AUDIT

User manual

v1.0

February 2023

Contents

Introduction

AUDIT is an audience response system available at http://audit.altii.online/. It is intended to be used in live or virtual lectures or general events where quick feedback about the opinions of the audience is important.

AUDIT can be used in one of two roles: the role of the lecturer or the role of the audience. The role of the lecturer means that the user can open a virtual environment for acquiring and displaying data sent by their audience. The role of the audience means that the user can access and submit data in the voting environment opened by a lecturer. Both roles are explained in the following chapters of this document.

Feel free to play with AUDIT and use it online. Of course, you will need to open two browser tabs, one as a lecturer and another as an audience to be able to try all interactions.

Using AUDIT as Lecturer

To choose the role of a lecturer on AUDIT, click on the *Lecturer* text or symbol on the start screen of AUDIT homepage http://audit.altii.online as shown in Figure 1.
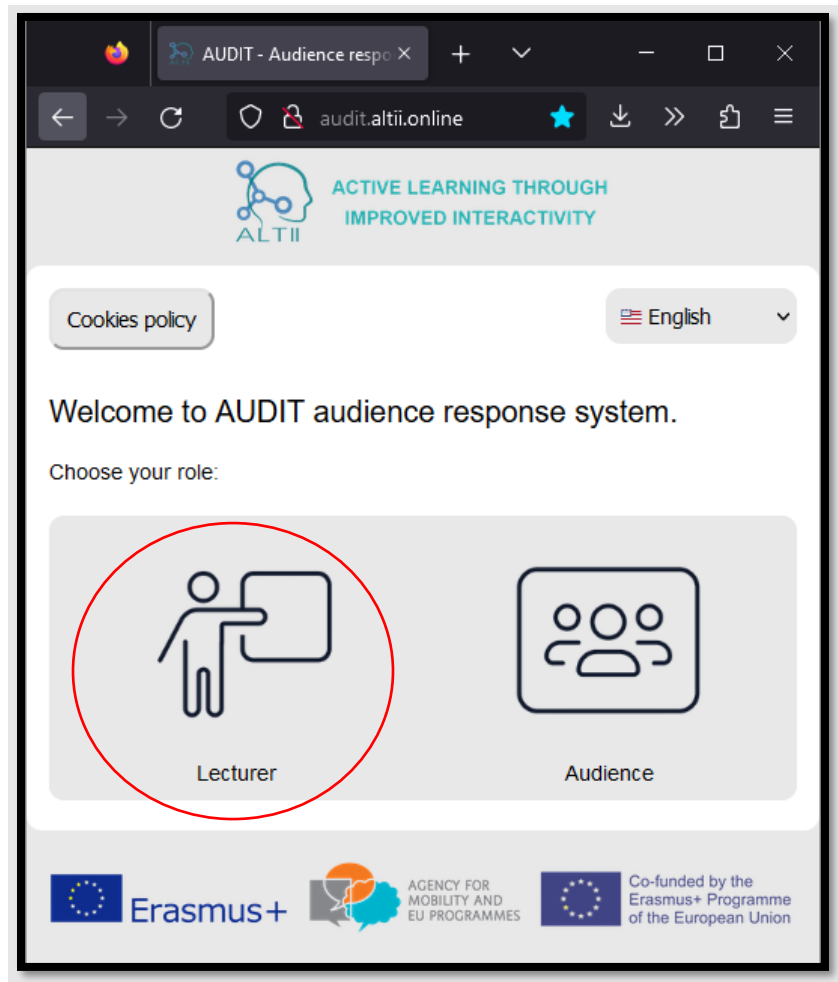

Figure 1. Choosing the role of a lecturer

In this role, you can open a new room, re-access an already opened room, perform room access recovery, and access your room and use it to collect data from your audience and display it.

Room management

Opening a new room

In order to open a new room, click on the *New room* text or icon after selecting the role of the lecturer on the AUDIT homepage as in Figure 2. On the interface after that (see Figure 3) you will be prompted to input:

- **Room ID** – the ID of your room. It can be an array of alphanumerical characters 2-20 characters long. You will need to share this room ID with your audience so they can access your room.
- **Password** – the administrator password of the room that you will use to re-access the room. This password should **not** be shared with the audience.
- **E-mail** – an **optional parameter** that will enable you to perform room recovery if you lose your room ID or room password.
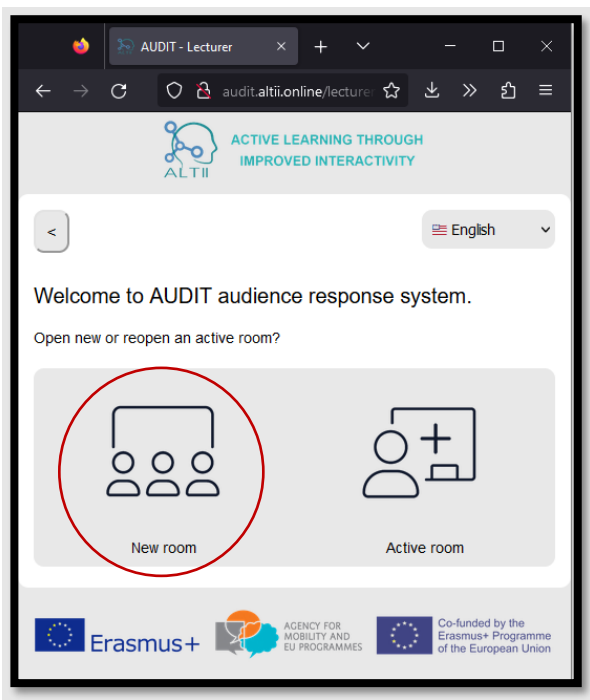

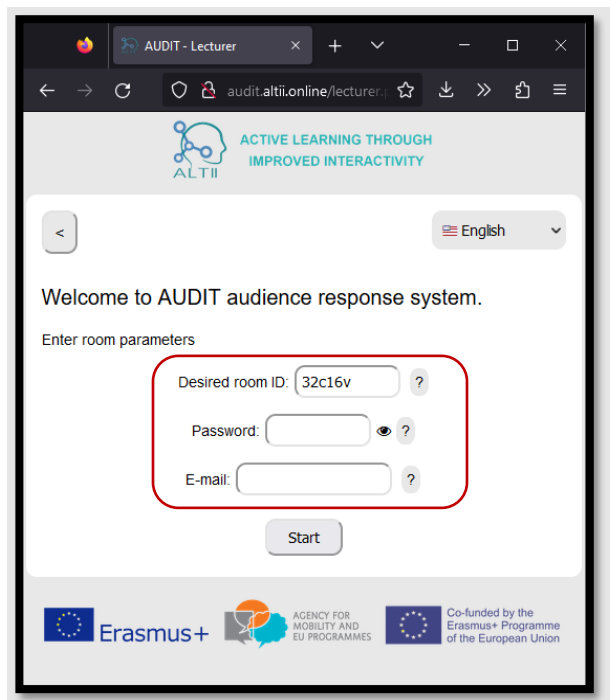
Figure 2. Opening a new room

Figure 3. Defining room properties

Accessing an opened room

If you wish to re-access a room that is already opened on the system, simply click *Active room* text or icon on the interface displayed after choosing the role of the lecturer (see Figure 4) and then input room ID and password of your room (see Figure 5).

A room will remain open and accessible on the AUDIT system for 30 days after last activity in the room. After that it will be automatically deleted.
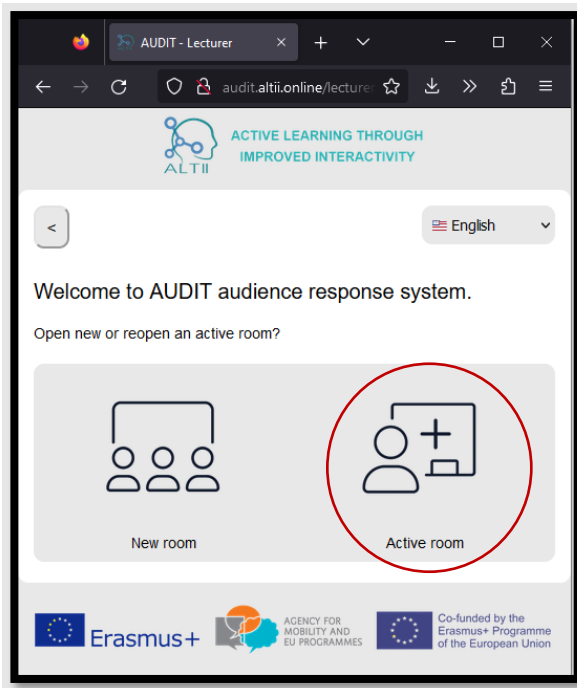

