ASSIGNMENT # 03

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ROLL NO: P17-6102

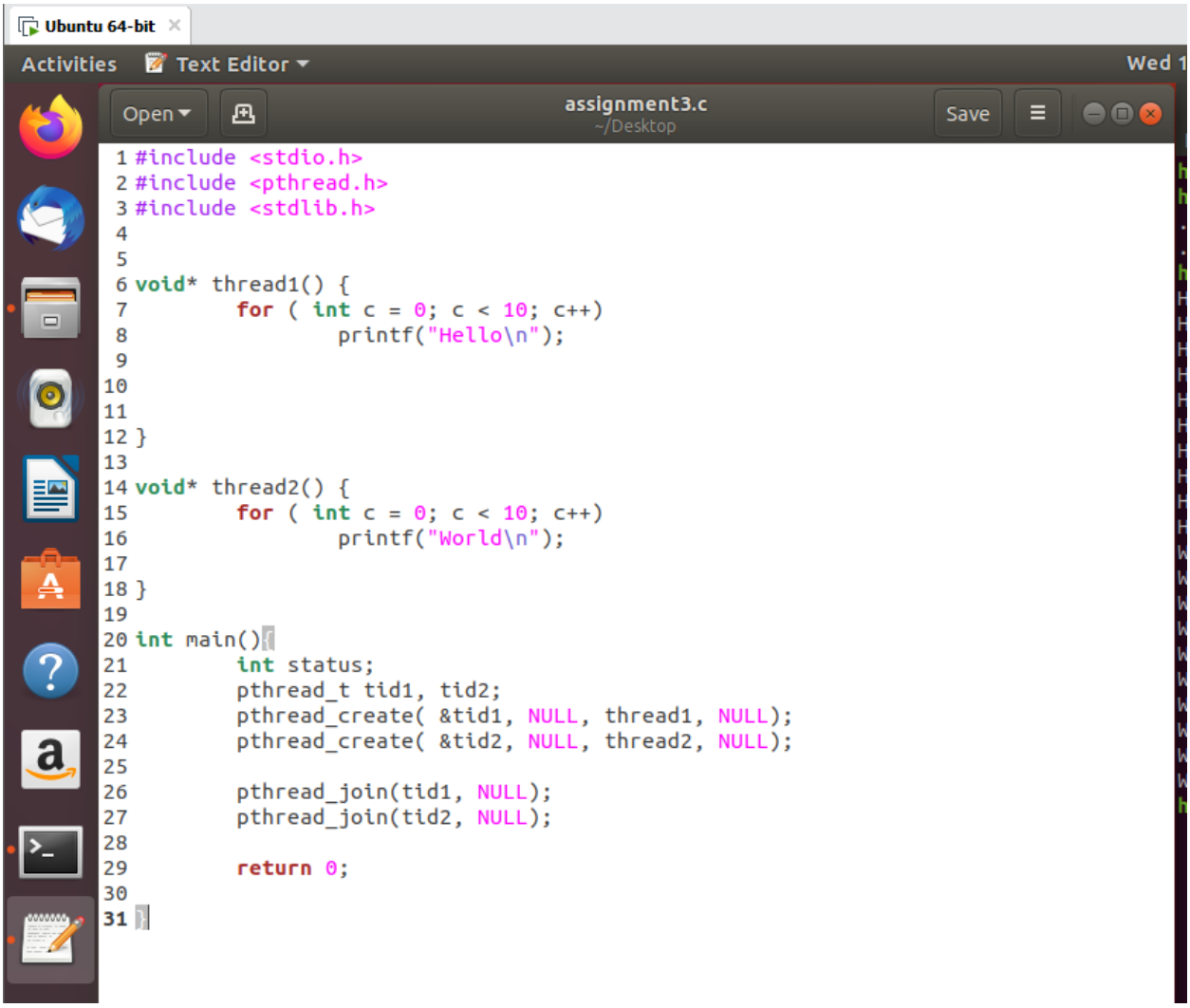
SECTION: B

Assignment: 03

SUBJECT: Operating System.

