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The EDUBOT Solution

a comprehensive guide to understand Edubot e-learning support system (WP3 result)

EDUBOT Solution is a free, multi-language software solution for schools, teachers, and even individual students.
EDUBOT provides a user-friendly, intuitive e-learning system specifically designed to support adaptive learning and differentiation. It can be an optimal solution in situations like differentiated learning in classes, the tutoring process to catch up to a desired knowledge level, or preparation for critical exams.

What this document is about

(WP3 results explained)

- Intro: Welcome to **EDUBOT**! What is in it for you?
- Introducing EDUBOT **Student App**
    - includes: EDUBOT Assistant functions in Student App
- Introducing EDUBOT **Teachers' Platform** (aka EDUBOT Tool)
    - includes: EDUBOT Assistant functions on the Teachers' Platform
- Presenting the structure of the Edubot e-learning support system
    - includes: Making adaptive routes work to suite your purpose — AI adaptive route settings explained

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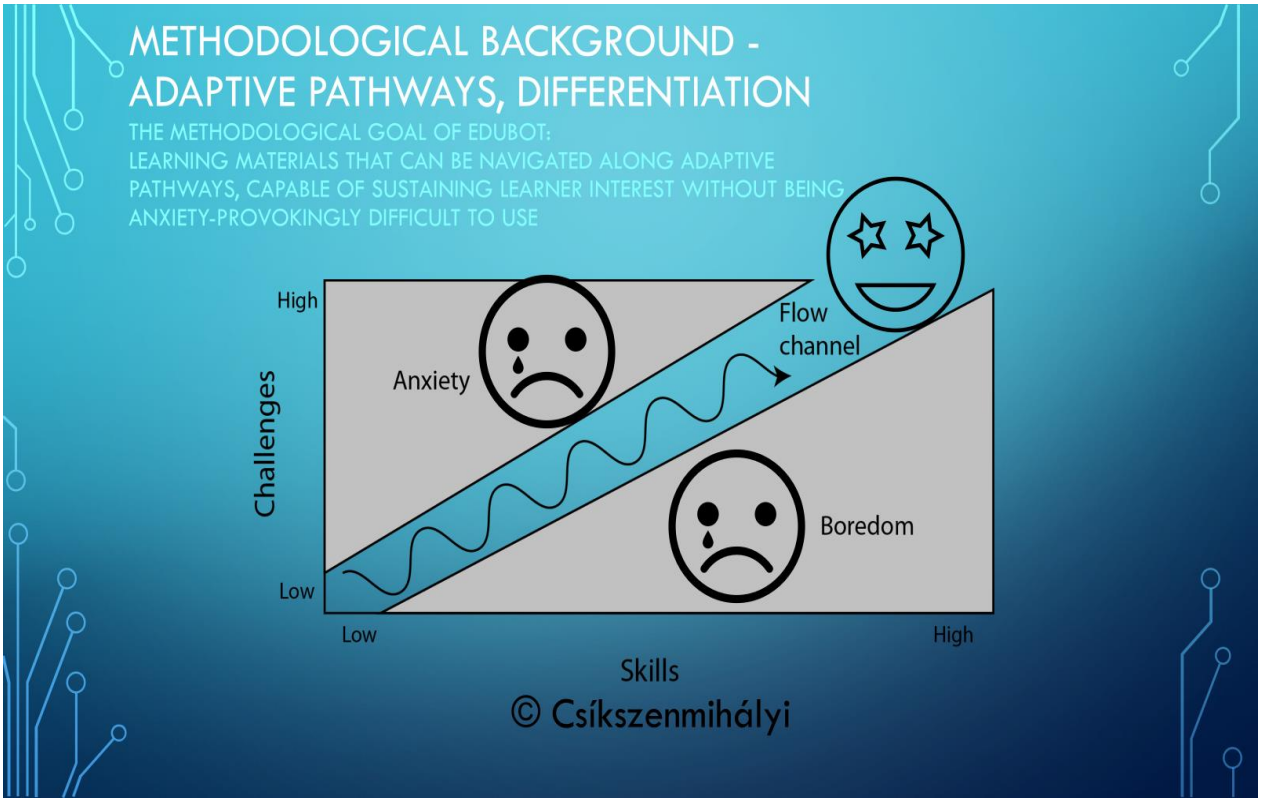
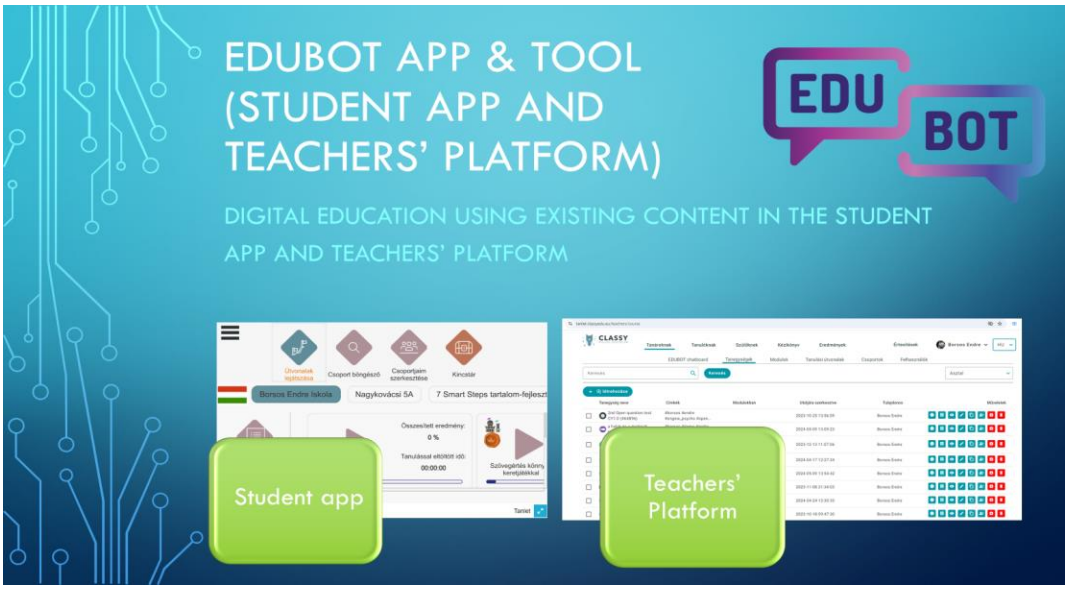
Intro: Welcome to EDUBOT

EDUBOT is a complex e-learning solution that provides AI-powered adaptive pathways, transforming any educational content into an engaging challenge accessible to all students.

Leveraging AI technology, the system analyzes student interactions to create customized learning pathways that target individual skill gaps. This personalized method guarantees that all students have equal chances to progress and achieve success, fostering inclusivity and diminishing educational inequalities.



The Solution is formed of three main elements: **EDUBOT Student app**, the **EDUBOT Teachers' Platform** and the backend structure, also integrating AI solutions referred to as **EDUBOT AI Assistant**.

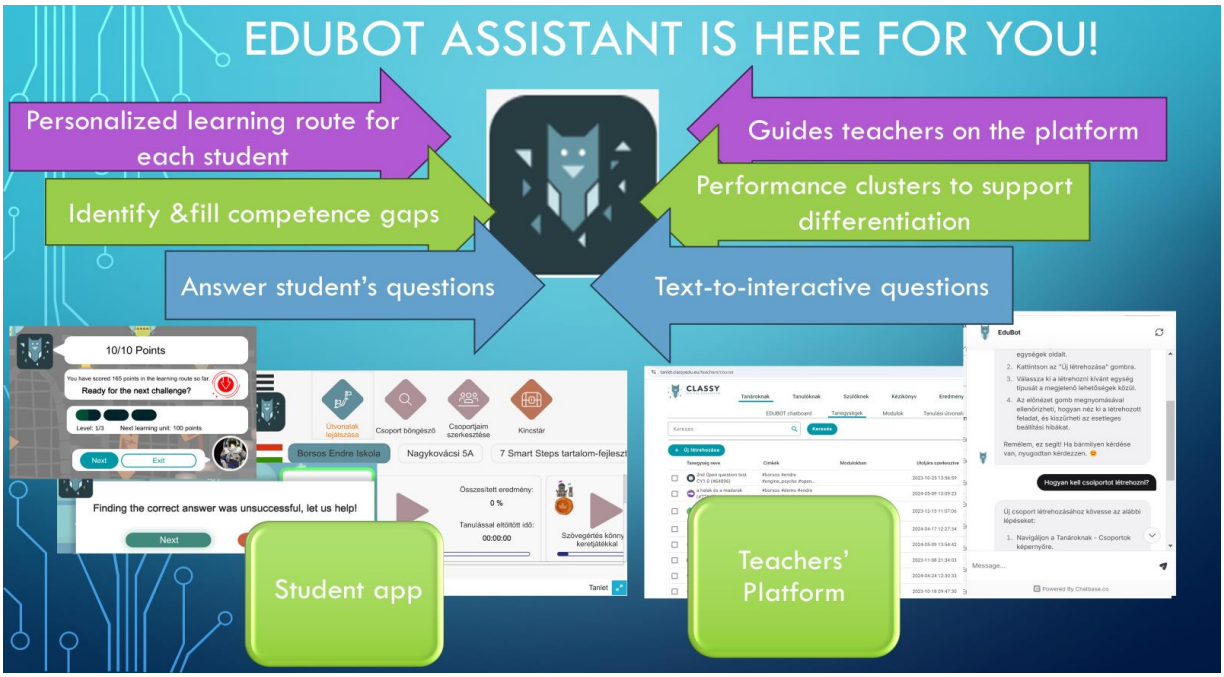


EDUBOT Student App is available in Google Play Store and Apple App Store, as well as a webGL version accessible through web browsers. The app facilitates the learning process by providing adaptive learning routes and motivational framework games.
The app provides free access to guest visitors, so anybody can visit all contents even without registration.

EDUBOT Tool, also referred to as Teachers Platform or Interface, was created to facilitate the work of the teachers, serving content development and handling of learning groups, routes, and reports in an intuitive and easy way.

Furthermore, the introduction of the **EDUBOT AI Assistant** functions created a unique character for the EDUBOT solution, supporting both teachers and students.

1. The **AI Assistant offers support to users of the Teachers' platform**. It can be inquired about the various functions of the platform, and it supports content creation with the "text-to-interactive questions" function. Additionally, by establishing performance clusters within or between student classes, the Assistant facilitates the integration of digital learning into the classroom experience and presents a fantastic opportunity for differentiated instruction.
2. The **Assistant guides and supports the students in the learning process**. The applied AI algorithm is able to identify competence gaps in case a student cannot solve a certain task and offers solutions to fill the gap. In the case of a complex math task, the algorithm can offer various support to the student, like knowledge elements and helping questions, or—if nothing else works—an explanation of the task. The students can also address direct questions to the Assistant. It will reply based on the information available in the learning material (no public information is used).



It's time to try out EDUBOT!
You can access the **Teachers' platform** via any browser: https://edubot.classyedu.eu/login
Once you registered to the Platform, you can also reach the Student app in the same browser.

If you are a student and you are using a laptop or desktop computer, you should register/login to the **Student App** via this link: https://edubot.classyedu.eu/app/
Any registration is also valid for the Teachers' Platform.

If you are using a mobile device (phone or tablet), try out the Android or the iOS application by downloading it from the Google Play Store, respectively, Apple App Store. Scan the respective QR code from the slide below.

> *Note: You can access the EDUBOT contents even without registration by visiting the App as a Guest.*

Attention! If you are using a mobile device, please always download the respective native app! Web browsers will not provide optimal performance on mobile devices!

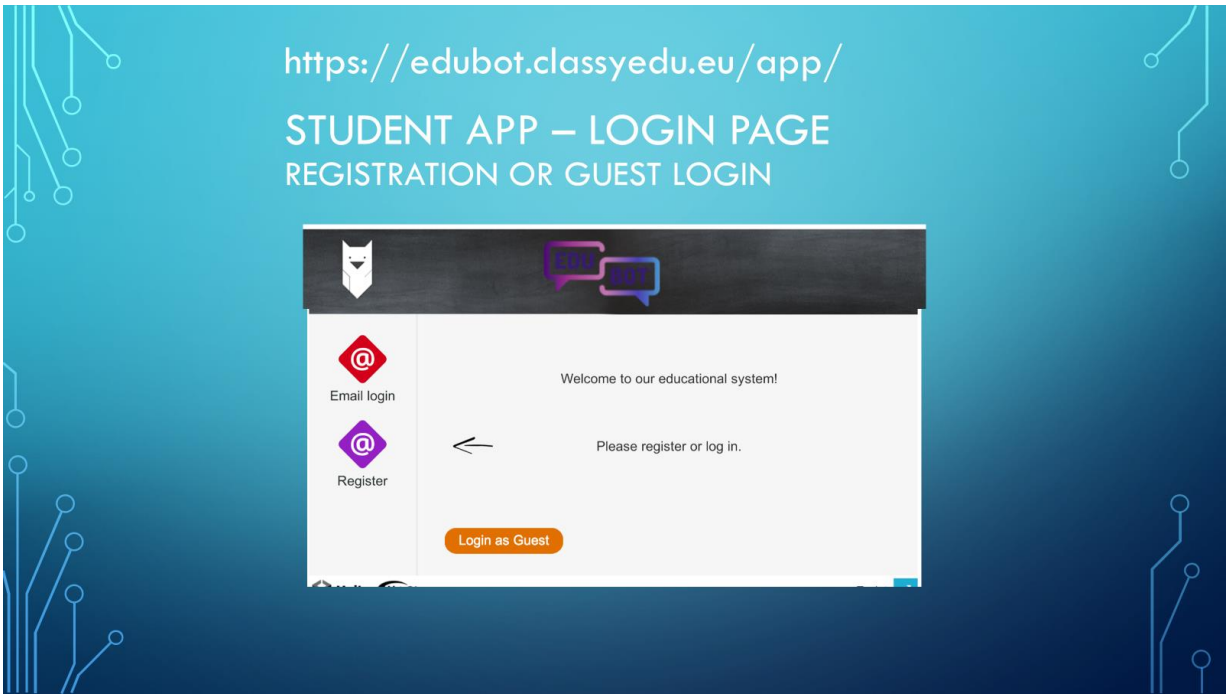
You will find some basic workflow descriptions in this document on using the Student App and the Teachers Platform.
For more detailed instructions, please refer to the Edubot Methodology to learn how to handle the Teachers' Platform, respectively, to the Student Handbook to learn more about the Student App.

See you in EDUBOT!

Introducing EDUBOT Student App

EDUBOT Student App is designed to be easy to handle for students of all age groups. It is available as a native application in the Google Play Store and Apple App Store, as well as in a webGL version accessible through web browsers.

The App provides free access to guest visitors, so anybody can visit all contents even without registration. Just press “Guest login” on the login screen, and you are in.



However, if you are here as a student looking for a serious learning session, you should register so that you can come back to the app any time and continue your learning process where you have quit it.

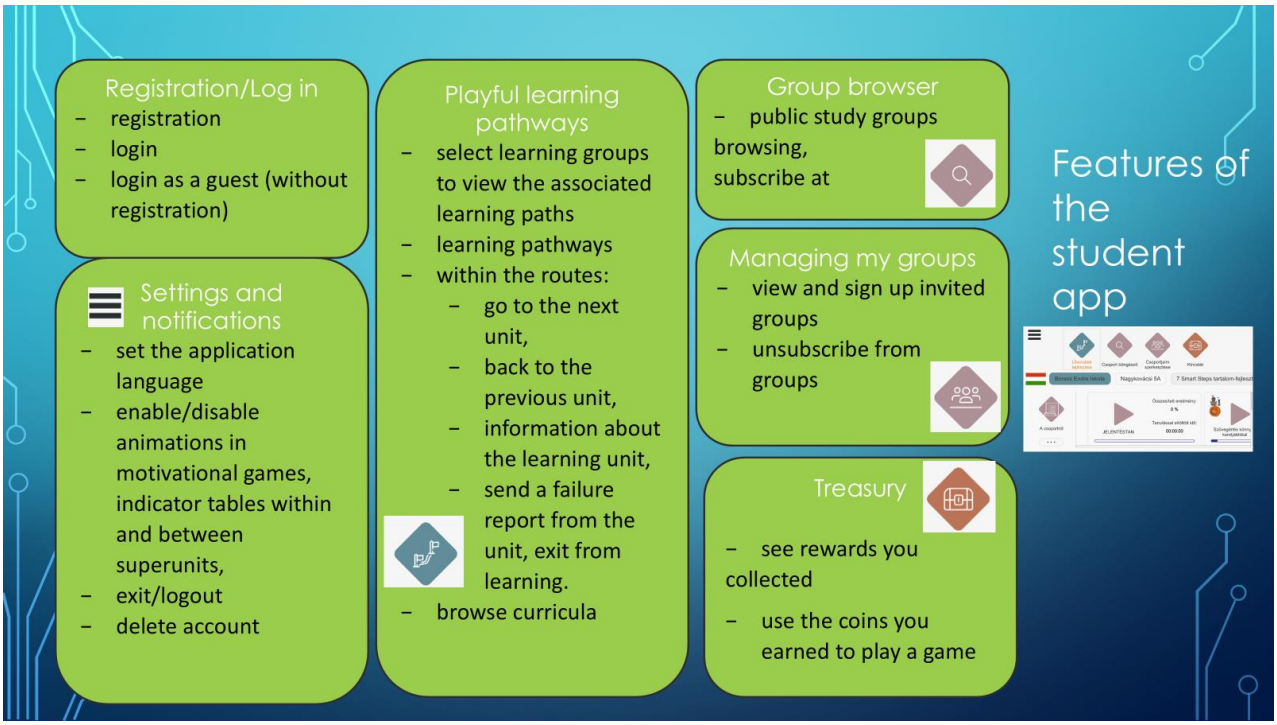
Check out the following tutorial for a step-by-step guide to registration:

Tutorial to registration

If you are a teacher and you want to operate one or more student groups, you can do that on the Teachers’ Platform.

Student App functions

The Student App is designed to be intuitive and easy to handle. Also, it has rich functionality to cover all areas of use.
The app facilitates the learning process by providing adaptive learning routes and motivational framework games.

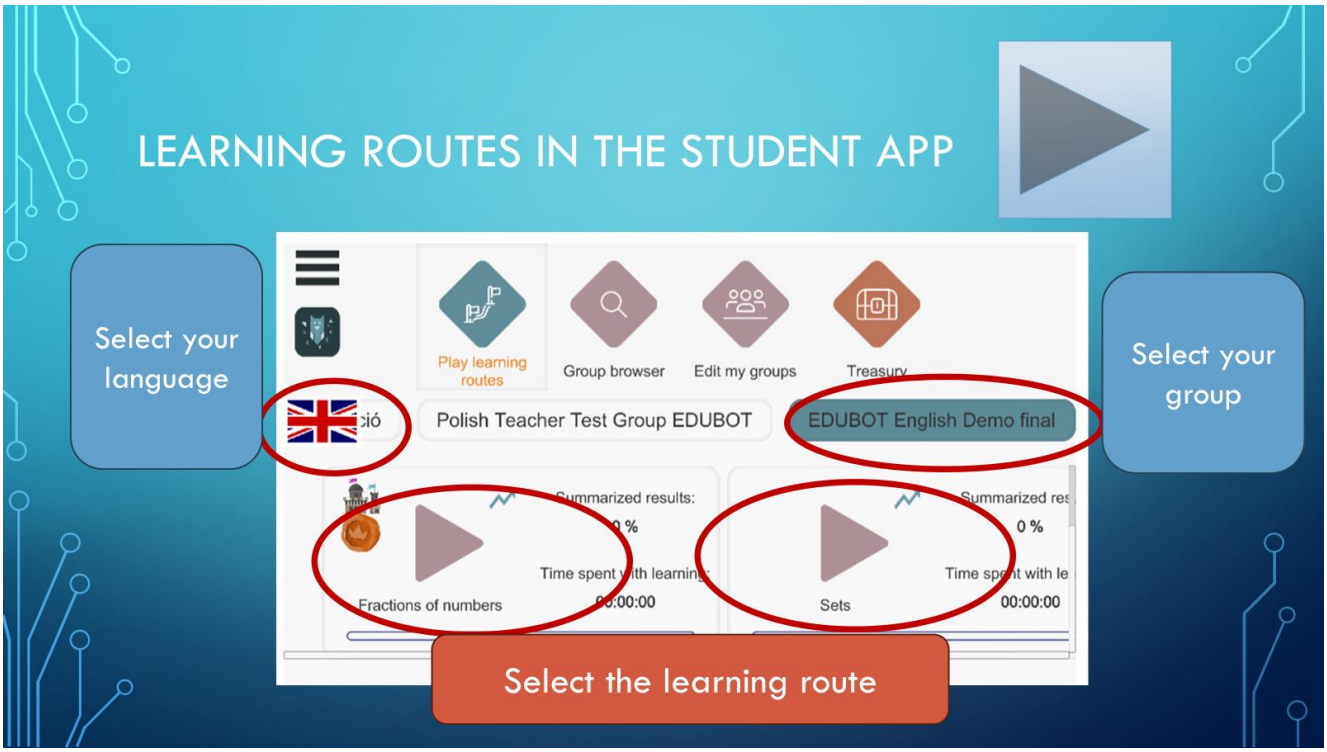


A detailed guide on the Student App can be found in the Student's Handbook:

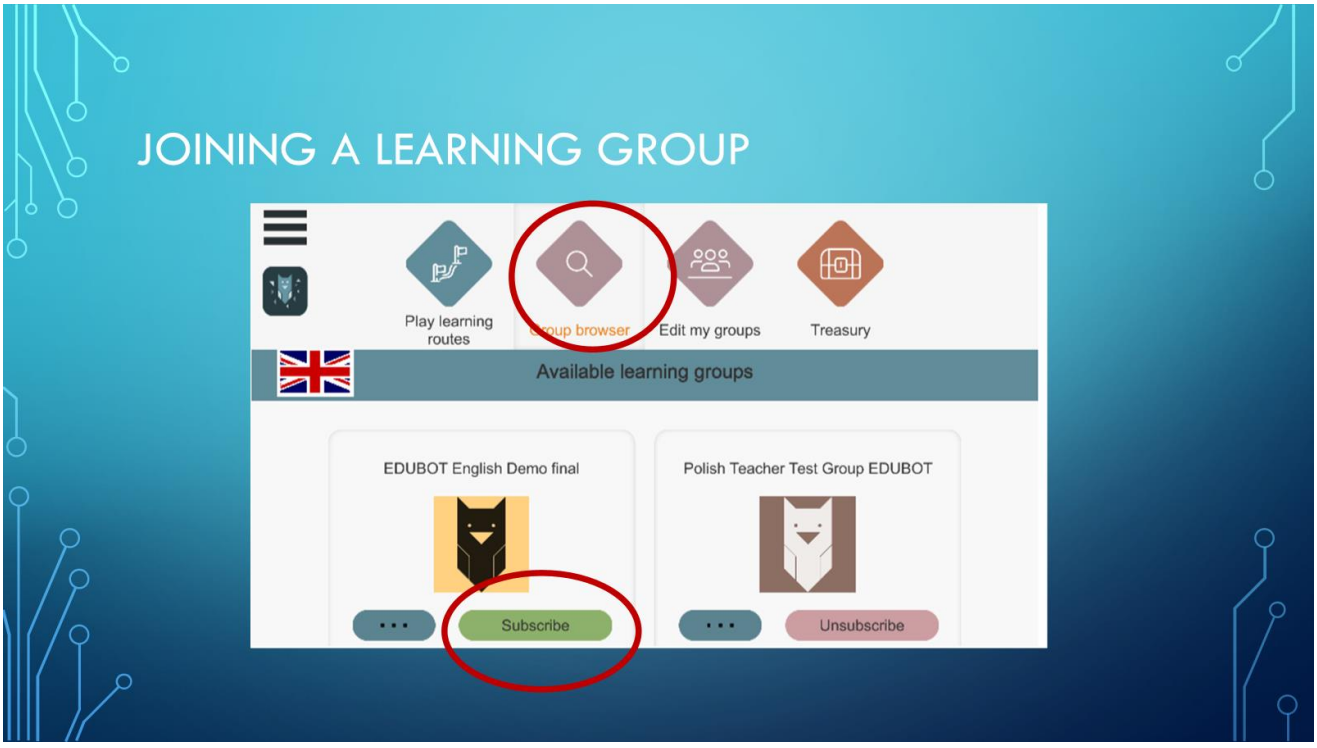
https://userguide.classyedu.eu/student-handbook

The learning process in the Student App

In the Student App, contents are organized in Learning Routes related to learning groups.

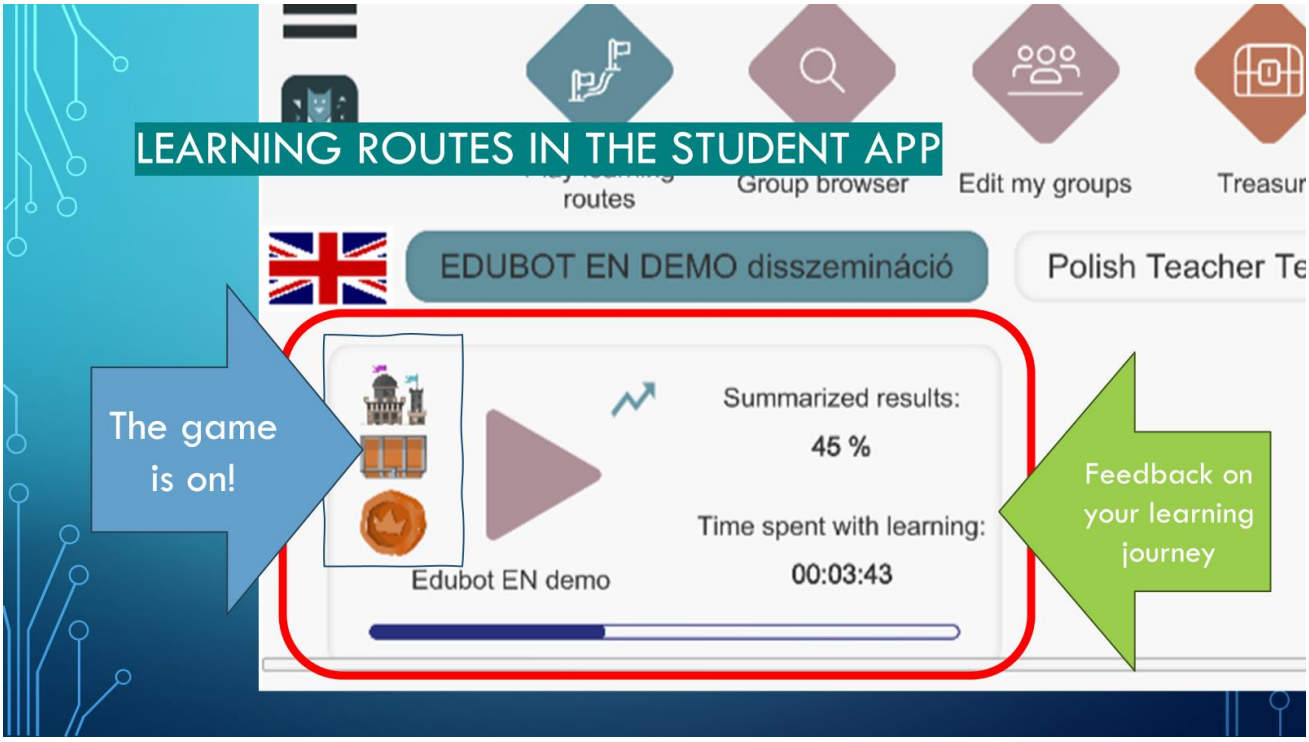


To access the EDUBOT contents, you should select your language, select the relevant group and push the “Play” button of the learning route you want.



If you cannot find the desired group, you may want to check it in the Group browser. Public groups are listed here, and you can join them by clicking on "subscribe". You can join as many groups as you wish.

