



Faculty of Engineering & Technology
Department of Electrical & Computer Engineering
ENCS3390: Operating System Concepts
First Semester, 2023/2024

Programming Task 3

Published: Jan 11, 2024. Due: Jan 28, 2024 by midnight.

Consider a system that has N processes, and M resources, and each resource has multiple instances.

You are provided with the following input files: [samples are attached]

Allocation.csv **Represents the $N \times M$ allocation matrix.**

Request.csv **Represents the $N \times M$ request matrix.**

Available.csv **Represents the M available vector.**

Your task is to:

- 1- Read the input files, and verify that the dimensions are consistent.**
- 2- Detect whether or not there is a deadlock condition.**
- 3- If the system is deadlocked, list the processes that are deadlocked.**
- 4- If not, show a series of process executions that are possible without deadlock.**

For this assignment, you may use any programming language of your choosing.