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# **Assistant Code Evaluator**

Software Manual

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## Introduction

Assistant Code Evaluator is a PC Software that aims to aid professor's task of grading exams on Computer Science degrees.

It provides a simple and effective solution to keep the professor's task fast and easier. It eliminates most of the hard work of correcting student's exams by making it all online.

The software allows the user to submit student's exercises and delegate it to other users (professors) that can correct the exam giving grades and correcting.

### **Assistant Code Evaluator Admin features:**

1. Two different login pages, with navigation from one page to another;
2. Login is made using Basic Authorization;
3. Different error messages for cases where access is forbidden, unauthorized or just error in connection occurred.
4. Angular AuthGuards prevent from accessing page URLs directly without logging in;
5. Color pallet, global look and feel for the application, as well as an original logo and favicon.
6. Global routing for the page, both Administrator (sidebar) and Examiner modules.
7. Create Exams Module, for Administrator allows to create an exam and persist it to database;
8. Create Exams Module, for Administrator allows to create different exercises inside an exam and persist it to database;

9. Create Exams Module, for Administrator allows to create different Criterias for each exercise inside an exam and persist it to database;
10. Exercise weights and Criteria weights cannot exceed 100% - Custom error messages are presented otherwise.

## **System Requirements**

Assistant Code Evaluator supports Google Chrome, Internet Explorer, Safari and Mozilla Firefox.

The program automatically adapts itself to the browser on which it runs, eliminating the need for manual settings.

### **Recommended system configuration:**

Google Chrome v54.0

Firefox v50

Safari v9.1

## Login

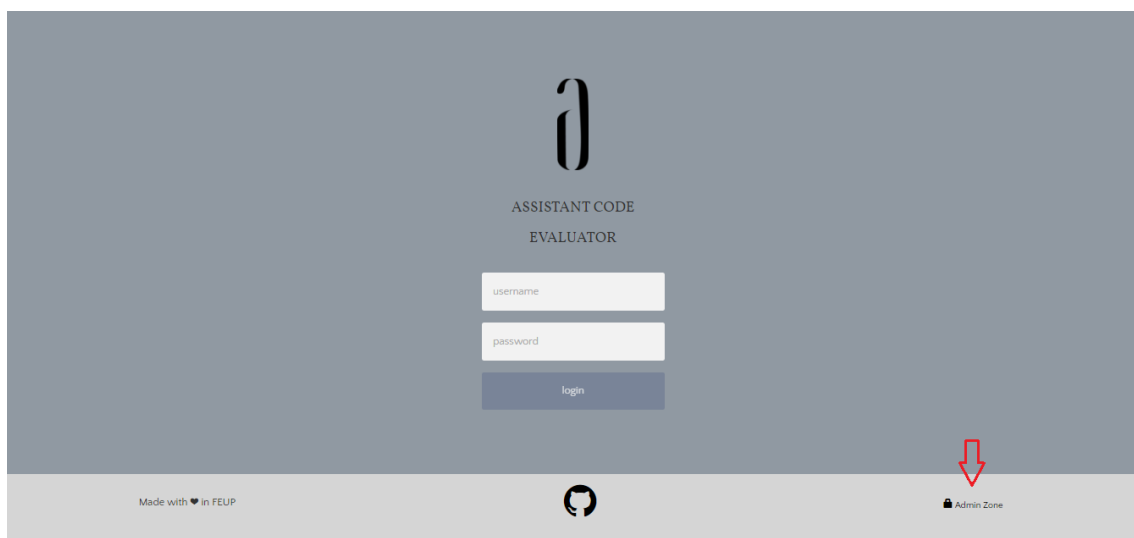
*As an administrator I want to have an option in login page only for ADMIN  
So that I can introduce the administrator credentials.*

**First**, if you are an Administrator of the system, you must select the “Admin” link located on the right corner of the screen. If you are an Evaluator you must select the “Examiner” link at the same place.

