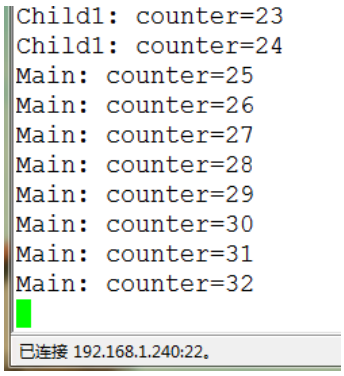
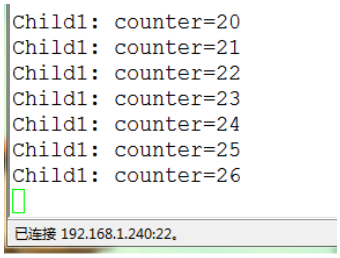


For this output: we know that the child thread exits when it finds that the counter value has exceeded 25, but the main thread won't do that. So although the counter value has exceeded 25, the counter will still be added and print the counter value.

But when in the main thread the counter has set to 32, this statement stop appearing. This is because the program are running child thread now, and since the counter value are exceeded 25, the child thread exits and the main thread is blocked.



For this output: when the counter value is 25, the thread still increases the value of counter. And when the value is 26, it exceeded 25, so the child thread exits. But the main thread is blocked.

Because the child thread always exit without executing phthread_mutex_unlock(),and the main thread is still waiting for child thread's unlock. Thus the program will block.

So what we should do to fix this program is adding a sentence "pthread_mutex_unlock(&mutex_1);" before pthread_exit(null) in 'if' branch of child thread.

```c
#include <stdio.h>
#include <pthread.h>
#include <unistd.h>
pthread_mutex_t mutex_1;

int counter;

void *child1(void *arg)
{
        while(1){
                pthread_mutex_lock(&mutex_1);
         sleep(1);
         if(counter > 25){
              pthread_mutex_unlock(&mutex_1);
              pthread_exit(NULL);}
         else
              counter++;
                pthread_mutex_unlock(&mutex_1);
         printf("Child1: counter=%d\n", counter);
        }
}

int main(void)
{
        pthread_t tid1;
         counter = 0;

        pthread_mutex_init(&mutex_1,NULL);
        pthread_create(&tid1,NULL,child1,NULL);
        do{
                pthread_mutex_lock(&mutex_1);
                sleep(1);
         counter++;
                pthread_mutex_unlock(&mutex_1);
         printf("Main: counter=%d\n", counter);

        }while(1);
        pthread_exit(0);
}
```

```
Child1: counter=24
Child1: counter=25
Child1: counter=26
Main: counter=27
Main: counter=28
Main: counter=29
Main: counter=30
Main: counter=31
Main: counter=32
Main: counter=33
Main: counter=34
Main: counter=35
Main: counter=36
Main: counter=37
Main: counter=38
Main: counter=39
Main: counter=40
Main: counter=41
Main: counter=42
```