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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

## 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 left sidebar containing 'Evaluator' and 'Create Exams'. The main content area has a form for creating an exercise. The form includes fields for 'Exam Name', 'Degree', 'Course', and 'Code Language' (a dropdown menu). Below these is a 'Date' field with a calendar for December 2016. To the right of the form is a box titled 'Exercises' with the text 'You haven't created any exercises yet.' and a blue 'Add Exercise' button. A red arrow points to the 'Add Exercise' button.

**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 several sections: 'Title' (a text input field), 'Question' (a large text area), 'Weight' (a text input field), and 'Criteria' (a table with columns 'Description', 'Gama', and 'Weight', and a '+' button). Below the 'Criteria' section is a 'Compilation command' field with the example 'Ex: gcc [file name] library.c'. There are two blue informational boxes: one for the compilation command and one for the execution command. The execution command box has the example 'Example: "[file name] arg1 arg2"'. At the bottom 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	up20765544
Joao	up20765545

Exercises

Exercice1


Exercice2

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	up20765544
Joao	up20765545

Exercises

Exercice1

Exercice2

Submit



Assistant Code Evaluator

- [View Exams](#)
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- [Create Examiners](#)
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- [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](#)
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**Then**, select an exam and click the “Delete” button.

Assistant Code Evaluator

- [View Exams](#)
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- [View Examiners](#)
- [Create Examiners](#)
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- [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](#)
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**Then**, confirm again by selecting yes.

Assistant Code Evaluator

- [View Exams](#)
- [Create Exams](#)
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- [Create Examiners](#)
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- [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](#)
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## 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.



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
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Admin Screen

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

Exercises

Exercise	Progress	Status	Weight	Assignee
Exercise1	0/2	Open	50%	Luís 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 links: '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 columns: Exam, Degree, Class, Date, Code Language, and Status. The table contains three rows: 'Recolha Final' (MESW, Programacao2, Sunday, January 22, 2017, C, Open), 'Exam1' (MIEIC, Programacao1, Thursday, January 1, 2015, Java, Open), and 'Exam2' (MESW, LES, Thursday, January 1, 2015, C, Open). At the bottom of the table are five buttons: 'Edit', 'Delete', 'Export Grade', 'Global View', and 'Import Submissions'.

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

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' with the 'Export Grades' button highlighted. The interface elements, including the sidebar, table, and buttons, are the same.

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



Assistant Code Evaluator

- View Exams
- Create Exams
- View Examiners
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- 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 'Admin Screen' with a sidebar on the left containing navigation links: 'Assistant Code Evaluator', 'View Exams', 'Create Exams', 'View Examiners', 'Create Examiners', 'Delegate Exercises', and 'Logout'. The main content area is titled 'Admin Screen' and contains a form for creating a new examiner. The form has five input fields, each with a red border and a placeholder text: 'Name' (placeholder: 'Insert Examiner Name'), 'Username' (placeholder: 'Insert Examiner Username'), 'Email' (placeholder: 'examiner@e-up.pt'), 'Password' (placeholder: 'Insert Examiner password'), and 'Confirm Password' (placeholder: 'Confirm Examiner password'). A 'Create' button is located below the 'Confirm Password' field.

**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.



Assistant Code Evaluator

- View Exams
- Create Exams
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- Logout

Admin Screen

**\* Required Fields**

Name

Insert Examiner Name

Username

Insert Examiner Username

Email

examiner@fe.up.pt

☐ **Change Password?**

Password

Insert Examiner password

Confirm Password

Confirm Examiner password


Submit

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.



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.

