



# Tutors: An Open Learning Web Toolkit

<https://tutors.dev/course/tutors-workshop-2024>



Eamonn de Leastar  
[eamonn.deleastar@setu.ie](mailto:eamonn.deleastar@setu.ie)





# An Open Learning Web Toolkit

A collection of open source components & services supporting the creation of transformative learning experiences using open web standards.

Demo

Live

Source

Documentation

Gallery

Simulator

The screenshot shows a 'Reference Course' interface with a toolbar at the top featuring icons for search, layout, and other functions. Below the toolbar, there are eight cards illustrating different layout and content types:

- Simple:** Shows an owl in a nest. Description: Units with presentations, labs + resources.
- Sidebar:** Shows an owl in a nest. Description: Presentations, links + labs in side bar.
- Videos:** Shows an owl reading a book. Description: Video + Presentations and labs with videos.
- Panel Note:** Shows an owl at a computer. Description: A Note can be a topic's content.
- Panel Talk:** Shows an owl at a desk with a laptop. Description: A Talk can be a topic's content.
- Reference:** Shows a brown owl. Description: Example of all learning resource types.
- Ordering:** Shows a large owl head. Description: Explicit sorting of learning objects.
- Iconify:** Shows a colorful owl. Description: Using Iconify defined icons instead of image files.

<https://tutors.dev>

**17: Donation Applications**  
Full Stack Web Development

**full-stack-1-17**

Higher Diploma in Computer Science  
**Full Stack Web Development**

Watch on YouTube

**Introducing Donation**

Donation Applications, hapi-01-shell, hapi-02-donate

Enter Amount: 0  
Select Payment Method: paypal direct  
Select Candidate:

**Programming Fundamentals**  
Colm Dunphy, Peter Windle, WIT

Assignment Specifications, 00: Induction, 01: First Contact, 02: Selection & Iteration

03: Methods, 04: Classes, 05: Arrays, 06: Games

Workshop Three, Full Stack Web Development 1, Developer Operations, Full Stack Web Development 2, Semester 3 Schedule

**Labs**

Lab-17a-charts

# Charts Page

Introduce an additional icon in our navigator:

**MainNavigation.svelte**

```
...
<a href="/charts" class="column is-2 mx-2">
  <i class="fas fa-chart-line fa-3x" style="color:red"></i>
</a>
...

```

**SQL Aggregate functions Database**

This is a new page:

**routes/charts/+page.svelte**

```
<script>
import TitleBar from "$lib/TitleBar";
import MainNavigator from "$lib/MainNavigator";
import Chart from "svelte-frappe";
let data = {
  ...
}
```

**Using Round()**

- To round a numeric value to a whole number (or to 2 decimal places for example), use `round`.
- `Round(12.75)` returns 13
- `Round(12.7512)` returns 12.75

**05: SQL: Select statement**

Select statement, Introduction, SQL Select statement, SQL Select statement Lab, Aggregate functions, SQL Aggregate functions, SQL Aggregate functions Lab, Join clause, SQL Join, SQL Join 1 Lab, SQL Join 2 Lab, Date function, SQL Date functions, SQL Date functions Lab

01: Node, 02: Hapi.js, 03: Joi, 04: TDD, 05: Models

Models, Mongo DB Fundamentals, Introducing NoSQL DBs, Setting Up Mongo, Accessing Mongo, Mongo Model

Search Layout

HDIP 23

Semester Three: January-June 2024

Friday January 12th, 2024

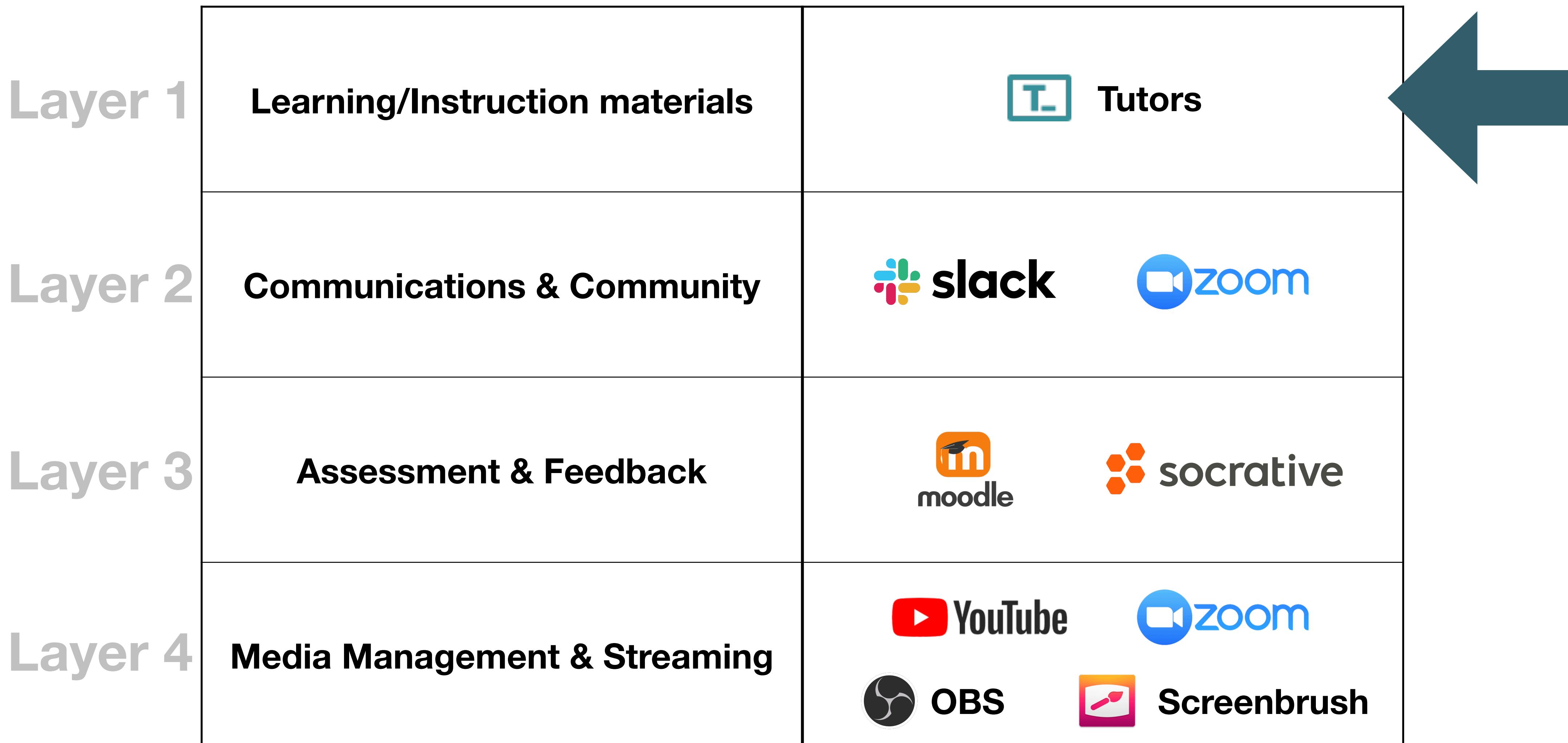
Workshop Three, Full Stack Web Development 1, Developer Operations, Full Stack Web Development 2, Semester 3 Schedule

cloud computing · scripting · scaling · automation · monitoring, javascript · node · apis · tdd · frameworks · front-end · sveltekit · typescript, javascript · SPA · react · APIs · front-end, timetables · semester calendars · assessment schedules

rice

3

# TutorStack



<https://tutors.dev>

## The **Values** of the project

The Learner Experience

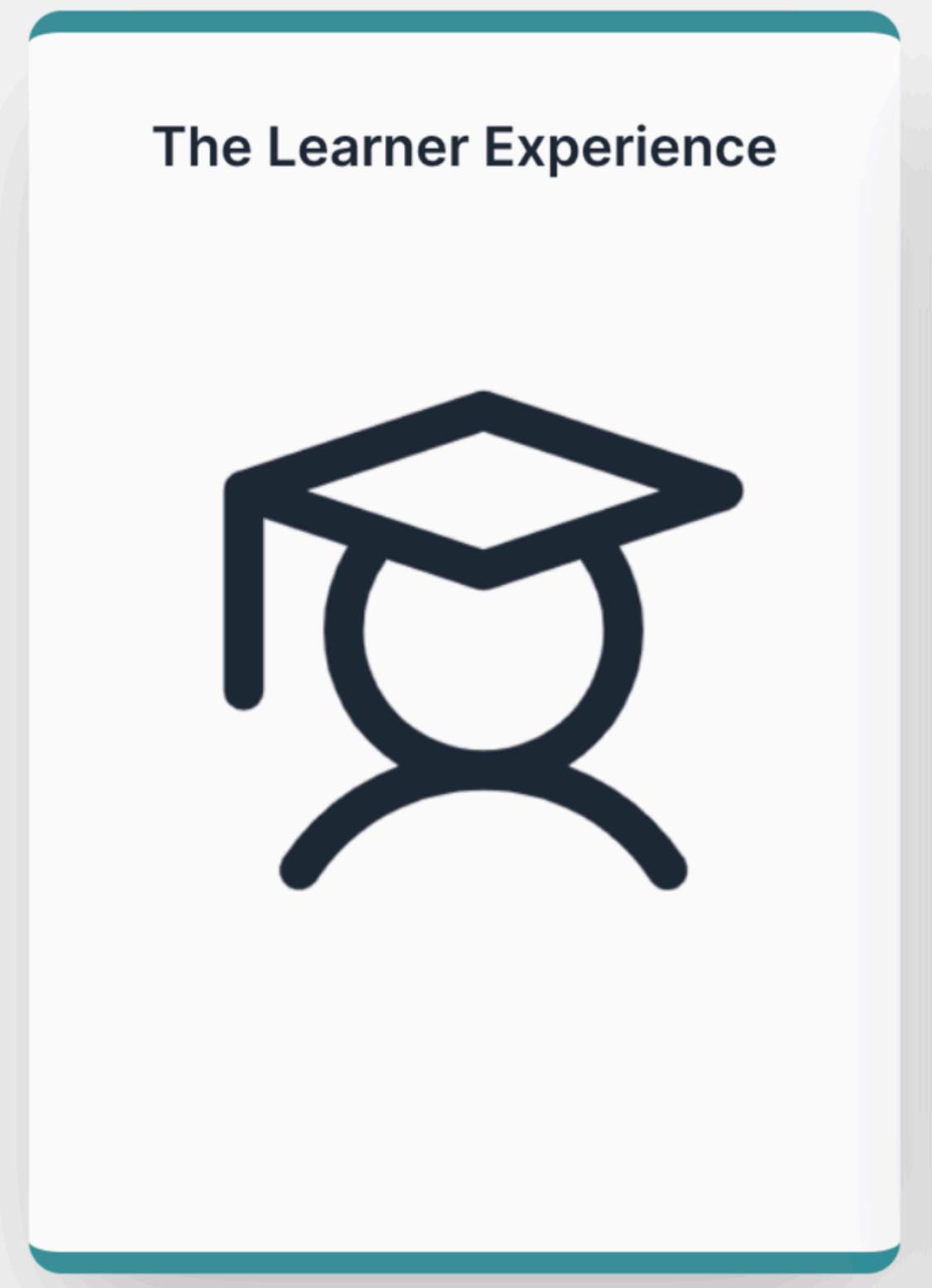


The Educator Experience



The Developer Experience





The Learner Experience

The **Learner Experience** prioritises web interactions that are **engaging, contextual, linkable, searchable, accessible** and **responsive**. In addition the experience should foster a sense of **community** and **connection** among fellow learners, with support for **participative learning**.

