# Bansilal Ramnath Agarwal Charitable Trust’s

Vishwakarma Institute of Technology, Pune -37

*(An autonomous Institute of Savitribai Phule Pune University)*



**Department of Artificial intelligence and Data Science**

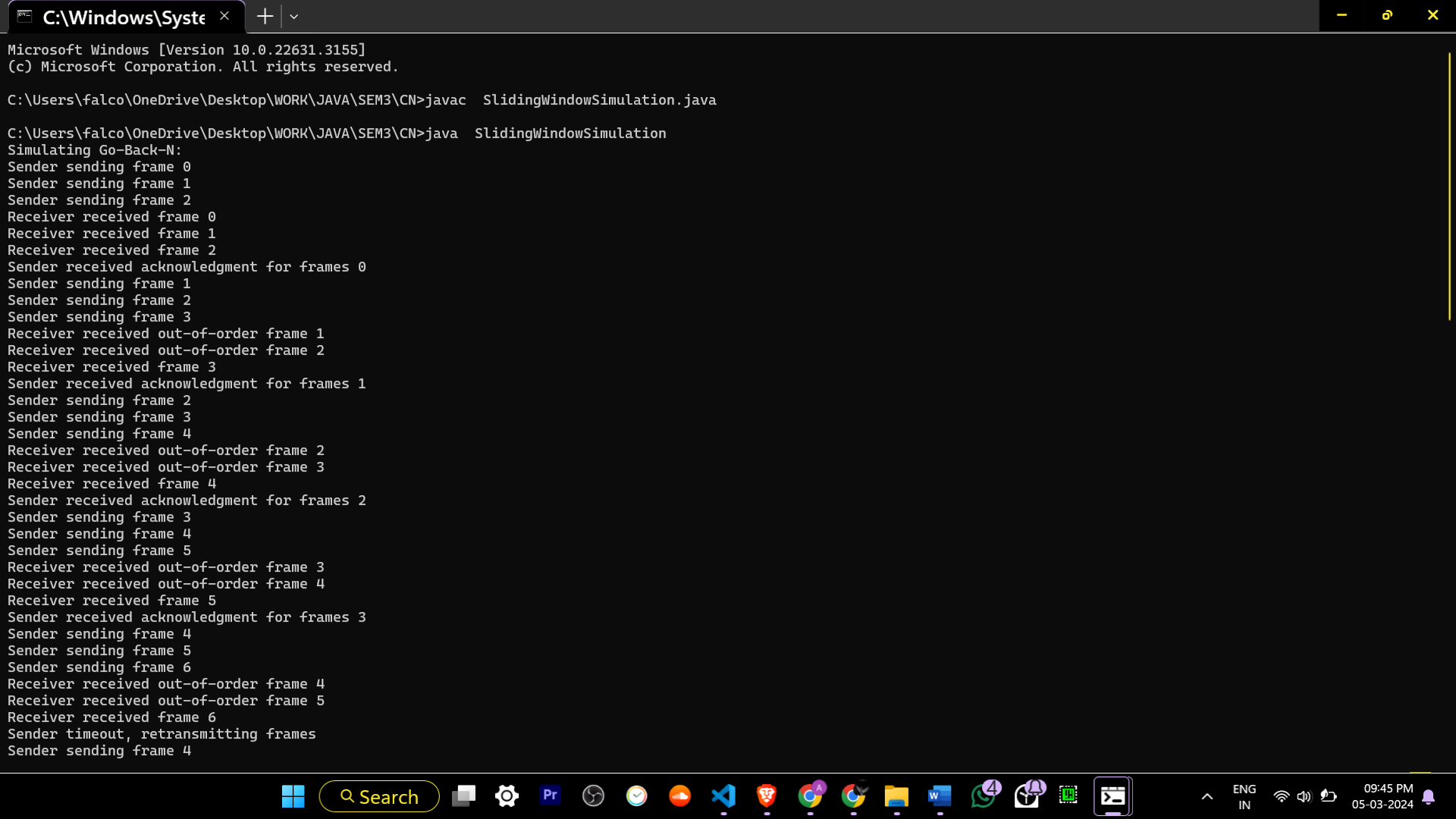
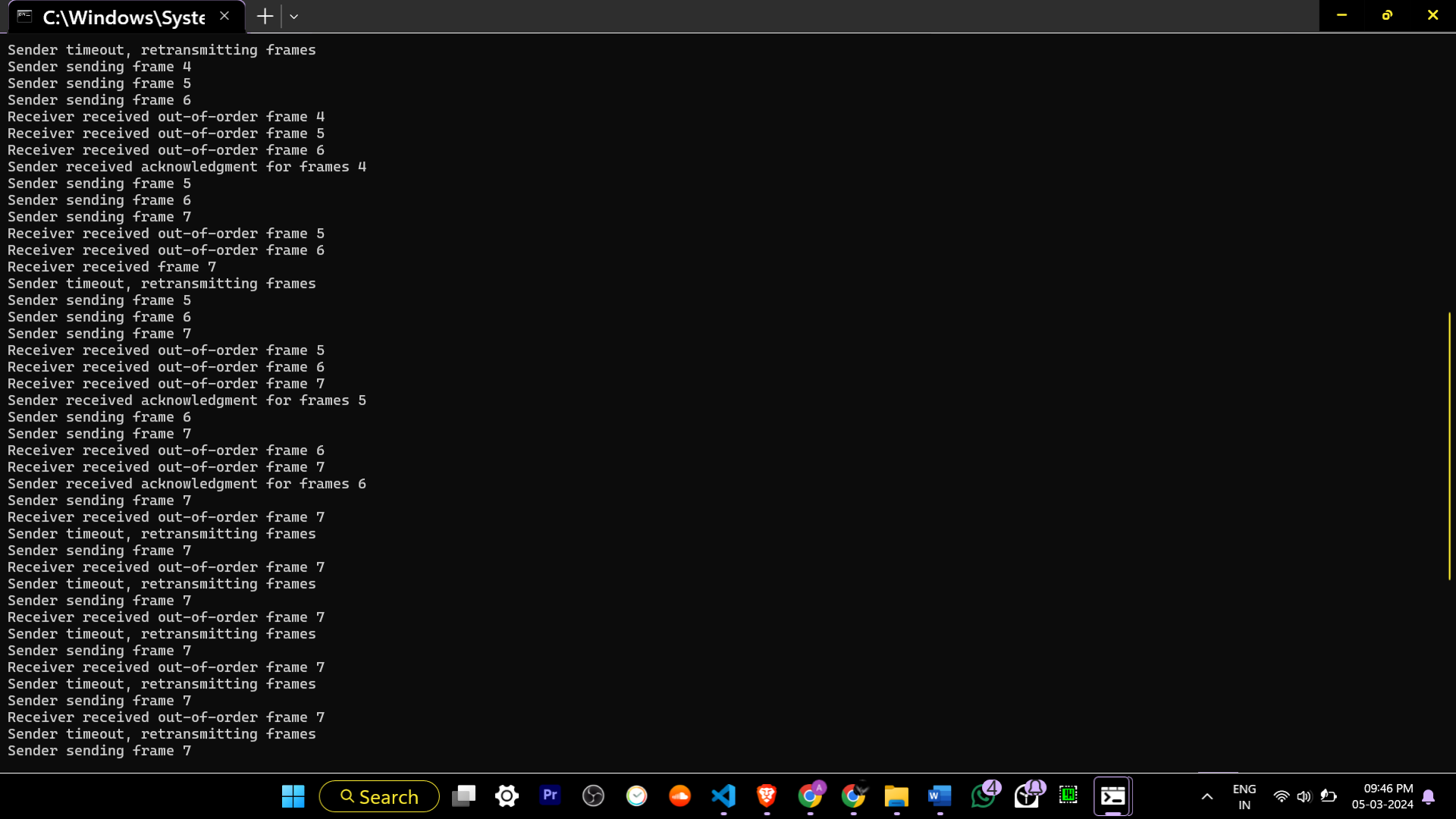
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| **Division** | A |
| **Batch** | 1 |
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| **Subject** | Computer Network |

