21BAI1217
MAINAK CHATTOPADHYAY
OS LAB 11

Write a C program to create 3 threads and perform the following operations. i)Calculate the factorial of a number in thread1. ii)Determine whether given number is prime or not in thread2. iii)Find whether the last four digits of your register number is even or odd in thread3.

CODE

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

void *factorial(void *num_ptr) {
    int num = *((int *) num_ptr);
    int fact = 1;

    for (int i = 1; i <= num; i++) {
        fact *= i;
    }

    printf("Factorial of %d is %d\n", num, fact);

    pthread_exit(NULL);
}

void *is_prime(void *num_ptr) {
    int num = *((int *) num_ptr);
    int prime = 1;

    if (num == 0 || num == 1) {
        prime = 0;
    } else {
        for (int i = 2; i <= num / 2; i++) {
            if (num % i == 0) {
                prime = 0;
                break;
            }
        }
    }

    if (prime == 1) {
        printf("%d is a prime number\n", num);
```

```
    } else {
        printf("%d is not a prime number\n", num);
    }

    pthread_exit(NULL);
}

void *last_four_digits(void *num_ptr) {
    int num = *((int *) num_ptr);
    int last_four = num % 10000;

    if (last_four % 2 == 0) {
        printf("Last four digits of %d is even\n", num);
    } else {
        printf("Last four digits of %d is odd\n", num);
    }

    pthread_exit(NULL);
}

int main() {
    int num = 10;
    int num2= 1217;// Change this to the input number
    pthread_t tid[3];
    int rc;

    rc = pthread_create(&tid[0], NULL, factorial, &num);
    if (rc) {
        printf("Error creating thread 1\n");
        exit(-1);
    }

    rc = pthread_create(&tid[1], NULL, is_prime, &num);
    if (rc) {
        printf("Error creating thread 2\n");
        exit(-1);
    }

    rc = pthread_create(&tid[2], NULL, last_four_digits, &num2);
    if (rc) {
        printf("Error creating thread 3\n");
        exit(-1);
    }
```

```
    // Wait for all threads to finish
    for (int i = 0; i < 3; i++) {
        pthread_join(tid[i], NULL);
    }

    return 0;
}
```

OUTPUT