7 Homework

You already know "**structure**" and "**stack**" concepts. For this homework, we want you to construct a stack based C code. Consider maximum number of elements as **45**. You can use the given sample students data below. The data should be read from **students.txt** file. Each stack member is of **type struct called "students"**. **Structure "students" has the following members: {stdID, name, yearofbirth, gpa}.**

Sample student data:

190301	Pascal Nouma	1980	2.75
190302	Sergen Yalcin	1977	3.78
190303	Mehmet Ozdilek	1965	4.00
190501	Hakan Sukur	1970	1.40
190502	Georghe Hagi	1965	3.40
190701	Alex De Souza	1980	3.00
190702	Selcuk Sahin	1988	0.70
190304	Ibrahim Uzulmez	1980	1.11
190503	Sabri Sarioglu	2000	0.10

You need firstly to create basic stack manipulation functions.
void init_stack()
int give_count()
struct students pop()
void push()

In addition to the basic stack manipulation functions you have to implement the following functions:

1.) **students_list():** If we call this function it prints stdID and the student names with yearofbirth and gpa.

   Console output should be:

   ```
   1.) 190301 Pascal Nouma 1980 2.75
   2.) 190302 Sergen Yalcin 1977 3.78
   .
   .
   .
   ```

2.) **Stats_on_gpa():** If we call this function it calculates and prints **the minimum, maximum** and **average** of gpa values of students.

   Console output should be:

   ```
   Minimum GPA of students: 0.1000
   Average GPA of students: 2.2489
   Maximum GPA of students: 4.0000
   ```

3.) **performance_list():** If we call this function it prints the student names and performance results as **"Best", "Worst", "Successful"** or **"Failed"** according to the gpa value. If student's gpa is higher than average, it returns *Successful*, if not, *Failed*. In addition to this, If student's gpa is the highest gpa, it returns *Best*, If it is the lowest, it returns *Worst*.

Console output should be:

> **1.) Pascal Nouma → Successful**
> **2.) Sergen Yalcin → Successful**
> **3.) Mehmet Ozdilek → Best**
> **4.) Hakan Sukur → Failed**
> .
> .
> .
> **9.) Sabri Sarioglu → Worst**

> *Hint: There are many operations to be applied for this homework. Building your codes in a user friendly way, is %50 of the total grade. You may create a menu or any other thing to simplify the usage of the executed program.*