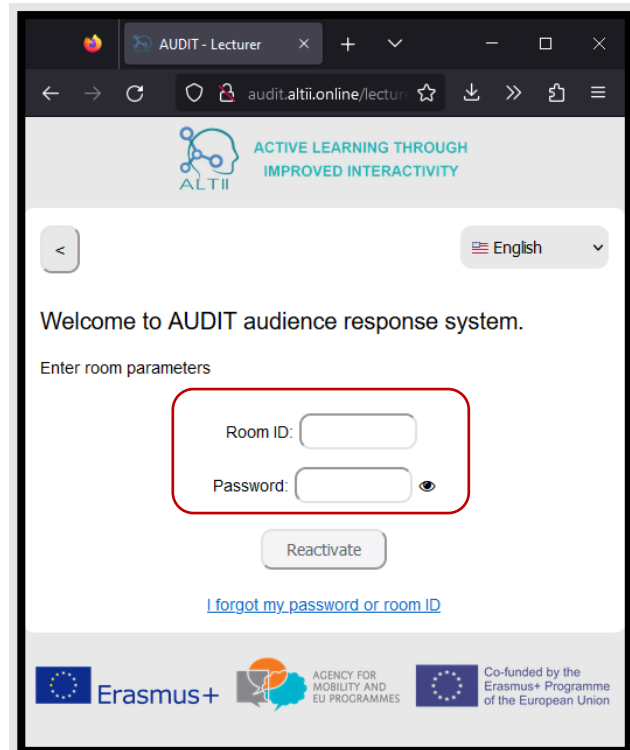*Figure 4. Opening an active room*

Figure 5. Defining room properties

Room recovery

If you forgot your room ID or password, you can perform room access recovery using the link on the room access page (Figure 5). By clicking the link (http://audit.altii.online/recover.php) you can choose between recovering

- **room password** – you will be prompted to input your room ID and then an email will be sent to the email associated to that room ID with a password reset link. This email address is defined when opening a room on Figure 3. Using the password reset link you will be able to define a new password for your room. This option is **not** accessible if you haven't defined an email when opening a room.
- **room ID** – you will be prompted to input your email address and then a list of all room ID-s opened using that email address will be sent to that email address.

Recovery emails are sent within seconds of submitting a recovery request. Please check your *spam* folder if you do not receive one.

Using your AUDIT room to acquire and display audience data

Enabling audience to access your room

Your audience can access your room by:

- **scanning the QR code** that is displayed if you click on the QR icon on the room interface (see Figure 6)
- **accessing the AUDIT homepage** http://audit.altii.online, selecting the role of the audience, and typing in the room ID
- **directly**, by accessing the page http://audit.altii.online/s/?roomID, where room ID in the URL should be replaced with the actual room ID of your room, for example http://audit.altii.online/s/?myChemistryRoom
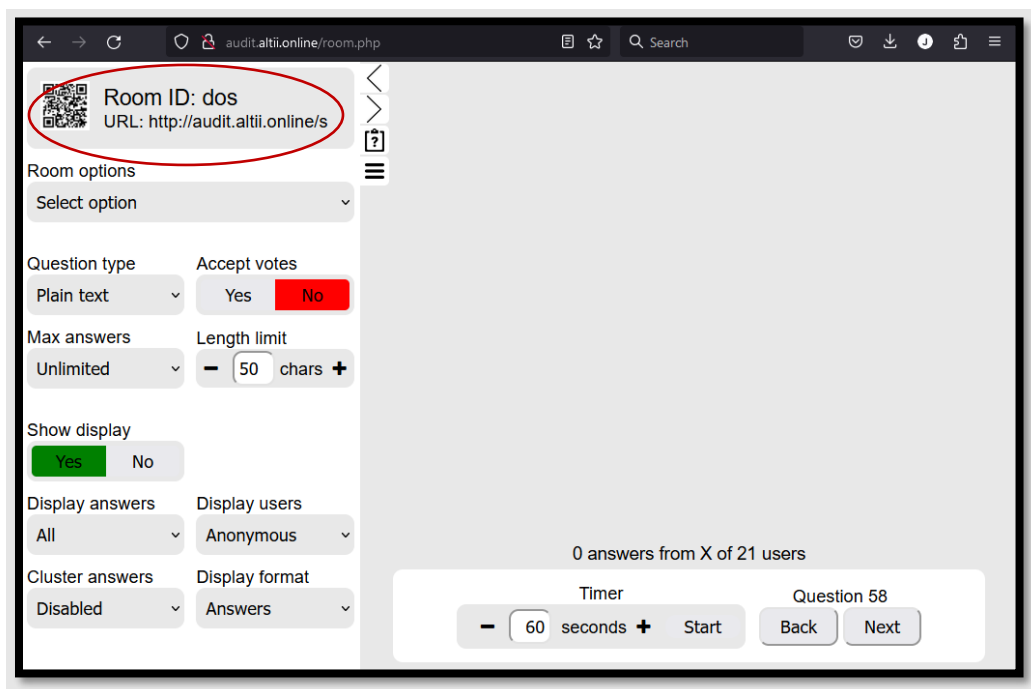

Figure 6. Displaying QR code for room access

General room options

General room options you can configure in the role of the lecturer are available on the main room interface under *Room options* select element. Room options include:

- **Reset current question** – a quick option to reset current question settings and answers. Once you start accepting answers to a question, you cannot change its properties anymore. If you need to do that, you can reset a question using this option. This means that:
  - All answers your audience members have submitted to that question will be deleted both on AUDIT server and in audience members' voting history
  - You will again be able to change question type as well as question properties for that question

- **Import user names** – import an XLS, XLSX or CSV/TXT file with user names. If you do this, your audience members will be able to submit votes under their full name. You will be able to display their names together with their answers on the interface or only display their answers if not needed. The user names file should look like on Figure 7 or Figure 8.
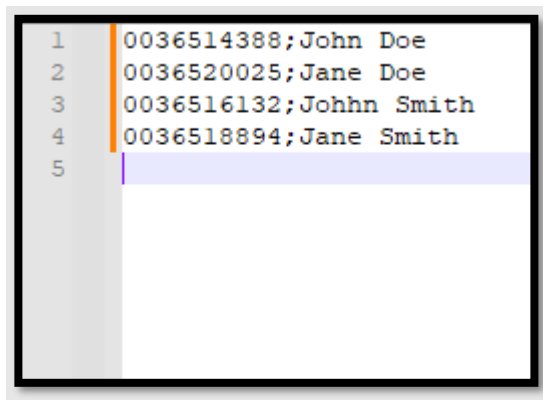

Figure 7. Users list in a TXT or CSV file

Figure 8. Users lis in an MS Excel file

If a users list file is uploaded to the system, audience members will be able to register on AUDIT by submitting the character string from the first table column on Figure 7 or Figure 8 and afterwards their name as defined in the second table column on Figure 7 or Figure 8 will be visible to them on the audience interface and next to their answers on the lecturers interface, depending on the *Display format* option.

- **AUDIT Redirect** – use this option to get AUDIT Redirect key for your room and the AUDIT Redirect Java application. AUDIT Redirect application enables you to redirect the textual inputs from your audience to another application of your choice as if they were typed on the keyboard

of your (lecturer's) computer. Read more about this option in **AUDIT Redirect** chapter of this document.

- **Get data** – use this option to get all data submitted by your audience. The data can be either downloaded directly in a *zip* archive or you can email it to an email address you provide. The data is formatted in CSV files with the following headers: *question* (number of the question), *userID* (a unique alphanumerical identifier for every user in your room), *time* (timestamp of the submitted answer), *date* (date of the submitted answer), *answer* (the answer i.e. data submitted by the audience member), *browser* (basic information about the web browser used by the audience member), *platform* (basic information about the platform used by the audience member), *username* (2nd column, the full name of the user in case the lecturer uploaded the user names list), *registerID* (1st column, the registration string of the user in case the lecturer uploaded the user names list). Example is given in Figure 9.

```
question,userID,time,date,answer,browser,platform,userName,registerID
1,koqd2574,16:20:54,12.01.23,"C","Google Chrome 105.0.0.0",linux,"Luka Džalto","0036548105"
1,gfyp8417,16:20:54,12.01.23,"D","Google Chrome 108.0.0.0",linux,"Toni Bajan","0036551779"
1,wgvd7361,16:20:55,12.01.23,"D","Google Chrome 108.0.0.0",linux,"Leon Babić Brajko","0036548932"
…
```

Figure 9. Example of downloaded data

- **Delete data** – use this option to delete data from the room or the room itself. Options include deleting answers to current question, answers to all questions, deleting the users list, deleting all room data, deleting all room data but without the users list, and deleting all room data and the room itself.

- **Clustering algorithm** – AUDIT enables you to automatically cluster acquired textual answers to a question based on string similarity. This option is useful if you have a large lecture audience and wish to summarize their textual answers. String similarity algorithms that are available for this operation are Jaro-Winkler algorithm, Levenstein distance, Smith-Waterman-Gotoh algorithm, and Similar text algorithm. You can choose the target algorithm or use the default (Jaro-Winkler). Read more about this option in **Clustering** chapter of this document.

- **Language** – use this option to choose your preferred room language. English, Estonian, Slovenian, and Croatian language are currently available.

