National Textile University, Faisalabad

Department of Computer Science

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Course	Operating system
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Lab No.	4 (Class Work)

Lab No. 4 Operating system:

Program 1: Creating a Simple Thread

Objective: Create a thread and print messages from both main thread and new thread.

```
      | int
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ gcc Thread1.c -o Thread1 -lpthread
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ ./thread.c
 bash: ./thread.c: No such file or directory
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ ./Thread1.c
 bash: ./Thread1.c: Permission denied
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ ./thread1
 bash: ./thread1: No such file or directory
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ ./Thread1
 Main thread starting...
 Main Thread ID: 140211303946048
 Hello from the new thread!
 Thread ID: 140211303941824
 Main thread exiting...
 dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ []
```

Program 2: Passing Arguments to Threads

Objective: Pass data to a thread function.

```c
C Thread1.c          C Thread2.c  ×

C Thread2.c
 1    #include <stdio.h>
 2    #include <pthread.h>
 3
 4    void* print_number(void* arg) {
 5
 6    // We know that we've passed an integer pointer
 7    int num = *(int*)arg; // Cast void* back to int*
 8    printf("Thread received number: %d\n", num);
 9    printf("Square: %d\n", num * num);
10    return NULL;
11    }
12    int main() {
13    pthread_t thread_id;
14    int number = 42;
15    printf("Creating thread with argument: %d\n", number);
16    // Pass address of 'number' to thread
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**   PORTS

dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ gcc Thread2.c -o Thread2 -lpthread
dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$ ./Thread2
Creating thread with argument: 42
Thread received number: 42
Square: 1764
Main thread done.
dawood@DESKTOP-V4SDVD9:~/Lab 04/Class Work$