17: Donation Applications  
Full Stack Web Development

full-stack-1-17

Higher Diploma in Computer Science  
Full Stack Web Development

Watch on YouTube

Introducing Donation

Donation Applications

hapi-01-shell

hapi-02-donate

Enter Amount: 0  
Select Payment Method:

Programming Fundamentals  
Colm Dunphy, Peter Windle, WIT

Assignment Specifications

00: Induction

01: First Contact

02: Selection & Iteration

03: Methods

04: Classes

05: Arrays

06: Game of Pong

Higher Diploma in Computer Science 2023  
Department of Computing & Mathematics, WIT

Semester Three: January-June 2024

Workshop Three

Full Stack Web Development 1

Developer Operations

Full Stack Web Development 2

Semester 3 Schedule

Lab-17a Charts

# Charts Page

Introduce an additional icon in our navigator:

MainNavigation.svelte

```
<a href="/charts" class="column is-2 mx-2">
  <i class="fas fa-chart-line fa-3x" style="color:red"></i>
</a>
```

SQL Aggregate functions Database

This is a new page:

routes/charts/+page.svelte

```
<script>
  import TitleBar from "$/components/TitleBar.svelte"
  import MainNavigator from "$/components/MainNavigator.svelte"
  import Chart from "svelte-charts"
```

Using Round()

- To round a numeric value to a whole number (or to 2 decimal places for example), use `round`.
- `Round(12.75) returns 13`

01: Node

02: Hapi.js

03: Joi

04: TDD

05: Models

Models

Mongo DB Fundamentals

- Introducing NoSQL DBs
- Setting Up Mongo
- Accessing Mongo

Mongo Model

SQL Aggregate functions

05: SQL: Select statement

Select statement

Introduction

SQL Select statement

SQL Select statement Lab

Aggregate functions

SQL Aggregate functions

SQL Aggregate functions Lab

Join clause

SQL Join

SQL Join 1 Lab

SQL Join 2 Lab

Date function

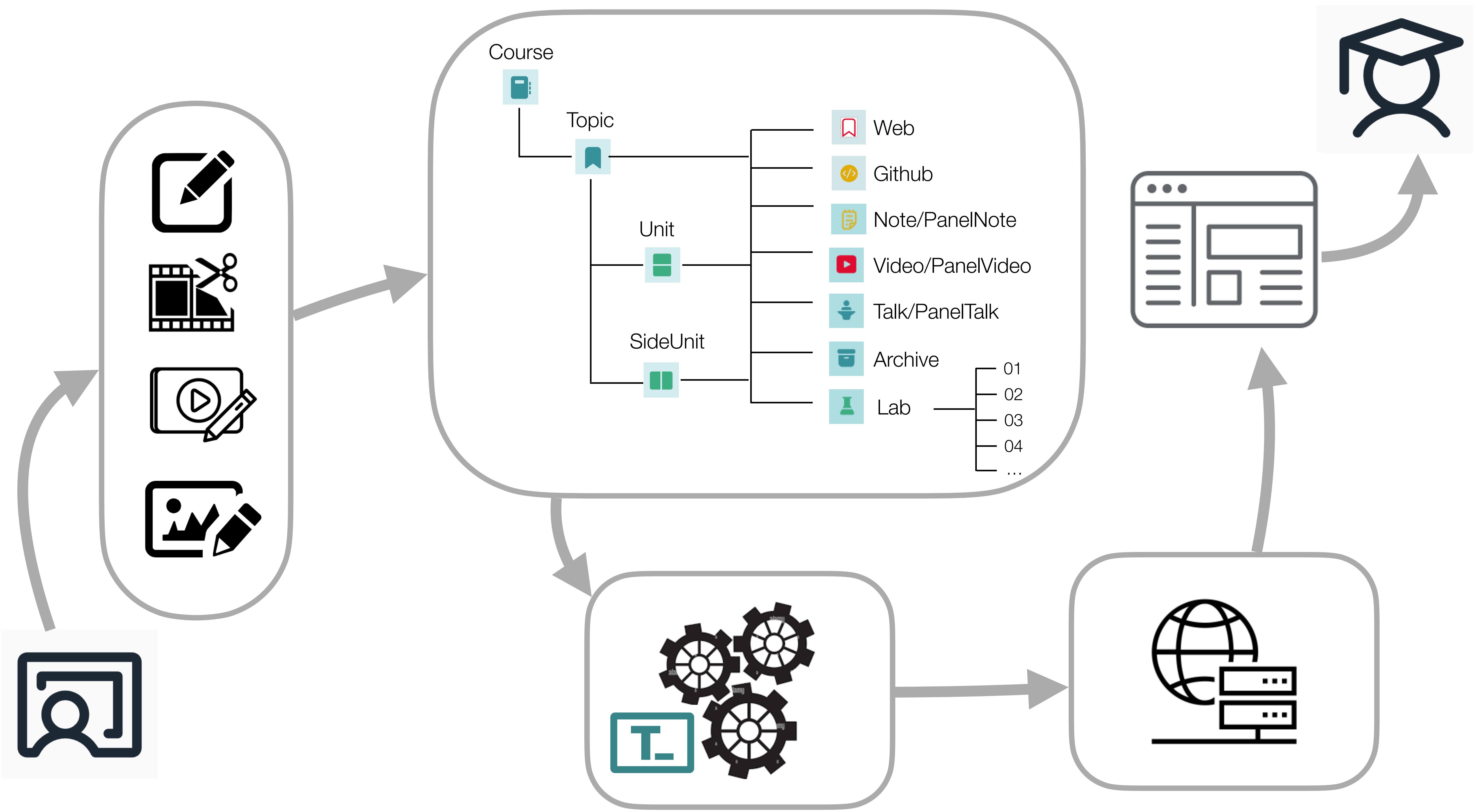
SQL Date functions

SQL Date functions Lab

The Educator Experience



The **Educator Experience** prioritises the creation of a **guided paths** through a curriculum via the creation of learning materials that are **autonomous, structurally aligned, composable, auditable, extensible, versioned and independent**.



### The Developer Experience



The **Developer Experience** prioritises the specification and implementation of **robust, well documented, loosely coupled components & services**, integrated into a **coherent toolkit** open to contributions from **diverse skill sets**.

This image shows a GitHub repository page for 'tutors-sdk / tutors' and a detailed class hierarchy diagram.

**GitHub Repository Overview:**

- Code: 34
- Issues: 34
- Pull requests: 4
- Discussions
- Actions
- Project

**Repository Details:**

- tutors** (Public)
- Edit Pins
- Unwatch (3)

**Code Navigation:**

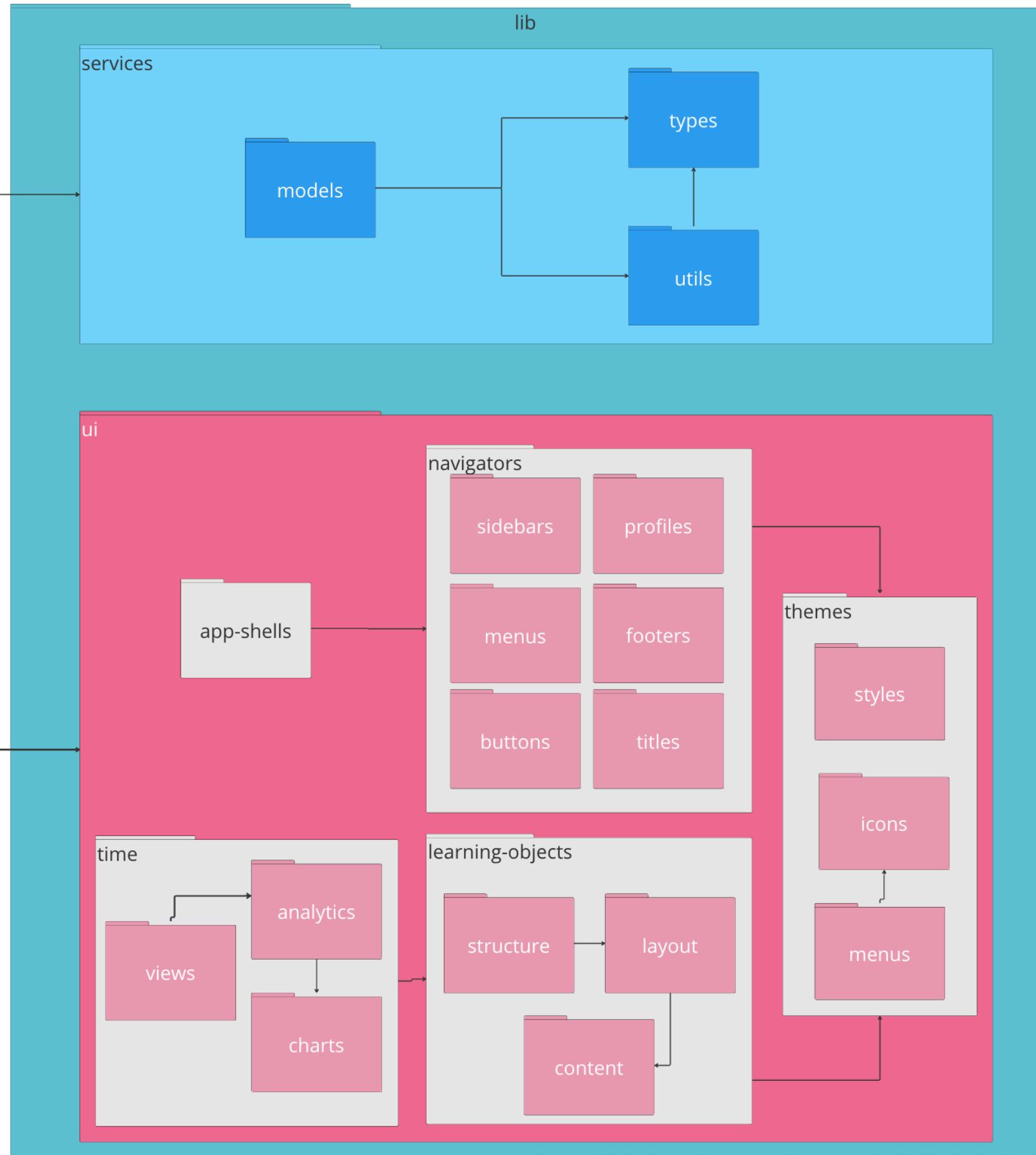
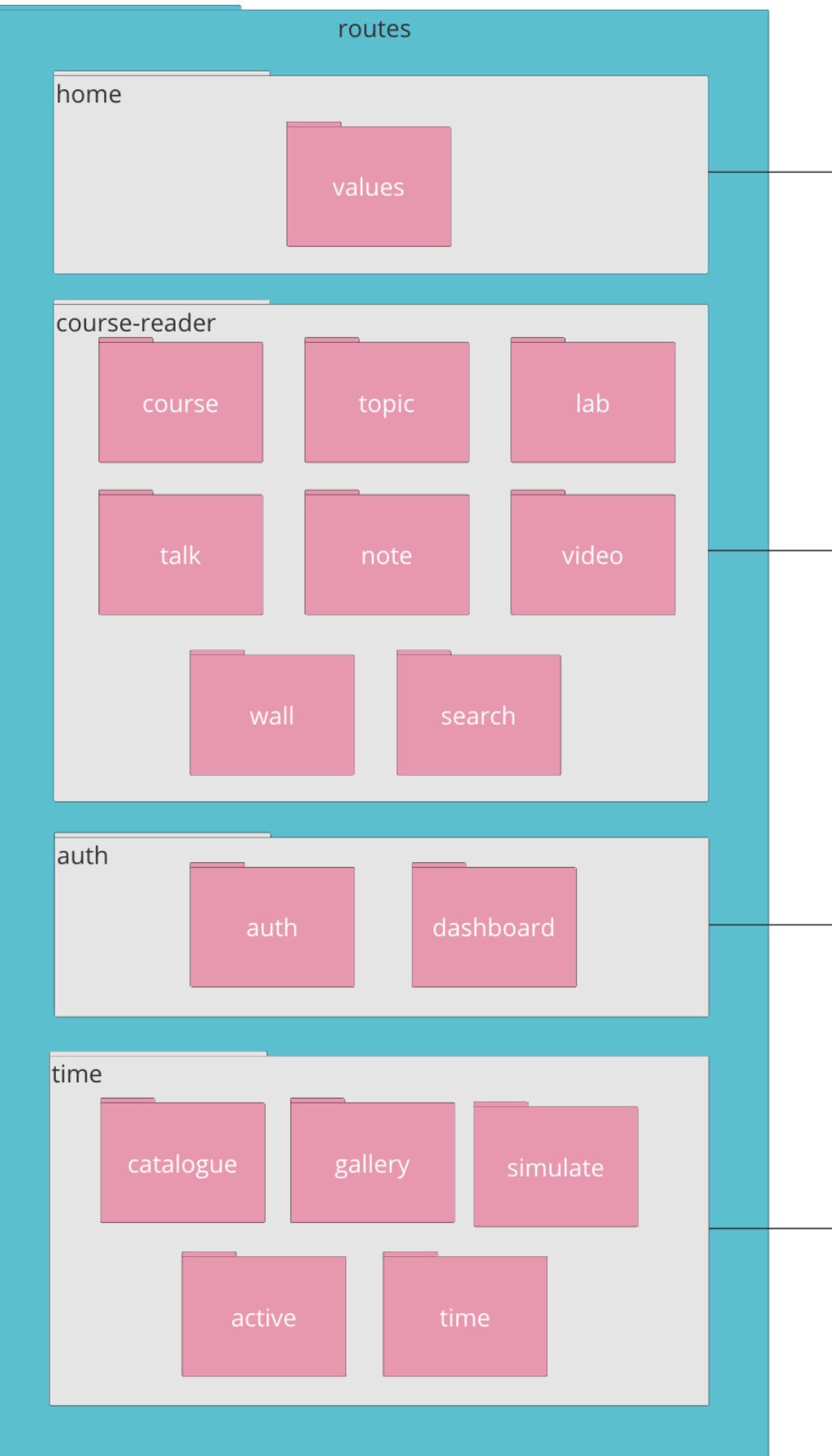
- development
- Go to file
- t
- +
- <> Code

**Recent Commits:**

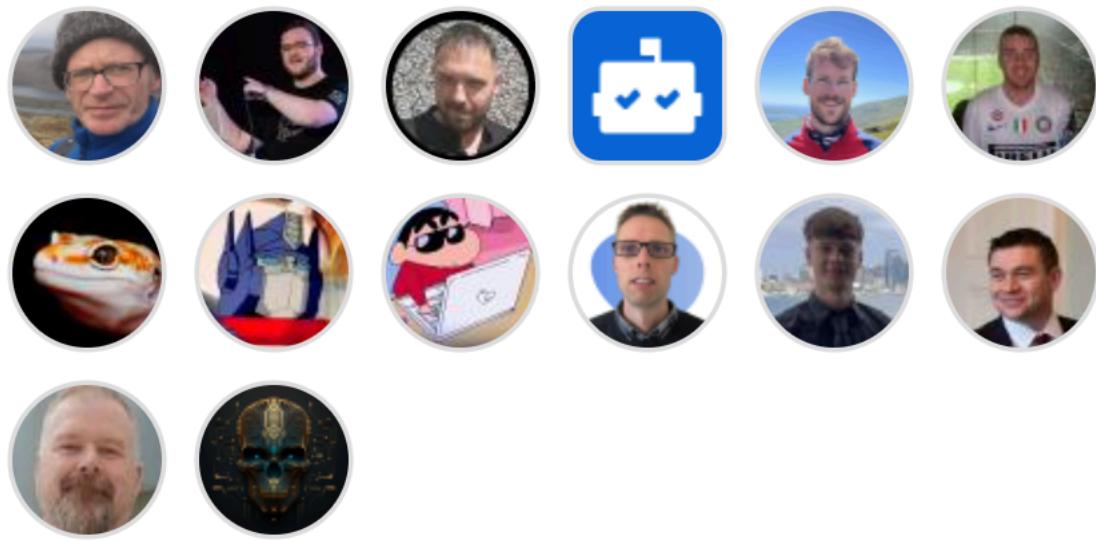
Author	Commit Message	Date
edeleastar	fix: remove 'github' from title	a02b6d6 · last week 2,181 Commits
	.github	Create CODEOWNERS 4 months ago
	src	fix: remove 'github' from title last week
	static	Merge branch 'development' into fi... last week
	.env.example	package + .env.example updates 3 weeks ago
	.eslintignore	remove monorepo, replace with tut... 5 months ago
	.eslintrc.cjs	remove monorepo, replace with tut... 5 months ago

**Class Hierarchy Diagram:**

```
graph TD; Course -- topicIndex --> Topic; Course -- wallBar --> Calendar[Calendar]; Course -- wallBar --> WeekType[WeekType]; Topic -- units --> Unit; Topic -- units --> Side; Unit -- sides --> Units[Units]; Side -- sides --> Units; Composite -- childLos --> Lo[Lo]; Composite -- lolIndex --> LearningRecord[LearningRecord]; Lo -- parentLo --> LearningRecord; Lo -- breadCrumbs --> Videoidentifiers[Videoidentifiers]; Lo -- breadCrumbs --> Videoidentifier[Videoidentifier]; Note -- panelNotes --> Panels[Panels]; Note -- panelTalks --> Panels; PanelNote -- panelTalks --> Panels; Talk -- panelVideos --> Panels; PanelTalk -- panelVideos --> Panels; PanelVideo -- panelVideos --> Panels; GitHub
```



# Contributors



<https://github.com/tutors-sdk/tutors>

The Learner Experience



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---

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---

The Developer Experience



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The Learner Experience



... participative learning...

The Educator Experience



... autonomous ... independent...

The Developer Experience



...coherent toolkit ... diverse skill sets...

**Lab-22a-donation-svelte-06-maps**  
Full Stack Web Development

[Edit this Page](#)

**Objectives**

**Donation Dashboard**

# ... participative learning...

Popups

- Donation Dashboard
- Populate Dashboard Map
- Live Map Update
- Solution

The layout can be assembled like this:

**22: Maps**  
Full Stack Web Development

[Edit this Page](#)

**Leaflet Maps**

**Maps in Svelte**

- Leaflet Maps
- SSR & Leaflet
- Deploy Front End Apps
- Introducing to using Leaflet maps in Svelte applications
- Leaflet Anomalies with SvelteKit SSR
- Deploying donation-svelte to Netlify & Vercel services

**Full Stack Web Development**  
Eamonn de Leastar

[Edit this Page](#)

**01: Node**

**node.js**

The fundamentals of Node.  
A first Node application.

**02: Hapi.js**

**hapi**

The Hapi application Framework

1 Open ✓ 64 Closed

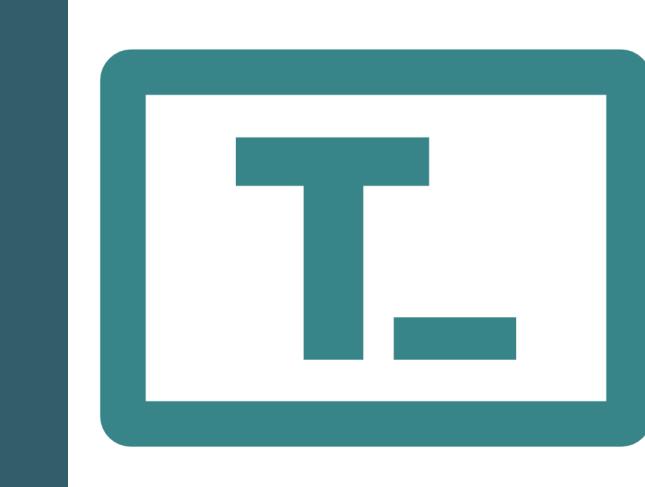
Author Label Projects Milestones

- page.server.ts** ✓  
#64 by Ruslan-Zhabskyi was merged on May 9
- Update 05.05.md** ✓  
#63 by chipspeak was merged on May 5
- Update 09.09.md** ✓  
#62 by chipspeak was merged on May 5
- Update 07.07.md** ✓  
#61 by chipspeak was merged on May 5
- Update 04.04.md** ✓  
#60 by chipspeak was merged on May 5
- Updated localhost:5137 to 5173** ✓  
#59 by MartyRath was merged on May 5
- Spelling, Grammar and small Code fixes** ✓  
#58 by pfortune was merged on May 2
- Update 02.02.md** ✓  
#57 by Ruslan-Zhabskyi was merged on May 1
- Update 05.05.md** ✓  
#56 by Ruslan-Zhabskyi was merged on May 1
- Update 05.05.md** ✓  
#55 by chipspeak was merged on Apr 29
- Update 01.01.md** ✓  
#54 by chipspeak was merged on Apr 29

