National Textile University

Department of Computer Science

Subject:

Operating System

Submitted to:

Sir Naseer

Submitted by:

Ayema

Reg number:

23-NTU-CS-1142

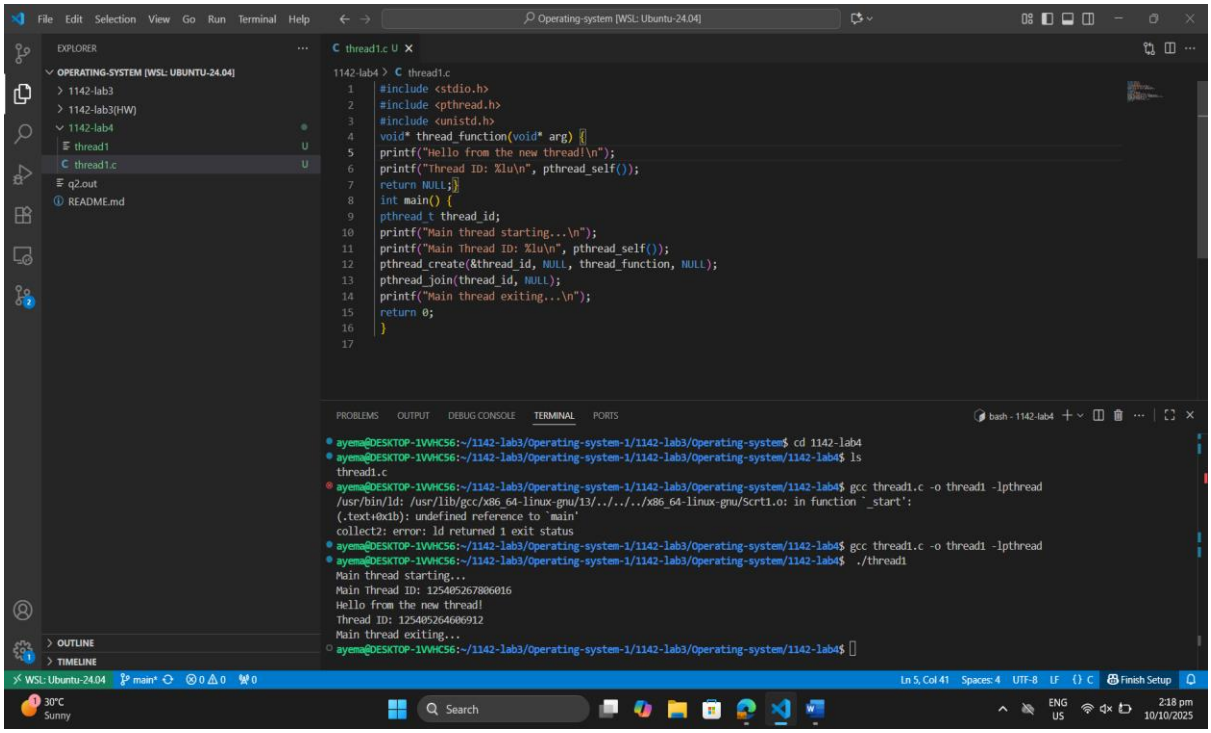
Lab no. :

