

Waterford Institute of Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE



Higher Diploma in Science in Computer Science

Overview of Structure & Purpose of the Online Materials

Tutors



Slack



Moodle



Youtube



4 Key Web
Services

Tutors



}

Github ID

Slack



}

personal email

Moodle



}

wit email

Youtube



}

open

Programme homepage

<https://reader.tutors.dev/course/wit-hdip-comp-sci-2023>

Semester One

HDIP
23

FAQ 

Questions and Answers for new students on the programme

Workshop One 

induction · structure · schedules · handbook

Life etc... 

time · space · balance · experiences · tips · techniques

Web Development I 

html · css · layout · web apps · web frameworks · deployment

Programming 

algorithms · data structures · processing · java · classes · libraries

Semester 1 Schedule 

timetables · semester calendars · assessment schedules



Links to individual module Home pages

A course homepage

Full Stack Web Development
Eamonn de Leastar

Search Layout 0

Home Full Stack Web ...

Overview + Assignments

01: Node

02: Hapi.js

03: Joi

04: TDD

05: Models

06: APIs

07: REST

08: OpenAPI

09: JWT

10: Seeding

11: Deployment & Images

Overview, schedule & assignments.

The fundmendals of node.
A first node application.

The Hapi application Framework

Validation with Joi

Test Driven Development

Incorporate Mongo Models

Expose an API from an application

Resful API implementations

Documentating OpenAPI/Swagger APIs

Authenticating APIs with JSON Web Tokens

Seeding the Database

Deploying to Monogo Cloud, Heroku & Cloudfinary

Topics - 1 topic/card for each week

Navigation

The screenshot displays a course management system interface for "Full Stack Web Development" by Eamonn de Leastar. The top navigation bar includes links for "Course Info", "Calendar", "Full Text Search", and "Table of Contents". The main content area shows a timeline of lessons: "Overview + Assignments", "01: Node", "02: Hapi.js", "03: Joi", "04: TDD", and "05: Models". Each lesson card features a title, icon, and brief description. A sidebar on the left provides "Breadcrumb Navigation" and a "Wall" section.

Course Info

Calendar

Full Text Search

Table of Contents

Breadcrumb Navigation

Wall

Full Stack Web Development
Eamonn de Leastar

Current Week
9

Search | Layout | User Profile

Overview + Assignments

01: Node

02: Hapi.js

03: Joi

04: TDD

05: Models

Companions

Overview, schedule & assignments.

The fundmendals of node.
A first node application.

The Hapi application Framework

Validation with Joi

Test Driven Development

Incorporate Mongo Models

Navigation

Layout & Themes

The screenshot displays a user interface for a Full Stack Web Development course. At the top, there's a header with the course name "Full Stack Web Development" and instructor "Eamonn de Leastar". A navigation bar includes a "Search" field, a "Layout" dropdown set to "Tutors", and a user profile icon. A sidebar on the right contains "Toggles" for "Dark Mode" and "Compact" view, and a "Themes" section with "Tutors" selected, also showing "Dyslexia" and "Incorporate Mongo Models". The main content area shows a series of cards for lessons 01 through 05, each with a title, icon, and brief description. Lesson 01 is about Node.js, 02 is about Hapi.js, 03 is about Joi validation, 04 is about Test Driven Development (TDD), and 05 is about incorporating MongoDB models.

Full Stack Web Development
Eamonn de Leastar

Current Week
9 | Calendar

Search | Layout |

Toggles
Dark Mode
Compact

Themes
Tutors
Dyslexia
Incorporate Mongo Models

01: Node
The fundmendals of node.
A first node application.

