Processes Communication

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Contents

Project Overview

The project contains two folders P1 and P2. The first one contains the Ph, ENC.h, CHAN.h, Operation.h, MD5.h files for the main.cpp, P.cpp, ENC.cpp, CHAN.cpp, Operation.cpp, MD5.cpp header files the executable, and the second P2.h, ENC2.h, Operation.h, MD5.h for the main.cpp, P2.cpp, ENC2.cpp, Operation.cpp, MD5.cpp header files, respectively by implementing the first and second terminals. The MD5.cpp file contains the implementation of the algorithm for encoding messages.

Execution

The files in folder P1 have a makefile, the execution is done with the command:

- ./MD5 [possibility], probability of error.

The files in the P2 folder have a makefile, executing with the command:

- ./MD5 command.

Processes Overview

The project consists of five processes:

1. P1: The first terminal, receives and sends messages.

2. P2: The second terminal receives and sends messages.

3. ENC1: The first system, encapsulates messages.

4. ENC2: The second system, encapsulates messages.

5. CHAN: The communication channel.

Processes communicate with each other through four shared memories where they synchronize with floats. Each memory has a space for the message to be transmitted and a space for each process to know what it was going to do.

1. TERM: The process must end.

2. NULL: The process does its basic function.

3. RESEND: Re-broadcast the message.

4. SEND: Transmit the message.

The user through P1 and P2 sends messages to the program to be transmitted respectively. The messages are forwarded to ENC1 and ENC2 to be locked or unlocked via a code from the MD5 function. They then switch to CHAN and change the message through the probability that the user has entered. The work operates in two termninal. One for the first terminal and one for the second terminal, and the terminals communicate interchangeably.

Execution example

Terminal　　　　　　　　　　　　　　　🛜 En 📷 (0:36, 69%) ◀)) 2:38MM ⚙

savvas@savvas-linux: ~/Desktop/Εργασια 1 1115201000149/P1

```
g++ -g -c MD5.cpp
g++ -g main.o P.o ENC.o CHAN.o Operations.o MD5.o   P.h ENC.h CHAN.h Operations.h M
D5.h -o MD5
savvas@savvas-linux:~/Desktop/Εργασια 1 1115201000149/P1$ ./MD5 12

|*********************************************************************|
///////////////////////////PROGRAMM STARTS///////////////////////////
->
->/*******************STATUS*********************/
->/   Possibility for message mistake :12%        /
->/   Total procceses              :5 proccesses  /
->/   Total semaphores             :5 semaphores  /
->/   Total shared memories        :4 sh.mem.     /
->/   To exit programm insert       :"TERM"       /
->/*********************************************/
->
->Proccess P1   created ,id [4188]...
->Proccess CHAN created ,id [4190]...
->Proccess ENC1 created ,id [4189]...
->[P1]    Sending from P1-->P2...
->[P1]    Insert your message please...
->[P1]    sabbas
->[P1]    Sending message from P1-->ENC1 ,key [1218]...
->[ENC1] Encapsulation : *"sabbas"
->[ENC1]                 : *"65b1f8b7128964e4bdec101e678750ee
->[ENC1] Sending from ENC1-->CHAN ,key [1220]...
->[CHAN] Channel might change the message
->[CHAN] "sabbas65b1f8b7128964e4bdec101e678750ee"
->[CHAN] Sending from CHAN->ENC2...
->[CHAN] Channel might change the message
->[CHAN] "ela pame mia bolta shmera stis dwdeka pes kai sta paidia na erthoun kalo
mesimeri .306efea0c721a7871bd7408c4567d985"
->[CHAN] Sending from CHAN->ENC1...
->[ENC1] Received message
->[ENC1]           *"ela pame mia bolta shmera stis dwdeka pes kai sta paidia na
erthoun kalo mesimeri .306efea0c721a7871bd7408c4567d985"
->[ENC1] check_sum  *[306efea0c721a7871bd7408c4567d985]
->[ENC1] Sending from ENC1-->P1...
->[P1]    P1 received message from P2
->[P1]    "ela pame mia bolta shmera stis dwdeka pes kai sta paidia na erthoun kalo
mesimeri ."
->[P1]    Sending from P1-->P2...
->[P1]    Insert your message please...
->[P1]    []
```

savvas@savvas-linux: ~/Desktop/Εργασια 1 1115201000149/P2

```
savvas@savvas-linux:~/Desktop/Εργασια 1 1115201000149/P2$ make clean
rm -f main.o P2.o ENC2.o  Operations.o MD5.o   MD5
savvas@savvas-linux:~/Desktop/Εργασια 1 1115201000149/P2$ make clean
rm -f main.o P2.o ENC2.o  Operations.o MD5.o   MD5
savvas@savvas-linux:~/Desktop/Εργασια 1 1115201000149/P2$ make
g++ -g -c main.cpp
g++ -g -c P2.cpp
g++ -g -c ENC2.cpp
g++ -g -c Operations.cpp
g++ -g -c MD5.cpp
g++ -g main.o P2.o ENC2.o  Operations.o MD5.o   P2.h ENC2.h Operations.h MD5.h  -pt
hread -o MD5
savvas@savvas-linux:~/Desktop/Εργασια 1 1115201000149/P2$ ./MD5

|*********************************************************************|
///////////////////////////PROGRAMM STARTS///////////////////////////
->
->/*******************STATUS*********************/
->/   Possibility for message mistake :0%         /
->/   Total procceses              :5 proccesses  /
->/   Total semaphores             :5 semaphores  /
->/   Total shared memories        :4 sh.mem.     /
->/   To exit programm insert       :"TERM"       /
->/*********************************************/
->
->Proccess P2   created ,id [4192]...
->Proccess ENC2 created ,id [4193]...
->[ENC2] Received message
->[ENC2] "sabjas65b1f8bm128964e4brec10ce678750ee"
->[ENC2] check_sum   [65b1f8b7128964e4bdec101e678750ee]
->[ENC2] Checksum has changed,invalid checksum...
->[ENC2] Message not send...
->[P2]    Sending from P2-->P1...
->[P2]    Insert your message please...
->[P2]    ela pame mia bolta shmera stis dwdeka pes kai sta paidia na erthoun kalo m
esimeri .
->[P2]    Sending message from P2-->ENC2...
->[ENC2] Encapsulation :"ela pame mia bolta shmera stis dwdeka pes kai sta paidia n
a erthoun kalo mesimeri ."
->[ENC2]              :"306efea0c721a7871bd7408c4567d985
->[ENC2] Sending from ENC2-->CHAN...
```