Established models for creating & managing web resources

Content Management System

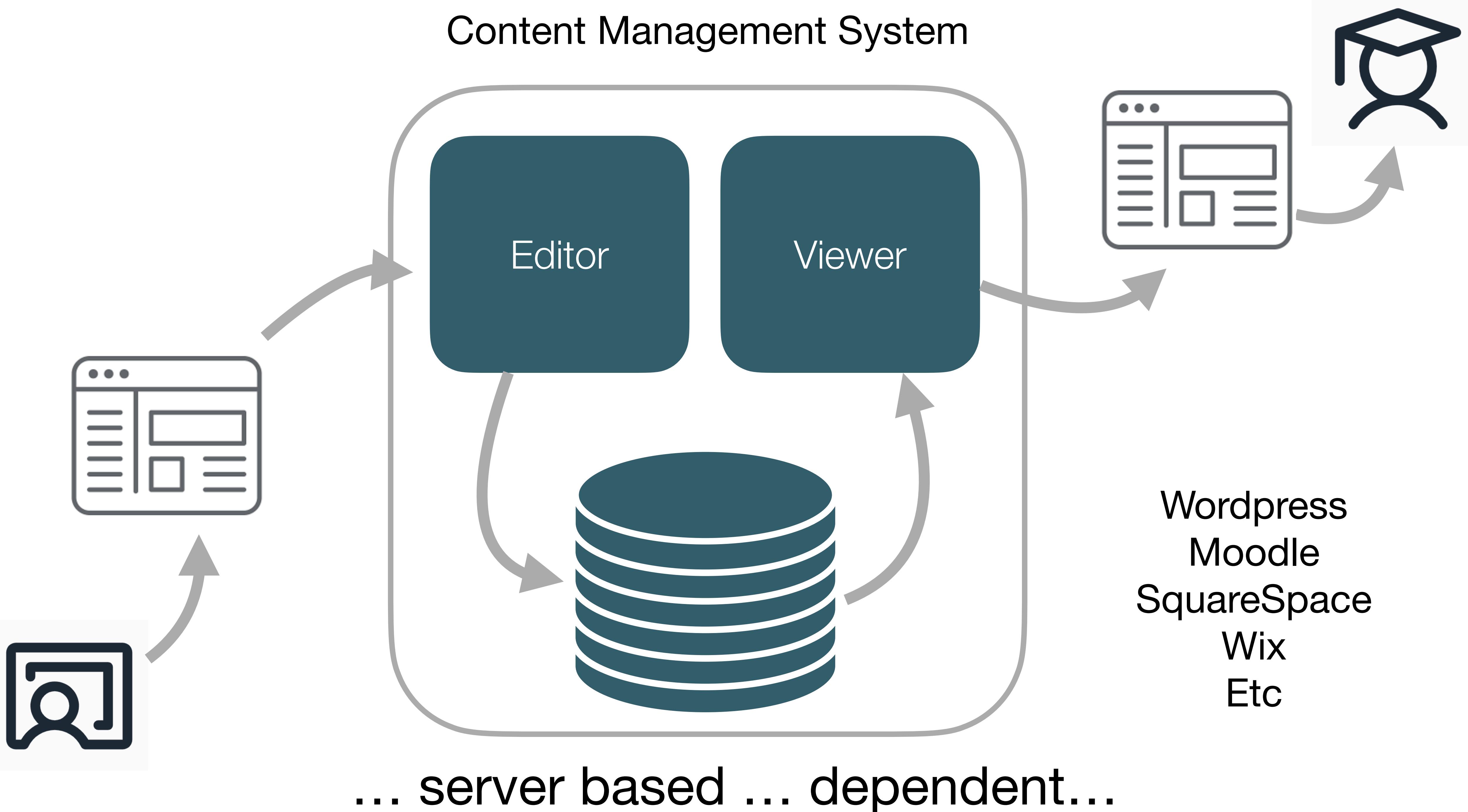
Static Site Generator

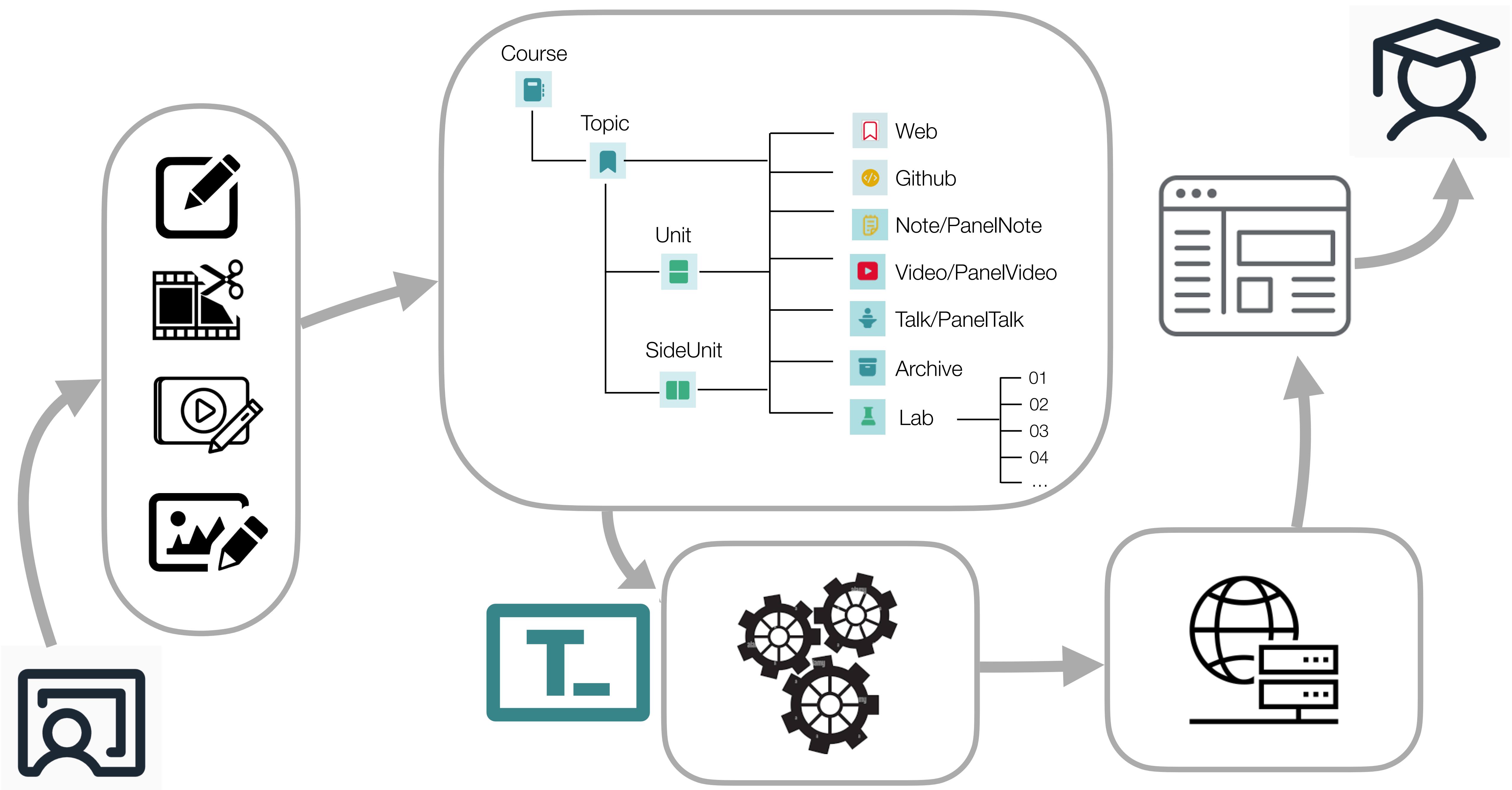


autonomous  
...  
independent



# Content Management System





... autonomous ... independent...

**tutors** Public

**development**

**Code**

**Issues** 34 **Pull requests** 4 **Discussions** **Actions** **Project**

**Edits** **Edit Pins** **Unwatch** 3

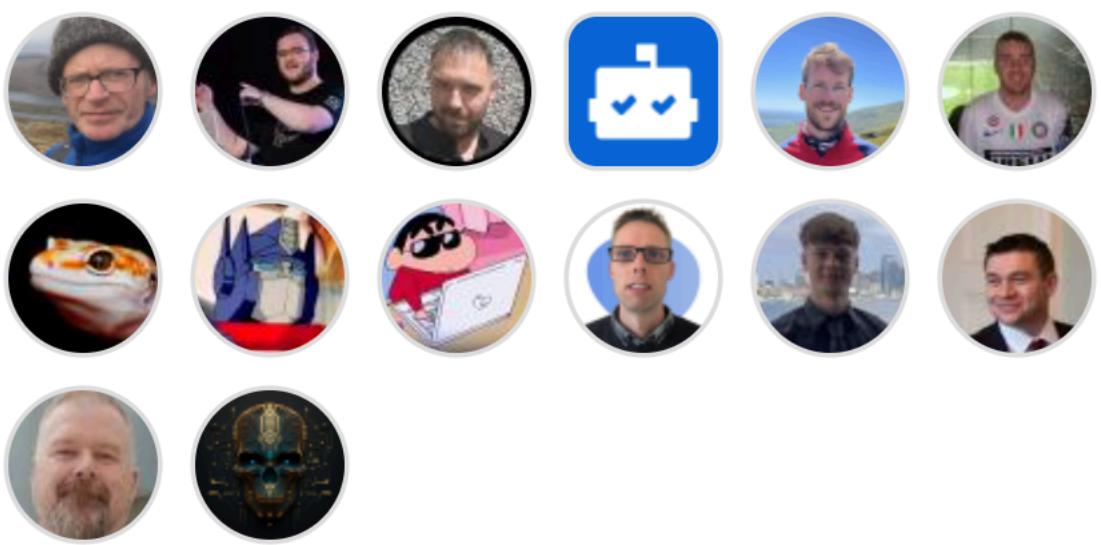
**Go to file** **+** **Code**

**edeleastar** fix: remove 'github' from title a02b6d6 · last week 2,181 Commits

- .github Create CODEOWNERS 4 months ago
- src fix: remove 'github' from title last week
- static Merge branch 'development' into fi... last week
- .env.example package + .env.example updates 3 weeks ago
- .eslintignore remove monorepo, replace with tut... 5 months ago
- .eslintrc.cjs remove monorepo, replace with tut... 5 months ago
- .eslintrc.js feat(BREAKING): SvelteKit Release ... 2 years ago
- .gitignore remove monorepo, replace with tut... 5 months ago
- .nvmrc feat: add nvmrc 10 months ago
- .prettierignore remove monorepo, replace with tut... 5 months ago

