National University of Computer and Emerging Sciences, Lahore Campus

Course:	Programming Fundamentals	Course Code:	CS 1002
Program:	BDS	Semester:	Fall 2021
Date	14-11-2021	Due Date	9-11-2021 …
Section:	BDS-1A, BDS-1C	Weight	4%

Programming Assignment No 4

Problem:

Marks Manager

Submission Instruction: For each problem a due date is specified. Your solutions will be submitted on google classroom using the proper assignment submission link available at the classroom.

Warning: As discussed in class, **plagiarism** is not acceptable in any form. Although you are encouraged to discuss the assignment problems and possible solution with your class fellows but sharing your code or copy code from others or from internet might result earning an **F grade** in the entire course.

Problem

In this assignment we are going to create a program that will use two files to manage marks obtained by students in various grading components

The files and format of files is as follows

The file named **STUDENT.DAT** is used by the program to save basic information of all students in a course section. The file is an ASCII text file with information formatted in it as follows

FIRST LINE:

Contains a magic number and is a code of the student who created it.

SECOND LINE:

Contains a number ***N*** specifying the total students in the section

THIRD LINE:

Contains **N** space separated numbers each denoting a student ID.

The second file named **MARKS.DAT** contains marks obtained by students in **M** components. We will initially assume that a maximum of 10 different components are used to evaluate the students.

The file is formatted as follows
First Line contains a magic number
Second line contains Total weight of all components
Third line contains **M** positive numbers each specifying the maximum marks in a component.

Each of the next **N** lines contains **M** numbers each specifying the marks of a student in all **M** components. A negative value (-1) indicates that student did not attempt that component.

User must be provided the following options

1. Load Data (To bring this data into memory from the files)
2. Save Records (To save the updated records into the files)
3. Add (To add marks of all students in a new component)
4. Delete (To delete marks of all students in a component)
5. Sort (Sort the records by total, by a specific component, by ID etc.
6. View All (View all records with total along with summary statistics)
7. Search (Search record of a specific student)

A very simple skeleton program is also provided along with this handout to give you an idea of how your program must be structured.