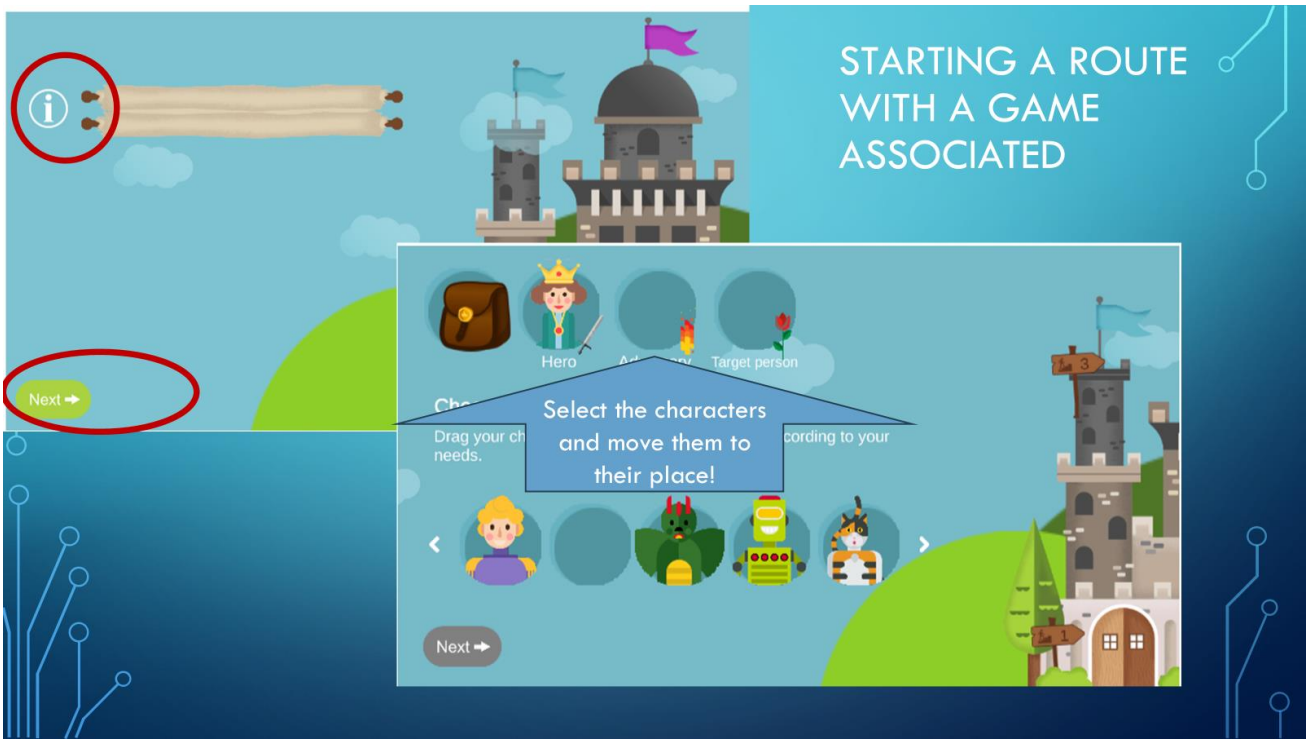
Now let's go back to playing a learning route.



On the icon of the learning route, you can see some information displayed.
The castle, the treasure box, and the coin mean that the route has a framework game associated with it.
The little arrow indicates that this is an adaptive route, meaning that you will be guided through the route by the EDUBOT Assistant.
You will also find feedback information regarding your advancement in the route: the results you achieved, the time you spent learning, and the progress you made.

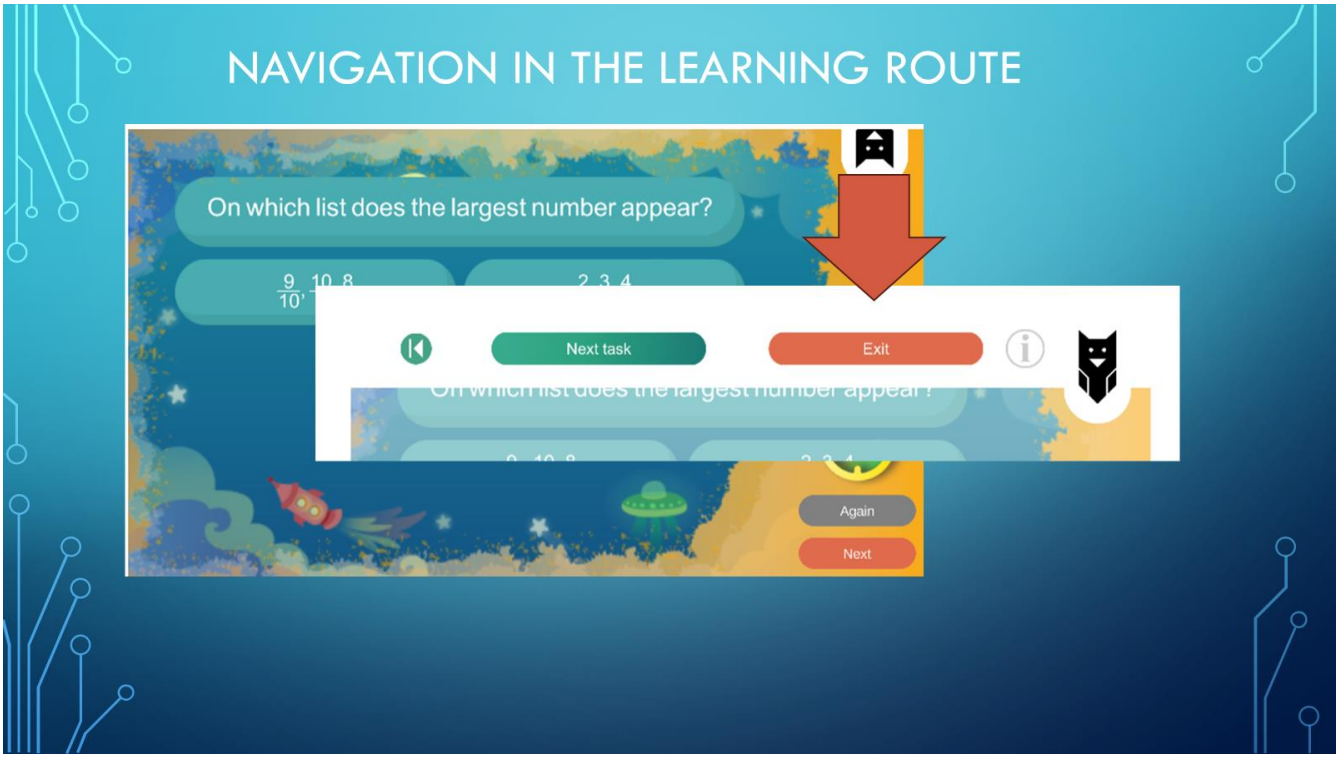
Once you push the "Play" button, your learning route will start.
If your route has no game associated with, your learning experience will start immediately.
If there is a game in your route, you will see an intro screen.

> *Information for second-time users:*
> *You will always get to this screen, even if you have completed a part of the route in the past. Don't worry, you will continue the route at the position where you left it. You just have to select again the role-players in the game.*



If you are not familiar yet with the game, you can check the rules by clicking on the info button. Otherwise, just proceed to the Next screen.
Here you will find the characters you can play with. Select your hero, your enemy and the target person you want the hero to rescue in this mission.
Then push next, and your mission is on!

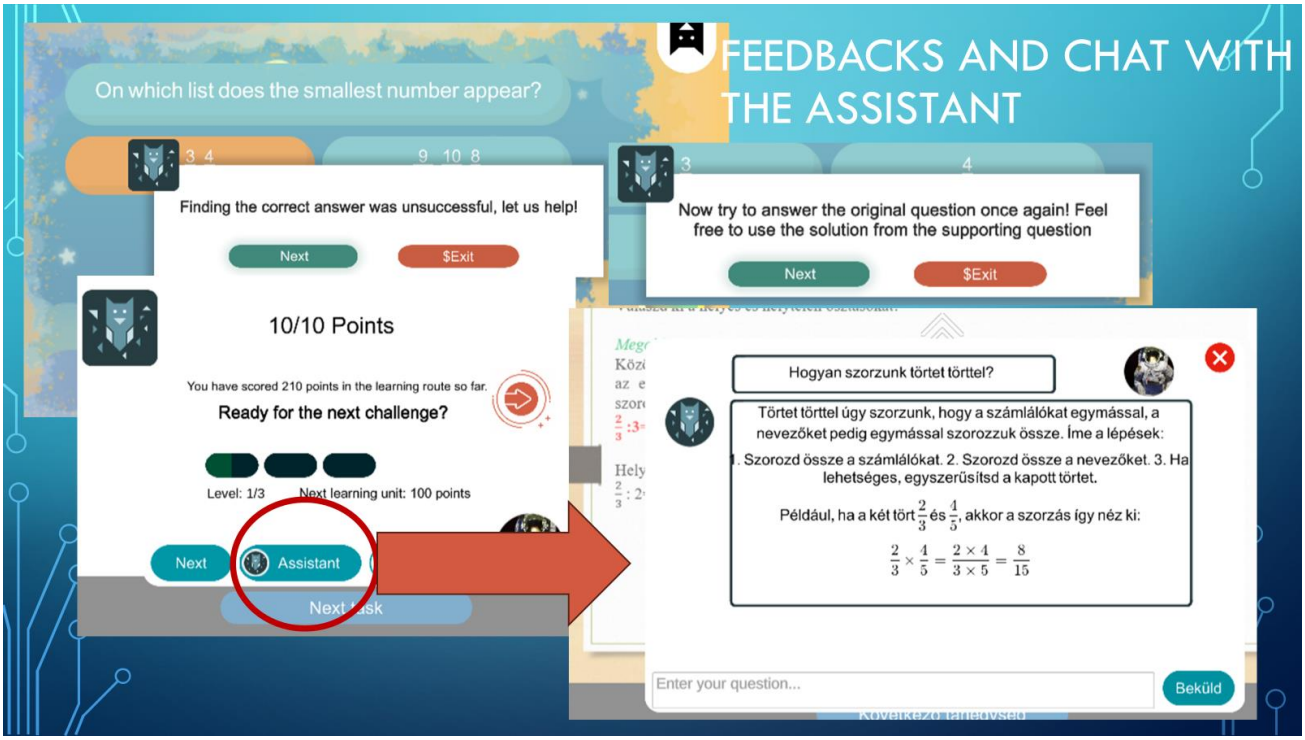
Basically, you will be navigated through the learning route.
However, you can manually navigate back and forward if you ask for the Assistant Owl to open the navigation bar.



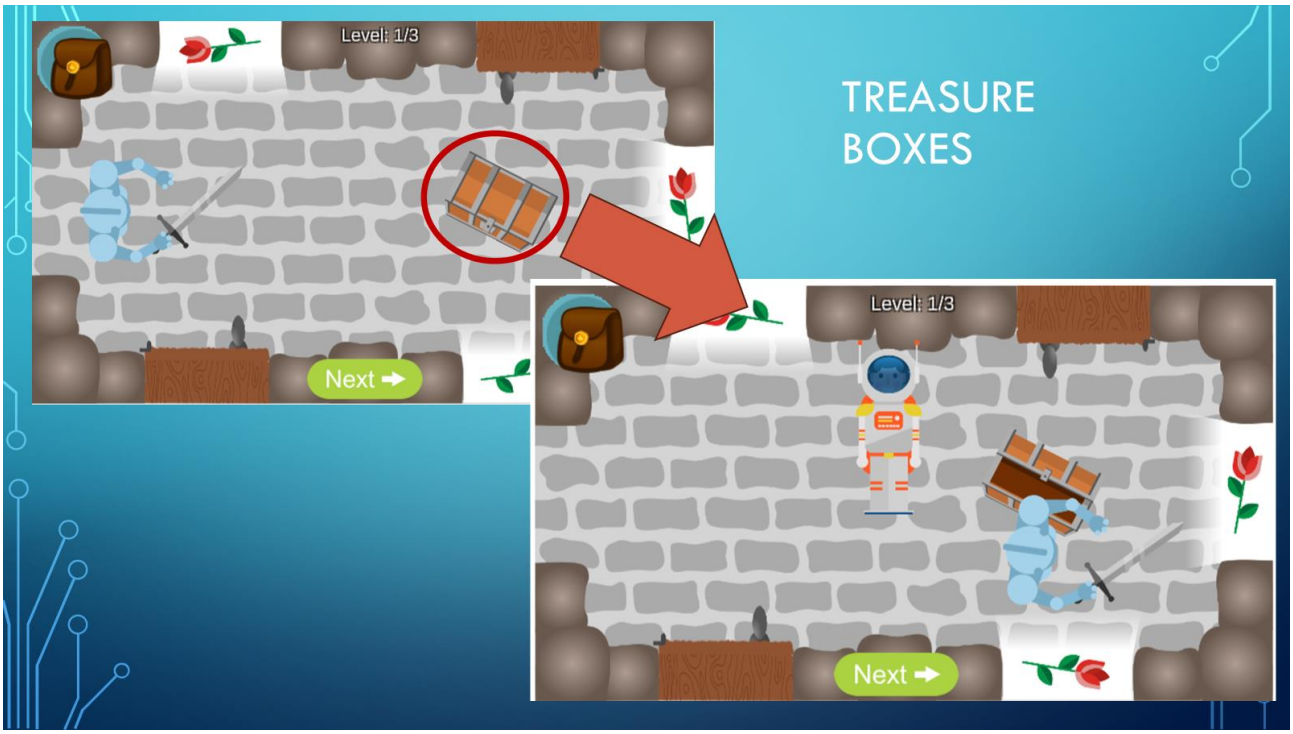
The tasks you get are presented in 10 different, gamified engines: you may be required to write down the answer to a question, to select the right ones from several possible answers, to pair some items, to fill in gaps in a text, and so on.

All engines have 3 different graphical skins, so they can look different from one learning route to another. We hope you will enjoy this diversity.
You will also encounter knowledge elements and explanations on your way in text- or video format.

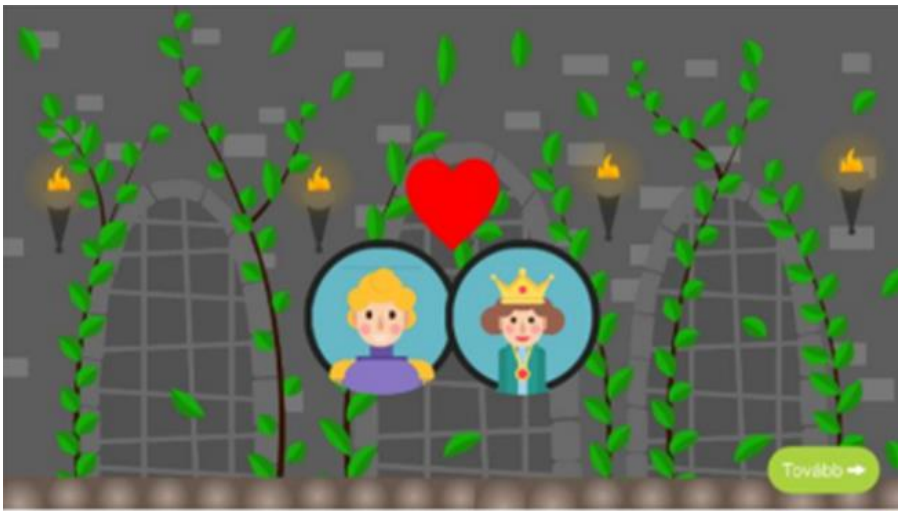
You will get constant feedback from the Assistant throughout your learning journey with Edubot.
If you fail to solve a task, no problem!
The Assistant will help you with knowledge elements or easier helping tasks, then you can try again.
If the result is still not accepted, you will get an explanation.
At the end of each main task, you will be notified about your progress, the points you gathered, the level of the route you are currently on, and the direction you are headed to.
It is here you can start a chat with the Assistant, directly addressing questions to her.



Between two main tasks, your hero has to cross diverse rooms of the castle. If your teacher decided to offer you some rewards, in some rooms you may find treasure boxes. If the box is not ready to be opened, you will find indications of how many points you need to open them.
If the box is fully colored and shaking, go there and open it! See what your reward is.

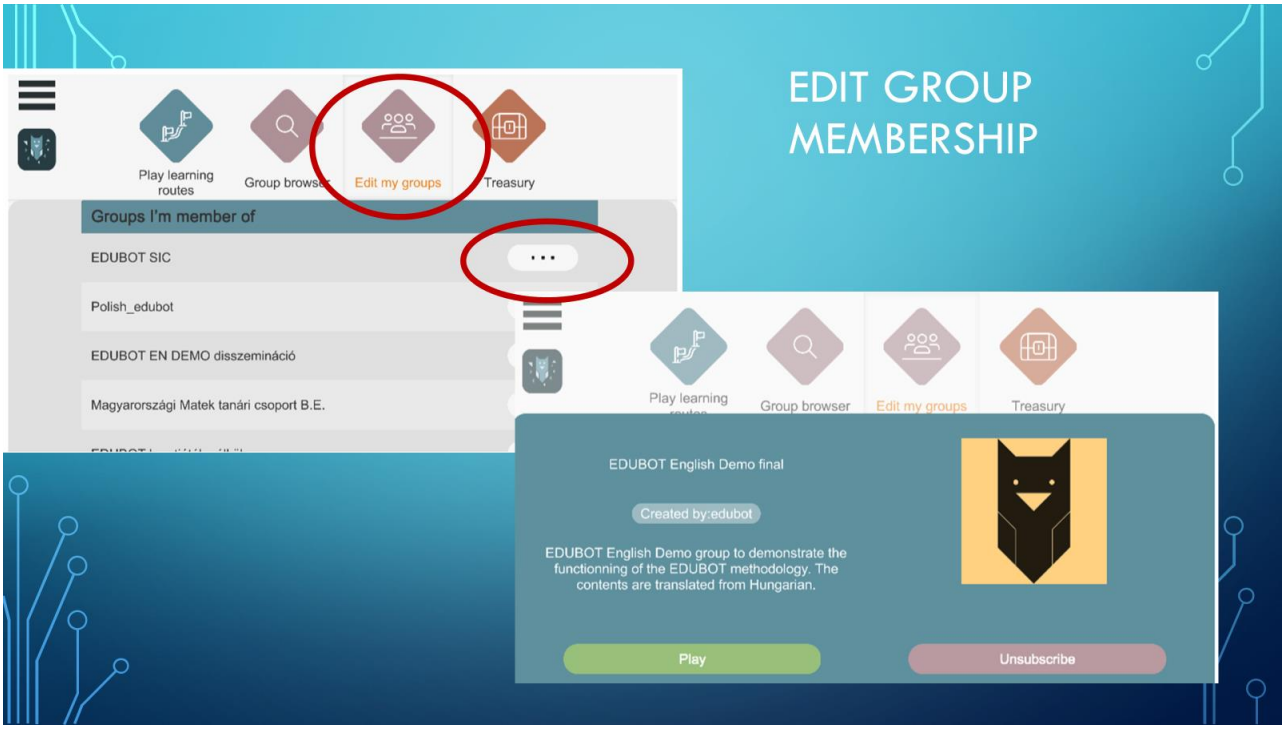


What is left is to do your best to solve all the assigned tasks, with the least possible help from the Assistant. This is how you can complete your learning route and get to the target person you selected to rescue at the beginning of the game.

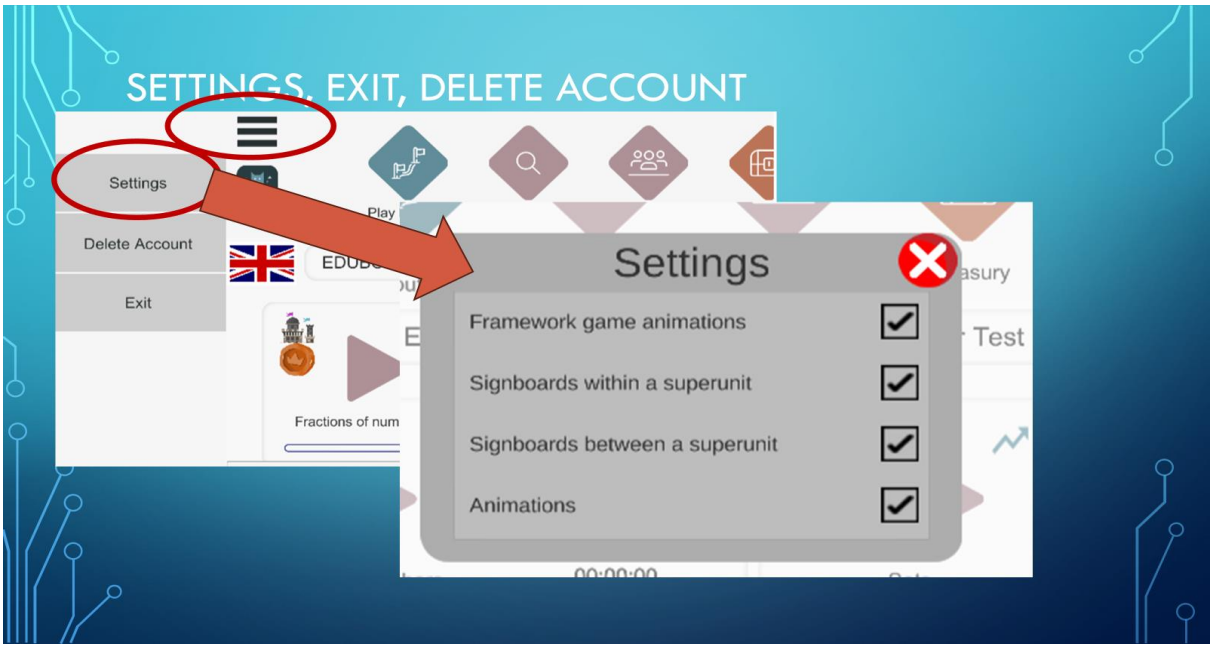


At the end of the road, you might want to check out your treasury to see what you earned. It is here you can use your coins to play a game. (Tap on the ball).

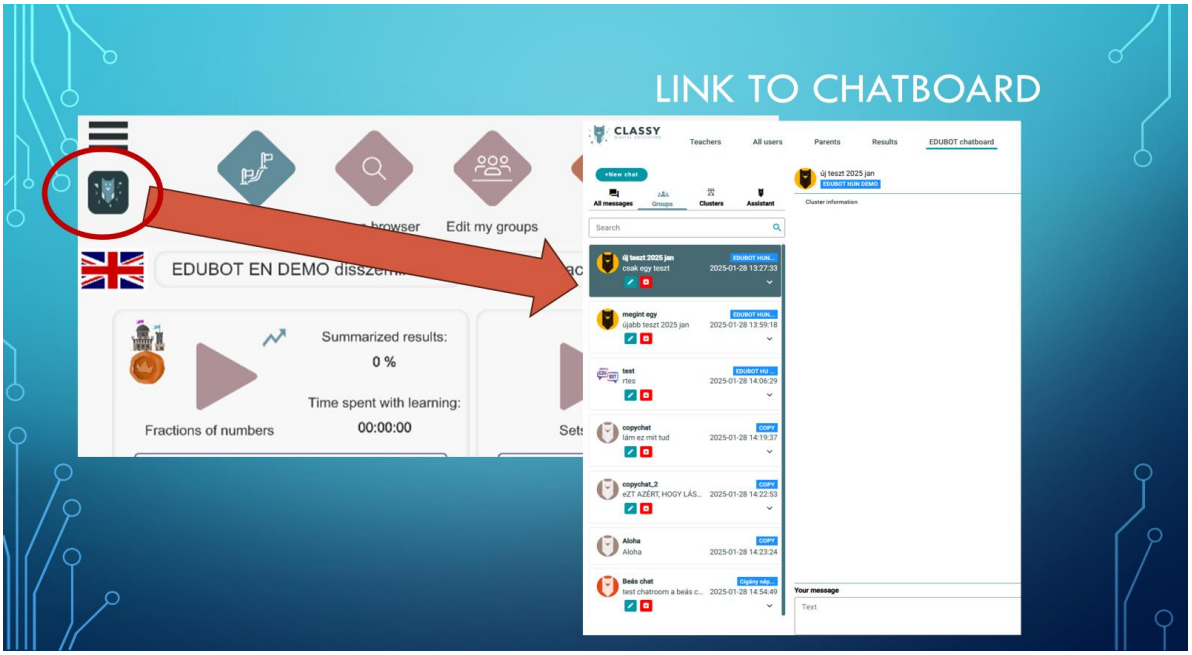
If you feel like you are a member in too many groups, you can manage them in the Edit my groups menu.



The three lines in the upper left corner lead you to the app settings.
Some people don't like moving objects in math tasks.If you are one of them, here you can turn off the animations within the tasks.
You can also turn off the framework game's animations if you get tired of your hero walking around. Even with the animations turned off, the rewards you gather will be transported to your Treasury.
You can even turn off the indicative tables, but in this case you will lose contact with the Assistant: no feedback on your performance and no questions to her.



Tapping on the Assistant icon under the three lines will lead you to the Edubot chatboard placed on the platform, outside the application. This chatboard is meant to contact you, your teachers, and fellow students in your learning groups. You should only use it if you see an indication of new messages.



We hope you you will enjoy learning with Edubot. For more detailed information about some functions of the Student app, please consult the Student handbook:
https://userguide.classyedu.eu/student-handbook

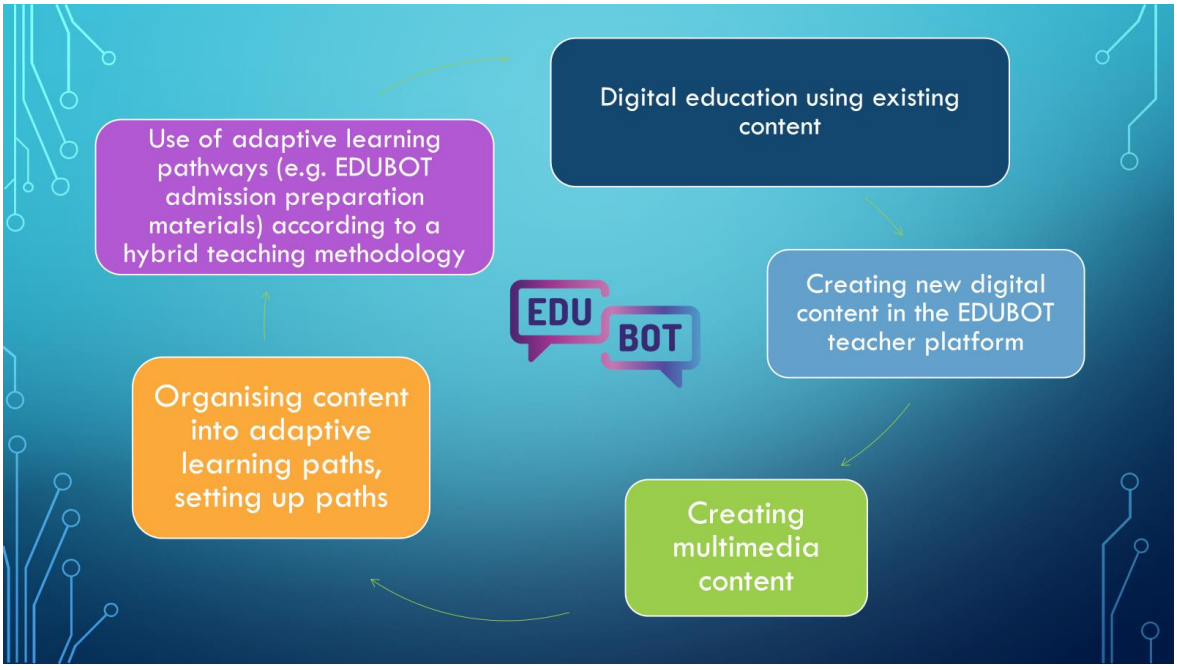
Introducing EDUBOT Teachers' Platform

(also referred to as EDUBOT Tool or Teachers' Interface)

EDUBOT Teachers' Platform is a web-based interface designed first of all for teachers.
This tool allows teachers to use the existing contents to create and run AI-assisted courses and to develop new interactive content, significantly enhancing their instructional capabilities.

How can you benefit of EDUBOT as a teacher?

Edubot is a complex system, and there are many ways you can use it as a teacher.
You can copy already prepared contents and use them to provide your students with personalized adaptive learning paths. You can also modify the copied contents as you wish.
You can prepare and run a simple test with your students and get a clear report that lets you dig into the details if you want.
You can develop your own adaptive learning routes, or you can team up with other teachers to prepare complex contents.
You can use Edubot in math, STEM, or any other territory.
You can target primary- secondary- and high school students,or even adults.



Our favorite use cases are:

1. **Using an existing Edubot adaptive Learning Route in your own group**

As Edubot is based on content sharing, you can start by using other people's learning routes (first of all, the ones already prepared in the project) to support your work. Ask for routes to be shared with your group, give them to your students and check out the learning results.

2. Using a Learning Route copied by you

While a route can only be shared by the owner, you can copy any route without asking for permission. All you have to do is copy and set up the route for your own purposes.

3. Creating a Learning Route by using copied public content

You may not want to use the entire routes as they are, and you don't have to. You can copy content modules or units. These copied contents will become your own, and you can edit and change themas you want

4. Creating new content for your Learning Routes

Finally, you don't even need to rely on anyone else's support. You can create your own stunning multi-media, interactive content to use in your learning routes.