**Then**, insert your credentials and press the “login” button.

**Notice:** By default the “Examiner” login is already selected.

**Notice:** If you don’t have an account yet, you can ask the system administrator to create you one.



## Create Exercise

*As an Administrator I want to create an exercise So that I can use it on an exam.*

**First**, select the “Create Exams” located in the left navigation menu.

**Then**, you must click at the “Add Exercise” button.

The screenshot shows the 'Admin Screen' with a sidebar on the left containing the 'Evaluator' menu item. The main content area is titled 'Exercises' and displays the message 'You haven't created any exercises yet.' Below this message is a blue button labeled 'Add Exercise', which is highlighted by a red arrow. To the left of the button is a form with the following fields: 'Exam Name', 'Degree', 'Course', and 'Code Language' (a dropdown menu). Below these fields is a date picker set to 'December 2016'.

**After**, fill the Create Exercise form that is presented.

The screenshot shows the 'Create Exercise' form. It has a title bar 'Exercise' with a close button. The form contains the following sections:

- Title:** A text input field.
- Question:** A large text area for the exercise question.
- Weight:** A text input field.
- Criteria:** A section with a description: 'Fill out the different criteria for the exercise The Gama value represents the range of grades that the examiner will be able to give Weight is a percentage value of the criteria in the exercise and should equal 100.' Below this is a table with columns 'Description', 'Gama', and 'Weight'. There is a '+' button to add more criteria.
- Compilation command:** A text input field with the example 'Ex: gcc [file name] library.c'.
- Execution command:** A text input field with the example 'Example: [file name] arg1 arg2'.

At the bottom, there are two buttons: 'Import Libraries...' and 'Create Exercise'.

**Notice:** The weight all questions combined must be equals to 100%

Ex: Question 1 = weight 50%

Ex: Question 2 = weight 50%

Total: weight 100%.

**Notice:** The descriptions weight of all Criterias combined must be equals to 100%

Criteria description 1 = Gama 1, weight 60%

Criteria description 2 = Gama 1, weight 40%

Criteria Total = weight 100%

**Libraries:** Some exercises require a library to be loaded so that the software can compile the code.

To upload a library you must simple select the “Import Libraries” button at the bottom of the Create Exercise form.

The libraries have some unique **Compilation** and **Execution** commands.

**Notice:**

Compilation: In the command build, where the name of the specific file should be, put something in square brackets. Example: "gcc [file name] library.c"

Execution: For the execution command, in the place where the name of the file should be, insert square brackets. Example: "[file name] arg1 arg2"


The created exercise will now be presented at the “Create Exams” view.

## Create Exam

*As an Administrator I want to create an exam So that I can have an automatic evaluation.*

**First**, to create an Exam, you must fill all the exam info: Exam Name, Degree, Course, Code Language and the Exam Date.

Admin Screen



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Exam Name

Exam 1 2017

Degree

MASTER

Course

MESW

Code Language

C

Date:

<

January 2017

>

Su	Mo	Tu	We	Th	Fr	Sa
01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	01	02	03	04
05	06	07	08	09	10	11

Create Exam

Import CSV...

Exercises

Name	Question	Weight	#Criteria
Exercise 1	Quest 1	50%	1
Exercise 2	Quest 2	50%	1

Add Exercise


**Then**, after all the form has been fulfilled you can click the “Create Exam” button, located at the bottom of the page.

## Edit Exam

*As an Administrator I want to edit an exam. So that I can modify it when I want.*

**First**, select the “View Exams” button located in the left part of the screen.

Admin Screen



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Available exams in the platform:

Order:  
Date

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

Edit

Delete


Export Grade

Global view

Import Submissions

**Then**, select an exam and click the “Edit” button.





Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout


Admin Screen

Available exams in the platform:


Order:

Exam	Degree	Ciies	Date	Code Language	Status
Recoba Final	MESV	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MEIC	Programacao1	Thursday, January 1, 2016	Java	Open
Exam2	MESV	LES	Thursday, January 1, 2016	C	Open

Edit
Delete
Export Grade
Global View
Import Submissions



**Then**, you can edit the exam's Name, Degree, Couse, Code Language, Date, and each exercises' degree weight. Click the "Submit" button to save all changes.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

Exam Name:

Degree:

Course:

Code Language:

Date:

Students

Name	Username
Ana	up2068544
Joao	up2068545

Exercises

Exercise1


Exercise2

Submit

## Delete Exam

*As an administrator I want to be able to delete exams So that I can exclude them from the system.*

**First**, select the "View Exams" button locate in the left part of the screen.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

Exam Name:

Degree:

Course:

Code Language:

Date:

