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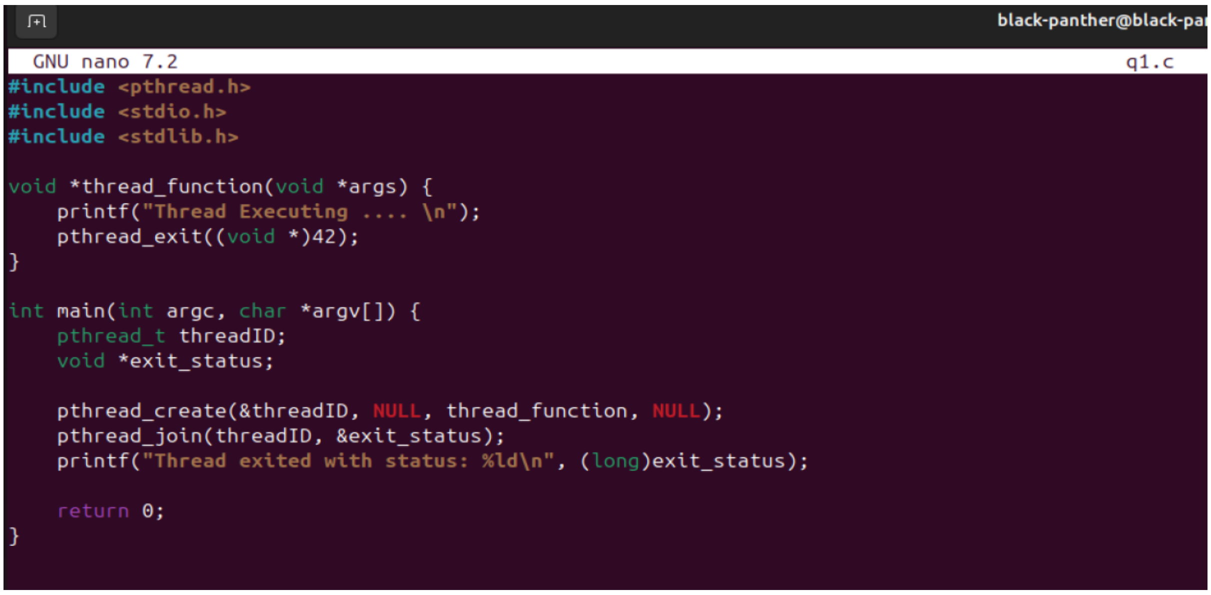
Code Workout 01:

A) pthread_create passes argument num to the runner function through its last parameter, much like how arguments are passed to a regular function, but in the context of a separate thread.

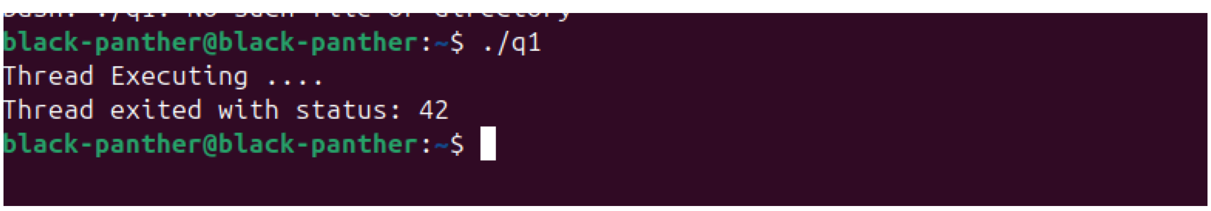
B) pthread_attr_init() sets thread attributes like scheduling and stack size, which will be covered in later labs, only initialization of attributes is covered in this lab.

C) CODE:



```
GNU nano 7.2                                                        q1.c
#include <pthread.h>
#include <stdio.h>
#include <stdlib.h>

void *thread_function(void *args) {
    printf("Thread Executing .... \n");
    pthread_exit((void *)42);
}

int main(int argc, char *argv[]) {
    pthread_t threadID;
    void *exit_status;

    pthread_create(&threadID, NULL, thread_function, NULL);
    pthread_join(threadID, &exit_status);
    printf("Thread exited with status: %ld\n", (long)exit_status);

    return 0;
}
```

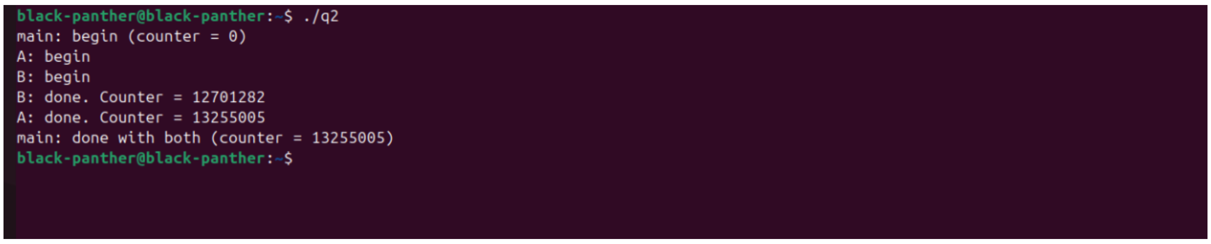
OUTPUT:



```
black-panther@black-panther:~$ ./q1
Thread Executing ....
Thread exited with status: 42
black-panther@black-panther:~$
```

Code Workout 02:

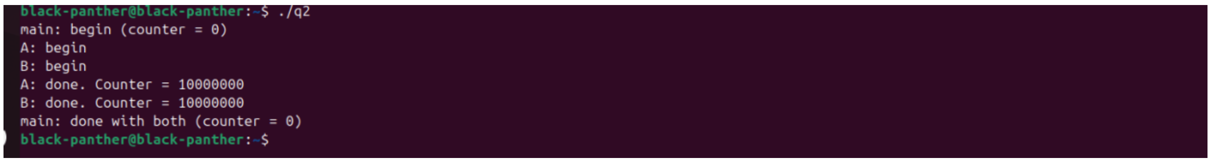
A) OUPUT:



```
black-panther@black-panther:~$ ./q2
main: begin (counter = 0)
A: begin
B: begin
B: done. Counter = 12701282
A: done. Counter = 13255005
main: done with both (counter = 13255005)
black-panther@black-panther:~$
```

B) counter is a shared global variable, so thread 2 continues from the value left by thread 1. However, without synchronization, a race condition occurs, and the final values may vary depending on which thread runs first.

C) After uncommenting line 9, counter = 0 creates a new local variable inside each thread function. As a result, both threads work with their own separate counter, producing the same output. Meanwhile, the global counter remains unchanged, so main prints 0.



```
black-panther@black-panther:~$ ./q2
main: begin (counter = 0)
A: begin
B: begin
A: done. Counter = 10000000
B: done. Counter = 10000000
main: done with both (counter = 0)
black-panther@black-panther:~$
```