

Students Laboratory Analysis and Design Document

Version 1.0

27 February, 2017

Developed by:

Szekely Robert

Group 934, year 3

Version History

Version	Description of Change	Author	Date
V01	Initial/Modification of ....	Student Name	27 February, 2017

## Contents

[Your project name] Analysis and Design Document.....	1
Version 1.0 .....	1
27 February, 2017 .....	1
1 Functional Requirements .....	3
2 Actors .....	3
3 Use cases – diagram .....	3
3.1 Use case number X (name).....	3
4 Analysis.....	5
4.1 Entities.....	5
4.2 Relations between entities.....	5
4.3 Attributes.....	5
4.4 System behavior .....	5
4.4.1 Use case X.....	5
4.5 System events.....	5
5 Design .....	5

## Analysis and design Document

### 1 Functional Requirements

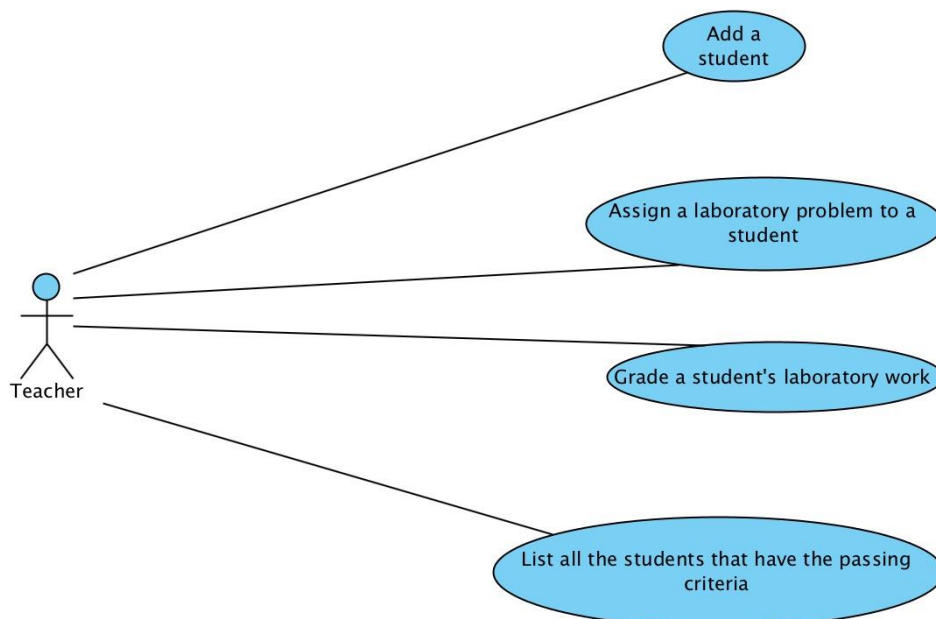
List the functional requirements (FR) of the system.

Section/ Requirement ID	Requirement Definition
FR1.0.	The system shall add students (registration number, name, group)
FR2.0.	The system shall assign grades and laboratories to students.
FR2.1	The system shall assign a laboratory to a student.
FR2.2	The system shall assign a grade to a student's laboratory work.
FR3.0.	The system shall list all students that have passed the laboratory (ordered by groups)
FR3.1.	The system shall list all the students.

### 2 Actors

Teacher

### 3 Use cases – diagram



#### 3.1 Use case number 1 (adding a student)

Actors: Teacher

Description: A teacher can add a student to the application.

Precondition: A valid student entry.

Postcondition: Display message successful.

User action	System response
Add student option selected	
	Input student data
Inputs student data	
	Student validation check, added to the system

Exceptions:

### 3.2 Use case number 2 (assigning a grade and lab to a student)

Actors: Teacher

Description: A teacher can assign a laboratory problem number to a student.

Precondition: A valid student entry, valid laboratory problem number.

Postcondition: Display message successful.

