Report 2

Lab 2

Pthreads

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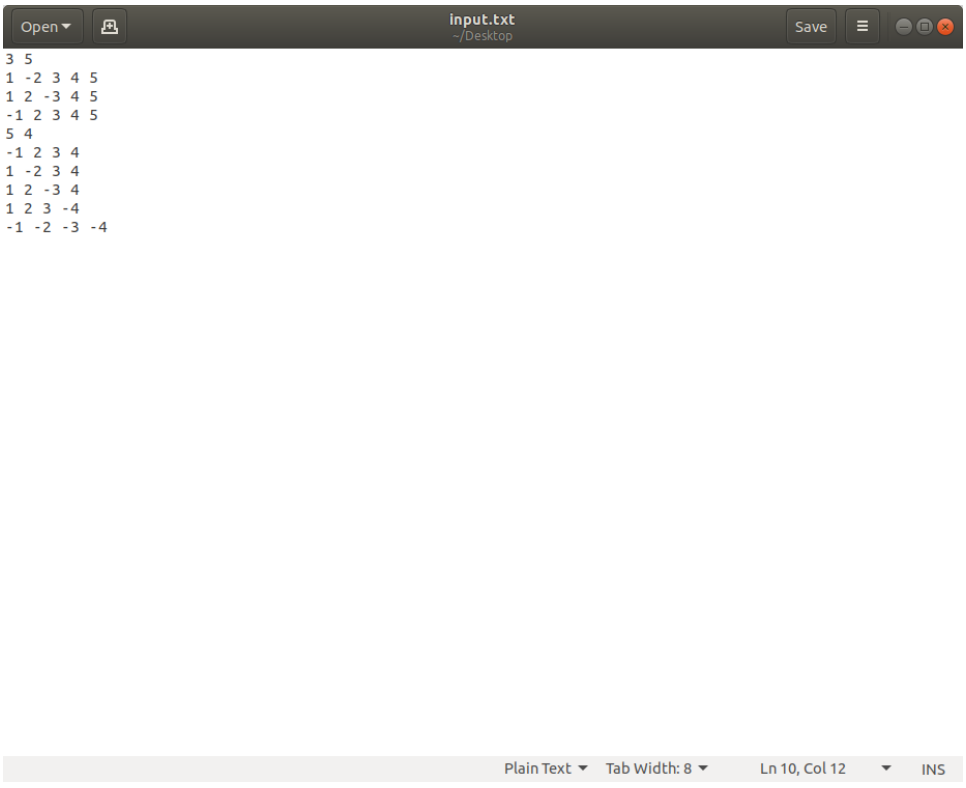
The following program is responsible for tackling the skills learned from the operating systems course in threads and thread management by implementing some of the famous algorithms using threads.

1- Matrix Multiplication:

Matrices are being scanned at first one by one from the input.txt file and then each procedure has its own functions for procedure 1 each element is calculated in a thread alone, while in the second procedure each row is calculated in a thread alone. Time is calculated in each thread and ofcourse when each element is calculated in a thread it takes more time than each row because number of threads is greater in the first procedure.

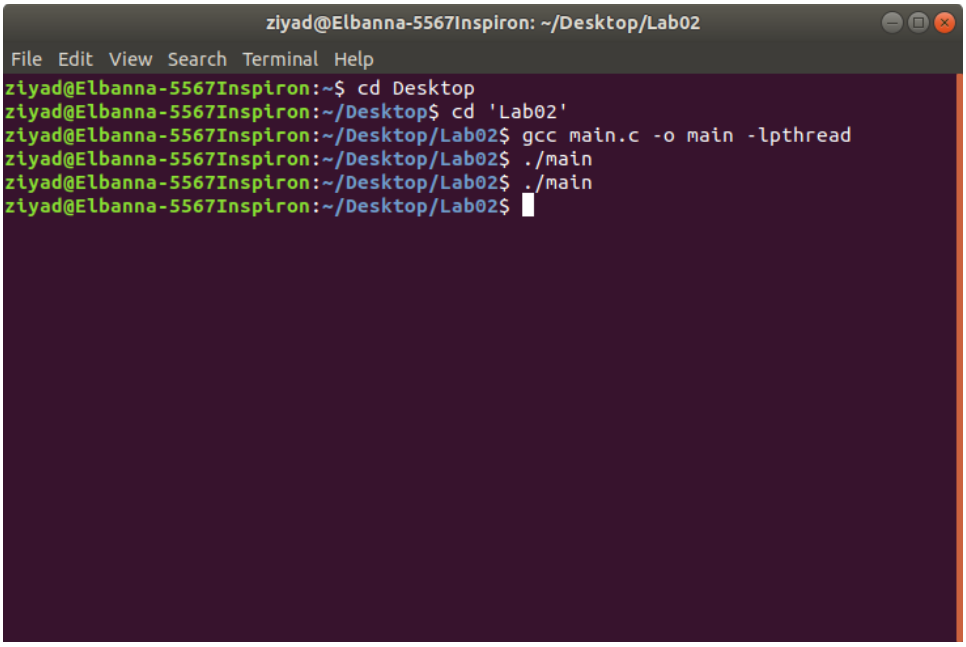
Major Functions:

