UBUMonitor

Release 2.6.3

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Introduction and requirements

UBUMonitor is a *desktop client application* that allows you to connect to a *Moodle server* to monitor the particular activity of the students. It allows to extract the data from the logs, gradebook and activity completion of our subjects, visualizing these data in a more friendly way for the teacher.

1.1 Installation requirements

- Windows, GNU/Linux or Mac operating system

- Have an Internet connection.

- Have a minimum of:

  - *250 MB free hard disk* for the portable version, which includes the Java Runtime Environment (JRE).

  - *26 MB free disk* if you already have Java 8 installed.

1.2 Requirements in Moodle

- Required

  - Have a **teacher's account** in the subjects or courses you want to access.

  - Access Moodle with basic web validation through *http://* or *https://*. Currently **NO** support is included for *Single Sign-on* type systems.

  - Have activated in the Moodle server the **mobile support** (mobile apps). In case of an error when *login* from UBUMonitor, ask the Moodle server administrator for possible activation.

- Optional (for a better experience)

  - Set correctly (in **Edit settings** of the course), in **General**, the *Course start date* and *Course end date* (enabled) in your subjects. Otherwise, the initial course selection (in the *In Progress*, *Future* and *Past* tabs) and the date filters for the log charts **WILL NOT work correctly**.

– Activate **show percentage** of the subject in the **Moodle gradebook**. Otherwise **NO data can be loaded from the gradebook**.

– Activate in **Edit settings** of the course, in the section **Completion tracking** the option **Enable completion tracking**. Once this change has been made, it is recommended that you adjust the **Completion Tracking** option for each activity and resource in *Activity Completion*, if you want to use the corresponding table.

– Have **defined groups in the subject** if you want to use the filters and particular charts on groups.

Installation and start-up

To install the program, download the latest version available at: https://github.com/yjx0003/UBUMonitor/releases/latest.

An entry similar to the following will be displayed, displaying the **Assets** item (*Note: version numbers will change in the future as the product evolves*):

Fig. 1: Download from UBUMonitor GitHub

The possible files to download for execution (and development with the source codes) are shown. For installation only the following files are required:

- `UBUMonitor.v2.6.3-stable-Linux64-Portable.xz`: portable version for 64-bit GNU/Linux operating system.

- `UBUMonitor.v2.6.3-stable-Win32-Portable.zip`: portable version for 32-bit Windows operating system.

- `UBUMonitor.v2.6.3-stable-Win64-Portable.zip`: portable version for 64-bit Windows operating system.

- `UBUMonitor.v2.6.3-stable.jar`: multi-platform version with Java installed in the operating system. Version for Windows, GNU/Linux or Mac.

Two versions are offered:

- Portable version (with minimum installation) for **Windows** (decompressing the .zip file) and **GNU/Linux** (decompressing the .xz file).

- Version of the java executable file (with extension `.jar`) for **ALL** platforms.

It is recommended to use the portable versions because the executables and scripts are optimized for their execution, as well as containing the version of Java and JavaFX with which the application under development has been tested.

2.1 Portable version for GNU/Linux

If you are working on GNU/Linux, and do not want to install Java on your current computer (or do not want to change your settings), we suggest downloading the 64-bit portable version.

Installation steps:

- Copy the downloaded file with the suffix `Portable.tar.xz` to a directory of your choice, where you have write and execute permissions.

- Decompress the file with the suffix `Portable.tar.xz` corresponding to some tool type tar, gzip, bzip2, etc. For example: `tar -Jxf UBUMonitor.v2.6.3-stable-Linux64-Portable.tar.xz`.

- In the directory generated by unzipping, run the `run.sh` script. It may be necessary to give execution permissions to this script with the command `chmod +x run.sh`.

Note: the portable versions include inside the ``tar.xz`` file a JRE 8 with JavaFX, so they take more space.

2.2 Portable version for Windows

If you work in Windows, and you do not want to install Java in your current computer (or you do not want to change the configuration), we suggest downloading the corresponding portable version, depending on whether the operating system is 32 or 64 bits.

Installation steps:

- Copy the downloaded file with the suffix `Portable.zip` to a directory of your choice, where you have writing and execution permissions.

- Decompress the file with the suffix `Portable.zip` with a tool such as WinZip, 7Zip, WinRar, etc.

- In the directory generated when decompressing, double click on the executable file with extension `.exe` (e.g. `UBUMonitor.v2.6.3-stable-Win64.exe`)

Note: the portable versions include inside the ``.zip`` file a JRE 8 with JavaFX, so they take more space.

2.3 Executable version with Java 8

If you do not want or can use the portable version, a version of the Java 8 Runtime Environment (JRE) is required. In particular the official distribution of Oracle which includes the JavaFX libraries or versions such as Zulu with FX. With later versions **NO** it will work correctly, as well as with free versions (e.g. OpenJDK, AdoptOpenJDK, Amazon Correto, etc.) that do not include the JavaFX libraries (JavaFX would have to be installed additionally).

Assuming that you already have this Java 8 version installed (and that it is the active version of Java) follow the next steps:

1. Copy the `.jar` file to a directory where the user has write and execute permissions.

2. Try to execute it by double clicking on the `.jar` file.

If Java is correctly associated with the `.jar` extension, the application will be executed. If not, execute from an operating system console, in the directory where you have the `.jar` file the following:

- `$> java -jar UBUMonitor.v2.6.3-stable.jar`

Note: the version number may change.

If everything is correct, the application will start running. If not, check again the previous steps.

Login

Once the application is started, the login screen will be displayed. The window displays the current product version at the top and allows you to select the preferred language for the application.

Next, you must enter your **User** and **Password** credentials in Moodle.

VERY IMPORTANT: the application **never** persistently stores, nor forwards to other servers, the *password* of the user, for security reasons. The source code is available for audit and you can check which data and to which server it is sent, with a network analysis software or *sniffer* (e.g. Wireshark, Microsoft Message Analyzer, Tcpdump, etc.).

3.1 Online mode

In the **Host** field you must indicate the URL of the website of the chosen Moodle platform. When entering the host, you must include its URL, including the access protocol.

For example:

- to access the Mount Orange School test server you will literally put: `https://school.moodledemo.net`

- to access the UBU's Moodle server (UBUVirtual) you will literally put: `https://ubuvirtual.ubu.es`

It is recommended that you always access secure servers (with https://) to ensure that the information you send is encrypted.

However, UBUMonitor allows access to any Moodle server that validates users in the form of login/password. If the server accessed is NOT secure and does not encrypt the communication (with `http://` instead of `https://`), an icon and an additional *tooltip* are displayed to warn the user. It is recommended to use this option with caution and **only for accesses to a trusted local server**.

The application **remembers** the *urls* of the servers that have been used **previously**, suggesting in a predictive way those *urls*.

For convenience, the option is given to **Remember user** and **Remember host**, avoiding having to fill in the fields again in subsequent accesses. This information is saved in a `config.properties` file in the current directory, if we check one or both options. The **Clear** button allows you to remove the text from the three fields.
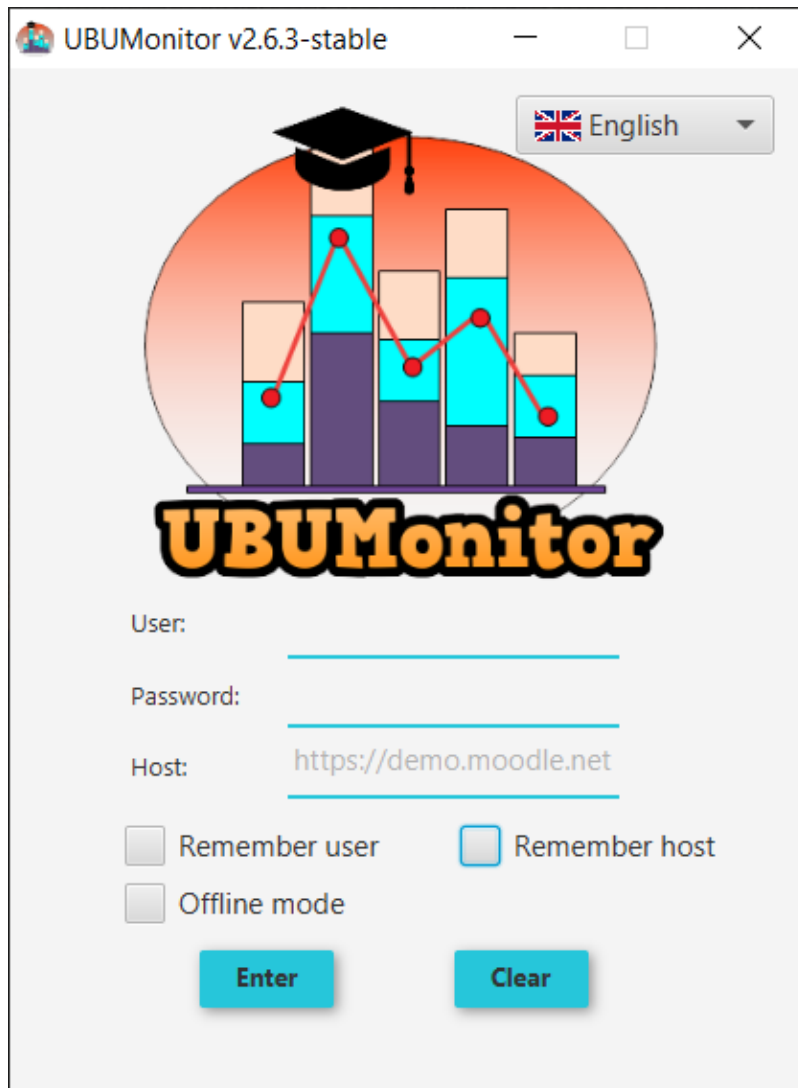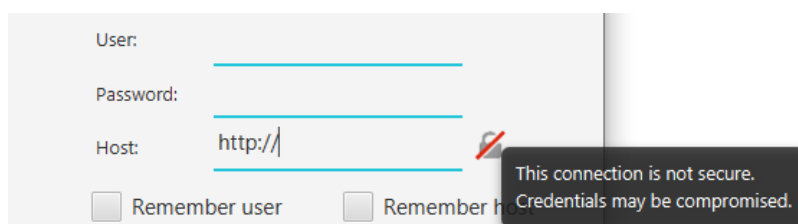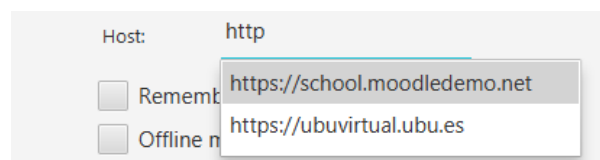
Fig. 1: Login

Fig. 2: Non-secure Login

Fig. 3: Suggested previously used hosts

After entering the credentials we press the button **Enter**. If the data is valid, it will load the following screen, and if not, it will show an error message in the lower area of the window.

