Documentation

1. Statement

Write an application which manages the marks and the laboratory problems for a certain subject.

The application manages:

- **students: <studentId>, <name>, <group>**
- **laboratory problem: <laboratoryNumber_problemNumber>, <description>, <deadline>**

The application allows:

- **Management of the list of students and laboratory problems.**
- **Add, delete and update the list of students and laboratory problems.**
- **Search a student or a laboratory problem.**
- **Assign a laboratory / Mark a laboratory.**
- **Create statistics:**
  - **list of students and their marks for a given laboratory problem ordered by name alphabetically and mark**
  - **all students with an average mark smaller than 5 (name and average mark)**

2. Features

Index	Feature
F1.1	Add a student to the list of students.
F1.2	Delete a student from the list of students.
F1.3	Update a student from the list of students.
F2.1	Add a problem to the list of laboratory problems.
F2.2	Delete a problem from the list of laboratory problems.
F2.3	Update a problem from the list of laboratory problems.
F3.1	Search a student from the list of students by ID.
F3.2	Search a problem from the list of laboratory problems by laboratory number and problem number.
F4.1	Assign a laboratory problem.
F4.2	Mark a laboratory problem.
F5.1	Display all students and their marks at a given laboratory problem ordered alphabetically by their marks
F5.2	Display all students whose average mark is smaller than five and their average mark.

3. Iterations

Index	Planned features
1.	F1.1, F1.2, F1.3, F2.1, F2.2, F2.3
2.	F3.1, F3.2, F4.1, F4.2
3.	F5.1, F52

4. Running scenarios

Adding a student

Scenario #1

Index	Input	Output	Explanation
1.	add student	-	The user chooses to add a new student.
2.	-	Input the ID of the student.	The user is asked to input the ID of the student.
3.	1	-	The applications receives the input from the user.
4.	-	There is already a student with the ID of 1.	The user is notified that there is already a student with the ID of 1.

Scenario #2

Index	Input	Output	Explanation
1.	add student	-	The user chooses to add a new student.
2.	-	Input the ID of the student.	The user is asked to input the ID of the student.
3.	2	-	The application receives the input from the user.
4.	-	Input the name of the student.	The user is asked to input the name of the student.
5.	George	-	The application receives the input from the user.
6.	-	Input the student's group.	The user is asked to input the student's group.
7.	213	-	The application receives the input from the user.
8.	-	The student has been added successfully.	The application notifies the user that the operation was successful.

Deleting a student

Scenario #1

Index	Input	Output	Explanation
1.	delete student	-	The user chooses to delete a student.
2.	-	Input the ID of the student which will be deleted.	The user is asked to input the ID of the student which will be deleted.
3.	200	-	The application receives the input from the user.
4.	-	There is no student with the ID of 200.	The user is notified that the input ID didn't belong to any student.

Scenario #2

Index	Input	Output	Explanation
1.	delete student	-	The user chooses to delete a student.
2.	-	Input the ID of the student which will be deleted.	The user is asked to input the ID of the student which will be deleted.
3.	213	-	The application receives the input from the user.
4.	-	The following student has been deleted successfully.	The user is notified that the student with the input ID was deleted successfully.
5.	-	A table.	The application prints a table with the information of the deleted student.

Updating a student

Scenario #1

Index	Input	Output	Explanation
1.	update student	-	The user chooses to update a student.
2.	-	Input the ID of the student which will be updated.	The user is asked to input the ID of the student which will be updated.
3.	200	-	The application receives the input from the user.
4.	-	There is no student with the ID of 200, please input another ID.	The user is notified that the input ID didn't belong to any student.

Scenario #2

Index	Input	Output	Explanation
1.	update student	-	The user chooses to update a student.
2.	-	Input the ID of the student which will be updated.	The user is asked to input the ID of the student which will be updated.
3.	213	-	The application receives the input from the user.
4.	-	The following student will be updated: A table	The application prints a table with the student that will be updated.
5.	-	Input the updated name of the student.	The user is asked to input the updated name of the student.
6.	Ionel	-	The application receives the input from the user.
7.	-	Input the updated student's group.	The user is asked to input the updated student's group.
8.	214	-	The application receives the input from the user.
9.	-	The student has been updated successfully.	The user is being notified that the update was successful.

