Assignment 3
Distributed Systems

Name: Nouran Ahmed Fouad Ali
Section:5
ID:1701596

Table Of Contents:

Contents

Detailed Description:

First:: MPI parallelization to compute the value of cos(x):

First I implemented the definition of factorial function then use MPI in the main, first MPI_Init then MPI_Comm_size then MPI_Comm_rank then if the rank is equal to zero, I ask the user to enter the upper limit and then the angle and MPI_Send and if the rank is not equal to zero I use MPI_Recv.

I convert the degree angle to radian and save the start time then implement for loop to calculate the cosine using the expression.

If rank not equal to zero MPI_Send else MPI_Recv and get the end time.

Now, I can calculate the duration by subtracting the start and end time.

And print the cosine value and the time duration if rank equal zero.

Finally, MPI_Finalize.

Second:: Sequential version of this computation:

First, I ask the user to enter the upper limit and then the angle.

I convert the degree angle to radian and save the start time then implement for loop to calculate the cosine using the expression.

Then get the end time.

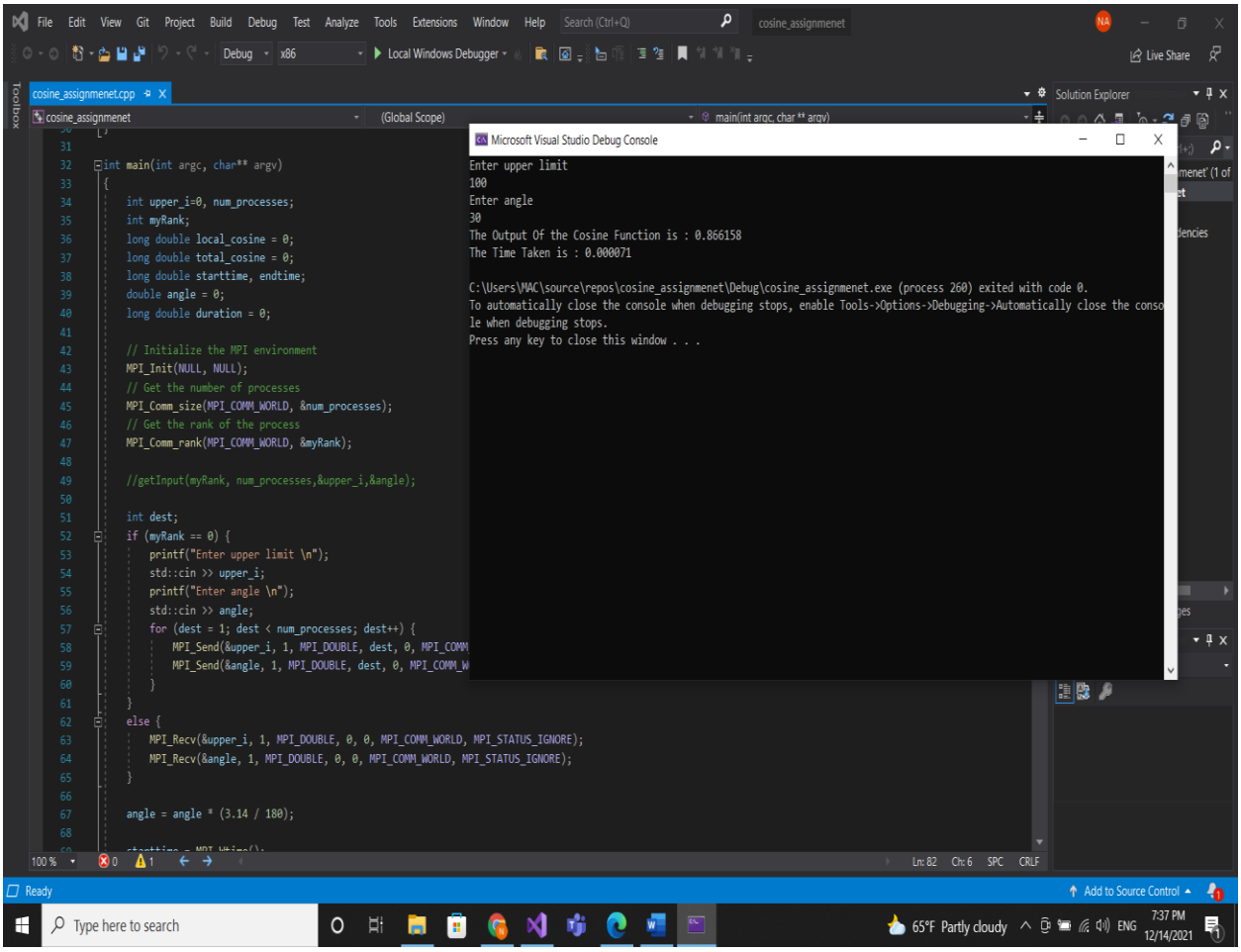
Now, I can calculate the duration by subtracting the start and end time.