02: Hapi.js
The Hapi application
Framework

03: Joi
Validation with Joi

04: TDD
Test Driven Development

05:
Incorporate Mongo Models

Theme Support

Layout & Themes

The screenshot displays a dark-themed user interface for a learning platform. At the top, there's a navigation bar with a profile icon, a search bar, and a 'Layout' dropdown. A large downward arrow points from the 'Layout & Themes' text to a 'Themes' section in the sidebar. This sidebar includes a 'Toggles' section with 'Dark Mode' and 'Compact' options, and a 'Themes' section containing 'Tutors' (which is highlighted in teal) and 'Dyslexia'. The main content area shows a grid of course cards. The first card is titled 'Overview + Assignments' and features a 3D character icon. The second card is '01: Node' with a Node.js logo. The third card is '02: Hapi.js' with a Hapi.js logo. The fourth card is '03: Joi' with a Joi logo. The fifth card is '04: TDD' featuring a circular diagram with 'TDD' in the center. The sixth card is partially visible, showing a blue 3D cube icon.

Full Stack Web Development
Eamonn de Leastar

Search Layout

0

Search

Layout

Dark Mode

Compact

Toggle Light Mode

Themes

Tutors

Dyslexia

Overview + Assignments

01: Node

02: Hapi.js

03: Joi

04: TDD

05: Incorporate Mongo Models

Validation with Joi

Test Driven Development

Refactor

Write a failing test

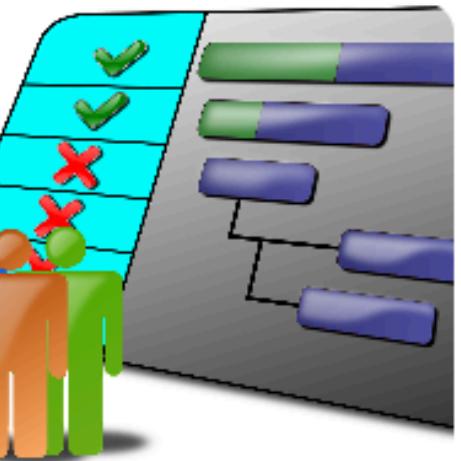
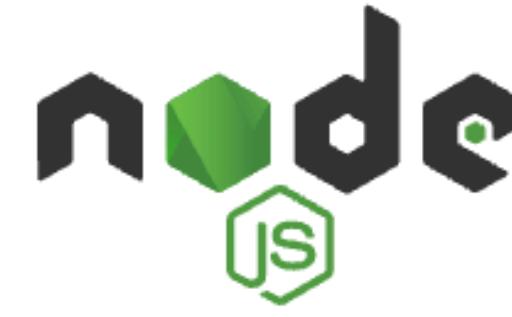
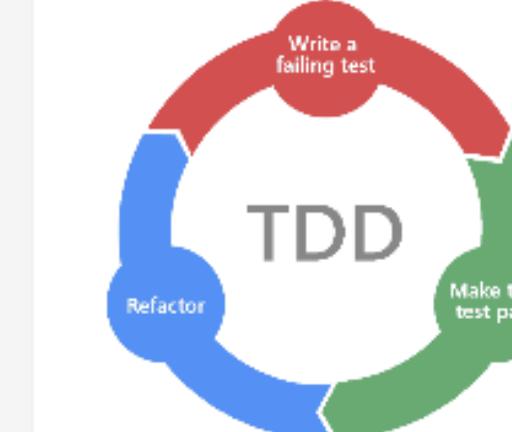
Make the test pass

Overview, schedule & assignments.

The fundmendals of node.
A first node application.