Students

Name	Username
Ana	up2068544
Joao	up2068545

Exercises

Exercise1

Exercise2

Submit

Assistant Code Evaluator

- [View Exams](#)
- [Create Exams](#)
- [View Examiners](#)
- [Create Examiners](#)
- [Delegate Exercises](#)
- [Logout](#)

Admin Screen

Available exams in the platform:

Order: Date

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

[Edit](#)
[Delete](#)
[Export Grade](#)
[Global view](#)
[Import Submissions](#)

**Then**, select an exam and click the “Delete” button.

Assistant Code Evaluator

- [View Exams](#)
- [Create Exams](#)
- [View Examiners](#)
- [Create Examiners](#)
- [Delegate Exercises](#)
- [Logout](#)

Admin Screen

Available exams in the platform:

Order: Date

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

[Edit](#)
[Delete](#)
[Export Grade](#)
[Global view](#)
[Import Submissions](#)

**Then**, confirm again by selecting yes.

Assistant Code Evaluator

- [View Exams](#)
- [Create Exams](#)
- [View Examiners](#)
- [Create Examiners](#)
- [Delegate Exercises](#)
- [Logout](#)

Admin Screen

**Delete Exam**

Are you sure you want to delete?

All exercises and respective submissions will also be deleted.

Yes
No

Available exams in the platform:

Order: Date

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open


[Edit](#)
[Delete](#)
[Export Grade](#)
[Global view](#)
[Import Submissions](#)

## Global View of an Exam

*As an administrator. I want to view a table with my exams, respective created questions and assigned examiners. So that I can delegate exams to the examiners available.*

**First**, select the “View Exams” button locate in the left part of the screen.

10 | Page



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

Available exams in the platform:

Order:

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

[Edit](#)
[Delete](#)
[Export Grade](#)
[Global view](#)
[Import Submissions](#)

**Then**, select an exam and click the “Global View” button.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

Available exams in the platform:


Order:

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

[Edit](#)
[Delete](#)
[Export Grade](#)
[Global view](#)
[Import Submissions](#)



**Then**, you can view all the exercises’ assigned Examiners and each student’s grades.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

**Exam1** MIEIC Thursday, January 1, 2015 Programacao1

Exercises

Exercise	Progress	Status	Weight	Assignee
Exercise1	0/2	Open	50%	Luis Teixeira
Exercise2	0/1	Open	50%	Unassigned

Submissions

Please select an Exercise.

Grades

Student	Exercise1 done	Exercise2 done	Grade
up2095544	NE	NS	0.00
AVERAGE	0.00	0.00	0.00

NE - This exercise was not submitted by the student. This means the student grade equals 0.00  
NS - This submission was not rated by an examiner

## Export Grades

*As an administrator I want to Export grades so that I can save the grades and evaluate the students for the semester*

**First**, to export an exam grade you must select the exam at the “View Exams” tab and press the “Export Grade” button.

The screenshot shows the 'Admin Screen' interface. On the left is a sidebar with a logo and the title 'Assistant Code Evaluator'. The sidebar contains the following menu items: 'View Exams', 'Create Exams', 'View Examiners', 'Create Examiners', 'Delegate Exercises', and 'Logout'. The main content area is titled 'Available exams in the platform:'. It features an 'Order:' dropdown menu set to 'Date'. Below this is a table with the following data:

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2015	C	Open

Below the table are five buttons: 'Edit', 'Delete', 'Export Grade', 'Global View', and 'Import Submissions'.

This action will result in a CSV with all the exam information. The file is downloaded automatically by your browser.


## Import Submissions

*As an administrator I want to have an import submissions option So that I can be redirected to the import screen.*

**First**, select the “View Exams” button locate in the left part of the screen.

This screenshot is identical to the one above, showing the 'Admin Screen' interface. The 'View Exams' button in the sidebar is highlighted, and the 'Import Submissions' button is visible below the table.

