Assignment 4

```
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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);

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");
}

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

OUTPUT:

```
gauravghati@gauravghati:~/OS-Programming/assignment4-ProducerConsumer$ ./a.out

Element entered by producer is  : 83
Value of Buffer : 83

Element entered by producer is  : 77
Value of Buffer : 83 77

Element removed by consumer is  : 77
Value of Buffer : 83

Element entered by producer is  : 35
Value of Buffer : 83 35

Element entered by producer is  : 92
Value of Buffer : 83 35 92

Element removed by consumer is  : 92
Value of Buffer : 83 35

Element removed by consumer is  : 35
Value of Buffer : 83

Element entered by producer is  : 27
Value of Buffer : 83 27

Element entered by producer is  : 59
Value of Buffer : 83 27 59

Element removed by consumer is  : 59
Value of Buffer : 83 27

Element removed by consumer is  : 27
Value of Buffer : 83

Element entered by producer is  : 26
Value of Buffer : 83 26

Element removed by consumer is  : 26
Value of Buffer : 83

Element entered by producer is  : 11
Value of Buffer : 83 11

Element removed by consumer is  : 11
Value of Buffer : 83

Element entered by producer is  : 29
Value of Buffer : 83 29

Element removed by consumer is  : 29
Value of Buffer : 83
^C
gauravghati@gauravghati:~/OS-Programming/assignment4-ProducerConsumer$
```