In case of unexpected error, it is recommended to check in this order:

1. That the network connection is **active**.

2. That the *login/password/host* has been typed in **correctly** (check that **NO** has capital lock enabled).

3. That the current server is **active**, accessing directly with a browser.

4. That your Moodle server has active **web services**. To check this, try using the official mobile application (see https://docs.moodle.org/all/es/Moodle_app). If this application doesn't work either, your server **NO** allows such access. Contact your Moodle server administrator, to check the possible activation of **web services**. If you are working with a local installation, activate the web services by following the instructions in https://docs.moodle.org/38/en/Using_web_services.

If the problems persist, after checking the above, contact the authors of the application to report the error.

3.2 Offline mode

Additionally, if the box **Offline mode** is selected, the application can work **without a network connection**.
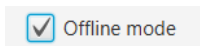
Fig. 4: Offline mode selected

This allows you to work even with the Moodle server unavailable or down. The only requirement is that **previously** the course data has been downloaded to the local cache, in previous working sessions with **network connection**.

Even so, it is still necessary to enter the user, password and url of the *host*, since the data is located and decrypted from these values guaranteeing always a secure access to the local data.

CHAPTER 4

Course/subject selection

At the top, the user, host url, login date, and working mode (onlines vs. offlines) are displayed. The **Logout** button allows you to return to the previous login window, closing the current one.

The main area shows the list of courses (or subjects) in which the current user is registered. It is possible to select one of them, to carry out the data loading and to access the following screen. The subjects are presented in alphabetical order in tabs as follows:

- **Recent**: courses recently accessed by the user.

- **Highlighted**: courses highlighted by the user.

- **All**: complete set of courses in which the user is enrolled.

- **In progress**: current course, with start and end date including the current date.

- **Futures**: courses to be taken, with a start date later than the current date.

- **Past**: courses already completed, with an end date prior to the current date.

Note: it is the user's responsibility to classify the courses as *highlighted* (and even *hidden*) in their *Dashboard* of Moodle. The start and end dates of each course are customized in *Edit Settings* for each subject.

The first time a course is selected the text **Last local update** will be displayed and the option to **Update data** is checked by default to force the download of data from the server.

Additionally the **advanced option** of downloading **Web logs only** is left if you want to download only logs from the browser (ignoring client, *web service*, *restore* or unclassified logs). By default it is unchecked and only recommended for advanced users.

We press the button **Enter** to start the download. This data download process may **take several minutes for the first download** (depending on the number of students, size of the gradebook, number of new logs and activities with active completion tracking).

A progress bar will be displayed at the bottom indicating the stages completed (uploading of the gradebook, downloading of activity completion, downloading of the log and parsing of logs). **Further updates will be shorter**, as the log loading is incremental, although the gradebook and activity completion is always fully updated.

On the other hand, it is **VERY IMPORTANT** that the percentage information is visible in the gradebook configuration (by default it is visible in Moodle) for correct reading and subsequent display of the grades.
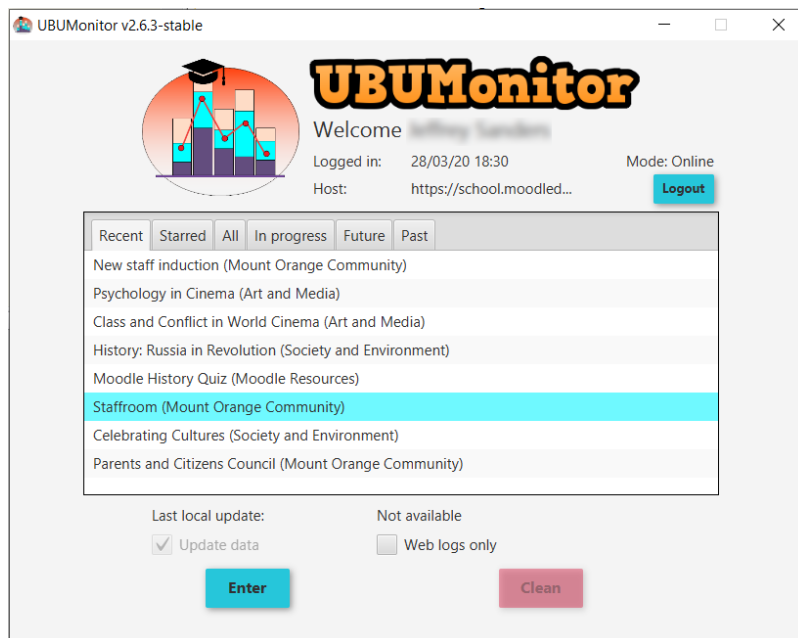
Fig. 1: Course/suject selection in first access

Once the download is finished, the main window of the application will be shown.

4.1 Updating data

In subsequent accesses to previously loaded courses, the date of **Last local update** will already be shown and the option to mark, or not, the option **Update data** will be given.

If we want to force the update of data with the current content of the server, we must mark this option manually. Otherwise, the data from the local cache (which might be outdated) will be loaded and displayed.

4.2 Cache cleaning

By selecting a previously loaded subject, the **Clean** button will be activated. This button allows us to clear the local cache of our current UBUMonitor installation.

When the cache disappears, the subject is detected as not previously loaded, always forcing the use of the **Update data** option in the next subsequent access.

This option is useful to delete files of subjects that are no longer going to be accessed in the future or when the installed version of UBUMonitor detects problems with the local file version and it is necessary to delete it (see Sec. *Error Messages*).

4.3 Offline mode

If we have selected access in **Offline mode** only the subjects available in the local cache will be shown, in the *Local files* tab. In this mode it is not possible to update data, but it is possible to access the full data display functionality.
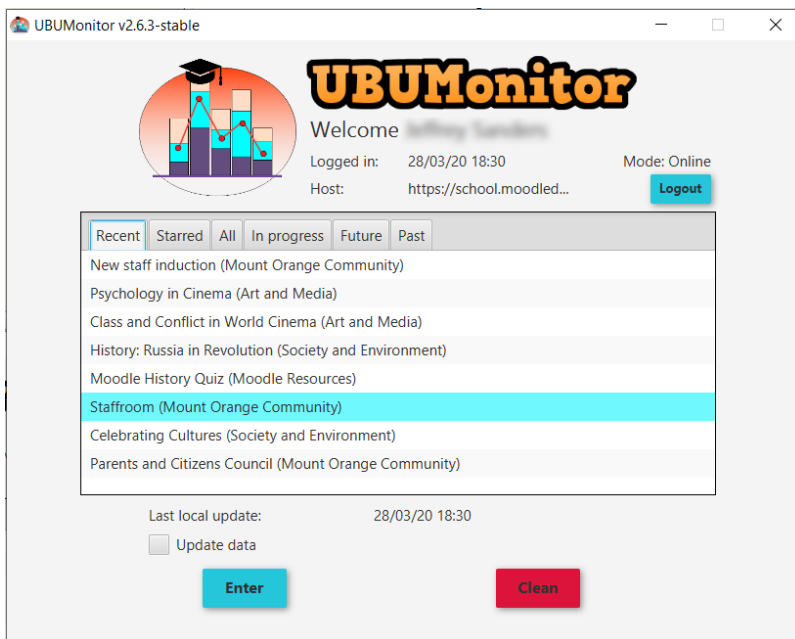
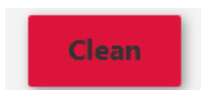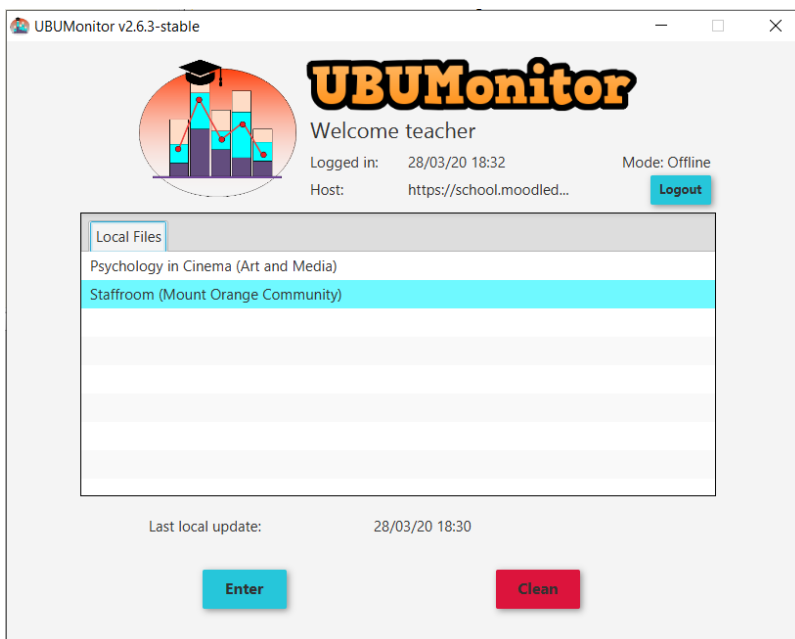Fig. 2: Subsequent access to previously loaded course

Fig. 3: Cache cleaning

Fig. 4: Offline course/subject selection

4.4 Password changed

In the case that the Moodle password has been changed recently, a pop-up window is displayed, indicating that a change has been detected and asking for the previous password, which was held on the date indicated.
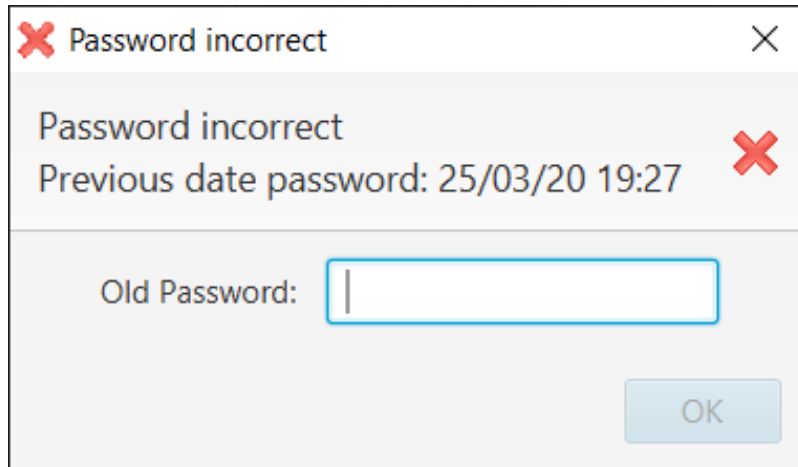

Fig. 5: Password changed

When the old password has been successfully entered, the local cached file is encrypted and saved with the new password. This is **required**, because the information is **always encrypted**.

VERY IMPORTANT: It is necessary to remember the previous password, in order to recover the data. If not, the cache must be cleared (**Clean** button), to force the courses to be reloaded.

Main screen

The main screen is divided into:

- In the upper area on the *menu bar*, the different existing menus .

- In the upper left corner, the *list of registered users* including number and filters by role, group and latest connection date.

- In the lower left corner, the selection of logs, grades or completion of activity.

- In the central area, the different active charts and filters, according to the previous selection.