5. Combining adaptive digital learning and small-group tutoring directed to the real challenges every student is facing.

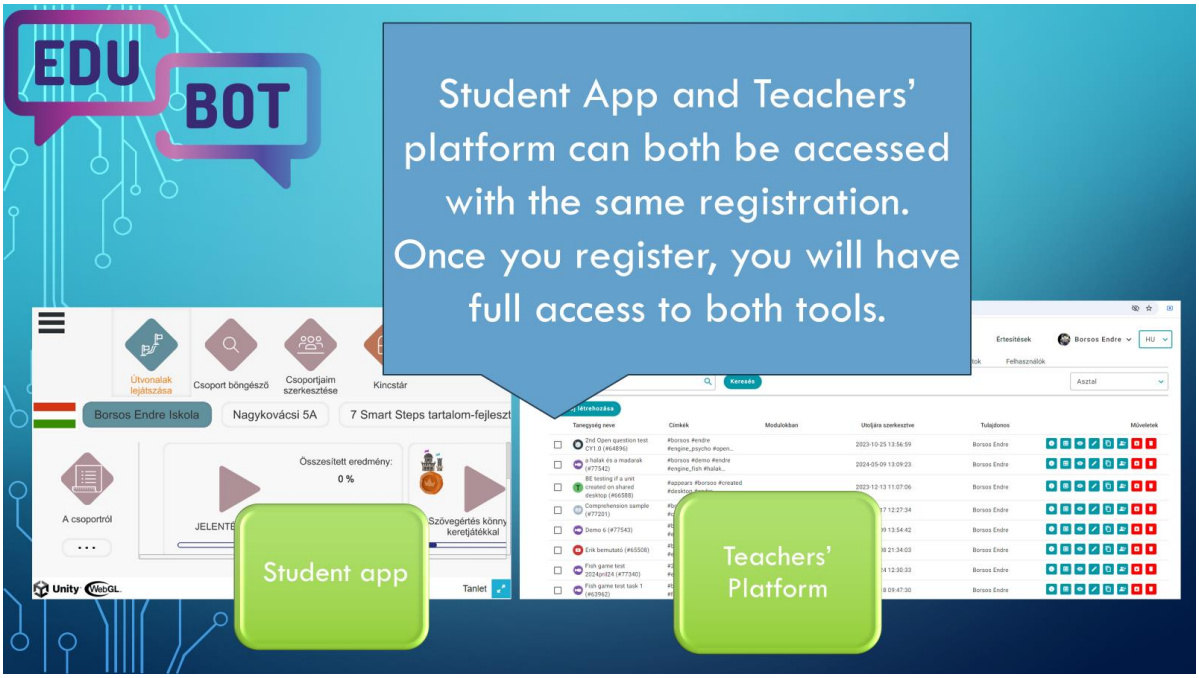
Edubot supports blended learning. You can rely on the Assistant to prepare a suggestion for you on how to break your student group into smaller performance groups to address challenges the students are facing in some specific subject. It is also possible to create performance clusters across several groups.

By using the system, you can really unleash your creativity and invent new ways of using it.

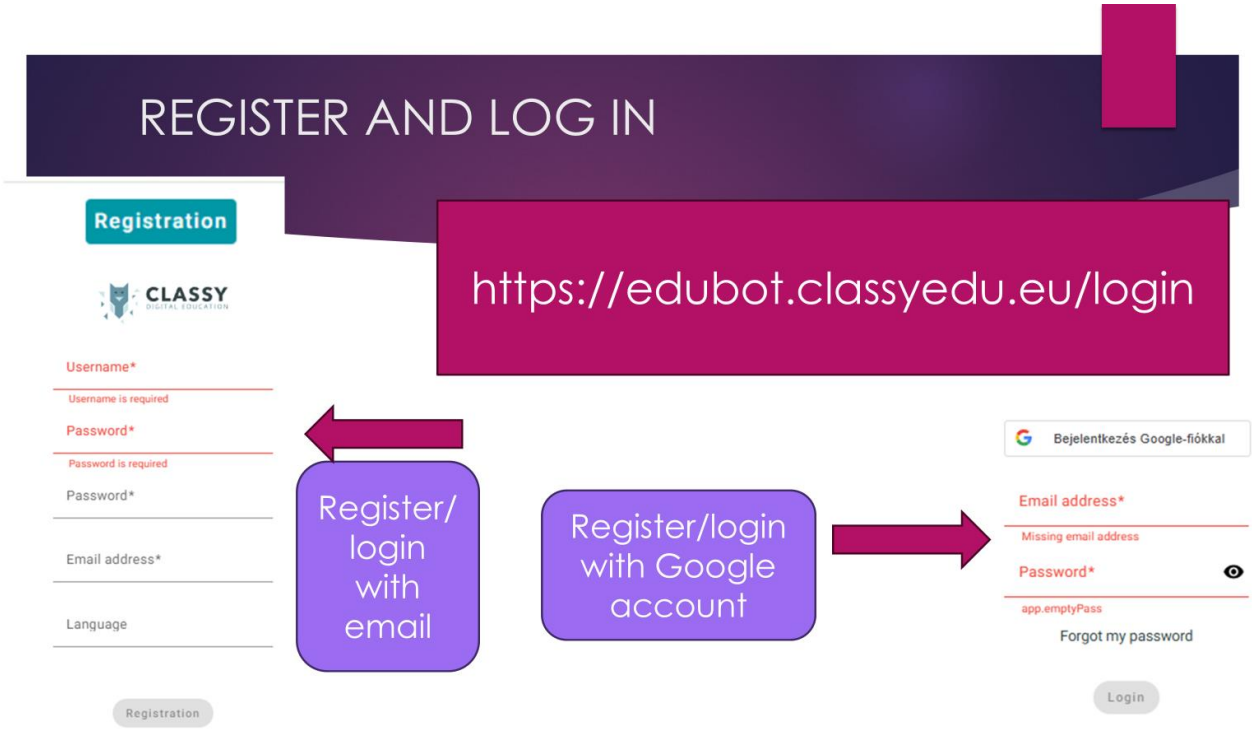
The way you can access the real Edubot benefits leads through the Teachers' Platform.

https://edubot.classyedu.eu/login

If you are already registered in the Student App, you can use the same username/password tolog in tothe Teachers'Platform.



If you were not registered yet, you can register at the platform with your e-mail address, following the usual process: after you register, you will get an email, and you will have to confirm your registration by clicking on a link in the email. You can also register and login with your Google account.

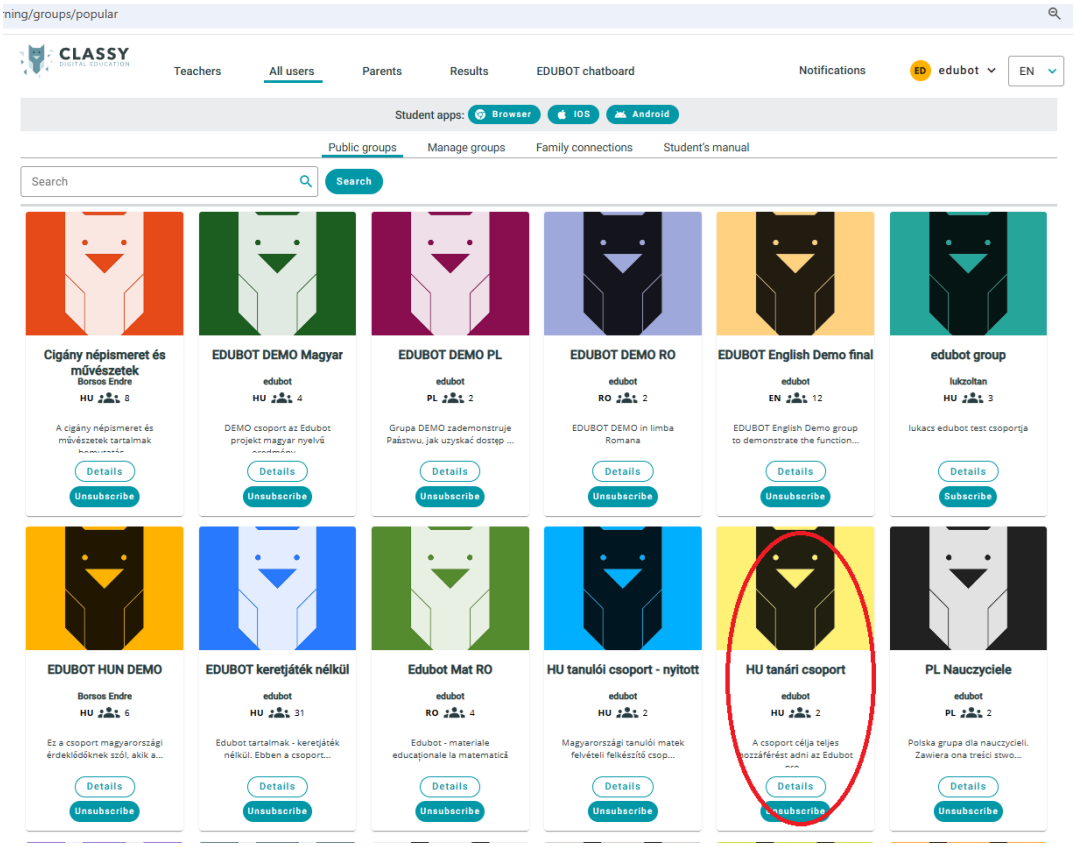


This registration also applies to the Student App, so you will be able to login to the App with the same username/password combination.

If your registration is done, let’s proceed to unlock your benefits!

Use an existing Edubot adaptive Learning Route in your own group

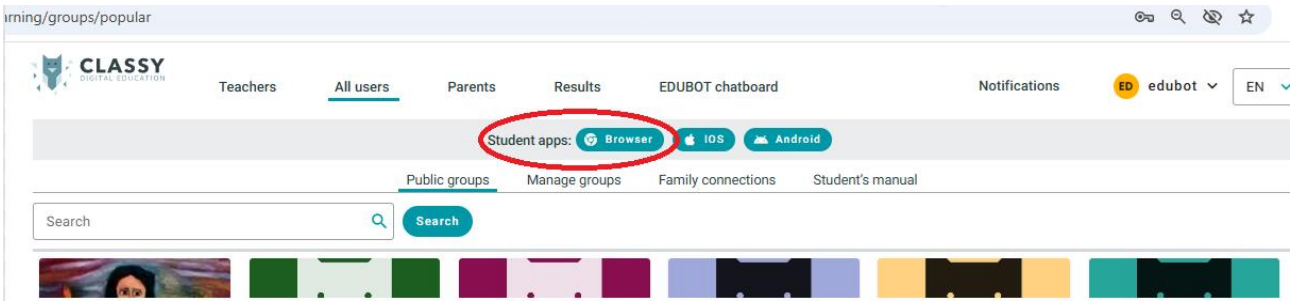
In order to access the contents developed in Edubot, visit the All users/Public groups menu. Select the relevant group for you, and subscribe to it by clicking on “subscribe” under the group’s icon.



As an example, let’s select the “HU tanári csoport” group.
Click “subscribe” under the icon!

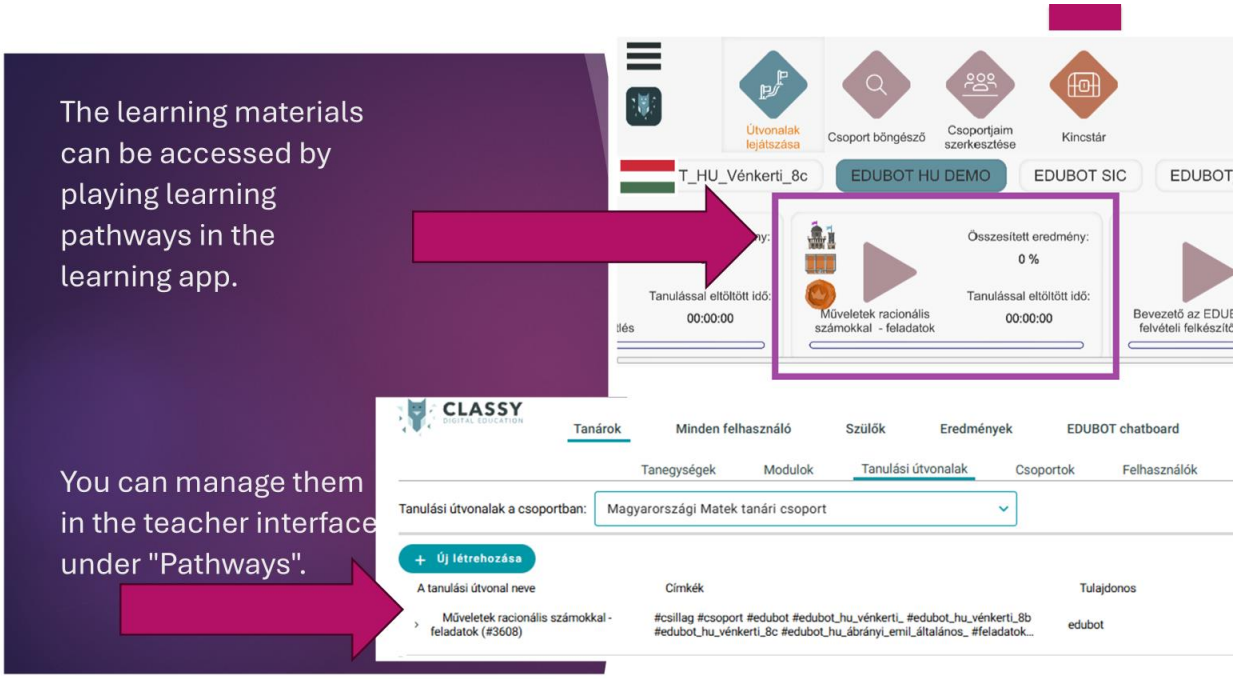
That is it.
From now on, you will have access to this content; you can view and even copy the learning routes available in the group.
(You can also join other groups to access other contents.)

If you want to see the contents ofthe learning routes, open the Student App by clicking on the icon that says "Browser." The webGL will open in a separate tab, and you can check out the learning routes from a student perspective.

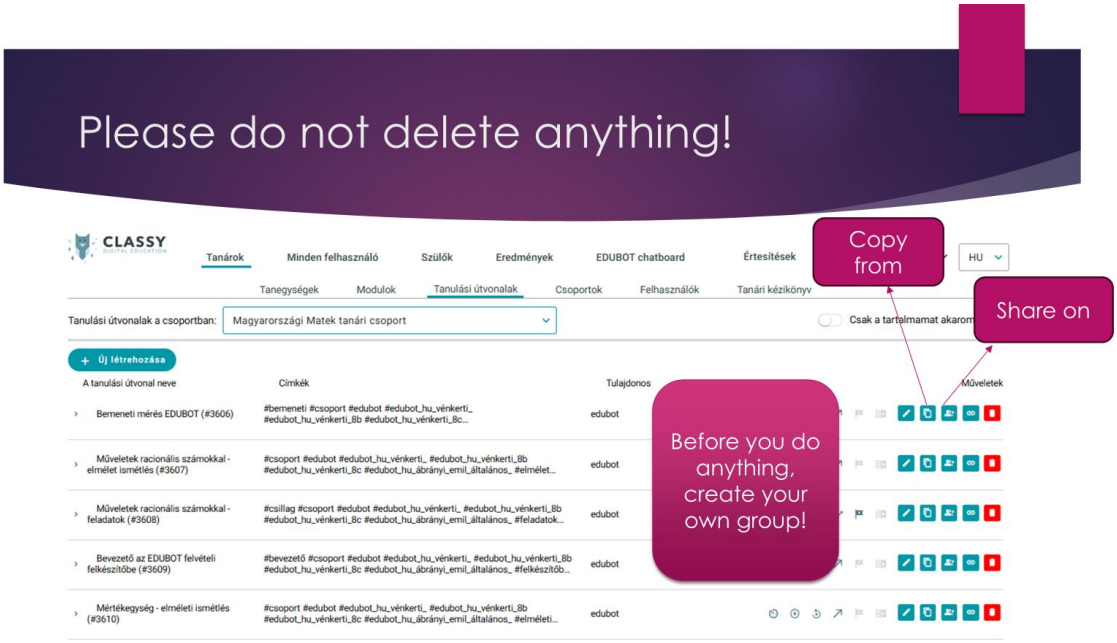


For more information about handling the Student App refer to the the previous chapter of this document.

Now go to the Teachers/Learning routes section, select the group in the dropdown box, and you can see the list of the learning routes.

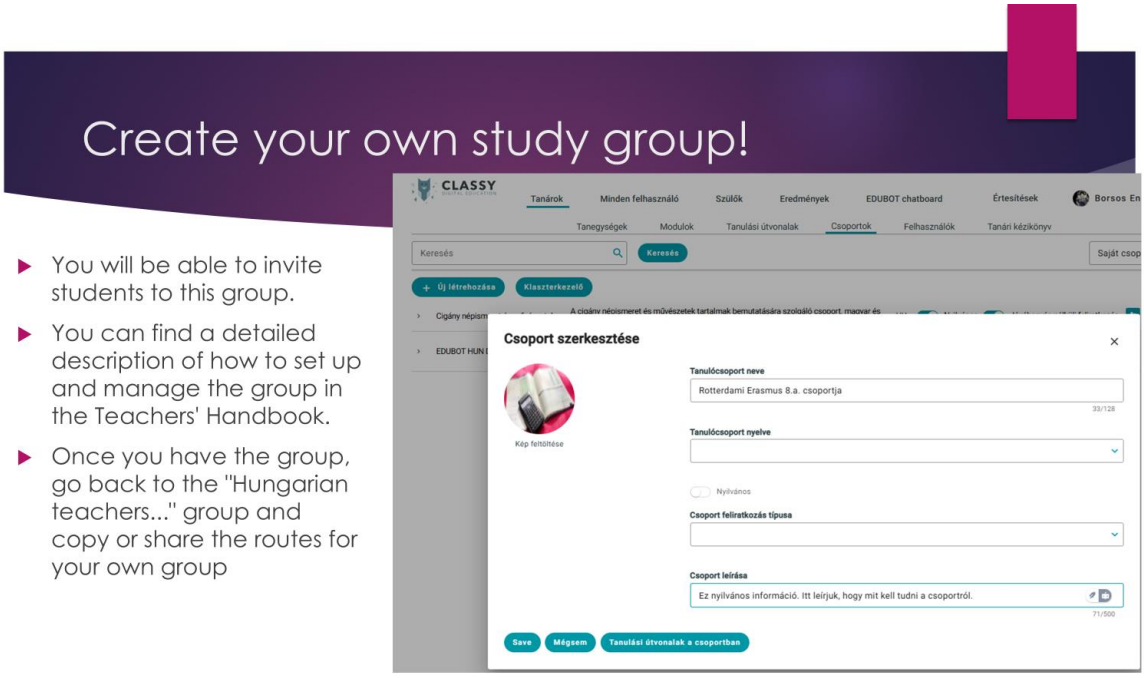


In this particular group there is a large content for preparing 8th graders in Hungary for high school—entering math exams. The group was prepared to share content, so it gives full permissions to all members. Please be aware and do not delete anything!



In order to use the learning routes with your students, you have to create your own learning group.

In the Teachers/Groups submenu, select to create a new group.



Name your group, select the group language, and select the type of subscription.
Choose free subscribing so that users can join your group without your approval. If you don't make your group public (which is not advised at this point), you should choose this option, as only

those you invite will see the group. If any time later you want a public group, you can decide then whether you want to allow people to join in advance.

Here is a step-by-step guide for you on how to create a new group:

https://www.floik.com/flos/nswo/4asa/ef02e1a9.html?show-author=true

For further instructions and information, please refer to the relevant section of the teachers' user guide:

Creating and managing groups

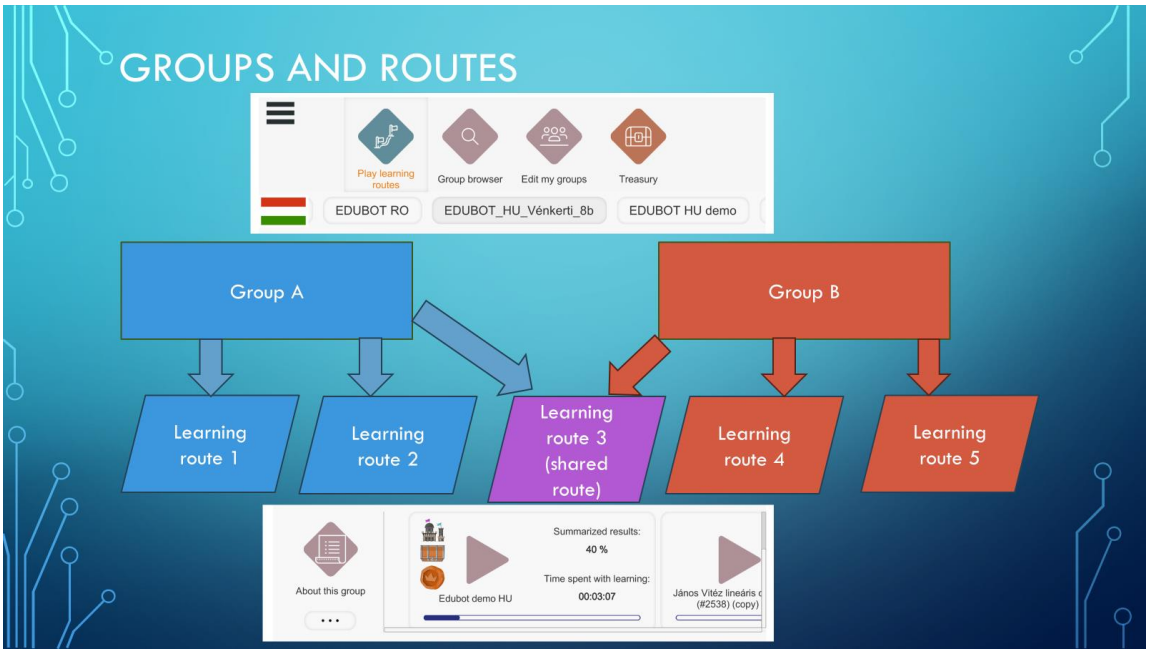
Now you have a group, but you will also need students in it.
You can invite students to join Edubot and your group.
Here is how you can do that:

Inviting users to your group

Obviously, your students will need email addresses to complete their registration and join your group.
If you don't feel comfortable with registering your students with their e-mails, contact the project team so that we can create a group for you with technical users. Write to this email address:

interregioforum@gmail.com

You should also write us if you want us to share routes with your group.
Sharing is possible because in edubot several groupscan use the same route:



Sharing has its advantages: you don't have to set up the learning route; you can start using it immediately.
That is it, you are done. Your learning route is ready for your students.
If you are interested on how tocheck on the results of your students, skip the next chapters and go directly to "Analysing results and downloading reports" section.

However, you might consider copying the routes for your group, which has even more advantages.

In the next chapter, we will explain how to copy routes, making them of private use for your group.

Copying a Learning Route: Create your own route!

After you registered in Edubot and created your own group, you can copy the learning routes you like and start using them.

The advantages of copying routes are:

- you don't have to ask anybody to share their routes with you
- the copied routes are yours; no one can change them without your approval (as opposed to shared routes, which can be modified by the owner and even other people they are shared with)
- you can apply your own settings to the copied routes.

To copy a route, go to Teachers/Learning routes.
In the drop-down box, select the group you want to copy the route(s) from.
In the line of the desired route, select the "copy" option.

In the popup window, select the group you want to copy to the route, and proceed.
You are done.
Repeat the process with every route you want to copy.

Here is a step-by-step guide for you:

Copying a learning route for your own group

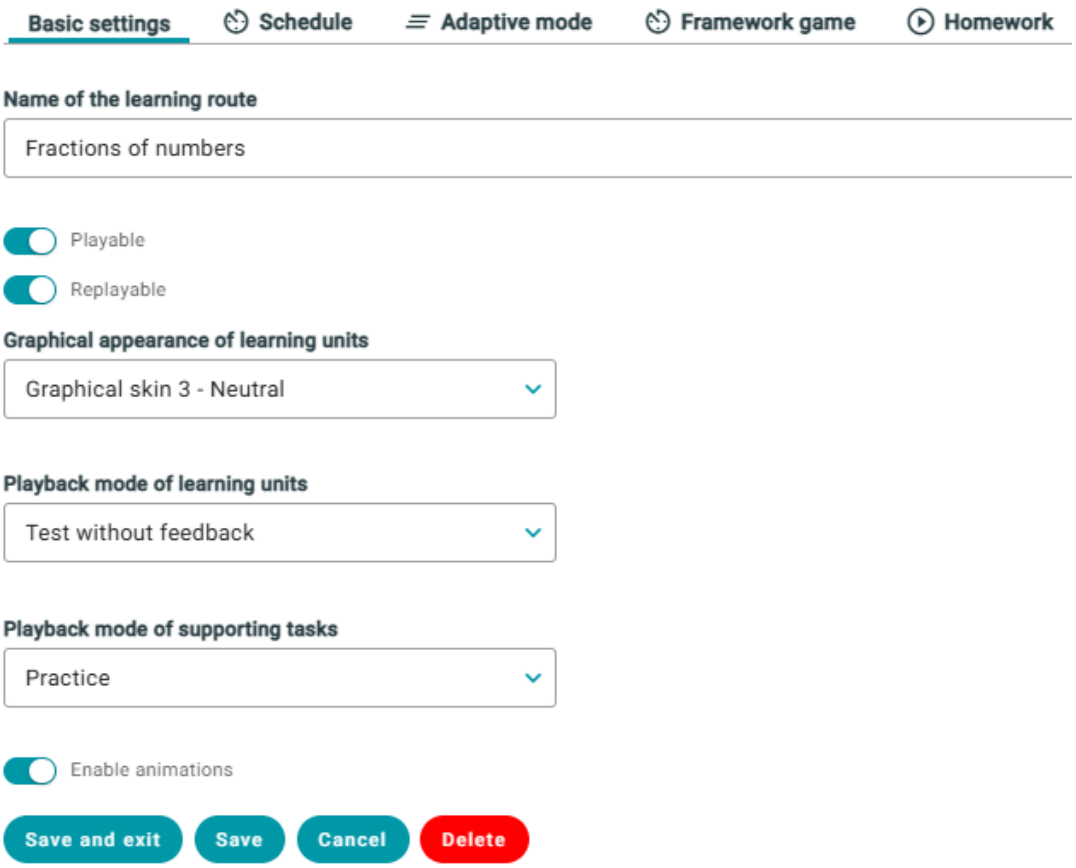
Now that you have your own learning route, you should set it up. Setting up a learning route means you determine the parameters the route will be played with.

The most important of these parameters are displayed in the line of the learning route.

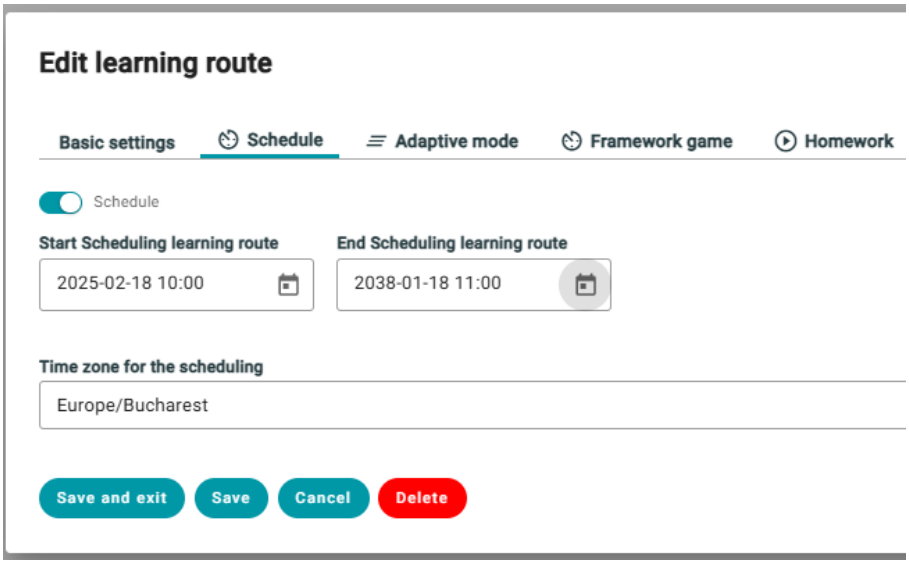
In this line you see the name of the learning route, the labels associated, the owner, the indicator icons, and the action keys.
A detailed explanation of what these icons mean and a general presentation of the learning route list are here:

Presentation of the the learning route list

To set up the learning route, you should use the  function key.
You will get a popup window with multiple tabs:

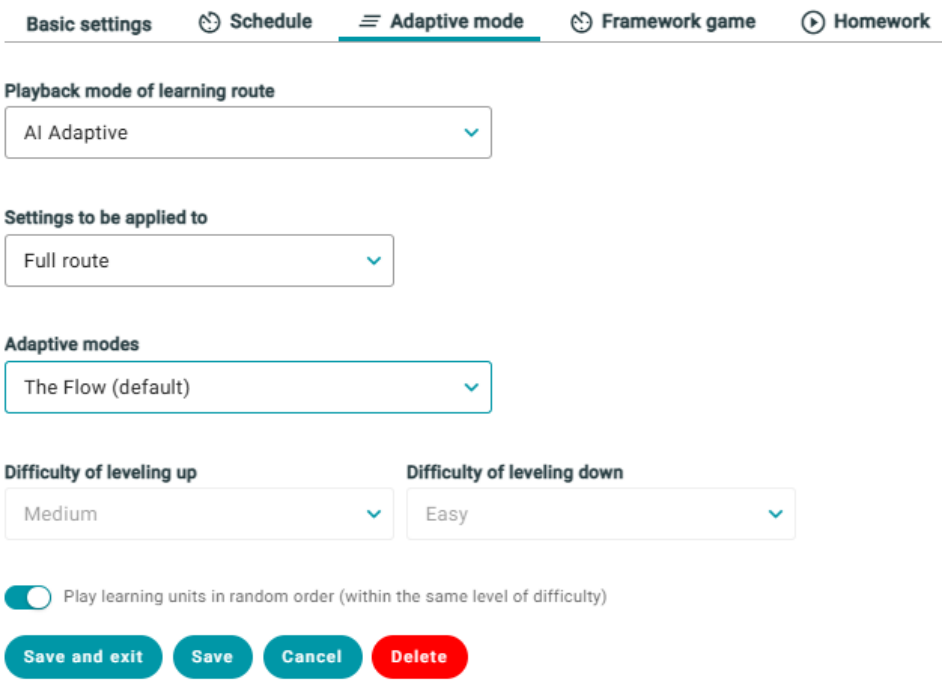


First of all, make sure your route is scheduled: set a starting date and an ending date for your route to be visible for the students. For example, if you want to run a test between 10 a.m. and 11 a.m., set the route to be visible for your students in Europe like this:



Next, you should decide on the mode in which the learning route will be played.
In the case of copied routes, you might want to check the original route's settings in the group of origin, and apply the same ones in your route.

