



Moodle 4.0 course creation

Moodle Moot It 2021

02 12 2021

The long road to 4.0

- **August 2020** Moodle 4.0 as a 18 month release is announced
- **March 2021** the first 4.0 commit was integrated
- **October 2021** code freeze for Moodle 4.0
- **~January 2022** estimated release date of Moodle 4.0

Moodle HQ 4.0 projects

- Moodle HQ projects for Moodle 4.0 are divided in 3 main projects:
 - Navigation
 - **Course creation** (this session is about this project 😊)
 - Student experience
- Plus the integration of the report builder thanks to the Moodle Workplace Team (next session 😊)



- Course navigation
- Activities card design
- Collapsible sections
- Course index
- Blocks drawer
- Drag & Drop
- Add sections
- Move modal
- Completion icons
- Accessibility

Demo time!

**Because nothing can go wrong with an
old-fashioned live demo**



Course Index Drawer

My courses / Topics format

Topics format



Editing mode



Blocks drawer

Course Settings Participants Grades Reports More ▾

Collapsible sections (saved as user preference)



General

Collapse all

New activity display



FILE
Small files

✓ Done



FORUM
Forum

Mark as done

Hidden from students



Add an activity or resource



Add topic after



Topic 1





- General
 - Small files
 - Forum
- Topic 1
 - Page 21
 - Page 32
 - Page 20
 - Page 26
 - Page 28
 - Page 5
 - Page 48
- Topic 2
 - Assignment 3
 - Assignment 7
 - Assignment 10
 - Page 4

Activities with completion status and restrictions indicators

Section collapsible (stored as a user preference)

My courses / Topics format

Topics format

Course Settings Participants Grades Reports More

General Collapse all

FILE Small files Done

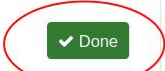
FORUM Forum Mark as done

Hidden from students

Topic 1

PAGE Page 21 Done

New manual completion button display



Calendar

December 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Full calendar
Import or export calendars

Activities

- Assignments
- Forums
- Resources

- ✕
- ▼ General
 - Small files
 - Forum
- ▼ Topic 1
 - Page 21
 - Page 32
 - Page 20
 - Page 26 🔒
 - Page 28 🔒
 - Page 5
 - Page 48 +
- ▼ Topic 2
 - Assignment 3
 - Assignment 7
 - Assignment 10
 - Page 4

FILE Small files Done

FORUM Forum Mark as done

Hidden from students

+ Add an activity or resource

+ Add topic after

▼ Topic 1

PAGE Page 21 Done

Page 48 +

PAGE Page 32 Mark as done

PAGE Page 20

Elements draggable between the course content and the course index, and viceversa.

Calendar

December 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
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Full calendar
Import or export calendars

Activities

- Assignments
- Forums
- Resources



General

Small files

Forum

Topic 1

Page 21

Page 48

Page 32

Page 20

Page 26

Page 28

Page 5

Topic 2

Assignment 3

Assignment 7

Assignment 10



FILE
Small file



FORUM
Forum



Add an activity



Add topic after



Topic 1



PAGE
Page 21



PAGE
Page 48



PAGE
Page 32

Move resource



Move Page 48 to this location:

▶ General

▼ Topic 1

Page 21

Page 48

Page 32

Page 20

Page 26

Page 28

Page 5

▶ Topic 2

▶ Topic 3

▶ Topic 4

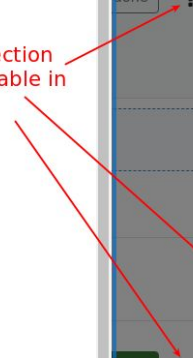
▶ Topic 5

▶ Named

▶ Topic 7

▶ Topic 8

Move activity/section
new modal available in
the tools menu



Calendar



December 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

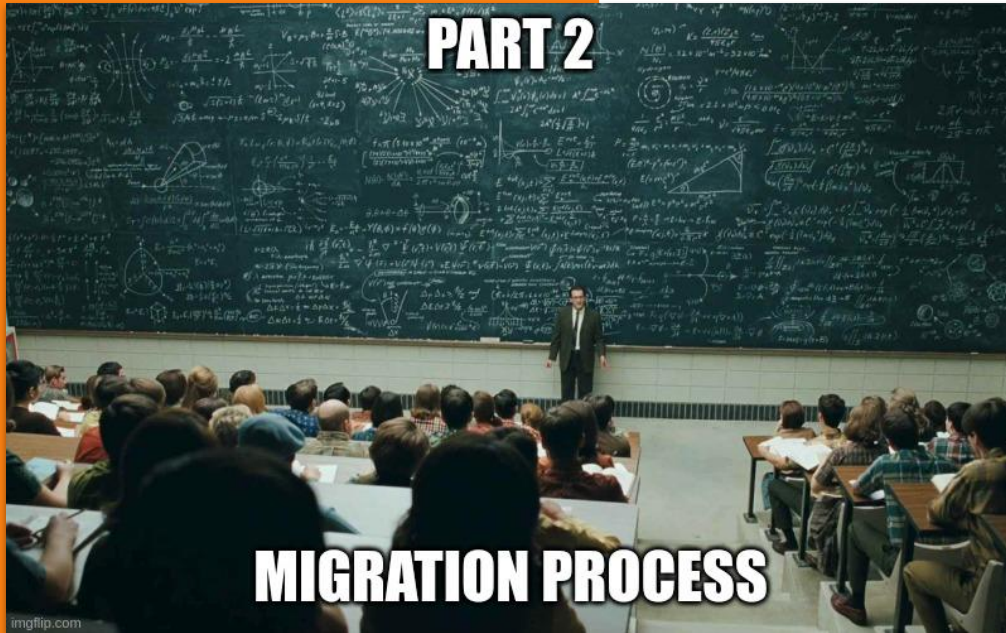
Full calendar
Import or export calendars

Activities



- Assignments
- Forums
- Resources





- Courseformat subsystem
- Output classes
- Format renderer
- Base class
- HTML data attributes

Demo time!

**What happens when you use a Moodle
3.x course format in Moodle 4.0**

3.11 formats will use the previous course editor until 4.3

However, they won't have some of the 4.0 new features:

- Course index
- New drag and drop
- Move modal
- Add sections without reloading

The screenshot shows the Moodle course editor interface for a course titled "Moot It 2021". The navigation menu includes "Home", "Dashboard", "My courses", and "Site administration". The current page is "My courses / Collapsed Topics Format". The main heading is "Collapsed Topics Format" with a settings gear icon. Below the heading are tabs for "Course", "Settings", "Participants", "Grades", "Reports", and "More". The course content area shows two arrays: "Small files Array" and "Forum Array". Below these are controls for "Open all" and "Close all" sections. A list of six sections is displayed, each with a play button icon, a section name, and a "Toggle" label. The sections are: "Section 1 - Toggle", "Section 2 - Toggle", "Section 3 - Toggle", "Section 4 - Toggle", "Section 5 - Toggle", and "Section 6 - Toggle". A "Your progress" indicator is visible in the top right of the content area. On the right side of the page, there is a calendar widget for December 2021, showing the current date as the 14th. The calendar includes options for "Full calendar" and "Import or export calendars". A help icon (?) is located at the bottom right of the calendar widget.

Collapsed Topics Format



Enabling debug on a 3.11 format will guide you through all the deprecated methods.

Take in mind that those methods will be removed in Moodle 4.3

Course Settings Participants Grades Reports More ▾

The function `display_help_icon()` is deprecated, please do not use it anymore.