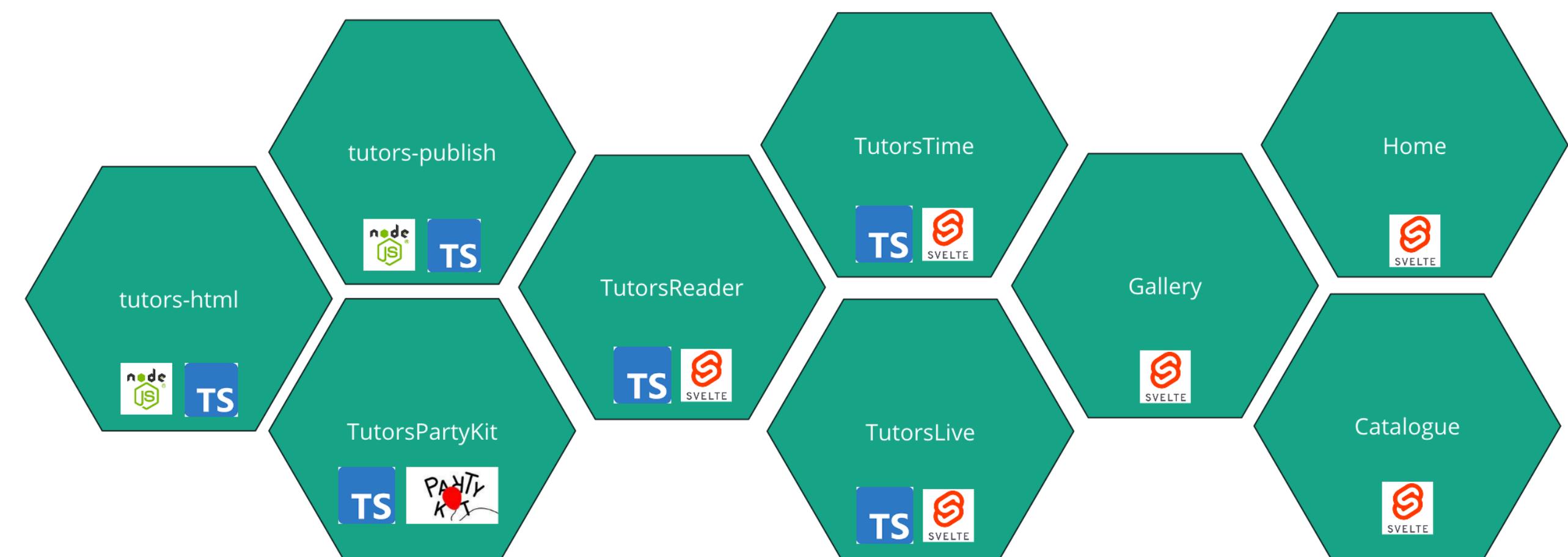
...coherent toolkit ...  
...diverse skill sets...

## Contributors 17



Jun 26, 2022 – Jun 19, 2024

Contributions to development, excluding merge commits



<https://github.com/tutors-sdk/tutors>

**Reference Course**  
A reference course containing all supported learning objects

Search Layout  0

Reference Cour... Edit this Page 

## Reference Course Example

<b>Simple</b>  Units with presentations, labs + resources	<b>Sidebar</b>  Presentations, links + labs in side bar	<b>Videos</b>  Video + Presentataions and labs with videos	<b>Panel Note</b>  A Note can be a topic's content
<b>Panel Talk</b>  A Talk can be a topic's content	<b>Reference</b>  Example of all learning resource types	<b>Ordering</b>  Explicit sorting of learning objects	<b>Iconify</b>  Using Iconify defined icons instead of image files

<https://reader.tutors.dev/course/reference-course>

<https://tutors.dev/>

# An Open Learning Web Toolkit

A collection of open source components & services supporting the creation of transformative learning experiences using open web standards. Developed to support the [Higher Diploma in Computer Science at SETU](#)

Demo

Live

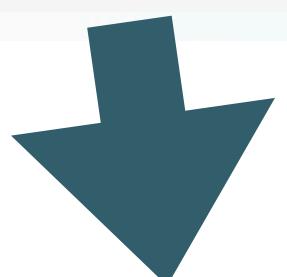
Source

Tutors Workshop

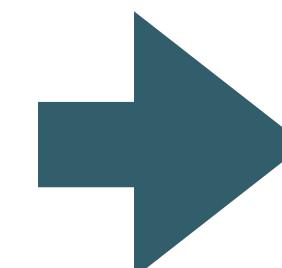
Documentation

Gallery

Simulator



This Workshop



## Creating & Publishing a Tutors Course

Learner Experience  
An overview of the Tutors Learner Experience

Creating a Course  
Creating a Tutors Course

Editing a Course  
Editing and republishing a course

Tutors Reference Manual  
Complete Reference Manual for Tutors

## Tutors Themes & Iconography

Tutors Theming  
Exploring the Tutors Theme Subsystem

Skeleton  
The Skeleton.dev Theming Subsystem

Iconify  
The Icon Libraries used by Tutors

## Tutors Learning Experience

Tutors Module Catalogue  
A large collection of Tutors Modules

Tutors Example Programme  
A complete programme delivered on Tutors (any github account to access)

