UOW MALAYSIA KDU PENANG UNIVERSITY COLLEGE

PART OF THE UNIVERSITY OF WOLLONGONG AUSTRALIA GLOBAL NETWORK

ASSIGNMENT COVER PAGE

Validated by: UNIVERSITY OF LINCOLN UNITED KINGDOM

Programme	**Course Code and Title**
Bachelor of Computer Science (Hons) Bachelor of Software Engineering (Hons)	CAL3023/N Data Structures and Algorithms
Student's name / student's id	**Lecturer's name**
	Farhana Aini Binti Saludin

Date issued	**Submission Deadline**	**Indicative Weighting**
Week 9 -27/03/2023	Week 12 – 20/4/2023	30%
Assignment 2 title	Product Management System 2	

This assessment assesses the following course learning outcomes

# as in Course Guide	**UOWM KDU Penang University College Learning Outcome**
CLO2	Apply the use of searching, sorting and recursive techniques in applications.
CLO3	Analyze algorithm complexity and the big-O notation.
# as in Course Guide	**University of Lincoln Learning Outcome**
CLO1	Understand the time and space efficiency of algorithms and how to calculate/estimate/evaluate and improve them.
CLO2	Determine an appropriate algorithmic approach to a problem.
CLO3	Demonstrate the ability to select from a range of possible options, to provide justification for that selection, and to implement algorithms in a particular context.
CLO3	Apply object-oriented principles to the implementation of software programs.
CLO1	Apply concepts of advanced software development and programming methods to computational problems.
CLO2	Use advanced object oriented principles and programming techniques in software development.
CLO3	Apply advanced logical and mathematical techniques in the development of software solutions.

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:

Dates and Mechanisms for Assessment Submission and Feedback

Mechanism for handout to students	Open Learning LMS
Mechanism for submission of work by student	*Softcopy online submission via Open Learning*
Date by which work, feedback and marks will be returned to students	4th May 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 Open Learning. 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.

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).

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 UOW Malaysia KDU Penang University College and University of Lincoln (UoL) logos on top. Also include page number 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)

Assignment instructions/Background

Task A – Group with maximum 4 persons

Enhance Product Management System – 70%:

Each computer that comes into a warehouse has a product code that tells few important information about that particular machine such as where it was made, the type of processors, the capacity of the hard disk and internal memory. Interpreting these product codes is important for the warehouse employee, as this information is crucial in the labelling of the product and storage.

The manager would like to use the system to manage the product information for better arrangements.

Assume that the product information could be preloaded into the program. You are to enhance the product management system that allows user to perform the following functions:

The user may view the desired record(s):

1. Sorted by manufacturing country in alphabetical order.
2. Sorted by type of processor.
3. Sorted by capacity of hard disk
4. Search (by using binary search) manufacturing country.
5. Search (by using binary search) capacity of hard disk.
6. Search (by using binary search) capacity of internal memory.

You may store or load the dummy product record into an array before the program start.

There is no limitation for the interface or menu design. Be innovative and creative.

Task B - Individual report – 30%:

Explain any **two searching** algorithms, its complexity, and the big-O notation. You may give examples for better explanation. You may include diagrams in your explanations. The report should be a maximum of two pages A4. If the report is over this length, there will be no penalty but only the first page will be read. Make sure you have proper format alignment for all paragraphs, following standard writing style and use HARVARD CITATION STYLE for citation.

CAL3023/N Data Structures and Algorithms
MARKING RUBRIC
ASSIGNMENT 2
(30%)

Product (70%)