And print the cosine value and the time duration.

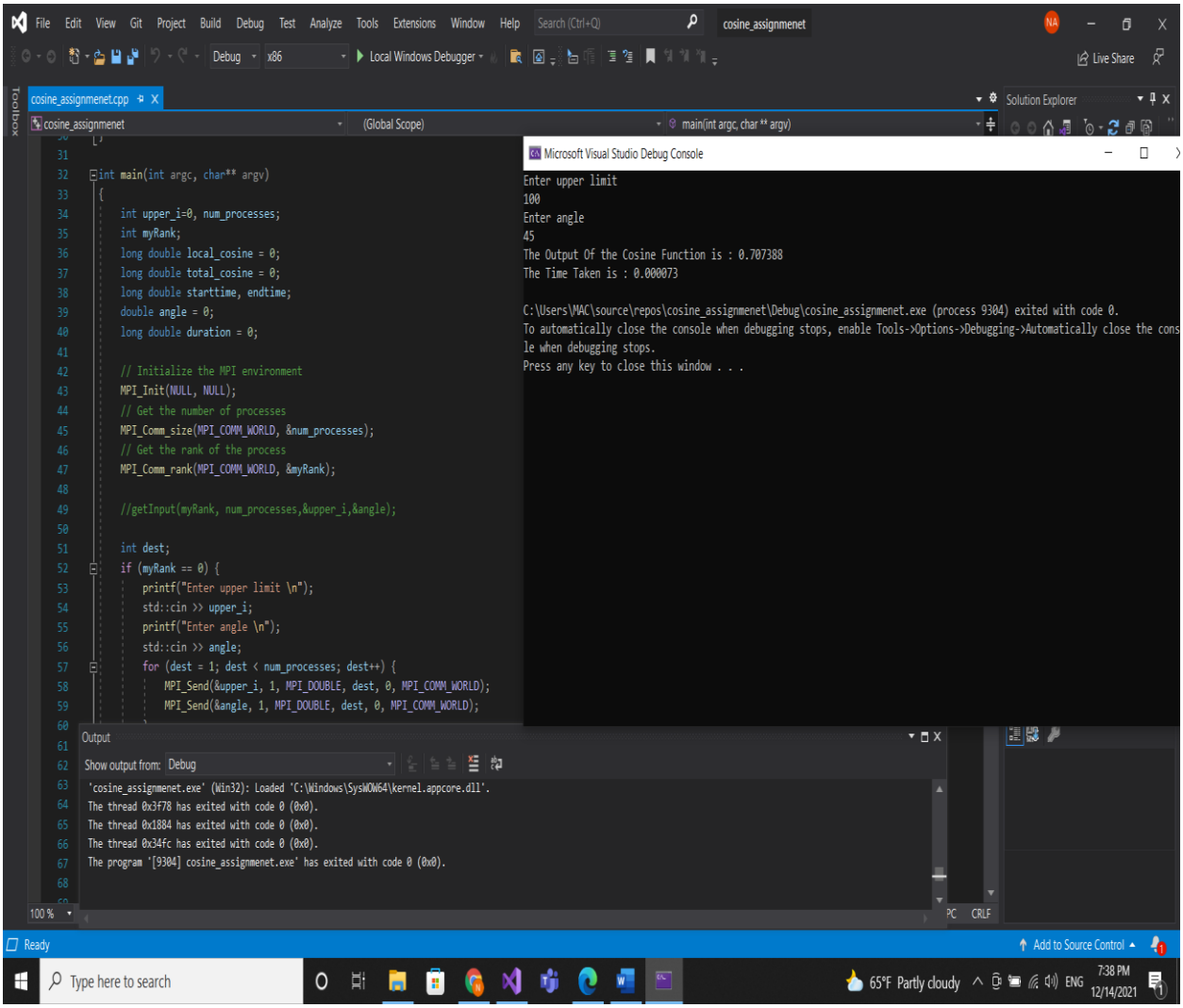
Detailed Analysis:

First :: MPI parallelization to compute the value of cos(x):

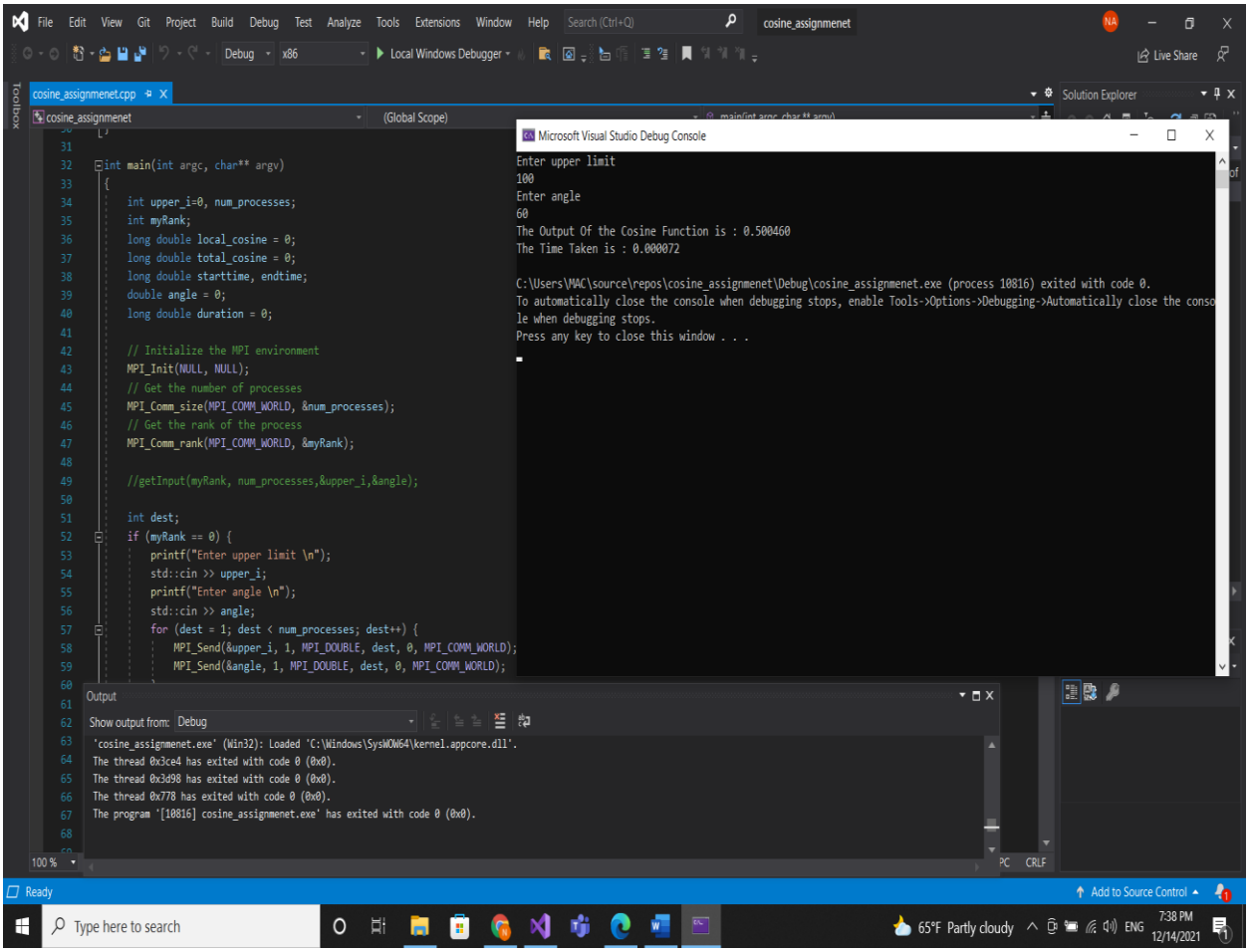
For Upper Limit = 100 and angle = 30