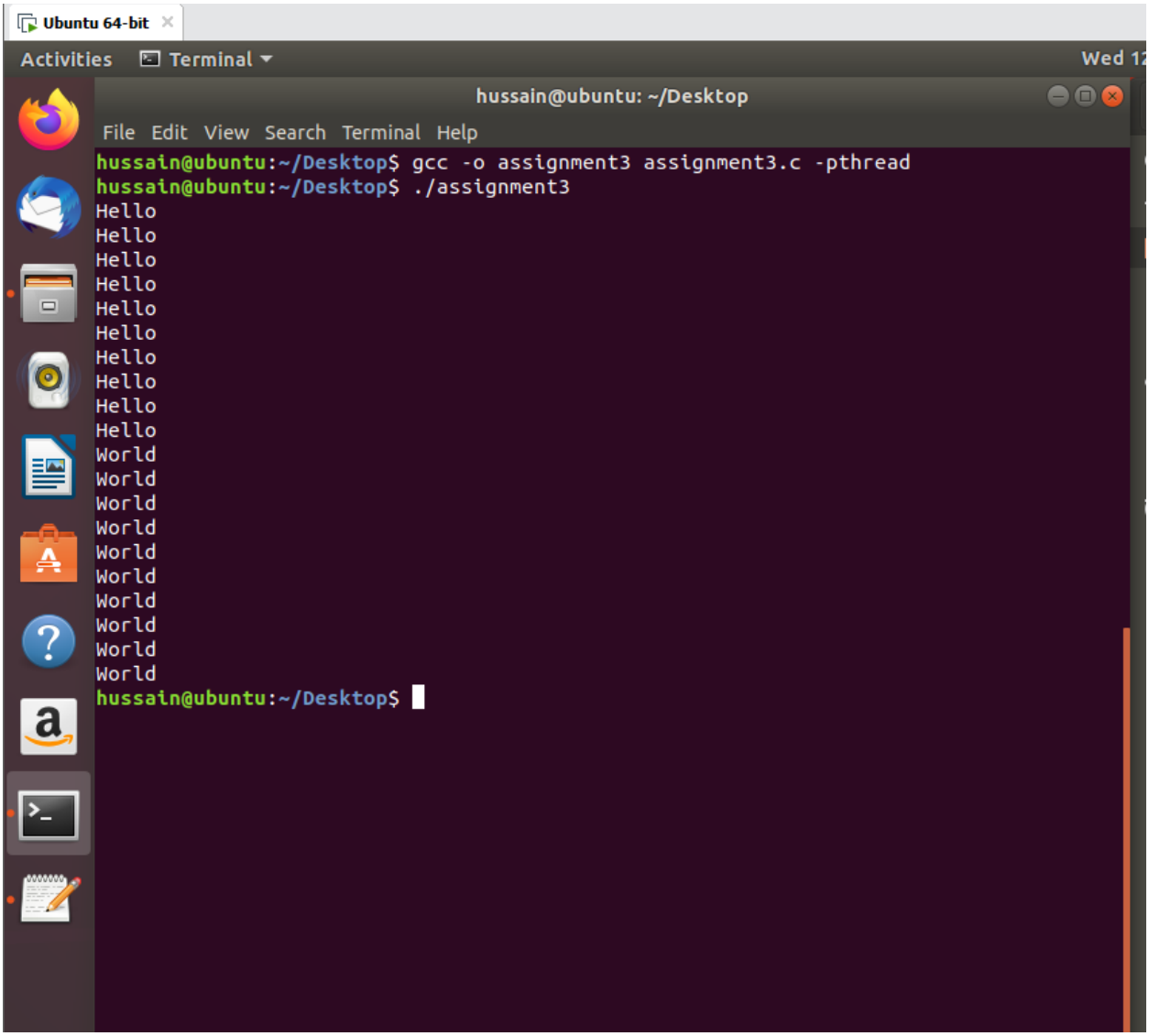
Question #01

(a) Write the following program and observe and explain the output.