User action	System response
Assign laboratory to student	
	Input laboratory data
Inputs laboratory data	
	Laboratory validation check, added to the system

Exceptions: Laboratory data invalid, error message prompted.

### 3.3 Use case number 3 (assigning a grade to a student's laboratory work)

Actors: Teacher

Description: A teacher can assign a grade to a student's laboratory work

Precondition: A valid student entry, valid laboratory problem number, valid grade.

Postcondition: Display message successful.

User action	System response
Assign grade to student's laboratory	
	Input grade
Inputs grade	
	Grade validation, grade added to the system

Exceptions: Grade is invalid, error message prompted

### 3.4 Use case number 3 (listing all the students that have passed a lab)

Actors: Teacher

Description: A teacher can list all the students that have the passing criteria.

Precondition:

Postcondition: List of all the students with the minimum final grade of 5, ordered by groups.

User action	System response
List all students with passing criteria	
	Filters the students based on the criteria

Exceptions: No students in the system or no students match the criteria, message prompted

## **4 Analysis**

### **4.1 Entities**

- Student entity
- Laboratory entity

### **4.2 Relations between entities**

Each laboratory is assigned to a student (one-to-one relationship)

### **4.3 Attributes**

- Student : registration number, name, group
- Laboratory: laboratory number, date, problem number, grade, student registration number

### **4.4 System behavior**

#### **4.4.1 Use case 1**

Normal behavior: Student is added to the system. Success message displayed.

Exceptions: Student data is invalid, error prompted.

#### **4.4.2 Use case 2**

Normal behavior: Laboratory assigned to student. Success message displayed.

Exceptions: Laboratory data is invalid, error prompted.

#### **4.4.3 Use case 3**

Normal behavior: Grade is assigned to student's laboratory. Success message displayed.

Exceptions: Grade is invalid, error prompted.

#### **4.4.4 Use case 4**

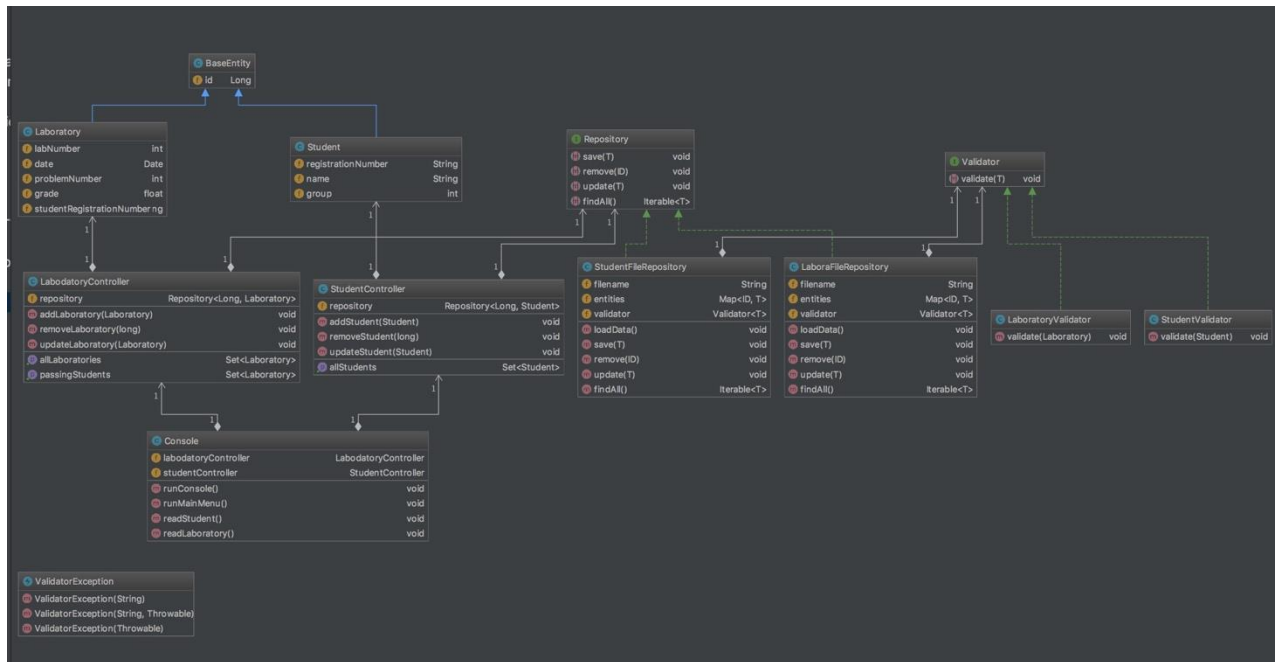
Normal behavior: List of students that passed is prompted.