Open Exercises

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

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



Assistant Code Evaluator

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

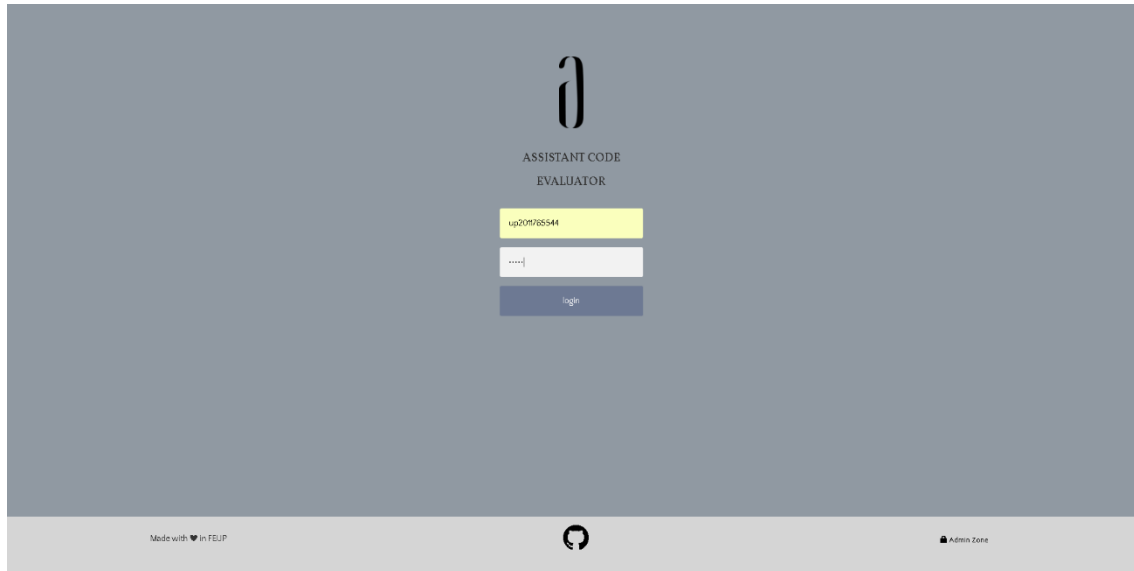
Assign

## 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.*

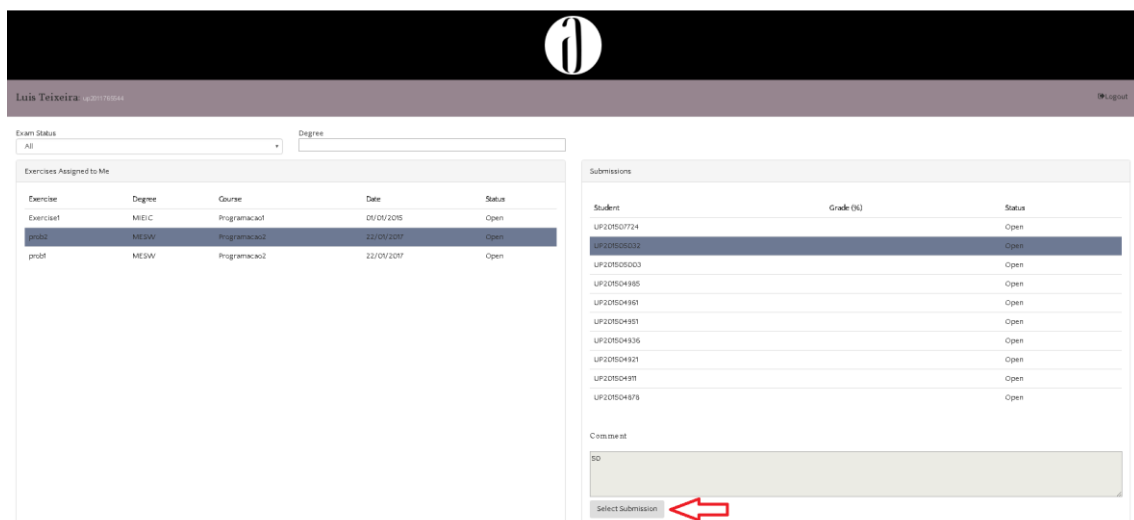


**First**, as an examiner login in the Examiners Login Page.



The login page features a large stylized 'a' logo at the top center. Below the logo, the text 'ASSISTANT CODE EVALUATOR' is displayed. A yellow input field contains the code 'up2019/28544'. Below this is a white password field with masked characters '.....'. A blue 'login' button is positioned at the bottom of the form. The footer includes the text 'Made with ❤️ in FEUP', a circular logo, and a link to the 'Admin Zone'.

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



The dashboard shows the user 'Luís Teixeira' with ID 'up2019/28544'. It includes filters for 'Exam Status' (set to 'All') and 'Degree'. Two tables are present: 'Exercises Assigned to Me' and 'Submissions'.

Exercise	Degree	Course	Date	Status
Exercice1	MEDC	Programacao1	01/01/2015	Open
Exerc2	MESW	Programacao2	21/01/2017	Open
Exerc3	MESW	Programacao2	21/01/2017	Open

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, there is a 'Create at' field with the value '50'. A 'Select Submission' button is located 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 two sections: "Submission Code" and "Code Output". The "Submission Code" section displays a code snippet: `system.out.println("Hello World");`. The "Code Output" section displays the output: `one two`. To the right of these sections is the "Evaluation Criteria" panel. This panel contains a "Question" section with the text "Create a Component Diagram". Below this, there are two criteria: "CRITERIO 2" and "CRITERIO 1". Each criterion has a dropdown menu for selecting a grade (0, 1, 2) and a corresponding weight (1/3). A "Save Evaluation" button is located at the bottom of the criteria section. At the bottom of the page, there is a status bar showing the current score (50%), the total possible score (10), and the exercise's weight (50% of the exam). The status is marked as "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).

