ASSIGNMENT # 03

Submitted By

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Submitted to

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QNO1

```
#include <stdio.h>
#include <pthread.h>
#include <stdlib.h>
#include <string.h>

#define N 3
#define n 3

struct v
{
    size_t i;
    size_t j;
};

double A[N][N] = {{1, 2, 3}, {3, 4, 5}, {8, 6, 7}};
double B[N][N] = {{2, 3, 9}, {4, 5, 7}, {2, 3, 9}};
double C[N][N];

static void * multiplication(void *arg){
    struct v *data = (struct v *)arg;

    size_t l;
    for(l=0; l < N; l++)
    {
```

```
        size_t i=(data[l]).i;
        size_t j=(data[l]).j;
        double sum=0;
        size_t d;

        for (d = 0; d < N; d++)
        {
            sum = sum + A[i][d]*B[d][j];
        }

        C[i][j] = sum;
        sum = 0;
    }
    return 0;
}

int main(void)
{
    pthread_t threads[n];
    size_t i, k;

    struct v **data;
    data = (struct v **)malloc(n * sizeof(struct v*));

    for(i = 0; i < n; i++)
```

```
{
    data[i] = (struct v *)malloc(n * sizeof(struct v));

    for(k = 0; k < n; k++)
    {
        data[i][k].i = i;
        data[i][k].j = k;
    }

    pthread_create(&threads[i], NULL, multiplication, data[i]);
}

for(i = 0; i < n; i++)
{
    pthread_join(threads[i], NULL);
}

for (i = 0; i < N; i++)
{
    for (k = 0; k < N; k++)
    {
        printf("%lf\t", C[i][k]);
    }

    printf("\n");
```

```
        free(data[i]);
    }



    return 0;
}
```