PROGRAM – 4

AIM: To write a program to create two pipes for two way communication. Fork a child process and exchange the following messages between parent and child.
Child--- Msg1: Hello I want to find sum of 2,3--->Parent Child<-- Msg2:Sum is 5---Parent Child---Msg3:Here I exit!--->PArent

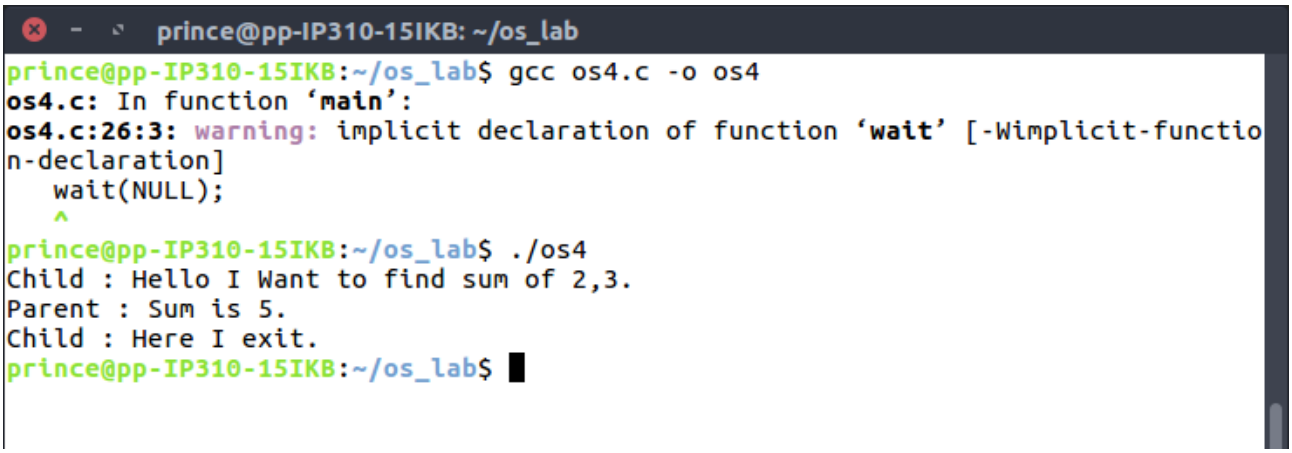
INTRODUCTION:
Pipe is the connection between two processes, such that the standard output from one process becomes the standard input for the other process. In Linux and UNIX, pipes are very useful for communication between related processes(inter-process communication). Pipe can be used for one way communication only, i.e. one process writes to the pipe, while the other reads from the pipe. In the following C program, we have tried to use the concept of piping to cocmmunicate between a parent and a child process.

C PROGRAM :

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

int main(){
        char *msg1 = "Child : Hello I Want to find sum of 2,3.";
        char *msg2 = "Parent : Sum is 5.";
        int p,p1[2],p2[2];

        if (pipe(p1) == -1){
                fprintf(stderr, "Pipe Failed" );
                return 1 ;
        }
        if (pipe(p2) == -1){
                fprintf(stderr, "Pipe Failed" );
                return 1 ;
        }

        p = fork();
```

```
        if(p==0){
                char buff[100];
                write(p1[1],msg1,strlen(msg1));
                wait(NULL);
                read(p2[0],buff,100);
                printf("%s\n",msg2);
                printf("Child : Here I exit.\n");
                exit(0);
        }else if(p>0){
                char buff[100];
                read(p1[0],buff,100);
                printf("%s \n",buff);
                write(p2[1],msg2,strlen(msg2));
                close(p2[1]);
        }
        return 0;
}
```

OUTPUT:



LEARNING OUTCOMES:

We learnt the concept of pipes and how they are used to communicate between two processes, in this case which had a parent and child relationship. We also learnt that only one way communication is possible with the help of pipes.