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1. Illustrate the concept of multithreading using a C program.

# Aim:

To illustrate the concept of multithreading in C, where multiple threads are executed concurrently.

# Algorithm:

* 1. Initialize the main thread.
  2. Create additional threads using pthread\_create().
  3. Each thread executes a function.
  4. The main thread waits for all threads to finish using pthread\_join().
  5. The threads perform a task, and the main thread handles the synchronization.

# Procedure:

1. Include the necessary header for pthreads: <pthread.h>.
2. Define a function that will be executed by each thread.
3. Use pthread\_create() to create new threads.
4. Use pthread\_join() to ensure the main thread waits for the other threads to finish.
5. Display a message from each thread and the main thread to show parallel execution.

# Code:

#include <stdio.h>

#include <pthread.h>

void\* print\_message(void\* thread\_id) { long tid = (long)thread\_id;

printf("Hello from thread %ld\n", tid);

return NULL;

}

int main() {

pthread\_t threads[3]; long t;

for (t = 0; t < 3; t++) {

pthread\_create(&threads[t], NULL, print\_message, (void\*)t);

}

for (t = 0; t < 3; t++) {

pthread\_join(threads[t], NULL);

}

printf("Hello from main thread\n"); return 0;

}

# Output:

