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|  | | **ASSIGNMENT COVER PAGE** | | | C:\Users\hoching.tay\Desktop\Lincoln_UK_06092017-01.png |
| **Programme** | | | **Course Code and Title** | | |
| UCSEW | | | COS3023/N Operating System & Concurrency | | |
| **Student’s name / student’s id** | | | **Lecturer’s name** | | |
|  | | | Siti Shafrah Shahawai | | |
| **Date issued** | **Submission Deadline** | | | **Indicative Weighting** | |
| 03.07.2023 | 28.07.2023 | | | 30% | |
| **Assignment [2] title** | Memory Management and Security in Operating Systems - Case Study Problem Solution | | | | |
| This assessment assesses the following course learning outcomes | | | | | |
| **# as in Course Guide** | **UOWM KDU Penang University College Learning Outcome** | | | | |
| CLO3 | Analyse principal concepts and methods of memory management and file system implementation. (C4,PLO7) | | | | |
| CLO4 | Evaluate variety of security threats and propose appropriate OS mechanisms to protect against them. (C6,PLO7) | | | | |
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| **# as in Course Guide** | **University of Lincoln Learning Outcome** | | | | |
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| **Student’s declaration** | | | | | |
| I certify that the work submitted for this assignment is my own and research sources are fully acknowledged. | | | | | |
| Student’s signature: | | | | | |
| Submission Date: | | | | | |

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| **Dates and Mechanisms for Assessment Submission and Feedback** | |
| **Mechanism for handout to students** | OpenLearning LMS/ MS Teams |
| **Mechanism for submission of work by student** | *Softcopy online submission via OpenLearning/MS Teams* |
| **Date by which work, feedback and marks will be returned to students** | 8.08.2023 |
| **Mechanism for return of assignment work, feedback and marks to students** | Feedback will be provided by a marking template. This will be available to students via OpenLearning/MS Teams. The discussions at the walkthroughs will also provide informal feedback |

# COURSEWORK SUBMISSION GENERAL INFORMATION

# Academic Integrity Statement

You must adhere to the university college regulations on academic conduct. Formal inquiry proceedings will be instigated if there is any suspicion of plagiarism or any other form of misconduct in your work. Students must **NOT** collude with other groups of students or plagiarize their work.

**We practice zero tolerance towards plagiarism, and we use Turnitin to evaluate the similarity index. Your similarity index score must not exceed 20%.**

**Your tasks must be your own work. Unless the use of Artificial Intelligence (AI) is permitted in your assessment task, using AI to complete your assignment is a form of plagiarism.**

# Nature of the submission required

A softcopy of your assignment in **PDF version** should be submitted to lecturer, no later than the date and time stipulated on the cover sheet. In addition, an electronic copy of your work must be submitted to Turnitin. The first page of your report, immediately after the cover page, must be a page from Turnitin clearly showing your name and your Originality Score (Please refer to [submission arrangement](#_Submission_arrangement)).

Diagrams may be used where they are helpful to support your arguments or description. If they are not your own work, the source must be referenced. Please help us to handle and mark your work efficiently.

Please take note for group submission, only **one submission per group**. This will contain both the group and individual elements. The individual element must be clearly labelled to indicate which group member completed the task.

# Documentation guidelines

Student is required to submit a **SOFTCOPY** of the report and ensure that it use the following formatted styles: 1) Font type: **ARIAL**, 2) Font size: **11** **pt**., 3) Line spacing: **Single spacing** and 4) Page layouts: **Justify**. Please make sure you have proper format alignment for all paragraphs, following standard writing style and use **HARVARD CITATION STYLE** for citation. Please include a **HEADER** with the following information: **Student ID, Student name, Course code and Assignment type**. Please also include a proper cover page for your submission which contains information about the students, assignment, course, and department with UOWM KDU Penang University College and University of Lincoln (UoL) logos on top (Please remove the UoL logo from the UCSWW programme). Also include page number at the footer page and list of references, which is shown in the last page.

