

Assignment No. 04

Problem Statement : Write a program to simulate inter process communication mechanism using pipes and redirection.

Code :

```
#include<stdio.h>

#include<unistd.h>

#include<sys/types.h>

#include<sys/stat.h>

#include<fcntl.h>

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

    if(argc != 3) {

        printf("You can not enter more or less than 3 arguments.\n");

        return 0;

    }

    int fd[2];

    int fork_val;

    char* file_1 = argv[1];

    char* file_2 = argv[2];

    int src_file;

    int dest_file;

    src_file = open(file_1, O_RDONLY);

    if(src_file == -1) {

        printf("Unable to open source file!!!\n");

        return 1;
```

```

} else {

    dup2(src_file, STDIN_FILENO);

    close(src_file);

}

pipe(fd);

fork_val = fork();

if(fork_val > 0) {

    dup2(fd[1], STDOUT_FILENO);

    close(fd[0]);

    close(fd[1]);

    execl("/usr/bin/sort", "sort", NULL);

    perror("execl failed for sort");

}

else if(fork_val == 0) {

    dup2(fd[0], STDIN_FILENO);

    dest_file = open(file_2, O_WRONLY | O_CREAT | O_TRUNC, 0644);

    if(dest_file == -1) {

        printf("Unable to open destination file!!!\n");

        return 1;

    } else {

        dup2(dest_file, STDOUT_FILENO);

        close(dest_file);

        close(fd[0]);

        close(fd[1]);

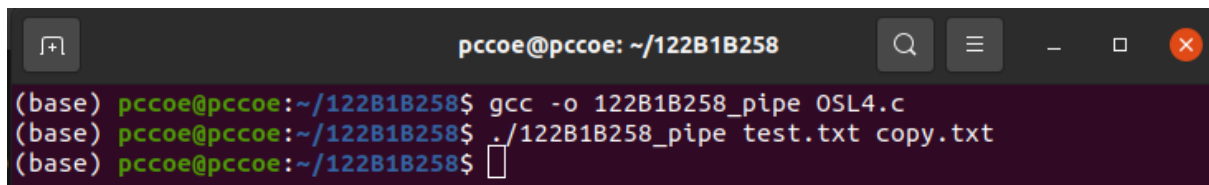
        execl("/usr/bin/uniq", "uniq", NULL);

        perror("execl failed for uniq");

```

```
    }  
} else {  
    perror("Fork failed!!!");  
    return 1;  
}  
  
return 0;  
}
```

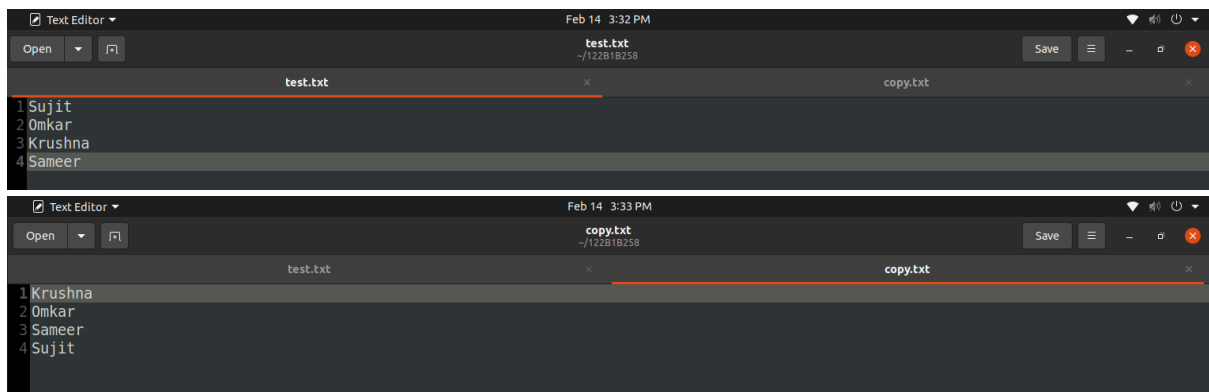
Compilation :



A terminal window with a dark background. The title bar shows 'pccoe@pccoe: ~/122B1B258'. The prompt is '(base) pccoe@pccoe:~/122B1B258\$'. The first command is 'gcc -o 122B1B258_pipe OSL4.c'. The second command is './122B1B258_pipe test.txt copy.txt'. The third line shows the prompt again with a cursor.

```
(base) pccoe@pccoe:~/122B1B258$ gcc -o 122B1B258_pipe OSL4.c  
(base) pccoe@pccoe:~/122B1B258$ ./122B1B258_pipe test.txt copy.txt  
(base) pccoe@pccoe:~/122B1B258$
```

Output :



Two screenshots of a text editor window. The top screenshot shows 'test.txt' with four lines: '1 Sujit', '2 Omkar', '3 Krushna', and '4 Sameer'. The bottom screenshot shows 'copy.txt' with the same four lines: '1 Krushna', '2 Omkar', '3 Sameer', and '4 Sujit'. Both windows have a title bar with 'Feb 14 3:32 PM' and 'Feb 14 3:33 PM' respectively.

test.txt

```
1 Sujit  
2 Omkar  
3 Krushna  
4 Sameer
```

copy.txt

```
1 Krushna  
2 Omkar  
3 Sameer  
4 Sujit
```