- line 338 of `/lib/completionlib.php`: call to `debugging()`
- line 808 of `/course/format/topcoll/renderer.php`: call to `completion_info->display_help_icon()`
- line 218 of `/course/format/topcoll/format.php`: call to `format_topcoll_renderer->print_multiple_section_page()`
- line 275 of `/course/view.php`: call to `require()`

String `[yourprogress.core_completion]` is deprecated. Either you should no longer be using that string, or the string has been incorrectly deprecated, in which case you should report this as a bug. Please refer to https://docs.moodle.org/dev/String_deprecation

- line 396 of `/lib/classes/string_manager_standard.php`: call to `debugging()`
- line 7323 of `/lib/moodlelib.php`: call to `core_string_manager_standard->get_string()`
- line 342 of `/lib/completionlib.php`: call to `get_string()`
- line 808 of `/course/format/topcoll/renderer.php`: call to `completion_info->display_help_icon()`
- line 218 of `/course/format/topcoll/format.php`: call to `format_topcoll_renderer->print_multiple_section_page()`
- line 275 of `/course/view.php`: call to `require()`

Non ajax course edition using `course_activity_clipboard` is not supported anymore.

Your progress ?

- line 634 of `/course/format/classes/output/section_renderer.php`: call to `debugging()`
- line 812 of `/course/format/topcoll/renderer.php`: call to `core_courseformatoutputsection_renderer->course_activity_clipboard()`
- line 218 of `/course/format/topcoll/format.php`: call to `format_topcoll_renderer->print_multiple_section_page()`
- line 275 of `/course/view.php`: call to `require()`

`section_availability()` is deprecated. Please use `core_course\output\section_format` to render sections. If you need to modify this element, extend `core_course\output\section_format\availability` in your format plugin.

- line 613 of `/course/format/classes/output/section_renderer.php`: call to `debugging()`
- line 523 of `/course/format/topcoll/renderer.php`: call to `core_courseformatoutputsection_renderer->section_availability()`
- line 825 of `/course/format/topcoll/renderer.php`: call to `format_topcoll_renderer->section_header()`
- line 218 of `/course/format/topcoll/format.php`: call to `format_topcoll_renderer->print_multiple_section_page()`
- line 275 of `/course/view.php`: call to `require()`

`section_availability_message()` is deprecated. Please use `core_course\output\section_format` to render sections. If you need to modify this element, extend `core_course\output\section_format\availability` in your format plugin.

- line 590 of `/course/format/classes/output/section_renderer.php`: call to `debugging()`
- line 617 of `/course/format/classes/output/section_renderer.php`: call to `core_courseformatoutputsection_renderer->section_availability_message()`
- line 523 of `/course/format/topcoll/renderer.php`: call to `core_courseformatoutputsection_renderer->section_availability()`
- line 825 of `/course/format/topcoll/renderer.php`: call to `format_topcoll_renderer->section_header()`
- line 218 of `/course/format/topcoll/format.php`: call to `format_topcoll_renderer->print_multiple_section_page()`
- line 275 of `/course/view.php`: call to `require()`

core_courseformat subsystem

- The course/format folder is now a subsystem containing:
 - course formattings and rendering methods
 - course tests
 - course format API

Related issues: MDL-71863 and MDL-72578.

Important: all deprecated renderer methods using html_writer will be removed for good in **Moodle 4.3**

Course format output classes

- Added **3 main renderer methods** (for full course, section and activity)
- The format **renderer class is now mandatory**
- 17 new output classes + mustache templates
- 33 deprecated methods from course_renderer and section_renderer (aka. `format_section_renderer_base` in Moodle 3.11)
- 13 new methods in `core_courseformat\base` class (aka. `format_base` in Moodle 3.11)

format_xxx\course_format extends core_coureformat\base

Method page_title is now part of course_format class

format_xxx\output\renderer.php extends core_courseformat\output\section_renderer (which extends course_renderer)

OVERRIDABLE RENDERER METHODS

render_content

To use a different main template for the course rendering

course_section_updated

Method used by ajax calls like "create section" to get the new section HTML

course_section_updated_cm_item

Method used by ajax calls like "duplicate activity" to get the new activity HTML

OVERRIDABLE TEMPLATABLES (OVERRIDABLE)

core_courseformat\output\local\content (\$format)

...\content\addsection

...\content\sectionnavigation

...\content\sectionselector

...\content\section (\$format, \$section)