04

Semester: 5Th

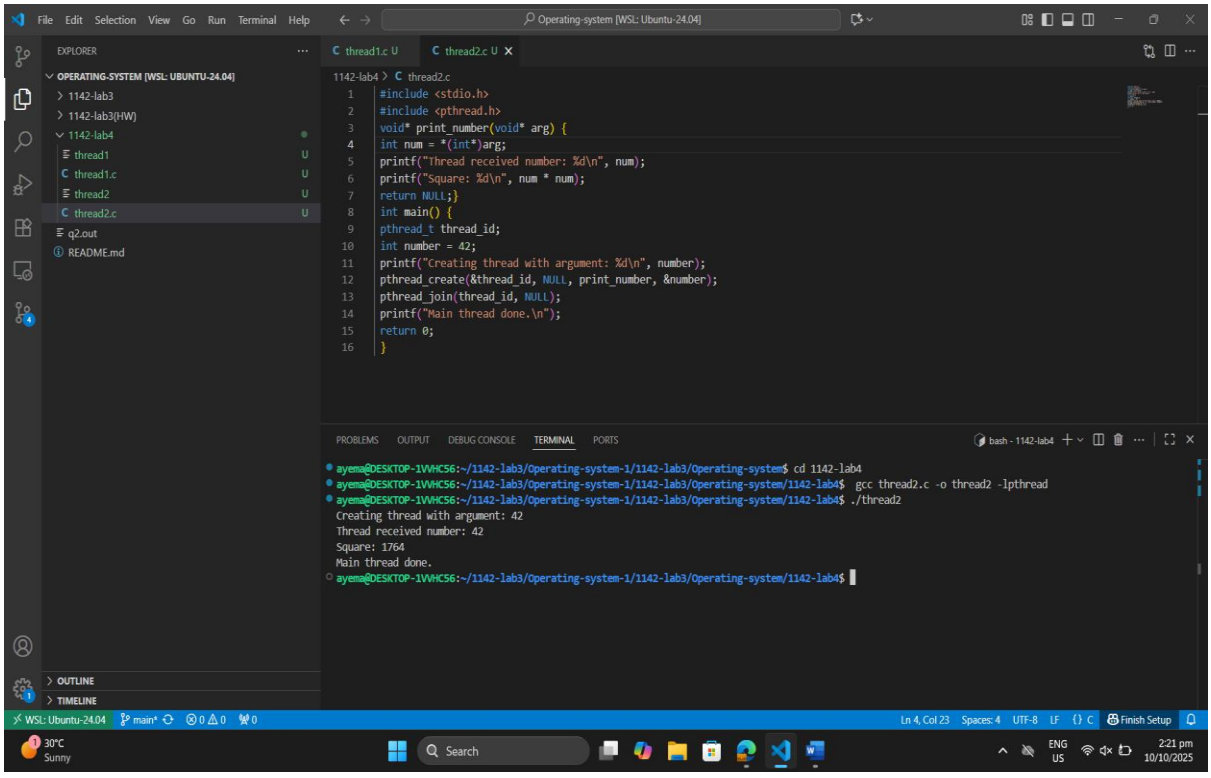
Program 1: Creating a Simple Thread:

```
#include <stdio.h>
#include <pthread.h>
#include <unistd.h>
void* thread_function(void* arg) {
printf("Hello from the new thread!\n");
printf("Thread ID: %lu\n", pthread_self());
return NULL;}
int main() {
pthread_t thread_id;
printf("Main thread starting...\n");
printf("Main Thread ID: %lu\n", pthread_self());
pthread_create(&thread_id, NULL, thread_function, NULL);
pthread_join(thread_id, NULL);
printf("Main thread exiting...\n");
return 0;
}
```



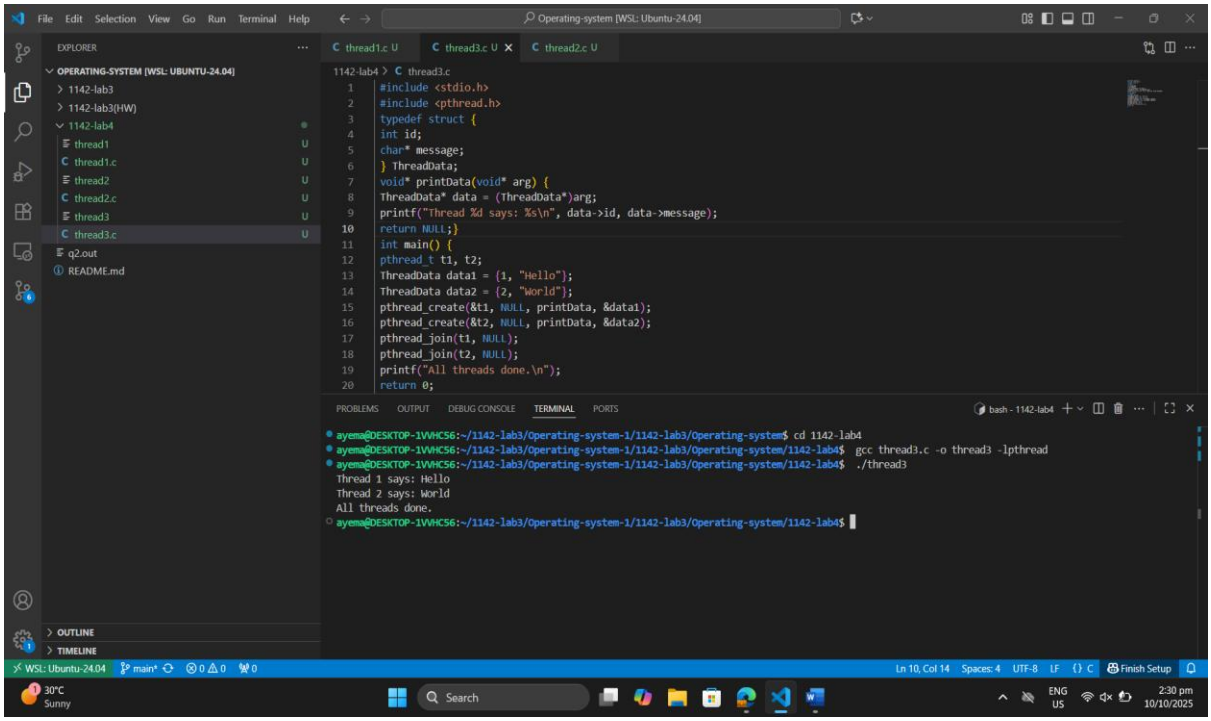
Program 2: Passing Arguments to Threads:

```
#include <stdio.h>
#include <pthread.h>
void* print_number(void* arg) {
int num = *(int*)arg;
printf("Thread received number: %d\n", num);
printf("Square: %d\n", num * num);
return NULL;}
int main() {
pthread_t thread_id;
int number = 42;
printf("Creating thread with argument: %d\n", number);
pthread_create(&thread_id, NULL, print_number, &number);
pthread_join(thread_id, NULL);
printf("Main thread done.\n");
return 0; }
```



