

## Final Project Report by Andrew Nieves:

Following the recordings, I learned how to utilize the API library created from tshtest to use further tsh services. The only problem I had on the first step was with creating the makefile, and duplicate initializations throughout the header files which was an easy fix. For the makefile, I just used the makefile from tsh as a template.

For step 2, I didn't have any problems. I looked over Professor Shi's github repository for clues, replaced or removed the things I didn't need, and ultimately compiled the parallel matrix multiplication program with no problem. There was a slight hiccup in getting OpGet to properly remove the tuple because the multiplication was off therefore the tuple's were never found to be able to be removed. Other than that, this step was simple and I learned a lot on how to implement API services within a tuple space.

public\_html &gt; finalproject &gt; apps &gt; tshPingPong.c &gt; main(int, char \*\*)

```
1  #include "tshPingPong.h"
2
3  int main(int argc, char ** argv) {
4      char tpName[] = "Test";
5      char tpName2[] = "Again";
6      double *tuple = malloc(5*sizeof(double));
7      tuple[0] = 1;
8      tuple[1] = 2;
9      tuple[2] = 3;
10     tuple[3] = 4;
```

TERMINAL PROBLEMS OUTPUT DEBUG CONSOLE PORTS

```
dar rcv libb.a *.o
a - api.o
a - netlib.o
a - wall_clock.o
mv libb.a ../obj/libsng.a
/bin/rm -f *.o
(base) tun29995@tec2:~/public_html/finalproject/netlib$ cd ../apps
(base) tun29995@tec2:~/public_html/finalproject/apps$ make
gcc -I../include -g -o tshPingPong tshPingPong.c -L../obj -lsng
(base) tun29995@tec2:~/public_html/finalproject/apps$ ./tshPingPong
Tuple: 1.000000 2.000000 3.000000 4.000000 5.000000
```

API PUT To TSH :

```
name : Test
priority : 0
length : 40
tuple :
```

From TSH :

```
status : 1
error : 400
Status: 40
```

To TSH :

```
expr : Again
host : 127.0.0.1
port : 38313
```

From TSH :

```
status : 0
error : 402
```

```
(base) tun29995@tec2:~/public_html/finalproject/apps$ cd ../tsh
(base) tun29995@tec2:~/public_html/finalproject/tsh$ ./tsh 4966
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 403
[]
```

./tshPing...  
./tsh tsh

```
└─$ ./mtcInt...
└─$ ./tsh tsh
```



... C mtdInt.c x C mtwrk.c C matrix.c M makefile C matrix.h

[DU] public\_html &gt; finalproject &gt; matrix &gt; C mtdInt.c &gt; main()

```
10 void main() {
49 while (R > 0) {
64 }
65 free(ituple_A);
66
67 // now receive
68 received = i = 0;
69 tlength = (1+N*N)*sizeof(double);
70 if ((otuple = (double *)malloc(tlength)) == NULL) {
71     perror("Master malloc B error\n");
```

TERMINAL PROBLEMS OUTPUT DEBUG CONSOLE PORTS

From TSH :

status : 1  
error : 400

name : A496  
priority : 0  
length : 16008  
tuple :  
mtwork gotr ix (496) G(0)  
Tuple first item [0.000000]

API PUT To TSH :

name : 496  
priority : 0  
length : 16008  
tuple :

From TSH :

status : 1  
error : 400  
Worker waiting for tuple

To TSH :

expr : A  
host : 127.0.0.1  
port : 20942

From TSH :

status : 0  
error : 402

[]

```
match found (A) in (A484)
match found (A) in (A488)
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A476)
match found (A) in (A480)
match found (A) in (A484)
match found (A) in (A488)
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A480)
match found (A) in (A484)
match found (A) in (A488)
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A484)
match found (A) in (A488)
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A488)
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A492)
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
match found (A) in (A496)
tsh: got connection request...tsh: operation 401
tsh: got connection request...tsh: operation 402
```

[]

+ v ... ^ x

./mtwrk...  
./t...  
./mtdInt ma...