Assignment 7

Process 1(Writer &Sender) :

```cpp
#include <iostream>
#include <fstream>
#include <fcntl.h>
#include <sys/stat.h>
#include <unistd.h>
#include <cstring>
                using namespace std;
#define FIFO1 "/tmp/fifo1"
#define FIFO2 "/tmp/fifo2"
int main()
{
  // Create FIFOs (if not already created)
  mkfifo(FIFO1, 0666);
  mkfifo(FIFO2, 0666);
  char buffer[1024];
  cout << "Enter a sentence (type 'exit' to quit): ";
  cin.getline(buffer, sizeof(buffer));
  // Keep sending until exit
  while (strcmp(buffer, "exit") != 0)
  {
    // Write user input to FIFO1
    int fd1 = open(FIFO1, O_WRONLY);
    write(fd1, buffer, strlen(buffer) + 1);
    close(fd1);
    // Read response from FIFO2
    int fd2 = open(FIFO2, O_RDONLY);
    read(fd2, buffer, sizeof(buffer));
    close(fd2);
    cout << "\nResult from Process2:\n"
        << buffer << endl;
    cout << "\nEnter a sentence (type 'exit' to quit): ";
    cin.getline(buffer, sizeof(buffer));
  }
  // Send exit to process2
  int fd1 = open(FIFO1, O_WRONLY);
  write(fd1, buffer, strlen(buffer) + 1);
  close(fd1);
  return 0;
}
```

Process 2(Reader &Counts Analyzer) :

```cpp
#include <iostream>
#include <fstream>
#include <fcntl.h>
#include <sys/stat.h>
#include <unistd.h>
#include <cstring>
                          using namespace std;
#define FIFO1 "/tmp/fifo1"
#define FIFO2 "/tmp/fifo2"
int main()
{
  char buffer[1024];
  mkfifo(FIFO1, 0666);
  mkfifo(FIFO2, 0666);
  while (true)
  {
    // Read from FIFO1
    int fd1 = open(FIFO1, O_RDONLY);
    read(fd1, buffer, sizeof(buffer));
    close(fd1);
    if (strcmp(buffer, "exit") == 0)
       break;
    string sentence(buffer);
    // Count chars, words, lines
    int charCount = sentence.size();
    int wordCount = 0, lineCount = 1;
    bool inWord = false;
    for (char c : sentence)
    {
      if (c == ' ' || c == '\t' || c == '\n')
      {
        if (inWord)
        {
          wordCount++;
          inWord = false;
        }
        if (c == '\n')
           lineCount++;
      }
      else
      {
        inWord = true;
      }
    }
    if (inWord)
       wordCount++;
```

```cpp
        // Write results to file
        ofstream out("output.txt");
        out << "Characters: " << charCount << endl;
        out << "Words: " << wordCount << endl;
        out << "Lines: " << lineCount << endl;
        out.close();
        // Read file contents
        ifstream in("output.txt");
        string result((istreambuf_iterator<char>(in)), istreambuf_iterator<char>());
        in.close();
        // Send result to FIFO2
        int fd2 = open(FIFO2, O_WRONLY);
        write(fd2, result.c_str(), result.size() + 1);
        close(fd2);
    }
    return 0;
}
```

OUTPUT :

DESKTOP - UGF70E6 : / mnt / c / Users / Downloads / Assignments / OS$ g++ process1.cpp - o prc1 @DESKTOP - UGF70E6 : / mnt / c / Users / Downloads / Assignments / OS$./ prc1
Enter a sentence(type 'exit' to quit) : Hello World !

Result from Process2 :
Characters : 12
Words : 2
Lines : 1

Enter a sentence(type 'exit' to quit) : Good Morning Everyone

Result from Process2 :
Characters : 21
Words : 3
Lines : 1

Enter a sentence(type 'exit' to quit) : exit