

CSE4001 - Parallel and Distributed Computing, Fall 2019
Vellore Institute of Technology
Instructor: Prof Deebak B D - SCOPE

Lab report

Title of Lab: Beginning with MPI

Assessment #: 8

Date: 14|09|2019

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Registration ID: 17BCI0140

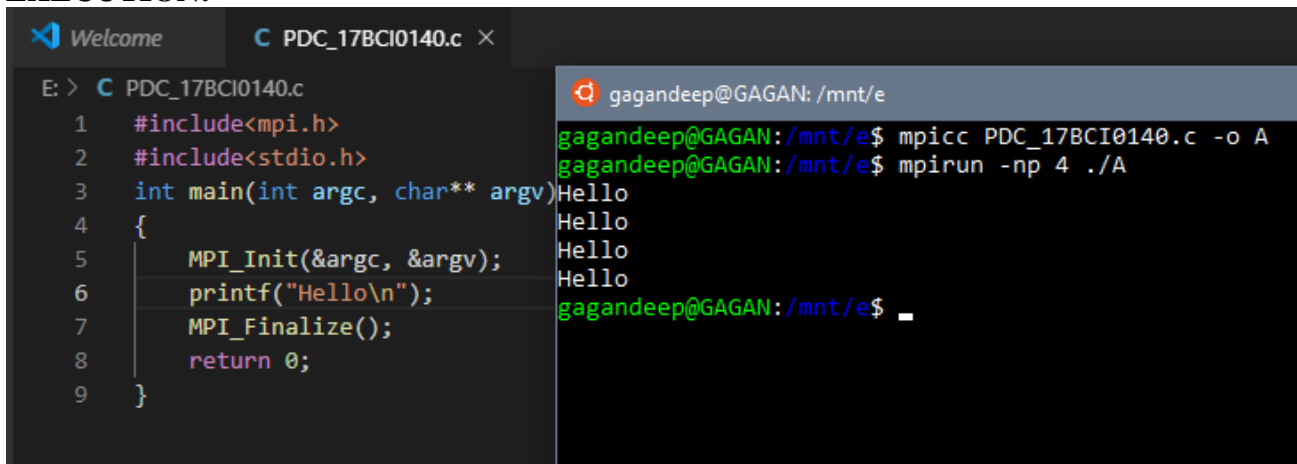
Lab section: Friday L59 + L60

AIM: Write a basic MPI program.

SOURCE CODE:

```
#include<mpi.h>
#include<stdio.h>
int main(int argc, char** argv)
{
    MPI_Init(&argc, &argv);
    printf("Hello\n");
    MPI_Finalize();
    return 0;
}
```

EXECUTION:



The screenshot displays a code editor on the left and a terminal window on the right. The code editor shows the source code for a C program named PDC_17BCI0140.c, which includes MPI and stdio headers, initializes MPI, prints "Hello", and finalizes MPI. The terminal window shows the user 'gagandeep@GAGAN' in the directory '/mnt/e'. The user runs the command 'mpicc PDC_17BCI0140.c -o A' to compile the program, followed by 'mpirun -np 4 ./A' to execute it. The output of the program is four lines of "Hello", one from each of the four processes.

```
Welcome  C PDC_17BCI0140.c x
E: > C PDC_17BCI0140.c
1  #include<mpi.h>
2  #include<stdio.h>
3  int main(int argc, char** argv)
4  {
5      MPI_Init(&argc, &argv);
6      printf("Hello\n");
7      MPI_Finalize();
8      return 0;
9  }

gagandeep@GAGAN: /mnt/e
gagandeep@GAGAN:/mnt/e$ mpicc PDC_17BCI0140.c -o A
gagandeep@GAGAN:/mnt/e$ mpirun -np 4 ./A
Hello
Hello
Hello
Hello
gagandeep@GAGAN:/mnt/e$ _
```

SOURCE CODE:

```
#include<mpi.h>
#include<stdio.h>
#include<unistd.h>
int main(int argc, char** argv)
{
    int rank;
    char hostname[256];
    MPI_Init(&argc, &argv);
    MPI_Comm_rank(MPI_COMM_WORLD, &rank);
    gethostname(hostname, 225);
    printf("Hello, Iam process number: %d on host%s\n", rank, hostname);
    MPI_Finalize();
    return 0;
}
```

EXECUTION:

<pre>Welcome C PDC_17BCI0140.c x E: > C PDC_17BCI0140.c 1 #include<mpi.h> 2 #include<stdio.h> 3 #include<unistd.h> 4 int main(int argc, char** argv) 5 { 6 int rank; 7 char hostname[256]; 8 MPI_Init(&argc, &argv);</pre>	<pre>gagandeep@GAGAN: /mnt/e gagandeep@GAGAN:/mnt/e\$ mpicc PDC_17BCI0140.c -o A gagandeep@GAGAN:/mnt/e\$ mpirun -np 4 ./A Hello, Iam process number: 0 on hostGAGAN Hello, Iam process number: 2 on hostGAGAN Hello, Iam process number: 1 on hostGAGAN Hello, Iam process number: 3 on hostGAGAN gagandeep@GAGAN:/mnt/e\$</pre>
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