**Then**, select an exam and click the “Import Submissions” button.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen


Available exams in the platform:

Order:

Exam	Degree	Class	Date	Code Language	Status
Recoba Final	MESW	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MEDC	Programacao1	Thursday, January 1, 2016	Java	Open
Exam2	MESW	LES	Thursday, January 1, 2016	C	Open

Edit Delete Export Grade Global View Import Submissions

**Then**, click on the “Import Submissions” button and select a ZIP file containing all students’ submissions.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout


Admin Screen

### Submission Import

The submitted file should be a compressed file (.zip) with all the student submissions for the given exam.  
 The student submissions should have the following name convention:  
 username + \_ + exercise name

Import Submissions

**After**, selecting the ZIP file a table is presented containing all students’ submissions.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

### Submission Import

The submitted file should be a compressed file (.zip) with all the student submissions for the given exam.  
 The student submissions should have the following name convention:  
 username + \_ + exercise name

Username	Name	Exercice3
up2060544	Ana	●
up2060545	Luis	●
up2060546		●
up2060547		●

Cancel Submit

**Notice:**

- Each file must have the following syntax: “[username]\_[exercise name]”.
- If a student is already present in the database and has the exam’s exercises already assigned to him, the column “Name” will have the student’s name and each exercises’ column will have a green icon.

- If a student is not already stored at the database, it will appear in a red color. Consequently, that student will be automatically created.
- If a student has not the exercise already assigned to him, a red icon will be shown in the exercise's column. Consequently, the system will automatically assign the exercise to the student.
- After importing the submissions, the system will automatically compile and execute each submission asynchronously.

## Create Examiner

*As an administrator. I want to create new examiners attributing them a name, username, email and password. So that I can add new examiners' profiles to the platform.*

**First**, select the “Create Examiner” button located in the left part of the screen.

The screenshot shows the 'Create Examiner' form in the Admin Screen. The form has a sidebar on the left with navigation links: View Exams, Create Exams, View Examiners, Create Examiners, Delegate Exercises, and Logout. The main form area has a title 'Admin Screen' at the top right. Below the title, there is a section for 'Required Fields' with five input fields: Name (placeholder: Insert Examiner Name), Username (placeholder: Insert Examiner Username), Email (placeholder: examiner@eup.it), Password (placeholder: Insert Examiner password), and Confirm Password (placeholder: Confirm Examiner password). A 'Create' button is located at the bottom of the form.

**Then**, write the Name, Username, Email, and Password of the desired examiner. Click the “Create” button to create the examiner.


Notice:

- The username must be unique.
- After creating an examiner, a registration notification will be sent to the examiner's email.

## Edit Examiner

*As an administrator I want to be notified by email, as well as the examiner, when the said examiner is edited/created so that I have a record of my action and the examiner gets its platform credentials.*


**First**, as an administrator you must select the “View Examiners” tab on the right side.



Assistant Code Evaluator

View Exams

Create Exams

View Examiners 

Create Examiners

Delegate Exercises

Logout

Admin Screen


Available exams in the platform:

Order:

Exam	Degree	Class	Date	Code Language	Status
Recolha Final	MESV	Programacao2	Sunday, January 22, 2017	C	Open
Exam1	MIEIC	Programacao1	Thursday, January 1, 2015	Java	Open
Exam2	MESV	LES	Thursday, January 1, 2015	C	Open

[Edit](#) [Delete](#) [Export Grade](#) [Global View](#) [Import Submissions](#)