If you want to set up the route yourself, here is what you have to consider:
Routes by default are set to "Linear", so if that is comfortable with you, just leave it like that.
If you want to set the route as adaptive, you will have to switch the first dropdown box to "AI Adaptive."
As a beginner, in the two boxes below you should use the settings "Full route" and "The Flow."



If you want to get more information about adaptive routes and their settings, go to the “Linear and Adaptive Learning Routes” section of this document.

A simple guide on what setting is best for a route can be found here:

Comparing linear and adaptive routes

Now we suggest to skip two settings tabs.

At this point, you we won’t bother setting “**Framework game.**” This is where you can enable the Enchanted Castle motivational game. This is a really good motivational tool, and we recommend you to use it. If you want to know how to do that, you can check it out in the respective chapter of the present document:

Gamification and motivation in Edubot

There is also a “**Homework**” tab in the settings panel. That can be used to assign the learning route as a homework, defining the requirements of completing it. For now, we just ignore this setting. Its role is discussed in the respective chapter of this document:

Cooperation between Teachers and Parents in Edubot

To complete your setup, go to the “**Basic settings**” tab.

Select the graphical skin of your route. The route can be presented in three different designs to your students, prepared for different age groups. As a secure solution, you can choose “Neutral”.

You can find images of the three graphic skins here:

Graphic skins compared

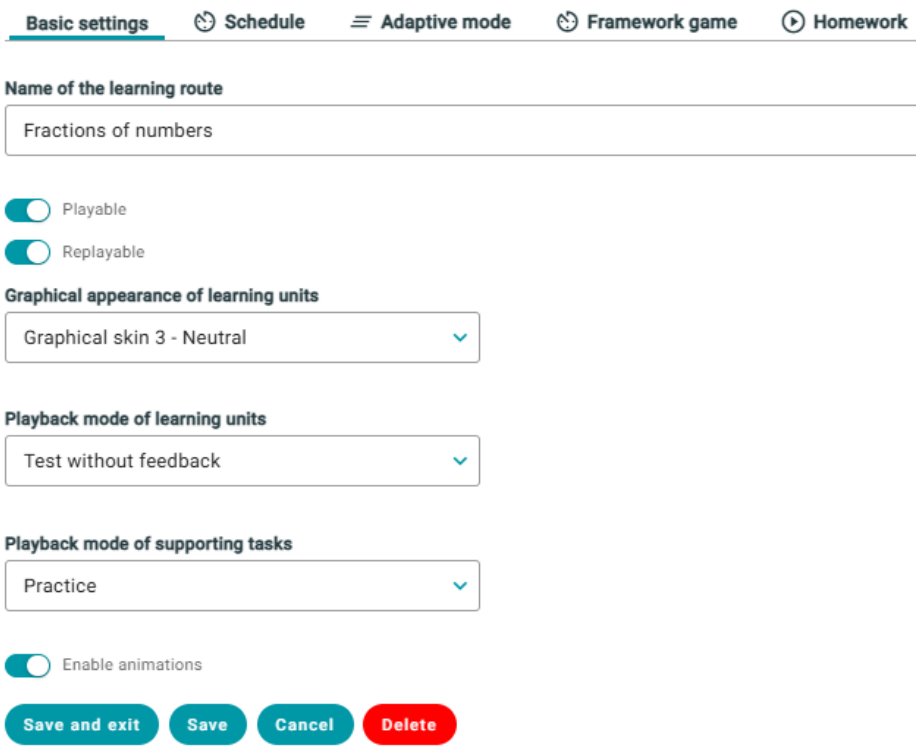
In the next drop-down box, you have to decide on the playback mode of the units.
If your route is an adaptive one, the best idea is to select “Test without feedback” here.
If your route is linear, you should consider what settings to apply.
If it is a test, you should obviously select “Test without feedback”. If you want students to exercise in the linear route, set it to “Practice”. This is what we did in the case of the Edubot linear routes.

You should also decide on the animations within learning tasks. They are generally set on, as it is fun to solve a task by grabbing moving objects on the screen. However, some students—especially those with dyslexia—can find that disturbing, so if you have students with that condition, just turn this feature off.

Now you are almost done.

Set your route “Playable” if you want it to be visible for students. Until you do this, only you can see your route; your students cannot. In fact, this button could also be named “Publish your route in your group”. We find that just too long, so we stick with “Playable”.
If you want to allow students who already completed your route to play it again, set the “Replayable” button on. *Don’t do that if you are preparing a test route!* 🤣

That’s it; you are ready!



Later on, you might want to know more about the possibilities you have in route settings.

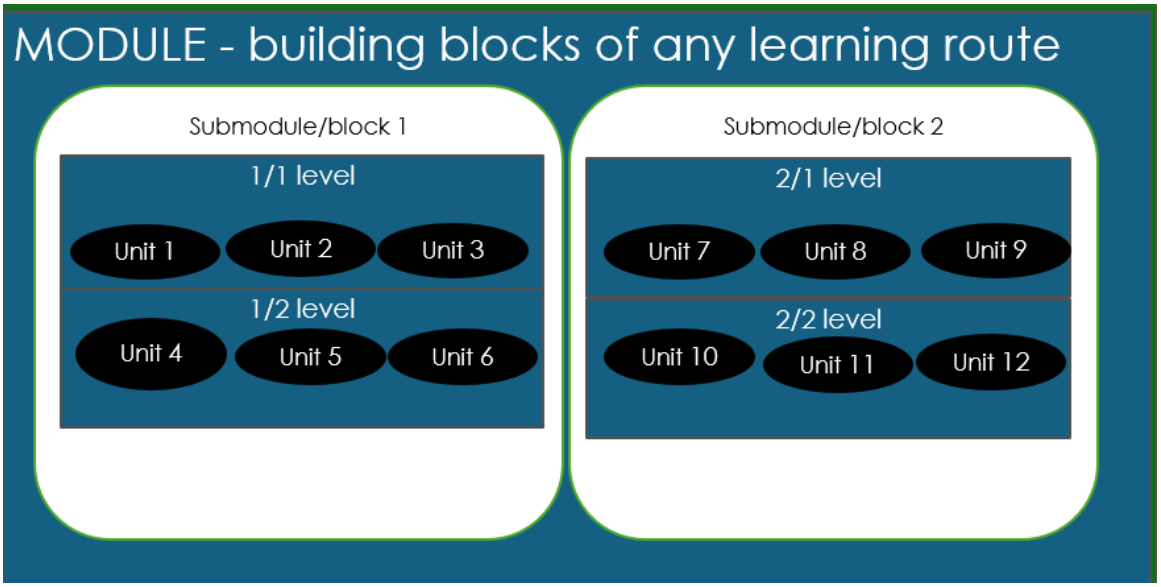
Here is a detailed explanation:

Learning route settings

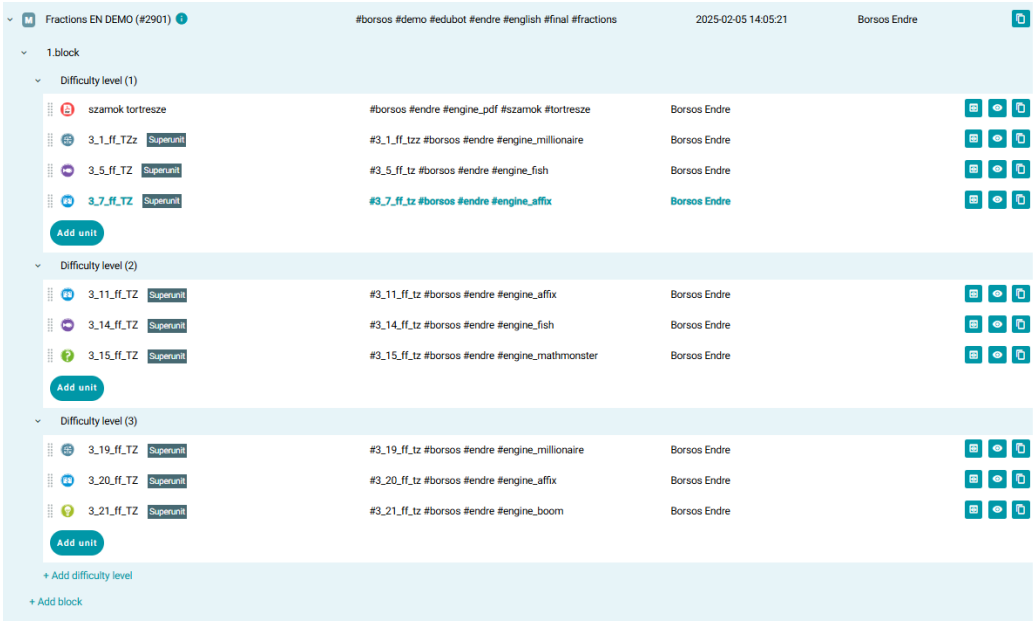
Browse and copy public modules to create a Learning Route

Another way to copy content for your personal use is to browse public contents.

In Edubot contents are organized in modules.
Modules are the highest set of contents, they are the building blocks of learning routes.
They contain learning units organized in blocks and levels.



This is how a module looks like when opened on the Teachers' Platform:



Modules belong to the user who created them, but they are all public, so you can browse their list or search it for keywords, and if you find what you want, you can copy it.

Here is what to do:

Go to Teachers/Modules and select Public modules in the drop-down box in the right.
Now you can search on keywords and see what you've got.
You can open the modules and see the units within; you can even preview the units.

If you find something interesting, you can create a copy by using the button.

Here is a step-by-step guide on how to proceed:

Browse public modules and make a copy of a public module for your own use

Now that you have this module in your own module list, you can edit it, delete or add units to your module, and work with it as you like.

Here you will find a description of what modules are and how to work with them:

Modules - the content sets you can use to build learning routes

Create your own new content

Now that you are familiar with using public content in your own group's learning routes, how about creating
your own content?

You should start by creating some new units.

In Edubot learning units can be used to pass over information in the form of text or video or to ask questions from the students in various formats.

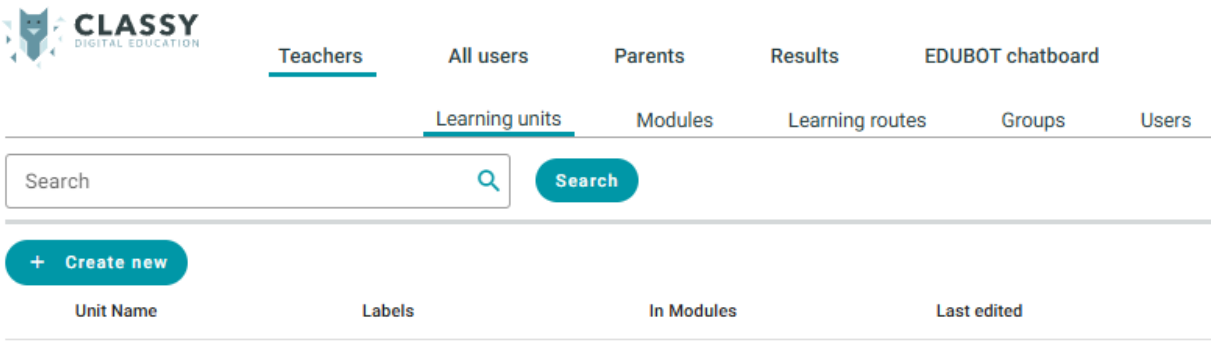
There are two ways to approach the learning process: maybe you want to give some information first, then ask questions. This is ideal for teaching something new to the students. This is an approach that would require a linear route.

The other way is to ask questions first, analyze the answers, and give information based on the answers.
This is the way adaptive routes work.

When you create your content, your pedagogical goal should be cleared before you start.

Let's go now for a linear approach.

Let's prepare a video unit, then ask some questions related to the subject presented in the video.



Go to Teachers/Learning units and push "Create new".

Select video.
Give a name to your unit.
Upload the video from your computer. Ignore the URL box and all messages related to it.
Save the unit.

You're done!

Here is a step-by-step guide for the above process:

Create a video unit

Now you should add some questions to your video.
Click on "New unit" again.

Select the interactive question you want to use.

Here is a detailed description of each unit type:

Learning unit types explained

Here you can see how each unit type will look like in the Student App in all 3 different skins:

Learning unit types displayed

Each unit type has its own wizard to use when you create the unit. There are a couple of things you have to pay attention to:

- always keep in mind that the texts you type in will have to appear on a relatively small screen, ifthe students will use mobile devices.
- select the right type of unit for the question you want to ask. For example, if you have a lot of text to display, don't use unit types that have limited display capacities.
- if you want to use pictures, they will usually appear in the Student app as info ("i") buttons. This is because we cannot display multiple pictures on a small screen.
- default setting for answering time is 3 minutes. If you expect the students to spend more time with finding the answer, you have to set that limit to 5-8 minutes.

Here is described how you create the interactive tasks/units.

Create unit

When your units are created, you have to place them into a module. That is because you can only add modules to learning routes; no individual units can be added.

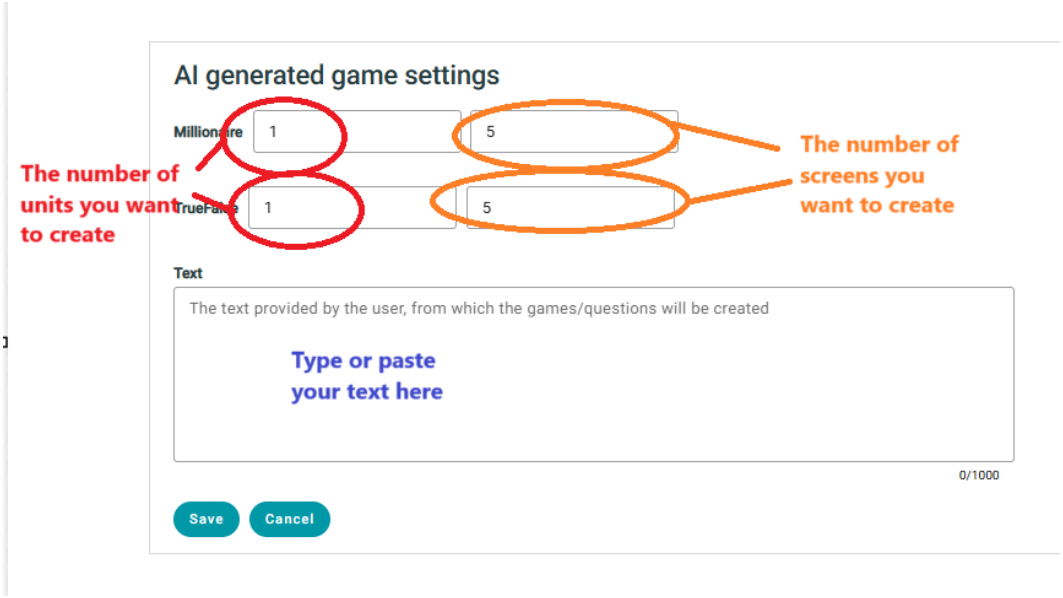
To do that, go to modules and use an existing module, or create a new one.
Push "Add units" and select the units you want to add.

Adding units to a new module

If that is done, you are ready to add your module to a learning route. Set up and publish the learning route, and see how your students handle the tasks.

Ask the Assistant to support content creation

There is a special way to create content with the support of the AI Assistant.
Basically, you give a text to the Assistant, you tell it which engines to use and how many questions you want, and it will create them for you.
To do that, go to Teachers/Learning units and push "Create new".
Scroll down and select the "AI" icon.



Type/paste your text.
Select the number of Millionaire and True or False units you want to create (0 or 1).
Select the number of screens you want to have in each unit. (1 to 5).

> *Screens mean that in your unit there will be several questions. After the student answers the question on the first screen, the second screen will show up, and so on.*

Click on Save!

It might take some time for the AI to generate your units.
You can check the units on your desktop.
We advise you to review the units before publishing.

Here is an interactive demo of the process:

Creating interactive questions from text with AI

Gamification and motivation in Edubot

Gamification in Edubot is designed to motivate both excelling students and those working hard to make some progress. We use digital elements to award students, but you can add your on motivational tools, and you can link them to real life. For example, in the Edubot pilot, students could gather Edubot stars in the learning process. Five stars were worth a 5 (equivalent to an A in the US).

The tool we use is called Enchanted Castle game.

It is an animated framework story that you can choose to add to any route, but it works best in adaptive routes. According to the story, a Hero has to climb all levels of an enchanted castle to free the Target person kidnapped by the Ennemy. Each level of the Castle corresponds to a levelof the learning route. On the way,the Hero will cross diverse chambers of the castle. In some castles there are treasures hidden in chests, which the Hero can open if the user has gathered enough points in the learning session. As a bonus, the Hero gets gold coins every time (s)he gets one level higher in the castle (learning route).

In this case, the (s)he expression refers to the fact that the Hero is chosen by the user at the beginning of the route: it can be a Prince, but it can adobe a Princess, a Robot, a Homeless or a Cat. The other two characters also have to be chosen. New characters can be earned on the way,if they are disposed in the treasure chests.

This concept assures that not only the excelling but also the hard-working students are constantly rewarded.

As a teacher, you are in control: you can place the treasure chests wherever you want, and you can also decide what the reward is in the chest.

Here is a simple guide on how to add a motivational frame game to your route:

Adding a motivational game to your learning route

In this document, you will find a detailed description of the game and how to set it up:

Detailed description of the Enchanted Castle motivational game

Analysing Results and Downloading Reports

An important strength of Edubot is the robust reporting system.
The system is built on two ideas:

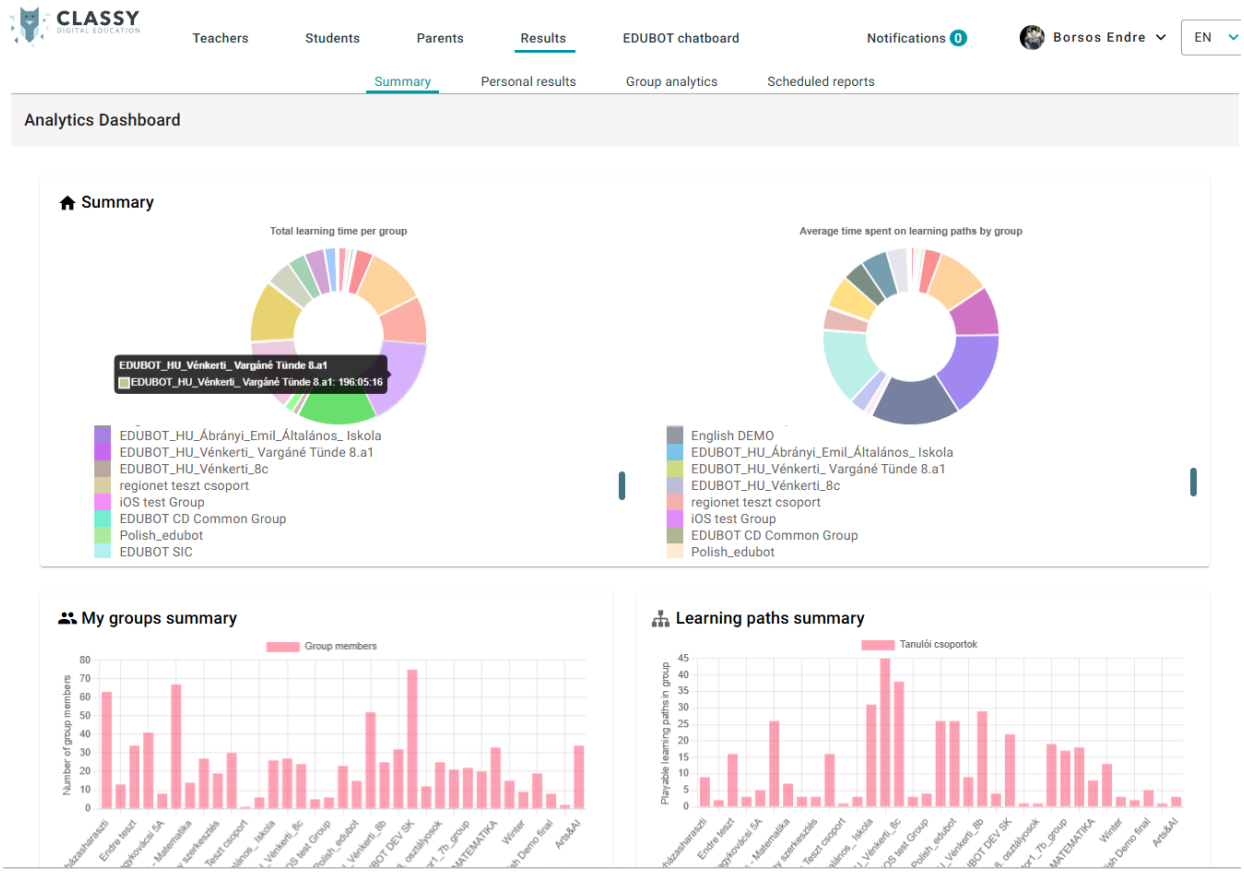
1. The group performance and the personal performance are both important sources for a report, and
2. The learning process should be tracked down to every detail so that the challenges each student faces can be identified.

The reports can be accessed under the “Results” menu.

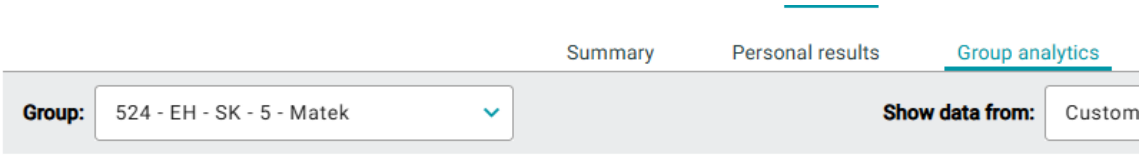
Please note that you can see the results of the groups you are member in, and you have the “view results” permission. The pictures in this section were taken based on the results of the Edubot pilot, and the respective groups are not public, and not open to visitors. If you have any questions regarding the presented results, please contact us:

info@interregioforum.hu

On the Summary page, you can see an overview of allthe groups you have permission to view: total time spent with learning, average time, number of groupmembers, and number of learning routes by group.



To access the results of your group(s), go to “Group analytics”.
Select the group you want to work with in the group selector box.



In the upper-right side, you can also filter the data to a desired time period:

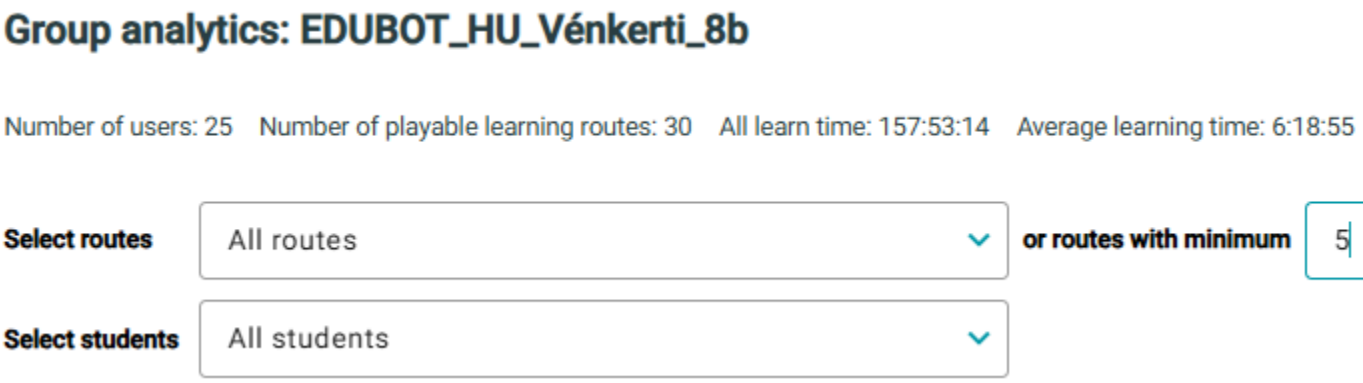
You will see the average results of all routes in the group.

Notes:

This is a very raw data you see here: it includes the results of all students in your group, including the inactive ones.

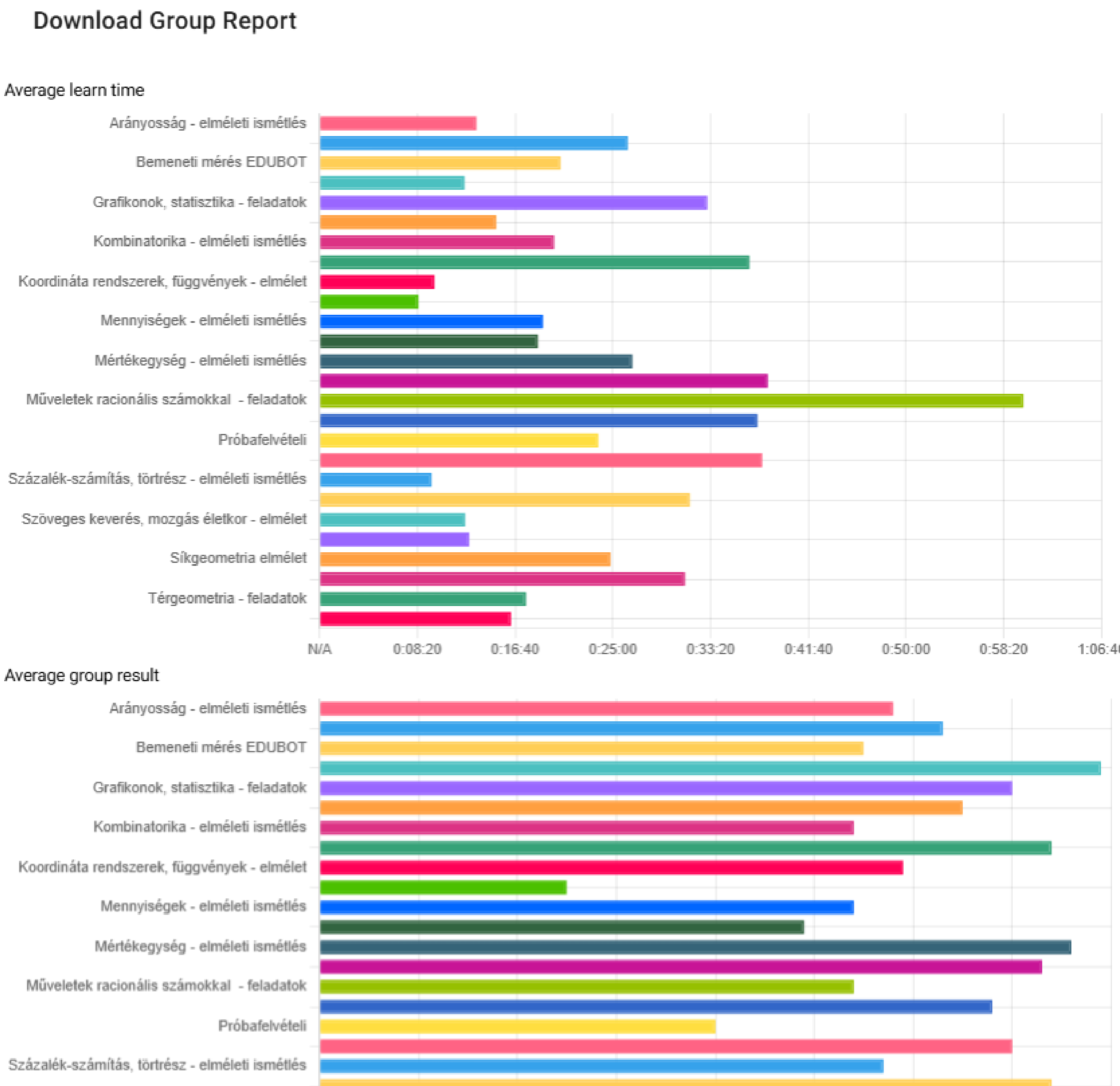
Please not that Edubot measures the net learning time: it does not include time spent with entering/exiting the app, going from one unit to another, framework game, etc. According to our experience, the screentime of students can be as much as 1,5- 2x more than the measured net learning time.

You can apply here further filters to narrow the list of routes.
As it is probably pointless to look at routes with very low AVG learning time, you can filter routes with a minimal AVG time: 5 minutes or 10 minutes.



Another possibility is to manually select the routes you want to display in “Select routes”.
You can also filter the data selecting/deselecting students.

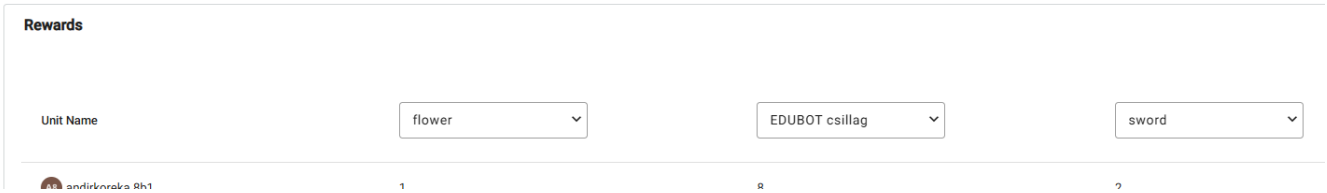
Once you are done filtering, you can download a PDF report summary for your group, displaying the results you can see on the page:



Going further, you can:

1. click on one of the routes you are interested in,and see the route results, or

2. view the rewards of your students (maybe someone should get an A)



3. scroll down to the end of the route list, and select a user to get to detailed personal reports

Route reports

Route reports are meant to give detailed information on your students' performance in a specific route.

