# **I22-0518 Umer Farooq**

# README

**Description:**

This C++ program implements a simple spell-checker using inter-process communication (IPC) with named pipes (FIFOs) and anonymous pipes. It spawns two child processes to handle different tasks: one for generating suggestions for misspelled words and the other for executing the spell-checking functionality. The parent process orchestrates the communication between the child processes using pipes.

**System Calls Used:**

1. mkfifo(): Creates a named pipe (FIFO) named "myfifo" with permissions set to 0777 (read, write, execute permissions for owner, group, and others).

2. pipe(): Creates a unidirectional pipe for inter-process communication. Two pipes are created (p1 for communication from child to parent, and p2 for communication from parent to child).

3. fork(): Creates a child process that duplicates the parent process. The child process inherits the file descriptors created by the parent.

4. close(): Closes the file descriptors for pipes that are not needed in each process. Ensures proper cleanup and prevents resource leaks.

5. read(): Reads data from a file descriptor (in this case, from pipes or FIFOs).

6. write(): Writes data to a file descriptor (in this case, to pipes or FIFOs).

7. open(): Opens a file or FIFO for reading or writing.

8. execlp(): Executes a new program image from a given path. In this case, it executes the Base1 program for spell-checking.

**Compilation and Execution:**

To compile the program, use the following command:

**g++ -o textwriter textwriter.cpp**

To run the program, execute the compiled binary:

./ **textwriter**

**Output Explanation:**

- The program prompts the user to enter a word for spell-checking.

- The parent process writes the word to the child process through p2.

- The child process executes the Base1 program, which performs spell-checking and generates suggestions. It writes the suggestions to the named pipe "myfifo".

- The parent process reads the suggestions from "myfifo" through p1.

- If the word is correct, the program prints "Correct".

- If the word is incorrect, the program prints "Word is Incorrect" followed by the top 10 suggestions.

Note: Ensure that the Base1 program exists and is executable in the current directory. Also, the spell-checking logic and suggestion generation are assumed to be implemented in Base1.