University of Eswatini

Department of Computer Science

CSC 411 – Integrative Programming and Technologies

Mini Project Report

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Introduction

This report documents the implementation of the Producer-Consumer problem as part of the CSC411 mini project. The project demonstrates concurrency, synchronization, XML data handling, and socket programming, with GitHub used for version control and collaboration.

Project Implementation

Part 1: Producer-Consumer Problem

Producer generates random ITstudent data and wraps it into XML files.

Consumer unwraps XML, calculates averages, and determines Pass/Fail.

Buffer implemented with semaphores to enforce synchronization rules.

Part 2: GitHub

Repository created for collaboration.

Source code, README, and report uploaded.

GitHub link provided below.

Part 3: Socket Programming

Producer implemented as server.

Consumer implemented as client.

Demonstrates communication across processes.

Part 4: Presentation

Demo video prepared (5-10 minutes)

Video hosted externally and linked in GitHub README.

Repository Link

Access the full project here: https://github.com/mphilazamokuhle-debug/csc411-producer-consumer-cpp

Demo Video

Watch the demo video here:https://youtu.be/ycHRUCLUNp0?si=YnfdbUk_7xoZgTOh

Conclusion

This project successfully demonstrates the Producer-Consumer problem with proper synchronization, XML data handling, and socket programming. GitHub was used for collaboration, and a demo video was prepared to showcase the solution.