

Assignment 1 Report

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Description

This program consists of 3 source files. The first is `covert_client.c` and as the name suggests functions as the client application. Upon being called with the correct arguments:

```
a1 : zsh - Konsole <2>
▲ Documents/c8505/a1 sudo ./bin/client -d localhost -s localhost -p 8000 -f test.txt
```

it will begin sending data from the input file to the destination denoted with the `-d` flag. The data is encrypted with a simple xor algorithm which can be improved upon inside the `encrypt_file` function.

The `covert_server.c` runs a covert server which receives data from the client and decrypts it. The server can be ran with the following command:

```
dimitry : zsh - Konsole
▲ ~ sudo ./bin/server -d localhost -s localhost -p 8000 -f bin/test.txt
```

Finally, `util.c` contains some useful functions which both the server and the client use.

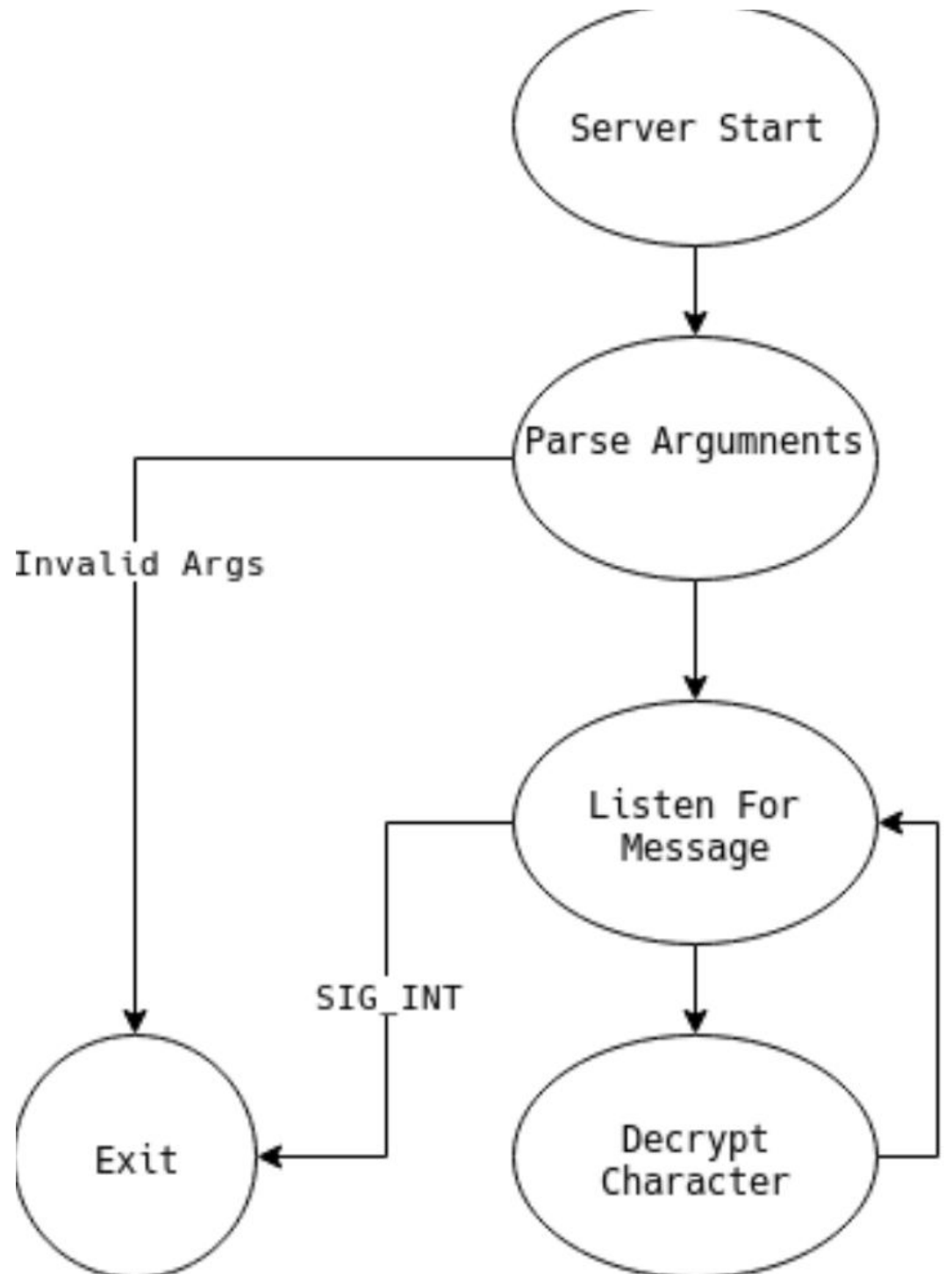
The entire program can be compiled with the makefile by calling `make` in the root directory of the project.

```
a1 : zsh - Konsole
▲ Documents/c8505/a1 ls
Ass1-18.pdf bin clang-format doc GPATH GRTAGS GTAGS include Makefile src test.txt
master :: 24m :: ○

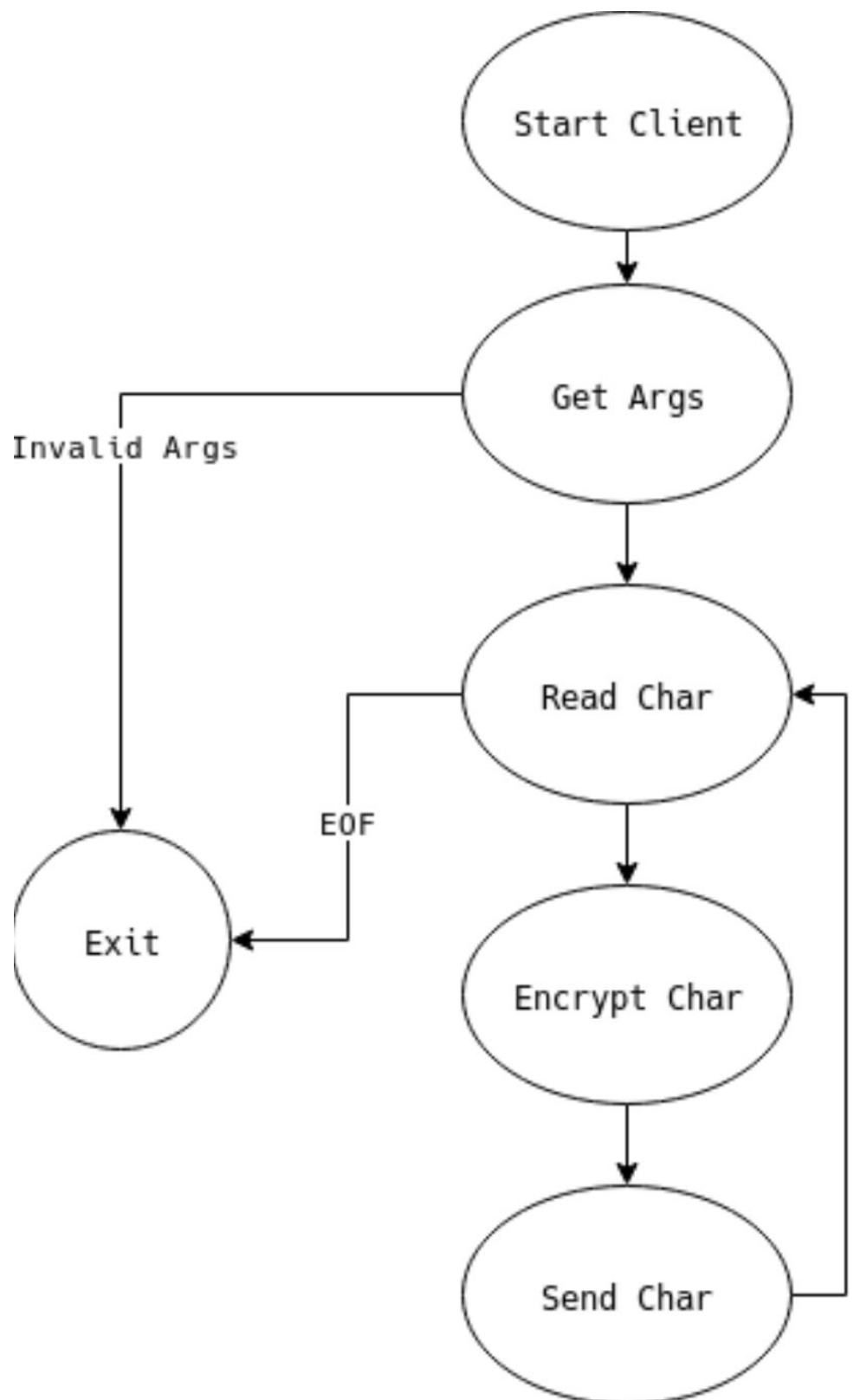
▲ Documents/c8505/a1 make
cc src/util.c -o bin/util -c -fPIC
cc src/covert_client.c bin/util -o bin/client
cc src/covert_server.c bin/util -o bin/server
master :: 24m :: ○
```

