**UIT2512---Operating Systems Practices Lab**

# 3) Inter Process Communication (IPC) using Pipes

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1. One Parent - One Child - Here, parent process writes into the pipe and the child reads from that pipe.

**CODE:**

import os

def communication(child\_writes):

    r, w = os.pipe()

    processid = os.fork()

    if processid:

        os.close(w)

        r = os.fdopen(r)

        print ("Parent reading")

        str = r.read()

        print( "Parent reads =", str)

    else:

        os.close(r)

        w = os.fdopen(w, 'w')

        print ("Child writing")

        w.write(child\_writes)

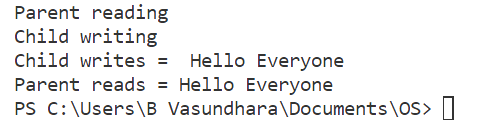
        print("Child writes = ",child\_writes)

        w.close()

child\_writes = "Hello Everyone"

communication(child\_writes)

**OUTPUT:**



1. Parent 1 - Child 11 & Parent 2- Child 21 - Twp Pipes.

**CODE:**

import os

def ipc(parent\_message, child\_writes, pipe\_read, pipe\_write):

    process\_id = os.fork()

    if process\_id:

        # Parent process

        os.close(pipe\_write)

        r = os.fdopen(pipe\_read)

        print(f"Parent {os.getpid()} reading")

        message = r.read()

        print(f"Parent {os.getpid()} reads = {message}")

        r.close()

    else:

        # Child process

        os.close(pipe\_read)

        w = os.fdopen(pipe\_write, 'w')

        print(f"Child {os.getpid()} writing")

        w.write(child\_writes)

        print(f"Child {os.getpid()} writes = {child\_writes}")

        w.close()

    if process\_id:

        os.wait()

if \_\_name\_\_ == "\_\_main\_\_":

    # Create two pipes for communication

    pipe\_1\_read, pipe\_1\_write = os.pipe()

    pipe\_2\_read, pipe\_2\_write = os.pipe()

    # Create two parent processes

    parent\_1\_pid = os.getpid()

    parent\_2\_pid = parent\_1\_pid + 1

    child\_11 = os.fork()

    if child\_11 == 0:

        ipc(f"Message from Parent {parent\_1\_pid} to Child 11!", "Child 11 Response", pipe\_1\_read, pipe\_1\_write)

        os.\_exit(0)

    child\_21 = os.fork()

    if child\_21 == 0:

        ipc(f"Message from Parent {parent\_2\_pid} to Child 21!", "Child 21 Response", pipe\_2\_read, pipe\_2\_write)

        os.\_exit(0)

    os.close(pipe\_1\_read)

    os.close(pipe\_1\_write)

    os.close(pipe\_2\_read)

    os.close(pipe\_2\_write)

    os.waitpid(child\_11, 0)

    os.waitpid(child\_21, 0)

**OUTPUT:**