There are report elements that are suitable for both linear- and adaptive routes:

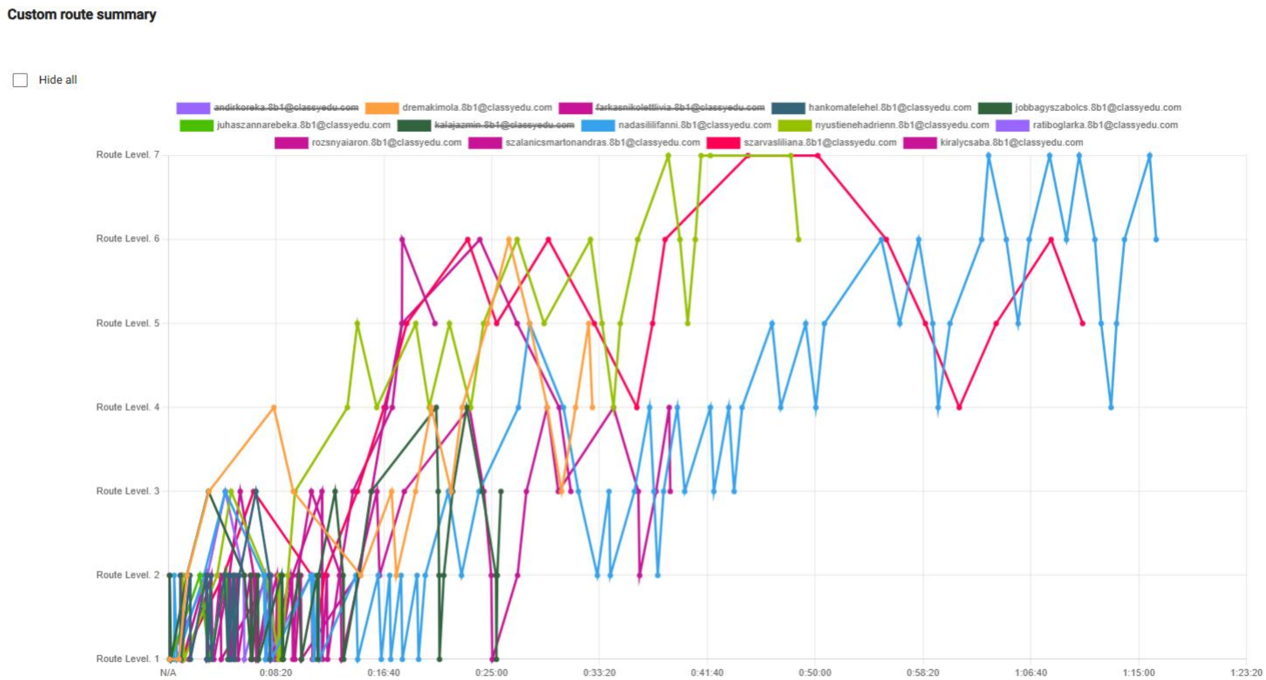
Result: average results of the units in a route by user
Learning time: total learning time of the user in the route
User results by units—here you can see and even re-play the answers of students to particular units

One is only relevant in linear routes:

Progress—the percentage of the route completed by the user is not relevant in adaptive

Some are only relevant in adaptive routes:

Level achieved—the highest level levelachieved by each student in the route
Current position: the actual levelof each student, highest level achieved, how many times each student fell backfrom a certain level
Level reports: number of students reaching a level, falling back from a level, average result and time spent on a level
Custom route summary: this is an interesting chart showing the personal learning paths of students. You can select/deselect students here to make the visual more clear. You can also click on the dots representing units, see their results, and replay them in webGL.
For example, here is a route summary to illustrate how diverse each path is:



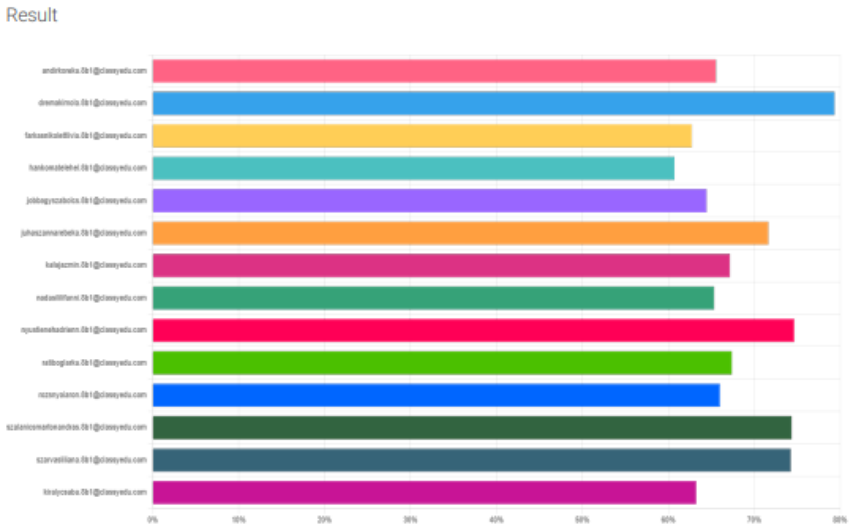
In the route analytics there are several possibilities to download reports.

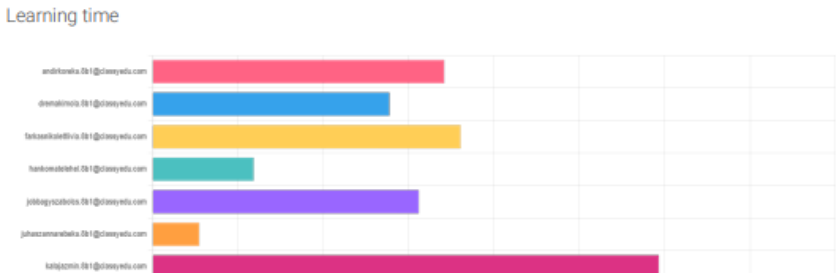
The easiest and most spectacular is the PDF report: just push the button and download it.

EDUBOT_HU_Vénkerti_8b - Műveletek racionális számokkal - feladatok

2000-01-01 00:00:00 - 2030-01-01 00:00:00

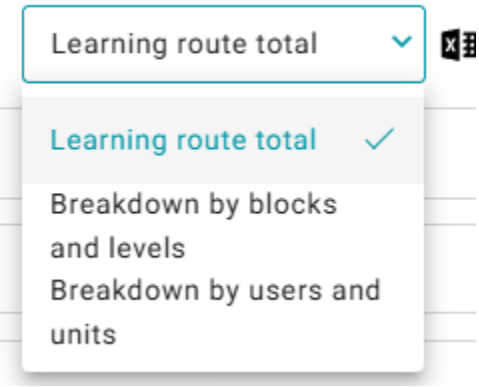
Name of learning route	Average learning time	Average result
Műveletek racionális számokkal - feladatok	1:00:02	54%





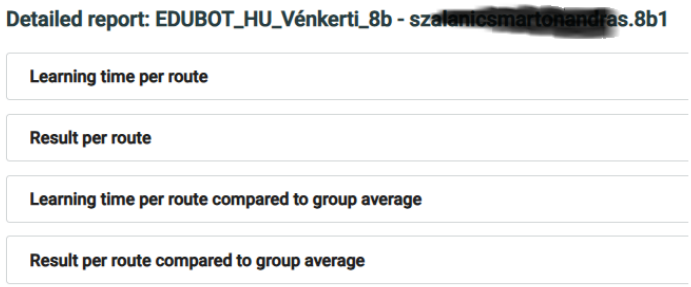
There are a variety of excel reports available by opening the drop-down box, selecting the resolution of the report and then clicking on .

A warning: very detailed reports (breakdown by users and units) can be difficult to download in the case of large routes, as the huge data might cause timeout on the server.

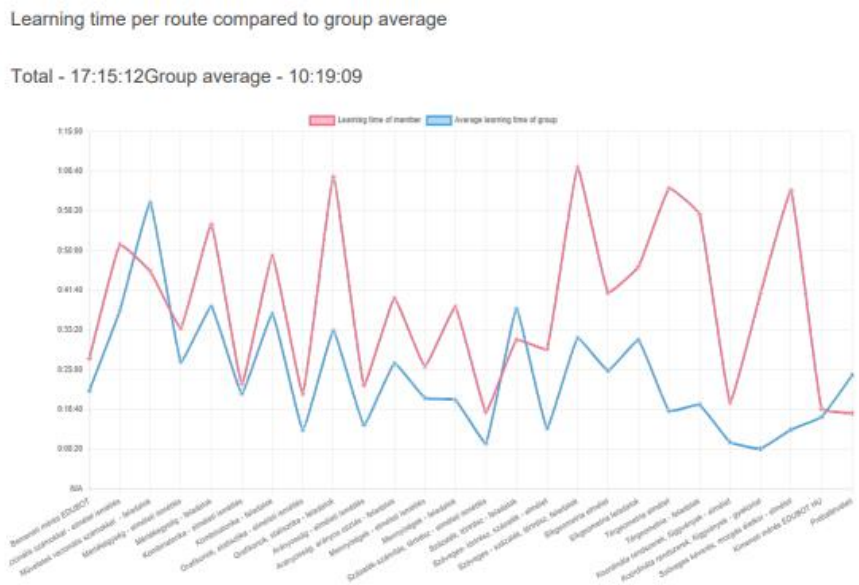


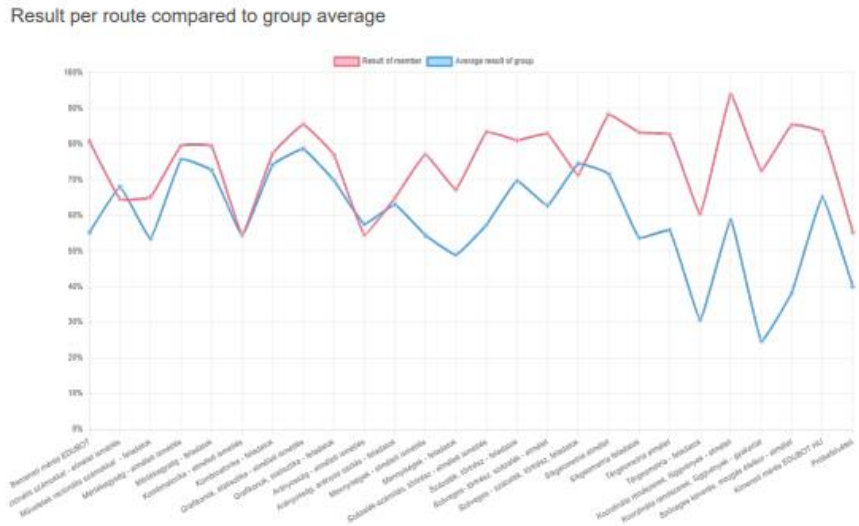
Personal results in the group

If you go back to the “group analytics” menu, and scroll down to personal results, you can view the reports on each student, with data also compared to the group average.



Here you can download a PDF presenting the performance of the selected student in all selected routes, AND comparing it to the group average:





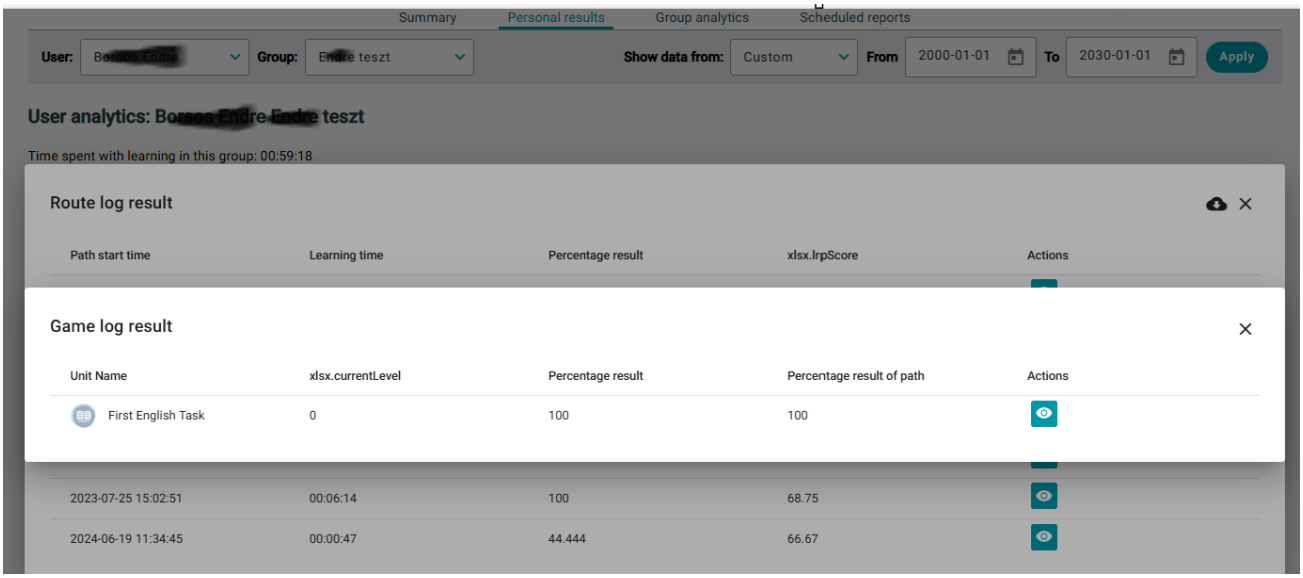
It is also possible to download detailed personal excel reports on each route.

Aggregate personal results

As a user can be a member of several groups, Edubot has a separate section that approached the reporting from the user's perspective.

The "Personal results" menu is about you, as a user, and about the the children related to you as a parent in the system.

You should select the user, the group, and then dive into the personal route reports, down to the unit level, even replaying the answers given to a question.



This is a great opportunity to curious and caring parents!

For further details and tips on how touse the reporting system please consult the relevant section of the Methodology:

https://www.edubot.hu/blended-learning-methodology/learning-results-reports

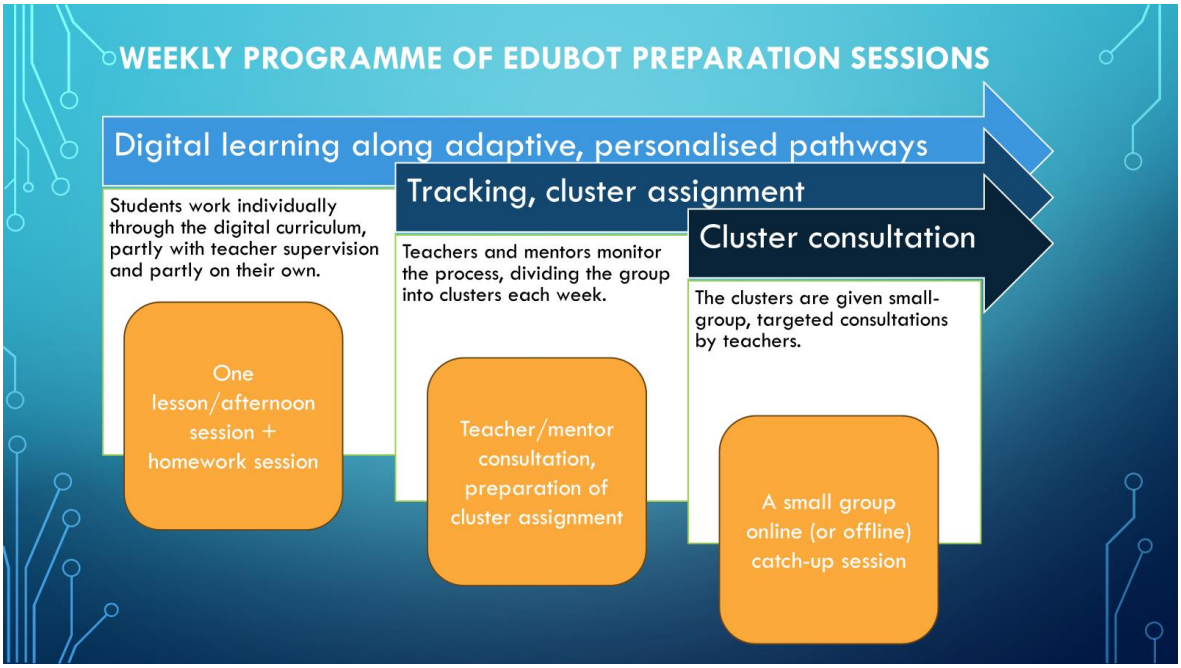
Pairing adaptive digital learning and personal tutoring

The EDUBOT methodology's main goal is to keep students on a learning track we call the "Flow Channel" between boredom and anxiety, assuring that every student is faced with challenging but not overwhelmingly difficult learning tasks.

Edubot learning routes adapt to the learning habits of the students. Those who excel in a certain field will go on and get more complex tasks, while those who struggle will get supporting questions, knowledge elements, and explanations to help them overcome their problems.

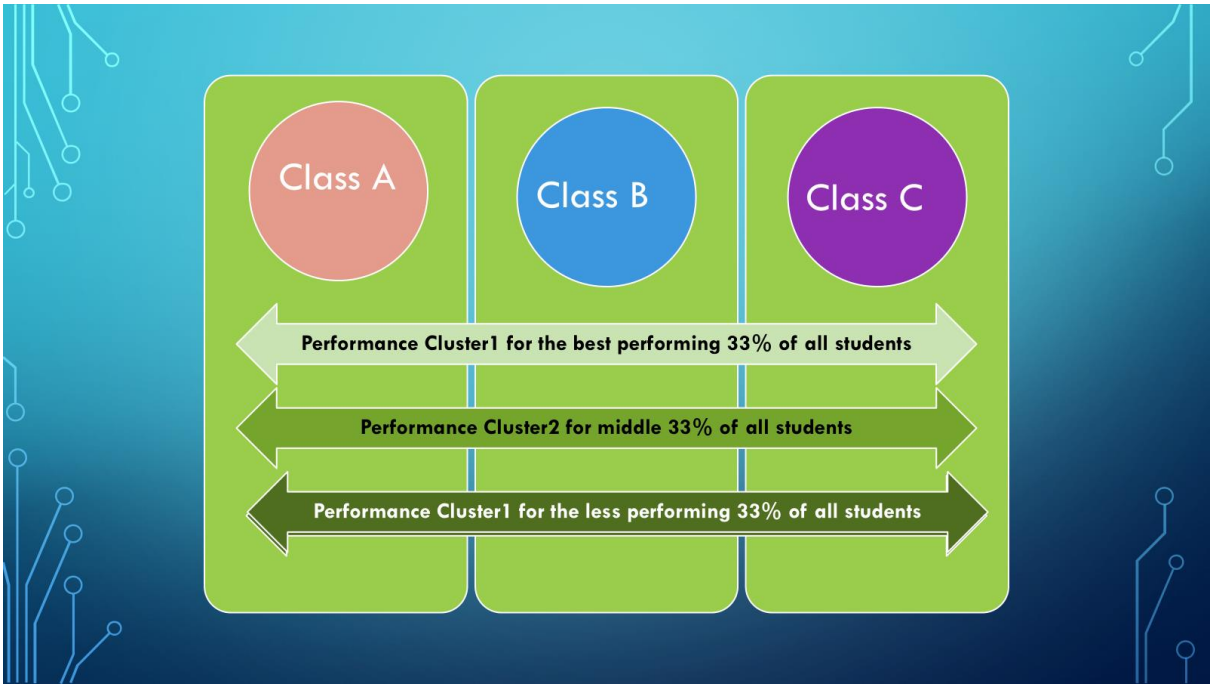
However, EDUBOT is not to create a digital system that takes over the complete learning process.

We believe that adaptive digital routes can be the most efficient if the learning process is supervised by teachers, and the students regularly get personal support in form of small group tutoring. The results of our pilot sessions also show that this is the way how the best result can be achieved in preparation for exams.



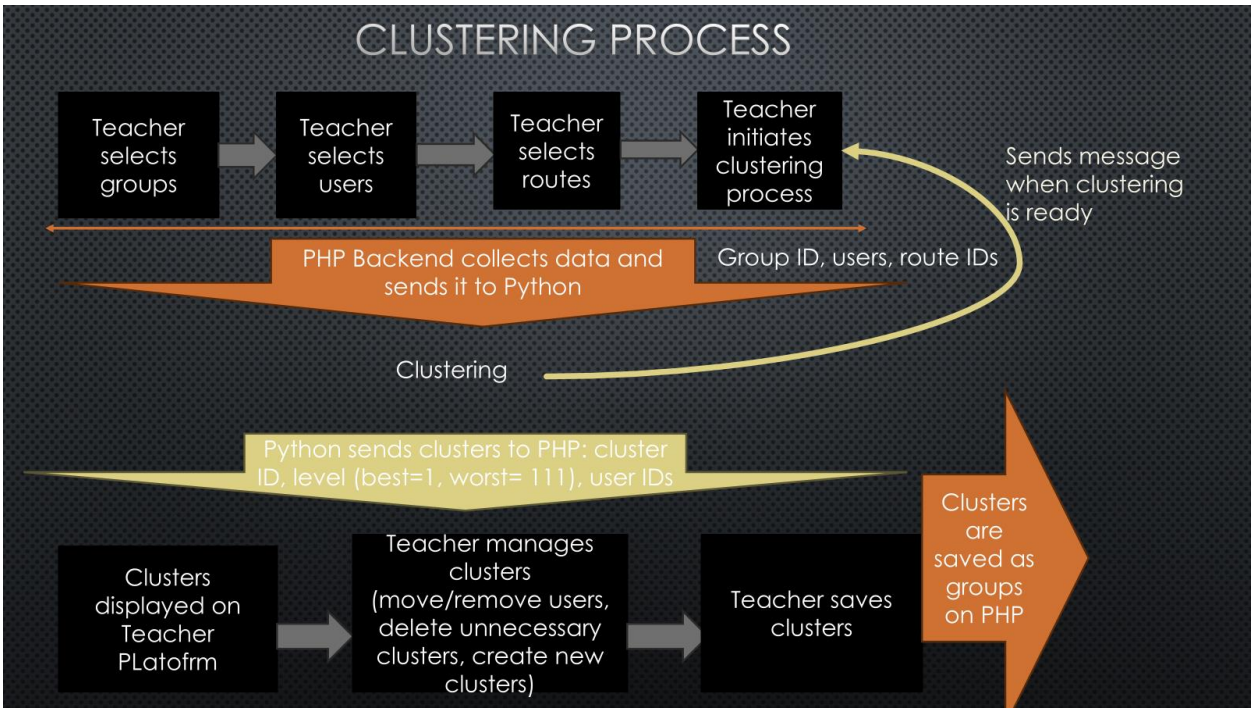
The digital learning process can and more often than not should be paired with personal tutoring. Edubot provides a unique solution to blended learning by supporting teachers to break down their classes into more homogene performance clusters.

To take advantage of the results of the adaptive learning routes, Edubot suggests teachers to organize tutoring sessions in such performance clusters.



During the pilot phase, clusters were manually created.

After the experiences of the pilot,we were able totrain the Assistant to takeover a part ofthe work. The Edubot Assistant can now help create such clusters within a group or across the groups based on students' performance in one or several learning routes.



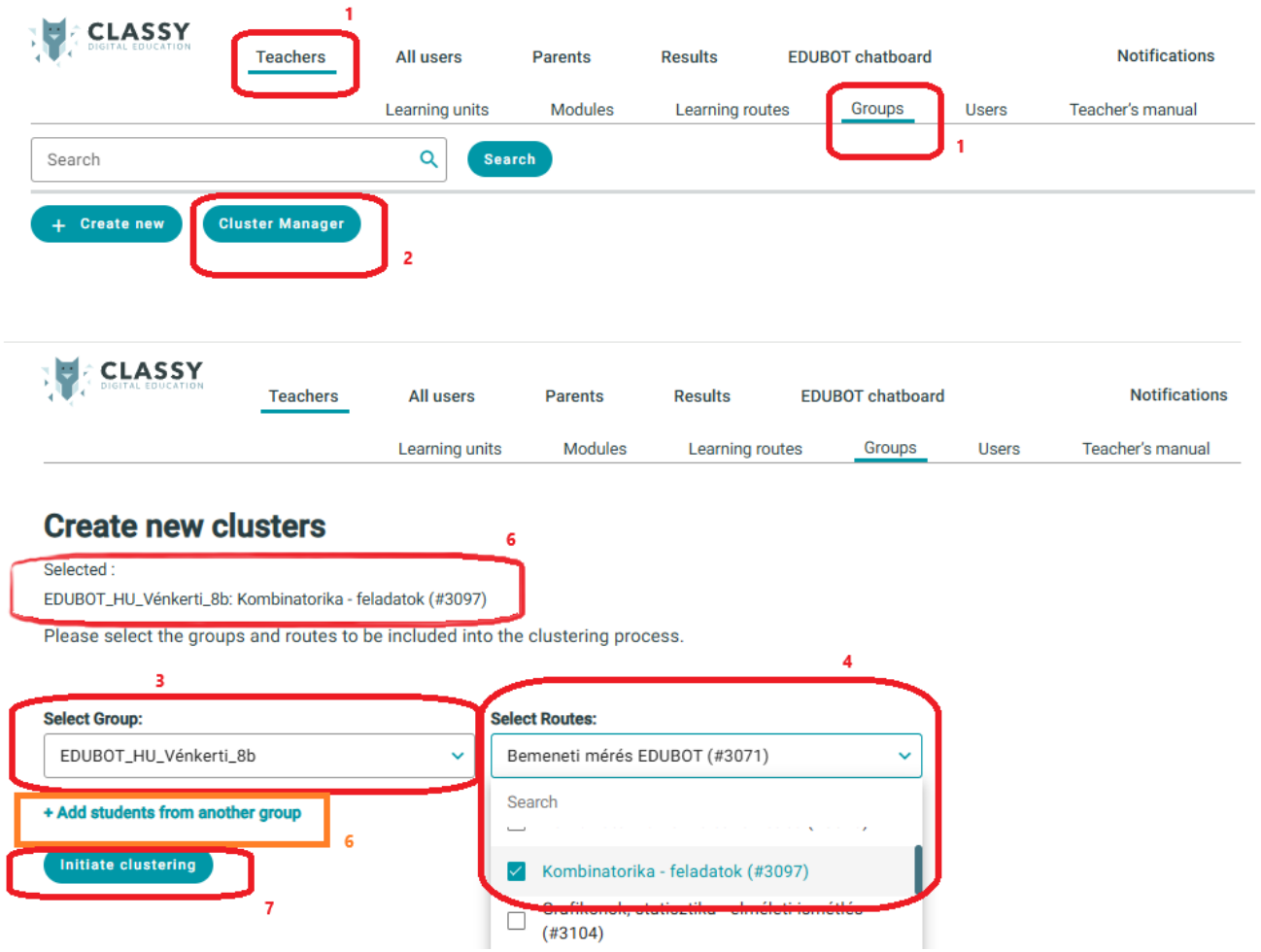
This is how you can work with the Assistant to create clusters:

How to create performance clusters?

One way to create the clusters is to analyse the results and create the classes manually.
However, as this process can be time -consuming, especially if you have several classes to cluster, you might need a helping hand.
EBUBOT Assistant will do the clustering for you.