- In the upper right corner the photo of the current user. A context menu is available to see his name, to close session in the server or to exit the application.

- In the lower left area, there is a connection mode button (green for online vs. red for offline), the name of the loaded subject and the host we are currently accessing.

- In the lower right area it is shown the date and time of the latest update of the local data being displayed.

In the user and log/grade and activity views, multiple selection of individual elements is allowed by holding down the "Control" key while selecting them with the mouse, and of adjacent elements by pressing the "Shift" key. The combination "Ctrl" + "A" selects all the elements of the view.

In the charts and tables generated in the central area, a context menu is always enabled (with the right mouse button), allowing the **export of data** in:

- Graphic format `PNG`.

- Text format `CSV`.

- CVS" text format, breaking down the data (if this option is available)

Note: Many screenshots in this manual have been taken against data on the free **Mount Orange School server available at https://school.moodledemo.net. Our thanks and appreciation to the Moodle development group who have given us their approval.
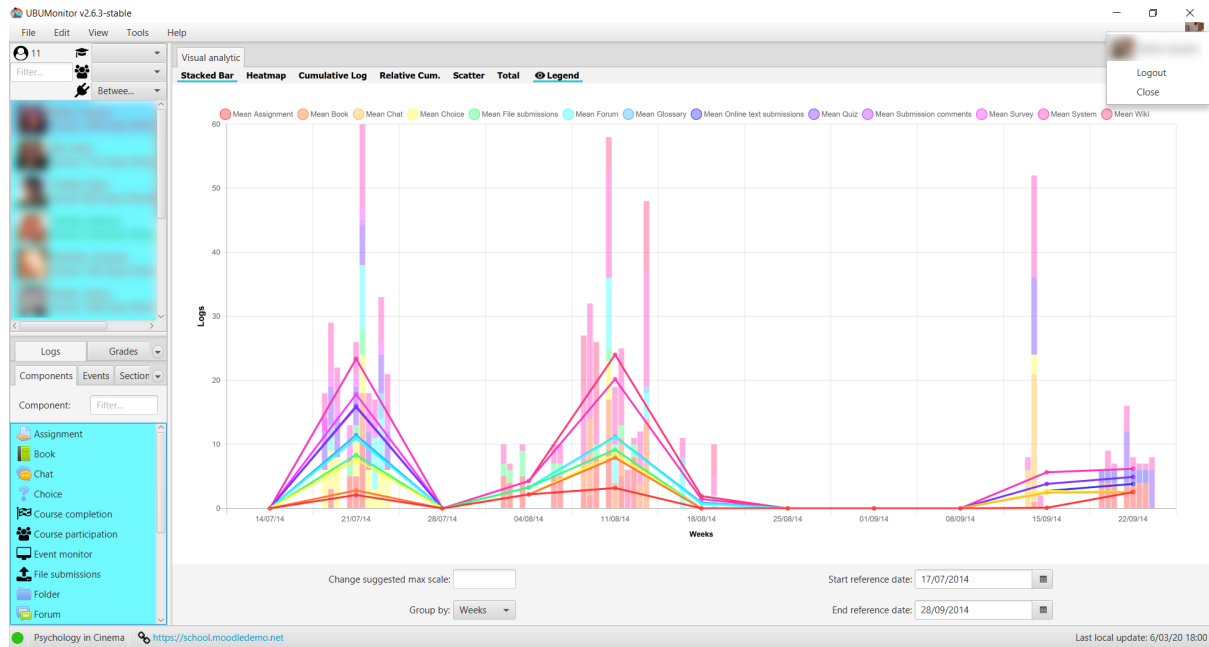
Fig. 1: Initial main screen

Fig. 2: Export contextual menu

5.1 Menu bar

At the top of the window there is a menu bar with different options. Keyboard shortcuts are enabled by pressing the ALT key:

Fig. 3: Menu bar

File

- **Change subject**: closes the current window and returns to the **Course Selection** window.

- **Update course**: downloads the most recent logs and updates grades and completion of activities for the current course, via the web. This option is not available in offline mode.

- **Export CSV data**: exports the data of the current course, in `.csv` format to the selected folder. It generates the following 8 files:

    - `course_modules.csv`: contains the course modules

    - `courses.csv`: information about the courses in which the students are enrolled.

    - `enrolled_users.csv`: students enrolled.

    - `grades.csv`: grades.

    - `groups.csv`: groups.

    - `logs.csv`: complete logs.

    - `roles.csv`: active roles.

    - `sections.csv`: course sections.

- **Logout**: closes the current session and returns to the login screen.

- **Exit**: closes the application.

Edit

- **Delete selection**: removes the current selection from all available views.

View

- **Themes**: allows you to select different display themes by changing the visual appearance of the application. Three themes are available: Modena, Caspian and Bootstrap 3.

Tools

- **Change configuration**: allows to customize general and particular operation and display options of each type of generated chart. Once the changes have been selected, click on the close window button (the changes are applied automatically). Selecting the **Restore Default Values** button restores the initial values configured in the application.

- **Import configuration**: allows to import a configuration previously stored by the user for a subject.

- **Export configuration**: exports the current options configured in the subject by the user.

Help

- **Course statistics**: shows a brief summary of the current data of the course such as number of users, number of logs, etc.
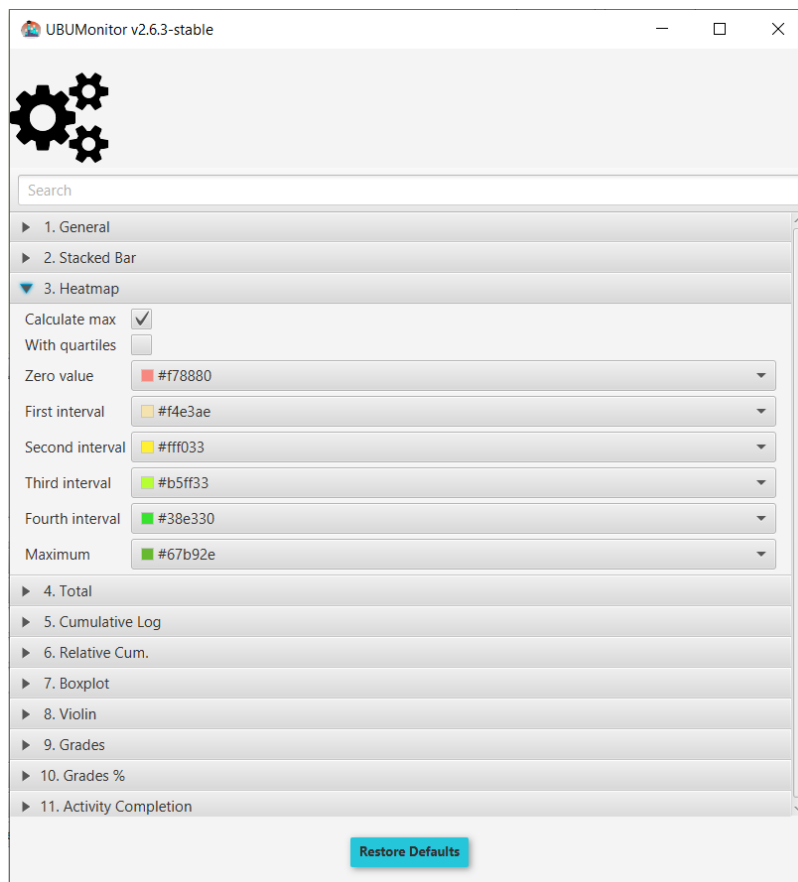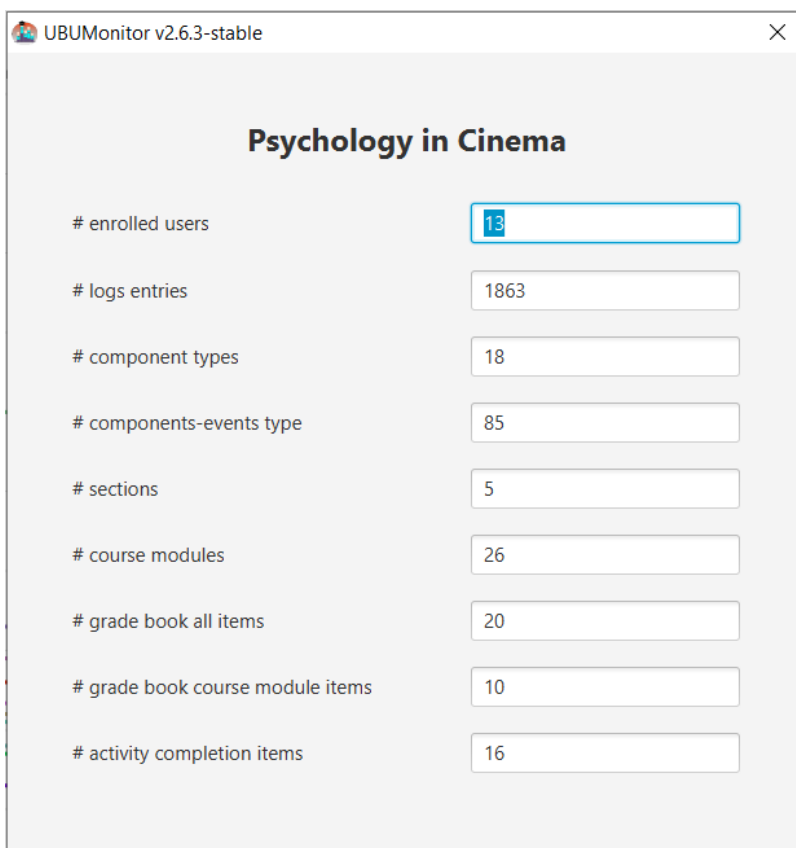
Fig. 4: Configuration

Fig. 5: Basic statistics of the current subject

- **More info**: opens the GitHub project in the default browser window.

- **About the application**: Shows the general information of the application regarding version, authors and acknowledgements.

Fig. 6: Information about the application

5.2 List of registered users

This view shows the list of users enrolled in the course, along with their photo and the time since their latest access to the current course and Moodle platform in either minutes, hours or days. The system time is taken as a reference.

Users are coloured, according to their latest connection date to the course, to facilitate the detection of **risk of abandonment**, using the following coding:

- Red: if they have not connected for more than 13 days.

- *Yellow*: if they have been online for 7 to 12 days.

- Blue: if they have been online for 3 to 6 days

- Green: if they have logged on in the last 2 days.

It also gives the option of applying four filters together, with multiple selection:

- **Text field**: filter the list by name and/or surname.

- **Role Selector**: select the role you want to filter by (e.g. student, teacher, non-editor teacher, etc.)

- **Group selector**: select the group you want to filter by.

- **Last Connection Selector**: latest access selector.

