Design Plan

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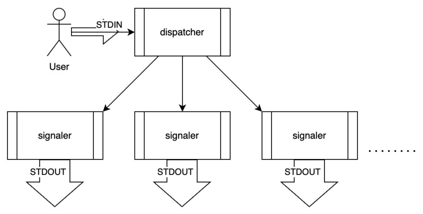
Project Summary

A pair of programs, a dispatcher and a listener, will act as a communication relay. The program dispatcher passively accepts text from standard input, exiting normally on EOF. The program listener will print out any text that was sent to a running instance of dispatcher. When dispatcher exits, so too does listener.

Figure 1: Overall Workflow of Program



Features Targeted

Man Page

Make a sample man page for the program that explains how it works and any errors it may return.

LaTeX Design Plan/Write Up

Have the Project write up and design plan in LaTeX code.

Multiple instances of listener to connect

Allow for multiple instances of listener to connect to a single instance of dispatcher. All instances of listener should print the text read by dispatcher.

-l flag

Add a -l ¡n¿ flag to dispatcher that specifies the maximum number of listener instances. Any additional listener instances that attempt to start should exit with an appropriate error message.

-b flag

Add a -b flag to dispatcher which allows it to read from stdin without buffering by line (See termios(3) or ncurses(3)).

Architecture

Data

Two struct will be used; one for the flags on the command line and one for details related to the message.

```
struct msg
    int msg_code
    char *msg
    size_t msg_sz

struct app
    int num_list
    bool flag_no_buff
```

Significant Functions

char * get_input(void)
    This function will get input from the user.
void brdcst_msg(void)
    This function will send the message out to all connected clients.
void create_socket(void)
    This function will set up the Unix socket.
void signal_handler()
    This function will handle any signals that are sent to the program.
int tear_down(void)
    This function will close the socket and free any memory that was allocated as well as closing the clients.
int connect_svr(void)
    This function will connect to the server.
void print_msg(char *msg)
    This function will print the message to the screen.

Plan

The plan for this project is to start with standing up the server and ensuring a single client can connect and receive messages. Once this is successful, we will focus on allowing multiple connections to the server. Once this is successful, we will focus on adding the flags and ensuring that the server can handle multiple clients. Finally, we will ensure that the server can successfully broadcast a signal to inform the clients to shutdown.

User Interface

Uses the CLI. The user will initiate the program with no flags/one flag/multiple flags. The user will then input text via the terminal. The program will not end until the proper signal is sent by the user to the program.