Exercise: Introduction to Threads

Objective

Learn the basics of creating and running threads using the `pthread` library in C.

Task

Write a C program that:

1. **Creates Two Threads:**
   - Thread 1: Prints `"Hello from Thread 1"` 5 times.
   - Thread 2: Prints `"Hello from Thread 2"` 5 times.
2. **Main Thread:**
   - Waits for both threads to finish execution before exiting the program.

Requirements

- Use the `pthread` library.
- Use the `pthread_create` function to create threads.
- Use the `pthread_join` function to wait for the threads to complete.

Expected Output

The output should show interleaved messages from the two threads. For example:

```
Hello from Thread 1
Hello from Thread 2
Hello from Thread 1
Hello from Thread 2
Hello from Thread 1
Hello from Thread 1
```

```
Hello from Thread 2
Hello from Thread 1
Hello from Thread 2
Hello from Thread 2
```

Hint

- Include the `pthread.h` library.
- Define thread functions with the signature `void* thread_function(void* arg);`.
- Use a `for` loop inside each thread function to print the message multiple times.

Code Template

Below is a code template to get you started:

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

void* thread_function(void* arg) {
    // Your code here
    return NULL;
}

int main() {
    pthread_t thread1, thread2;

    // Create threads
    pthread_create(&thread1, NULL, thread_function, "Thread 1");
    pthread_create(&thread2, NULL, thread_function, "Thread 2");

    // Wait for threads to finish
    pthread_join(thread1, NULL);
    pthread_join(thread2, NULL);

    return 0;
}
```