CSE4001 - Parallel and Distributed Computing

Lab 21+22

Digital Assignment- 4

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QUESTION:

Write a C program to handle message passing in the MPI application interface, which allows processes to communicate with one another. Create two processes that will pass the number 17 from one to the other.

CODE:

```c
#include <stdio.h>

#include <mpi.h>

int main(int argc, char** argv) {

int process_Rank, size_Of_Cluster, message_Item;

MPI_Init(&argc, &argv);

MPI_Comm_size(MPI_COMM_WORLD, &size_Of_Cluster);

MPI_Comm_rank(MPI_COMM_WORLD, &process_Rank);

if(process_Rank == 0){

message_Item = 17;

MPI_Send(&message_Item, 1, MPI_INT, 1, 1, MPI_COMM_WORLD);

printf("Message Sent from Process 0: %d\n", message_Item);

}

else if(process_Rank == 1){

MPI_Recv(&message_Item, 1, MPI_INT, 0, 1, MPI_COMM_WORLD,
MPI_STATUS_IGNORE);

printf("Message Received in Process 1: %d\n", message_Item);

}

MPI_Finalize();

return 0;

}
```
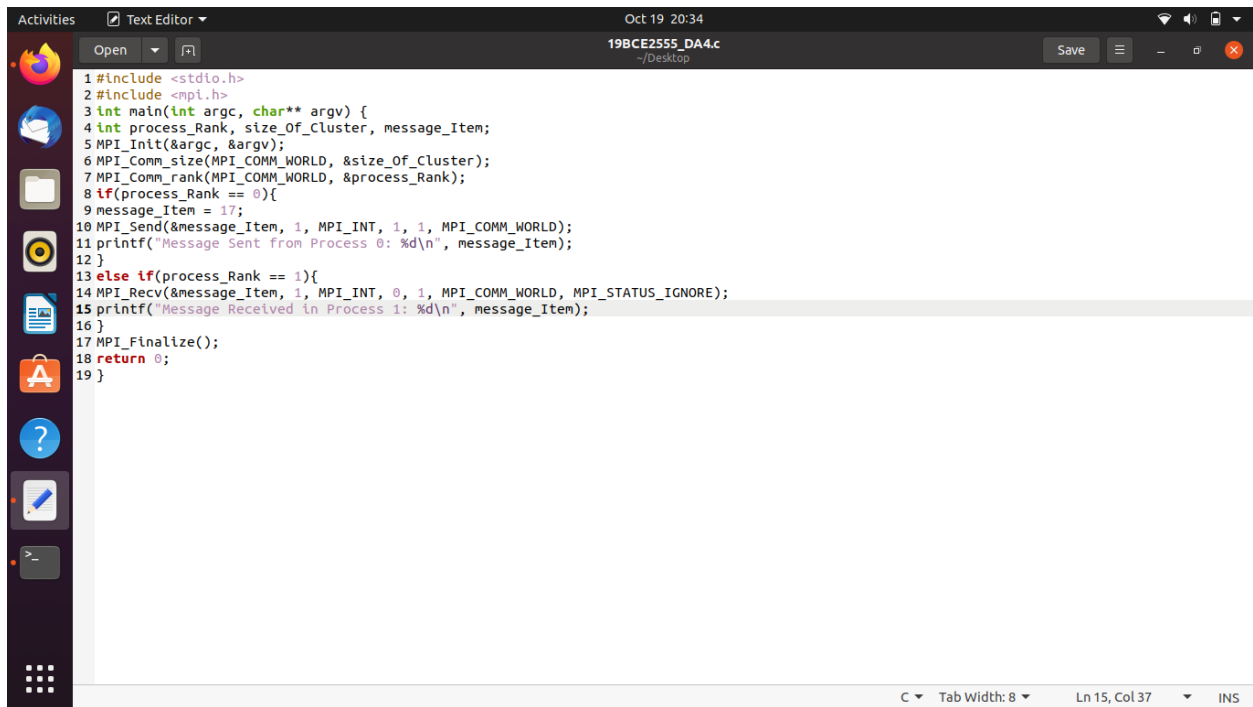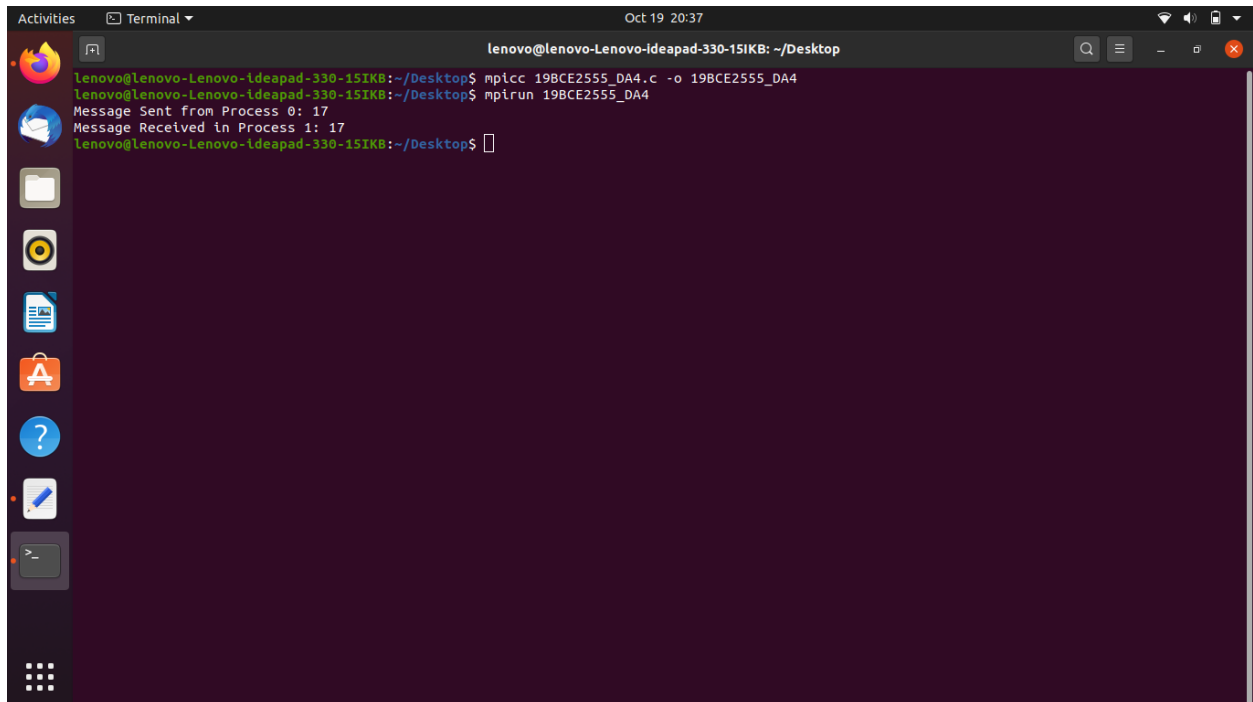
CODE SNIPPETS:

```c
#include <stdio.h>
#include <mpi.h>
int main(int argc, char** argv) {
int process_Rank, size_Of_Cluster, message_Item;
MPI_Init(&argc, &argv);
MPI_Comm_size(MPI_COMM_WORLD, &size_Of_Cluster);
MPI_Comm_rank(MPI_COMM_WORLD, &process_Rank);
if(process_Rank == 0){
message_Item = 17;
MPI_Send(&message_Item, 1, MPI_INT, 1, 1, MPI_COMM_WORLD);
printf("Message Sent from Process 0: %d\n", message_Item);
}
else if(process_Rank == 1){
MPI_Recv(&message_Item, 1, MPI_INT, 0, 1, MPI_COMM_WORLD, MPI_STATUS_IGNORE);
printf("Message Received in Process 1: %d\n", message_Item);
}
MPI_Finalize();
return 0;
}
```
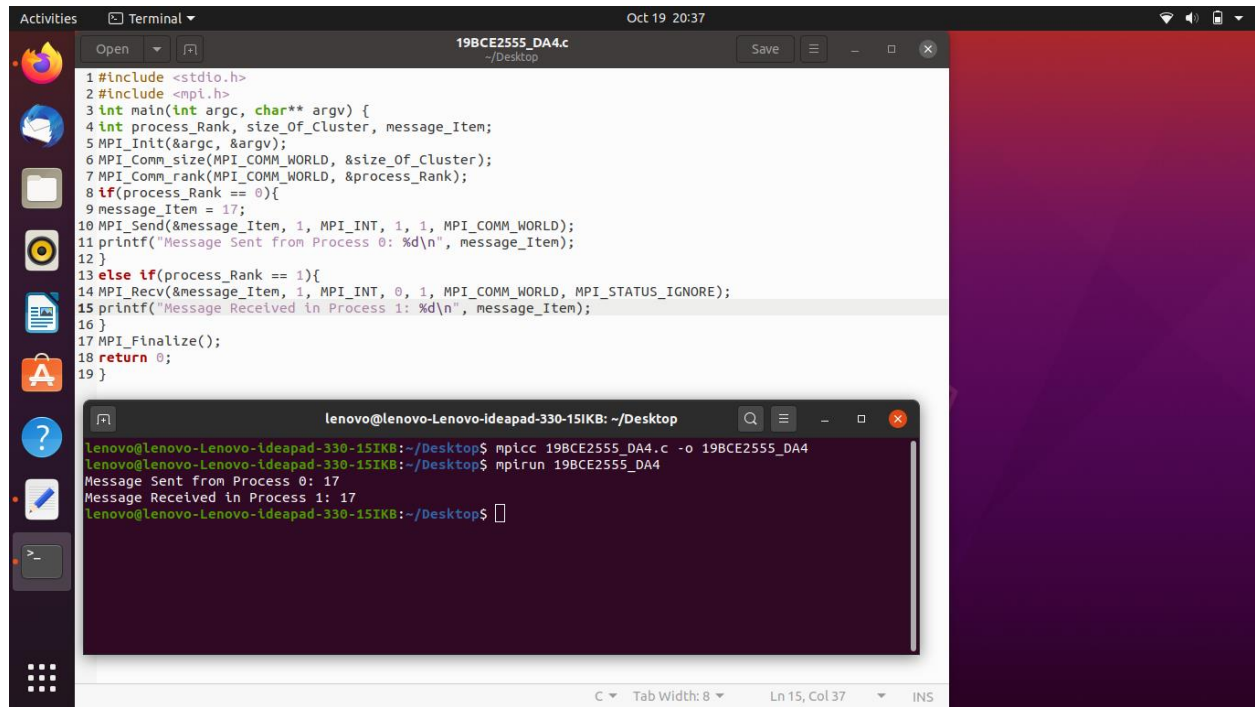
OUTPUT:

```
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$ mpicc 19BCE2555_DA4.c -o 19BCE2555_DA4
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$ mpirun 19BCE2555_DA4
Message Sent from Process 0: 17
Message Received in Process 1: 17
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$
```

OUTPUT WITH CODE:


```c
#include <stdio.h>
#include <mpi.h>
int main(int argc, char** argv) {
int process_Rank, size_Of_Cluster, message_Item;
MPI_Init(&argc, &argv);
MPI_Comm_size(MPI_COMM_WORLD, &size_Of_Cluster);
MPI_Comm_rank(MPI_COMM_WORLD, &process_Rank);
if(process_Rank == 0){
message_Item = 17;
MPI_Send(&message_Item, 1, MPI_INT, 1, 1, MPI_COMM_WORLD);
printf("Message Sent from Process 0: %d\n", message_Item);
}
else if(process_Rank == 1){
MPI_Recv(&message_Item, 1, MPI_INT, 0, 1, MPI_COMM_WORLD, MPI_STATUS_IGNORE);
printf("Message Received in Process 1: %d\n", message_Item);
}
MPI_Finalize();
return 0;
}
```

```
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$ mpicc 19BCE2555_DA4.c -o 19BCE2555_DA4
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$ mpirun 19BCE2555_DA4
Message Sent from Process 0: 17
Message Received in Process 1: 17
lenovo@lenovo-Lenovo-ideapad-330-15IKB:~/Desktop$
```