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


void* thread1() {
        for ( int c = 0; c < 10; c++)
                printf("Hello\n");



}

void* thread2() {
        for ( int c = 0; c < 10; c++)
                printf("World\n");

}

int main(){
        int status;
        pthread_t tid1, tid2;
        pthread_create( &tid1, NULL, thread1, NULL);
        pthread_create( &tid2, NULL, thread2, NULL);

        pthread_join(tid1, NULL);
        pthread_join(tid2, NULL);

        return 0;

}
```

(c) Output of above program:



Explanation:

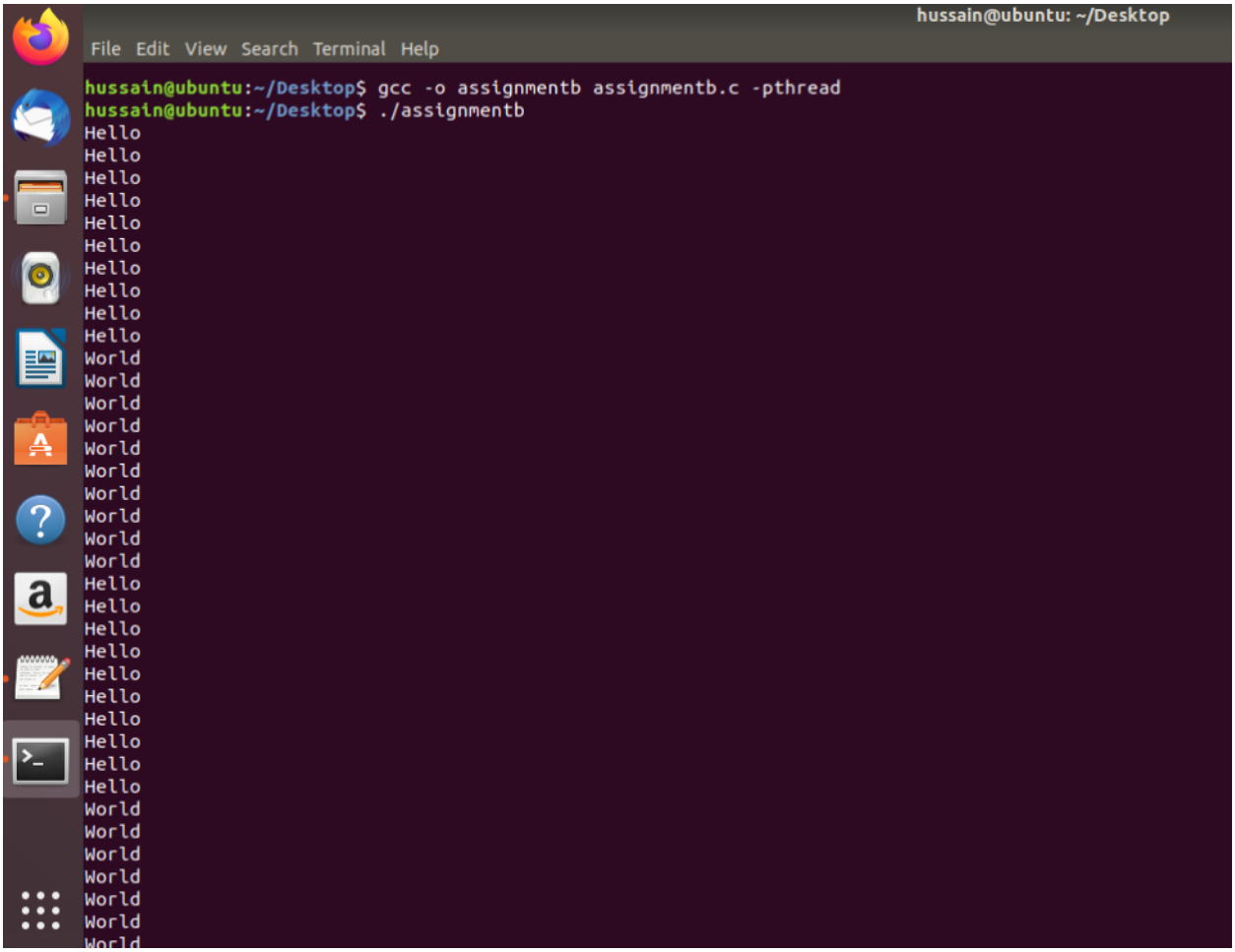