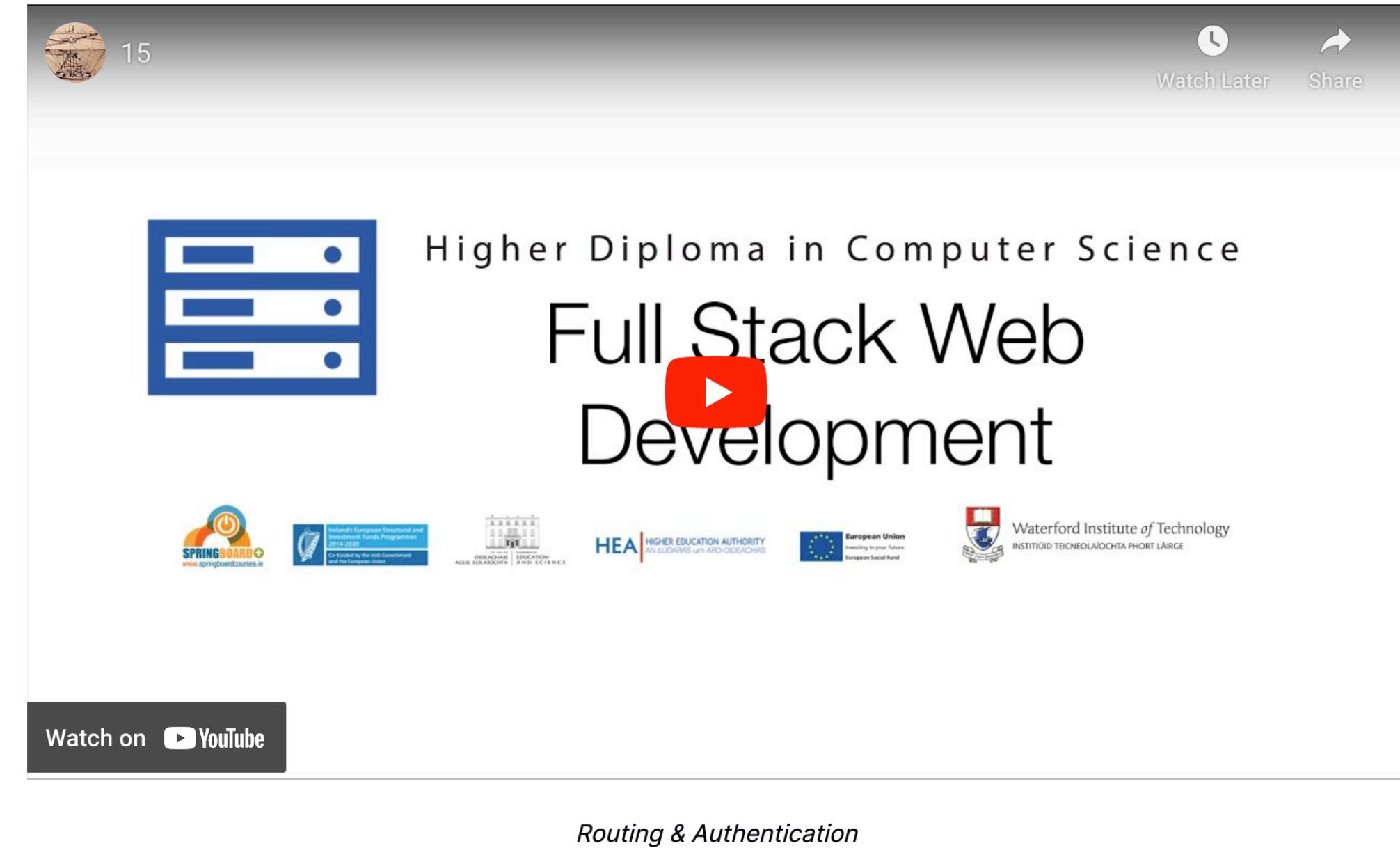
The Hapi application Framework

Topics - 1 topic/card for each week

| | | | | | |
|---|--|---|--|---|--|
| <p>Overview + Assignments</p>  <p>Overview, schedule & assignments.</p> | <p>01: Node</p>  <p>The fundamentals of node. A first node application.</p> | <p>02: Hapi.js</p>  <p>The Hapi application Framework</p> | <p>03: Joi</p>  <p>Validation with Joi</p> | <p>04: TDD</p>  <p>Test Driven Development</p> | <p>05: Models</p>  <p>Incorporate Mongo Models</p> |
| <p>06: APIs</p>  <p>Expose an API from an application</p> | <p>07: REST</p>  <p>Resful API implementations</p> | <p>08: OpenAPI</p>  <p>Documentating OpenAPI/Swagger APIs</p> | <p>09 JWT</p>  <p>Authenticating APIs with JSON Web Tokens</p> | <p>10: Seeding</p>  <p>Seeding the Database</p> | <p>11: Deployment & Images</p>  <p>Deploying to Monogo Cloud, Heroku & Clouinary</p> |

Single Topic

The screenshot shows a top navigation bar with a logo, search icon, layout icon, and user profile. Below it is a breadcrumb navigation path: Home > Full Stack Web ... > 15: Routing & A... > Routing. To the right is a toolbar with icons for file operations.