Steps to be taken:

1. Go to Teachers/Groups
2. Select Cluster manager
3. Select “Create new cluster”
4. Select the group you want to work with, then select the route the results of which you want to be taken into account in the process. *You can also select several routes if you want.*
5. If you want to include another group in the clustering process, select “Add students from another group”, and repeat the process above. *Please note that the best matching clusters will result if you select the same route in all groups. The Assistant will perform the clustering at any selection, but obviously, the most matching dataset of student performance will be provided by results of a single route.*
6. Check under the “Selected” line, if the selection is correct.
7. Push “Initiate clustering”

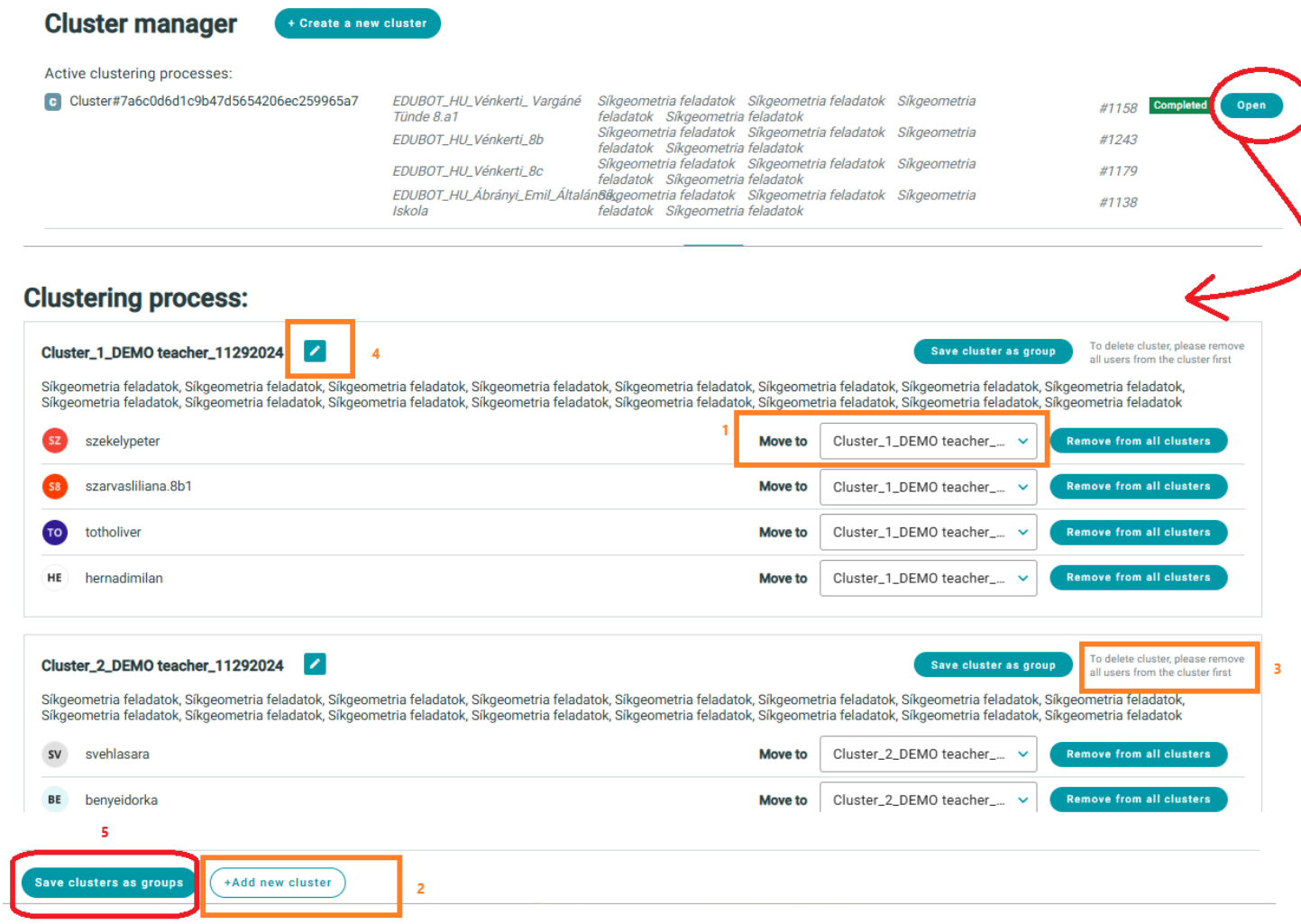


You will receive a message that clustering has been initiated.
This process can take a few seconds or minutes depending on the quantity of the data to be analyzed by the AI.
When the process is completed, you will get a notification on the platform and also in e-mail.
You can also check yourself if the completed processes in the “Cluster manager”. If your process is marked “Comleted” in the list of “Active clustering processes”, you can open the result by clicking on “Open”.

You will see the clusters proposed by the Assistant listed(see the image below).

You can now manually move students from one cluster to another (1), add new clusters (2) and delete emptied ones (3). We recommended to rename (4) the clusters you want to work with, so that you can easily identify them later.

When you are ready with the modifications, you can press “Save clusters as groups” (5). The clusters will now be saved as groups, and listed as groups in the “my Groups” menu. From now on, you can work with them as with any other learning group.



Your clusters will appear in the “Group” menu, “My groups” list.

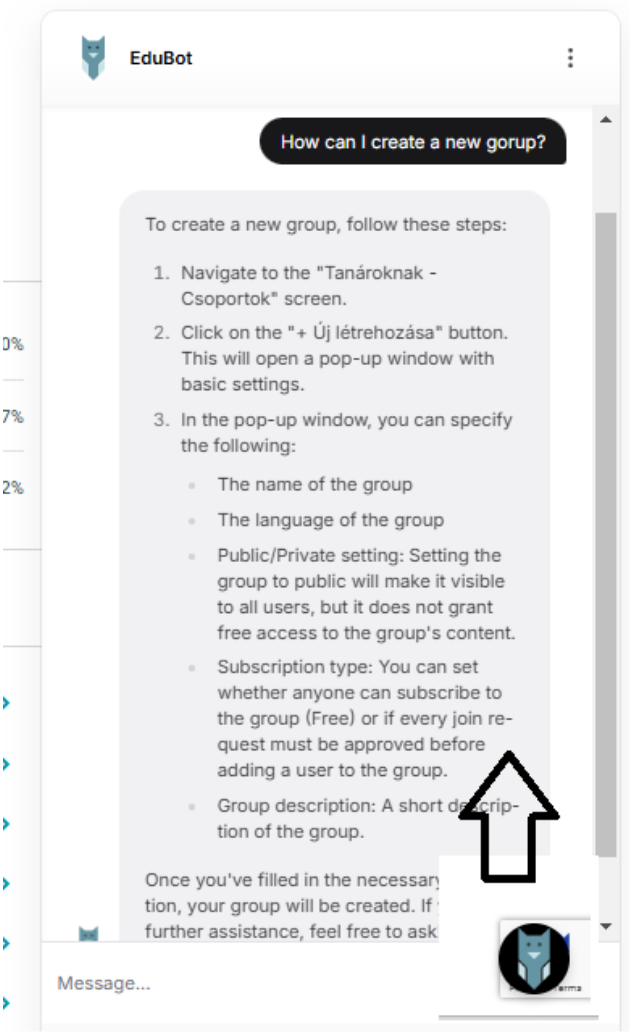
You can use the created cluster groups to offer them learning routes tailored to their needs, or you can offer them personal tutoring.

The most efficient way to invite your clusters to online meetings is through the Edubot Chatboard.

As the clusters are already created, with just a few clicks you can set up a chatroom for the cluster and send them a meeting link.

Any further questions regarding the use of the Teachers’ Platform? Ask the Assistant!

Our presentation of the Teachers’ Platform has come to an end.
Should you have any further questions, please refer to the Assistant in the lower right corner of the platform’s screen:



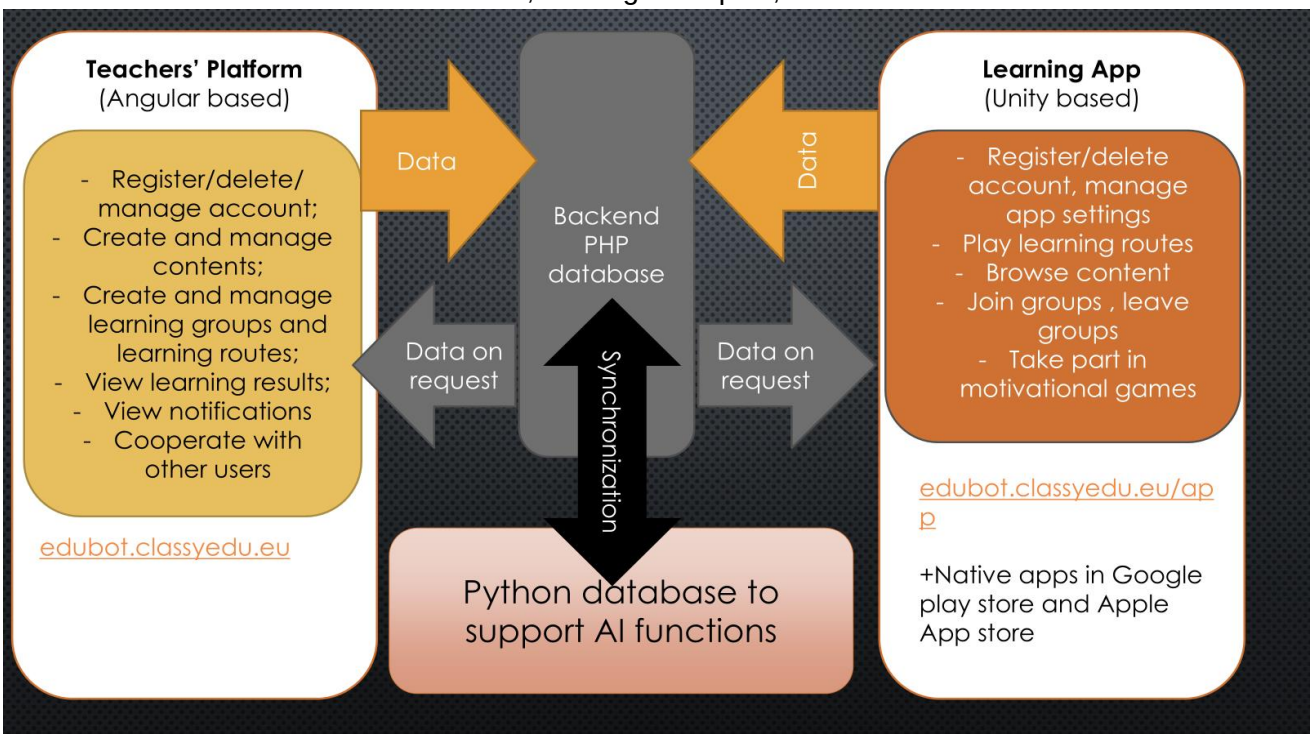
However, the Assistant is not there to become a firewall between humans. Please do not hesitate to contact us with any questions, issues,inquiries you have:

info@interregioforum.hu

Technical Structure of the EDUBOT Solution

General structure

The EDUBOT Solution is built on a clear, although complex, architecture.



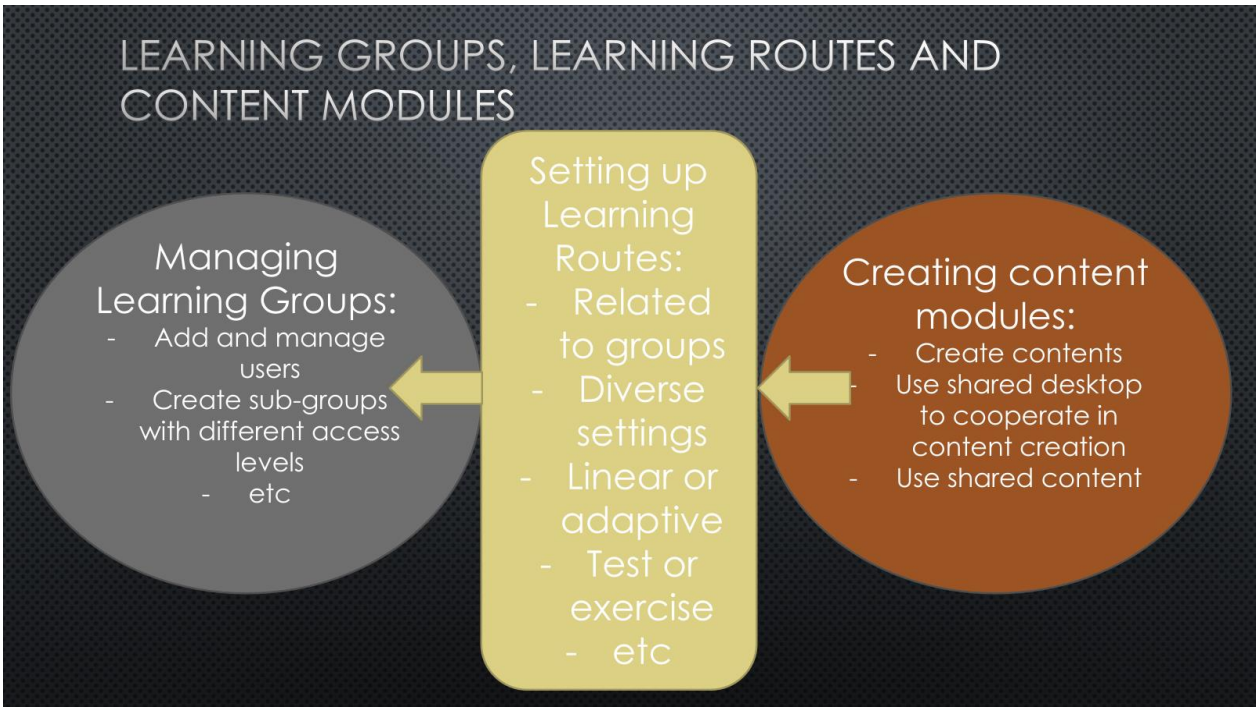
The development phase saw the creation of a dynamic database and back-end structure, which are the backbone of the EDUBOT solutions. As this system is a PHP database, a completely new backend structure had to be constructed in Python to allow dynamic access to the AI solutions to the data. The constant synchronization between the PHP and the Python database also had to be developed.

On the front-end side, the EDUBOT Tool, also referred to as Teachers' Platform, was developed. It includes a Learning Management System (LMS) and a Content Authoring Tool (CAT), both powered by AI to create content, handle personalized learning paths, and provide feedback on learning activities.
This tool allows teachers to create and run AI-assisted courses and develop new interactive content, significantly enhancing their instructional capabilities. For students, the EDUBOT App was developed in a Unity environment, available on Android, iOS, and webGL, specifically designed for the needs of students, user-friendly, and compatible with a wide range of devices, ensuring accessibility. The EDUBOT Assistant consists of several AI solutions integrated into both the Tool and the App. It assists students with adaptive learning routes, simple conversations and choosing knowledge elements, helping questions and explanations, while also supporting

teachers in group management and content development. The development of the Assistant functions included programming and training the applied chatbots.

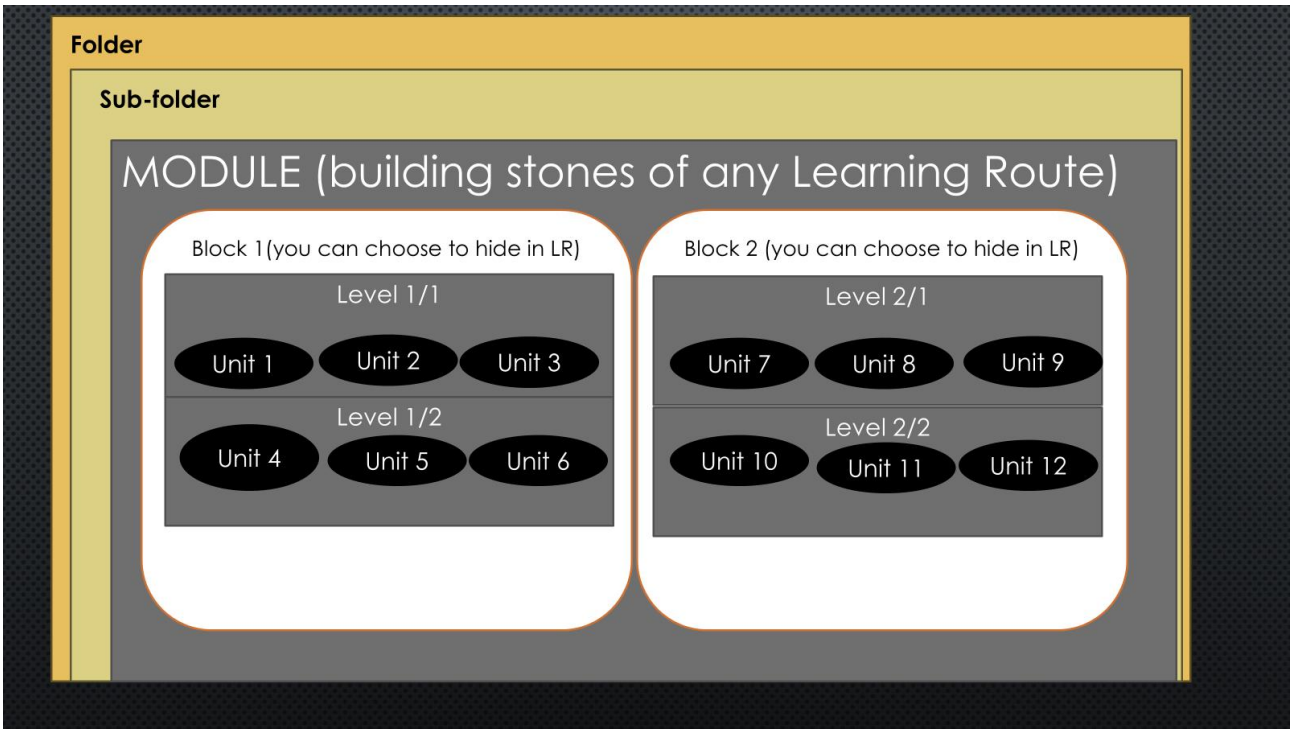
Managing Groups, creating Content Modules and Contents to Groups with Learning Routes

The **Teachers' Platform** integrates Learning Management System (LMS) and a Content Authoring Tool (CAT), functions, both powered by AI to create content, handle personalized learning paths, and provide feedback on learning activities.

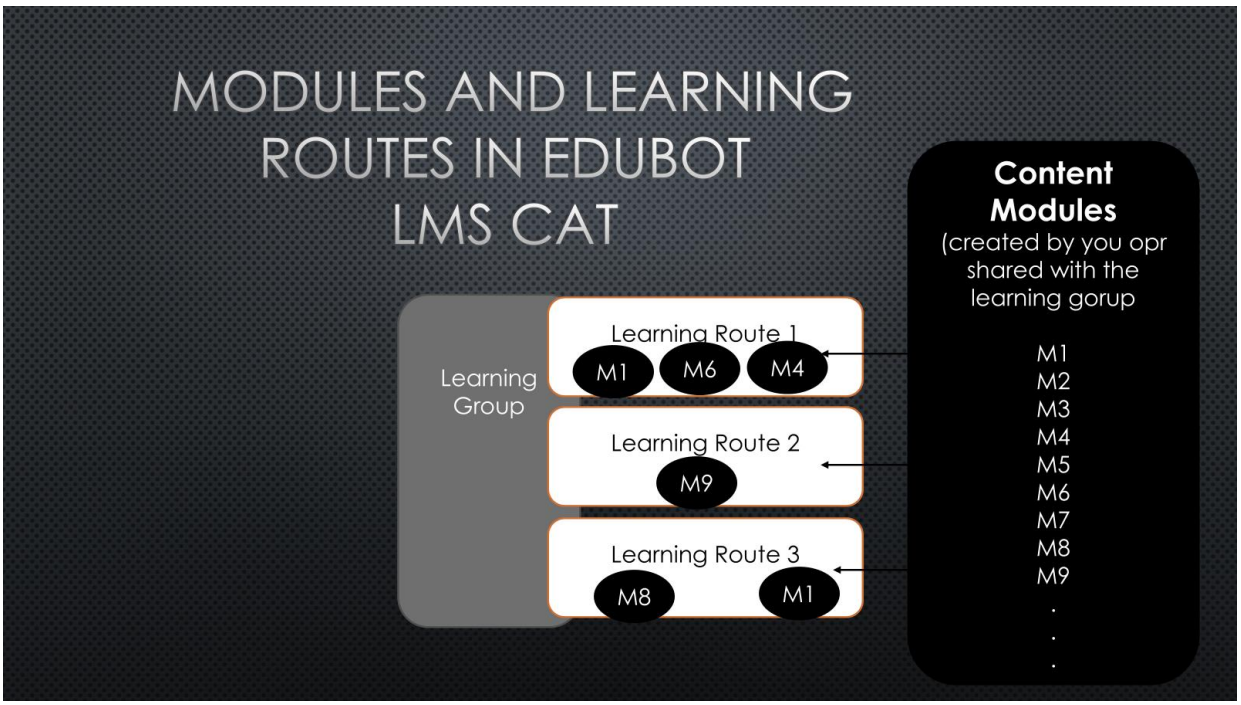


The management of the learning process is based on Learning Groups. Within the Groups, we create separate Permission groups for teachers and students so that teachers can access functions like managing content and viewing reports that are not open to students. It is always up to the Group's owner what permission is given to group members.

The contents are created as **Units**, which are grouped in **Modules**.
Modules can have multiple levels, supporting the AI Assistant to design personalized learning paths in adaptive routes.



Groups and **content modules** are connected by **Learning Routes**.
This structure provides Edubot with a unique flexibility.
The same content can be used in several learning routes with different settings, so the same content can be applied in different educational contexts.
For example, a content module can be a test in one learning route and an exercise in another.

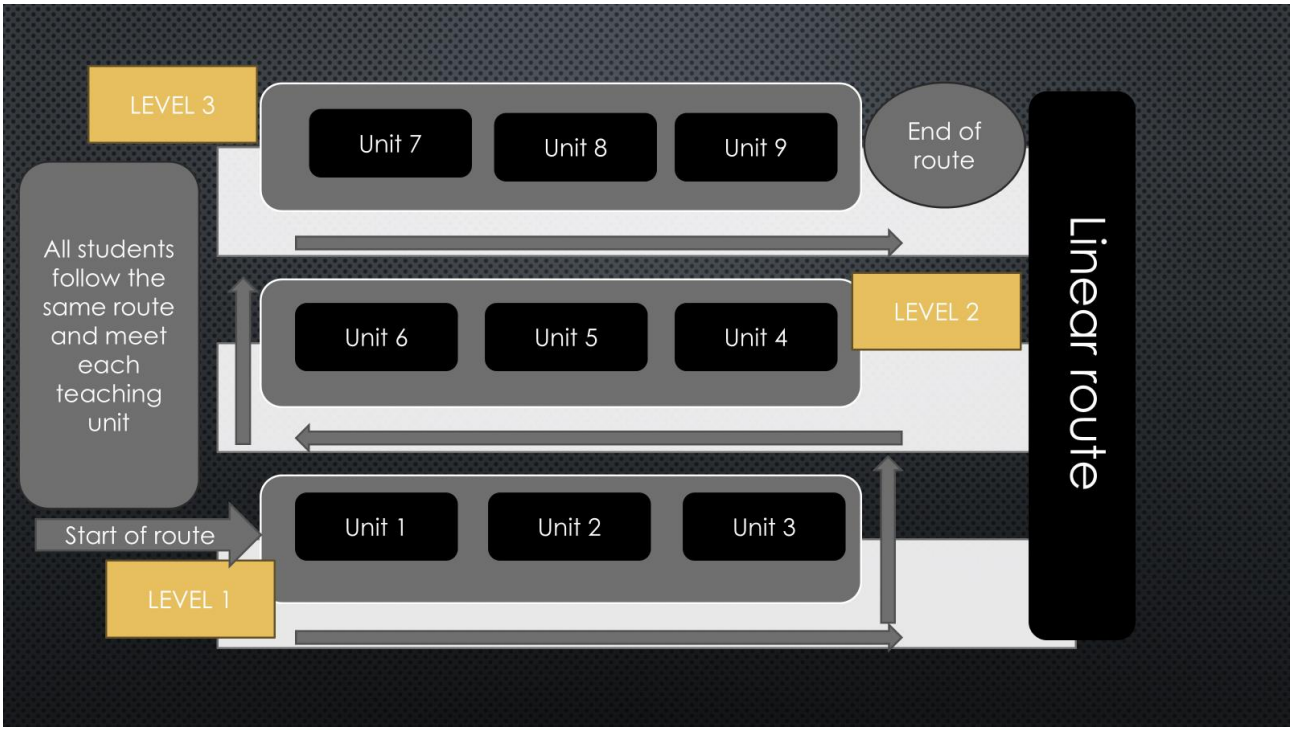


Linear and Adaptive Learning Routes explained

Learning routes can be set up as linear or adaptive.
As modules can be used in several learning routes, a certain content can be presented to students in several ways: as a linear route, or as an adaptive route with different pre-settings.

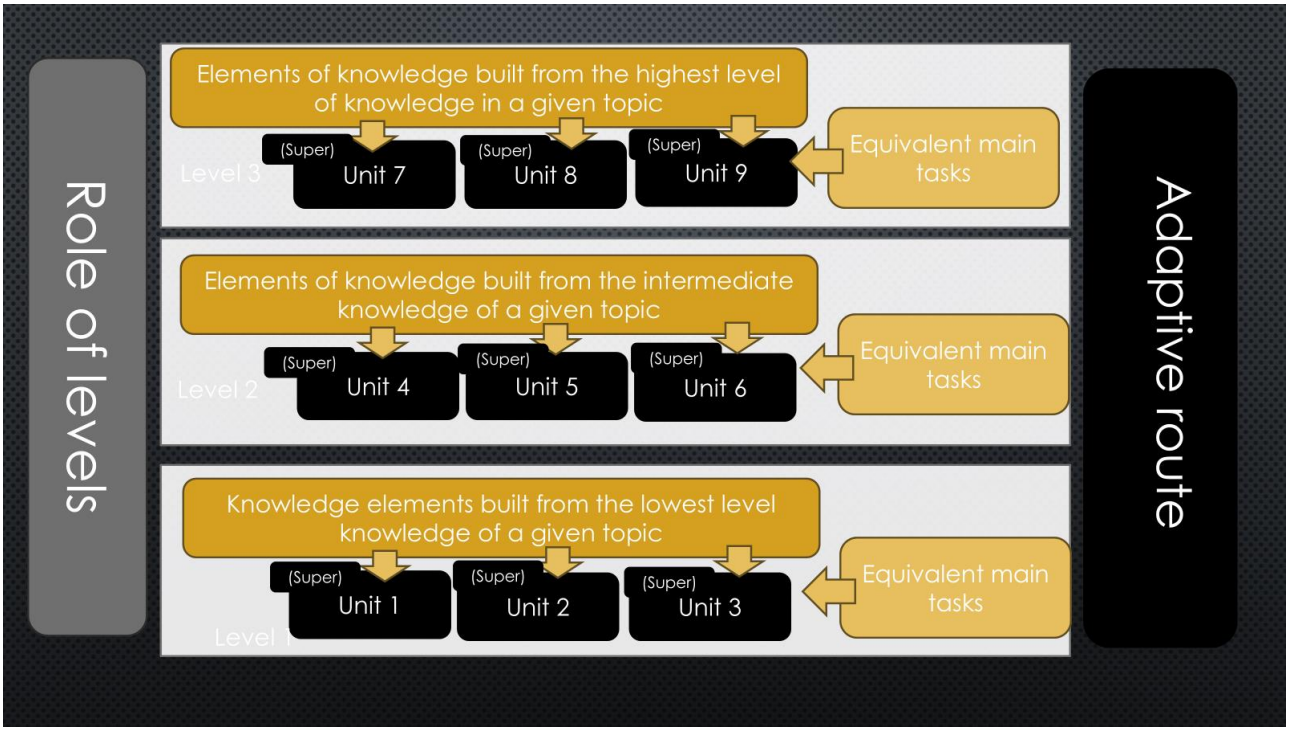
Linear routes are very simple: the units come one after the other, and the student will meet them in the order the teacher placed them. Linear routes are perfect for presenting some new information: we present a videoor a text, then we give some questions to see if the student got the point.

However, in linear routes there is no room for differentiation. Some students might get bored, finding the information familiar and tasks too easy to solve. Others might find the same tasks unsolvable and might lack the basis to understand the presented information.

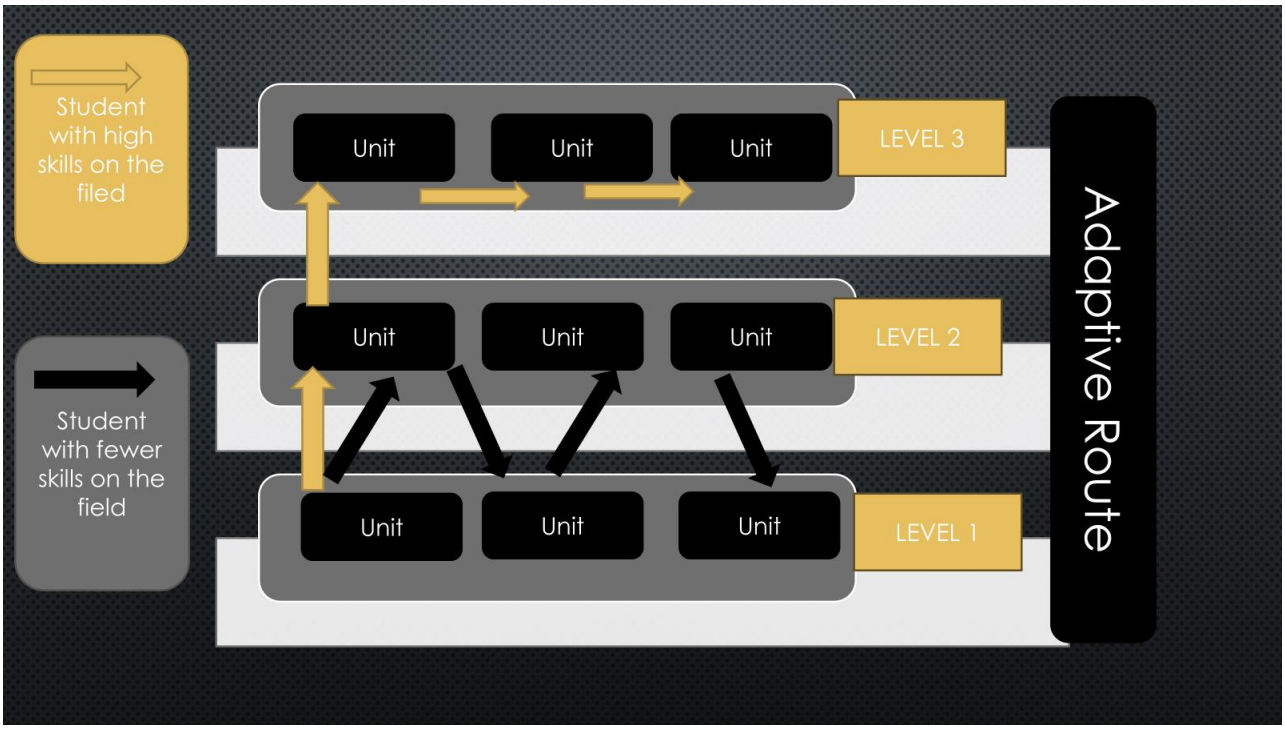


But here comes the **adaptive route** to solve this problem.