As we see clearly that the thread1 prints “Hello” 10 times and thread2 print “World” 10 times, where both function are call from the main to the threads. The main process also waits for the thread to finish

pthread_create: means thread is created

pthread_join : means process waits for thread to finish .

(b) Modify the program to create four threads using the same two functions (thread1 and thread2).

(c) Output of above program:



Explanation:

As we see clearly that the thread1 prints “Hello” 10 times ,

thread2 print “World” 10 times,

thread3 prints “Hello” 10 times
and thread4 print “World” 10 times

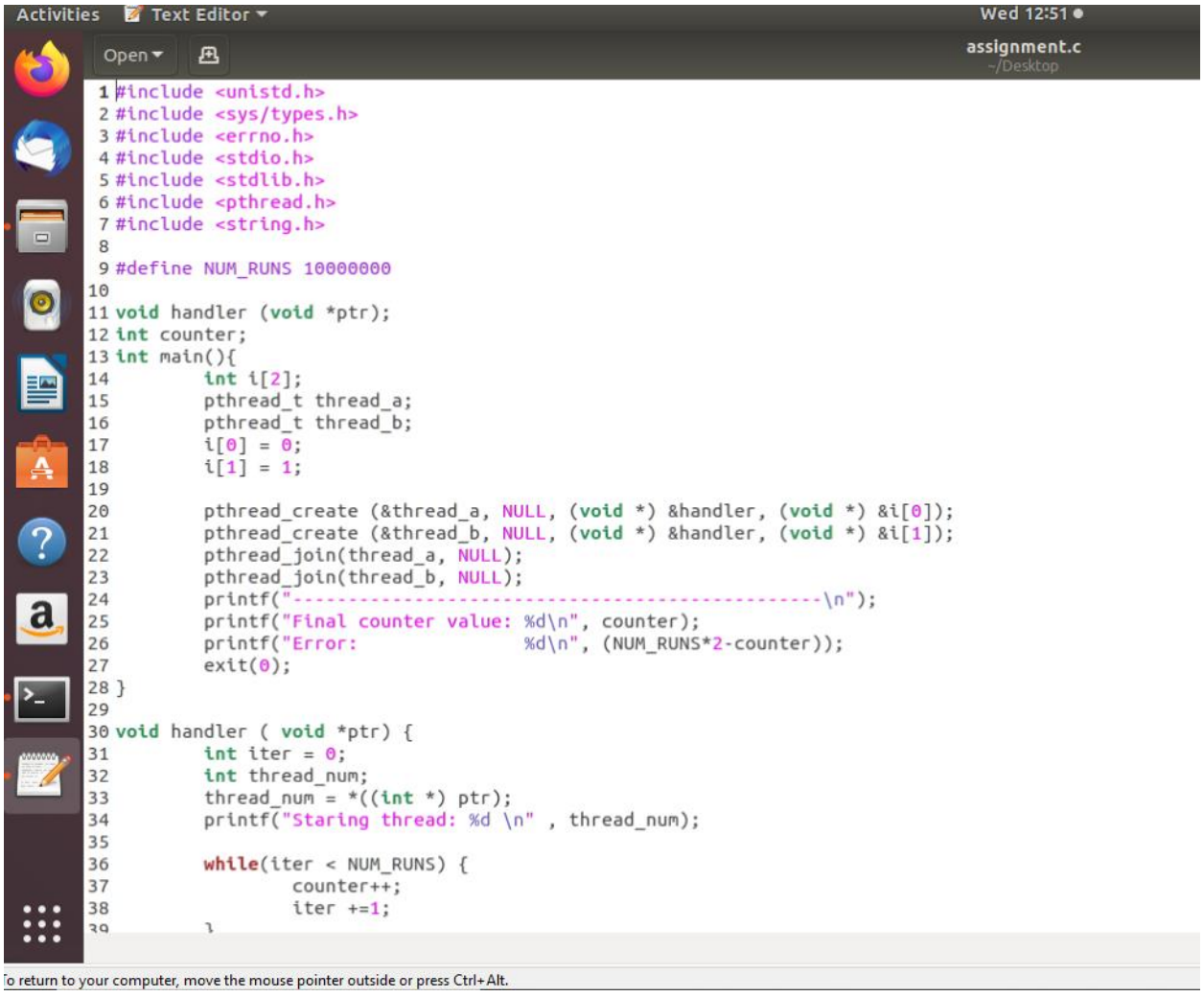
so, “hello” prints 20 times and “world” also print 20 times.

pthread_create: means thread is created

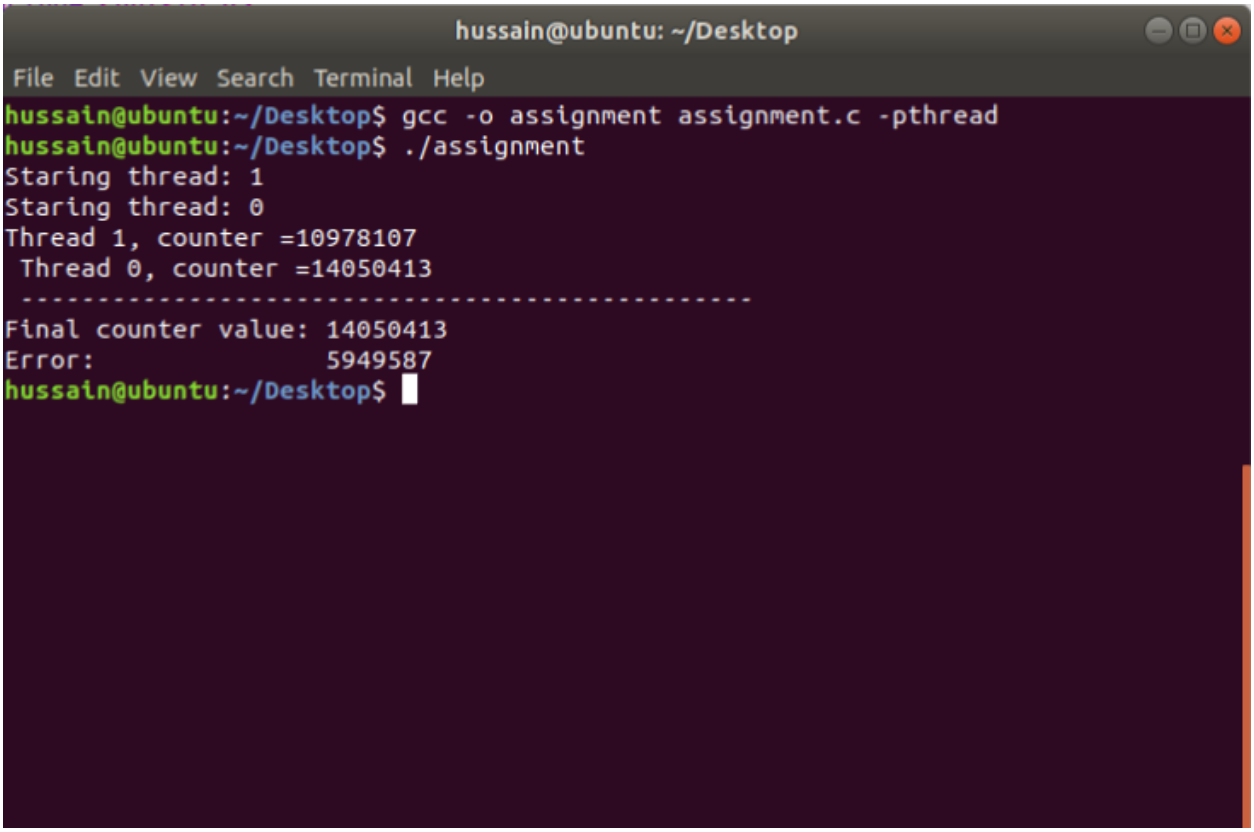
pthread_join : means process waits for thread to finish .

Question #02

(a) Compile and execute the program.



Output of above program:



(b) Answer the following questions:

i. What should be the value of the counter variable at the end?

The value of counter variable at the end should be = 10978107

ii. What is the value you get?

The final value of the counter I get is: 14050413

iii. How large is the error and how much does it vary on different runs?

The value of error is = 5949587 . if error is large then it takes time to run .

iv. How much user time (rougly) does the program take to run on your system?

There are almost less than a second time take the program to run on my system.