Question workflow

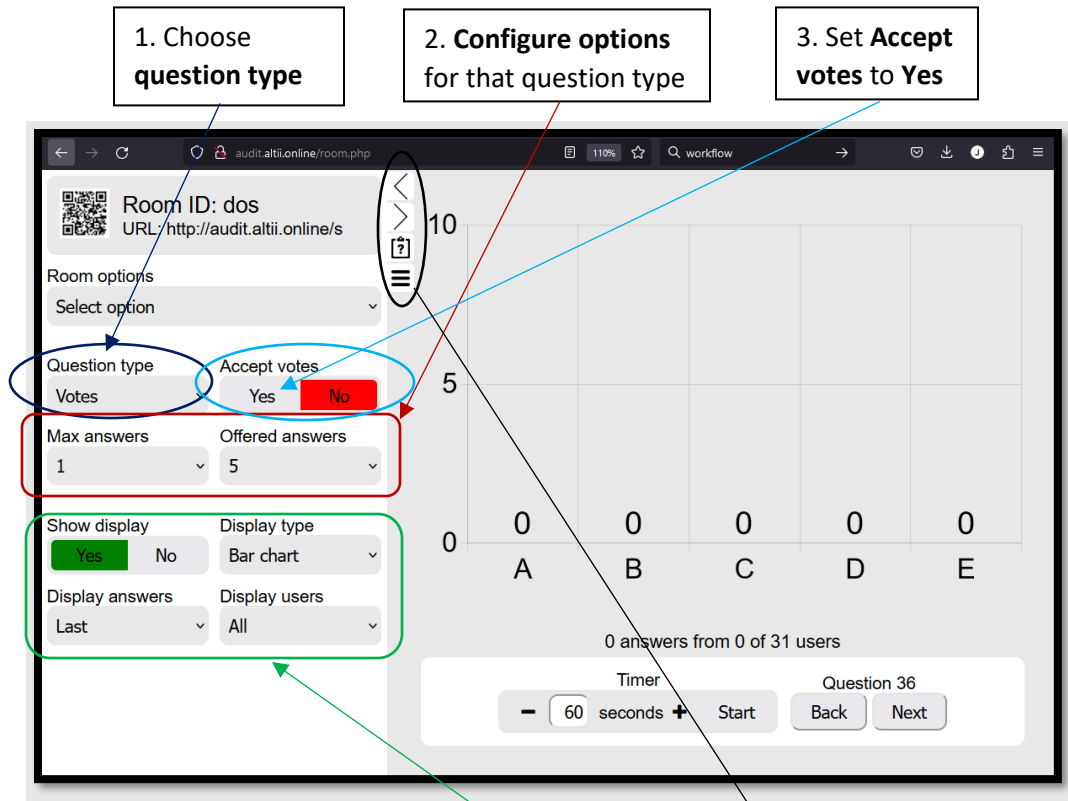Given the main AUDIT lecturer's interface in Figure 9, AUDIT general workflow for the lecturer is the following.

Figure 10. AUDIT general workflow for lecturer

Additional controls on the interface include screen content control icons as shown on Figure 10. You can switch the chart to full screen mode or back using the first two buttons on the right side. You can activate the question text window using the third icon on the figure 10, or activating the default menu using the fourth icon from the top on Figure 10. You can also use the timer below chart display to automatically stop voting after given amount of time expires.

Figure 11. Screen content icons

Configuring a question for your audience and displaying the acquired data

Configuring question type

A question type is defined using the *Question type* select element on the lecturer's interface. Four question types are currently available:

- **Votes** – question with ABCDE offered answers.
  Answer example: Audience members see buttons on their interface and can click a button. Buttons have labels *A*, *B*, *C*, … Up to 10 answer buttons are available, depending on lecturer's settings.
  Question options include the **maximum number of answers** an audience member can submit for this question and the **number of answers/buttons** that will be displayed to them on the interface (2 to 10).
  Display options include:
  display type (bar chart or pie chart),
  display answers (first, last, first and last, or all answers from each user),
  display users (include and display answers from all users, only registered users, only unregistered users, or only answers from anonymous users i.e. answers sent in anonymous mode).
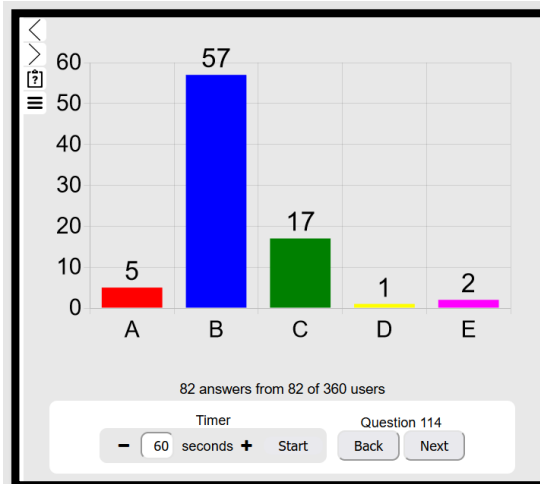 **Answers display example**:

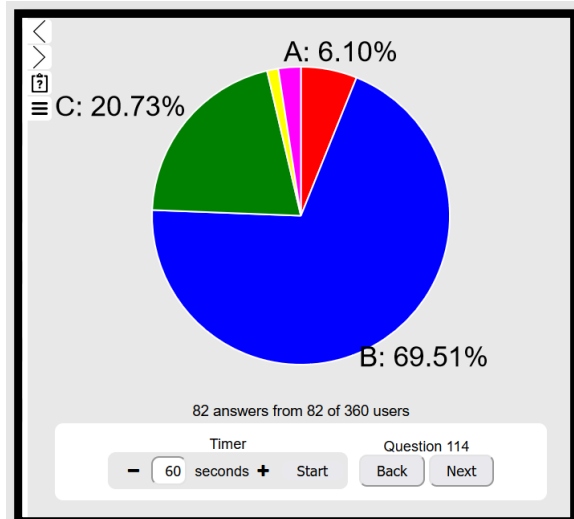*Figure 12. Votes question displayed as a bar graph*

Figure 13.Votes question displayed as a pie chart

- **Plain text** – question with plain text answers.
  Answer example: Audience members see a textarea to input a textual message, for example "Rome was founded around 753 B.C."
  Question options include the **maximum number of answers** an audience member can submit for this question and the **maximum length of an answer in characters**.
  Display options include:
  display answers (first, last, first and last, or all answers from each user),
  display users (include and display answers from all users, only registered users, only unregistered users, or only answers from anonymous users i.e. answers sent in anonymous mode),
  display format (only answers, only names of audience members who answered that question and in case their names are available through the users list, or both names and answers), and
  cluster answers (disabled – no clustering, unique – cluster answers to unique categories, or X – cluster answers to X categories based on string similarity algorithm).
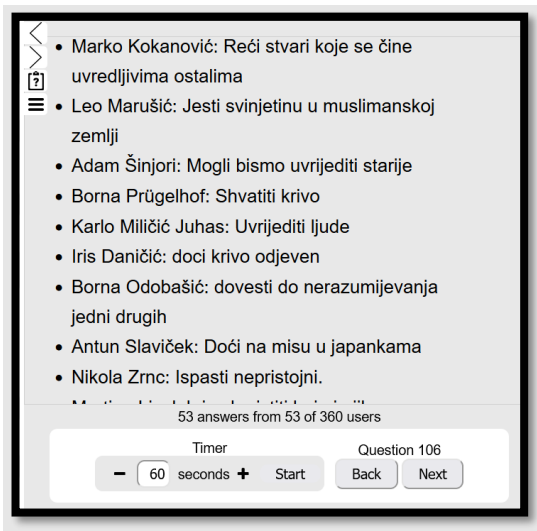 **Answers display example**:

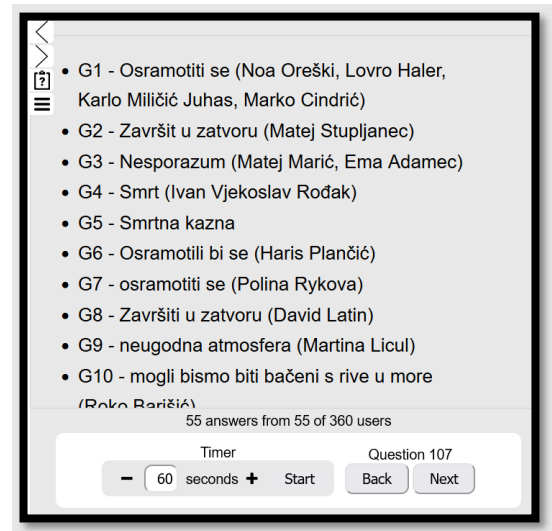*Figure 14. Plain text answers in Name: Answer format*

Figure 15. Plain text answers clustered

- **Rich text** – question with textual answers with support to basic HTML (~~strikethrough~~, subscript, superscript, special characters like ⇔, and LaTeX mathematical formulae.

  Answer example: Audience members see a textarea with text editing options which include ~~strikethrough~~, subscript, superscript, inserting special characters like ⇔, and inserting LaTeX mathematical formulae.

  $f_1(x)=x^2+4x+3 \Leftrightarrow f_2(x)=(x+3)(x+1)$

  $$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}\Big|$$

  Question options include the **maximum number of answers** an audience member can submit for this question.

  Display options include:

  display answers (first, last, first and last, or all answers from each user),

  display users (include and display answers from all users, only registered users, only unregistered users, or only answers from anonymous users i.e. answers sent in anonymous mode),

  display format (only answers, only names of audience members who answered that question and in case their names are available through the users list, or both names and answers).