The AI assistant leads the students in personalized pathways: every student advancing in their own pace.
Obviously, the content should be created in a way to suit this approach.
Therefore, the units on a certain levelof the modules in the adaptive routes should contain equivalent tasks, covering a certain level of knowledge required to complete the level.

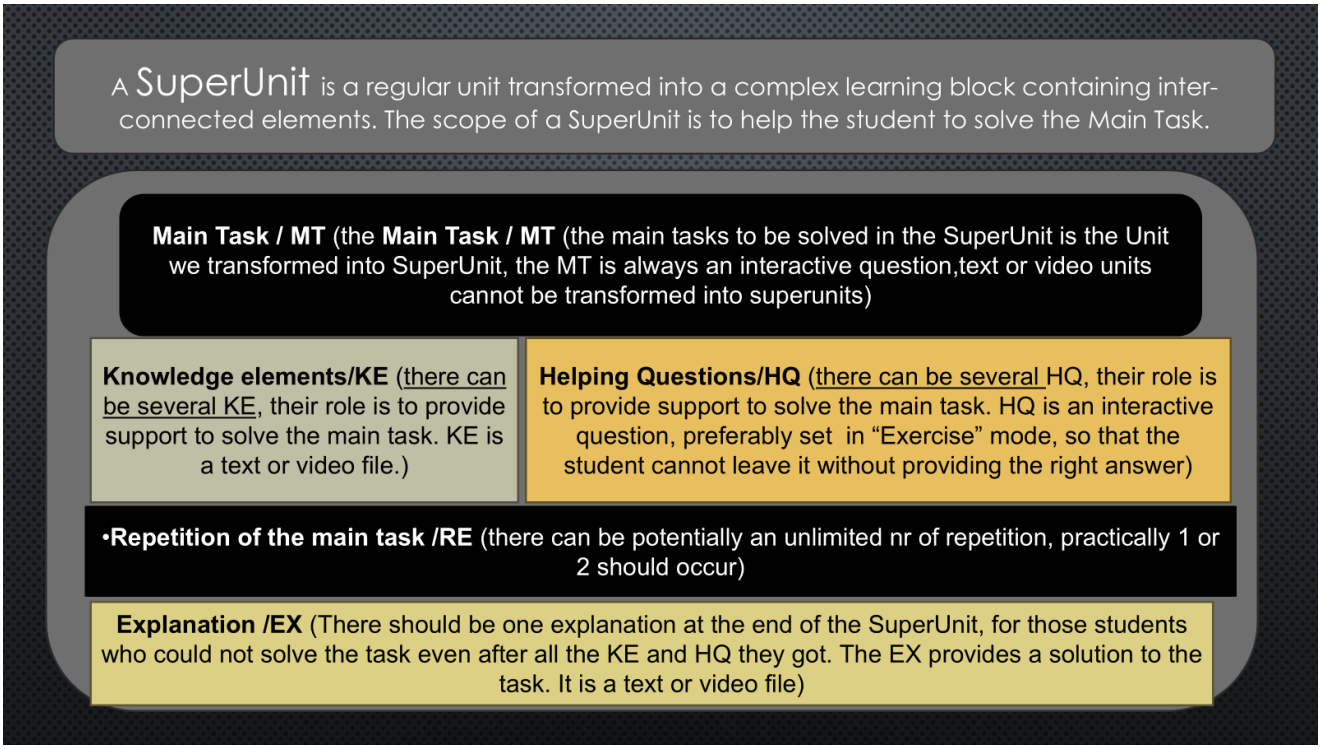


So, those who solve a task on a certain level without external support can be allowed to pass to the next level. Those who don't... they need to be supported.



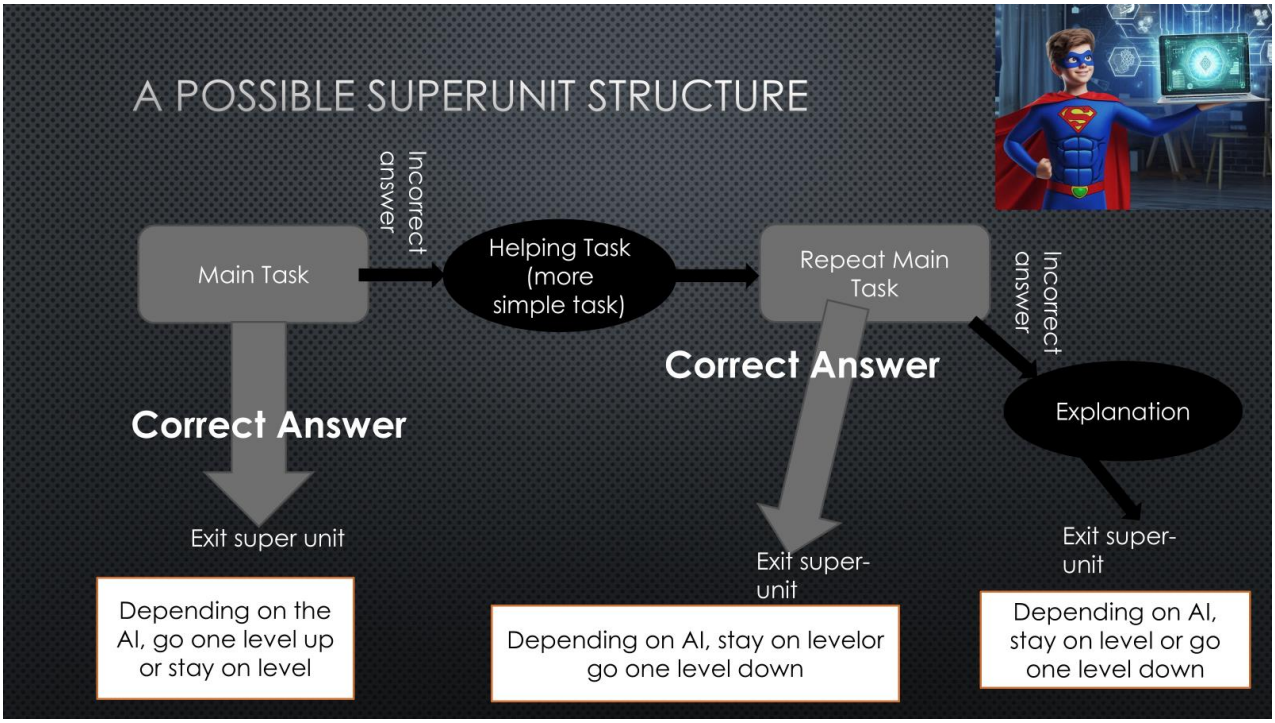
How to support then the students who cannot solve the tasks on a certain level by their own?

The solution offered by Edubot is the hero of the adaptive routes, the **Superunit**.



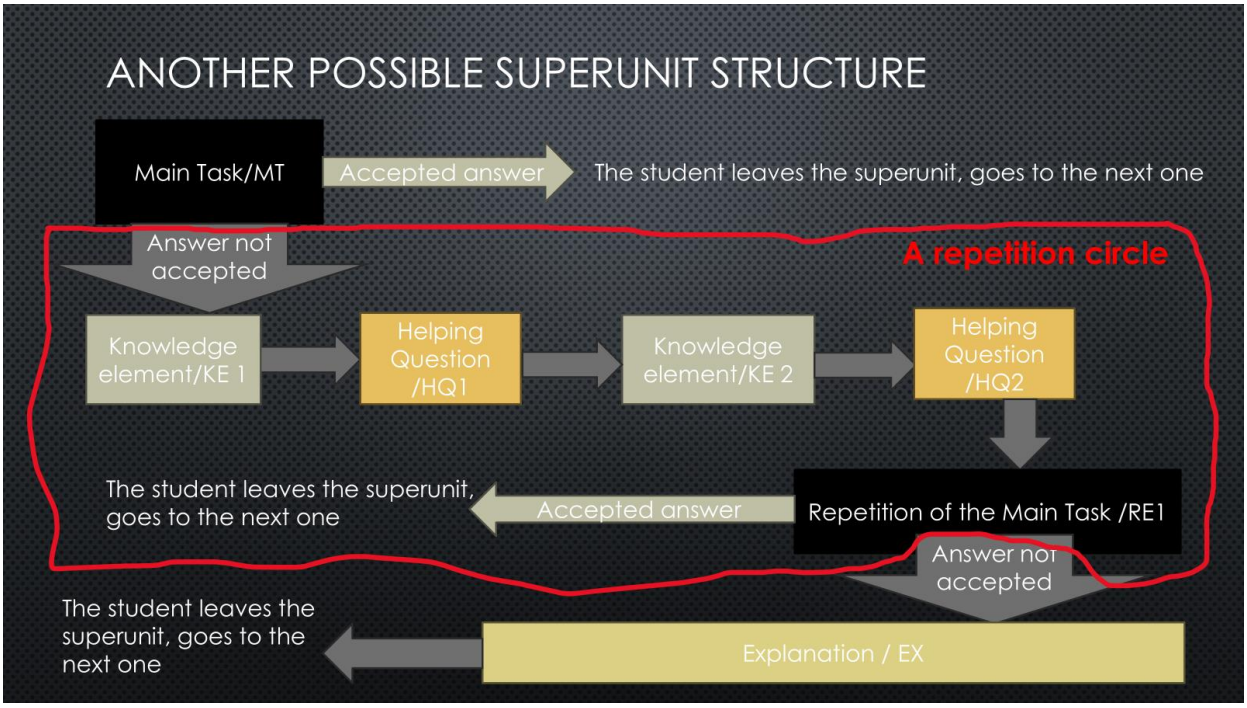
The **Superunit** is a unit that has linked to it other units: knowledge elements, explanations, helping questions, and even the solution of the task explained in text or/and video. Some elements can be linked to several units, and, of course, ANY unit can become a superunit.

Here is a possible structure of a **Superunit**:

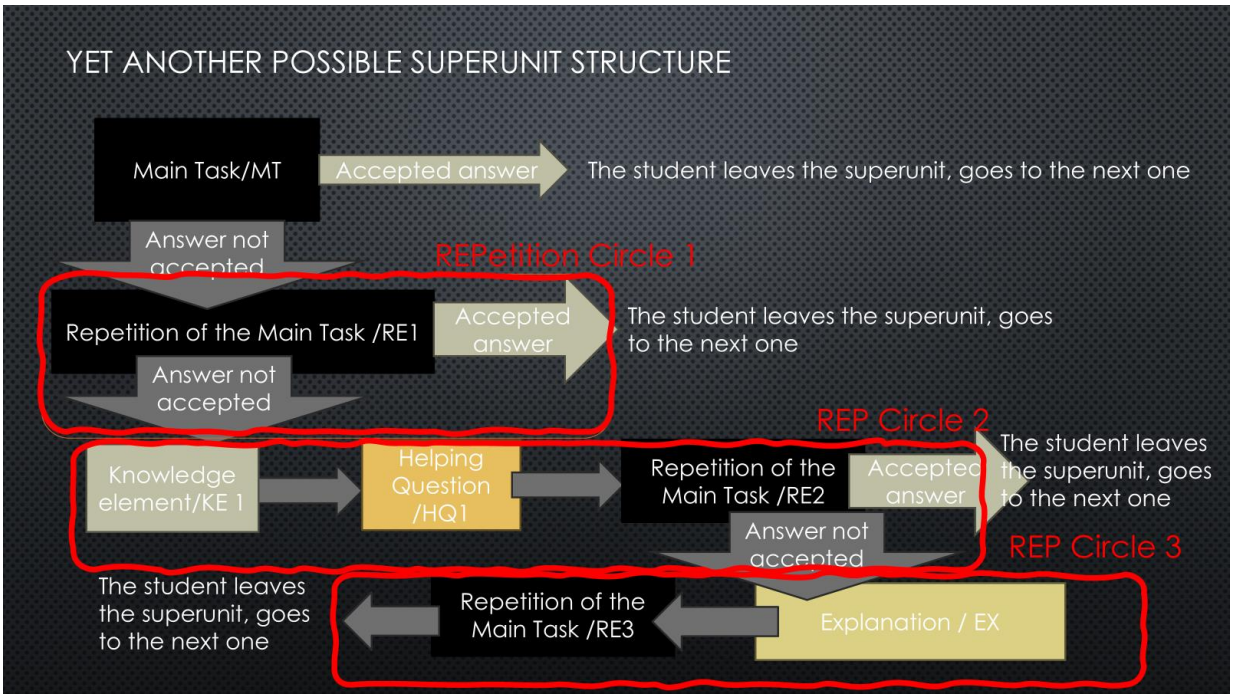


As you can see, the point here is to enable the Assistant to support the student without the intervention of a human teacher.

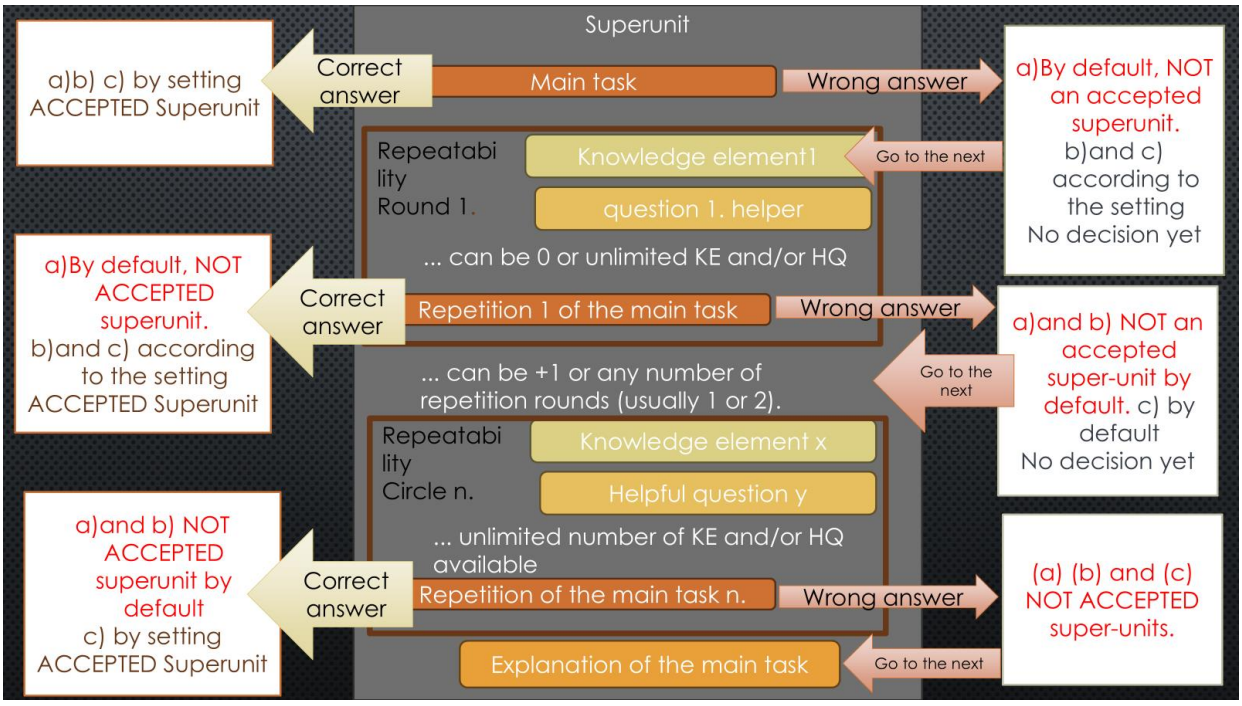
The Superunit structure is flexible, so there can be several knowledge elements and helping questions related to the main tasks.



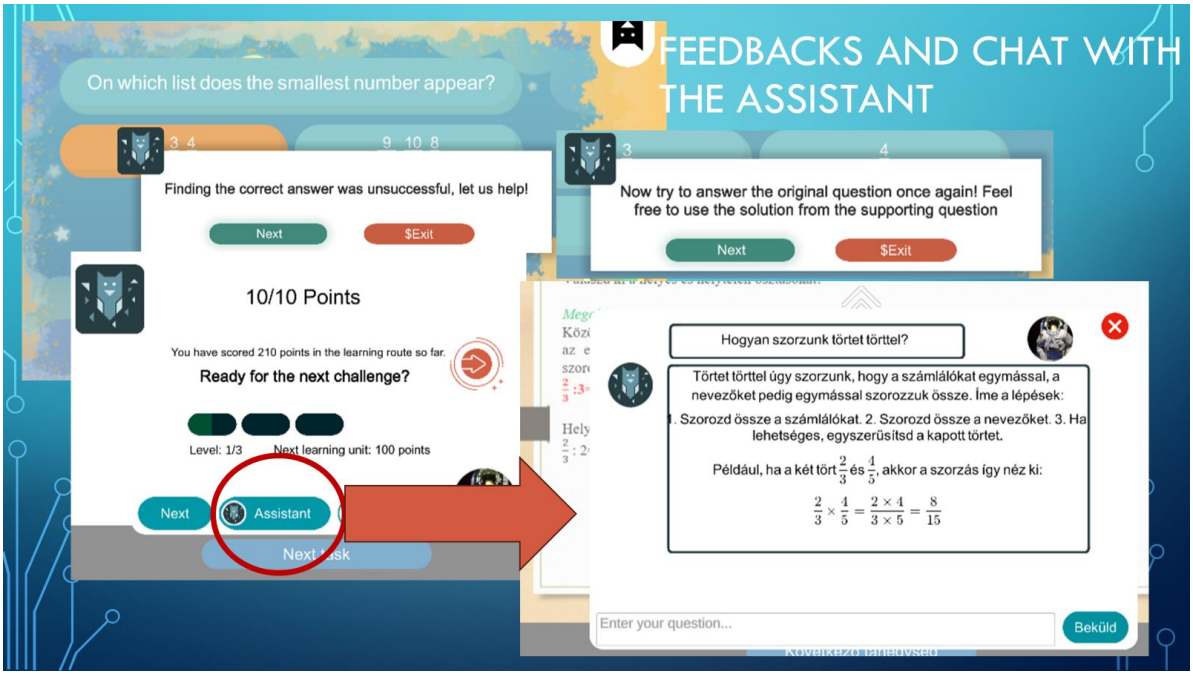
Depending on the complexity of the main task, the Assistant can offer several types of help and can repeat the main task more than once, although too many repetitions might become counterproductive.



Finally, here is a model of a hypothetical Superunit with an unlimited number of “repetition circles" and the possible outcomes of the student’s actions.



It is at the end of the Superunit that the student can directly address questions to the Assistant.



Chat within the superunits is not allowed. This is because some students get tempted to ask the robot for the final answer if allowed to chat during solving the task. Such an answer would not help the learning process, and it would lead to false information regarding the student's competencies as well.

Orientational prompts for the AI Assistant: settings of the adaptive routes

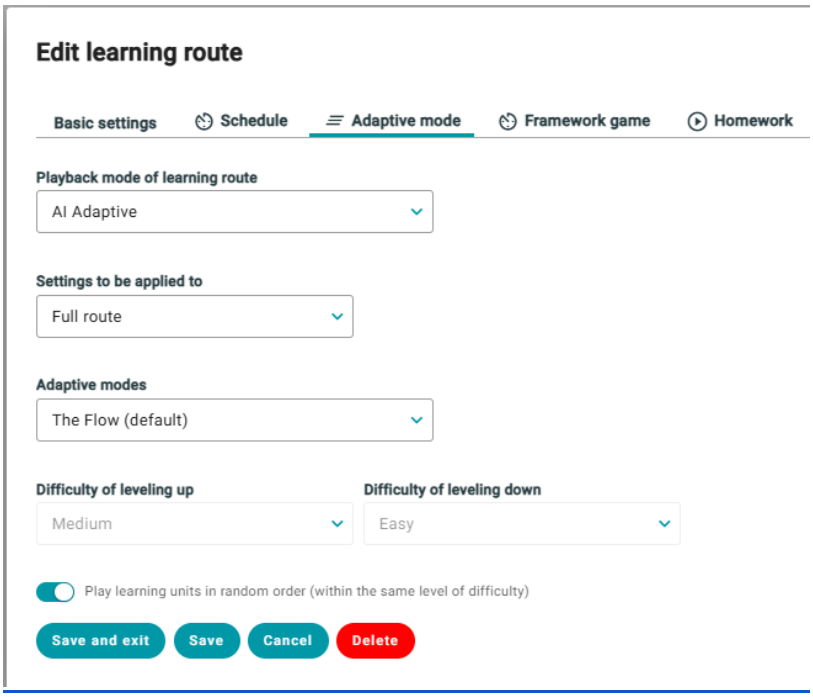
The AI Assistant can be unleashed and allowed to lead the students as it wants.
In large learning programmes,where many students work with the same material, this is a good solution.
However, at the beginning of all processes, teachers are urged to set limits to the AI by giving some prompts on how to lead the students.
This is how you avoid questions like, Why did I fall two levels at once? Why am I still on level 3 when I completed two tasks? Or at least you will be able to answer those questions :).

We suggest you use the AI prompts nicknamed "The Flow," "Steady Way to the Top," "Jumping Jack," and "Challenge Road."

In this chapter, you will get an insight on what happens when you give these orders to the Assistant.

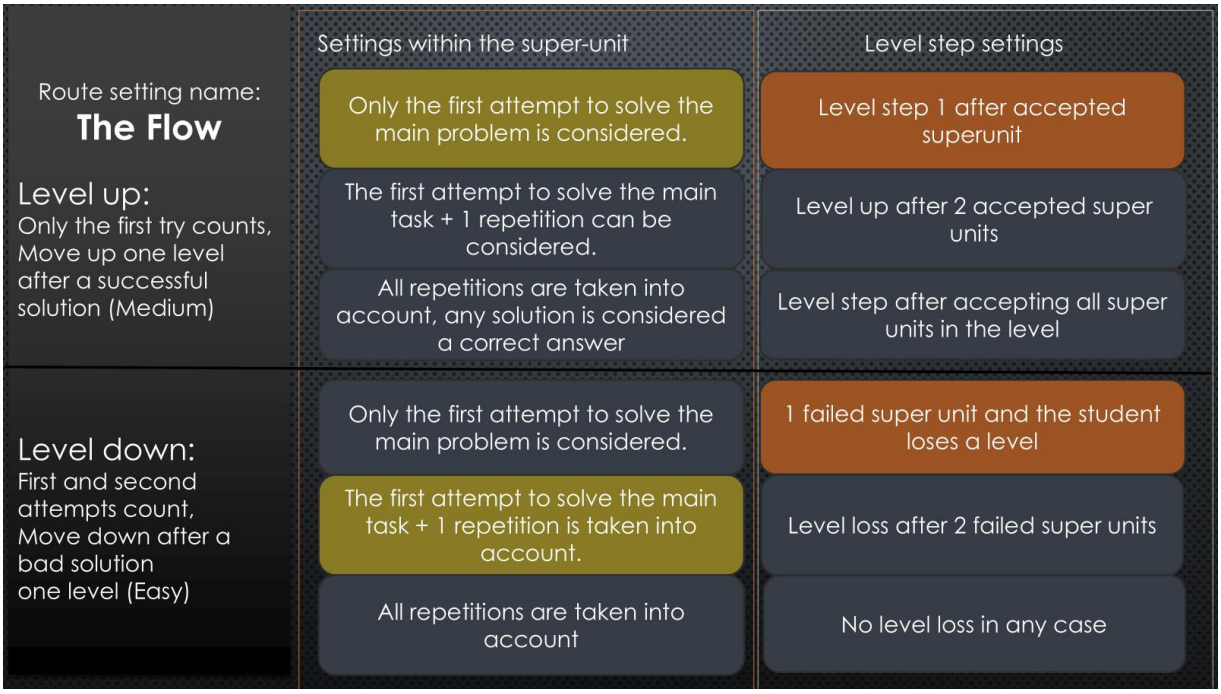
First of all, you have to select the “AI adaptive” setting in the first dropdown box.
Then, select Full route, and select a setting for your route.

Here is a step-by-step tutorial on how to do it:

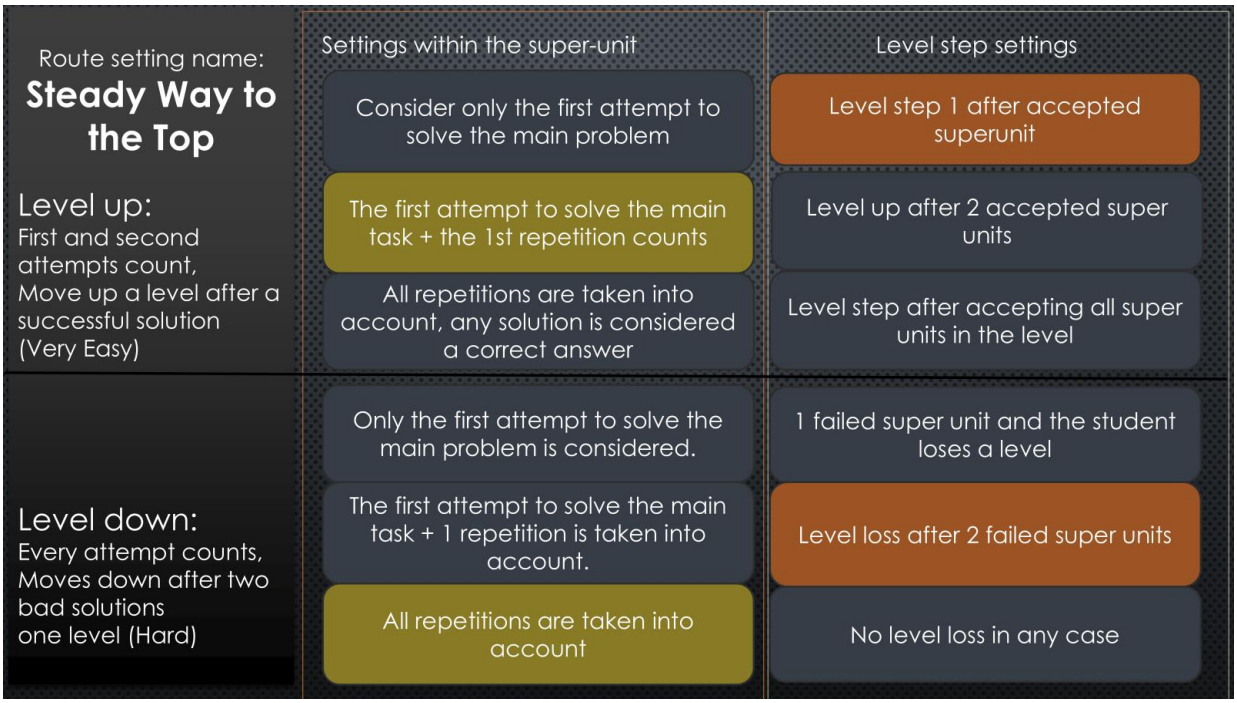


https://www.floik.com/flos/nswo/akoj/7e2d39c0.html?show-author=true

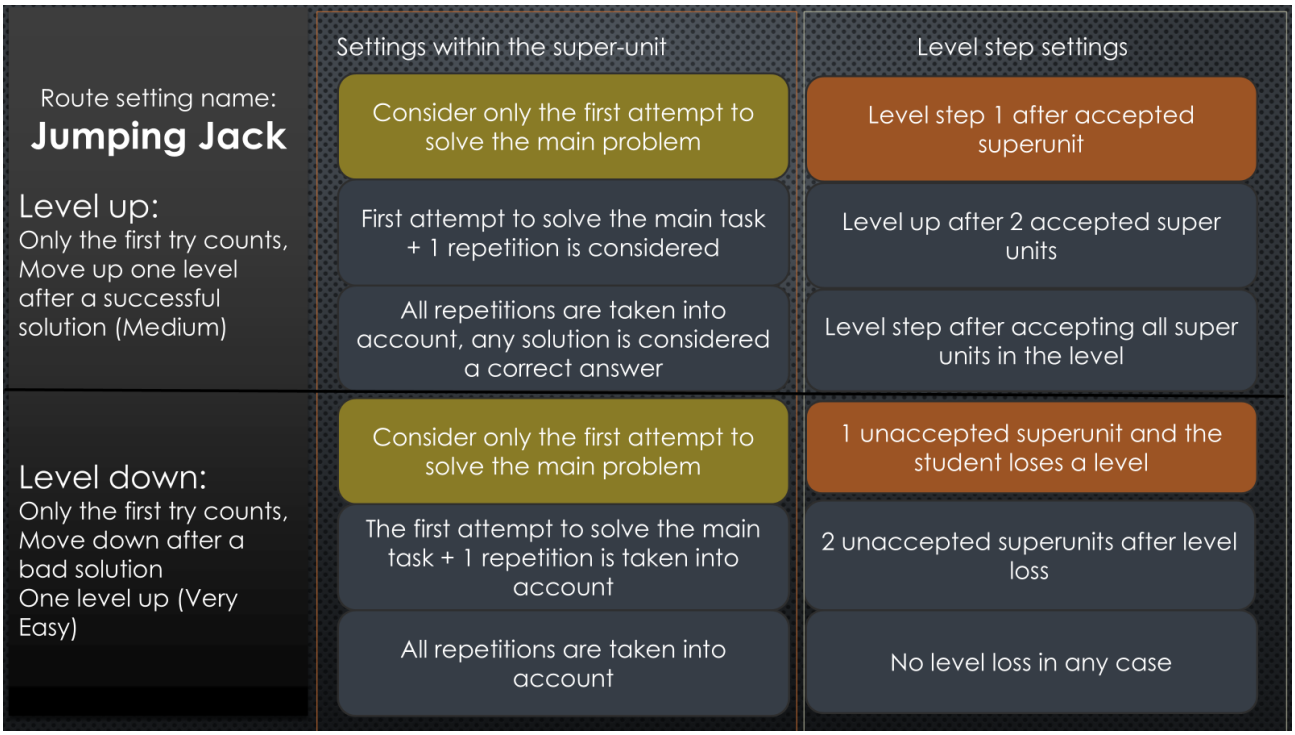
The default setting of Adaptive roads is “**The Flow**.” If you are a beginner, use this setting. It will allow excelling students to advance quickly, while those who can effectively use the Assistant’s support will not experience fallbacks. Those who cannot really benefit from the support will stay at lower levels.



