

Walchand College of Engineering, Sangli
Department of Computer Science and Engineering

Class: Final Year (Computer Science and Engineering)

Year: 2022-23

Semester: 1

Course: High Performance Computing Lab

Practical No. 5

Exam Seat No: 2019BTECS00070

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Title of practical: Installation of MPI and implementation of basic
functions of MPI

Complete the installation of MPI on the platform chosen by you


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Problem Statement 1:

Implement a simple hello world program by setting number of processes equal to 10

Screenshot #:

Information #:



```
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
```

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```
#include <mpi.h>
```

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

```
/* run this program using the console pauser or add your own getch,  
system("pause") or input loop */
```

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

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```
//Initialize the MPI environment
MPI_Init(NULL,NULL);

printf("Hello World\n");

//Finalize the MPI environment
MPI_Finalize();
return 0;
}
```

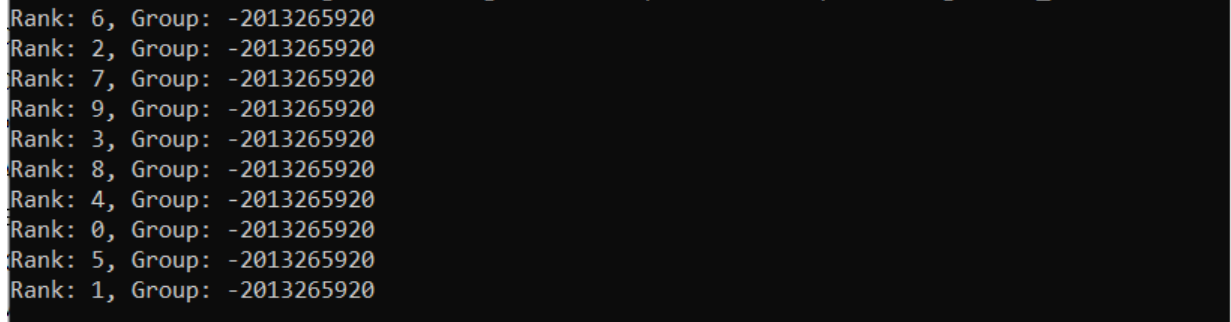
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Problem Statement 2:

Implement a program to display rank and communicator group of five processes

Screenshot #:

Information #:



```
Rank: 6, Group: -2013265920
Rank: 2, Group: -2013265920
Rank: 7, Group: -2013265920
Rank: 9, Group: -2013265920
Rank: 3, Group: -2013265920
Rank: 8, Group: -2013265920
Rank: 4, Group: -2013265920
Rank: 0, Group: -2013265920
Rank: 5, Group: -2013265920
Rank: 1, Group: -2013265920
```

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

```
/* run this program using the console pauser or add your own getch,
system("pause") or input loop */
```

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

```
    //Initialize the MPI environment
    MPI_Init(NULL, NULL);
```

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```
//Get the rank of process
int rank;
MPI_Comm_rank(MPI_COMM_WORLD, &rank);

MPI_Group group;
MPI_Comm_group(MPI_COMM_WORLD, &group);

printf("Rank: %d, Group: %d \n", rank, group);

//Finalize the MPI environment
MPI_Finalize();
return 0;
}
```

Github Link:

<https://github.com/killedar27/hpcassignment/tree/main/assignment5>