# Penalties for Late Submission

For late submission of this Assignment, a penalty of a reduction by 10% of the maximum mark may be applicable for each Calendar Day or part thereof that the submission is late. An Assignment submitted more than **TEN** Calendar Days after the deadline will have a mark of zero recorded for this Assignment.

# Submission arrangement

1. Cover page
2. Turnitin similarity report
3. Table of Content
4. Main Report
5. Reference List or Bibliography List (whichever applicable)
6. Marking Rubric (in landscape orientation)

# File naming convention

Please make sure you save your filename with the following format:

* <Student Name>\_coursecode\_A2\_May23.pdf

# Assignment instructions/Background

**Description**

This assignment is an **individual and group assignment.**

**Group Size**: The assignment is designed for a group of 4 students.

**Grading Assessment:** Group Task (70%) and Individual task (30%). Please refer to the marking rubric for the assessment.

**Case Study:** OxTech Operating System

**Scenario:**

You have been hired as a consultant by OxTech Corporation, a leading technology company that develops and maintains an operating system used by millions of users worldwide. OxTech Corporation has been facing significant challenges related to memory management and security. The company has experienced system crashes, performance degradation, and security breaches, leading to data loss and compromised user privacy. Your task is to analyze the case and propose solutions to resolve these issues.

**Task**

1. **Group Task: 70% (CLO3 & CLO4)**
2. **Case Analysis:**
   * Analyse the memory management challenges faced by OxTech Corporation, such as inefficient memory allocation, excessive fragmentation, or inadequate memory protection.
   * Identify the security threats that have affected OxTech Corporation's operating system, including malware attacks, unauthorized access, or denial-of-service incidents.
3. **Memory Management Recommendations:**
   * Provide recommendations for improving memory allocation, deallocation, and fragmentation in the OxTech operating system.
   * Justify your solutions with supporting arguments, examples, and references.
4. **Security Recommendations:**
   * Recommend additional or enhanced security mechanisms, such as access control, encryption, intrusion detection systems, and firewalls, to mitigate the identified security threats.
   * Justify your solutions with supporting arguments, examples, and references.
5. **Documentation:**
   * Analyse the case study thoroughly, focusing on memory management and security aspects.
   * Prepare a report that addresses each task outlined in the case study.
   * Support your recommendations with relevant examples and references.
   * Task distribution must be included to describe the assigned task for each group member involved in the completion of this report.
   * The report should be well-structured, organized, and clearly written.
   * Proper citation and referencing are essential to avoid plagiarism and demonstrate academic integrity.
   * Include a list of at least 12 high-quality references in the report.
   * The report should be approximately 8-10 pages long, excluding the table of contents, figures, diagram, and references.
   * Top of Form
6. **Submission:**
   * Students are required to include a minimum of 12 high-quality references in softcopy format to support the analysis.
   * Compile the softcopies of references in a OneDrive folder and include the link to the folder in the report.
   * Student must upload the report in PDF format to the Assignment 2 section of the COS3023/N May23 Microsoft Teams channel.
7. **Individual Task : 30% (CLO3 & CLO4)**
8. **Self-Reflection:**
   * Write a self-reflection that fulfils the following requirements:
     + Demonstrate a clear understanding of the concepts and content covered in the group task.
     + Reflect on your personal contribution to the group task and assess your strengths and areas for improvement.
     + Evaluate the effectiveness of your individual research, analysis, and critical thinking skills demonstrated in the group task.
     + Provide insights into your personal learning outcomes and growth during the completion of the group task.
   * Please carefully address each of those requirements in your self-reflection, emphasizing your understanding of the concepts, your contribution to the group task, and your evaluation of your own skills and growth.
   * Include this self-reflection writing in the group report.
9. **Peer Evaluation:**
   * Please access the peer evaluation form through the link provided in the COS3023/N Microsoft Teams channel.
   * Each group member will provide individual marks for the peer evaluation, which will be averaged to calculate the final marks of peer evaluation assessment.

**Deadline**

The deadline for report submission of this assignment is on **date 28.07.2023.**

----- Please refer to the attached excel file for the marking rubric -----