...\content\section\availability

...\content\section\header

...\content\section\cmsummary

...\content\section\controlmenu

...\content\section\summary

...\content\section\cmitem

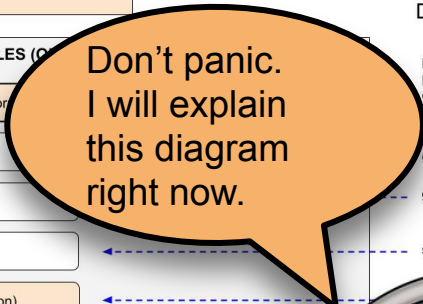
...\content\cm (\$format, \$section, \$cm)

...\content\cm\controlmenu

...\content\cm\availability

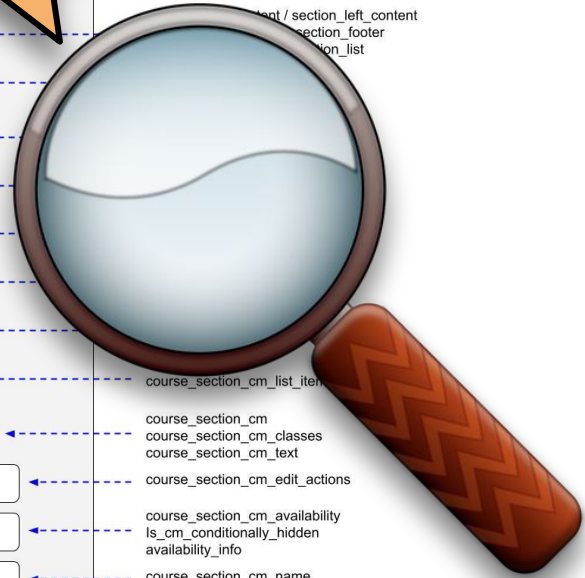
...\content\cm\cmname

...\content\cm\title



Deprecated render methods (33)

- print_single_section_page
- print_multiple_section_page
- course_activity_clipboard
- page_title
- change_number_sections
- get_nav_links
- section_nav_selection
- content / section_left_content
- section_footer
- section_list
- course_section_cm_list_item
- course_section_cm
- course_section_cm_classes
- course_section_cm_text
- course_section_cm_edit_actions
- course_section_cm_availability
- is_cm_conditionally_hidden
- availability_info
- course_section_cm_name
- core_course\output\course_module_name
- course_section_cm_name_title



`format_xxx\course_format` extends `core_coureformat\base`

Method `page_title` is now part of `course_format` class

`format_xxx/output/renderer.php` extends `core_courseformat/output/section_renderer` (which extends `course_renderer`)

Deprecated render methods (33)

OVERRIDABLE RENDERER METHODS

`render_content`

To use a different main template for the course rendering

`course_section_updated`

Method used by ajax calls like "create section" to get the new section HTML

`course_section_updated_cm_item`

Method used by ajax calls like "duplicate activity" to get the new activity HTML

OVERRIDABLE TEMPLATABLES (OUTPUT CLASS + MUSTACHE)

`core_courseformat\output\local\content` (\$format)

`...\content\addsection`

`...\content\sectionnavigation`

`...\content\sectionselector`

`...\content\section` (\$format, \$section)

`...\content\section\availability`

`...\content\section\header`

`...\content\section\cmsummary`

`...\content\section\controlmenu`

`...\content\section\summary`

`...\content\section\cm\list`

`...\content\section\cm\item`

`...\content\cm` (\$format, \$section, \$cm)

`...\content\cm\controlmenu`

`...\content\cm\availability`

`...\content\cm\cmname`

`...\content\cm\title`

`print_single_section_page`
`print_multiple_section_page`
`course_activity_clipboard`
`page_title`

`change_number_sections`

`get_nav_links`

`section_nav_selection`

`section_right_content / section_left_content`
`section_footer / stealth_section_footer`
`start_section_list / end_section_list`

`section_availability_message`
`section_availability`
`availability_info`

`section_header`
`stealth_section_header`

`section_activity_summary`

`section_edit_control_menu`
`section_edit_control_items`

`format_summary_text`
`section_summary`

`course_section_cm_list`

`course_section_cm_list_item`

`course_section_cm`
`course_section_cm_classes`
`course_section_cm_text`

`course_section_cm_edit_actions`

`course_section_cm_availability`
`is_cm_conditionally_hidden`
`availability_info`

