Bansilal Ramnath Agarwal Charitable Trust’s

**Vishwakarma Institute of Technology, Pune**

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



**Department of Artificial Intelligence and Data Science**

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**Assignment 6**

**Write a program to simulate**

1. **Go back N  Sliding Window Protocol in peer to peer mode :**

* **Code :**

import java.util.Random;

class GoBackN {

private static final int WINDOW\_SIZE = 4;

private static final int TOTAL\_FRAMES = 10;

private static final Random rand = new Random();

public static void main(String[] args) {

int base = 0;

int nextSeqNum = 0;

while (base < TOTAL\_FRAMES) {

System.out.println("\nSender Window: [" + base + " - " + Math.min(base + WINDOW\_SIZE - 1, TOTAL\_FRAMES - 1) + "]");

for (int i = base; i < base + WINDOW\_SIZE && i < TOTAL\_FRAMES; i++) {

System.out.println("Sending frame: " + i);

}

int lostFrame = rand.nextInt(10) < 3 ? base + rand.nextInt(WINDOW\_SIZE) : -1;

for (int i = base; i < base + WINDOW\_SIZE && i < TOTAL\_FRAMES; i++) {

if (i == lostFrame) {

System.out.println("Frame " + i + " lost!");

break;

} else {

System.out.println("Received frame: " + i);

}

}

if (lostFrame != -1) {

System.out.println("Timeout! Retransmitting from frame " + lostFrame);

base = lostFrame;

} else {

base += WINDOW\_SIZE;

}

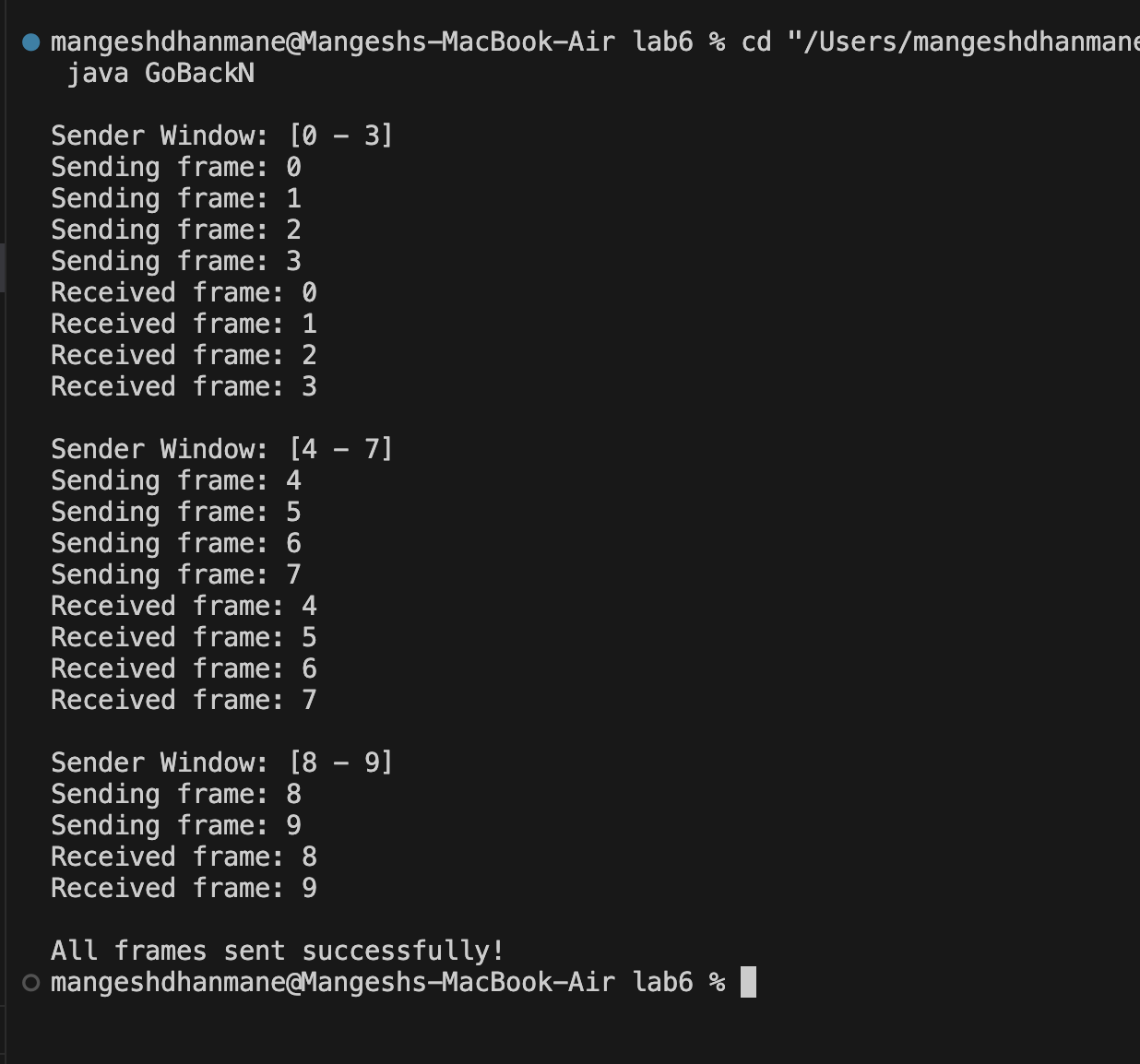
}

System.out.println("\nAll frames sent successfully!");

}

}

* **Output :**

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1. **Selective Repeat Sliding Window Protocol in peer to peer mode :**

* **Code :**

import java.util.Random;

class SelectiveRepeat {

private static final int WINDOW\_SIZE = 4;

private static final int TOTAL\_FRAMES = 10;

private static final Random rand = new Random();

private static boolean[] received = new boolean[TOTAL\_FRAMES];

public static void main(String[] args) {

int base = 0;

while (base < TOTAL\_FRAMES) {

System.out.println("\nSender Window: [" + base + " - " + Math.min(base + WINDOW\_SIZE - 1, TOTAL\_FRAMES - 1) + "]");

for (int i = base; i < base + WINDOW\_SIZE && i < TOTAL\_FRAMES; i++) {

if (!received[i]) {

System.out.println("Sending frame: " + i);

}

}

for (int i = base; i < base + WINDOW\_SIZE && i < TOTAL\_FRAMES; i++) {

if (!received[i]) {

if (rand.nextInt(10) < 3) {

System.out.println("Frame " + i + " lost!");

} else {

received[i] = true;

System.out.println("Received frame: " + i + " (ACK sent)");

}

}

}

while (base < TOTAL\_FRAMES && received[base]) {

base++;

}

}

System.out.println("\nAll frames sent successfully!");

}

}

* **Output :**