Program 3: Passing Multiple Data

```
#include <stdio.h>
 #include <pthread.h>
 typedef struct {
 int id;
 char* message;
 } ThreadData;
 void* printData(void* arg) {
 ThreadData* data = (ThreadData*)arg;
 printf("Thread %d says: %s\n", data->id, data->message);
 return NULL;}
 int main() {
 pthread_t t1, t2;
 ThreadData data1 = {1, "Hello"};
 ThreadData data2 = {2, "World"};
 pthread_create(&t1, NULL, printData, &data1);
 pthread_create(&t2, NULL, printData, &data2);
 pthread_join(t1, NULL);
 pthread_join(t2, NULL);
 printf("All threads done.\n");
 return 0;}
```


File Edit Selection View Go Run Terminal Help
Operating-system [WSL: Ubuntu-24.04]
EXPLORER
OPERATING-SYSTEM [WSL: UBUNTU-24.04]
1142-lab3
1142-lab3(HW)
1142-lab4
thread1
thread1.c
thread2
thread2.c
thread3
thread3.c
q2.out
README.md
thread1.c U
thread3.c U
thread2.c U
1142-lab4 > thread3.c
#include <stdio.h>
#include <pthread.h>
typedef struct {
int id;
char* message;
} ThreadData;
void* printData(void* arg) {
ThreadData* data = (ThreadData*)arg;
printf("Thread %d says: %s\n", data->id, data->message);
return NULL;}
int main() {
pthread_t t1, t2;
ThreadData data1 = {1, "Hello"};
ThreadData data2 = {2, "World"};
pthread_create(&t1, NULL, printData, &data1);
pthread_create(&t2, NULL, printData, &data2);
pthread_join(t1, NULL);
pthread_join(t2, NULL);
printf("All threads done.\n");
return 0;
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
bash - 1142-lab4
ayema@DESKTOP-1VVHC56:~/1142-lab3/Operating-system-1/1142-lab3/Operating-system$ cd 1142-lab4
ayema@DESKTOP-1VVHC56:~/1142-lab3/Operating-system-1/1142-lab3/Operating-system/1142-lab4$ gcc thread3.c -o thread3 -lpthread
ayema@DESKTOP-1VVHC56:~/1142-lab3/Operating-system-1/1142-lab3/Operating-system/1142-lab4$ ./thread3
Thread 1 says: Hello
Thread 2 says: World
All threads done.
ayema@DESKTOP-1VVHC56:~/1142-lab3/Operating-system-1/1142-lab3/Operating-system/1142-lab4$
OUTLINE
TIMELINE
WSL: Ubuntu-24.04
main*
Ln 10, Col 14
Spaces: 4
UTF-8
LF
C
Finish Setup
30°C
Sunny
Search
ENG
US
2:30 pm
10/10/2025