Figma  
A design/prototyping tool

Penpot  
An Open Source Alternative to Figma

## Tutors Architecture

Tutors Values  
Core Values of the Tutors open Source Project

Tutors Architecture  
High Level Overview of the Tutors Project Architecture

Tutors Repo  
The Tutors open Source Monorepo

## Tutors Labs

Create

Create and publish a Tutors course

Rebuild

Install and rebuild the tutors reader

## Edit

Explore and edit the elements of a Tutors course

## Theme

Generate a new theme

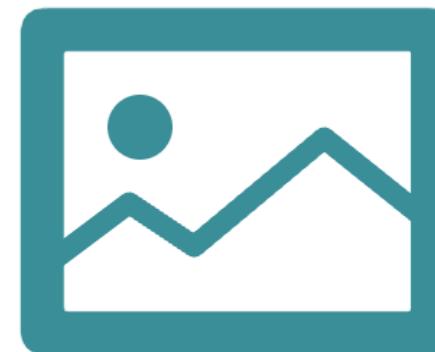
## Redeploy

Publish a new Tutors Reader to the Netlify

# Create & Edit a Tutors Course

## Creating & Publishing a Tutors Course

### Learner Experience



An overview of the Tutors Learner Experience

### Creating a Course



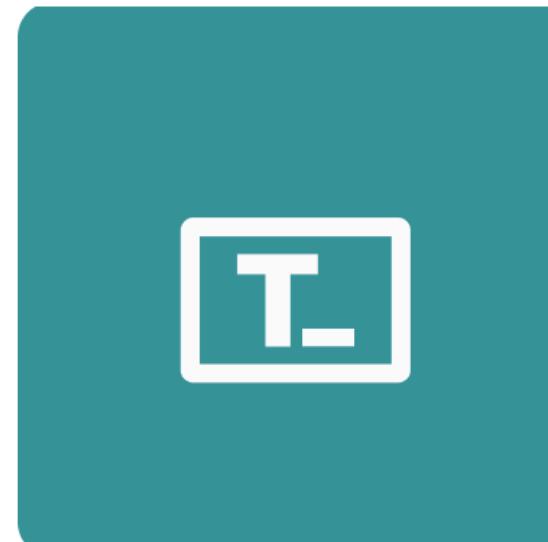
Creating a Tutors Course

### Editing a Course

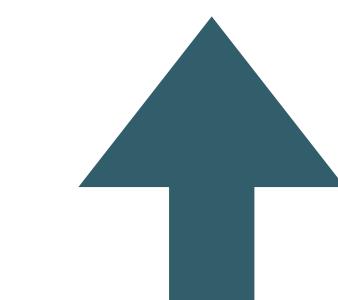


Editing and republishing a course

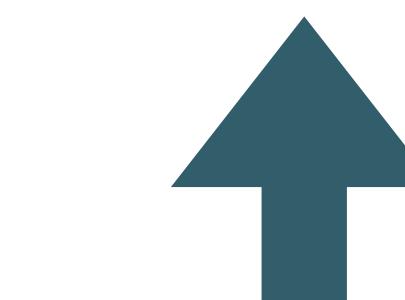
### Tutors Reference Manual



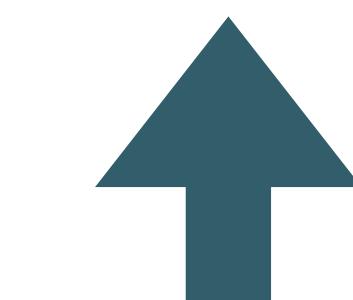
Complete Reference Manual for Tutors



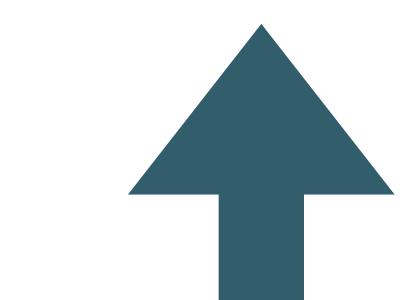
Overview of  
Tutors UX



Overview of  
Course  
Creation



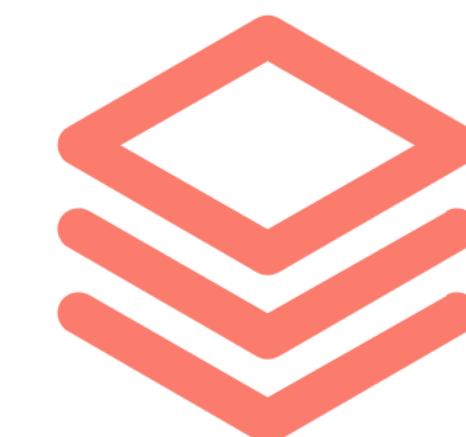
Course  
Structure



Tutors User  
Guide

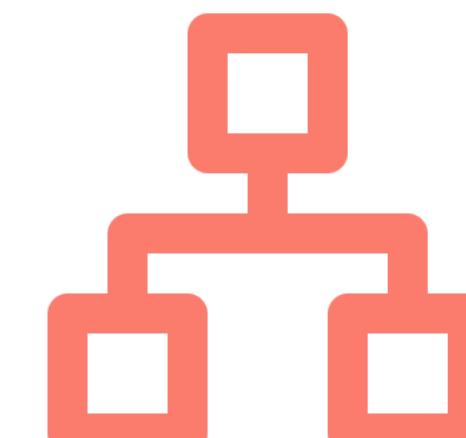
## Tutors Labs

### Create



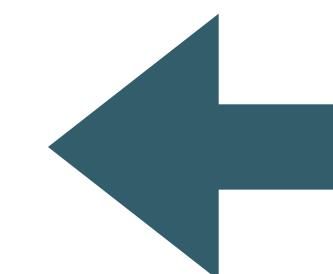
Create and publish a Tutors course

### Edit

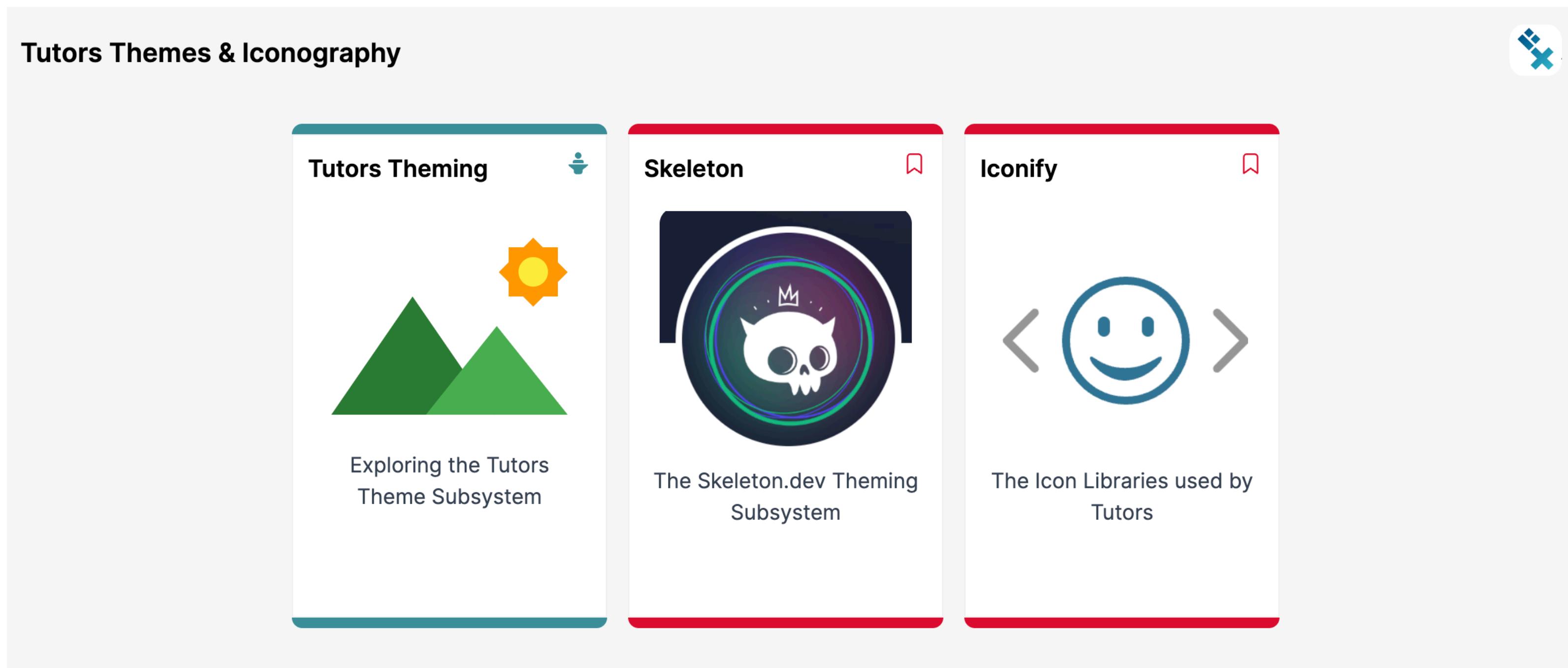


Explore and edit the elements of a Tutors course

Guides on  
creating +  
publishing  
a course



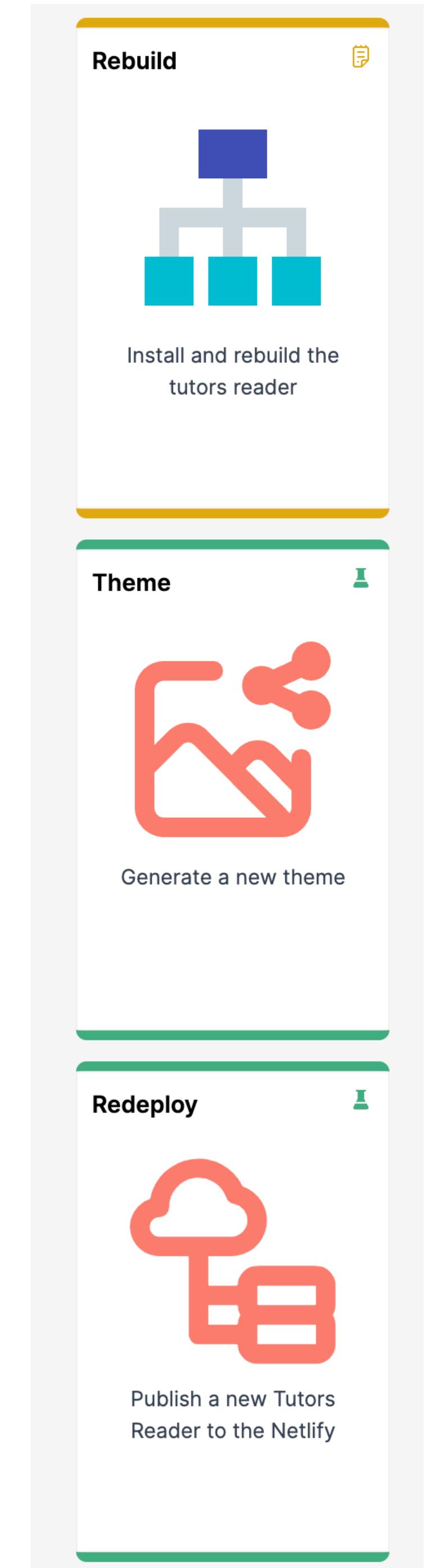
# Tutors Theming



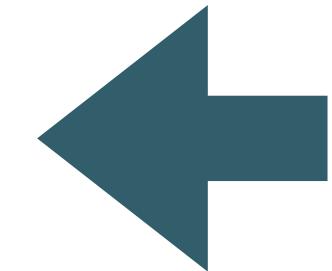
Upward arrow pointing to the Tutors Themes card.  
*Overview of  
Tutors Themes*

Upward arrow pointing to the Skeleton Design Systems card.  
*Skeleton  
Design  
Systems*

Upward arrow pointing to the Icon Library card.  
*Icon Library  
used by Tutors*



*Guides on  
Rebuilding,  
Theming &  
deploying  
Tutors*



# *Tutors Learning Experience*

**Tutors Learning Experience**

**Tutors Module Catalogue**

A large collection of Tutors Modules

**Tutors Example Programme**

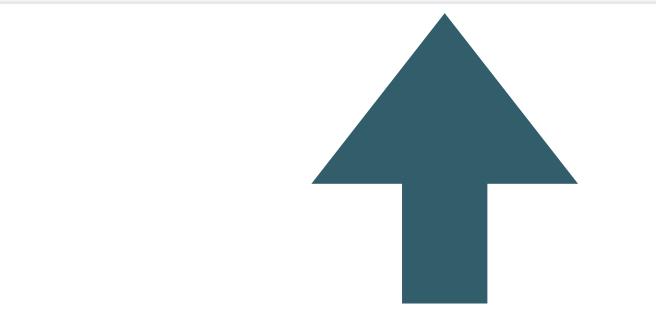
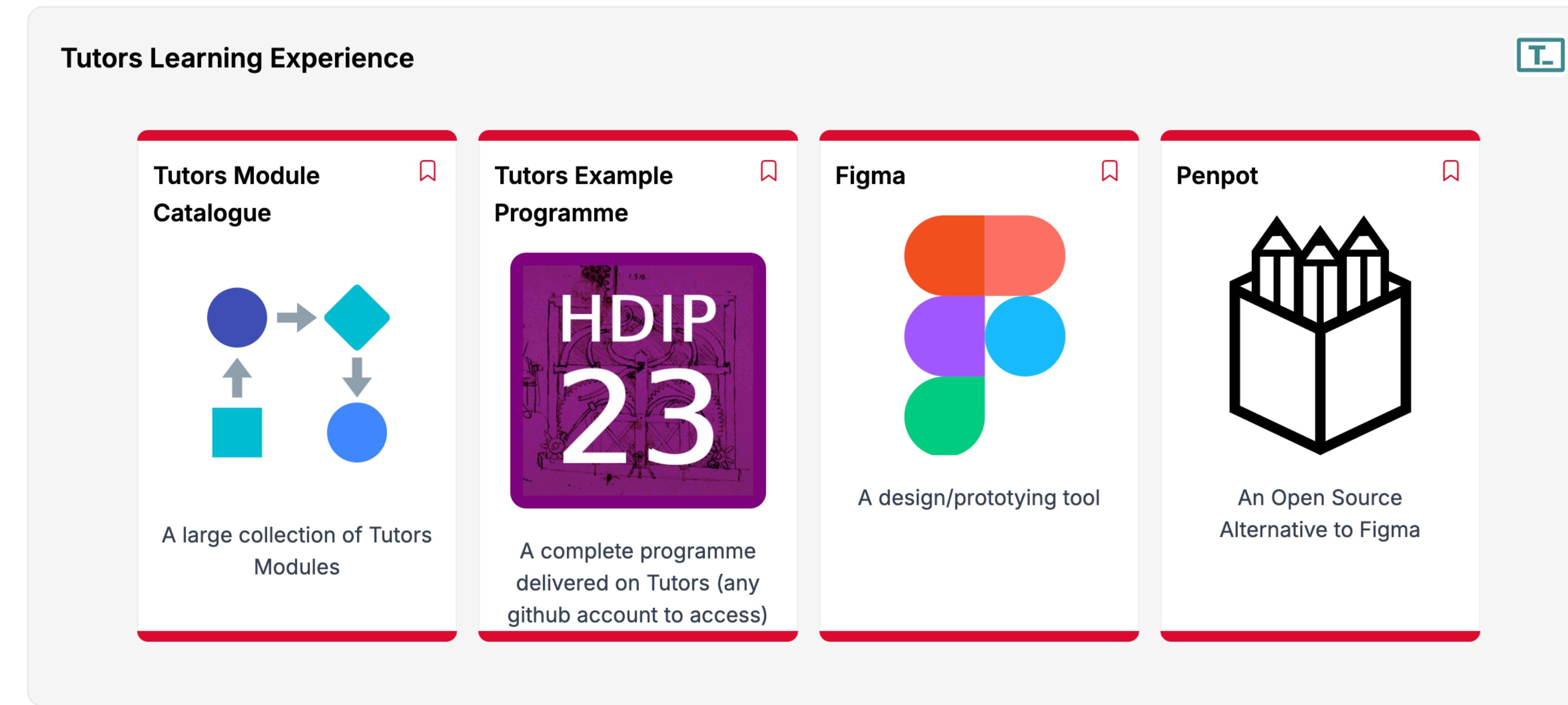
A complete programme delivered on Tutors (any github account to access)