In the upper left corner, the number of participants that comply with the applied filters is displayed.
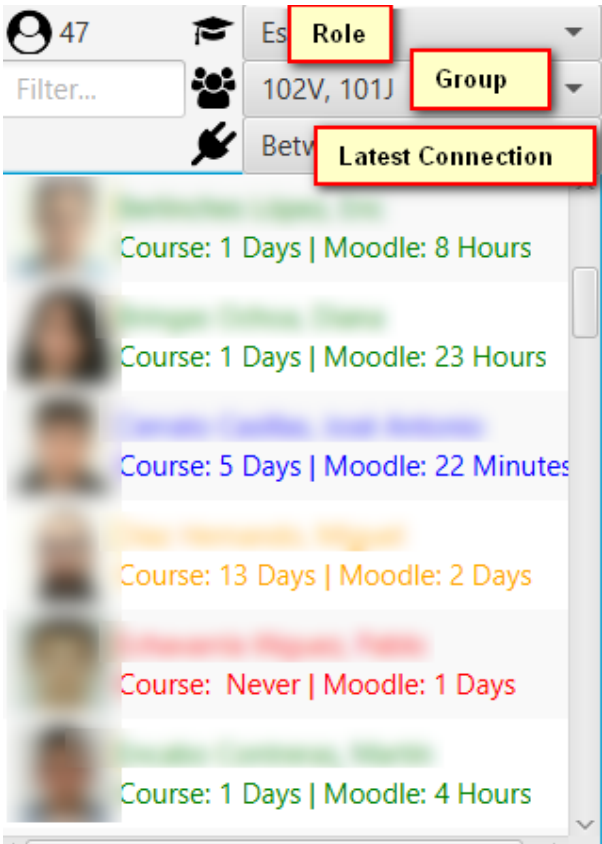
Fig. 7: List of registered users

5.3 Student's card

If we select a student with the right button, a contextual menu appears *View <user name>* that launches a dialog to show the student's card.
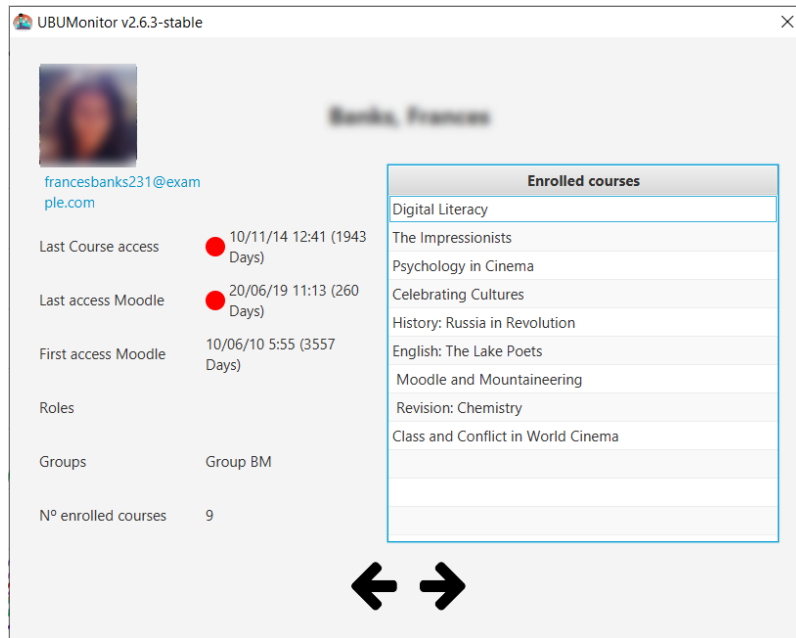

Fig. 8: Student's card

This card shows: name, surname, email, latest access dates to the subject and to Moodle, first access date to Moodle, roles, groups and number of courses/subjects you are enrolled in.
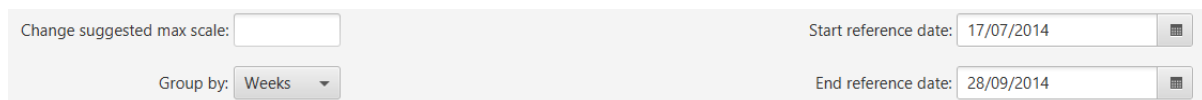
Coloured circles are used to indicate the date of latest login to the subject, or to Moodle, using the same criteria as seen previously in the list of registered users (i.e. red, yellow, blue or green).

In the right area, the complete list of courses in which you are enrolled is displayed. The list is shown by identifier, but can be sorted alphabetically in ascending or descending order by clicking on **Enrolled courses**.

The buttons at the bottom with arrows to the left and right allow you to go forward or backward in the list of students, updating the data.

CHAPTER 6

Log visualization

6.1 Log options

By clicking on the **Logs** tab, in the lower left corner, several filtering options appear at the bottom of the main screen.

Fig. 1: Log filter

- **Suggested full scale change**: allows the full scale of the Y axis to be changed. The value is updated when changing the selected components and/or events or the other options. It also provides useful information when showing that there is a user with that scale.

- **Group by**: groups the logs in different ways
    - Hours
    - Days
    - Days of the week
    - Weeks
    - Months
    - All

- **Start reference date**: the reference start date shown when grouping. It initially takes the value of the subject configuration in Moodle.

- **End reference date**: the reference end date shown when grouping. Initially it takes as end date the minimum of the current date and the end date of the course if it exists.

Note that the start and end reference date are not taken into account when making groupings. For example, when grouping by months and an initial date of 06/17/2019 to 06/24/2019, it will not show the logs between those two days, but will show all those of June.

In the groupings by **Hours** and **Days of the week** they do not use the date selector, being calculated on the total of logs, therefore they are disabled.

In the charts, when you click on the points or elements of a specific student, it is positioned in the view of the corresponding user, to facilitate their identification. The student's file is available to consult additional information.

In the lower left area, the possible tabs for selecting elements on which to generate the charts are shown: **Components**, **Events**, **Sections** or **Course Modules**. Multiple selection is allowed on all of them and filtering by text.

6.2 Components

It lists the course logs according to the type of **Component**. Includes typical Moodle activities and resources, and additionally any generated by the particular activity on the course. Only components that have been generated by users enrolled in the current course are displayed.
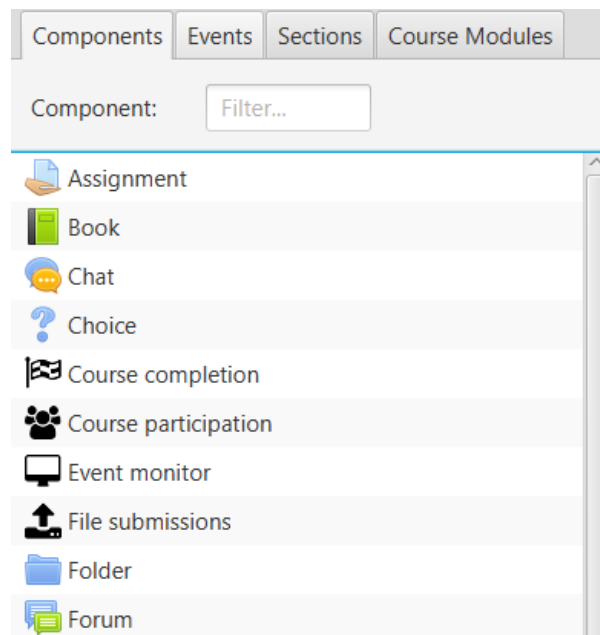

Fig. 2: List of components

6.3 Events

It lists the course logs according to the **Component and Event** that it is. Only components and events generated by current users enrolled in the course are displayed. It basically breaks down the types of events that occur on the components.
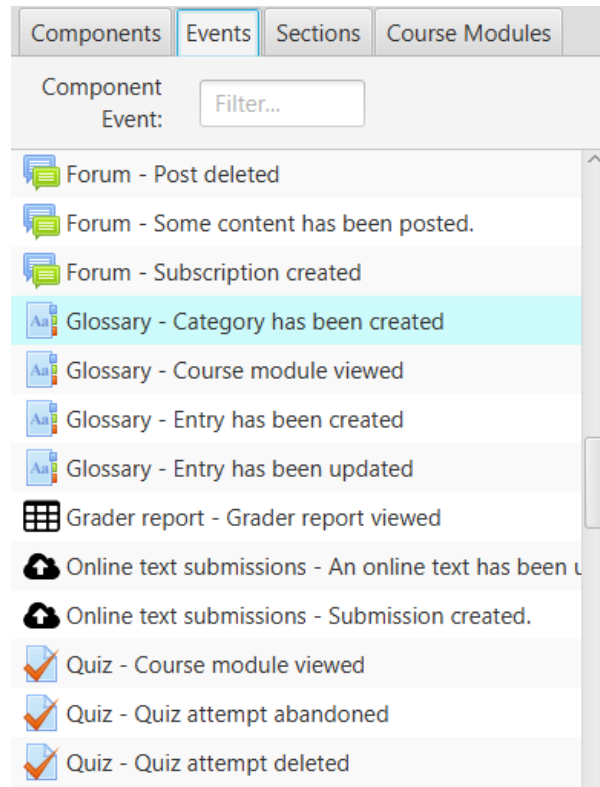
Fig. 3: List of events

6.4 Sections

It shows the structure of sections in which the course is organized, in the same order as they are in the course. In practice, they usually correspond to topics or weeks. Initially only the visible sections are shown but by selecting **With hidden**, all are shown.

6.5 Course module

It shows the complete set of course modules, including all the resources and activities that have been created. They are displayed in the order in which they are found in the course. Initially only the visible modules are shown but by selecting **With hidden**, all are shown. It is also possible to filter only those modules that have active completion tracking, by checking the **Act.Complet** box. Filtering with multiple selection is allowed, according to the module type.

6.6 Stacked bar chart

Displays in stacked bars the number of logs for each of the selected users. Different colors are used for each of the elements. The lines indicating the average value of the currently filtered users are also stacked.

If the cursor is placed on a stacked bar, the identity of the student and the breakdown of values is displayed in a *tooltip*.

