Project 1: Structure and Array

Description:
Write a program that provides a way for you to search and display information of all the students in a class. Student records including a class ID (c#), name of the student, and scores of multiple categories are saved in the file ***grades.dat***. Your program should:

- First, read all student information from the text file and store them in an array.
- Then display information of all the students in table format.
- Prompt user to input a valid c#, and the program display all the information of the student with the given c#. (when invalid c# is entered, continue to prompt until a valid c# is entered)
- Sort all the students by name, and display information of all the students in table format.

Requirements
You are required to:

- declare a structure **StudentType** to hold all information of a student, such as c#, name and all scores.
- declare a local variable **roster** in main function as an array of Student structure. This array will hold information of all students.
- declare and implement the following functions:
  - a function to read from the text file
  - a function to print information of all the students in table form
  - a function to print information of one student, with label for each data
  - a function to check whether a class ID is valid
  - a function to sort all students by name

  Function prototypes should be used for all user defined functions.
  Global variables are not allowed.

Example output

Here are the information of the 17 students:

ClassID	Name	CLA	OLA	Homework	Exam	Bonus
c0801	Tony	10	15	15	56	3
c0802	Sam	9	12	11	46	2
c0803	Bradly	8	10	12	50	1
c0804	Joy	5	5	10	53	3
c0805	Kimberly	3	11	10	45	0
c0806	Mike	8	14	11	40	1
c0807	Henry	4	12	12	48	2
c0808	Katy	10	10	11	36	0
c0809	Charles	8	8	11	39	0
c0810	Noah	6	9	9	47	3
c0811	Henry	8	7	13	41	3
c0812	Alexander	4	11	11	37	1
c0813	Rihanna	9	15	8	50	2
c0814	Sophia	8	12	10	48	3
c0815	Jordan	6	8	7	45	1
c0816	Natalie	7	7	6	51	2
c0817	Matthew	8	9	12	38	2

Enter a valid class ID:c0830

Enter a valid class ID:c0800

Enter a valid class ID:c0804
Information for student with ID :c0804:
Name : Joy
CLA : 5
OLA : 5
Homework : 10
Exam : 53
Bonus : 3

sorting student records by name ....
Here are the information of the 17 students:

ClassID	Name	CLA	OLA	Homework	Exam	Bonus
c0812	Alexander	4	11	11	37	1
c0803	Bradly	8	10	12	50	1
c0809	Charles	8	8	11	39	0
c0807	Henry	4	12	12	48	2
c0811	Henry	8	7	13	41	3
c0815	Jordan	6	8	7	45	1
c0804	Joy	5	5	10	53	3
c0808	Katy	10	10	11	36	0
c0805	Kimberly	3	11	10	45	0
c0817	Matthew	8	9	12	38	2
c0806	Mike	8	14	11	40	1
c0816	Natalie	7	7	6	51	2
c0810	Noah	6	9	9	47	3
c0813	Rihanna	9	15	8	50	2
c0802	Sam	9	12	11	46	2
c0814	Sophia	8	12	10	48	3
c0801	Tony	10	15	15	56	3

How to submit your Project

- Thoroughly test your program with different user inputs. Check that the program outputs are correct. When you are ready to submit your project, click on the "Submit" button located at the upper right corner of the replit project window
- Submit the project before the due date to avoid late penalty. You may edit and submit your project multiple times before project due date.
- After the due date, do not edit and re-submit your project. The last edit and submit date recorded on replit is used for grading purpose. ***If the last edit/submit date is after the due date, it is considered late submission.***