A list of sub-topics under the main topic "Routing". Each item has a thumbnail, title, and a brief description. The sub-topics are:

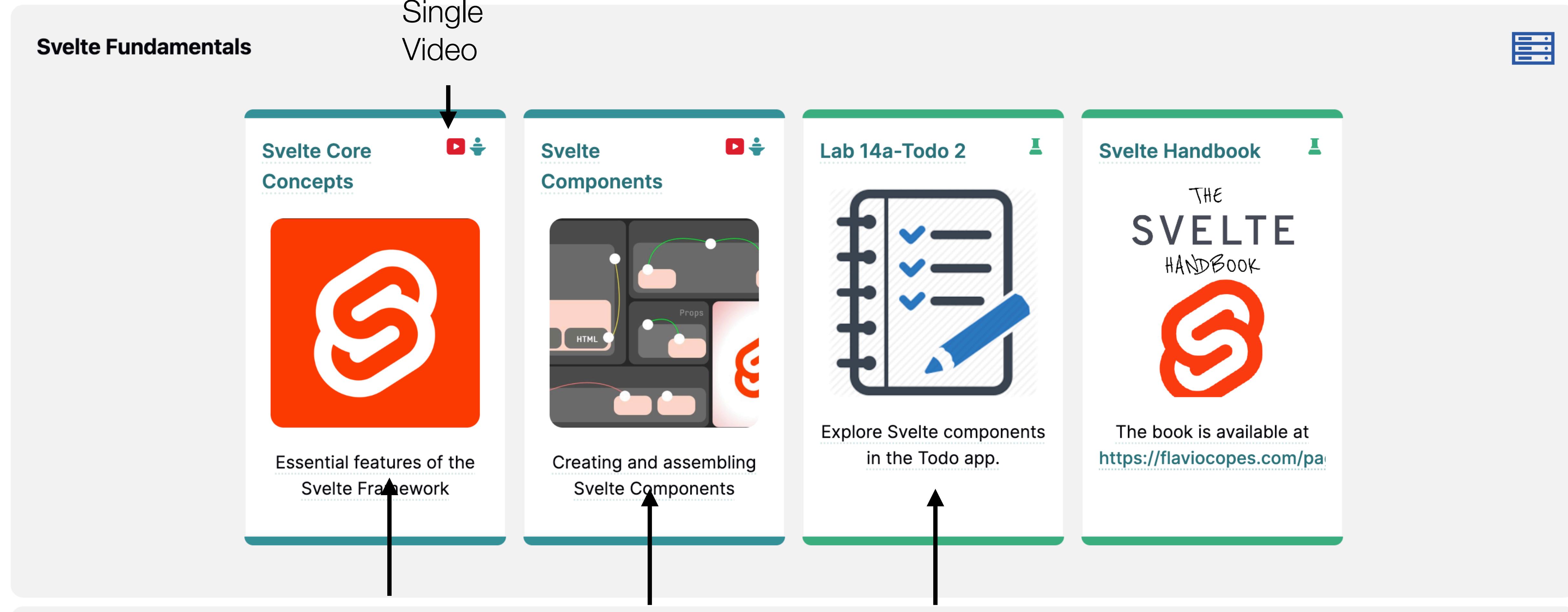
- Routing**: How Routing Works, Hash based routing in Svelte.
- Pages & Components**: Creating and assembling Svelte Components.
- Lab-15a-Donation-Svelte-1**: Front end for Donation - Pages + Components.

