Assignment 2

Parallel Bubble Sort

```
#include<iostream>

#include<omp.h>

using namespace std;


void swap(int &a, int &b)

{

  int temp;

  temp=a;

  a=b;

  b=temp;

}


void bubble(int *a, int n)

{

  double start=omp_get_wtime();

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

  {

    #pragma omp parallel

    for(int j=i+1;j<n;j++)

    {

      if(a[j]<a[i])

      {

                swap(a[j],a[i]);

      }

    }

  }

  double end=omp_get_wtime();

  double time=end-start;
```

```
 cout<<"\nTime taken => "<<time<<endl;
}

int main()
{
 omp_set_num_threads(4);
 double start,end;
 int *a,n;
 cout<<"\nEnter total number of elements => ";
 cin>>n;
 a=new int[n];
 cout<<"\nEnter elements => ";
 for(int i=0;i<n;i++)
 {
  cin>>a[i];
 }
 bubble(a,n);
 cout<<"\nSorted Array => ";
 for(int i=0;i<n;i++)
 {
  cout<<a[i]<<" ";
 }
 return 0;
}
```

Output –

```
Enter total number of elements => 5


Enter elements => 5 4 3 2 1


Time taken => 0.00200009


Sorted Array => 1 2 3 4 5
```