**Practica 6**

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**Eje 2**

|  |  |  |
| --- | --- | --- |
| n | bcast | Bcast |
| 100 | 0.000669 | 0.000555 |
| 1000 | 0.010022 | 0.000494 |
| 10 000 | 0.004483 | 0.000652 |
| 100 000 | 0.002067 | 0.001228 |
| 1000 000 | 0.006323 | 0.002541 |
| 10 000 000 | 0.055076 | 0.016171 |

**bcast** is implemented *as* a point-to-point communication operation while **Bcast** is implemented as a collective communication operation. It broadcasts the data from the root process to all other processes simultaneously using optimized collective communication algorithms. Collective communication operations take advantage of the underlying network topology and communication infrastructure to efficiently distribute data among processes. As a result, **Bcast** can be more efficient than **bcast**, especially for larger data sizes and a larger number of processes.

**Eje 3**

Base version (scatter)

|  |  |  |  |
| --- | --- | --- | --- |
| n  np | 5 | 8 | 10 |
| 5 | yes | no | No |
| 8 | no | yes | no |
| 10 | no | no | yes |

Modified version (Scatter)

|  |  |  |  |
| --- | --- | --- | --- |
| n  np | 5 | 8 | 10 |
| 5 | yes | no | yes |
| 8 | no | yes | no |
| 10 | no | no | yes |

**scatter** program runs only when the number of processes is equal to n

**Scatter** program runs when the number of processes is equal to n or n is divisible by the number of processes

**Eje 7**

In base version the result is a list of lists:

$ mpiexec -np 5 python3 eje7base.py

Proceso 1 envia: [71, 35, 40, 11, 54]

Proceso 4 envia: [17, 86, 47, 20, 2]

Proceso 3 envia: [99, 93, 54, 56, 96]

Proceso 2 envia: [67, 28, 76, 40, 72]

Proceso 0 envia: [10, 3, 94, 59, 59]

Global data gathered from all processes:

[[10, 3, 94, 59, 59], [71, 35, 40, 11, 54], [67, 28, 76, 40, 72], [99, 93, 54, 56, 96], [17, 86, 47, 20, 2]]

In modified version the result is a matrix:

$ mpiexec -np 5 python3 eje7final.py

Proceso 1 envia: [85 63 99 47 44]

Proceso 4 envia: [ 6 59 100 34 7]

Proceso 3 envia: [91 66 21 25 42]

Proceso 2 envia: [69 95 54 58 75]

Proceso 0 envia: [67 82 42 38 82]

Global data gathered from all processes:

[[ 67 82 42 38 82]

[ 85 63 99 47 44]

[ 69 95 54 58 75]

[ 91 66 21 25 42]

[ 6 59 100 34 7]]