Topic Video

Pre-recorded or live stream

Sub Topic 1

Sub Topic



Talk Slide PDFs

Lab

Embedded PDF reader custom with Navigation →

4 of 18

Context

The context API is provided by 2 functions which are provided by the svelte package: getContext and setContext

You set an object in the context, associating it to a key

In another component you can use getContext to retrieve the object assigned to a key:

→ **Context:** A feature to allow a component communicate with multiple descendants

```
<script>
import { setContext } from 'svelte'

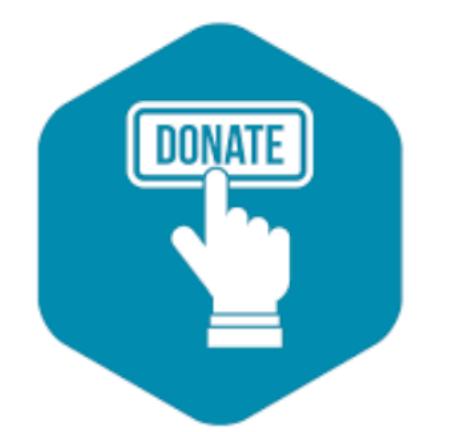
const someObject = {}

setContext('someKey', someObject)
</script>
```

```
<script>
import { getContext } from 'svelte'

const someObject = getContext('someKey')
</script>
```

16: Svelte Applications



Svelte Applications

Svelte Applications

Why Svelte? ▶

Donate API ▶

Donate in Svelte ▶

Lab-16a-Donate-Hapi-3 ▶

Lab-16b-Donate-Svelte-3 ▶

Talk Context - related talks & videos ←

Talk

Labs

Lab Steps



- Objectives
- Create
- Router**
- Components
- Pages
- Donate & Report
- Login & Signup
- Solutions

Router

Like web apps, front end applications also have the concept of a router. Svelte itself does not provide one, but there are several popular options:

- <https://www.routify.dev/>
- <https://github.com/AlexxNB/tinro>
- <https://github.com/ItalyPaleAle/svelte-spa-router>

We will use the last one - which is documented in detail in this svelte text book:

- [Svelte 3 Up & Running](#)

Start by installing it:

```
npm install svelte-spa-router
```

To try it out, create three svelte file in a new **pages** folder in the project:

pages/Main.svelte

```
<div class="notification is-link">
  Hello from Main!
</div>
```

pages/Login.svelte

```
<div class="notification is-info">
  Hello from Login!
</div>
```

pages/Signup.svelte

```
<div class="notification is-warning">
  Hello from signup!
</div>
```

This is a revised App.svelte, to include the routing table:

App.svelte

Markdown
formatted text

Code block
syntax
highlighting



Enter search term:

env

Search

"env": {

Lab-01-Playtime-0-1-0/ Code Quality Tools

dotenv environment variables file

Lab-01-Playtime-0-1-0/ Code Quality Tools

dotenv environment variables file

Lab-01-Playtime-0-1-0/ Code Quality Tools

.env

Lab-01-Playtime-0-1-0/ Code Quality Tools

.env.test

Lab-01-Playtime-0-1-0/ Code Quality Tools

.env.production

Lab-01-Playtime-0-1-0/ Code Quality Tools

In general we should attempt to "externalise" sensitive information, secrets or API details to a text file. This is usually called .env

Lab-02-Playtime-0-2-0/ Exercises

.env

Lab-02-Playtime-0-2-0/ Exercises

<https://github.com/motdotla/dotenv#readme>

Lab-02-Playtime-0-2-0/ Exercises

In general we should attempt to "externalise" sensitive information, secrets or API details to a text file. This is usually called .env

Lab-03-Playtime-0-3-0/ Exercise 3

.env

Lab-03-Playtime-0-3-0/ Exercise 3

<https://github.com/motdotla/dotenv#readme>

Lab-03-Playtime-0-3-0/ Exercise 3

npm install dotenv

Lab-03-Playtime-0-3-0/ Exercise 3

Import the package in server, and check for the presence of the .env file, exiting if not found:

Lab-03-Playtime-0-3-0/ Exercise 3

import dotenv from "dotenv";

Lab-03-Playtime-0-3-0/ Exercise 3

import dotenv from "dotenv";

Lab-03-Playtime-0-3-0/ Exercise 3

const result = dotenv.config();

Lab-03-Playtime-0-3-0/ Exercise 3

If we have included the .env file above at the root of our project, then we can directly access its entries. So, our cookie configuration can now import these values:

Youtube Live



Live Webinars
Delivery



Live Stream

Live stream of
webinar for given
topic



Routing
Full Stack Web Development

Search Layout

0

Home Full Stack Web ... 15: Routing & A... Routing

Watch later Share

Device/Service Discovery

2021 Computer Systems and Networks

MORE VIDEOS

4:33 / 1:36:38 YouTube

07: Application Layer: Messaging

Slides & Labs for
the topic



MQTT and HTTP

MQTT Broker

Publisher

Subscriber

message

Data Representation · Publish Subscribe · Web APIs

Lab Messaging

Broker

Publish

Subscribe

Use MQTT to connect a device

07: Application Layer: Messaging

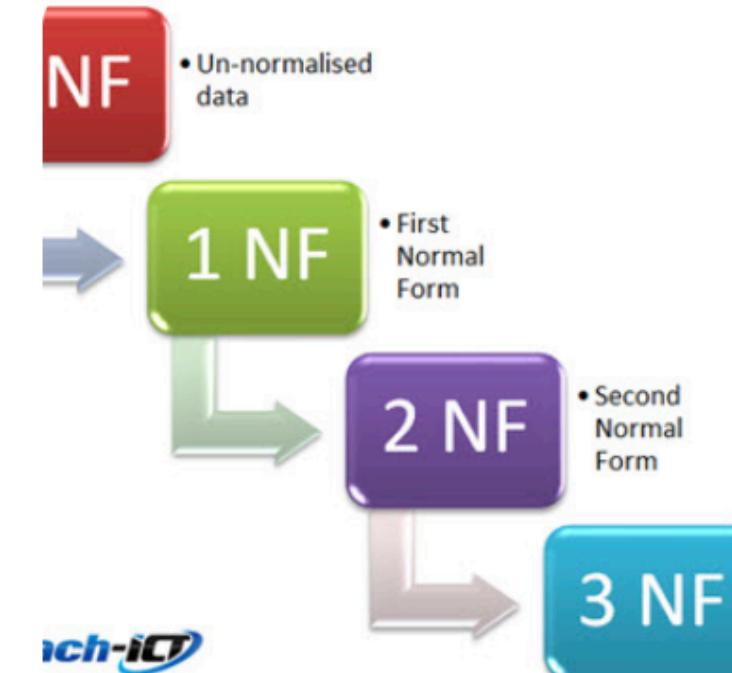


Pre-recorded Videos for selected slides & labs



Stages of Normalisation

The Process of Normalisation



In this lecture you will look at the Process of Normalisation.

First Normal Form

Normalization
First Normal Form

In this lecture you will look at First Normal Form.

Second Normal Form

Second Normal Form : The Whole

In this lecture you will look at Second Normal Form.

Third Normal Form

1 Normal Form : Nothing but the

In this lecture you will look at Third Normal Form.

