Networks Lab – Finishing up (Week 5)

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For this task:

- you will change the working protocol from TCP to UDP
- you will change the server to be able to handle multiple service requests at the same time

Threads refresher

- **int pthread_create(pthread_t *_thread_, const pthread_attr_t *_attr_,**
  void *(*_start_routine_) (void *), void *_arg_);

- **int pthread_join(pthread_t _thread_, void **_retval_);**

```c
#include <stdlib.h>
#include <stdio.h>
#include <pthread.h>

#define THREADS_COUNT 10

void *worker(void *data);

int main(int argc, char **argv) {
    int n = THREADS_COUNT;
    pthread_t threads[THREADS_COUNT];

    printf("Parallel example\n");
    for (long i = 0; i < THREADS_COUNT; i++) {
        pthread_create(&threads[i], NULL, worker, (void *) i);
    }
    for (long i = 0; i < THREADS_COUNT; i++) {
        pthread_join(threads[i], NULL);
    }
    printf("----------------\n");
```

For the Datagram socket example check the files in moodle.

Key takeaways:

- We’re not using streams, thus not maintaining connection
- We don’t have to use listen()

Your task

- Part 1:
  1) Check the given example to see how the datagram socket works
  2) Modify your code from the last lab to use UDP and test it in your virtualbox environment

- Part 2:
  1) Modify your now UDP code to handle multiple requests at the same time
  2) For this you will need to use threads (remember your OS course)
  3) Your threads should print the client's data, thread id and go into sleep mode for 10 secs

The tests should be run in your virtualbox`es and the screenshots should show that multiple requests are handled at the same time. **Submit your work AS AN ARCHIVE WITH CODE AND A PDF WITH SCREENSHOTS!!11**