COMP 2104 Data Structures GROUP ASSIGNMENT QUESTION & SUBMISSION LINK

Submit Assignment

Due 11 Nov by 18:30 **Points** 80 **Submitting** a file upload
Available 7 Oct at 0:00 - 11 Nov at 18:30 about 1 month

COMP 2104 Data Structures & Algorithms

GROUP ASSIGNMENT – COMP 2104 Data Structures & Algorithms

LEARNING OUTCOMES

· Identify the relevant algorithms and data structures for solving complex

· problems.

· Critically evaluate different types of data structures and algorithms for solving

· complex problems.

· Design and implement different types of data structures and software

· algorithms.

· Solve problems using a variety of tools and techniques.

· Demonstrate time management and presentation skills.

ASSIGNMENT REQUIREMENTS

1. You may discuss the assignment to understand the problems and the various learning topics. However, you are not allowed to share solutions to the given assignment task or your solutions with any other classmates who are not in your group as team members.

2. **Citing your sources:** If you have reused any Cyber security software packages, tools or techniques, and any other resources you must provide the reference list in your assignment submission document. You do not have to cite module lecture notes, slides, module textbook, or other lab task exercises.

3. Provide at least two references for each of the following academic sources using Harvard Referencing guidelines to support your analysis:

i. Books from the National Library eBook/e-resources

ii. Journal articles from DOAJ- Directory of Open Access Journals **https://doaj.org/** **(https://doaj.org/)**

iii. E-Books from DOAB Directory of Open Access Books

iv. Refer to Harvard Referencing guideline: **https://www.citethisforme.com/harvardreferencing** **(https://www.citethisforme.com/harvardreferencing)**

· Use any of the free Learning Tool to improve the use of in-text citation and end-text citation referencing skills in your written assignment report.

· Plagiarism Checker: **http://www.plagiarismchecker.com/** **(http://www.plagiarismchecker.com/)**

· Dupli Checker: **http://www.duplichecker.com/** **(http://www.duplichecker.com/)**

· Zotero: **http://www.zotero.org** **(http://www.zotero.org)**

SUBMISSION REQUIREMENT

Please note that learners must submit all assignments by the stated due date (s). Your solutions to the assignment will be submitted as a single MS Word document.

File name: ***Student No-Full Name- DSA-assessment.docx***

1. Submit your completed report to the Canvas LMS under the folder titled “DSA Assignment – Submission Folder" by

Submission Date: **last lesson - 09 SEPTEMEBR 2023**

Submission Time: **on or before 6.30PM**

Late Submission maximum 3 days from the submission due date: A deduction of 5% from your actual mark shall be imposed on each day. Assignments submitted after 3 days from the due date is marked as a failure grade. No assignment will be accepted for marking after this date.

2. Backup

· All assignments submitted will not be returned to learners.

· Please ensure that backup copies are kept on different devices.

· Learners are responsible for their own work and must perform the necessary backups.

GROUP ASSIGNMENT QP Total: 80 Marks

Answer ALL Questions.

TASK 1: GROUP FORMATION

This assessment should be attempted in groups of **minimum 2 to maximum 4 students**. Group work can facilitate your learning, improve relationships among your classmates and teammates and prepare you to work in groups in their future careers.

Computer Science graduates need to be able to demonstrate effective teamwork which can be achieved by working in student groups to develop collaborative skills, communication skills, presentation skills as well as responsible behavior to be effective global citizens, critical and creative scholars.

Please give list of your group members to your lecturer by lesson in **Canvas Discussion thread.**

All individuals will receive DIFFERENT marks for this coursework unless clear evidence is provided of equal contributions. The marking criterion for the assignment is based on the assessment marking scheme is included in the last page of this assessment brief in **ANNEX A** and the **presentation** criteria is provided in **ANNEX B**. INDIVIDUAL TEAM MEMBER's contribution must be included in the report as stated in **ANNEX C**.

TASK 2: NEW SYSTEM DEVELOPMENT USING JAVA DATA STRUCTURES

You and your project team members are awarded a project for a company called DSA Pte Ltd, an electronics retail organization that has branches all over the world. The owner of DSA is Mr. Loh. The following tasks are to be performed.

