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20K-1044
SE-5A

OS LAB 11

MATRIX QS

```
student@lab4l-20:~$ gcc -o obj task3.c -fopenmp
student@lab4l-20:~$ ./obj
Enter the row size for matrix 12
Enter the coloum size for matrix 12
Enter the row size for matrix 22
Enter the coloum size for matrix 22
Enter value for matrix1: row0, col0 :34
Enter value for matrix1: row0, col1 :45
Enter value for matrix1: row1, col0 :56
Enter value for matrix1: row1, col1 :343
Enter value for matrix2: row0, col0 :54
Enter value for matrix2: row0, col1 :43
Enter value for matrix2: row1, col0 :34
Enter value for matrix2: row1, col1 :343

Sum of Matrix:

Sum of Matrix:

Sum of Matrix:

Sum of Matrix:
167465
487785
167465
487785
167465
487785
167465
487785
Total Runtime = 6.61999e-07
student@lab4l-20:~$
```

```c
#include<stdio.h>
#include<stdlib.h>
#include<time.h>
#include<omp.h>

int main()
{
int row_1,col_1,row_2,col_2,i,j,k;
printf("Enter the row size for matrix 1");
scanf("%d",&row_1);
printf("Enter the coloum size for matrix 1");
scanf("%d",&col_1);

printf("Enter the row size for matrix 2");
scanf("%d",&row_2);
printf("Enter the coloum size for matrix 2");
scanf("%d",&col_2);

if(col_1!=row_2)
{
printf("Product not possible");
exit(0);
}
int mat1[row_1][col_1],mat2[row_2][col_2],product[row_1][col_2],sum=0;
for(i=0;i<row_1;i++)
{
for(j=0;j<col_1;j++){
printf("Enter value for matrix1: row%d, col%d :",i,j);
scanf("%d",&mat1[i][j]);
}
}

for(i=0;i<row_2;i++)
{
for(j=0;j<col_2;j++){
printf("Enter value for matrix2: row%d, col%d :",i,j);
scanf("%d",&mat2[i][j]);
}
}

for(i=0;i<row_2;i++)
{
for(j=0;j<col_2;j++){
product[i][j]=0;
}
}
#pragma omp parallel shared(mat1,mat2,product) private(i,j,k,sum)
{
   printf("\nSum of Matrix:\n");
   #pragma omp for
   for(i=0;i<row_1;i++)
{
for(j=0;j<col_2;j++){
for(k=0;k<col_1;k++)
{
```

```
#pragma omp parallel shared(mat1,mat2,product) private(i,j,k,sum)
{
   printf("\nSum of Matrix:\n");
   #pragma omp for
   for(i=0;i<row_1;i++)
{
for(j=0;j<col_2;j++){
for(k=0;k<col_1;k++)
{
  product[i][j]+=mat1[i][k]+mat2[k][j];
  }
  }
  }
  for(i=0;i<row_1;i++){
  for(j=0;j<col_2;j++)
      printf("%d",product[i][j]);
  printf("\n");
  }}
  double t1, t2;
t1=omp_get_wtime();
//do something expensive...
t2=omp_get_wtime();
printf("Total Runtime = %g\n", t2-t1);}
```