**Figma**

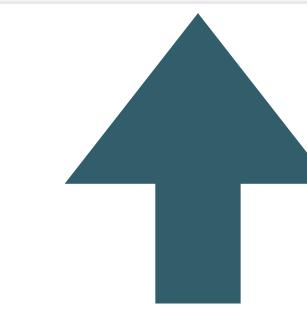
A design/prototyping tool

**Penpot**

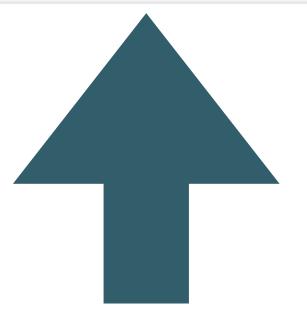
An Open Source Alternative to Figma



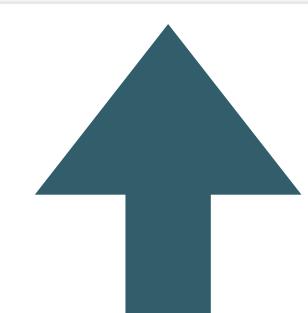
*Tutors Module Catalogue*



*Complete  
Multi-Course  
Programme*

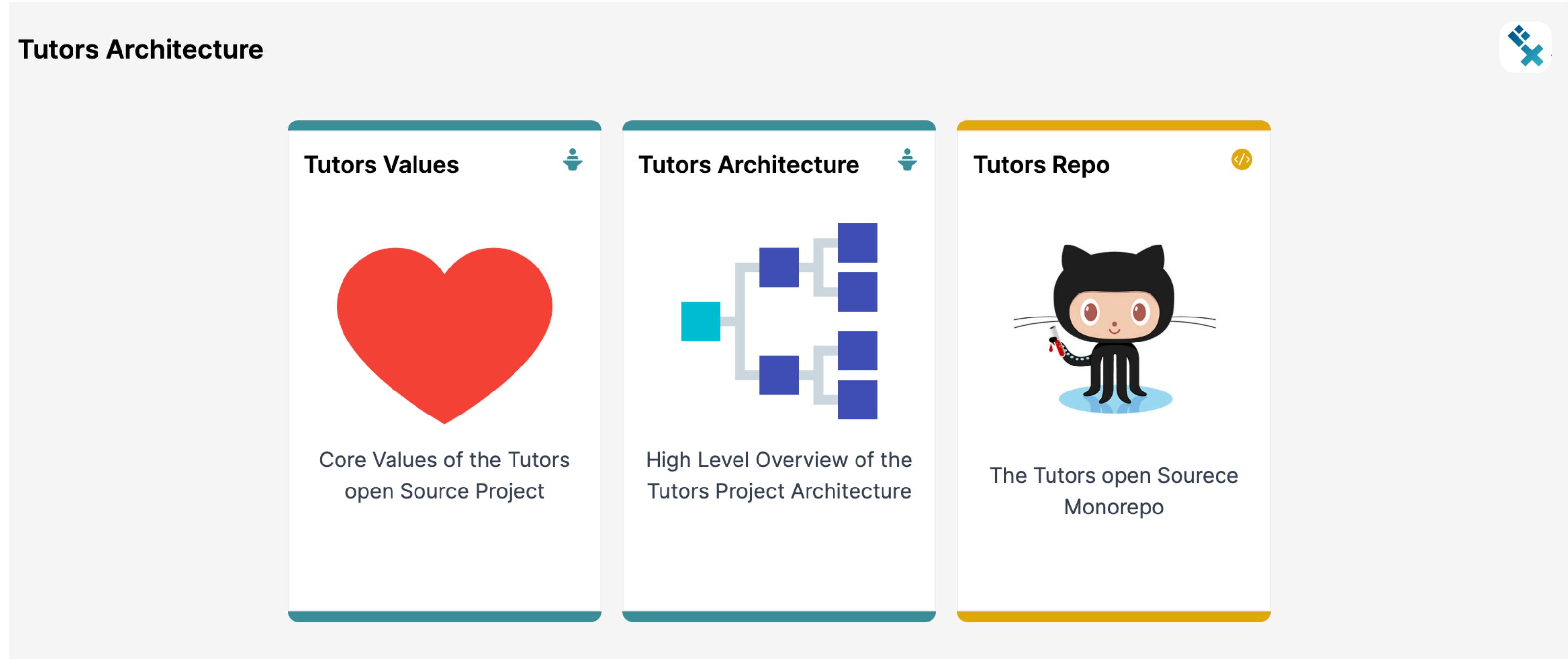


*Figma  
Prototyping  
Tool*



*Open Source  
Figma  
Alternative*

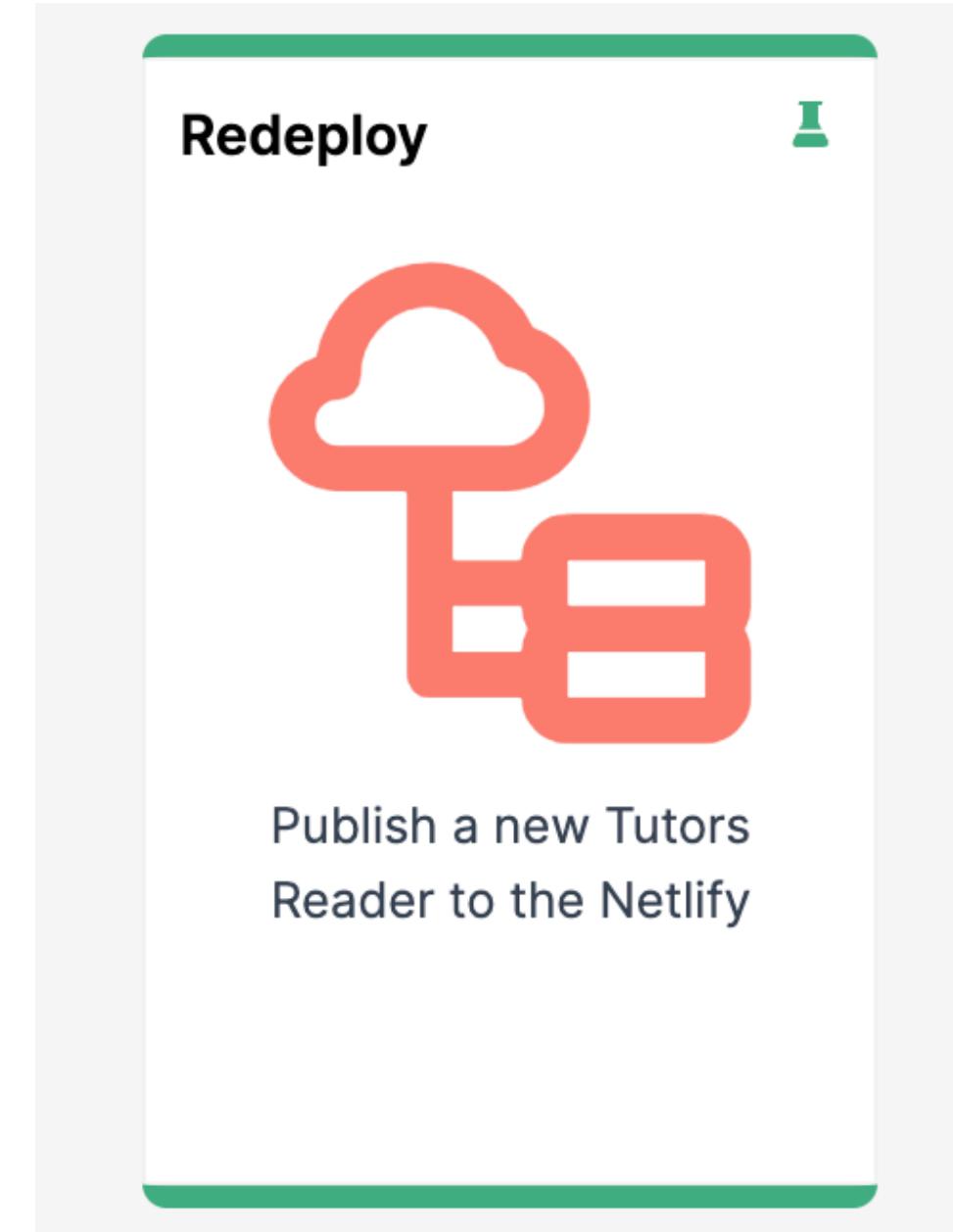
# Tutors Architecture



*Guiding Principles of Tutors*

*Tutors Architecture*

*Tutors Source Monorepo*



*Deploying a new Tutors Reader*

# *Tutors Theming*

The screenshot shows a web application interface for "Full Stack Web Development" by Eamonn de Leastar. The top navigation bar includes a logo, user info, search, layout settings, and a profile icon. A dropdown menu titled "Layout" is open, showing "Toggles" (Dark Mode, Compact) and "Themes". The "tutors" theme is selected, highlighted in light blue. Other themes listed are dyslexia, skeleton, seafoam, and vintage. To the right of the dropdown is a large blue arrow pointing left, labeled "Theme Selector".

**Full Stack Web Development**  
Eamonn de Leastar

Search Layout

0

Edit this Page

Themes

**tutors**

dyslexia

skeleton

seafoam

vintage

Theme Selector

01: Node

node.js

The fundamentals of Node. A first Node application.