Setting the maximum value to **Change suggested maximum scale:** recalculates and sets the maximum on the Y-axis.
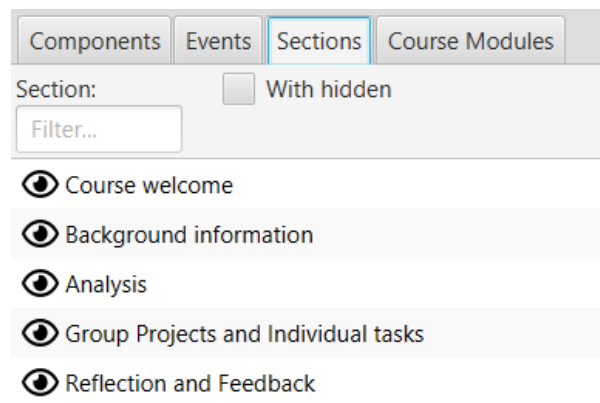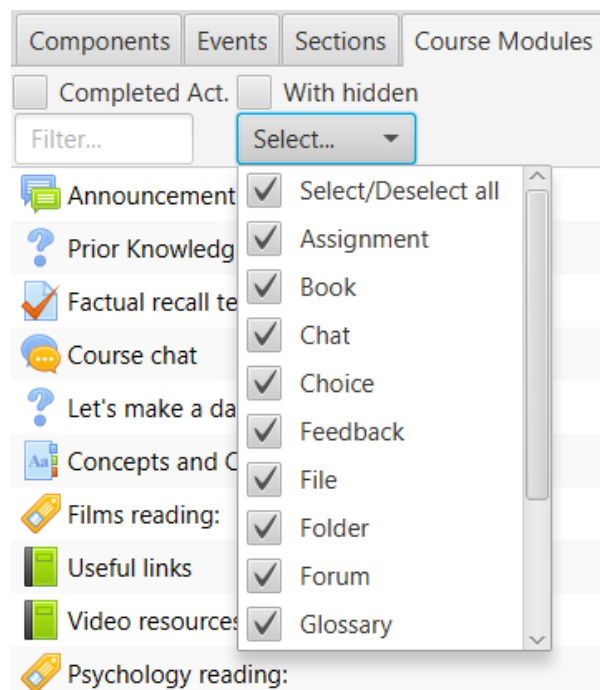
Fig. 4: List of sections

Fig. 5: List of modules

Fig. 6: Stacked bar chart

6.7 HeatMap chart

Displays a heatmap for selected users The heatmap colours from red to green, from lower to higher intensity, in relation to the number of user accesses to the selected items and to the filter selection in the lower zone.

Fig. 7: HeatMap chart

If we click on the upper legend in a range, for example on the zero value, those values in that range are highlighted in the graph, making it easier, for example, to detect students at risk of dropping out or in other situations.

Setting the maximum value to **Change suggested maximum scale:** recalculates and adjusts the color palette.

Fig. 8: HeatMap chart highliting selected threshold

6.8 Cumulative chart

Displays the accumulated value of the number of logs, over time. The average value is included for comparison with a dashed line. It allows to show the evolution along the course of the number of accesses by each student and to compare it with the rest.
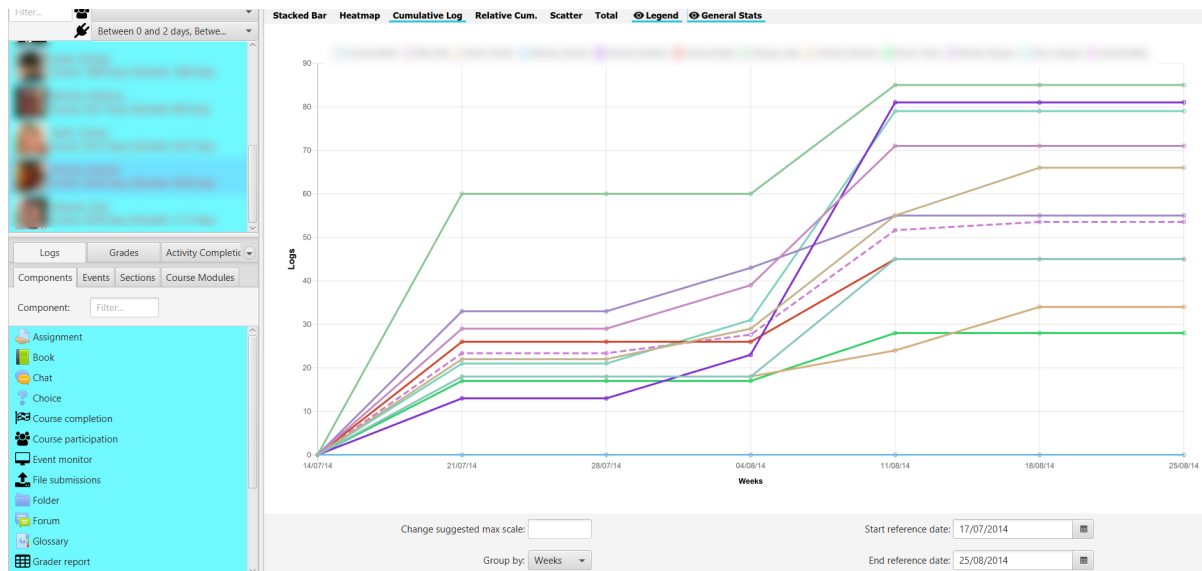

Fig. 9: Cumulative Chart

6.9 Rel. Cumulative chart

Displays the cumulative value of the number of logs against the average value as a reference, over time. The measurement as a reference line always corresponds to the red dashed line at the zero point. It allows you to show the

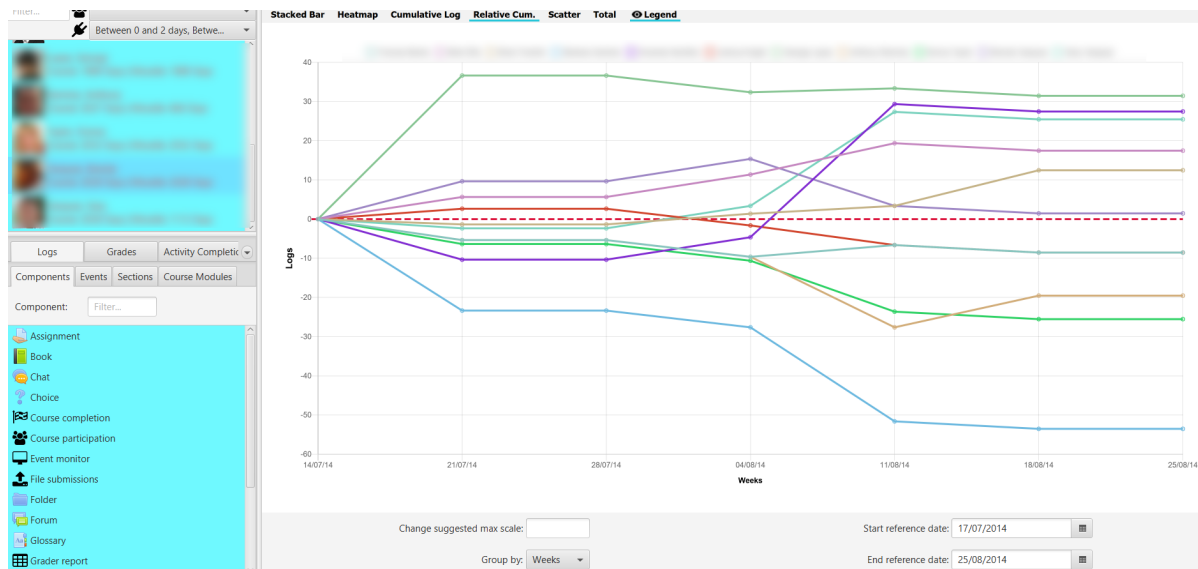evolution relative to the average over the course of time.

Fig. 10: Rel. Cumulative Chart related to the mean value

6.10 Scatter chart

Displays the time distribution of logs over time for each selected user. It represents the temporal distribution of the different accesses at a glance, making it easier to compare them.
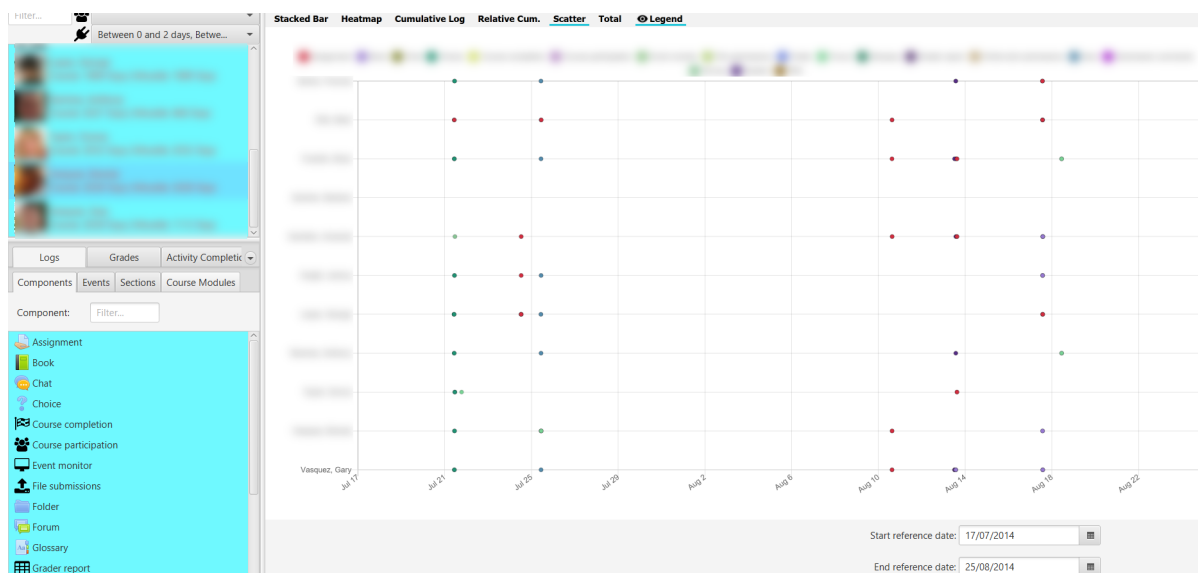

Fig. 11: Scatter chart

6.11 Total chart

Displays the total number of filtered user records in a time period for the selected items. It allows the comparison of accesses between elements in a direct way.

Fig. 12: Total chart

If we select groups, their totals are shown, taking into account the filter by role. Additionally you can select users from the list of filters, to display the totals on that dummy group.

Grade visualization

In the lower left corner, on the **Ratings** tab, the gradebook's hierarchy is displayed along with its filters. The view allows for multiple selection. You can expand and enlarge this area at any time to better see the names of the grading elements.
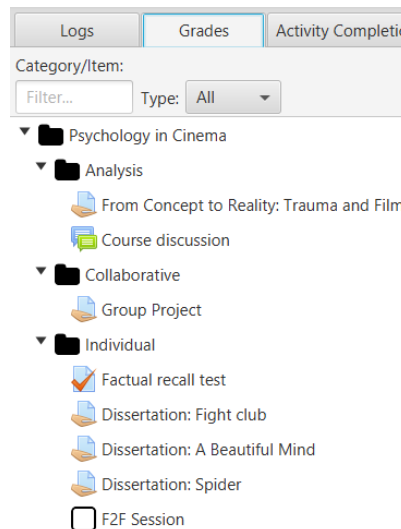

Fig. 1: Visualization of grades

The view shows the equivalent of the gradebook in Moodle. There are two types of filters that are used together:

- **Text field**: by grade item name.

- **Type selector**: by assessment element type (e.g. forum, assignment, quiz, etc.)

Once the **Grades** tab is selected, the chart area is loaded in the main central area of the application. At the top there are buttons to select the type of chart to be shown and to hide/show the legend, general statistics and group statistics. Depending on the selected chart, this display of legend, general and group statistics is enabled or disabled.
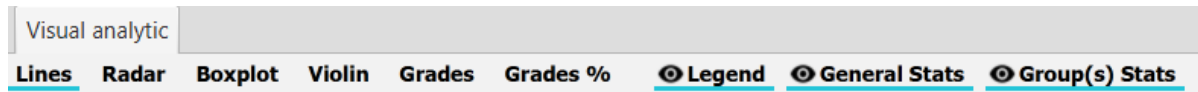
Fig. 2: Grade toolbar

It must be taken into account that **non-rated items** (rated "-") **do not count** for the calculation of averages, neither in the generation of boxplot or violin-type charts.