Diagrams:

Server:



Client:



Testing:

Command	Expected	Result
make	Project builds	 <pre> a1 : zsh - Konsole <4> ^ Documents/c8505/a1 sudo make clean [sudo] password for dimitry: rm bin/* ^ Documents/c8505/a1 make cc src/util.c -o bin/util -c -fPIC cc src/covert_client.c bin/util -o bin/client cc src/covert_server.c bin/util -o bin/server ^ Documents/c8505/a1 </pre>
Sudo make clean	Project removes all temporary files	 <pre> a1 : zsh - Konsole <4> ^ Documents/c8505/a1 sudo make clean [sudo] password for dimitry: rm bin/* ^ Documents/c8505/a1 make cc src/util.c -o bin/util -c -fPIC cc src/covert_client.c bin/util -o bin/client cc src/covert_server.c bin/util -o bin/server ^ Documents/c8505/a1 </pre>
sudo ./bin/server -d localhost -s localhost -p 8000 -f bin/test.txt	Server runs and receives/decrypts data	 <pre> a1 : sudo ./bin/server - Konsole ^ Documents/c8505/a1 sudo ./bin/server -d localhost -s localhost -p 8000 -f bin/test.txt Waiting for messages Got: "" Decrypted->[h] from [127.0.0.1 : 8000] Got: "" Decrypted->[e] from [127.0.0.1 : 8000] Got: "<" Decrypted->[l] from [127.0.0.1 : 8000] Got: "-" Decrypted->[i] from [127.0.0.1 : 8000] Got: ")" Decrypted->[o] from [127.0.0.1 : 8000] Got: "i" Decrypted->[] from [127.0.0.1 : 8000] Got: "" Decrypted->[w] from [127.0.0.1 : 8000] Got: "" Decrypted->[o] from [127.0.0.1 : 8000] Got: "\n" Decrypted->[r] from [127.0.0.1 : 8000] Got: "=" Decrypted->[l] from [127.0.0.1 : 8000] Got: "-" Decrypted->[d] from [127.0.0.1 : 8000] Got: "z" Decrypted->[\n] from [127.0.0.1 : 8000]] </pre>
sudo ./bin/client -d localhost -s localhost -p 8000 -f test.txt	Client runs/encrypts/sends data to server	 <pre> ^ Documents/c8505/a1 sudo ./bin/client -d localhost -s localhost -p 8000 -f test.txt master :: 2h :: ^ File Contents: hello world Encrypted Contents: *(<-)i --M/ Encryption String: BBPAFIqjxQIGzyssjiYGHwzStfd3hbq3p3upa9YUGz18nXkjTTzMGJ92GXXo125HvDzR96g0uFo4QVxS0tIQV mnMuf6zSagS1VyF0Lfm6uLY0hWSCn148yRBYk1vfmgC1pgsVxoJtoYB811m453wDxuFNasG12ELcVVCdnQpbzLbytenDUVz2pF4BD0w S5MmtWityk8ZnIYXajdZ0d1U87rZGBfxQY1wh7aiy4W82twr38YgC15HYoUfDju31ApKZNP1TKh7bae9pRD00Jb5MzfFMq59Lbkg0FTUQ YLetKLCVQ1xwVwOUDQC3PPNoSwXwc8NsMubHg3FCRMM-10u1uztG5VERHFq6MSqZS9cvda8DFCFZ1m2JzHmg0USgeokNEamxe30Zr72w1 4GhvaNMG0ziHm7BzumbkZ2nTqDt149oKdL127DHHSFTV0nbbLe0t0pJboiFDNr8hAgpELzWLaLXhZg51zakog4SpsHK2Tg0WofDezWC dz9It Sending Data: * Sending Data: ' Sending Data: < Sending Data: - Sending Data:) Sending Data: i Sending Data: Sending Data: Sending Data: Sending Data: = Sending Data: - Sending Data: M </pre>

Run server or client without arguments

Help section displayed

```
▲ Documents/c8505/a1 ./bin/server
```

```
Options:
```

```
-s: host ip
```

```
-p: host port
```

```
-f: file name
```

```
-v: verbose mode
```

```
-h: help
```

```
▲ Documents/c8505/a1 ./bin/client
```

```
Options:
```

```
-d: destination ip
```

```
-s: source ip
```

```
-p: destination port
```

```
-f: file name
```

```
-v: verbose mode
```

```
-h: help
```

```
▲ Documents/c8505/a1 █
```