1. Perform an analysis requirements with DSA of the new system
2. Perform Design of the new system. A user interface design of the Main Menu may look like :

DSA Pte Ltd
1) Customers (Queue)
2) Electronic Items (Stack)
3) Electronic Items (Tree)

1. Development of the new system using Java consists of the following:
2. Using a Queue Data structure to enqueue, dequeue and display customers of DSA
3. Using a Stack Data structure to push, pop and display electronic items of DSA

- Using a Tree Data structure to traverse electronic items in DSA

1. Perform testing of the new system

A. Assignment Cover Page & Declaration

Table of Contents

1) Analysis

2) Design

3) Development

3.1 Customers (Queue)

3.2 Electronic Items (Stack)

3.3 Electronic Items (Tree)

4) Test Cases

4.1 Test case for Customers (Queue)

4.2 Test case for Electronic Items (Stack)

4.3 Test case for Electronic Items (Tree)

5) Program Listings (with comments and explanations)

6) Critical Evaluation

6.1 Strengths

6.2 Weaknesses

6.3 Future Enhancement

7) Individual Team members' contribution

B. Plagiarism Similarity Index Report

Your report Table of Contents may look like the following:

TASK 3: DELIVERABLES

- **A report with the above suggested table of contents**
- **A recorded video presentation (not more than 3 minutes) of the new system**
- Individual team Members' contribution to the assignment tasks

ANNEX A: Mark Scheme

Task	**Max Marks**	**Marks Awarded**
1) Analysis	**10**	
2) Design		

	10	
3) Development 3.1 Customers (Queue) 3.2 Electronic Items (Stack) 3.3 Electronic Items (Tree)	**18** *6 marks* *6 marks* *6 marks*	
4) Test Cases 4.1 Customers (Queue) 4.2 Electronic Items (Stack) 4.3 Electronic Items (Tree)	**12** *4 marks* *4 marks* *4 marks*	
5) Program Listings	**5**	
6) Critical Evaluation 6.1 Strengths 6.2 Weaknesses 6.3 Future Enhancement	**9** *3 marks* *3 marks* *3 marks*	
7) Individual team member's contribution	**4**	
Video Presentation file	**12**	
Total	**80**	
Marker's feedback:		

ANNEX B Grading Criteria for Video Presentation

3 Minute Video Presentation Rubric

Criteria Description	0 mark	1 mark	2 marks	3 marks
Intro, & organization of presentation – Does your video begin and end with information to help focus the viewer's attention.	The video either has an intro and is of low quality. The video does not use credits/citations at all. Difficult to follow. Poor quality shows poor effort.	The video has an intro and it is of moderate quality. Credits/citations may or may not be present. Portions may be poorly documented and/or organized. Hard to follow the progressions of the video. Explanation shows some effort.	The video has an intro and is consistent with the rest of the video. Credit/citations is given to appropriate sources. Fairly well documented and organized. Format is easy to follow. Good explanation shows good effort.	Intro **add** to the high level attained by this video. Credits/citations are given to appropriate sources. Program shows a continuous progression of ideas and tells a complete, easily followed story. Well organized.
Information – Does your video stay focused on the assignment questions? Does your video provide easy to understand information? Does your video demonstrate the depth of knowledge of the presenter?	Project's usefulness is in question. Does not inform; does not stay focused on the topic.	Project has problems staying focused on topic. Information is incoherent at times. The video shows a shallow depth of knowledge on the topic.	Video is focused on an informative topic. Video makes understanding the topic fairly accessible and easy. Video demonstrates a depth of knowledge on the topic.	Video is laser focused on the topic. The topic is very easy to understand. The video demonstrates an obvious depth of knowledge on the topic. Student went beyond the scope of the assignment and the hard work shows.

Data Structure Algorithm Design & Coding – Is your video interesting	Too many or too gaudy graphics; transitions, too many clips, backgrounds and/or sounds detract from content of the actual assignment question.	Minimal use of data structure and Java libraries.	Good use of Java libraries and relevant data structure algorithms.	Excellent sense of design and correct use of data structures and algorithms. Smooth transitions are appropriate and aid in delivery of the presentation.
Voice – Does the audio flow well? Is it of high quality?	The audio or video is garbled and hard to decipher. Too much background interference and/or the video is of low quality.	The audio and/or video effects are of moderate quality. Some background noises not related to the presentation are heard.	The audio and video effects are of acceptable quality. There are few distracting aspects to the audio/video.	Audio/video effects flow exceeding well and are of high quality.

ANNEX C INDIVIDUAL MEMBER'S CONTRIBUTION

1. **Your tasks completed in the assignment**
2. **Your team member's task contribution to the assignment work**
3. **Favorable Collaborative Experience**
4. **Unfavorable Collaborative Experience and how you resolved**
5. **Lessons Learnt -Learning Reflection**

-THE END-