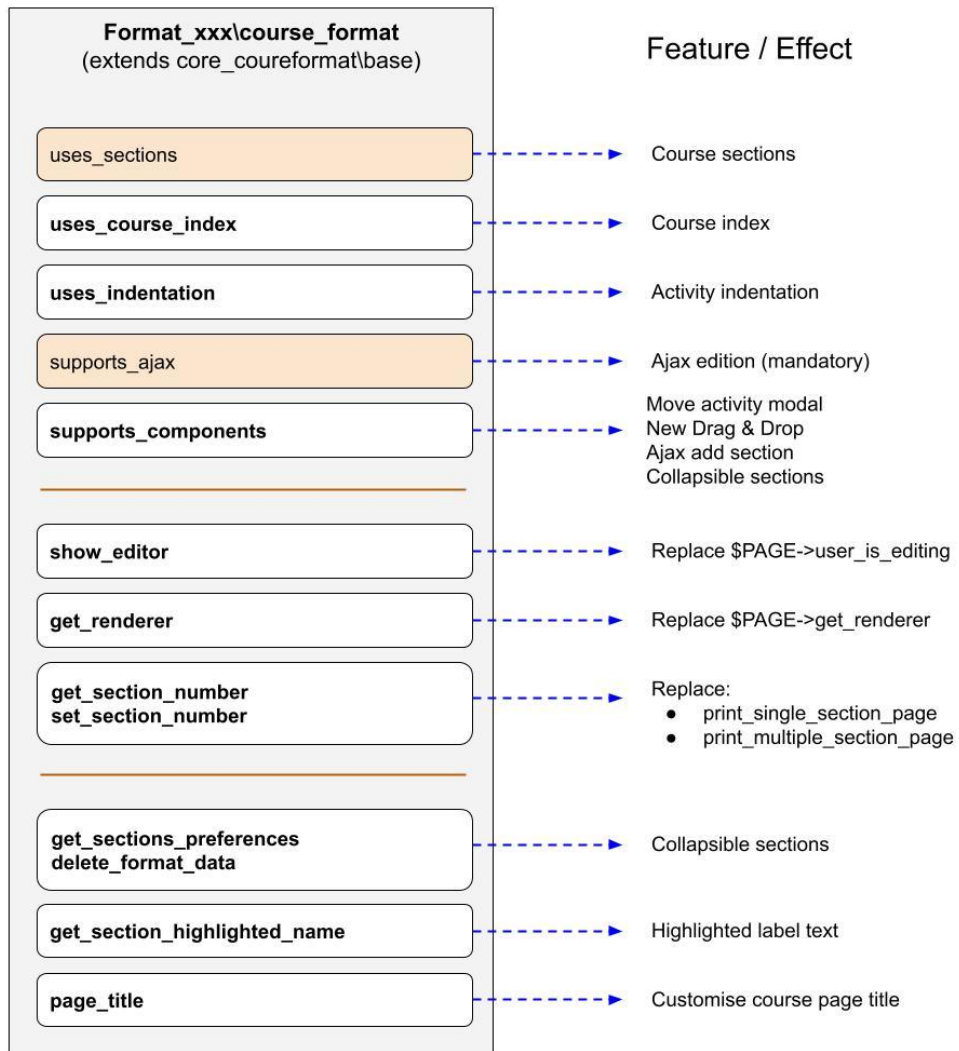
`course_section_cm_name`
`core_course\output\course_module_name`

`course_section_cm_name_title`

4.0 new features

Course index	Opt-in
Indentation (disabled in the standard formats)	Opt-out
New drag&drop	Opt-in
Move section/activity modal	Opt-in
Collapsible sections	Opt-out (overridable)
Activity card display	Opt-out (overridable)

4.0 Format base class methods



Course HTML structure

The new course UI components use **data attributes to identify elements** (instead of CSS classes and tag names):

- **Sections:** data-for="section" data-id="XXX" data-number="XXXX"
 - **Section title:** data-for="section_title" data-id="XXX" data-number="XXXX"
 - **Activity:** data-for="cm" data-id="XXX"

The previous CSS classes are still used for some legacy actions but it will be deprecated for good in Moodle 4.3

PART 3



- Reactive state
- State actions
- Components
- Mutations

Demo time!

