

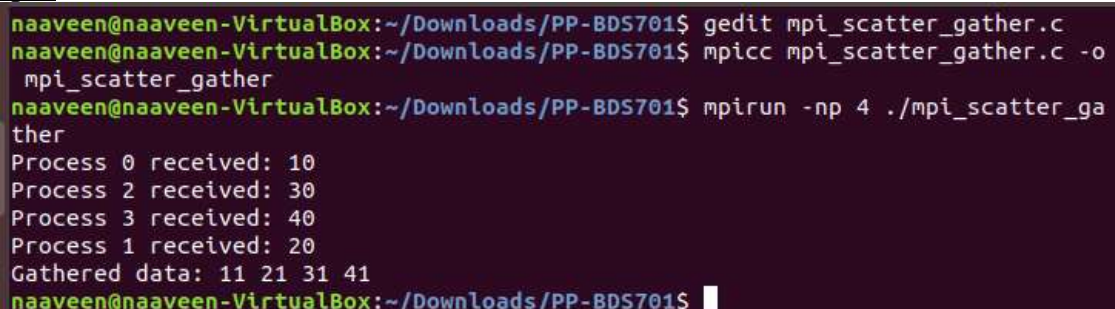
Program 8: Write a MPI Program demonstration of MPI_Scatter and MPI_Gather.

```
#include <stdio.h>

#include <mpi.h>

int main(int argc, char** argv)
{
    int rank, size, send_data[4] = {10, 20, 30, 40},
    recv_data; MPI_Init(&argc, &argv);
    MPI_Comm_rank(MPI_COMM_WORLD, &rank);
    MPI_Comm_size(MPI_COMM_WORLD, &size);
    MPI_Scatter(send_data, 1, MPI_INT, &recv_data, 1, MPI_INT, 0, MPI_COMM_WORLD);
    printf("Process %d received: %d\n", rank, recv_data);
    recv_data += 1;
    MPI_Gather(&recv_data, 1, MPI_INT, send_data, 1, MPI_INT, 0, MPI_COMM_WORLD);
    if (rank == 0)
    {
        printf("Gathered data: ");
        for (int i = 0; i < size; i++)
            printf("%d ", send_data[i]);
        printf("\n");
    }
    MPI_Finalize();
    return 0;
}
```

Output



```
naaveen@naaveen-VirtualBox:~/Downloads/PP-BDS701$ gedit mpi_scatter_gather.c
naaveen@naaveen-VirtualBox:~/Downloads/PP-BDS701$ mpicc mpi_scatter_gather.c -o
mpi_scatter_gather
naaveen@naaveen-VirtualBox:~/Downloads/PP-BDS701$ mpirun -np 4 ./mpi_scatter_ga
ther
Process 0 received: 10
Process 2 received: 30
Process 3 received: 40
Process 1 received: 20
Gathered data: 11 21 31 41
naaveen@naaveen-VirtualBox:~/Downloads/PP-BDS701$
```