Exceptions: No students in the application, or that have passed, message displayed.

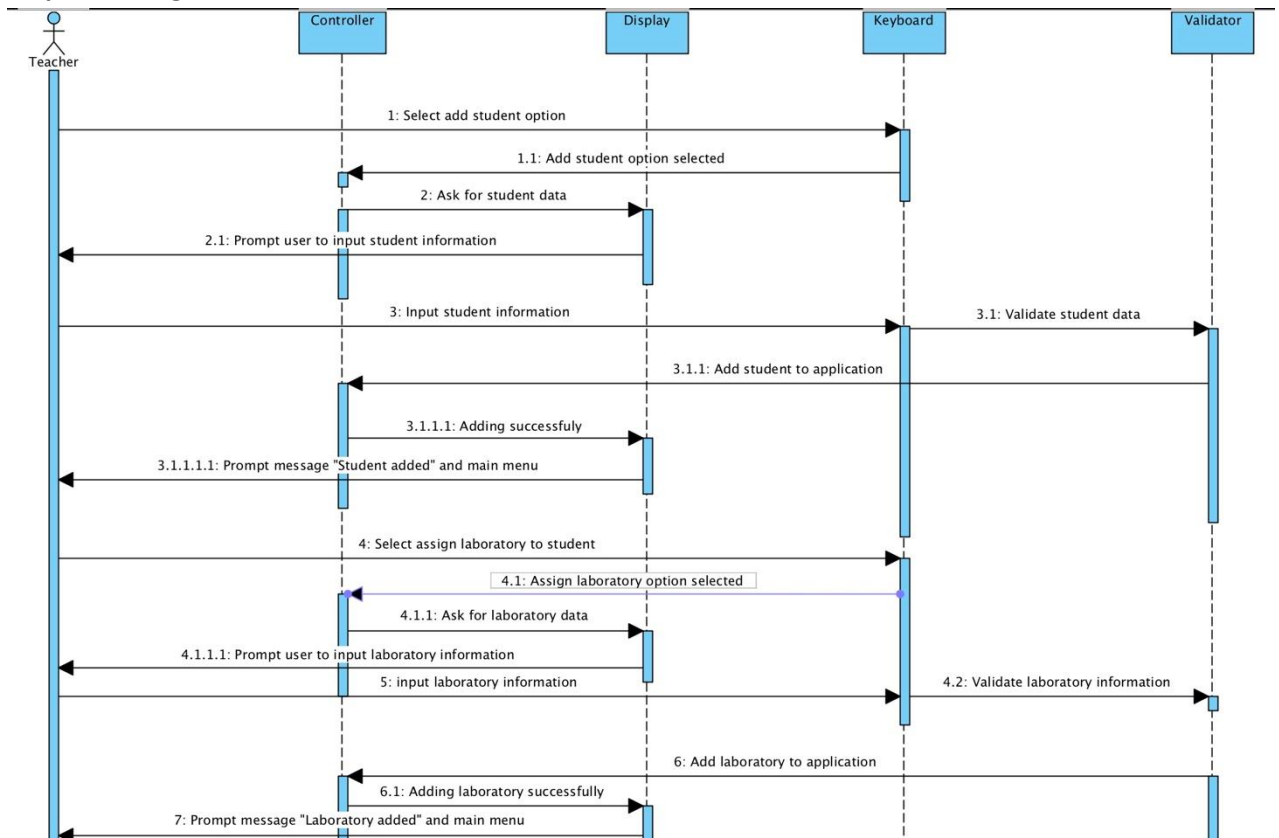