**“Pay no attention to that man behind
the curtain”**

- L. Frank Baum (The Wizard of Oz)

Reactive state principles

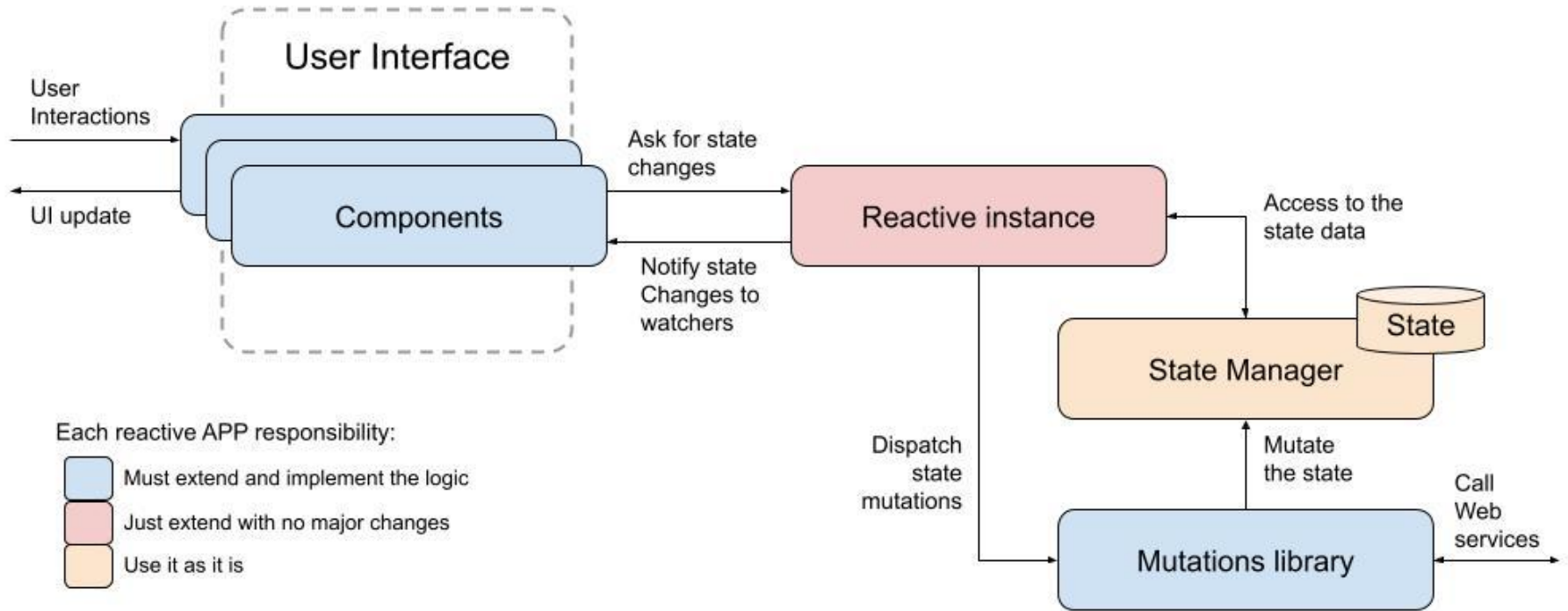
1. Each reactive element is controlled by its own **component** class
2. The UI is and **updated representation of a state data**
3. All user interactions can alter the state data **but never the HTML**
4. The new services are designed to alter the current state data, not the interface.