It should also be noted that in the chart, when clicking on the points or elements of a **particular student** on the chart or table, it is positioned in the corresponding user list, to facilitate their identification.

7.1 Line chart

Displays a line chart representing student grades, rescaled to the range [0, 10], for each element of the selected gradebook. The average value is also shown as a reference.
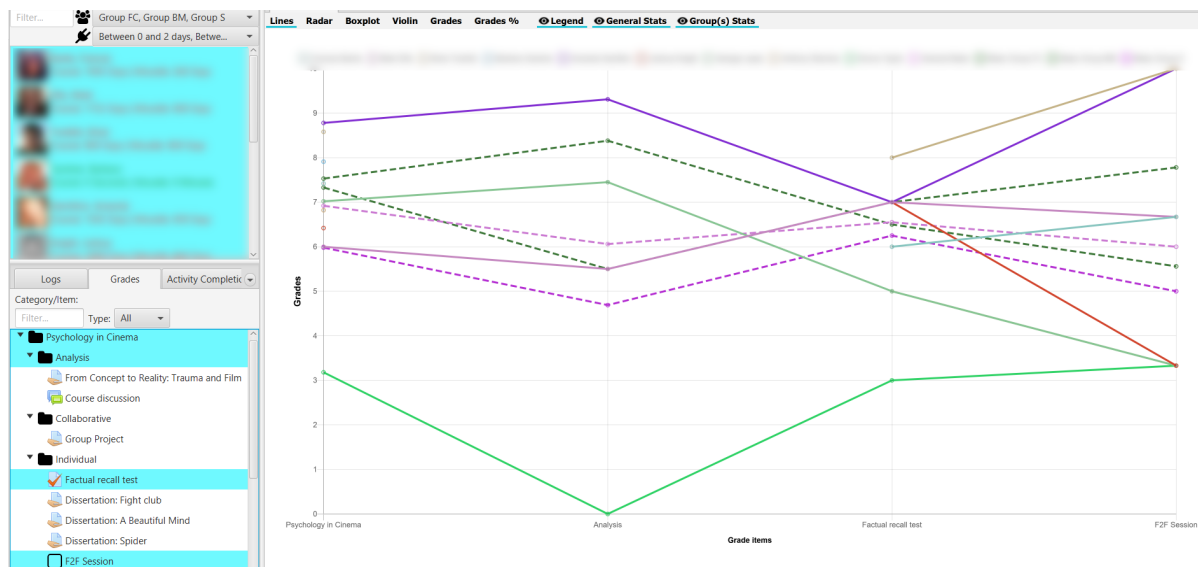

Fig. 3: Line chart

7.2 Radar chart

Radar chart or also known as spider diagram or Kiviat. Very useful to compare two or more course participants, on the different axes corresponding to items or categories of gradebook.

7.3 Boxplot chart

Displays information from a boxplot or box-and-whisker diagram with the students' grades. In this chart, we can see the maximums, minimums, the median, first and third quartiles, and *ouliers* (as thicker points) if they exist.

Additionally, if we select groups, their corresponding bloxplot is added to the chart. The same with the selected group of students.
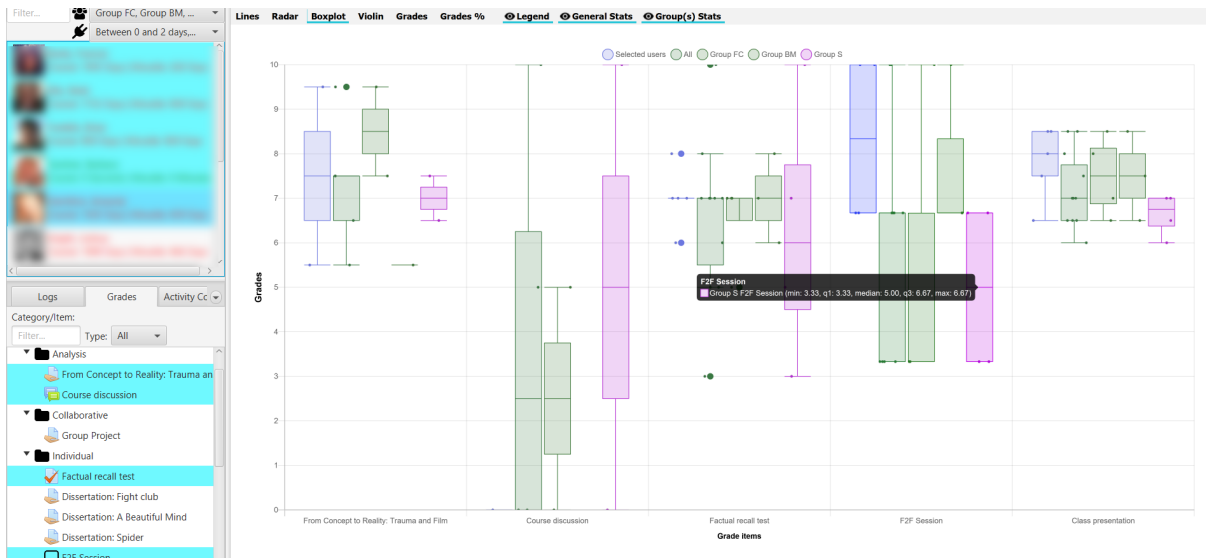
Fig. 4: Radar chart

Fig. 5: Boxplot chart

7.4 Violin chart

Displays a violin chart for the grades of all students and the selected student body, if any.

Fig. 6: Violin chart

Additionally, if the students have been filtered by group, it also shows the violin chart for that group. The violin chart shows the median as a larger diamond.

7.5 Grade table

It shows a table with the grades, as well as the overall average and the average of each of the course groups. The table can be sorted alphabetically or numerically, in ascending or descending order, by clicking alternatively on the column title.

The data is presented scaled in the range [0, 10] with a horizontal bar proportional to the grade. The cut-off mark is taken as 5, showing in red those values that do not reach that mark, and in green those values that are equal or higher (the cut-off mark can be changed, see Sec *Application settings* in the section **General**).

The data are presented in two blocks of students and statistics, which can be contracted or expanded.

7.6 Percentage chart

Displays a stacked bar chart with the percentage of selected students who are not graded (*N.C*), fail (*Suspended*), or pass (*Failed*) each of the selected grading items.

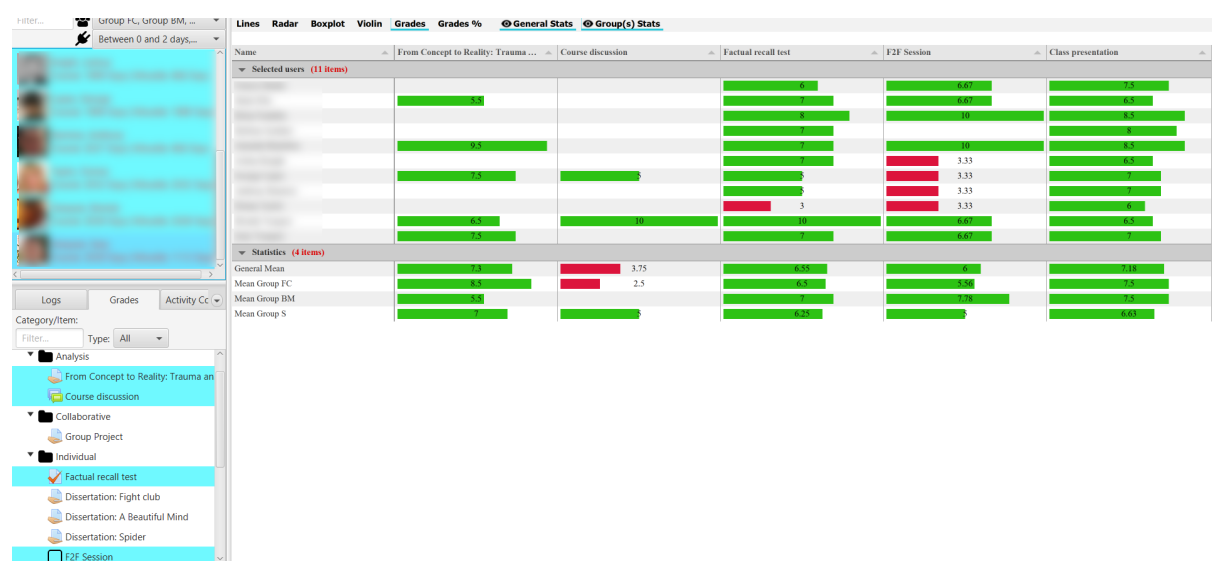The cut-off note can be changed, see Sec *Application settings* in the **General** section.
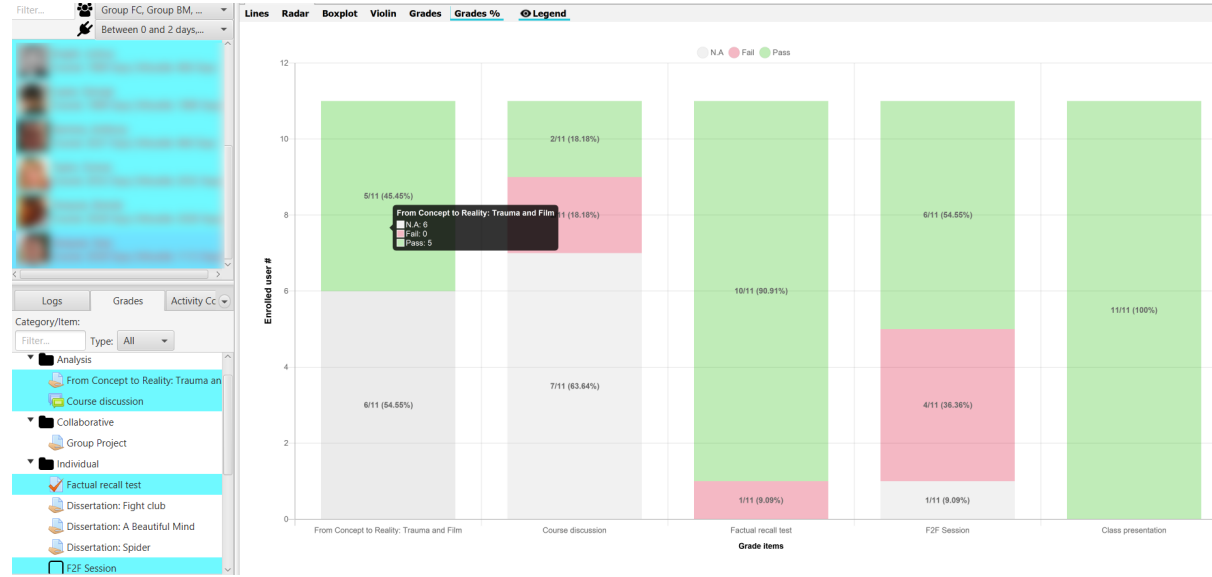
Fig. 7: Grade table with group and general means

Fig. 8: Percentages on each grade item

Activity completion visualization

The activity completion shows the current status of each activity, on which tracking has been activated.

