
Number of bytes transferred: 12.
Number of read system calls: 2.
Number of write system calls: 2.

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ cat output.txt
hello
world
```

Errors

- Testing that binary file warning works, and that program properly concatenates two differently sized binary files.

```
$ ./kitty -o binaryout binaryFile100000 binaryFile10000000

Concatenated from input file: binaryFile100000.
Number of bytes transferred: 100000.
Number of read system calls: 25.
Number of write system calls: 25.
WARNING: Input file is binary.

Concatenated from input file: binaryFile10000000.
Number of bytes transferred: 10000000.
Number of read system calls: 2442.
Number of write system calls: 2442.
WARNING: Input file is binary.

-----
Total number of bytes transferred: 10100000.
Total number of read system calls: 2467.
Total number of write system calls: 2467.

ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ cat binaryFile100000 binaryFile10000000 > testbinaryout

24903 9864PAD-X1YOGA-GEN5 ~/OS/proj1
$ sum testbinaryout
ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ sum binaryout
24903 9864
```

- -o flag specified but no output file provided:

```
$ ./kitty -o
An error occured, open output file was not successful. Error code: Bad address. File: (null).
```

- Input file does not exist:

```
$ ./kitty dne_input.txt
An error occured, open input file was not successful. Error code: No such file or directory. File: dne_input.txt.
```

- Changed file permissions of the output file to read-only:

```
$ chmod 400 output.txt
ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ ./kitty -o output.txt -
An error occured, open output file was not successful. Error code: Permission denied. File: output.txt.
```

- Changed file permissions of the input file to none:

```
$ chmod 000 text.txt
ericx@THINKPAD-X1YOGA-GEN5 ~/OS/proj1
$ ./kitty text.txt
An error occured, open input file was not successful. Error code: Permission denied. File: text.txt.
```

- Yanking the flash drive out while the program is reading from a 5GB file (also file permission of text.txt is still 000 from before):

```
$ ./kitty -o output.txt /cygdrive/d/file_5GB.txt text.txt
An error has occured, read was not successful. Error code: Permission denied. File: /cygdrive/d/file_5GB.txt.
An error occured, open input file was not successful. Error code: Permission denied. File: text.txt.
```