Module: core/reactive

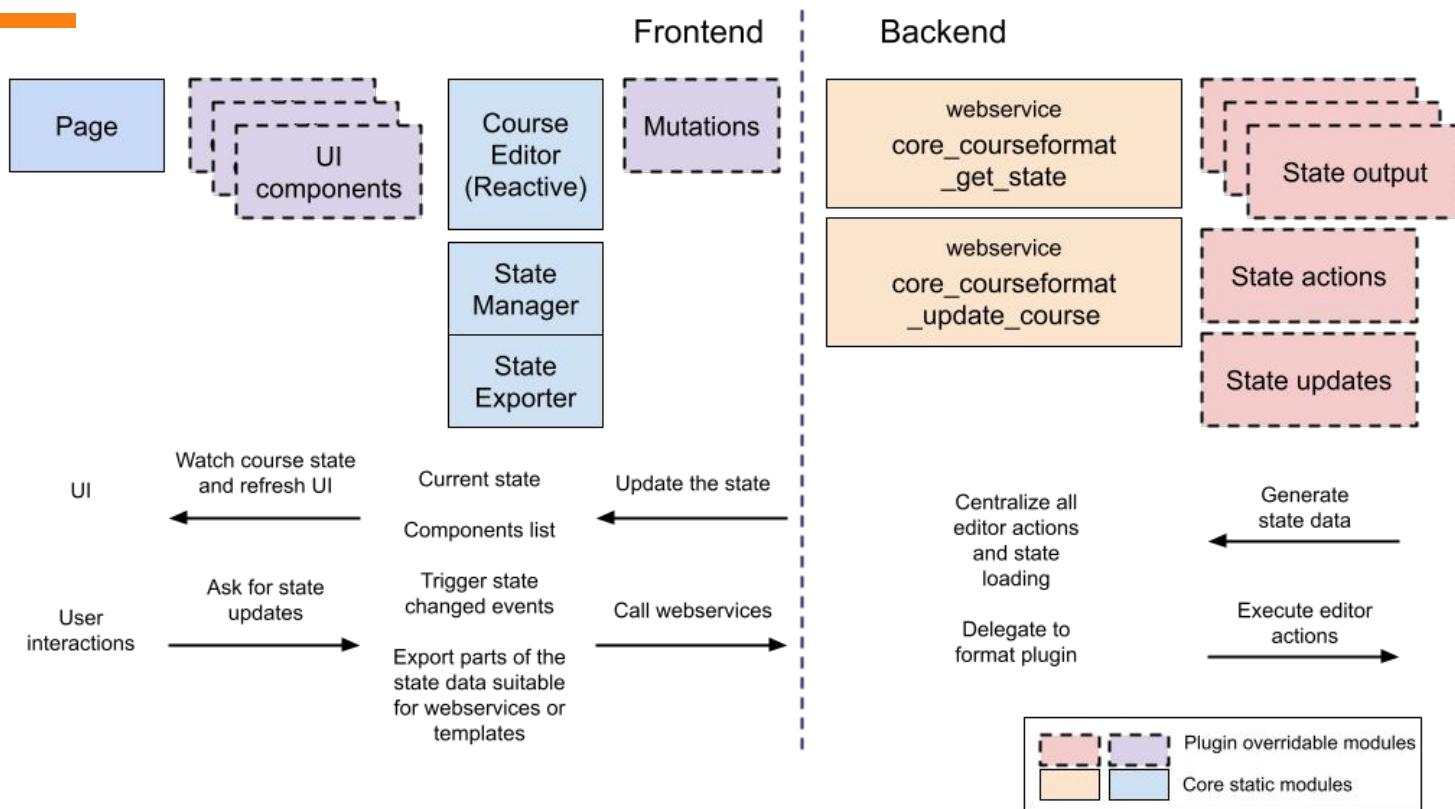
Provides several classes to create small reactive states in Moodle.

- **Reactive:** each reactive application is represented by an instance of this class.
- **BaseComponent:** all reactive components extends this class
- **DragDrop:** a class to convert components into draggable and/or dropzones.
- **M.cfg.reactive:** object to debug your reactive application from the javascript console

Reactive workflow



Course editor architecture



**Thanks for
your attention!**



