

# Program: Dog Design Document

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## 1. Goal

The goal of this program is to mimic the basic functionality of the cat command in the Ubuntu version 18.04.3. It should not accept any flags except for the character "-", which will take input from stdin.

## 2. Assumptions

I'm assuming that the user will execute dog without using any flags. I'm also assuming that the program is going to be tested on the Ubuntu version 18.04.3. I'm also assuming that cat ends the program after it reads in an EOF character, 0 in this case. Which means that the buffer that is used to open, read, and write to stdout from the source will continue to be filled with characters until it reaches an EOF character.

## 3. Design

The general approach I had was to figure out how to open, read, write and close a file in cpp. If I could figure this out then I could mimic the cat command easily. First, We will need to be able to parse and read the arguments when executing the program. Once we can do that we can use while loops and helper functions to read in the files and output them to stdout. The approach that I followed was parse all the filenames then for each filename we will have a while loop checking if the read function returns anything. Since read returns a value representing the amount of bytes read. If it returns something greater than 0 then that means there are characters that still need to be written. If it is 0 then that means it finished reading the file correctly. If it is less than 0 then that means there was an issue reading the file. However, since I can't read the entire file at a time, I will keep on reading it into a 32Kb buffer and write it out until it reaches the EOF. Then I will close the file and move on to the next one.

## 4. Pseudocode

```
int currCount = 1
buffer ← 32768
if arguments == 1 then
    duplicate input from stdin
else
```

```

while currCount != arguments do
  if currentArgument == '-' then
    duplicate input from stdin
  else
    open current file
    while read file into buffer do
      output buffer to stdout
    end while
    close file
  end if
  ++currCount
end while
end if
return 0

```