For each activity its status is shown, with a green stick if it is completed, with a red cross if it has been done, but not exceeded, and in blank if it has not been done. If we position the cursor in any of the boxes, a *tooltip* shows the date and time of completion.
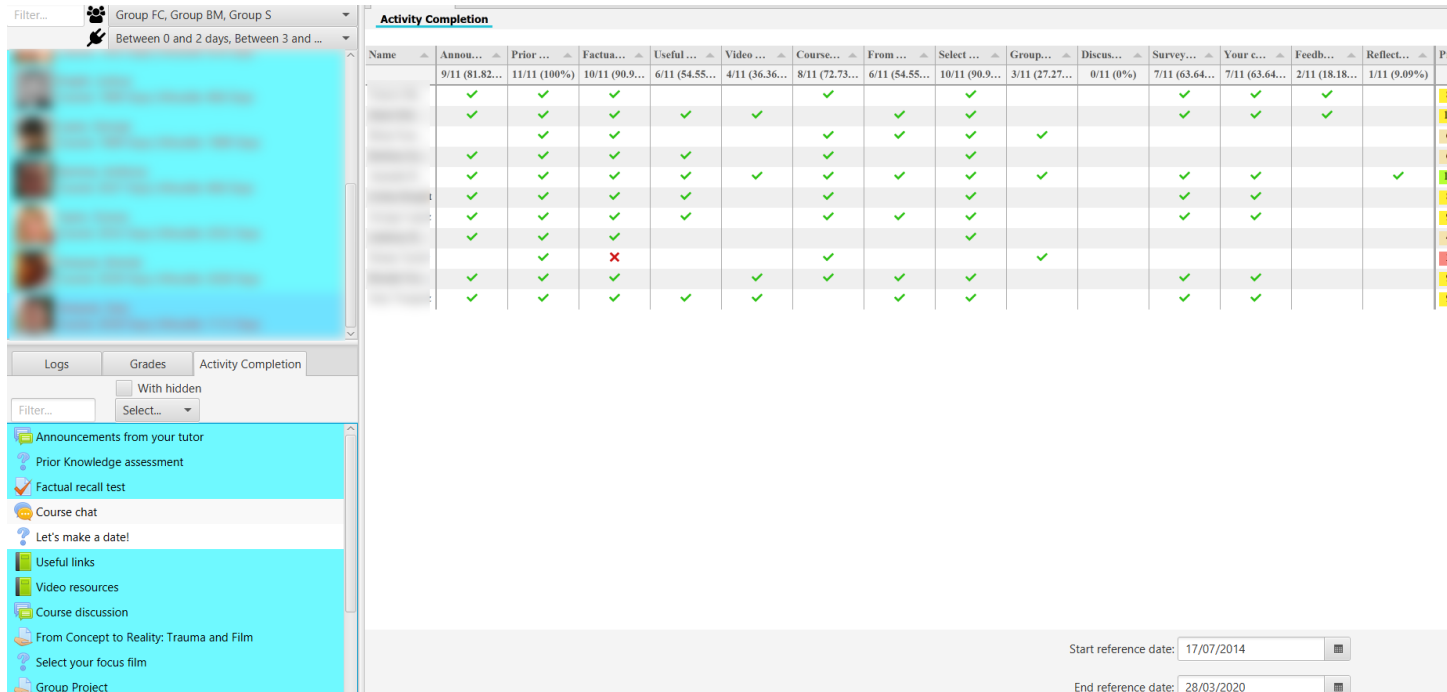

Fig. 1: Activity completion table

The last column shows the progress of the number of activities for each user, with the number completed of the total and the percentage. The progress bar is coloured according to the percentage (i.e. in the default setting you have red <

25%, salmon between [26%, 50%], yellow between [50%, 75%], light green between [75%, 99%] and dark green for 100%).

In the header of each column the number of users who have completed the activity and the percentage of the total number of users are shown.

You can apply the filter by date to display only the completion of activities within the marked range, allowing you to view the specific snapshot, at a particular moment in time.

It allows the alphabetical, temporal or numerical sorting according to the name column, item or percentage respectively.

VERY IMPORTANT: to display this table it is necessary to activate in Moodle, in **Edit settings** of the course, in the section **Completion tracking**, the option **Enable completion tracking**. Once you have made this change, it is recommended that you adjust the **Completion Tracking** option for each activity and resource, if you want to collect and display the tracking data.

Application settings

In the **Tools** menu, the advanced option **Change configuration** is available. This option allows you to customize the initial default values in some displays for the current subject (each subject can have its own settings).

The configuration modal dialog enables text search. The changes are saved when the dialog is closed. If the initial values are to be restored, the **Restore Defaults** button must be selected.

The dialog shows the following sections:

9.1 General

- File encoding: character set to be used in the export of the generated CSV files.

- Cut-off mark: minimum mark that marks the qualification items or not.

- Line width

- Line spacing

- Chart legend

- General statistics

- Group statistics

- Initial Roles: Selection of roles that are initially marked in the filter by roles.

- Initial groups: selection of groups that are initially marked in the group filter

- Last connections: selection of last connection that is initially marked in the filter.

- Default time unit

- Y-axis title

- X-axis title

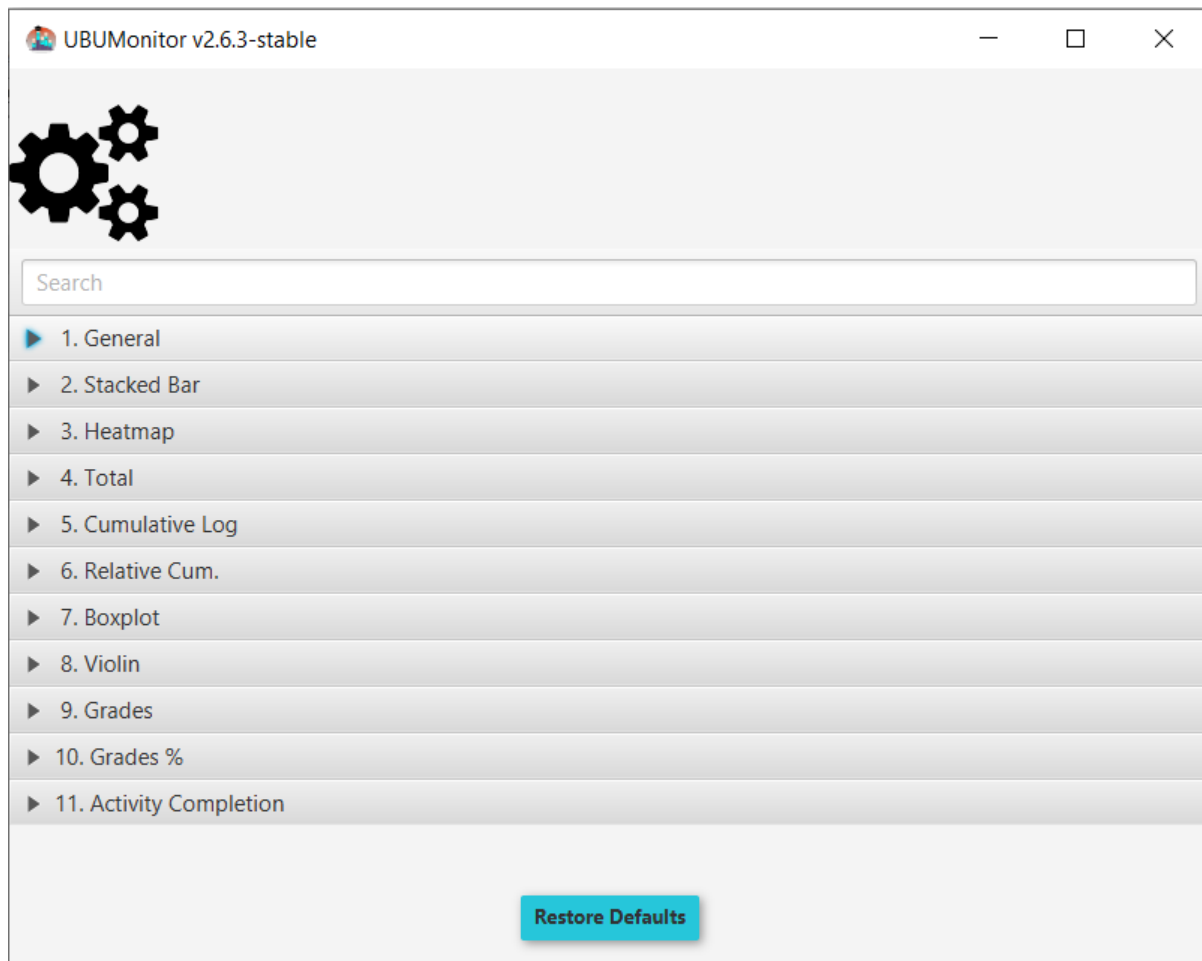- Y-axis font color

- X-axis font color

Fig. 1: Settings

Fig. 2: General settings

9.2 Stacked bars

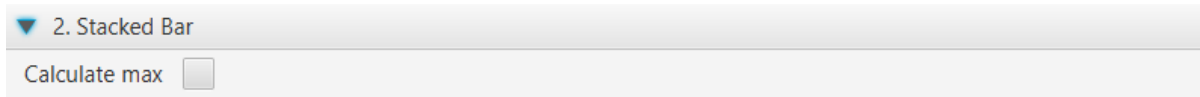- Calculate maximum: activates automatic calculation.

Fig. 3: Stacked bars

9.3 Heatmap

- Calculate maximum: activates automatic calculation.
- With quartiles: calculates the ranges from the quartiles of the current sample, instead of dividing the range into four equal parts.
- Zero value
- First interval
- Second interval
- Third interval
- Fourth interval
- Maximum

Fig. 4: Heatmap

9.4 Total

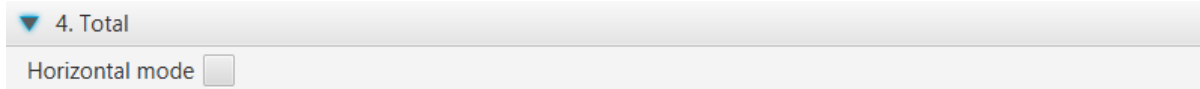- Horizontal mode: changes the display of the bars to horizontal mode.

Fig. 5: Total

9.5 Cumulative

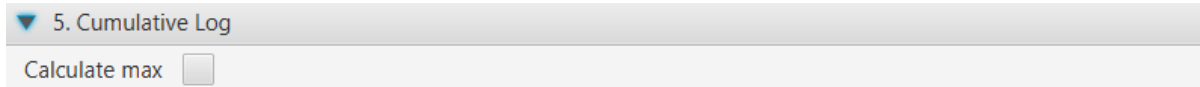- Calculate maximum: activates automatic calculation.