### **4.5 System events**

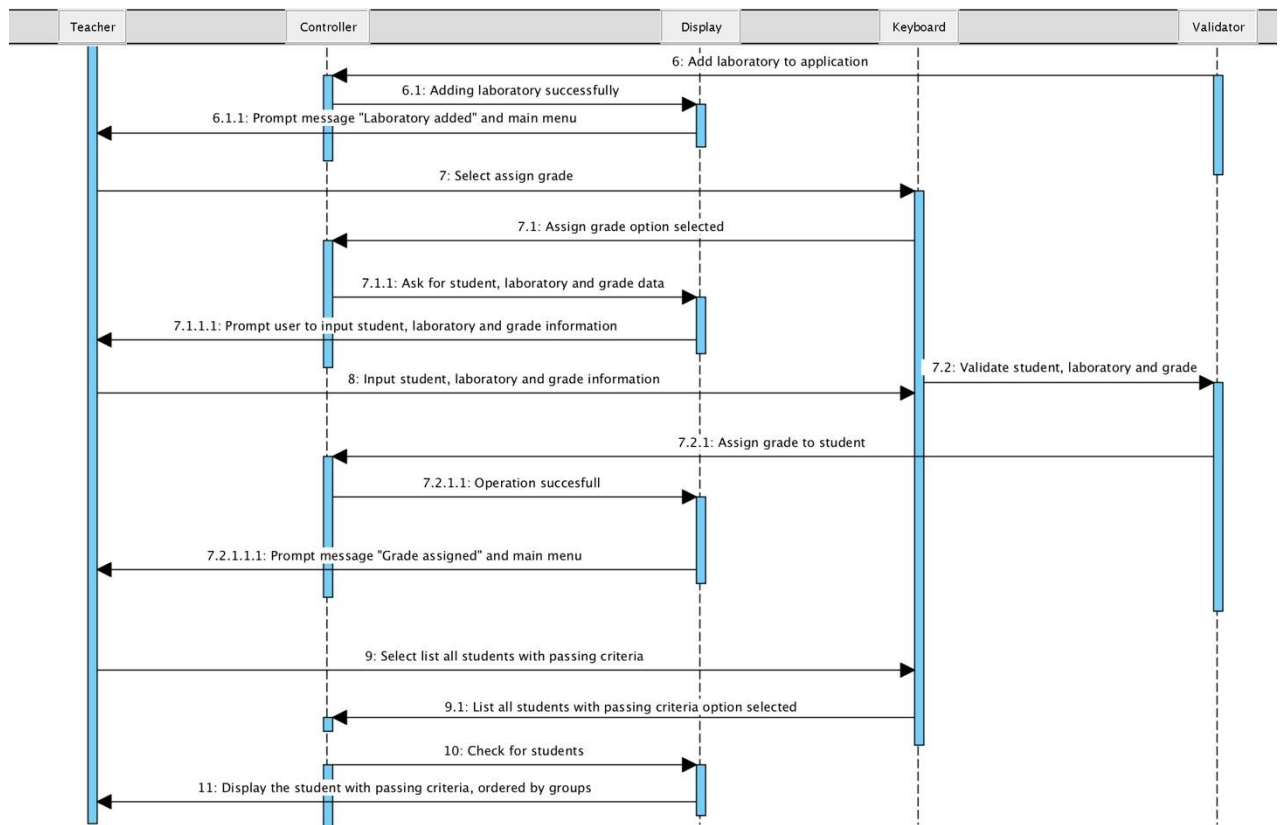
## **5 Design**

### **5.1 Class diagram**



## 5.2 Sequence diagrams





### 5.3 GRASP