AMIT – C Programming Project

Create a database module "SimpleDb" that holds the following parameters:

- Student ID
- Student Year
- Course_1 ID
- Course_1 Grade
- Course_2 ID
- Course_2 Grade
- Course_3 ID
- Course_3 Grade

Note: The maximum size of the database is 10 entries

The following Interfaces should be provided by the developed module:

- bool SDB_IsFull(void)
  - Description: Check if the database is full
  - Return Value: Return 1 if the the database is full, otherwise 0
- uint8 SDB_GetUsedSize(void)
  - Description: Get the number of entries in the database
  - Return: Return the number of entries
- bool SDB_AddEntry(uint8 id, uint8 year, uint8* subjects, uint8* grades)
  - Description: Add new entry to the database
  - Return: Return 1 if the new entry is successfully added; otherwise 0
  - Input Parameter - id: Student ID
  - Input Paramater - year: Student Year
  - Input Parameter - subjects: Pointer to 3 subject IDs, with each subject id is a uint8 value
  - Input Parameter - grades: Pointer to 3 grades, with each grade is a uint8 value
  - The allowed range for the grade is only from 0 to 100
  - Assume that the caller will always provide the 3 subjects with their grades
- void SDB_DeleteEntry(uint8 id)
  - Description: Delete the entry with the given ID
  - Input Parameter - id: ID of the entry to be deleted

- bool SDB_ReadEntry(uint8 id, uint8* year, uint8* subjects, uint8* grades)
  - Description: Read an entry matching the provided ID
  - Return Value: Return 1 if the entry exist, otherwise 0
  - Input Parameter - id: Student ID
  - Output Parameter - year: Pointer to the student year
  - Output Parameter - subjects: Pointer to the subjects
  - Output Parameter - grades: Pointer to the grades
- void SDB_GetIdList(uint8* count, uint8* list)
  - Description: Get the list of IDs of the students
  - Output Parameter - count: Pointer to the number of entries currently exists in the database
  - Output Parameter - list: Pointer to the list of IDs
- bool SDB_IsIdExist(uint8 ID)
  - Description: Checks if the the provided student ID exists
  - Return Value: Return 1 if ID exists in the database, otherwise 0