1- Scaninputfile (): scans the two-D matrices into array data structures

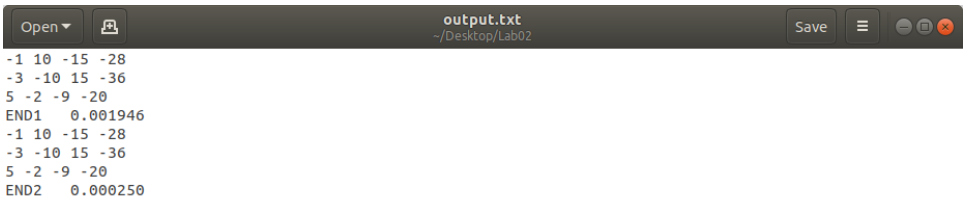


Screen shot shows input.txt file before scanning matrices a and b

2- **Matmultiply1**&2(): each one has its own procedure using POSIX in different places of the iteration.



Code is run using command line as shown above



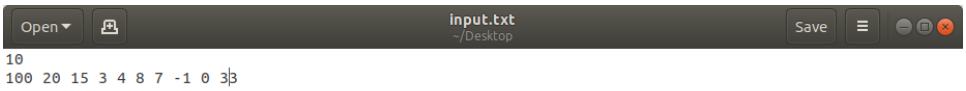
Results which are taken after multiplying of matrices a and b and saving the result in output.txt

2- Mergesort

The famous function of mergesort is implemented using structures and threads to tackle the application of POSIX in os. Firstly the array is being input then its sorted using mergesort recursively and then output the array printed.

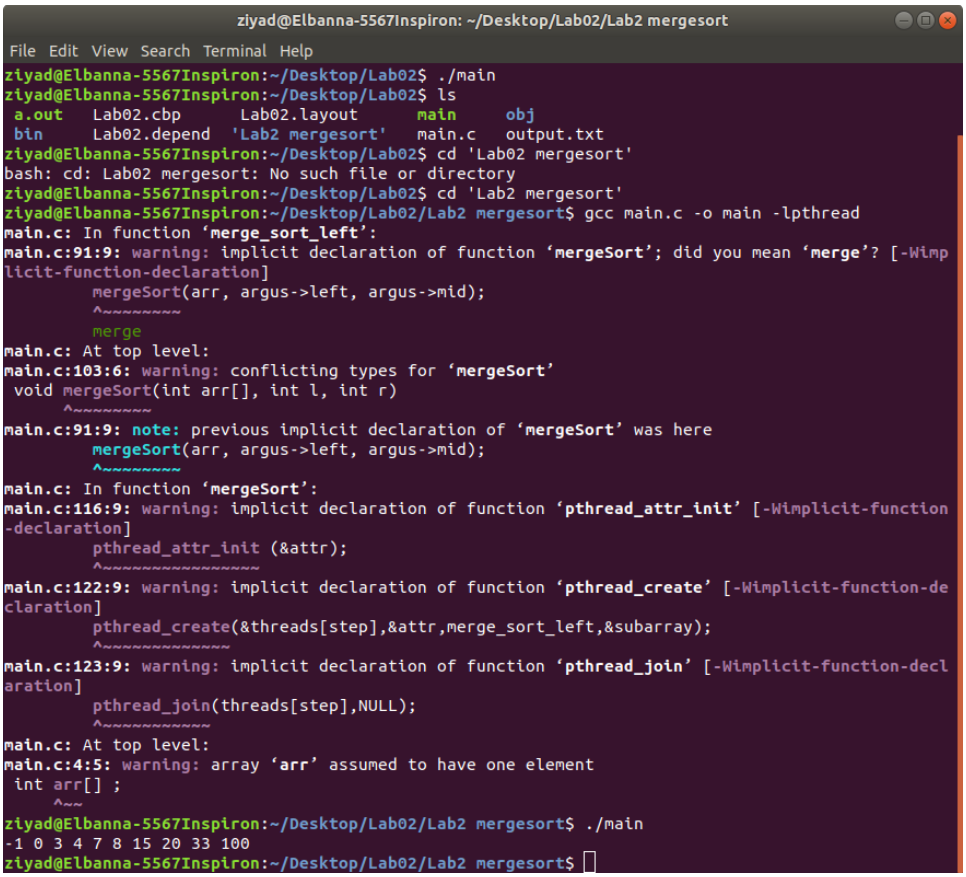
Major Functions:

1- inputarray() : Inputs the array from the text file nput.txt and saves it in array data structure



Screen shot shows the input attay before saving it in datastructure array.

2- mergeSort(): the famous function of merge sort by using pthreads for each subarray recursively and saving the data each time in a structure



Code is run from command line as shown and the new sorted array is printed.

3- print array() prints the array to the console application