MECS0023 DSA - MINI PROJECT SPECIFICATION

OBJECTIVES FOR STUDENTS

1. Construct or develop a medium to complex size program by applying a number of data structure concepts in C++ programming language.
2. Solve problem in group in which the group are required to prepare report to document the project output and present the output in the class.

INSTRUCTION

a. Solve this project in group of **2-4 members**.
b. Each group is required to select a software application in the domain to be determined by the lecturer. For examples: application to be used at UTM University Health Centre or UTM e-learning application.
c. The software applications must be developed based on the given data structure concepts which the group must apply in their application. The specified concepts are minimum concept for each group, they can add more data structure concepts to their application.
d. Group's submission details:

Submission	Date
Problem Analysis	
Class Design in class diagram and algorithm design in pseudo code or flowchart	
Presentation & Demo (15 minutes presentation and 5 minutes Q & A) • Use power point to describe the data structure and the system being developed. • System – Describe flow of the system. The system need to be user friendliness and creativity in the solution approach. • Presentation skill and collaboration in group work. • Answering question during demo.	
A complete source codes Submit both hardcopy and softcopy. Data structure concept must be applied correctly using C++ language.	

e. Mark Distribution

Description	Mark
i. Project Report	
• System analysis	10
• Design	15
• Program code	25
ii. Presentation & Demo	25
iii. System Prototype	25
TOTAL	**100**

f. Documentation of the project output must follow the report template given to the students.

FACULTY OF COMPUTING

UNIVERSITI TEKNOLOGI MALAYSIA

DATA STRUCTURE & ALGORITHM (MECS0023)

SEMESTER 1 2023/2024

Mini Project Documentation
Write your project Title HERE

By
Student's Name (IC No.) – Leader
Student's Name1 (IC No.)
.
.
.
Student's Name(n) (IC No.)

SECTION 0X

Lecturer:
Lecture's Name

Date

For lecturer use:

Description	Mark Distribution	Mark
Project Report • System analysis • Design • Program code	 10 15 25	
Presentation & Demo	25	
System Prototype	25	
TOTAL	**100**	

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PART 1: INTRODUCTION

1.1.Synopsis Project:

Give description of your project.
What type of data structure being applied and how it is applied.
Explain what your system is able to do.

1.2.Objective of the project

List objectives of the project

PART 2: SYSTEM ANALYSIS AND DESIGN (USE CASE, FLOWCHART AND CLASS DIAGRAM)

In this section, you have to identify the requirements and the design of the system. Provide use case diagram, class diagram, algorithm/flowchart for every module in the system. Every algorithm/flowchart for each module must be described in detail.

2.1.System Requirements

Use case diagram – Describe the user of the system and detail descriptions of each use case. Example:

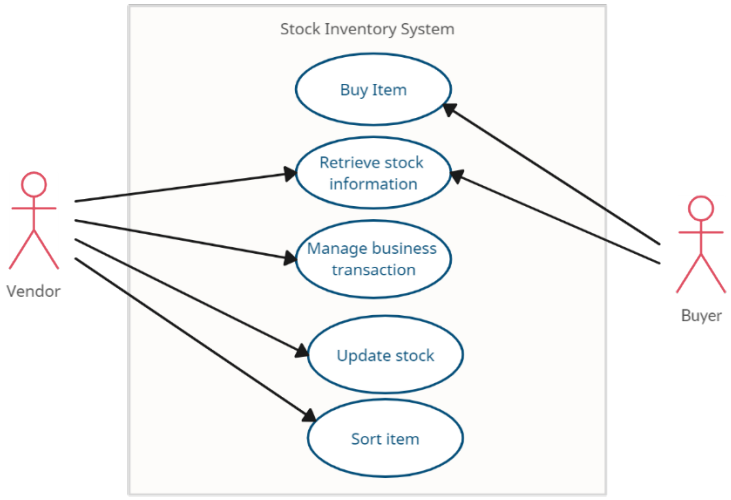

Figure 1: Use Case Diagram for Stock Inventory System

Use Case Description for Stock Inventory System

The system users are vendor and buyer.

Actor	Task
Vendor	Explain what vendor can do
Buyer	Explain what buyer can do

Detail Description for Each Use Cases

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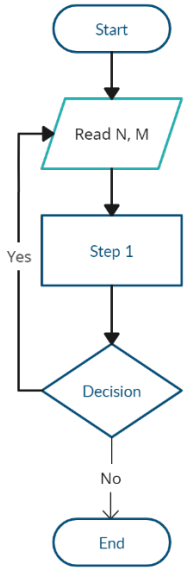
The system has 5 main use cases.

Use Case	Purpose
Update stock	Update information of item in stock every time there are item being add or delete from stock. Or if the price for the item changes.
Menu	Provide choices for the user to perform certain operation in the system.
Sort	Explain the module.
Buy item	Explain the module.

2.2.System Design – Document the class diagram and algorithm design in pseudo code or flowchart.

Algorithm: Flowchart for each module.
FlowChart 1: Add Stock
Prepared By: Provide the name of group member who prepare the algorithm.



FlowChart 2: Retrieve item
Prepared By: Provide group member who prepare the algorithm.
…
…
FlowChart (n): Description here
Prepared By: Provide group member who prepare the algorithm.

PART 3: SYSTEM PROTOTYPE

In this section, give the description of the system prototype. Provide the interface for each module. Figure below can be used as reference.
The following figure shows and interface for UTM library system.

Example:

```
UTM LIBRARY SYSTEM
WELCOME TO OUR LIBRARY

== Main Menu ==

1. Search Book
2. Borrow Book
3. Return Book
4. Exit

Enter your choice 1-4>>
```

Screen 1: Main menu

Screen 1: The user must insert an integer value in the range 1-4. If the user enter other number, the system will prompt error message and the screen is displayed again.
Prepared By: Provide group member who prepare the interface report.

```
UTM LIBRARY SYSTEM

== Book Searching ==

Enter the information as requested:

Book Title>> Struktur Data & Algorithma
Author >> Nor Bahiah et al.
Publisher >> UTM Press
Year Published >> 2005
---------------------------------------------------------------

The Book is currently available …..
To borrow the book, press any key to go to main menu ….
```

Screen 2: Book Search System

Screen 2: Describe what screen 2 is about…..
Prepared By: Provide group member who prepare the interface report.

PART 4: DEVELOPMENT ACTIVITIES

Shows every meeting conducted, meeting activity, task being assigned and whether task achieved or not.

Meeting Date	Members Participate in the meeting	Activity	Task for each member	Task Achieved (Yes/No)

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PART 5: APPENDIX

List of Data Files/File output/hard copy of the source code

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