For Upper Limit = 100 and angle = 45

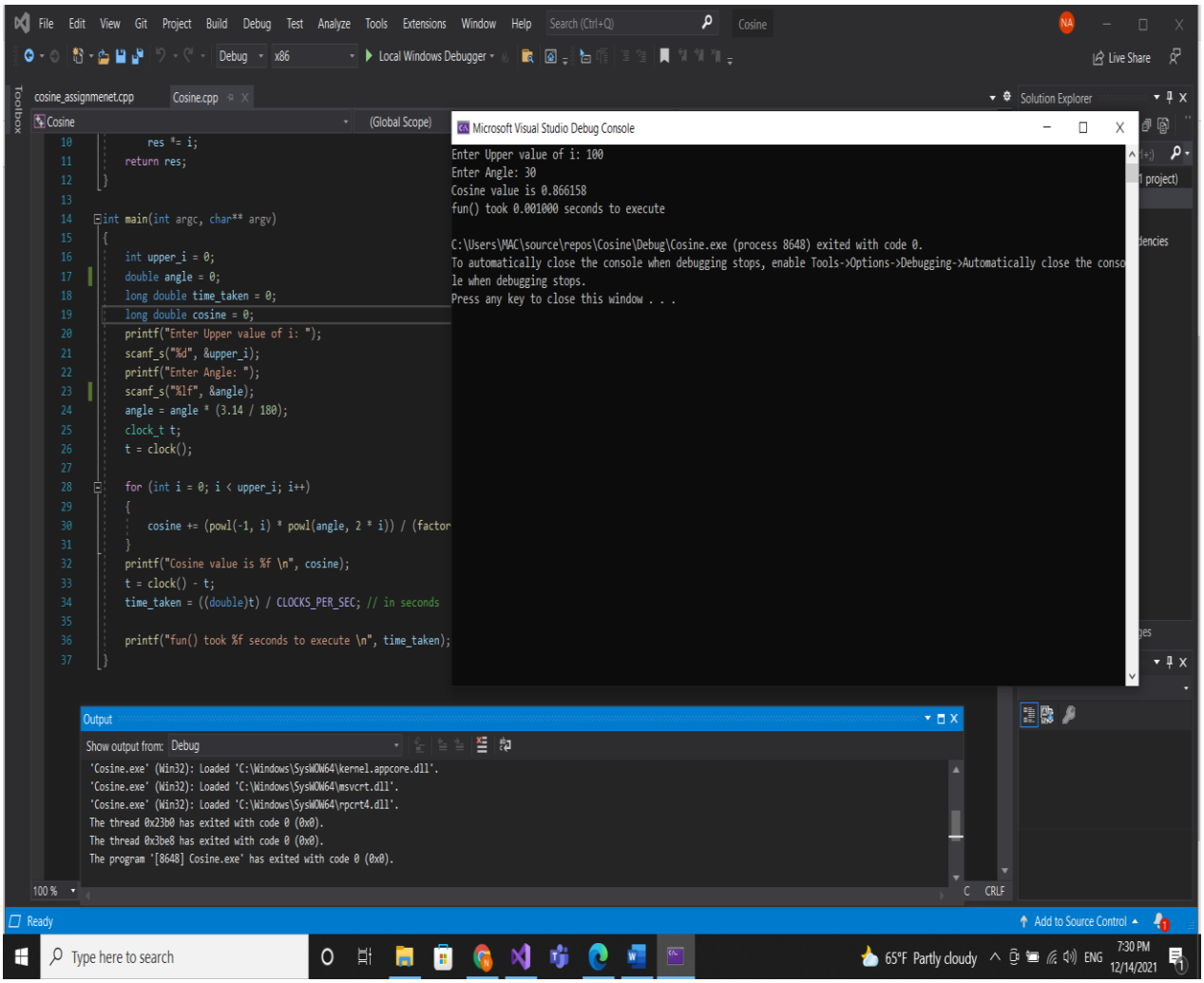


For Upper Limit = 100 and angle = 60

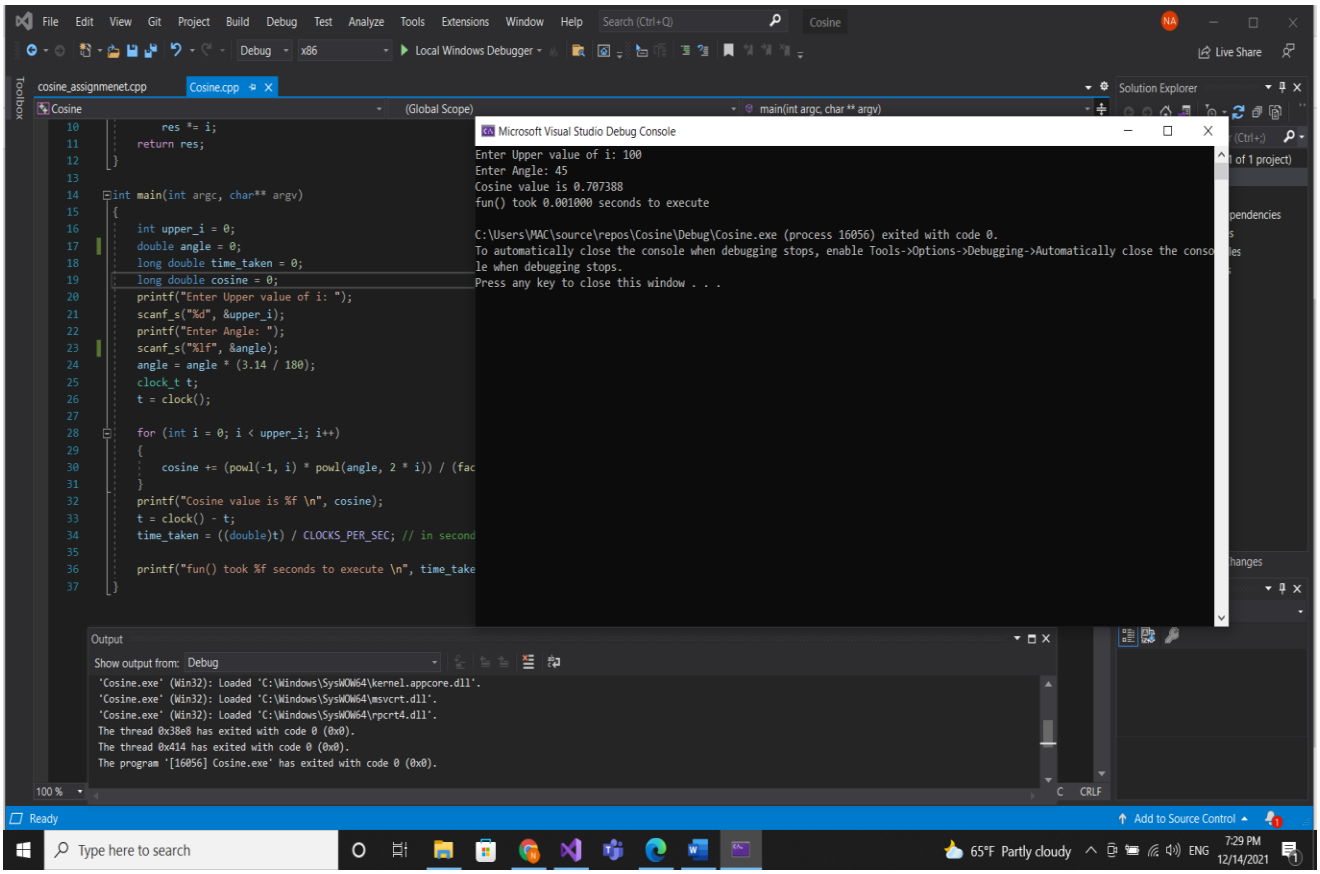


Second:: sequential version of this computation:

For Upper Limit = 100 and angle = 30



For Upper Limit = 100 and angle = 45



For Upper Limit = 100 and angle = 60