**Then**, you must select an examiner that is presented on the list and select the “Edit” or “Delete” button.



Assistant Code Evaluator

View Exams

Create Exams

View Examiners

Create Examiners


Delegate Exercises

Logout

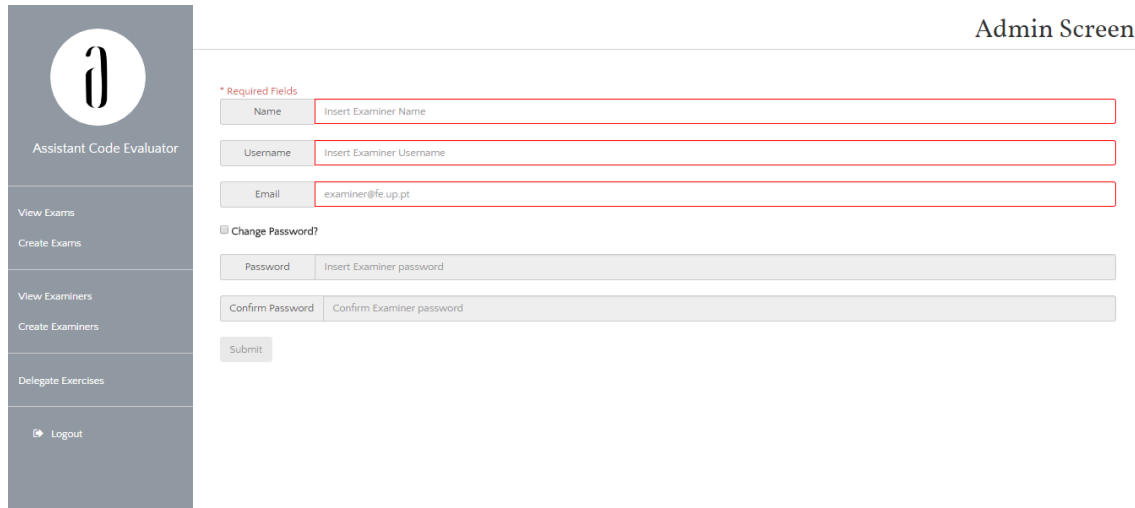
Admin Screen

Available Examiners in the platform

Name	Username	Email
Luis Teixeira	up2011765544	up2011765544@fe.up.pt
Nuno Flores	up2011765533	up2011765533@fe.up.pt

 [Edit](#) [Delete](#)

**Next**, you must fill the form that is presented. The account will be updated as you selected. If you would like to change the password you must select the “Change Password” otherwise the password will remain the same as before.



The screenshot shows the 'Admin Screen' with a sidebar on the left containing the following menu items: Assistant Code Evaluator, View Exams, Create Exams, View Examiners, Create Examiners, Delegate Exercises, and Logout. The main content area contains a form for updating an Assistant Code Evaluator account. The form has the following fields:

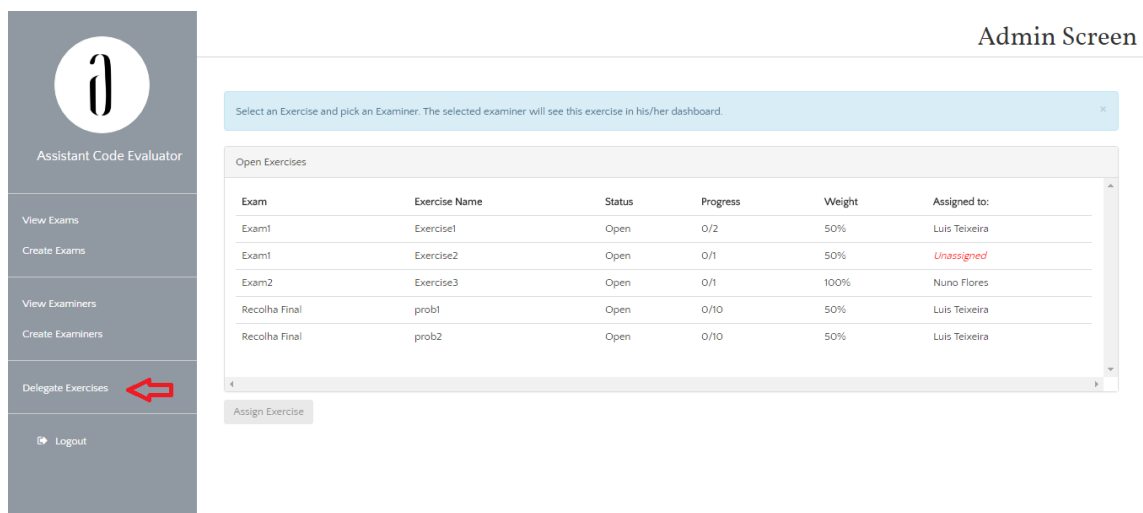
- Name:** Insert Examiner Name
- Username:** Insert Examiner Username
- Email:** examiner@fe.up.pt
- Change Password?:** (checkbox)
- Password:** Insert Examiner password
- Confirm Password:** Confirm Examiner password
- Submit** button

An email containing the user information will be sent to the edited user.

## Delegate Exercise to Examiner

*As an administrator I want to select, by username, an examiner available So that I can delegate him to an exercise from an exam.*

**First**, as an administrator select the “Delegate Exercise” tab from the right side menu.




The screenshot shows the 'Admin Screen' with the 'Delegate Exercises' tab selected in the sidebar, indicated by a red arrow. The main content area displays a table of 'Open Exercises' and an 'Assign Exercise' button.