  Answers display example:

Figure 16. Rich text answers example

- **Wordcloud -** question with plain text answers that will be displayed in a wordcloud.
  Answer example: Audience members see a textarea to input a textual message, for example "wordcloud".
  Question options include the **maximum number of answers** an audience member can submit for this question and the **maximum length of an answer in characters**.
  Display options include:
  display answers (first, last, first and last, or all answers from each user),
  display users (include and display answers from all users, only registered users, only unregistered users, or only answers from anonymous users i.e. answers sent in anonymous mode),
  display format (only answers, only names of audience members who answered that question and in case their names are available through the users list, or both names and answers) , and
  cluster answers (disabled – no clustering, unique – cluster answers to unique categories, or X – cluster answers to X categories based on string similarity algorithm).
  Display examples

Figure 17. Wordcloud example

Use *Back* or *Next* buttons to switch to previous or next question. Answers are automatically disabled for a newly opened question or when you return to a previous question. You can enable them at any time. If you need to change question type or settings, you can do that using *Reset question* room option.

Configuring question text

While the primary intention of AUDIT was to separate data display from the process of posing a question to the audience (since question posing can be done verbally, on a blackboard, in a slideshow etc.) AUDIT still supports posing questions within the system using the interface symbol as shown in the Figure 18. The question can be written in the question box shown on the Figure 19, and can be expanded over the whole window as shown in the Figure 20.
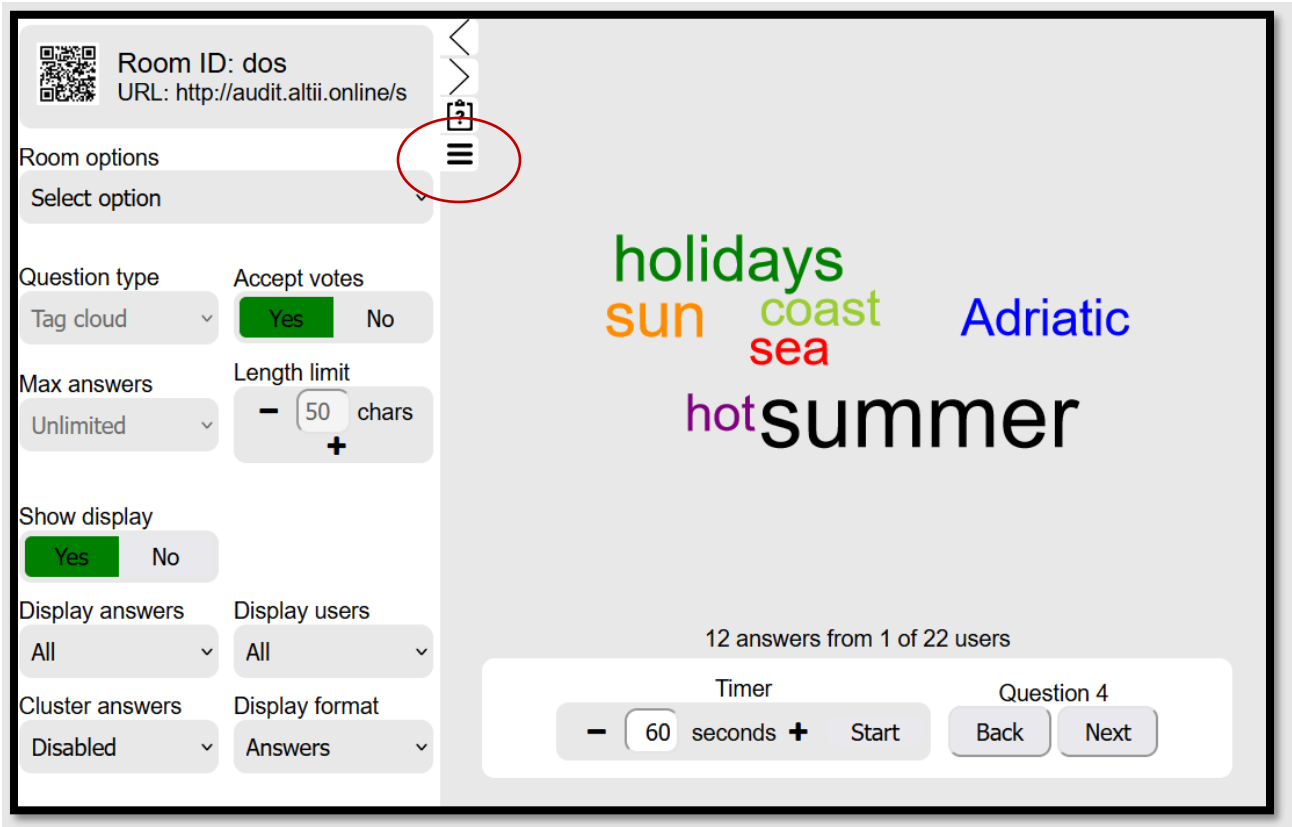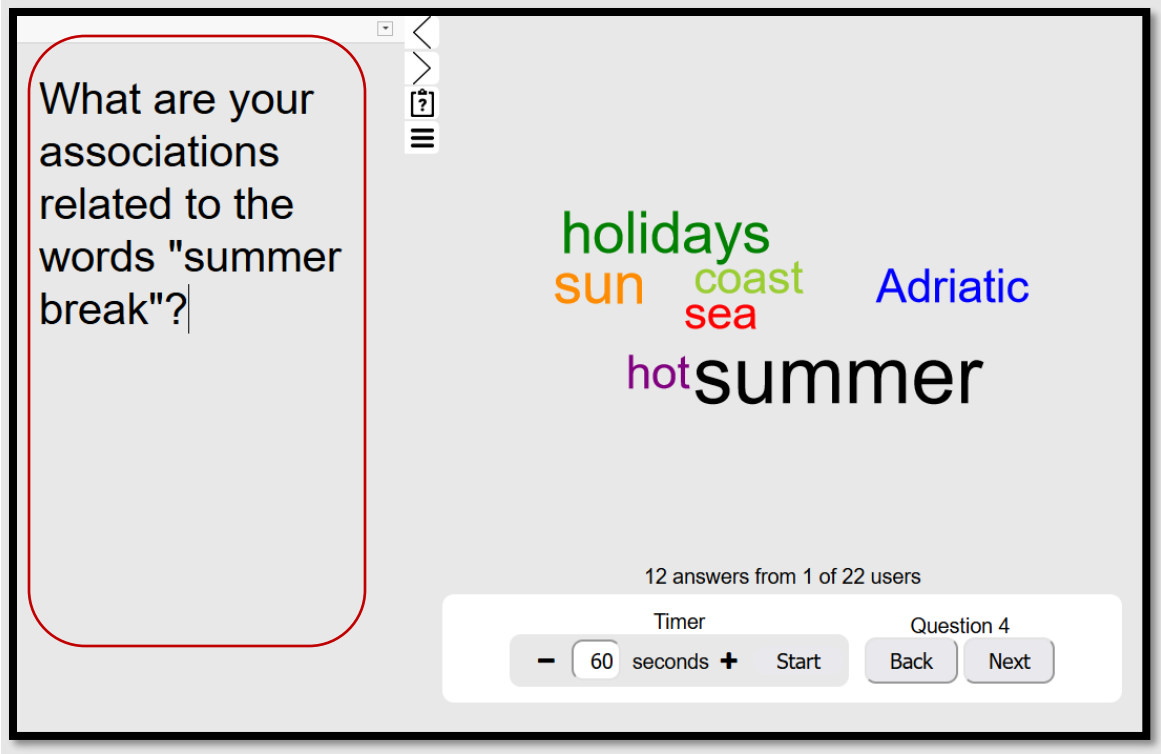

