18. Illustrate the concept of multithreading using a C program.

**PROGRAM:**

**#include <stdio.h>**

**#include <stdlib.h>**

**#include <pthread.h>**

**#include <semaphore.h>**

**#include <unistd.h>**

**int sum = 0;**

**sem\_t mutex;**

**void \*add(void \*arg){**

**int \*ptr = (int \*) arg;**

**while(\*ptr != -1){**

**sem\_wait(&mutex);**

**sum += \*ptr;**

**printf("value: %d sum %d\n", \*ptr,sum );**

**sem\_post(&mutex);**

**ptr++;**

**}**

**return NULL;**

**}**

**int main(int argc, char \*args[]){**

**int A[4] = {1,2,3, -1};**

**int B[4] = {4,2,6, -1};**

**pthread\_t t\_a, t\_b;**

**sem\_init(&mutex, 0, 1);**

**pthread\_create(&t\_a , NULL, add, A);**

**pthread\_create(&t\_b, NULL, add, B);**

**pthread\_join(t\_a, NULL);**

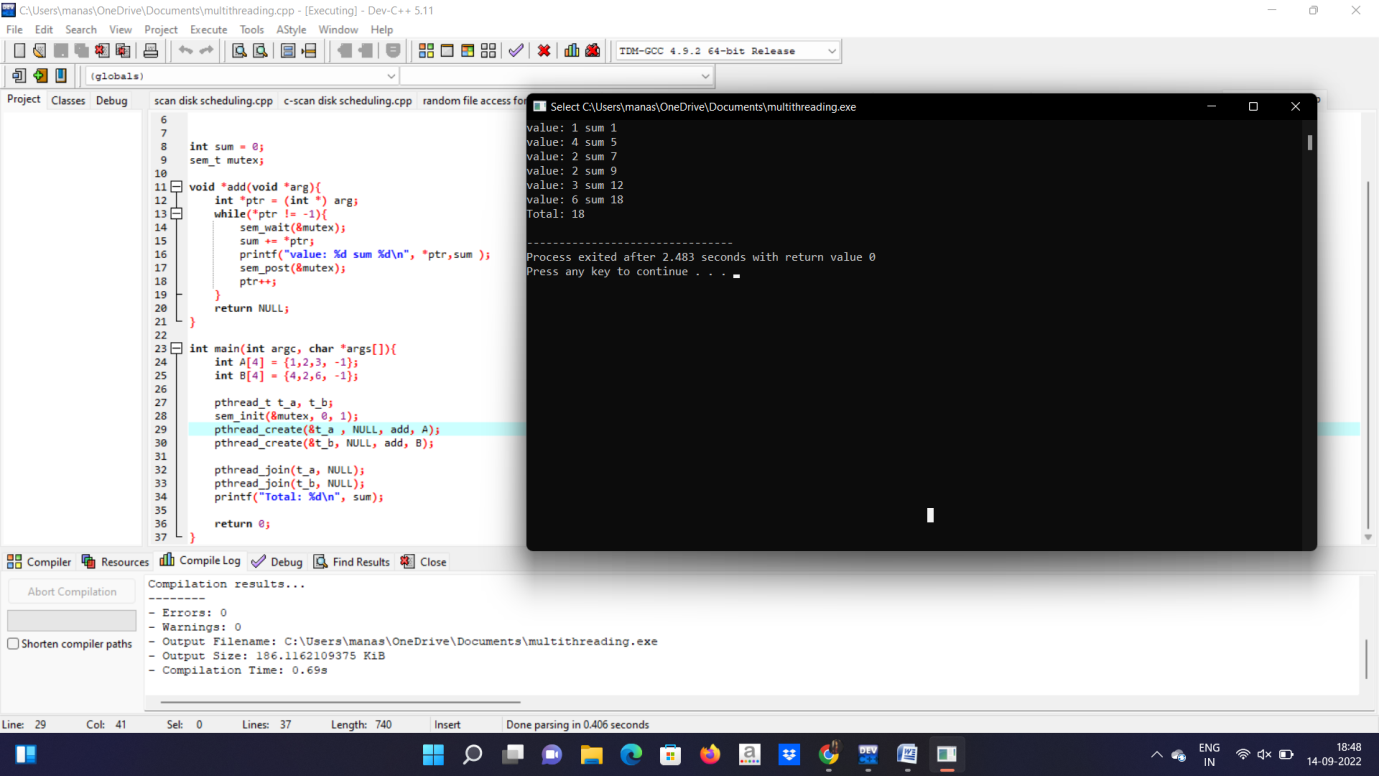
**pthread\_join(t\_b, NULL);**

**printf("Total: %d\n", sum);**

**return 0;**

**}**

**OUTPUT:**

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