Exam	Exercise Name	Status	Progress	Weight	Assigned to:
Exam1	Exercise1	Open	0/2	50%	Luis Teixeira
Exam1	Exercise2	Open	0/1	50%	Unassigned
Exam2	Exercise3	Open	0/1	100%	Nuno Flores
Recolha Final	prob1	Open	0/10	50%	Luis Teixeira
Recolha Final	prob2	Open	0/10	50%	Luis Teixeira

Below the table is an 'Assign Exercise' button.



**Then**, select an exercise that you want to delegate an examiner.



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
- Create Examiners
- Delegate Exercises
- Logout

Admin Screen

Select an Exercise and pick an Examiner. The selected examiner will see this exercise in his/her dashboard.

Exam	Exercise Name	Status	Progress	Weight	Assigned to:
Exam1	Exercise1	Open	0/2	50%	Luis Teixeira
Exam1	Exercise2	Open	0/1	50%	Unassigned
Exam2	Exercise3	Open	0/1	100%	Nuno Flores
Recolha Final	prob1	Open	0/10	50%	Luis Teixeira
Recolha Final	prob2	Open	0/10	50%	Luis Teixeira

Assign Exercise

**After**, select an examiner available from the examiner list so you can delegate the exam.

### Exercise

Examiner

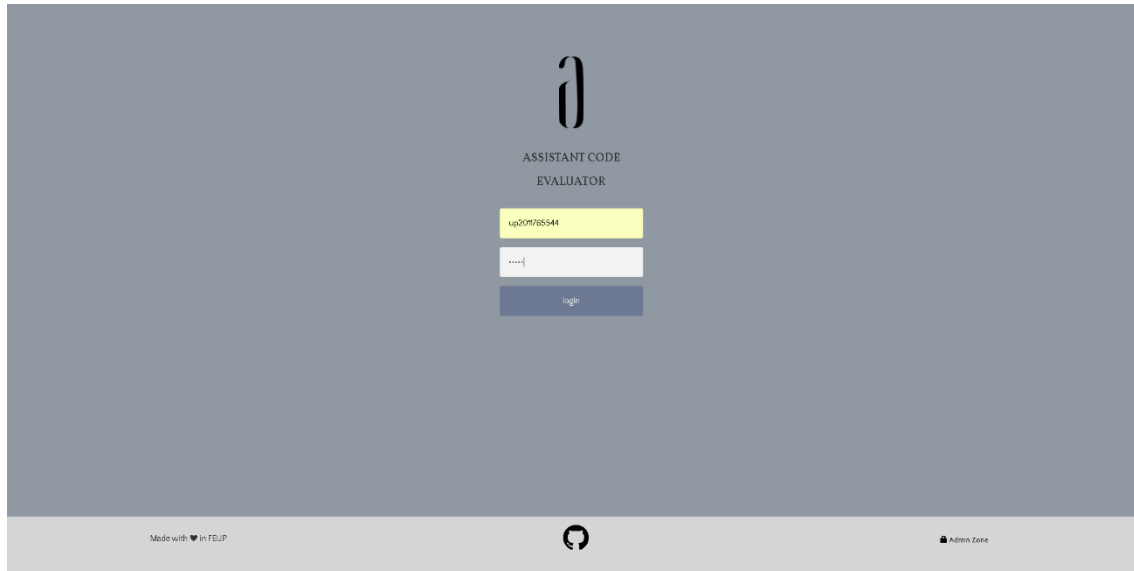
Unassigned

Assign

## Evaluate Exercise

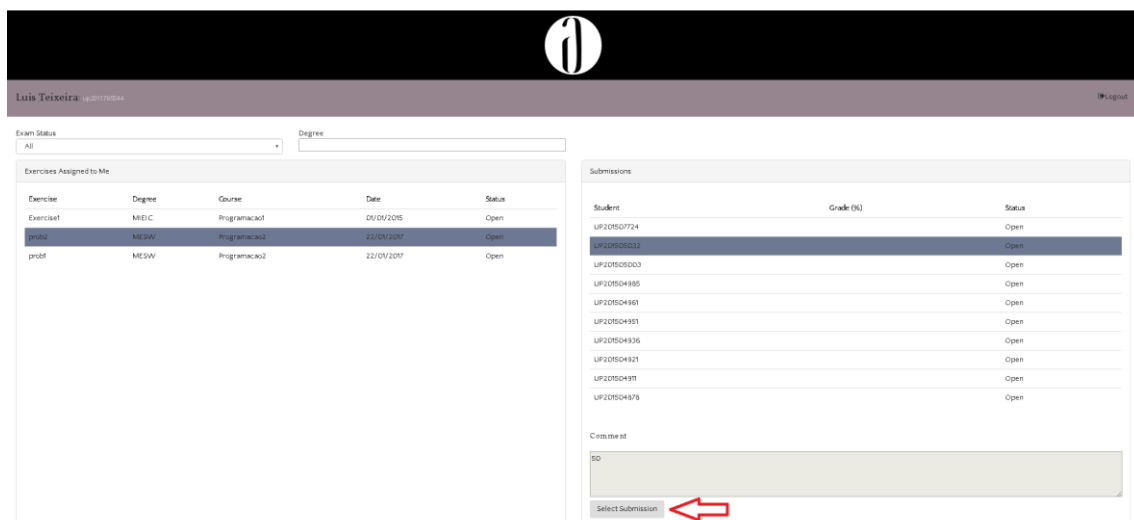
*As an examiner I want to be able to see the question and fill the grading criteria of the selected exercise So that I can be able to grade the submission.*

**First**, as an examiner login in the Examiners Login Page.



The login page features a large 'a' logo at the top center. Below it, the text 'ASSISTANT CODE EVALUATOR' is displayed. A yellow box contains the code 'up2019/28544'. Below this is a password field with four dots and a 'login' button. The footer includes 'Made with ❤️ in FEUP', a circular logo, and 'Admin Zone'.

**Then**, select an exercise and a student submission.



The dashboard shows a header with the 'a' logo and user 'Luís Teixeira up2019/28544'. It has two main sections: 'Exercises Assigned to Me' and 'Submissions'.

**Exercises Assigned to Me**

Exercise	Degree	Course	Date	Status
Exercis1	MEDC	Programac1	01/01/2015	Open
Exercis2	MEDV	Programac2	21/01/2017	Open
Exercis3	MEDV	Programac2	21/01/2017	Open

**Submissions**

Student	Grade (0)	Status
UP2019/0724		Open
UP2019/0002		Open
