

National Textile University

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Semester:

5th

Lab:

04-Class_Task

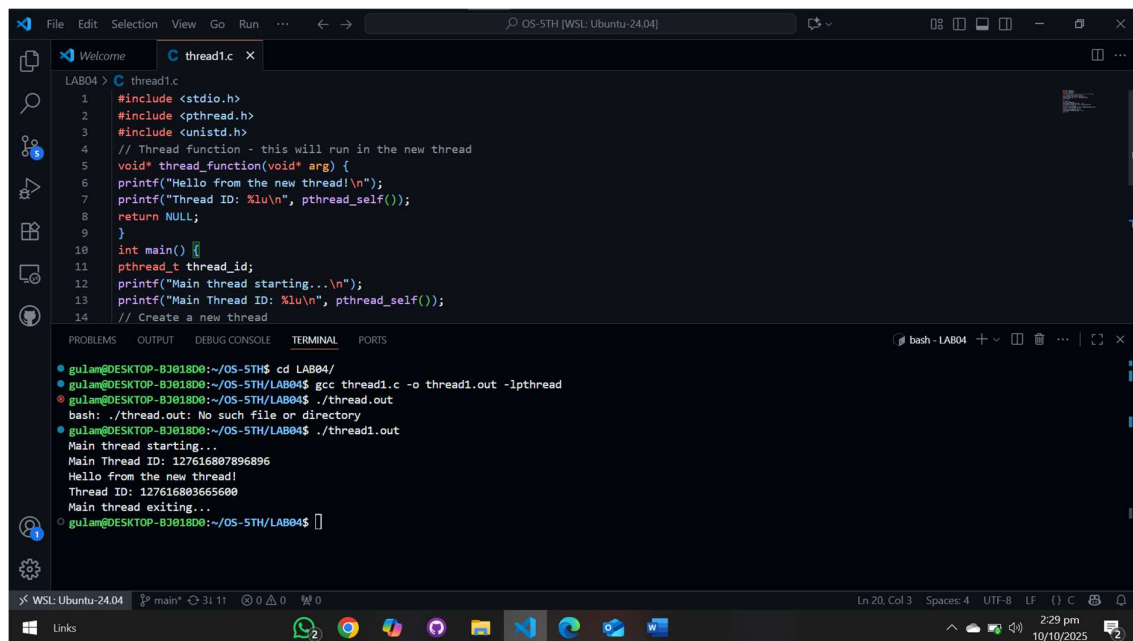
Submitted to:

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LAB04-CLASS_TASK

3. C Programs with Threads

Program 1: Creating a Simple Thread



```
LAB04 > C thread1.c
1 #include <stdio.h>
2 #include <pthread.h>
3 #include <unistd.h>
4 // Thread function - this will run in the new thread
5 void* thread_function(void* arg) {
6     printf("Hello from the new thread!\n");
7     printf("Thread ID: %lu\n", pthread_self());
8     return NULL;
9 }
10 int main() {
11     pthread_t thread_id;
12     printf("Main thread starting...\n");
13     printf("Main Thread ID: %lu\n", pthread_self());
14     // Create a new thread
```

```
gulam@DESKTOP-BJ018D0:~/OS-5TH$ cd LAB04/
gulam@DESKTOP-BJ018D0:~/OS-5TH/LAB04$ gcc thread1.c -o thread1.out -lpthread
gulam@DESKTOP-BJ018D0:~/OS-5TH/LAB04$ ./thread.out
bash: ./thread.out: No such file or directory
gulam@DESKTOP-BJ018D0:~/OS-5TH/LAB04$ ./thread1.out
Main thread starting...
Main Thread ID: 127616887896896
Hello from the new thread!
Thread ID: 127616889665600
Main thread exiting...
gulam@DESKTOP-BJ018D0:~/OS-5TH/LAB04$
```

Program 2: Passing Arguments to Threads

```
1 #include <stdio.h>
2 #include <pthread.h>
3 void* print_number(void* arg) {
4     // We know that we've passed an integer pointer
5     int num = *(int*)arg; // Cast void* back to int*
6     printf("Thread received number: %d\n", num);
7     printf("Square: %d\n", num * num);
8     return NULL;
9 }
10
11 int main() {
12     pthread_t thread_id;
13     int number = 42;
14     printf("Creating thread with argument: %d\n", number);
15     // Pass address of 'number' to thread
16     pthread_create(&thread_id, NULL, print_number, &number);
17     pthread_join(thread_id, NULL);
18     printf("Main thread done.\n");
19     return 0;
20 }
```

gulam@DESKTOP-B3018D0:~/OS-5TH/LAB04\$./thread2.out

Creating thread with argument: 42
Thread received number: 42
Square: 1764
Main thread done.