Figure 18. Accessing question window

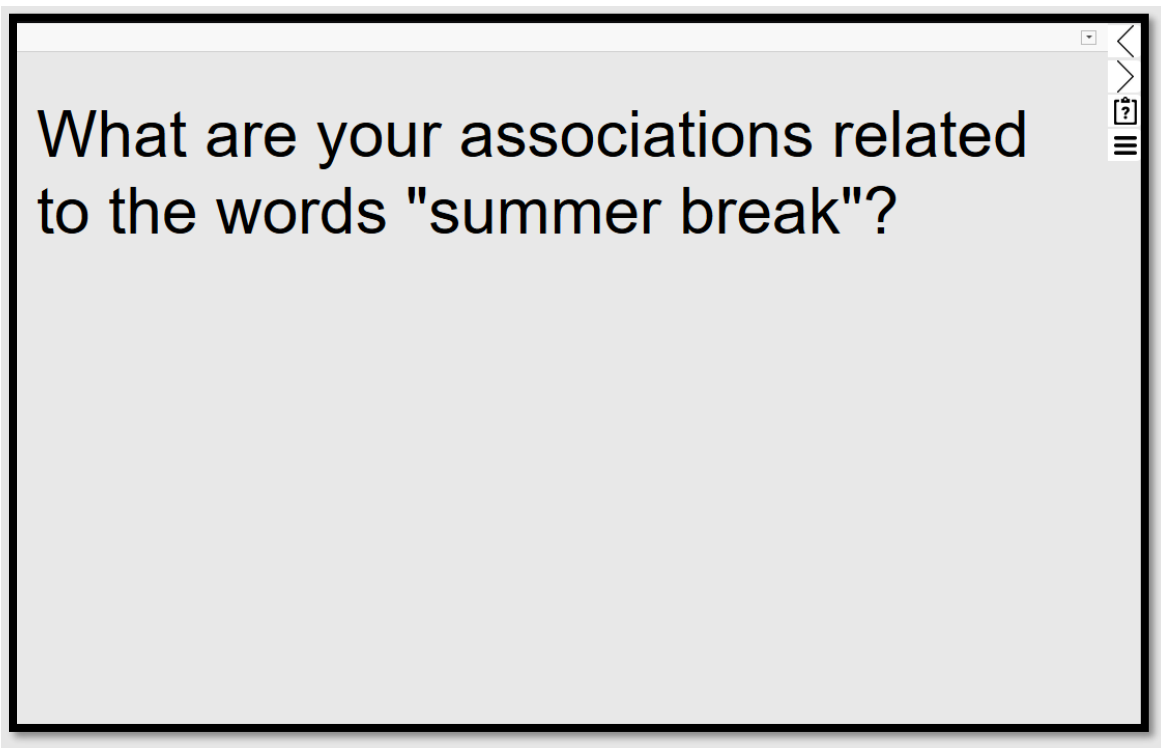*Figure 19. Question posing window*

Figure 20. Question in full screen mode

Starting the voting process

To start the voting process i.e. enable your audience to start submitting their answers to your question, click the *Yes* button next to the *Accept votes* label as shown in the Figure 21.
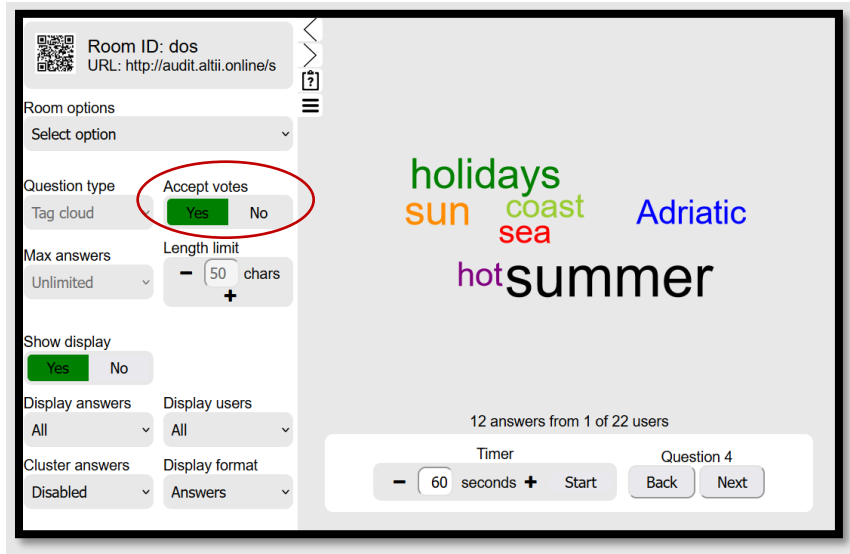

Figure 21. Accepting audience votes

After changing *Accept votes* to *Yes* you won't be able to change question settings or change question type anymore and your audience members will be able to submit their answers through their interface. The change after activating voting in the audience interface is shown in Figure 22 and Figure 23. You can stop the voting process by setting *Accept answers* back to *No*. You can also use the timer function to activate voting for a given amount of time in seconds. After the time expires, *Accept votes* will be switched to *No* automatically. You can use the *Show display* button to show or hide the data display at any moment.
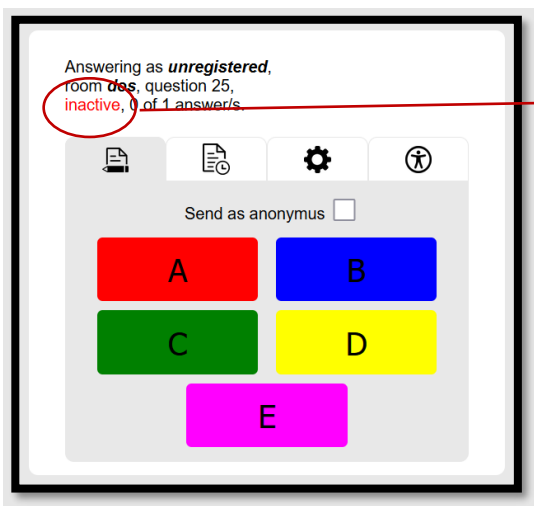

Figure 22. Before setting Accept votes to Yes

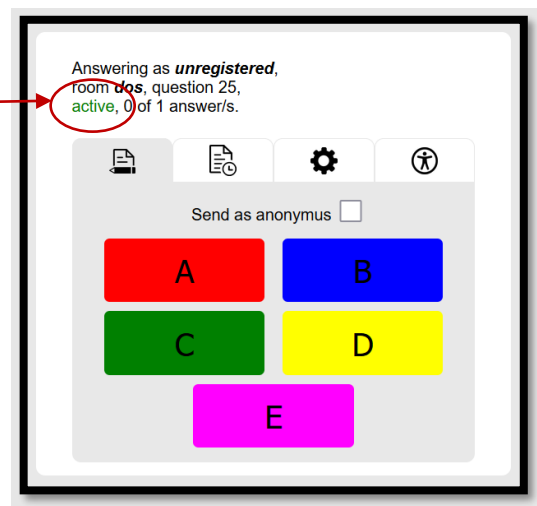*Figure 23. After setting Accept votes to Yes*

AUDIT Redirect

AUDIT Redirect is a desktop application to be used together with AUDIT and which enables a lecturer to redirect textual messages that an audience sends to AUDIT to any other application so that they appear as if they were/are written on the keyboard of the lecturer's computer. AUDIT Redirect should be used in combination with an active plain text question on AUDIT. AUDIT redirect can be downloaded from a link available on AUDIT lecturer's interface (http://audit.altii.online/redirect/AUDITredirect.jar). AUDIT Redirect is a *.jar* application meaning it can be run on Windows/Linux/Mac operating system. The user interface after running the application is shown in Figure 24 and Figure 25. The user should input the AUDIT Redirect key provided in the lecturer's interface under *Room options / AUDIT Redirect*.
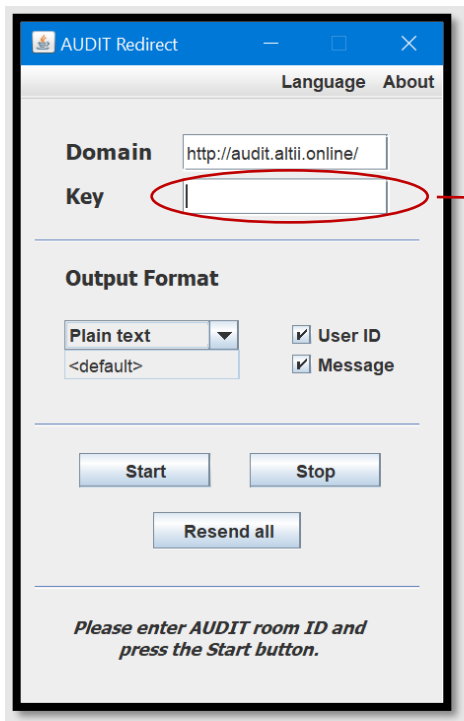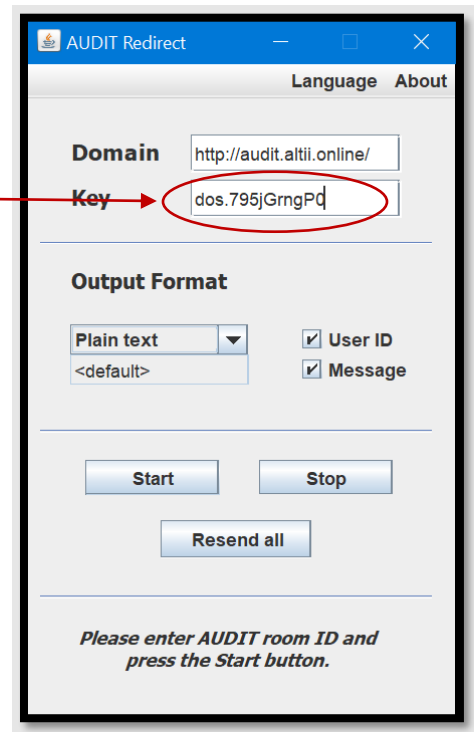
Figure 24. AUDIT Redirect user interface

Figure 25. Input redirect key available in AUDIT lecturer's web interface under Room options/AUDIT redirect

If you input the AUDIT Redirect key and click *Start*, the application will start counting backwards from 10 seconds and upon reaching zero it will start redirecting all textual messages your audience has submitted so far **as if they were right now typed on your computer**. Make sure to click in the window of target application before the count reaches zero. New messages will be re-typed/redirected as long as you don't press *Stop* button. Clicking *Stop* will pause message redirecting until *Start* is clicked again. Only new, previously unredirected messages will further on be redirected. If you wish to retrieve both previous and new messages, click *Resend all* button.