UP2019/0003		Open
UP2019/04985		Open
UP2019/04981		Open
UP2019/04981		Open
UP2019/04936		Open
UP2019/04921		Open
UP2019/04938		Open
UP2019/04979		Open

Below the submissions table is a 'Create at' field with a text input containing '50'. A 'Select Submission' button is at the bottom, with a red arrow pointing to it.

Notice:

- When selecting an exercise, you can filter the results by choosing the exam Status (“Open/Closed”) and by degree.
- When selecting a student submission, some may be already evaluated with an assigned grade. After

evaluated a student submission changes from “Open” status to “Closed”.

**Then**, the selected student submission is presented showing his code in the “Submission Code” label and the output of the submission in the “Code Output” label. With this two labels, you can assign a grade for each criteria.

After assigning the grade click on the “Save Evaluation” button.

The screenshot shows a web application interface for evaluating student submissions. The top navigation bar includes a logo, a home icon, and a user profile icon. The main content area is divided into three sections:

- Submission Code:** A text area containing the code `system.out.println("Hello World")`.
- Code Output:** A text area containing the output `one two`.
- Comments:** A text area with the placeholder text "00".

On the right side, there is an **Evaluation Criteria** panel. It contains a question "Create a Component Diagram" and two criteria:

- CRITERIO 2:** A dropdown menu with values 1, 2, and 3. The value 2 is selected.
- CRITERIO 1:** A dropdown menu with values 0, 1, and 2. The value 1 is selected.

Below the criteria, there is a "Save Evaluation" button. At the bottom right, a status bar shows the current score (50%), the total score (10), and the status "Not Submitted".

Notice:

- The student submission code, after compilation and execution, its output is presented in the “Code Output” label. If some error occurs on compilation or execution the error will also be presented in the code output.
- You are not obliged to comment each student submission.
- After filling the criteria, the final grade is presented in percentage and value (out of 20).

