SCHOOL OF COMPUTING
COMMON INFOCOMM TECHNOLOGY PROGRAMME
DIPLOMA IN APPLIED AI & ANALYTICS
DIPLOMA IN INFOCOMM SECURITY MANAGEMENT
DIPLOMA IN INFORMATION TECHNOLOGY

ST0502 Fundamentals of Programming

2022/2023 SEMESTER 1
PRACTICAL ASSIGNMENT (CA2)

Instructions and Guidelines:

1. CA2 is an individual assignment that accounts for 30% of the module. It comprises of 2 parts ie Stage 1 & Stage 2 requirements.

2. You are required to submit softcopy source codes for both Stages 1 & 2 in **BrightSpace** by the deadlines given below**.**

   In your submission, please include a short header wth your Name (as in SAS2), Class and Admission number in your program.

   Sample header:

```
// Name : King Arthur
// Class: DCCC/1A/03
// Adm  : 889977
//
:
:
```

CA2	Submission Deadline in eSP(BrightSpace)	Marks Allocation
Part 1	4 July 2022 (Mon), 8am (Week 12)	20
Part 2	1 Aug 2022 (Mon), 8am (Week 16)	80
	Total	100

3. You must use JavaScript to develop the application in Visual Studio Code.

4. You may consult your Lecturer for overall design and structure of your assignment. However, you are NOT allowed to ask him/her to debug your program. Students who seek debugging help from Lecturer will only be awarded a maximum grade of C+. It can be lower depending on the quality of work submitted.

5. You are required to do demo/interview of your programs to your Lecturer individually. You may be asked to explain the program logic or make amendments to your codes during the sessions. Please check with your Lecturer for the details of demon/interview.

6. If you are **absent** from the demo/interview **without** a valid Leave of Absence approved by SP, you will be awarded **ZERO mark** even if you have submitted your assignments. If you are not well on your day of interview and have an approved Leave of Absence (LOA), you have to inform you Lecturer in advance, apply for LOA in Student portal and submit a copy of the approved Leave of Absence by email to your lecturer. Contact your Lecturer to arrange for a make-up interview session.

7. **50% of marks** to be deducted for submission of assignment within **ONE** calendar day after the deadline. **No marks shall** be awarded for assignments submitted **more than one day** after the deadline.

   For example : If the submission deadline is 1 Jan, 8am, any submission after that till 2 Jan, 8am will have 50% marks deducted. Any submisson from 3 Jan, 8am onwards will NOT be accepted ie given zero.

8. **No marks will be awarded**, if the work is copied, done by someone or you have allowed others to copy your work. This is a **very** serious offence of plagiarism committed by all involved (ie all the givers & receipients). Please refer the clause in RED below regarding plagiarism.

Warning: Plagiarism means passing off as one's own the ideas, works, writings, etc., which belong to another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turning it in as your own, even if you would have the permission of that person. **Plagiarism is a serious offence and disciplinary action** will be taken against you. If you are guilty of plagiarism, you may fail all modules in the semester, or even be liable for expulsion.
If you **share** your assignments with your classmate(s), it is also an academic offence and disciplinary action will be taken against you, although you have done the work yourself.
So both giver and receiver will be subject to disciplinary hearings/action.

Requirements for Shoppers Membership Application (Pilot)

1. Objective

The objective of this assignment is to create a pilot shoppers membership loyalty application.

2. Overview

Company XYZ plans to launch a membership loyalty program to boost the sales of its products. The CEO has hired you to create a pilot application with a few features to test out this new idea. These are piloted in two stages i.e. if the first stage is successful, they will proceed to Stage 2. Depending on the outcomes, the CEO will then consider developing the full application.

There are 3 types of memberships: **Diamond, Gold and Ruby**. For each purchase made, loyalty points are awarded based on the amount purchased by the members.

3. Stage One Requirements

You are to complete all the Stage 1 requirements below, submit your codes and do a 5~7mins demo to your lecturer.

3a. Declare and initialize 5 arrays to represent the 5 different members consisting of the following properties. Subsequently, declare another array – **memberList** to store all the arrays. You may refer to the additional resources provided to perform the aforementioned task.

Name	Leonardo	Catherine	Luther	Bruce	Amy
Membership Type	Gold	Ruby	Gold	Diamond	Ruby
Date Joined	1 Dec 2019	14 Jan 2020	29 Apr 2020	3 Jun 2020	5 Jun 2020
Date of Birth	1 Jan 1980	28 Oct 1985	16 Mar 1992	18 Mar 1994	31 May 2000
Points Earned	1400	250	3350	40200	500

3b. Create a menu to display members' details. The output below illustrate the application when executed.

You are to follow the text display as shown in ALL output. You **must** ask for user's name and display it on screen.

The program should allow user to choose the other options without terminating the program. The program should terminate only when **EXIT** is selected.

Validation of all data input is required.
Refer to the following screenshots for more details. Text in red boxes denotes user's input. You are **NOT** required to display the red box in your output.

Sample output to prompt for user's name and display the menu options.

```
Welcome to XYZ Membership Loyalty Programme!
Please enter your name: Alice

Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >>
```

Sample output when an invalid input is entered. Re-prompt user for a valid input.

```
Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >> 0
Please enter a valid input.


Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >>
```

Sample output when either options (2) or (3) is entered. It displays a message and re-prompt user for input.

```
Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >> 2
Sorry, work in progress!

Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >>
```

Sample output when option (1) is entered. It displays all members information and re-prompt user for input.

```
Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >> 1


Name: Leonardo
Membership Type: Gold
Date joined: 1 Dec 2019
Date of Birth: 1 Jan 1980
Points Earned: 1400


Name: Catherine
Membership Type: Ruby
Date joined: 14 Jan 2020
Date of Birth: 28 Oct 1985
Points Earned: 250


Name: Luther
Membership Type: Gold
Date joined: 29 Apr 2020
Date of Birth: 16 Mar 1992
Points Earned: 3350


Name: Bruce
Membership Type: Diamond
Date joined: 3 Jun 2020
Date of Birth: 18 Mar 1994
Points Earned: 40200


Name: Amy
Membership Type: Gold
Date joined: 5 Jun 2020
Date of Birth: 31 May 2000
Points Earned: 500

Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >>
```

Sample output when option (4) is entered, it displays a message and the program is terminated.

```
Hi Alice, please select your choice:
        1. Display all members' information
        2. Update points earned
        3. Statistics
        4. Exit
        >> 4
Thank you & goodbye!
```

3c. Assessment Criteria (20 marks)

Marks are allocated based on the following criteria. Students may be asked to explain codes during the demo session. Even if a student submits a working copy of the codes but fails to explain codes, concepts or show competencies of topics covered, he/she will still fail this assignment.

- Proper declaration of arrays
- Program produces correct output according to requirements
- Data validation is correct and complete
- Program executes properly without crashing/errors produced and terminates properly

4. Stage TWO Requirements

~~ please look out for future release ~~

-- End --