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]]
```