02: Hapi.js

hapi

The Hapi application Framework

03: Joi

joi

Validation with Joi

04: Test

05: Models

Incorporate Mongo Models

06: Assignment 1

V grading rubric

Concept, detail and grading rubric

07: APIs

API

Expose an API from an application

08: REST

RESTful

Resful API implementations

# *Tutors Theming*

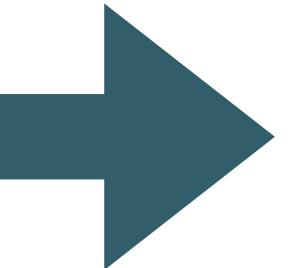
The screenshot shows a web application interface for "Full Stack Web Development" by Eamonn de Leistar. The top navigation bar includes icons for help, file, and search, along with a user profile and layout settings. A dropdown menu titled "Layout" is open, showing options for "Toggles" (Dark Mode, Compact), "Themes" (tutors, dyslexia, skeleton, seafoam, vintage), and "Edit this Page". The main content area displays eight course modules:

- 01: Node (Node.js icon) - The fundamentals of Node. A first Node application.
- 02: Hapi.js (Hapi.js icon) - The Hapi application Framework
- 03: Joi (Joi icon) - Validation with Joi
- 04: Test (Test icon)
- 05: Models (MongoDB icon) - Incorporate Mongo Models
- 06: Assignment 1 (Assignment icon) - Concept, detail and grading rubric
- 07: APIs (API icon) - Expose an API from an application
- 08: REST (REST icon) - Restful API implementations

A large blue arrow points from the "vintage" theme option in the dropdown to the right, with the text "Theme Selector" written vertically next to it.

*Theme  
Selector*

Design  
System  
used by  
Tutors



Theme  
designer

# Tutors Learning Experience

**Unit Panel**

**This is a note with at TOC**

This is the intro to the main page.

[Part 1](#)  
[Part 2](#)  
[Part 3](#)  
[Part 4](#)



[Watch on YouTube](#)

**Panel Video**

**Lecture** **Lab-01**

This talk has a pdf + a video with start/end times  
This one just has a video, no PDF  
A regular lab but supported by a video

**Varied**  
**Media**  
**Units**

An example of a side unit  
Learning objects with SVG images  
Panel talk\_promote presentation to topic

**Unit 1 Title**

**Panel Video**

**Lecture** **Lecture**

A short summary of the talk, no more than two sentences. Avoid bullet...

**Lab-01**

A set of practical instructions or a walk-through

**Side Unit**

**Lab-01**

A set of practical instructions or a walk-through

**Units**

1 of 1  
Tutors Starter Presentation.pdf

**Replace with your own slide deck in a .pdf format!**

**Lab-01: Objectives**

**01: Text**  
**02: Tables, Lines and Images**  
**03: Links and Code Blocks**  
**04: Images**  
**05: Katex**  
**Exercises: Exercises & Archives**

**Note Example**  
**Resource I**  
**Github Repo 1**  
**Web Site**

**Lab-01**  
**This is a note with at TOC**  
**Lecture 1**

**Links and Code Blocks**

You can insert links in bullet points:

- <http://github.com>
- <http://bitbucket.dom>

More Code Block examples

```
publish(path, course) {
  const basePath = '../../../../../' + path + '/' + this.folder;
  futils.initEmptyPath(basePath);

  this.resources = this.talks.concat(this.labs);
  futils.copyFileToFolder(this.img, basePath);
  futils.writeFile(basePath + '/index.html', nunjucks.render('index.html', {
    url: this.url.substring(5) + '/' + this.folder
  }));

  futils.writeFile(basePath + '/ajaxlabel.html', nunjucks.render('ajaxlabel.html', {
    url: this.url.substring(5) + '/' + this.folder
  }));

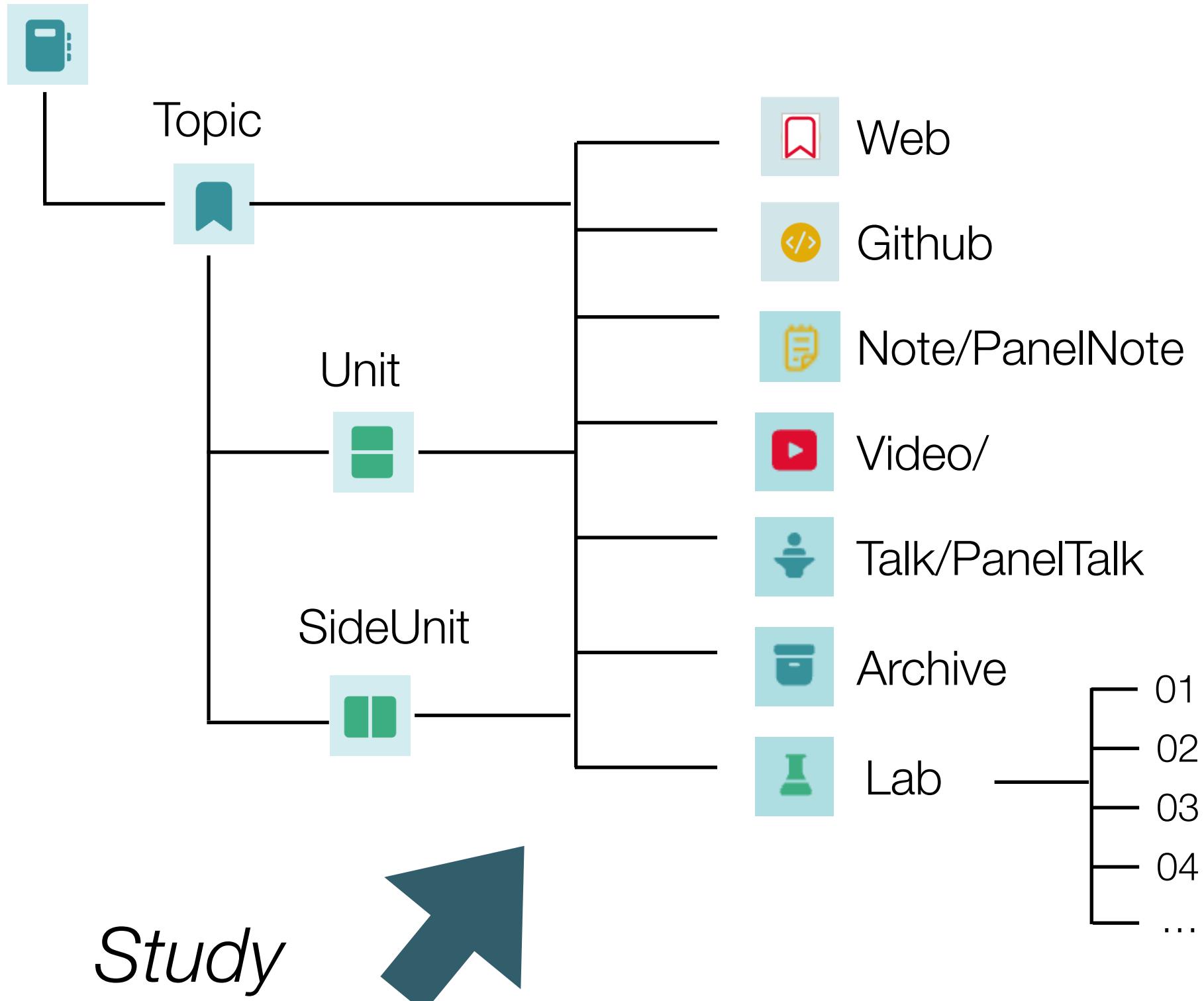
  console.log(this.title);
  this.publishTalks(basePath);
  this.publishLabs(basePath, course);
}
```

**Note Example**  
**Resource I**  
**Github Repo 1**  
**Web Site**

**Lab-01**  
**This is a note with at TOC**  
**Lecture 1**

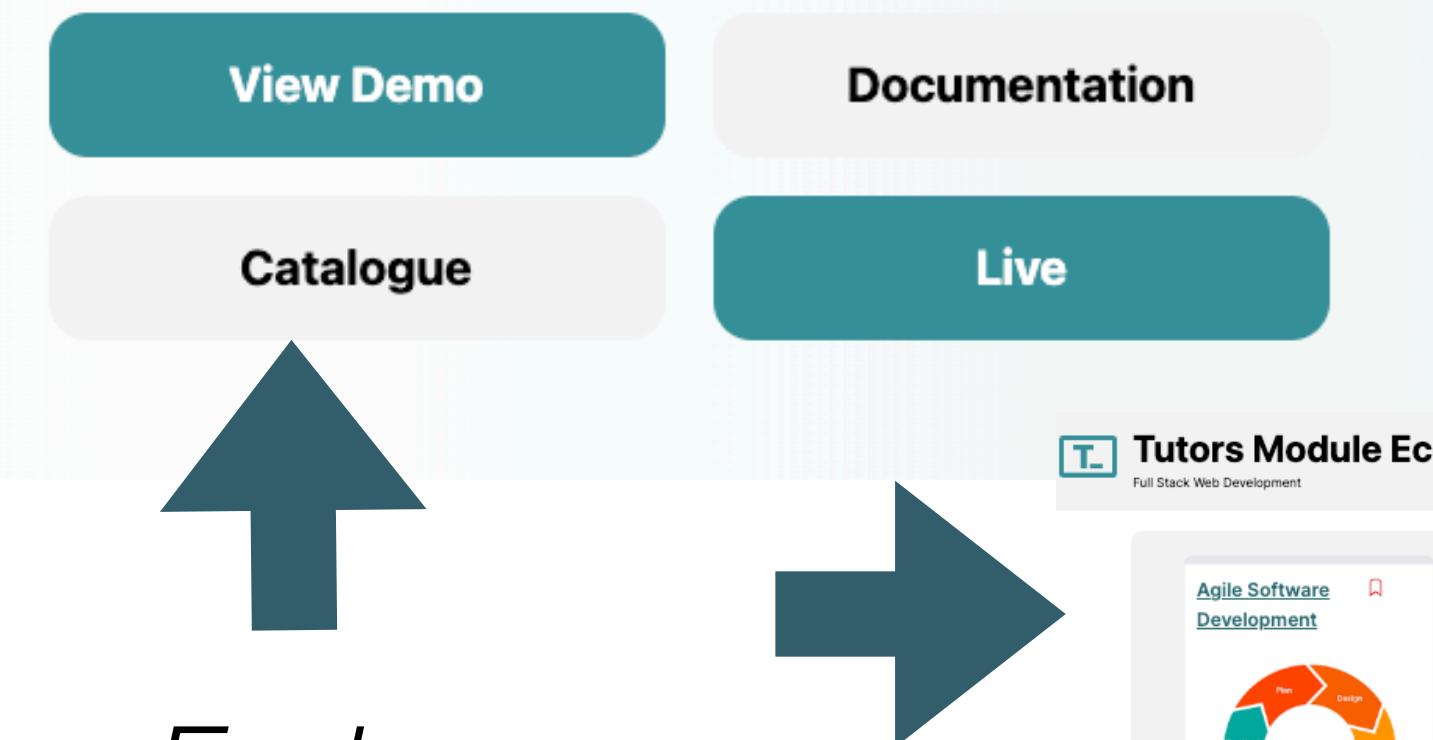
# Tutors Learning Experience

Course



## An Open Learning Web Toolkit

A collection of open source components & services supporting the creation of transformative learning experiences using open web standards.



Explore Catalogue