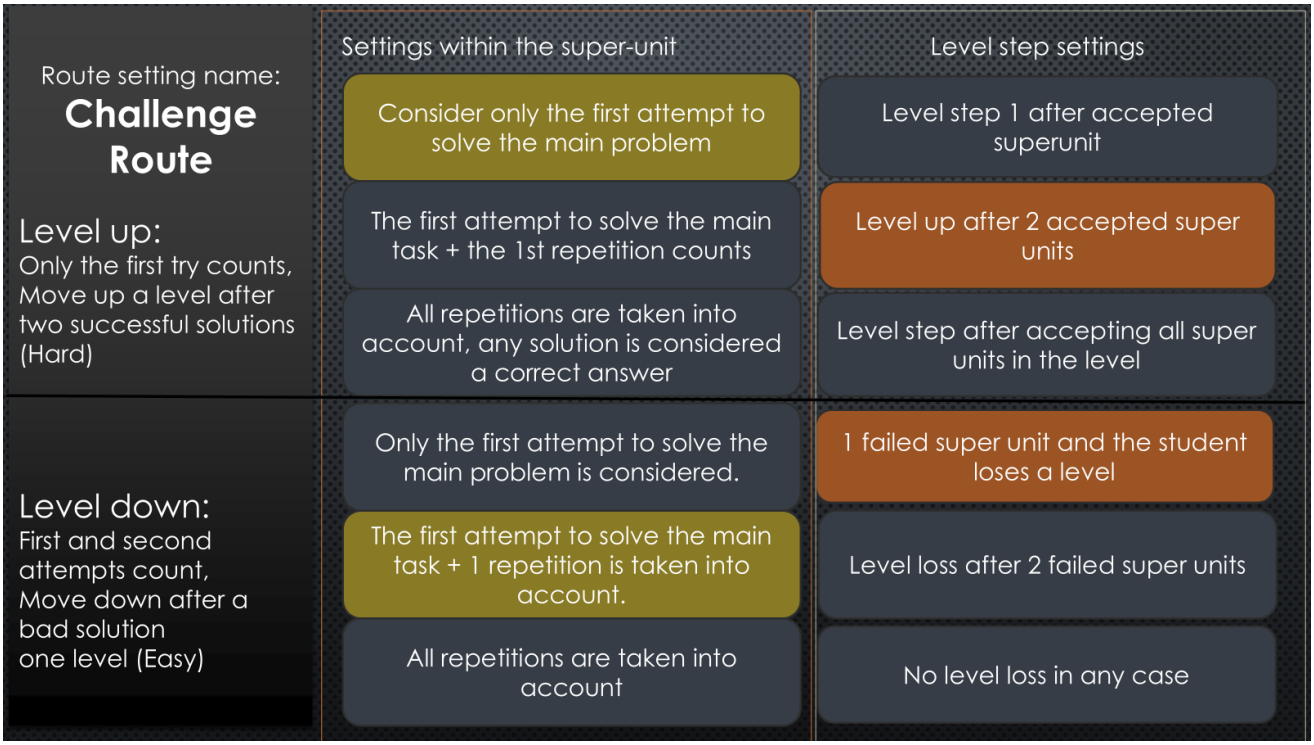
If you want to give a relatively easy way to complete the route for your students, choose the "Steady Way to the Top" setting. Not only excelling students, but also the ones who can use the Assistant's support will
advance quickly in the learning route. Few will be left on the lower levels.



If you want to offer an exciting learning experience, choose “Juming Jack”. This setting will imply frequent level up- level down movements. Experience shows that some students might find it embarrassing that even if they learn from the Assistant and solve a repetition of the main task, they can be relegated to a lower level. Others enjoy the jumps and falls.



If you want your group to practice carefully on each level, and get to a higher level if their knowledge is really solid, choose the “Challenge Road”. This setting makes it harder for the students to “climb” all levels of the learning route, and they will certainly meet several main tasks on each level.



You may want to set on the “Play learning units in random order” button as well. If you do that, students will get a random superunits as a first task on each level. So, if there are 3 superunits on a level, student A will get superunit 1, and student B will get superunit 2 to start with. It is more fun, and it also makes unwanted cooperation more difficult.

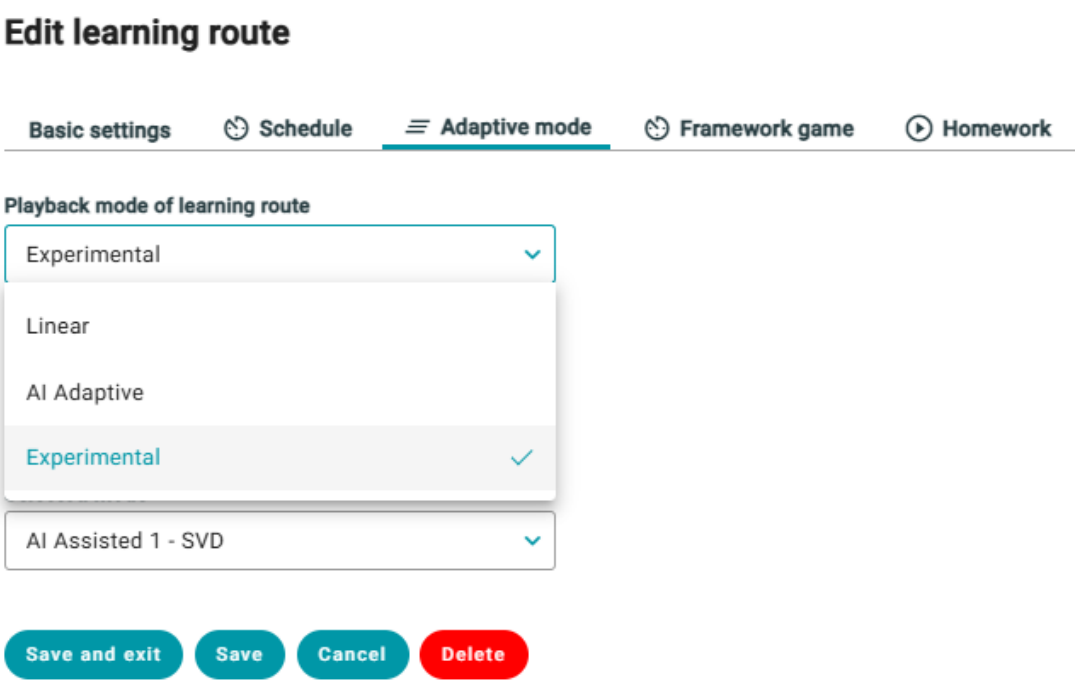
Extreme options in adaptive settings for black belt adventurers

Finally, if you really want to dig deep into the world of the adaptive routes, you have two more options.

Only consider these if you really have a lot of time to invest.

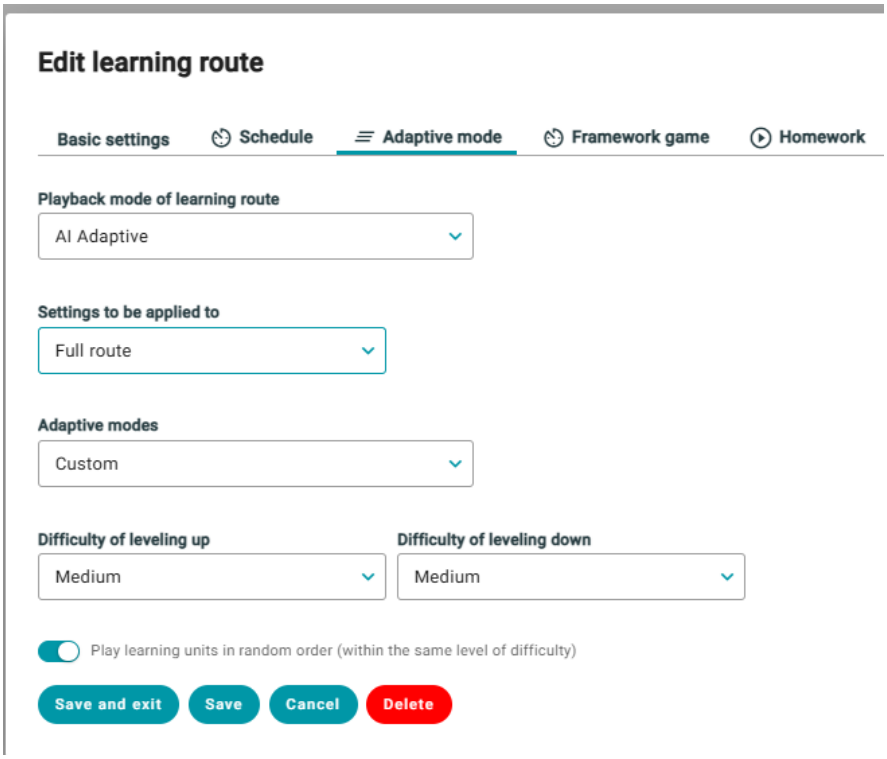
One option is to completely unleash the AI and let it pick the units without any prompts to consider. This is called “Experimental” mode, so this is what you have to select if you want to experiment with it.

It will produce good results, but only if there is enough data, meaning the case of learning routes (already)played by many students.



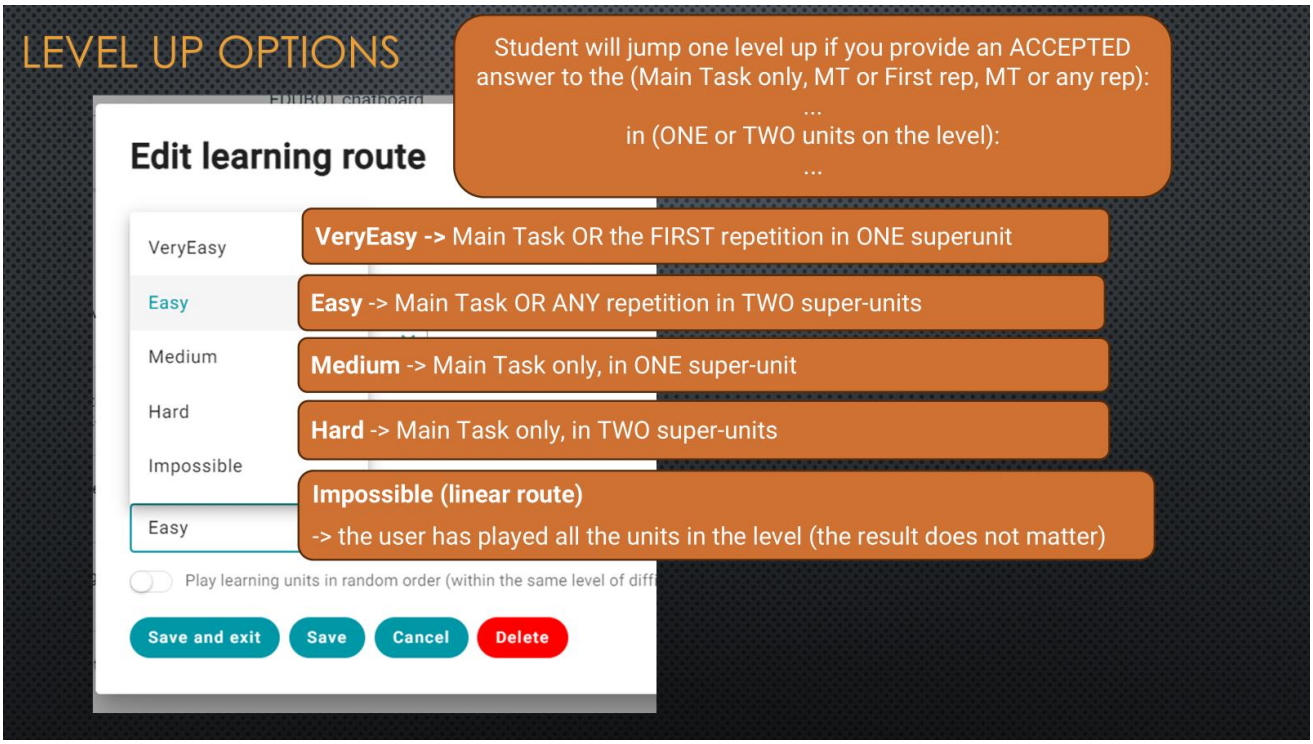
Within the System Plan document there is a chapter describing the logic of the different recommendation algorithms you can unleash. We won't repeat it here as it is very technical, but these are your choices:

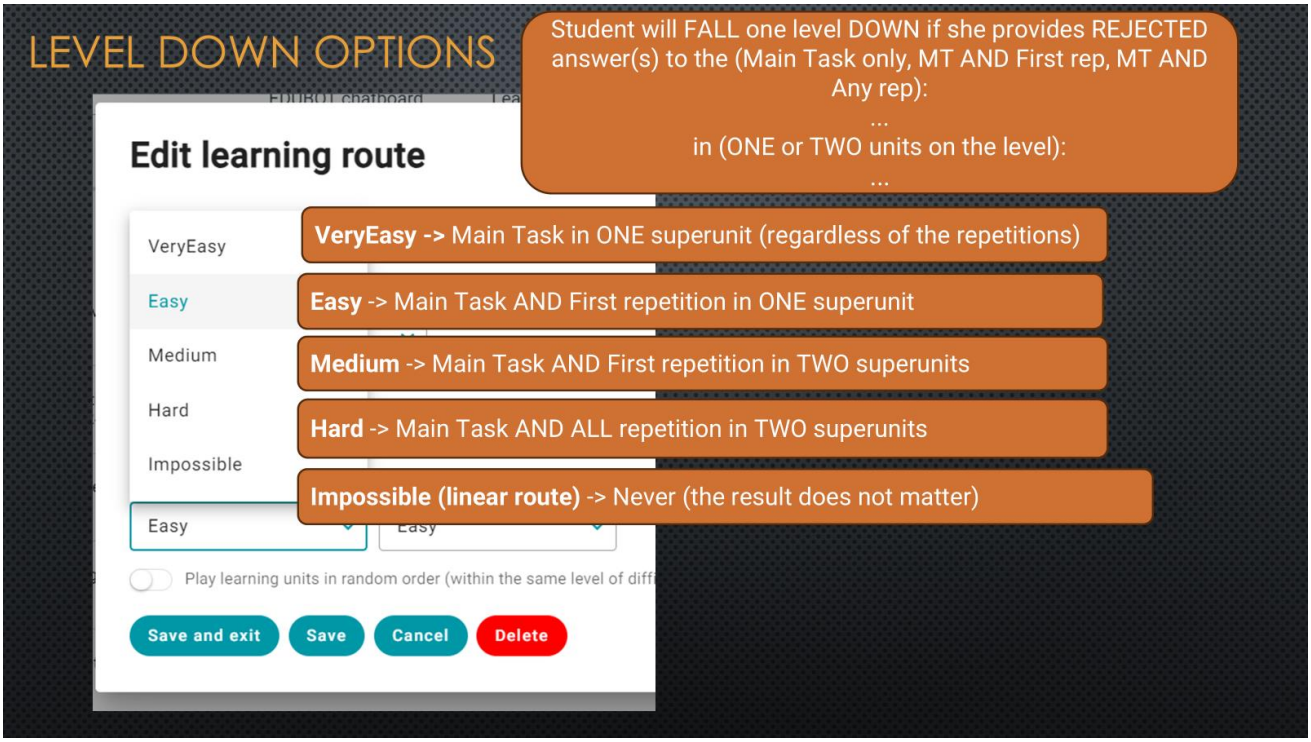
On the other extreme of your spectrum of choices, you can choose to take over the job altogether from the Assistant and to set up manually some further conditions for level-up-level-down jumping. If you want to do that, you can select the “Custom” setting.



These conditions depend on the acceptance of student answers to the main task and its repetitions, respectively, the number of tasks successfully solved on a certain level.

You have to set separately conditions for level up and down, the conditions explained in the following tables:





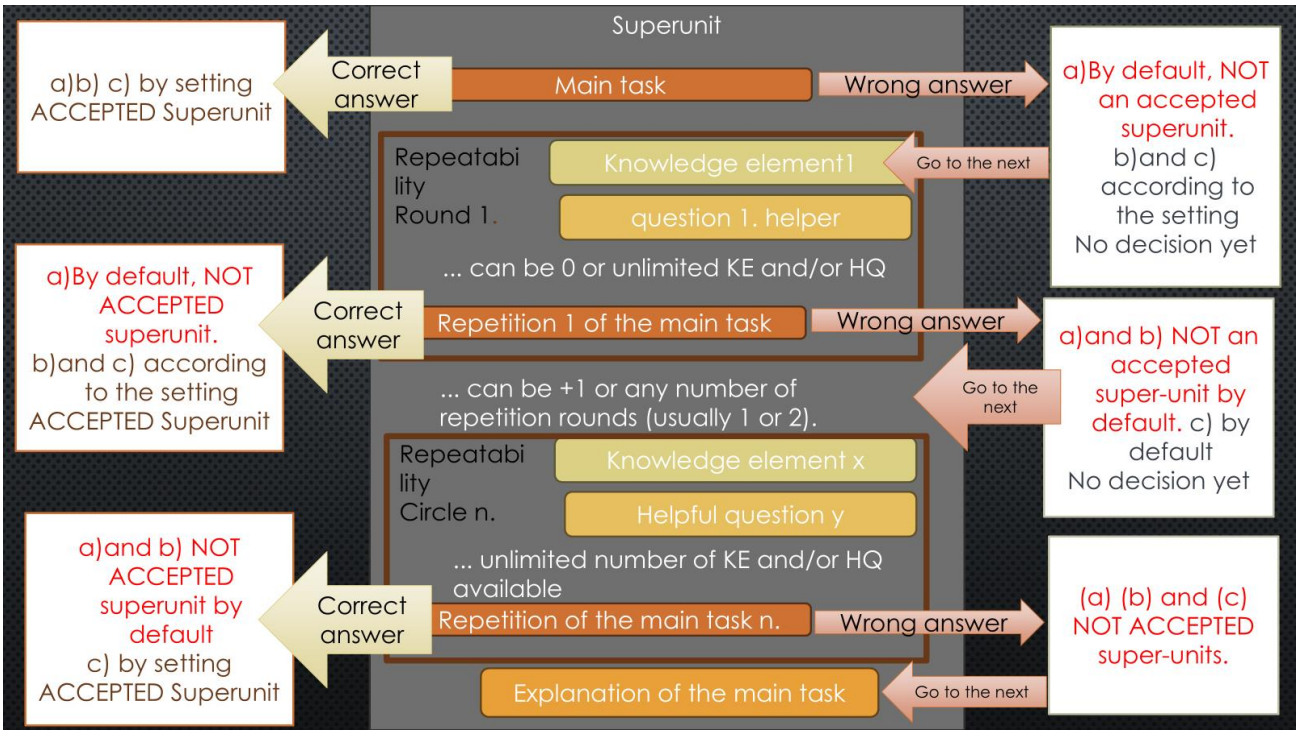
The selection can be done considering the possible outputs of superunits.
This needs a little explanation.

There are 3 conditions that determine the easiness/difficulty of level jump/fall.

First, it is important to mention the **Unit Result** criteria. This means the % of result the answer is accepted. This value is set by the content developer when the Unit is created. The value is set to 100% by default, but it can be changed in the Unit settings. For example, if you have a unit which contains 5 questions, you might consider the result accepted if 4 were answered correctly. This criteria refers to all units, not only superunits. This criteria should be referred as "Result criteria". It is important to keep in mind there is such a criteria. *HOWEVER, WE WILL NOT TALK ABOUT THIS ANY MORE, AS IT IS NOT SOMETHING YOU CAN SET IN THE LEARNING ROUTE SETTINGS, YOU MUST SET IT AT UNIT LEVEL.*

Second, we have to consider if the **Superunit** is accepted.

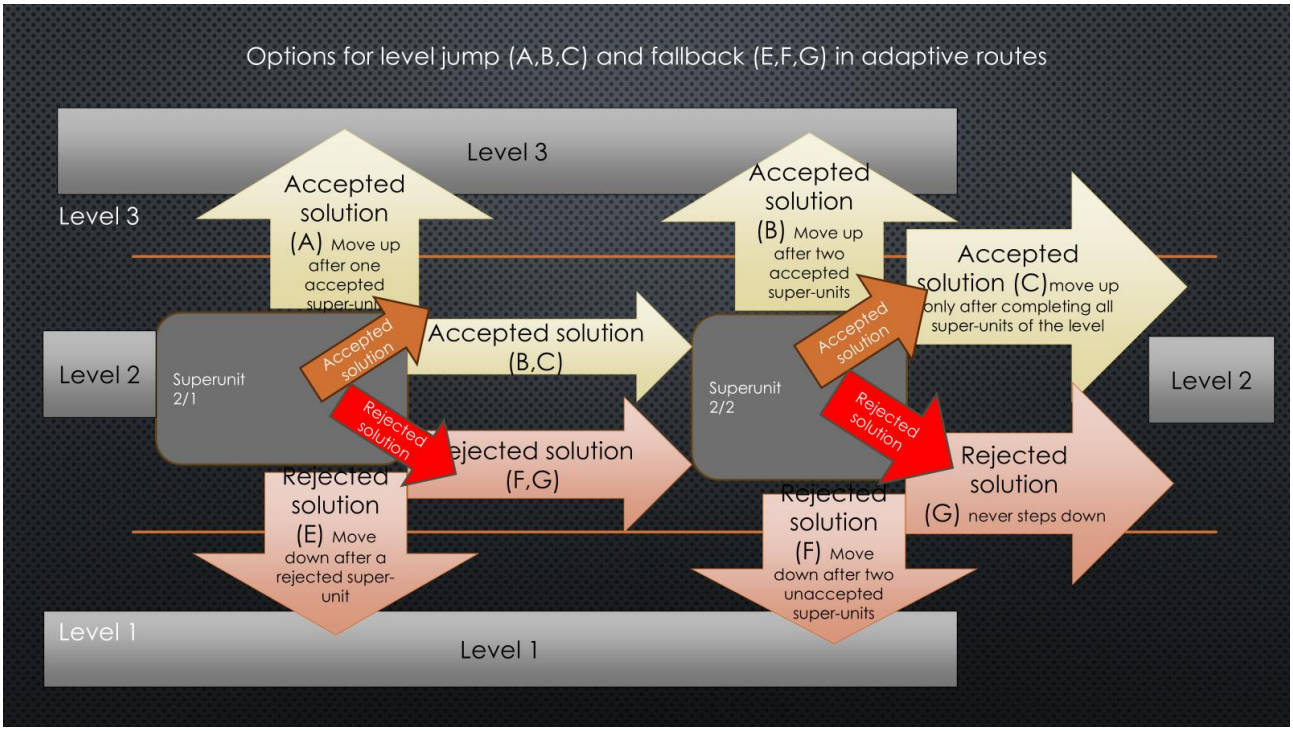
- The **number of repetitions of the main task that are considered** as valid solutions WITHIN the super-unit. (hereafter: **Acceptance** criteria) This should be set at the level of learning Route. The setting rules should be regulated according to the description is this document. The following possibilities should be considered:
    - **a) only the main task** counts, regardeless of the results of the repetitions (if Result criteria is met in the MT, the Superunit is Accepted), backend code: {perfect}
    - **b) the main task AND the FIRST repetition counts** (if result criteria is met in the first Rep, Superunit is Accepted) backend code: {first}
    - **c) the main task the first AND ANY further repetition** counts (if result criteria is met in any repetition, Superunit is accepted) backend code: {any}



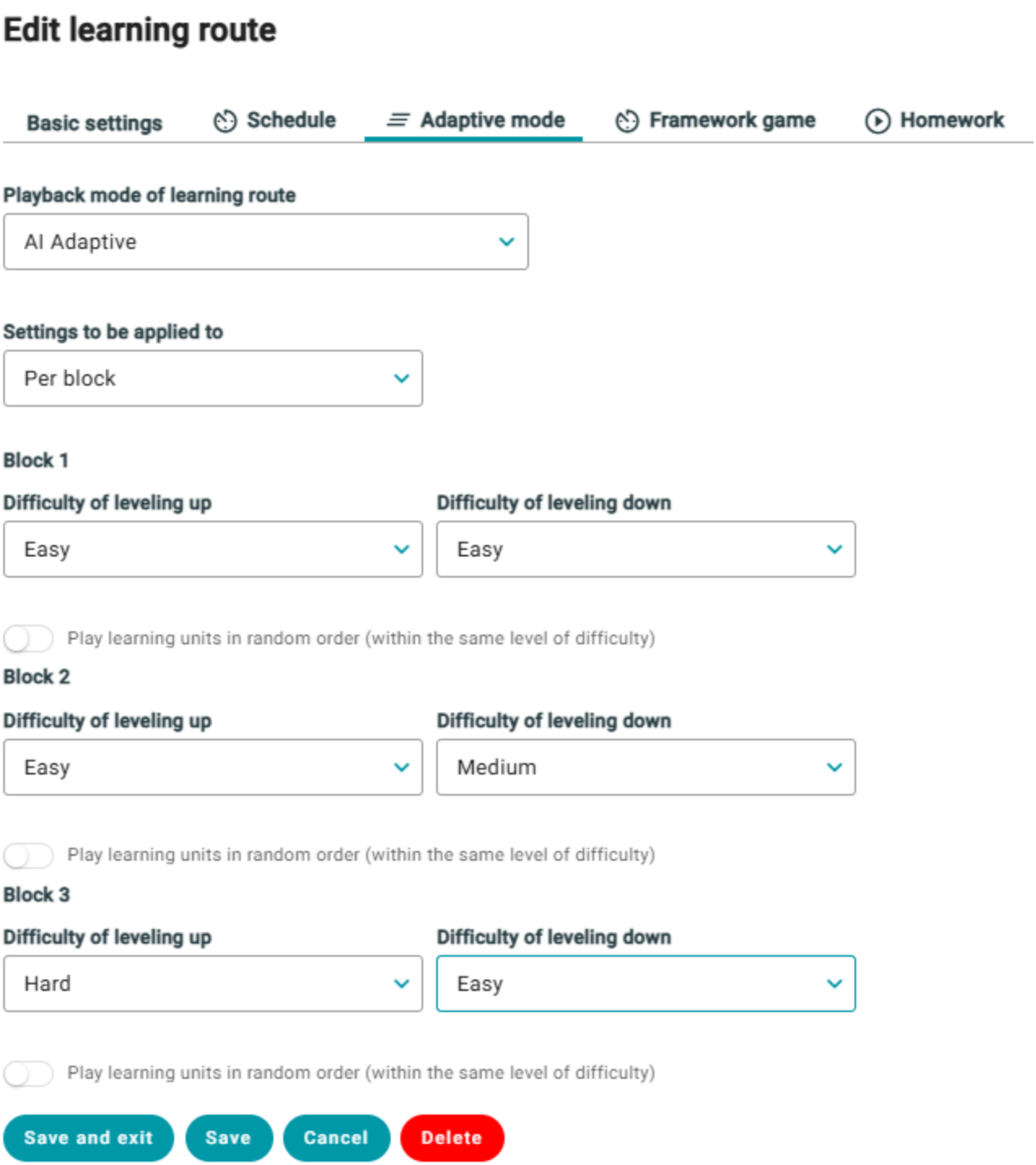
Third, there is a condition that determines what happens if the Superunit is considered successfully solved. (Hereafter: **Next Move criteria**) This condition is also set at the level of the Learning Route. The setting rules should be regulated according to the description is this document. The following possibilities should be considered:

A. One accepted/failed (F) unit
B. Two accepted/failed (G) units at a level
C. Never (G) (it means the route is linear, there is no level jump, no matter what the results are)

The F,G,H refers to the falling back criteria.
See the summary chart below:



To put the last drop into the glass, you can even apply different settings to each block in your learning route.



That would make the route more exciting for some students, as, for example, the route can get increasingly difficult. It can also be embarrassing for other students. 🙂
This is the experimental part of Edubot.
If you come this far, please share the learnings with us!

interregioforum@gmail.com