Fig. 6: Cumulative

9.6 Rel. Cumulatives

- Calculate maximum: activates automatic calculation.
- Zero line color: color applied to the line representing the average
- Zero line width

Fig. 7: Rel. Cumulative

9.7 Boxplot

- Horizontal mode: changes the display of the boxplot to horizontal mode.
- Decimal information: number of decimals to be displayed in the *tooltips* with the statistical data.

9.8 Violin

- Horizontal mode: changes the display of the violin to horizontal mode.
- Decimal information: number of decimals to be displayed in the *tooltips* with the statistical data.

9.9 Grades

- Fail grade color: taking into account the cut-off grade set in the General section.

Fig. 8: Boxplot

Fig. 9: Violin

- Passed grade color: taking into account the cut-off grade set in the General section.

Fig. 10: Grades

9.10 Grades %

- Empty rating color
- Fail grade color: taking into account the cut-off grade set in the General section.
- Passed grade color: taking into account the cut-off grade set in the General section.

9.11 Activity Completion

Set the colors for the different intervals of the progress bar.

Fig. 11: Grades %

Fig. 12: Activity Completion

Error Messages

The application will display the various error messages, with two basic display formats: window embedded message or modal error dialog.

10.1 Message on window

They are displayed in red at the bottom of the active window. They are caused by incorrect data entry. The figure shows the error when logging in with an incorrect user and/or password.
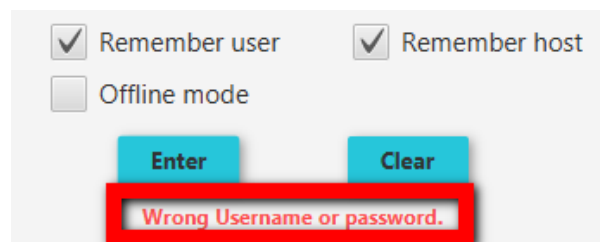

Fig. 1: User validation error

Another example, in the following figure, shows the corresponding message if there is no network connection, informing that the connection to the indicated host is not possible.
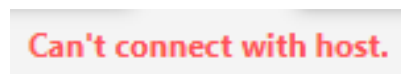

Fig. 2: Login network error connection

10.2 Error dialog

A modal dialog is opened with a text describing the error and the option to display **Show details**. In the following figure we see an example of an error when losing the network connection when loading a course.
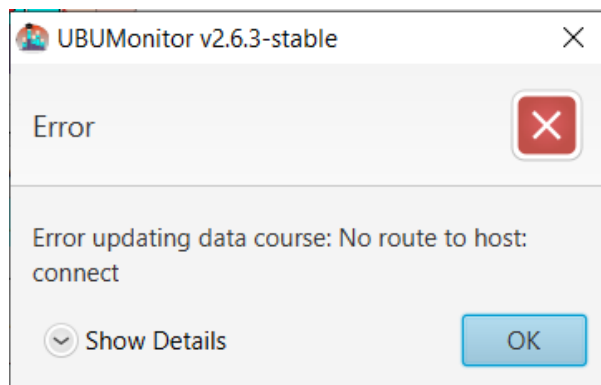

Fig. 3: Network connection error loading course/subject

If we select the option **Show details**, a text box opens at the bottom of the dialog, with the trace of the error.

Fig. 4: Details of the error in connection with the loading of the course

The information shown in the text box is technical, and although it is not of interest to the user, it is **Very IMPOR-TANT** to forward that text to the developers for the correction of errors or bugs in the application (you can select and copy the text directly).

10.3 Usual errors

Without teacher's role

A common mistake is not having teacher (or non-editor) permissions for a course or community in which you are enrolled. In such cases a message like the following will be displayed:

Incompatible cache version

If we try to load a cache assignment, whose data file was generated with a different version of UBUMonitor, an error may occur as it is incompatible with the current version. In such cases, the cache must be cleared (**Clear** button) and the data downloaded again.
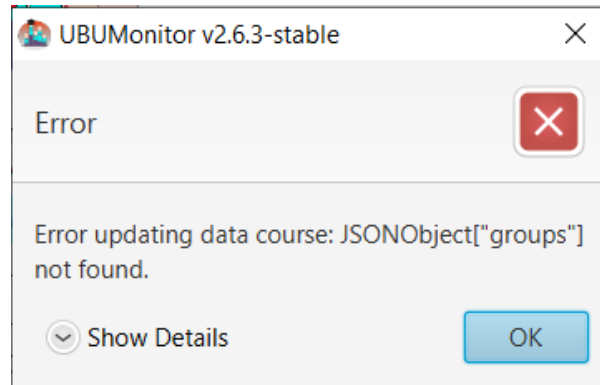
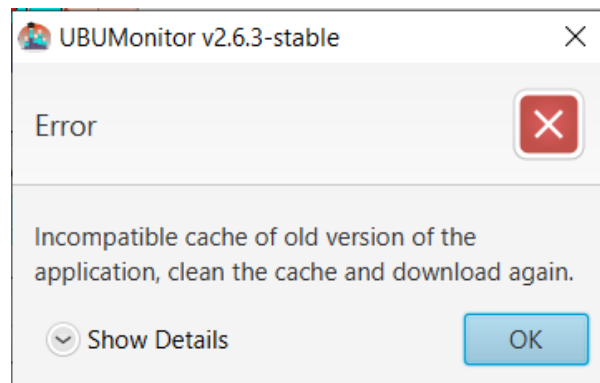Fig. 5: Error when loading a subject without a teacher's role

Fig. 6: Error when loading a subject from the cache with an incompatible version

CHAPTER 11

Appendix. File structure

Below is the typical file structure of UBUMonitor.

11.1 Initial Content

If the portable version is installed, unzipping creates a directory:

- `UBUMonitor.v2.6.3-stable-Win64-Portable` on Windows 64 bits.

- `UBUMonitor.v2.6.3-stable-Win32-Portable` on 32-bit Windows.

- `UBUMonitor.v2.6.3-stable-Linux64-Portable` on GNU/Linux 64-bit.

In the directory created, we will have the following content in Windows (32-bit content is equivalent):
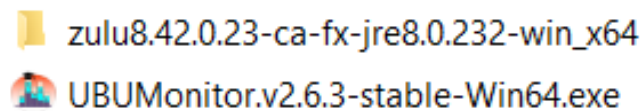

Fig. 1: Content in a portable Windows installation (for 64-bit)

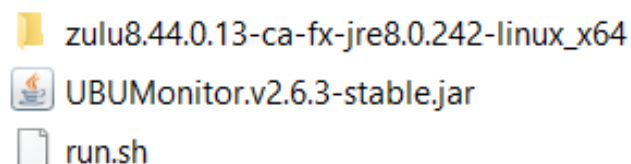While in GNU/Linux we will have the following content:

Fig. 2: Content in a portable installation on GNU/Linux (for 64 bits)

If the Java executable version is installed with `.jar` we will have the following content:
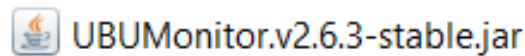

Fig. 3: Content in the installation with Java .jar executable

11.2 File and directory structure

After starting the application, downloading some courses and changing the default configuration, we will find the following directories and additional files (e.g. in Windows).
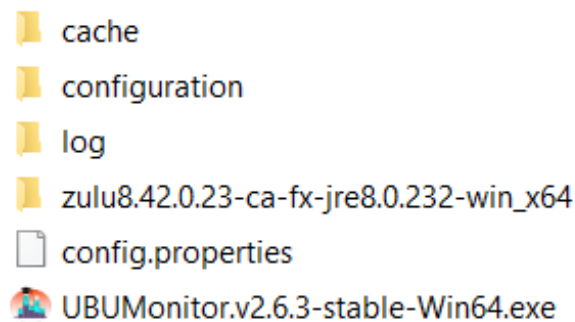

Fig. 4: File structure

The `config.properties` file stores user-customized startup options (e.g. *Remember user*, *Remember host*, etc.)

On the other hand, the following directories are created:

- *cache*: contains the local cache of the files with the data of the downloaded courses.

- *configuration*: stores the application configuration for the host, user and particular subject.

- *log*: directory where are generated the log files of the application. These files contain the execution and error logs that occur internally in the application. They are useful to forward them to the developers to correct possible errors or *bugs* that occur in the application.

The `cache` directory is organized on a first level by *host* and on a second level by user. In this directory one file is stored for each downloaded subject (e.g. *Psychology in Cinema (Art and Media)-62*). The `configuration` directory is organized in the same way.

This directory structure allows access to different Moodle servers from UBUMonitor, avoiding collisions in the case of matching user or course names.

VERY IMPORTANT: Portable versions include a directory with its own JRE distribution (e.g. `zulu8.42.0.23-ca-fx-jre8.0.232-win_x64`, `zulu8.44.0.13-ca-fx-jre8.0.242-linux_x64`, etc.) This directory **must not be changed**.

Frequently Asked Questions

Can I accidentally change or delete data in my courses when using UBUMonitor?

No. This application only reads data from the server and **does NOT modify any data**, therefore there is NO risk in using it.

Can I run UBUMonitor without a network connection?

Yes, from version *2.6.1-stable* it is allowed to work in offline mode with previously loaded subjects.

Can I have several versions of UBUMonitor installed on the same computer?

Yes, you can have as many installations as you want, since each one goes in its own directory, without affecting the other versions.

Can I delete the data cache?

Yes, you can delete the cache directory manually from the operating system or by using the "Clean" button available in the course selection window.

How can I uninstall UBUMonitor?

Simply by deleting the directory where the application is installed. Note that this deletes ALL local files and downloaded data, but has no effect on the original data on the server.

Are we using any data that we should not legally have access to in Moodle?

No. UBUMonitor only reads data that the current user has permission to read. All data used is the same as that available in Moodle. UBUMonitor simply extracts, cleans and sorts that data to make it easier to filter and improve its display.

If I run UBUMonitor on a third party computer, should I uninstall the application when I am done?

This is only necessary if you have used the **export** options. If you export graphics in `.png` format or data in `.csv` format you should be aware that this data is **NOT encrypted**. In this case, it is advisable to delete those files that have been exported.

Can I run UBUMonitor from a USB stick?

Yes, as long as you use a portable version, or you have Java 8 installed with JavaFX on the computer where the USB stick is connected.

With some subjects an error is generated when loading the data.

If we don't have a teacher role, we won't have enough permissions to read the data and UBUMonitor generates an error. Check that you really are a teacher of that course.

The application works, but it doesn't scale and resize the charts correctly, why?

Check that the application is running with a **Java 8 version that includes the JavaFX libraries**. To check the current version, you can open an operating system console and execute $> java -version. The current number of installed version will be shown. With higher versions (e.g. Java 11 or higher) it has been detected that the graph display is not correct. Remember that the free versions (e.g. OpenJDK) will not work either because they do not include JavaFX.