LEARNING OUTCOME	MARKING CRITERIA	SCALE					YOUR MARKS/COMMENTS		
		Fail (0-49)	3rd Class (50-59)	2nd Lower Class (60-69)	2nd Upper Class (70-79)	1st Class (80-100)	100%	Weightage	Actual Marks
CLO 2	**Code Quality (10%)**	Very poor coding which is hard to understand. Little use of comments. Poor naming of almost all classes, methods and variables.	A poor attempt; which may be several problems with structure, or very little use has been made of comments, or the naming of classes, methods and variables is unsatisfactory in a significant number of cases.	A fair attempt; the code is of reasonable quality with several omissions of naming and use of comments.	Generally, a good attempt, making use of comments, and where the majority of classes, variables and methods have been appropriately named. However there may be several omissions of Javadoc comments, and the code.	Good use of commenting throughout, including Javadoc comments for the vast majority of classes, methods and variables.		0.10	
	Modularity (use of classes/functions, with parameters and returned value/ collection) (10%)	Does not demonstrate any proper use of classes/ functions/ collection.	Demonstrate some limited use of classes/ functions/ collection.	Demonstrates appropriate use of classes/ functions/ collection.	Demonstrates proficiency in use of classes/ functions/ collection.	Demonstrates mastery in the use of classes/ functions/ collection.		0.10	
	Use of appropriate programming concepts (decision/repetition) (20%)	Does not demonstrate any logical use of appropriate programming concepts.	Demonstrate some limited use of appropriate programming concepts.	Demonstrate use of appropriate programming concepts.	Demonstrates proficiency in the use of appropriate programming concepts.	Demonstrates mastery in the use of appropriate programming concepts.		0.20	
	Use of data structure and algorithm in application (20 marks)	Does not demonstrate logical use of the data structure and algorithm.	Demonstrates limited use of data structure and algorithm.	Demonstrates reasonable use of data structure and algorithm, but with a few shortcomings.	Demonstrates proficiency in use of data structure and algorithm.	Demonstrates complete and proper use of data structure and algorithm.		0.20	
	Program execution and output quality (10%)	Program does not able to compile.	Program executed with runtime error but achieve partial program requirements.	Program executed error free with limitations to achieve minimum program requirements.	Program executed error free with correct output and achieve all program requirements.	Program executed error free with excellent output with appropriate validation.		0.10	
Total (70%)									
Peer evaluation rating									
Mark for individual student: total of group work x peer evaluation rating									

	Individual Report (30%)								
LEARNING OUTCOME	**MARKING CRITERIA**	**SCALE**							
		Fail (0-49)	**3rd Class (50-59)**	**2nd Lower Class (60-69)**	**2nd Upper Class (70-79)**	**1st Class (80-100)**	**YOUR MARKS/COMMENTS**		
							100%	Weightage	Actual Marks
CLO3	**1.Quality of information (20%)**	Information provided has little or nothing to do with the question.	Information clearly relates to the main topic. Points are insufficiently developed. Analysis is weak	Information clearly relates to the main topic. Points are made, but analysis is minimal	Information clearly relates to the main topic. Points and analysis are made and related to the topic.	Information clearly relates to the main topic. Points are clearly made. Analysis is sophisticated		0.20	
	2. Style of Writing (5%)	The report writing does not meet the criteria for the assignment (too short or incomplete, too long, and/or completely off-topic). Reference section is missing.	Many ideas require clarification and/or are off-topic or have marginal relevance to the assignment. Many grammatical and/or spellings errors throughout the paper. The paper is very challenging to read due to poor writing flow. Improper reference section.	Ideas are stated clearly and are related to the topic, with only adequate grammatical and/or spelling errors. Reference section with minor flaws.	Most ideas are stated clearly and are related to the topic, with only minor grammatical and/or spelling errors. Reference section is in minimal.	Writing is clear and relevant, with no grammatical and/or spelling errors – polished and professional. Reference section properly formatted.		0.05	
	3. Sources (5%)	Some sources are not accurately documented. Diagrams and illustrations are not accurate or do not add to the reader's understanding of the topic.	All sources (information and graphics) are accurately documented, but many are not in the desired format. Some diagrams and illustrations are not accurate or do not add to the reader's understanding of the topic.	All sources (information and graphics) are documented, but an adequate amount is not in desired format. Diagrams and illustrations are neat and accurate and sometimes add to the reader's understanding of the topic.	All sources (information and graphics) are accurately documented, but a few are not in the desired format. Diagrams and illustrations are accurate and add to the reader's understanding of the topic.	All sources (information and graphics) are accurately documented in the desired format. Diagrams and illustrations are neat, accurate and add to the reader's understanding of the topic.		0.05	
						Total (30%)			
						Overall score (100%)			

Peer assessment Form

Name of student being evaluated:	(your teammate's name – one teammate in one form, you may copy paste this for another group member)	Date:
Evaluated by:	(your name)	

Score	1	2	3	4	5
Criteria	Unsatisfactory	Poor	Satisfactory	Good	Excellent
Demonstration of relevant skills and knowledge					
Attendance at group activities					
Contribution to group activities					
Contribution to agreed tasks outside of group meetings					
Working for consensus on decisions and attempts to resolve conflict rather than promote it.					
Trusts, supports, and respects other team members.					
Ability to listen and interpret communication from other's points of view					
Generates and promotes ideas and suggestions of their own					
Considers and uses new ideas and suggestions from others					
Rationale – What is the justification for the above?					
				Total	