To get familiar with AUDIT Redirect it is advisable to first use it in combination with *Notepad* or a similar simple plaintext application. Start answer redirection and click into *Notepad* text writing field. Example output is shown in Figure 23. AUDIT Redirect does not need to be present on your screen while doing this – you can lower it on taskbar or hide it behind a window.
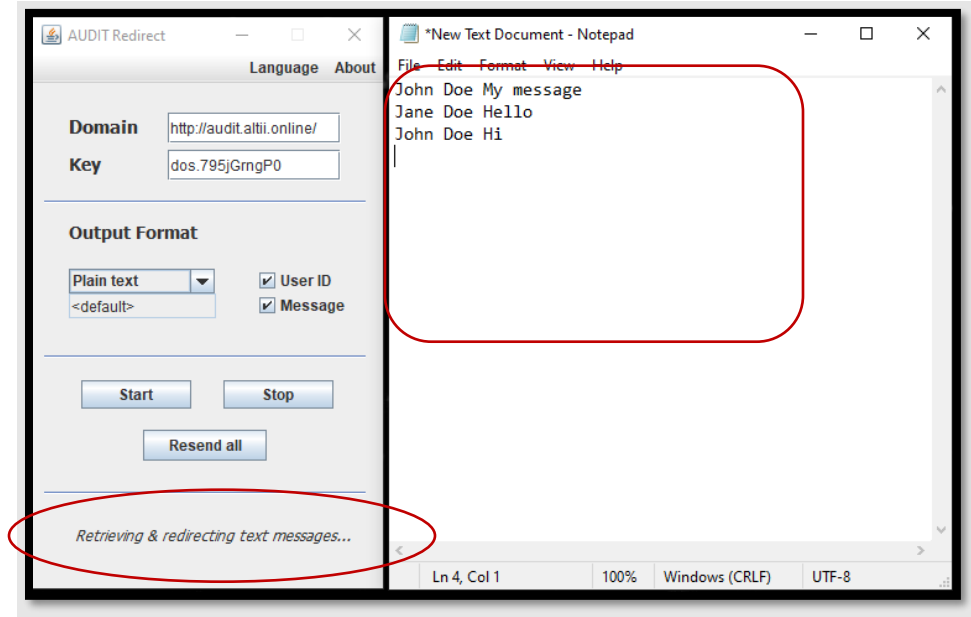

Figure 26. AUDIT Redirect used to redirect textual messages to a Notepad file

Applications like https://tobloef.com/text2mindmap/ are a good match for AUDIT Redirect. This application is a simple, free mindmap editor with interface shown in Figure 27. Concepts are added to the text window on the left side and they are instantly visualized as a mind map on the right side.
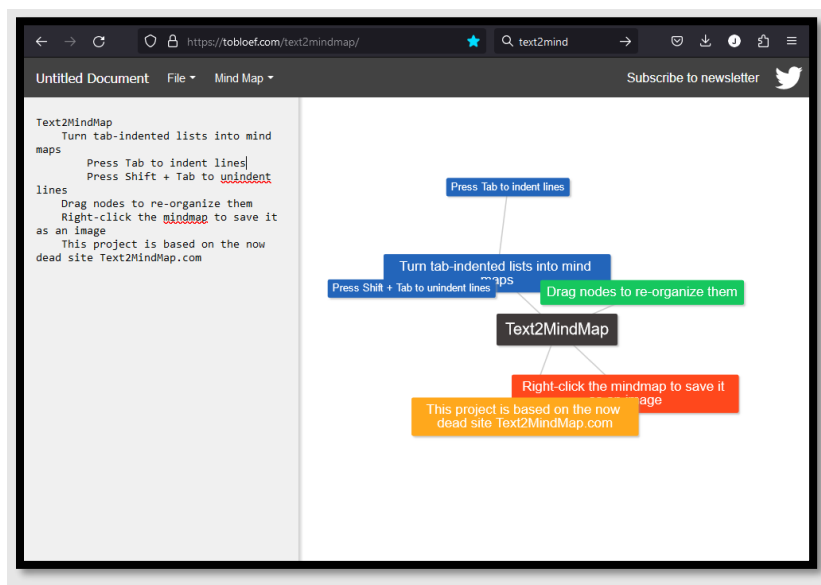

Figure 27. Text2mindmap tool

If used with AUDIT Redirect, lecture audience can live input concepts to this map opened on the lecturer's computer. To do that:

1. In the *Output format* select *New config file…* Define a config file for AUDIT Redirect that will add a tab before every user name, new line after it, and add two tabs before every message. It should look like Figure 28. Save and close that config file and load it to AUDIT Redirect by choosing it in the *Output format* menu like on Figure 29. The config file in this case was saved under the name *text2mind.config*.
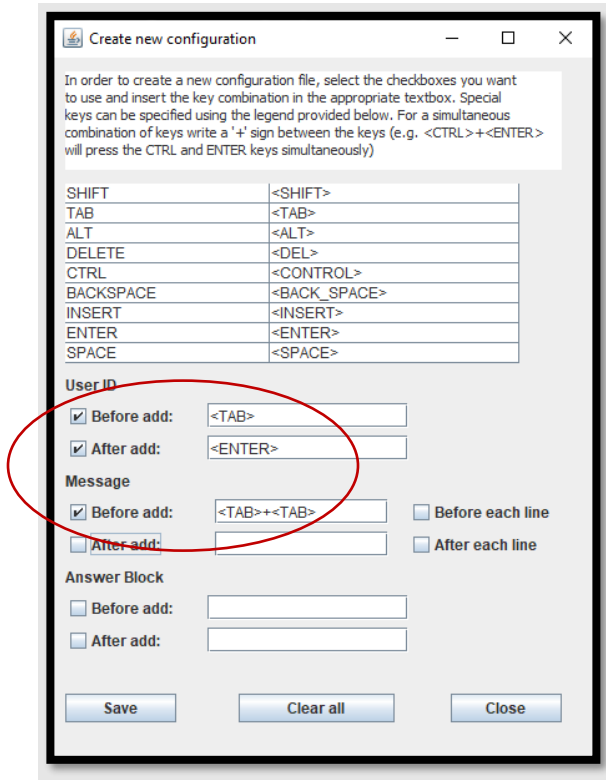

Figure 28. Edit

Figure 29. Load the created config file

2. Start AUDIT Redirect and click in the text2mindmap text input box (previously remove from there all unnecessary text)
3. Wait for your audience to start submitting answers. The result will look similar to Figure 30.
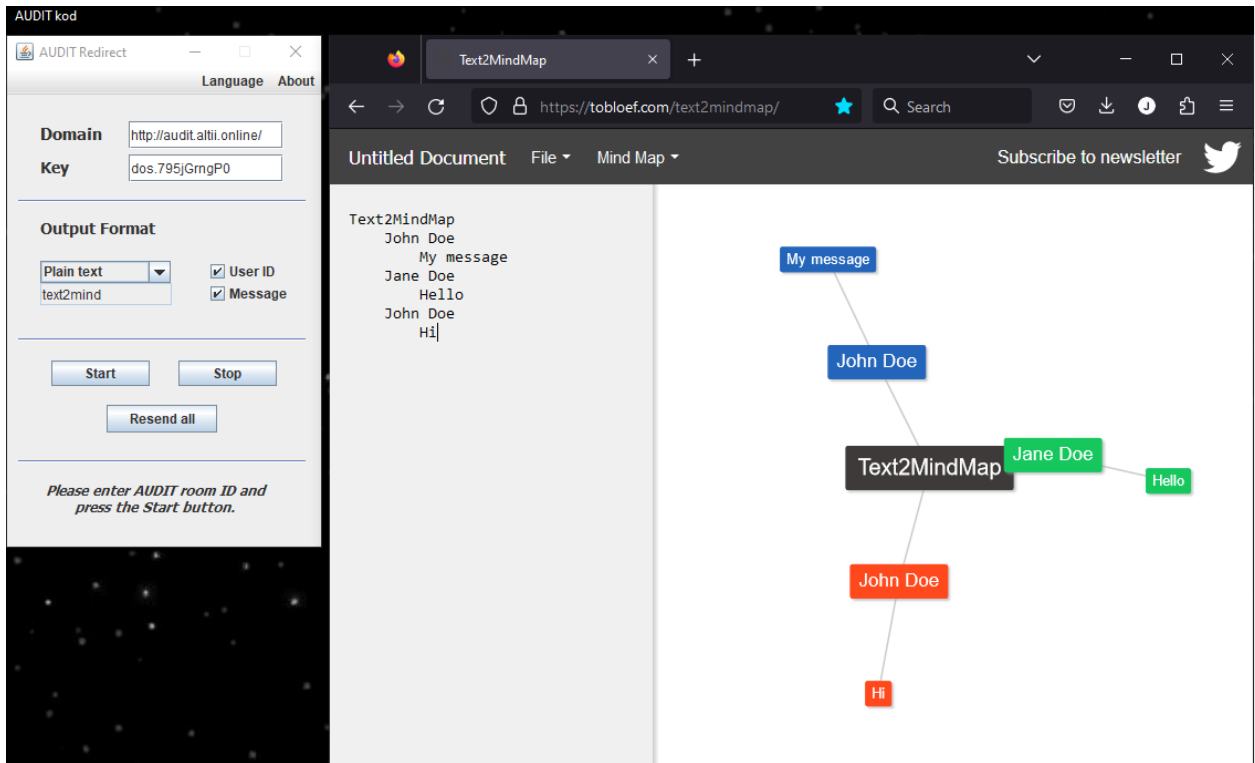
Figure 30. Example of AUDIT Redirect with text2mind

You can use AUDIT Redirect with any other application as it simulates typing on your keyboard. You must be aware, though, of which specific key combination that application expects and define those key sequences using the AUDIT Redirect config editor. You can always use AUDIT Redirect in plain text mode as in Figure 26 and then manually edit text to fit the target application. Please note that while AUDIT Redirect is active, any new message sent by your audience will activate it and start typing the same message from your computer keyboard.

