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Practical no: 2 (A)

Title: Write a program to implement Parallel Bubble Sort using OpenMP. Use existing algorithms and measure the performance of sequential and parallel algorithms.

```
#include<iostream>
#include<stdlib.h>
#include<omp.h>
using namespace std;

void bubble(int *, int);
void swap(int &, int &);

void bubble(int *a, int n)
{
    for( int i = 0; i < n; i++ )
    {
        int first = i % 2;

        #pragma omp parallel for shared(a,first)
        for( int j = first; j < n-1; j += 2 )
        {
            if( a[ j ] > a[ j+1 ] )
            {
                swap( a[ j ], a[ j+1 ] );
            }
        }
    }
}

void swap(int &a, int &b)
{
    int test;
    test=a;
    a=b;
    b=test;
}
```

```
int main()
{

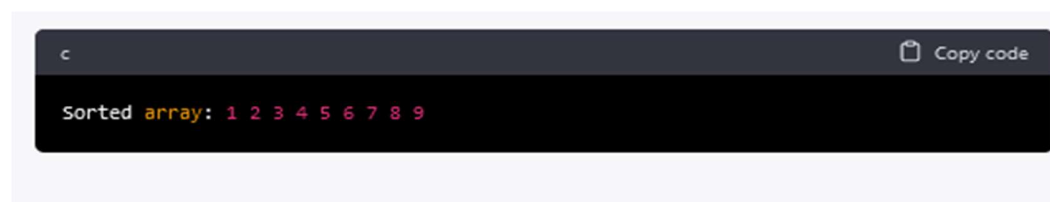
    int *a,n;
    cout<<"\n enter total no of elements=>";
    cin>>n;
    a=new int[n];
    cout<<"\n enter elements=>";
    for(int i=0;i<n;i++)
    {
        cin>>a[i];
    }

    bubble(a,n);

    cout<<"\n sorted array is=>";
    for(int i=0;i<n;i++)
    {
        cout<<a[i]<<endl;
    }

    return 0;
}
```

Output

A screenshot of a code editor window with a dark theme. The title bar shows a 'c' icon and a 'Copy code' button. The main area displays the output of a program: 'Sorted array: 1 2 3 4 5 6 7 8 9'. The word 'Sorted' is in white, 'array:' is in yellow, and the numbers are in red. The background is black.

```
c Copy code
```

```
Sorted array: 1 2 3 4 5 6 7 8 9
```