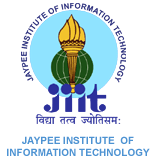
**REPORT FOR THE**

**FIRST PHASE OF OS MINOR PROJECT**

**GRID COMPUTING**



SUBMITTED BY:

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**REPORT DESCRIPTION**

**AIM:**

To distribute resources among various processes in various computers to reduce the processing time for solving huge size data processing.

**WHAT WE HAVE DONE:**

We have performed a sorting operation on 1 lakh and 10 lakh numbers on:

1. various processes (on same PC)
2. various processes of different PC.

We have designed the sorting algorithm for parallel computing and compared it on the basis of the above mentioned conditions.

**HOW WE HAVE DONE:**

We have used a C library called MPI (Message Passing Interface)

The following functions have been used :

1) MPI\_Init( &argc, &argv );

2) MPI\_Comm\_rank( MPI\_COMM\_WORLD, &rank );

3) MPI\_Comm\_size( MPI\_COMM\_WORLD, &size );

4) MPI\_Scatter(A, s, MPI\_INT, array, s, MPI\_INT, 0, MPI\_COMM\_WORLD); 5) MPI\_Gather(array, s, MPI\_INT, combined\_array, s, MPI\_INT, 0, MPI\_COMM\_WORLD); 6) MPI\_Wtime(); 7) MPI\_Finalize();

**OBSERVATION:**

**FOR 100000 NUMBERS**

PERFORMANCE ON:

**ONE COMPUTER** **TWO COMPUTERS**

NO OF PROCESSES: 1

TIME 1: 43.358243 secs 61.35257 secs

TIME 2 : 43.038376 secs 61.207009 secs

AVERAGE TIME : 43.1983 secs 61.27976 secs

NO OF PROCESSES: 2

TIME 1: 15.483562 secs 19.287309 secs

TIME 2: 15.377159 secs 19.261636 secs

AVERAGE TIME: 15.43036 secs 19.27446 secs

NO OF PROCESSES: 4

TIME 1: 14.350593 secs 8.967718 secs

TIME 2: 13.240302 secs 8.772512 secs

TIME 3: 13.397911 secs

AVERAGE TIME : 13.66293 secs 8.87012 secs

NO OF PROCESSES: 8

TIME 1: 18.130332 secs 7.561411 secs

TIME 2: 18.103900 secs 7.680390 secs

AVERAGE TIME: 18.11711secs 7.6209 secs

|  |  |  |
| --- | --- | --- |
| COMPUTERS/PROCESSES | 1 | 2 |
| 1 | 43.1983 secs | 61.27976 secs |
| 2 | 15.43036 secs | 19.27446 secs |
| 4 | 13.66293 secs | 8.87012 secs |
| 8 | 18.11711 secs | 7.6209 secs |

**FOR 1000000 NUMBERS**

PERFORMANCE ON:

**ONE COMPUTER: TWO COMPUTERS**

NO OF PROCESSES: 1

TIME 1: 43.557252 secs 65.27793 secs

TIME 2 : 43.765940 secs 64.99823 secs

AVERAGE TIME : 43.66159 secs 65.13808 secs

NO OF PROCESSES: 2

TIME 1: 15.613153 secs 19.764746 secs

TIME 2: 15.567462 secs 19.421658 secs

AVERAGE TIME: 15.5953 secs 19.5932 secs

NO OF PROCESSES: 4

TIME 1: 14.268311 secs 8.869955 secs

TIME 2: 13.993835 secs 9.005723 secs

AVERAGE TIME : 14.13107 secs 8.93783 secs

NO OF PROCESSES: 8

TIME 1: 19. 508726 secs 8.068405 secs

TIME 2: 18.244656 secs 8.334655 secs

AVERAGE TIME: 18.876691secs 8.20153 secs

|  |  |  |
| --- | --- | --- |
| PROCESSES/COMPUTER | 1 | 2 |
| 1 | 43.66159 secs | 65.13808 secs |
| 2 | 15.5953 secs | 19.5932 secs |
| 4 | 14.13107 secs | 8.93783 secs |
| 8 | 18.876691 secs | 8.20153 secs |