AUDIT Redirect should be used in combination with an active plain text question type on AUDIT web interface. AUDIT Redirect can be used with rich text question type, but rich text questions use HTML formatting so it depends on the application you redirect the input to if the result will be usable.

Using clustering

Clustering is an option that can be used in combination with *plain text* or *wordcloud* question types. Clustering means that textually similar answers will be grouped together. The text similarity is defined based on string comparison algorithms. Supported algorithms are Jaro-Winkler algorithm, Levenstein distance, Smith-Waterman-Gotoh algorithm, and Similar text algorithm. Please note that those **algorithms assess string similarity**, and not similarity in meaning.

The idea of clustering is for the lecturer to be able to get a quick summary of answers in case of a very large audience or very large number of submitted answers without having to read each of them. An example is given in Figure 31 and Figure 32 where the same data are shown unclustered (Figure 31), and clustered into 4 categories (Figure 32).
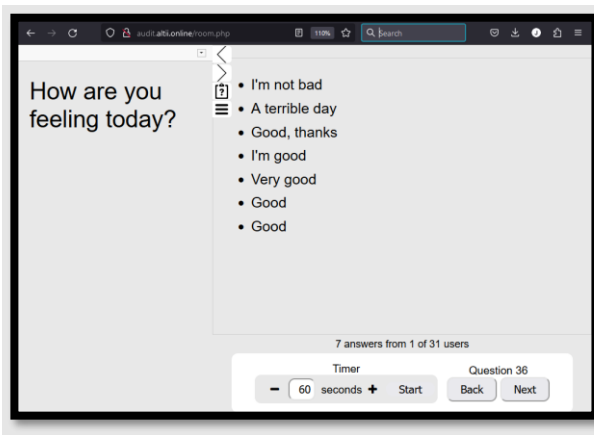

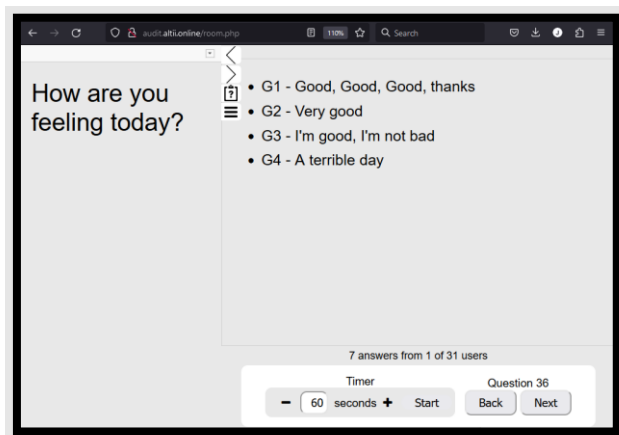*Figure 31. Plain text question with no clustering*

Figure 32. Plain text question with clustering

The number of categories has to be selected manually and then cluster members are chosen using the clustering algorithm. The 'Unique' option in the clustering select menu will as the result group all identical answers together and list as many groups as there are different answers. Clustering select element is shown in Figure 33.
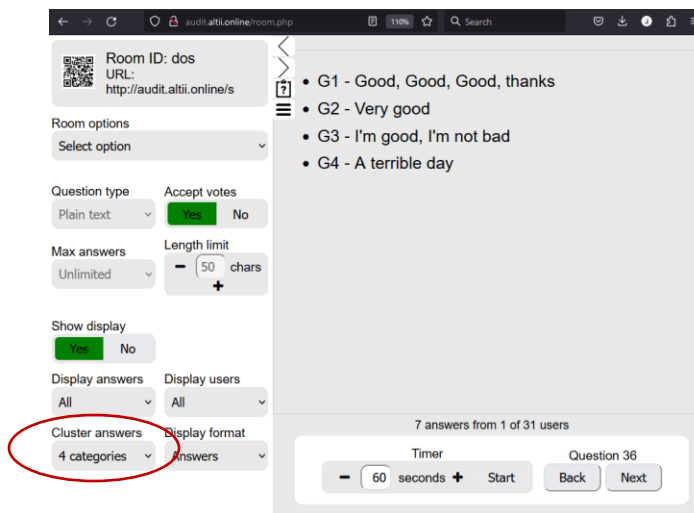

Figure 33. Clustering select options

Using AUDIT as Audience

To choose the role of an audience member on AUDIT, click on the *Audience* text or symbol on the start screen of AUDIT homepage http://audit.altii.online as shown in Figure 34 and enter the room ID provided by the lecturer after that as shown in Figure 35. After entering the room ID you will be presented with an audience interface as shown in Figure 36.
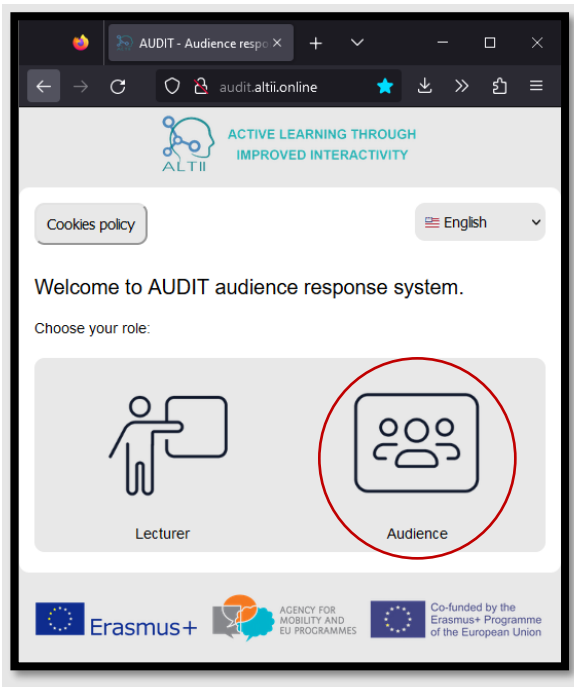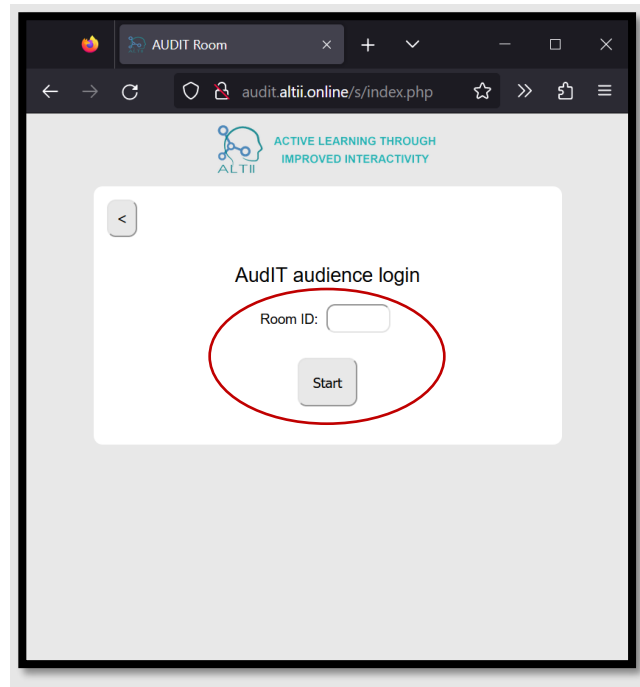

Figure 34. Choosing the role of an audience member

Figure 35. Enter room ID provided by the lecturer

You can also access the target room by typing in your browser the URL http://audit.altii.online/s/?*roomID*, where *roomID* should be replaced by the room ID that was provided to you by the lecturer or by scanning the QR code provided by the lecturer.

The AUDIT audience interface consists of general information visible in Figure 35. and including:

- **User name** (if the lecturer has uploaded an users list and you have registered or 'anonymous' otherwise)
- **Room ID** and **question number**
- Information about whether **voting is currently active** i.e. whether you can submit an answer
- Information about the **number of answers** you have submitted to current question and the total number of answers you can submit to this question.

and four tabs shown in Figure 36 – Figure 39:

- **Active tab** – the interface for answering the lecturer's question is presented in this tab. This interface changes depending on question type and settings chosen by the lecturer.
   History tab – this tab contains all answers you submitted to all questions in the current session.

If you leave a room and access it again, voting history will not be available on your device, but it will be stored on AUDIT server and visible to the lecturer. If a lecturer performs a question reset action, all votes related to that question number will be deleted from answers history tab and from AUDIT server.

