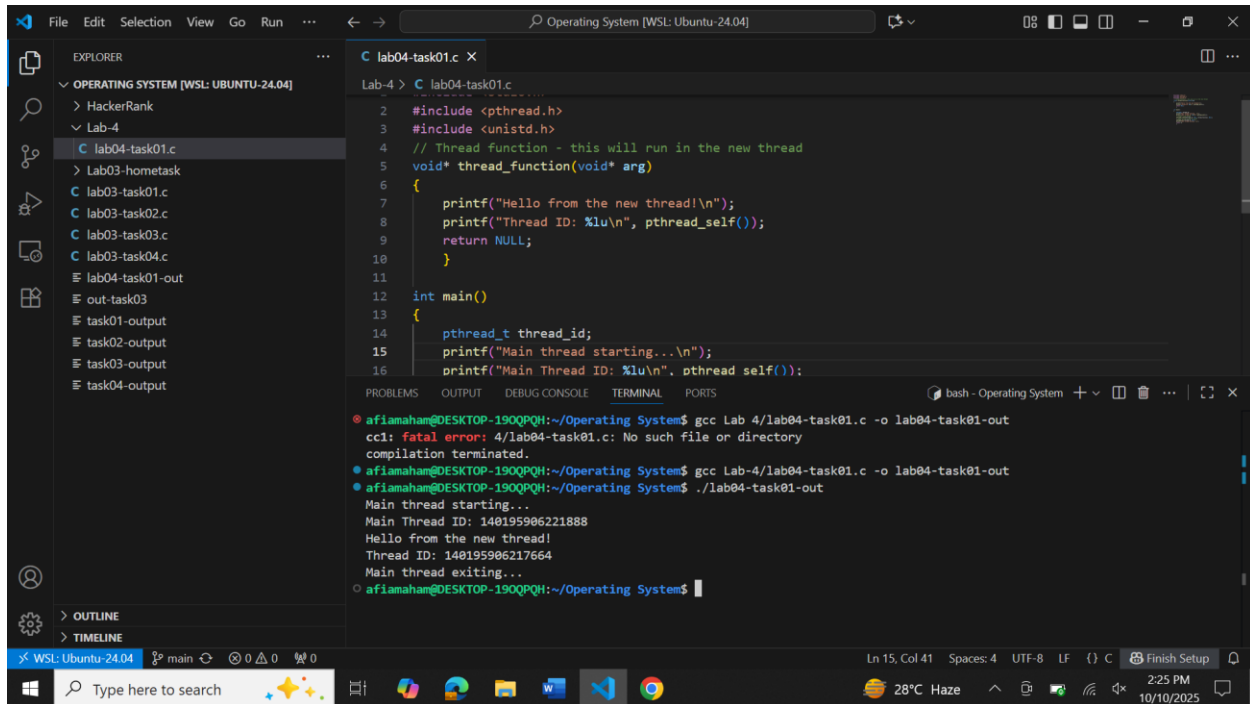


Lab 04

Program 01:



```
File Edit Selection View Go Run ... Operating System [WSL: Ubuntu-24.04]

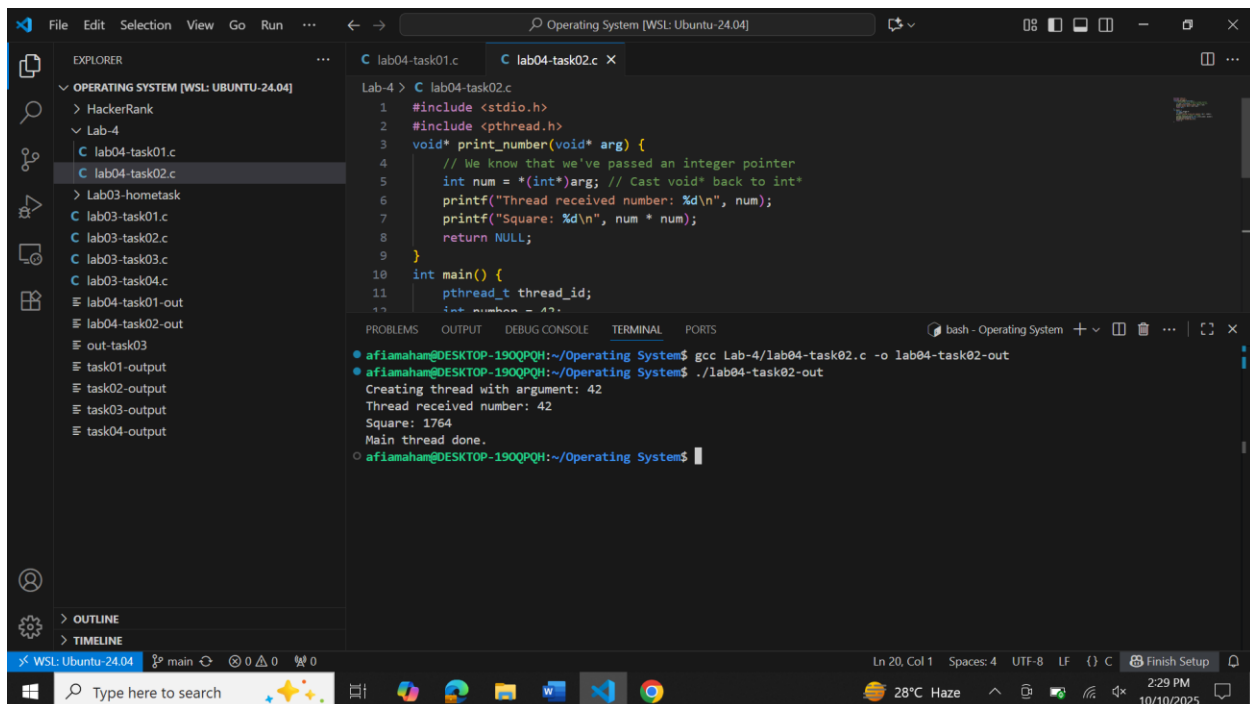
EXPLORER
  OPERATING SYSTEM [WSL: UBUNTU-24.04]
    HackerRank
    Lab-4
      C lab04-task01.c
      Lab03-hometask
      C lab03-task01.c
      C lab03-task02.c
      C lab03-task03.c
      C lab03-task04.c
      lab04-task01-out
      out-task03
      task01-output
      task02-output
      task03-output
      task04-output

C lab04-task01.c X
Lab-4 > C lab04-task01.c
1 // Lab 4: Threaded Program
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 {
7     printf("Hello from the new thread!\n");
8     printf("Thread ID: %lu\n", pthread_self());
9     return NULL;
10 }
11
12 int main()
13 {
14     pthread_t thread_id;
15     printf("Main thread starting...\n");
16     printf("Main Thread ID: %lu\n", pthread_self());
17
18     pthread_create(&thread_id, NULL, thread_function, NULL);
19     pthread_join(thread_id, NULL);
20     printf("Main thread exiting...\n");
21     return 0;
22 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
afiamaham@DESKTOP-190QPQH:~/Operating System$ gcc Lab-4/lab04-task01.c -o lab04-task01-out
cc1: fatal error: 4/lab04-task01.c: No such file or directory
compilation terminated.
afiamaham@DESKTOP-190QPQH:~/Operating System$ gcc Lab-4/lab04-task01.c -o lab04-task01-out
afiamaham@DESKTOP-190QPQH:~/Operating System$ ./lab04-task01-out
Main thread starting...
Main Thread ID: 140195986221888
Hello from the new thread!
