**Assignment No # 05**

**Name Arslan Afzal**

**Section BSCS 6C EVE**

**Arid No 21-ARID-557**

**Date 29-5-2024**

**Question:**

**Consider a scenario where you have two processes, Process A and Process B, running concurrently. Process A needs to send a message containing a string of characters to Process B using the message passing paradigm. Design and implement a simple program in your preferred programming language that accomplishes this task. Your program should include: 1. Initialization of both processes. 2. Sending of a message from Process A to Process B. 3. Reception of the message by Process B. 4. Displaying the received message by Process B. You can assume that the communication between processes is synchronous.**

Code:

package msg\_passing;

import java.util.concurrent.SynchronousQueue;

public class Msg\_passing {

public static void main(String[] args) {

// Create a SynchronousQueue to simulate synchronous message passing

SynchronousQueue<String> QUEUE = new SynchronousQueue<>();

// Initialize and start Process A

Thread PROCESS\_A = new Thread(new ProcessA(QUEUE));

PROCESS\_A.start();

// Initialize and start Process B

Thread PROCESS\_B = new Thread(new ProcessB(QUEUE));

PROCESS\_B.start();

}}// Process A - Sender

class ProcessA implements Runnable {

private SynchronousQueue<String> QUEUE;

public ProcessA(SynchronousQueue<String> QUEUE) {

this.QUEUE = QUEUE;

}

@Override

public void run() {

String MESSAGE = "Hello from Process A!";

try {

System.out.println("Process A is sending the message: \"" + MESSAGE + "\"");

QUEUE.put(MESSAGE); // Send message to Process B

} catch (InterruptedException e) {

Thread.currentThread().interrupt();

System.out.println("Process A was interrupted.");

}

}

}

// Process B - Receiver

class ProcessB implements Runnable {

private SynchronousQueue<String> QUEUE;

public ProcessB(SynchronousQueue<String> QUEUE) {

this.QUEUE = QUEUE;

}

@Override

public void run() {

try {

String MESSAGE = QUEUE.take(); // Receive message from Process A

System.out.println("Process B has received the message: \"" + MESSAGE + "\"");

} catch (InterruptedException e) {

Thread.currentThread().interrupt(); System.out.println("Process B was interrupted.");

}

}

}