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$
```