Practical-9

Write a program illustrating how to create a simple thread This program implements the summation function where the summation operation is run as a separate thread.

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

#define ARRAY_SIZE 100000
#define NUM_THREADS 1

int array[ARRAY_SIZE];
long long sum = 0;

void *sum_thread(void *arg) {
    int start = *(int *) arg;
    int end = start + ARRAY_SIZE / NUM_THREADS;
    long long thread_sum = 0;

    for (int i = start; i < end; i++) {
        thread_sum += array[i];
    }

    sum += thread_sum;

    pthread_exit(NULL);
}

int main() {
    pthread_t threads[NUM_THREADS];
    int thread_args[NUM_THREADS];
```

```
    for (int i = 0; i < ARRAY_SIZE; i++) {
        array[i] = rand() % 100;
    }

    for (int i = 0; i < NUM_THREADS; i++) {
        thread_args[i] = i * ARRAY_SIZE / NUM_THREADS;
        pthread_create(&threads[i], NULL, sum_thread, (void *) &thread_args[i]);
    }

    for (int i = 0; i < NUM_THREADS; i++) {
        pthread_join(threads[i], NULL);
    }

    printf("Sum of array elements: %lld\n", sum);

    return 0;
}
```

```
Sum of array elements: 4952446
```