Thread ID: 140195986217664
Main thread exiting...
afiamaham@DESKTOP-190QPQH:~/Operating System$
```

Program 02:



```
File Edit Selection View Go Run ... Operating System [WSL: Ubuntu-24.04]

EXPLORER
  OPERATING SYSTEM [WSL: UBUNTU-24.04]
    HackerRank
    Lab-4
      C lab04-task01.c
      C lab04-task02.c
      Lab03-hometask
      C lab03-task01.c
      C lab03-task02.c
      C lab03-task03.c
      C lab03-task04.c
      lab04-task01-out
      lab04-task02-out
      out-task03
      task01-output
      task02-output
      task03-output
      task04-output

C lab04-task02.c X
Lab-4 > C lab04-task02.c
1 // Lab 4: Threaded Program
2 #include <stdio.h>
3 #include <pthread.h>
4 void* print_number(void* arg) {
5     // We know that we've passed an integer pointer
6     int num = *(int*)arg; // Cast void* back to int*
7     printf("Thread received number: %d\n", num);
8     printf("Square: %d\n", num * num);
9     return NULL;
10 }
11
12 int main() {
13     pthread_t thread_id;
14     int number = 42;
15     pthread_create(&thread_id, NULL, print_number, &number);
16     pthread_join(thread_id, NULL);
17     printf("Main thread done.\n");
18     return 0;
19 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
afiamaham@DESKTOP-190QPQH:~/Operating System$ gcc Lab-4/lab04-task02.c -o lab04-task02-out
afiamaham@DESKTOP-190QPQH:~/Operating System$ ./lab04-task02-out
Creating thread with argument: 42
Thread received number: 42
Square: 1764
Main thread done.
afiamaham@DESKTOP-190QPQH:~/Operating System$
```