

Assignment 3

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/* Name-Gaurav Ghati
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#include<pthread.h>
#include<stdio.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>

int matrix1[10][10],matrix2[10][10],row1,col1,col2,row2;
void *multiply(void *arg);
void input(int matrix[10][10],int row,int col)
{
    for(int i=0;i<row;i++)
        for(int j=0;j<col;j++)
        {
            scanf("%d",&matrix[i][j]);
        }
}
void print(int matrix[10][10],int row,int col)
{
    for(int i=0;i<row;i++)
    {
        for(int j=0;j<col;j++)
        {
            printf("%d ",matrix[i][j]);
        }
        printf("\n");
    }
}
int main()
{
    //cn=0;
    int res;
    void *tres;

    printf("ENTER NUMBER OF ROWS FOR MATRIX 1:");
    scanf("%d",&row1);
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printf("ENTER NUMBER OF COLUMNS FOR MATRIX 1:");
scanf("%d",&col1);
printf("ENTER NUMBER OF ROWS FOR MATRIX 2:");
scanf("%d",&row2);
printf("ENTER NUMBER OF COLUMNS FOR MATRIX2:");
scanf("%d",&col2);
if(col1==row2)
{
pthread_t thread[row1];
printf("\nENTER ELEMENTS FOR MATRIX 1:\n");
input(matrix1,row1,col1);
printf("\nENTER ELEMENTS FOR MATRIX 2:\n");
input(matrix2,row2,col2);
printf("MATRIX 1\n");
print(matrix1,row1,col1);
printf("MATRIX 2\n");
print(matrix2,row2,col2);
printf("RESULTANT MULTIPLICATION MATRIX\n");
for(int i=0;i<row1;i++)
res = pthread_create(&thread[i],NULL,multiply,(void *)i);
for(int j=0;j<row1;j++)
{
res = pthread_join(thread[j],&tres);
int *p=(int *)tres;
printf("\n");
for(int i=0;i<col2;i++)
printf("%d ",*(p+i));
}
}
else
printf("MULTIPLICATION NOT POSSIBLE");
}

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void * multiply(void *arg)
{
int result;
int p=(int )arg;
printf("INSIDE MULT THREAD %d\n",p+1);
int *q =(int *)malloc(sizeof(int)*col2);
for(int i=0;i<col2;i++)
{
result=0;
for(int j=0;j<col1;j++)

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result = result + matrix1[p][j]*matrix2[j][i];
q[i]=result;
}
pthread_exit(q);
}

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OUTPUT:

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gauravghati@gauravghati:~/OS-Programming/assignment3-threads$ ./a.out
ENTER NUMBER OF ROWS FOR MATRIX 1:3
ENTER NUMBER OF COLUMNS FOR MATRIX 1:3
ENTER NUMBER OF ROWS FOR MATRIX 2:3
ENTER NUMBER OF COLUMNS FOR MATRIX2:3

ENTER ELEMENTS FOR MATRIX 1:
1 1 1
2 2 2
3 3 3

ENTER ELEMENTS FOR MATRIX 2:
3 3 3
2 2 2
1 1 1
MATRIX 1
1 1 1
2 2 2
3 3 3
MATRIX 2
3 3 3
2 2 2
1 1 1
RESULTANT MULTIPLICATION MATRIX
INSIDE MULT THREAD 1
INSIDE MULT THREAD 2
INSIDE MULT THREAD 3

6 6 6
12 12 12
18 18 18 gauravghati@gauravghati:~/OS-Programming/assignment3-threads$

```