- **Settings tab** – this tab enables you to configure room language or register if the lecturer has uploaded the users list. You can register by submitting your user ID. User ID should be in the lecturer's users list be placed in the first column. The second column should contain your name.
- **Accessibility tab –** this tab contains settings that affect interface accessibility. You can increase or decrease font size, turn on high contrast mode or reset interface settings.
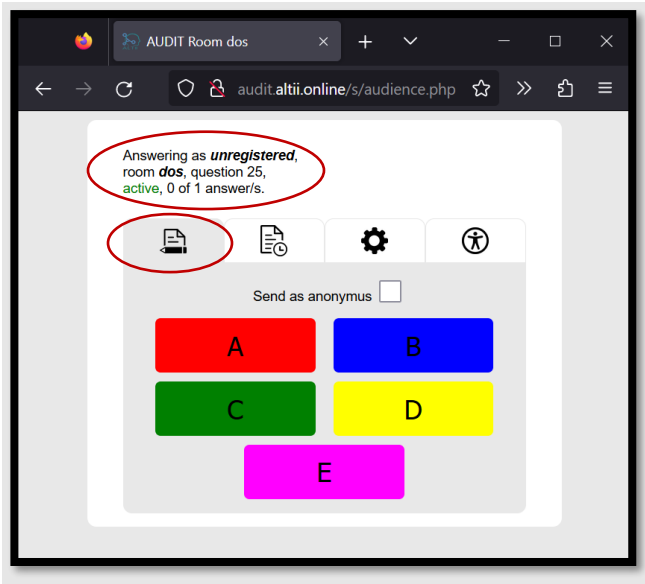

Figure 36. Audience interface – General room information and active tab with a multiple-choice question
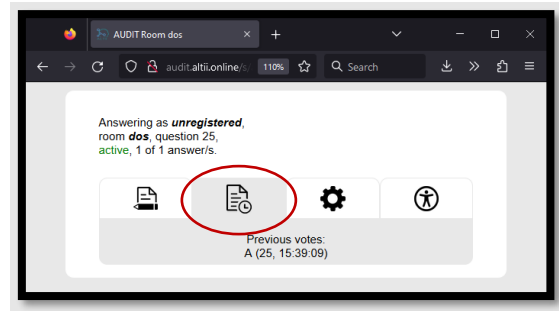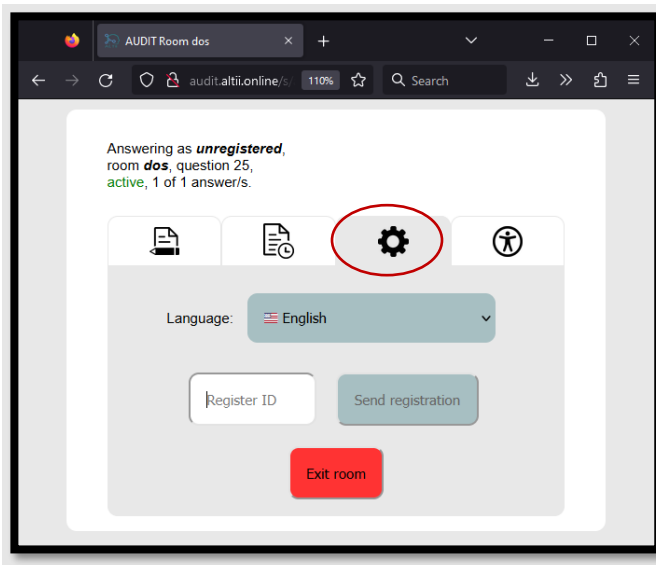

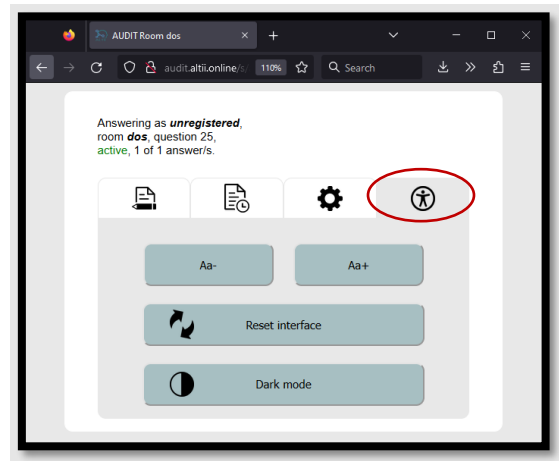*Figure 37. Answers history tab*

Figure 38. Settings tab

Figure 39. Accessibility tab

The active tab appearance is changed based on the question type and settings defined by the lecturer. While the active tab for a votes question type is shown in Figure 36, active tab for question type *plain text* or *rich text* are shown in Figure 40 and Figure 41. Notice the toolbar for strikethrough, subscript, superscript, inserting math expressions and inserting symbols in Figure 41.
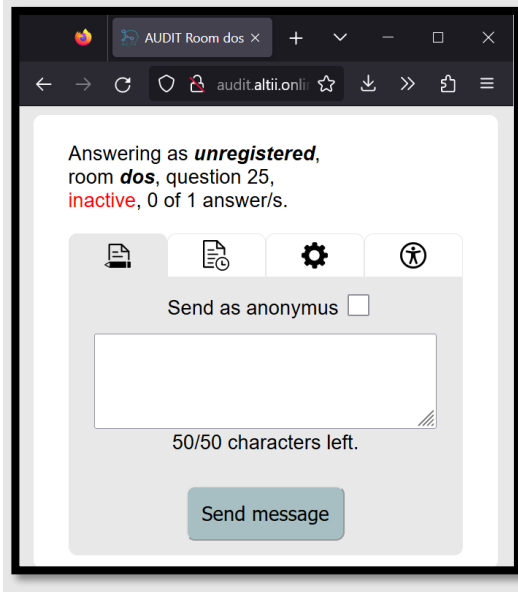

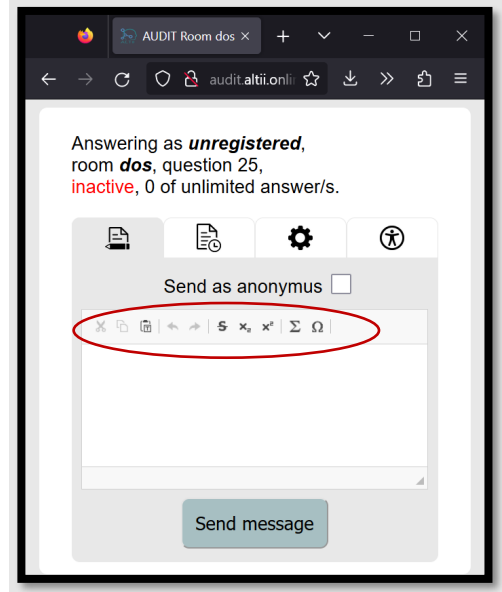Figure 40. Active tab for Plain text question type

Figure 41. Active tab for Rich text question type

In order to write complex mathematical expressions, *Mathjax editor* is available upon clicking the ∑ symbol in the *rich text* interface.

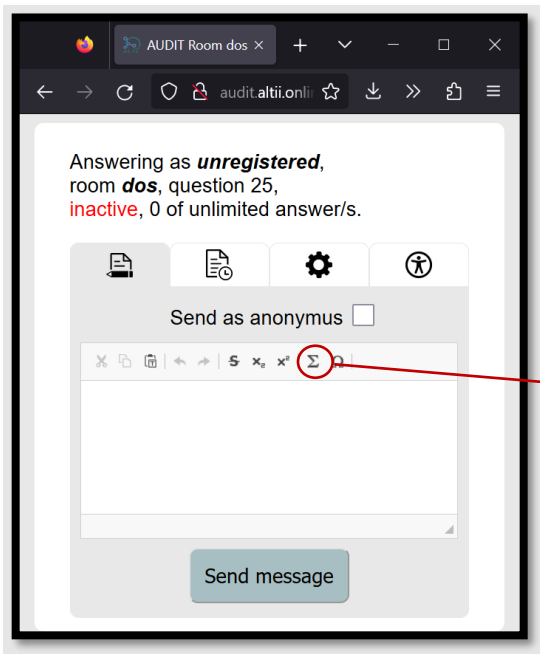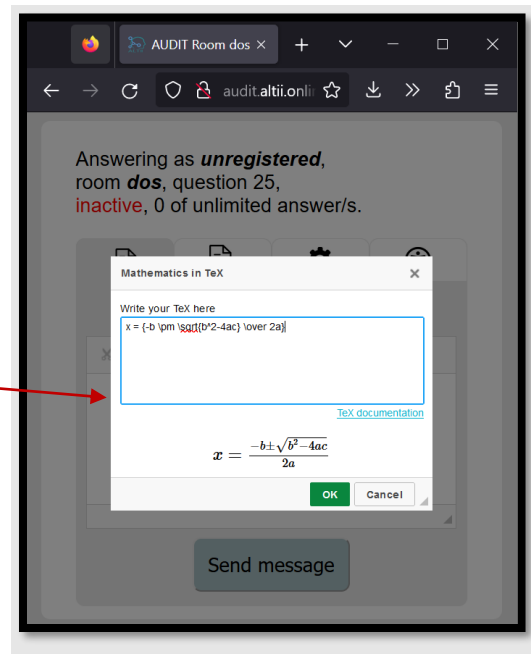Figure 42. Mathjax math writing interface button

Figure 43. Mathjax math writing interface

Mathjax reference is available at https://www.bearnok.com/grva/it/knowledge/software/mathjax or complete documentation at https://docs.mathjax.org/en/latest/.