**TokenRing**

import java.io.\*;

import java.util.Scanner;

class **TokenRing** {

private int numProcesses; private int tokenHolder; private Scanner scanner; private String fileName;

public **TokenRing**(int numProcesses, String fileName) { this.numProcesses = numProcesses;

this.tokenHolder = 0; *// Initially, Process 0 holds the*

*token*

}

this.scanner = new **Scanner**(System.in); this.fileName = fileName;

public void **start**() {

for (int i = 0; i < numProcesses; i++) { tokenHolder = i;

System.out.**println**("\nToken is currently with Process "

+ tokenHolder);

System.out.**print**("Process " + tokenHolder + ", do you want to enter the critical section? (yes/no): ");

String enterCritical = scanner.**next**().**toLowerCase**(); scanner.**nextLine**(); *// Consume newline*

if (enterCritical.**equals**("yes")) { System.out.**print**("Do you want to (1) Read or (2)

Write? Enter choice: ");

int choice = scanner.**nextInt**(); scanner.**nextLine**(); *// Consume newline* if (choice == 1) {

# displayFileContents();

} else if (choice == 2) {

# enterCriticalSection();

} else {

System.out.**println**("Invalid choice! Exiting critical section.");

}

} else {

System.out.**println**("Process " + tokenHolder + " passed the token to the next process.");

}

}

System.out.**println**("\nAll processes have executed.

Exiting...");

}

private void **enterCriticalSection**() {

System.out.**println**("Process " + tokenHolder + " is now in the Critical Section.");

System.out.**print**("Enter the content to write to the file: ");

String userContent = scanner.**nextLine**();

try (BufferedWriter writer = new **BufferedWriter**(new **FileWriter**(fileName, true))) {

writer.**write**("Process " + tokenHolder + " wrote: " + userContent);

writer.**newLine**();

} catch (IOException e) { System.out.**println**("Error writing to file.");

}

System.out.**println**("Process " + tokenHolder + " has exited the Critical Section.");

}

private void **displayFileContents**() {

System.out.**println**("\n--- File Contents (" + fileName + ") -

--");

try (BufferedReader reader = new **BufferedReader**(new

**FileReader**(fileName))) {

String line;

boolean isEmpty = true;

while ((line = reader.**readLine**()) != null) { System.out.**println**(line);

isEmpty = false;

}

if (isEmpty) {

System.out.**println**("[File is empty]");

}

} catch (IOException e) {

System.out.**println**("Error reading the file or file does not exist.");

}

");

}

public static void **main**(String[] args) { Scanner scanner = new **Scanner**(System.in);

System.out.**print**("Enter the filename to use: "); String fileName = scanner.**nextLine**();

System.out.**print**("Enter the number of processes in the ring:

int numProcesses = scanner.**nextInt**(); scanner.**nextLine**(); *// Consume newline*

TokenRing ring = new **TokenRing**(numProcesses, fileName); ring.**start**();

scanner.**close**();

}

}