**Assignment 4**

**Problem Statement:**

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| Write a program to simulate Go back N and Selective Repeat Modes of Sliding Window Protocol in peer-to-peer mode |

* **CODE:**
* **import java.util.ArrayList;**
* **import java.util.List;**
* **import java.util.Random;**
* **class Frame {**
* **int seqNum;**
* **public Frame(int seqNum) {**
* **this.seqNum = seqNum;**
* **}**
* **}**
* **class Sender {**
* **int windowSize;**
* **int totalFrames;**
* **int base;**
* **int nextSeqNum;**
* **public Sender(int windowSize, int totalFrames) {**
* **this.windowSize = windowSize;**
* **this.totalFrames = totalFrames;**
* **this.base = 0;**
* **this.nextSeqNum = 0;**
* **}**
* **public List<Frame> sendFrames() {**
* **List<Frame> frames = new ArrayList<>();**
* **for (int i = nextSeqNum; i < Math.min(nextSeqNum + windowSize, totalFrames); i++) {**
* **System.out.println("Sender sending frame " + i);**
* **frames.add(new Frame(i));**
* **}**
* **return frames;**
* **}**
* **public void receiveAcknowledgment(boolean ack) {**
* **if (ack) {**
* **System.out.println("Sender received acknowledgment for frames " + base);**
* **base++;**
* **nextSeqNum++;**
* **} else {**
* **System.out.println("Sender timeout, retransmitting frames");**
* **}**
* **}**
* **}**
* **class Receiver {**
* **int windowSize;**
* **int totalFrames;**
* **int expectedSeqNum;**
* **public Receiver(int windowSize, int totalFrames) {**
* **this.windowSize = windowSize;**
* **this.totalFrames = totalFrames;**
* **this.expectedSeqNum = 0;**
* **}**
* **public void receiveFrames(List<Frame> frames) {**
* **for (Frame frame : frames) {**
* **if (frame.seqNum == expectedSeqNum) {**
* **System.out.println("Receiver received frame " + frame.seqNum);**
* **expectedSeqNum++;**
* **} else {**
* **System.out.println("Receiver received out-of-order frame " + frame.seqNum);**
* **}**
* **}**
* **}**
* **}**
* **public class SlidingWindowSimulation {**
* **public static void simulateGoBackN(int windowSize, int totalFrames) {**
* **Sender sender = new Sender(windowSize, totalFrames);**
* **Receiver receiver = new Receiver(windowSize, totalFrames);**
* **while (sender.base < totalFrames) {**
* **List<Frame> frames = sender.sendFrames();**
* **receiver.receiveFrames(frames);**
* **// Simulate acknowledgment**
* **boolean ack = new Random().nextBoolean();**
* **sender.receiveAcknowledgment(ack);**
* **}**
* **}**
* **public static void main(String[] args) {**
* **int windowSize = 3;**
* **int totalFrames = 8;**
* **System.out.println("Simulating Go-Back-N:");**
* **simulateGoBackN(windowSize, totalFrames);**
* **}**
* **}**
* **OUTPUT:**

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