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HPC ASSIGNMENT-3

1. Write a MPI Program where each sends hello message to process 0. Process 0 receives messages with MPI_ANY_SOURCE finds the source using status and prints hello from process rank. Eg:- hello from process 2.

```
#include<stdio.h>
#include<string.h>
#include<mpi.h>
const int MAX_STRING = 50;
int main(void)
{
 char greet[MAX_STRING];
 int comm_sz;
 int my_rank;
 MPI_Init(NULL,NULL);
 MPI_commsize(MPI_COMM_WORLD,&comm_sz)l
 MPI_comman_rank(MPI_COMMON_WORLD,&my_rank);
 MPI_Status status;
 if(my_rank!=0)
 {
  sprint(greet,”hello”);
  MPI_Send(greet,strlen(greet)+1,MPI_CHAR,0,0,MPI_COMM_WORD);
 }
 else
 {
  printf(“Hello from process %d\n”,my_rank);
  for(int q=1;q<comm_sz;q++)
  {
   MPI_Recv(greet, MAX_STRING, MPI_CHAR, MPI_ANY_SOURCE, 0, MPI_COMM_WORLD,&status);
   printf(“Hello from process %d of %d”,status.MPI_SOURCE, comm_sz);
  }
 }
 MPI_Finalize();
 return 0;
}
```

2. Write an MPI Program where process 0 receives hello message from other processes. If it has come with tag 1, print hello from process rank. If it has come with the tag 2, print hi from process rank.

```
#include<stdio.h>
#include<string.h>
```

```
#include<mpi.h>
const int MAX_STRING = 50;
int main(void)
{
 char greet[MAX_STRING];
 int comm_sz;
 int my_rank;
 MPI_Init(NULL,NULL);
 MPI_commsize(MPI_COMM_WORLD,&comm_sz)l
 MPI_comman_rank(MPI_COMMON_WORLD,&my_rank);
 MPI_Status status;
 if(my_rank!=0)
 {
  if(my_rank%2==0)
  {
   sprintf(greet,”hi”);
   MPI_Send(greet, strlen(greet) + 1, MPI_CHAR, 0, 0, 2);
  }
  else
  {
   sprintf(greet,”hello”);
   MPI_Send(greet,strlen(greet)+1,MPI_CHAR,0,1,MPI_COMM_WORD);
  }
 }
 else
 {
  printf(“Greetings from %d of %d”, my_rank, comm_sz);
  for(i=1;i<comm_sz;i++){
  MPI_Recv(greet, MAX_STRING, MPI_CHAR, MPI_ANY_SOURCE, 0, MPI_COMM_WORLD,&status);
  printf(“Hello from process id %d.%d tag %d of %d”,status.MPI_SOURCE,status.MPI_Tag,comm_sz);
 }
}
```