Adding a problem

Scenario #1

Index	Input	Output	Explanation
1.	add problem	-	The user chooses to add a new problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	1	-	The application receives the input from the user.
6.	-	There is already a problem 2 in laboratory 2.	The user is notified that there's already a problem 2 in laboratory 2.

Scenario #2

Index	Input	Output	Explanation
1.	add problem	-	The user chooses to add a new problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	2	-	The application receives the input from the user.
5.	-	Input the description of the problem.	The user is asked to input the description of the problem.
6.	This is a difficult problem.	-	The application receives the input from the user.
7.	-	Input the deadline of the problem, it must have the following format: mm/dd/yyyy.	The user is asked to input the deadline of the problem.
8.	11/20/2023	-	The application receives the input from the user.
9.	-	The problem has been added successfully.	The user is notified that the problem has been added successfully.

Deleting a problem

Scenario #1

Index	Input	Output	Explanation
1.	delete problem	-	The user chooses to delete a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	12	-	The application receives the input from the user.
6.	-	There is no problem 12 in laboratory 2.	The user is notified that the problem 12 from laboratory 2 does not exist.

Scenario #2

Index	Input	Output	Explanation
1.	delete problem	-	The user chooses to delete a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	2	-	The application receives the input from the user.
6.	-	The following problem has been deleted successfully.	The user is notified that the input problem has been deleted.
7.	-	A table.	The application prints a table with the information of the deleted problem.

Updating a problem

Scenario #1

Index	Input	Output	Explanation
1.	update problem	-	The user chooses to update a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	12	-	The application receives the input from the user.
6.	-	There is no problem 12 in laboratory 2.	The user is notified that the problem 12 from laboratory 2 does not exist.

Scenario #2

Index	Input	Output	Explanation
1.	update problem	-	The user chooses to update a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	2	-	The application receives the input from the user.
6.	-	The following problem will be updated: A table	The application prints a table with the problem that will be updated.
7.	-	Input the updated description of the problem.	The user is asked to input the updated description of the problem.
8.	The is an easy problem.	-	The application receives the input from the user.
9.	-	Input the updated deadline of the problem, it must have the following format: mm/dd/yyyy.	The user is asked to input the updated deadline of the problem.
10.	12/02/2023	-	The application receives the input from the user.
11.	-	The problem has been updated successfully.	The user is notified that the problem has been updated successfully.

Searching a student by ID

Scenario #1

Index	Input	Output	Explanation
1.	search student	-	The user chooses the search a student by their ID.
2.	-	Input the ID of the student.	The user is asked to input the ID of student which will be searched.
3.	200	-	The application receives the input from the user.
4.	-	There is no student with the ID of 200.	The user is notified that the input ID didn't belong to any student.

Scenario #2

Index	Input	Output	Explanation
1.	search student	-	The user chooses the search a student by their ID.
2.	-	Input the ID of the student.	The user is asked to input the ID of student which will be searched.
3.	213	-	The application receives the input from the user.
4.	-	A table.	The application prints a table with the information of the searched student.

Searching a problem by laboratory number and problem number

Scenario #1

Index	Input	Output	Explanation
1.	search problem	-	The user chooses to search a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	12	-	The application receives the input from the user.
6.	-	There is no problem 12 in laboratory 2.	The user is notified that the problem 12 from laboratory 2 does not exist.

Scenario #2

Index	Input	Output	Explanation
1.	search problem	-	The user chooses to search a problem.
2.	-	Input the laboratory of the problem.	The user is asked to input the laboratory of the problem.
3.	2	-	The application receives the input from the user.
4.	-	Input the number of the problem.	The user is asked to input the number of the problem.
5.	2	-	The application receives the input from the user.
6.	-	A table.	The application prints a table with the information of the searched problem.