Moodle



WIT E-Learning
Platform

Used for Assignment
Submission +
feedback + grades

Occasionally used for
additional document
distribution



moodle.wit

Higher Diploma in Computer Science

Participants

Grades

Grades

Higher Diploma in Computer Science

My Home / My modules / Higher Diploma in Computer Science

Programming



- Assignment 1
- Assignment 2
- Assignment 3

Web Development

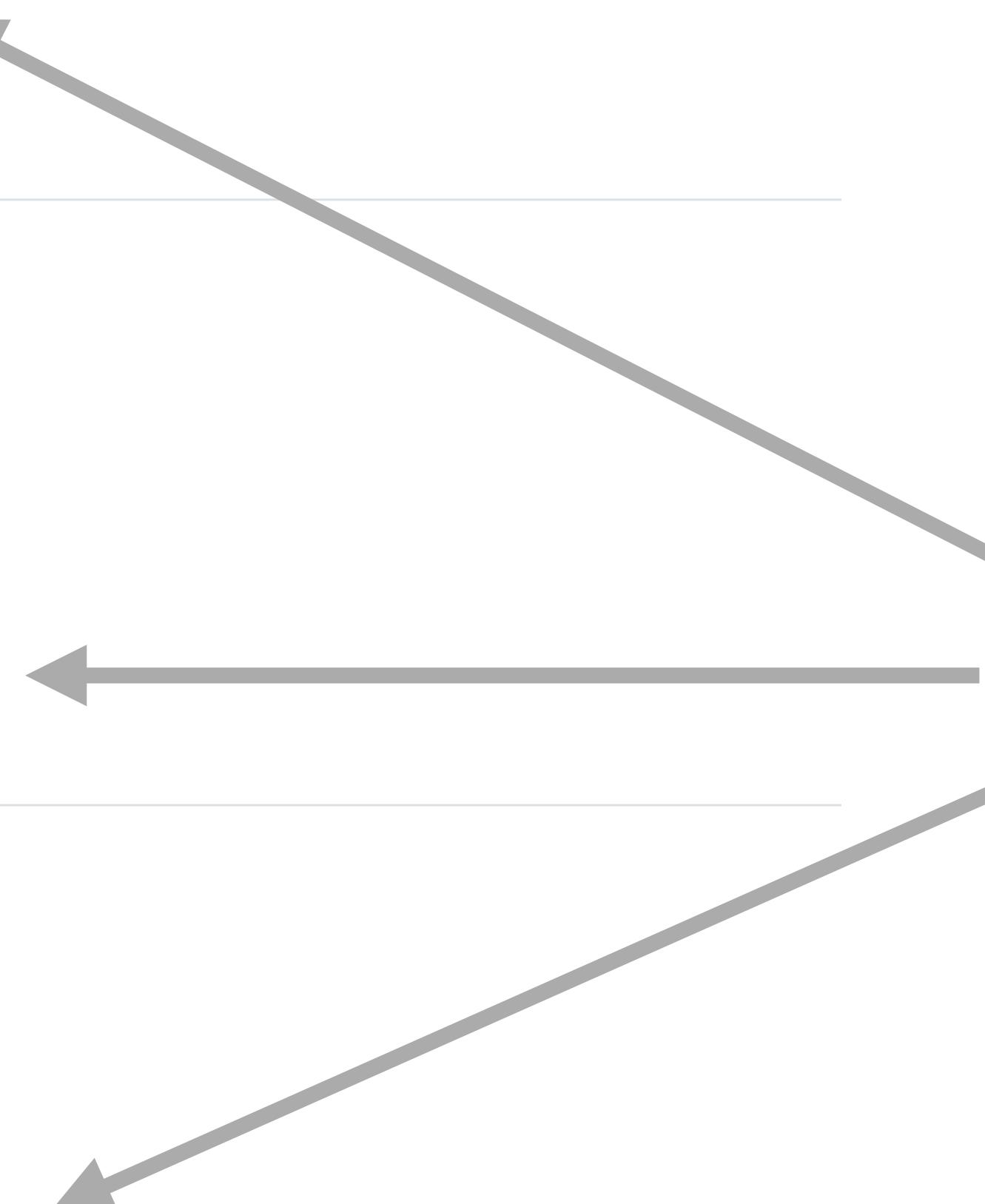


- Assignment 1
- Assignment 2

Skills Studio 1



- Assignment



Assignment Submissions



Assessment feedback

Web Development



Assignment 1

Assignment 2

Assignment: Submit

https://moodle.wit.ie/mod/assign/view.php?id=2407050&rownum=0&action=grader&userid=42131

Module: Higher Diploma in Computer Science
Assignment: Submit
[View all submissions](#)

Due date: 11 March 2018, 11:55 PM

Change user ▾

33 of 39

Well done [REDACTED] for a excellent effort - your grade was 74%

The structure of the project was excellent, with effective use of file and folder names. Indentation was good (although head and body were not indented) and the use fo semantic elements was spot on. You implemented 2 column layout, which worked well. Navigation was also excellent - with full context sensitivity. The CSS was clean and concise. I was rewarding an attempt to use more than one sheet - a generic and a set of styles (perhaps that could have been used on different sites).

You didn't attempt EJS. Templating is important in the remainder of the course (and in successor modules) - so it would be worth, perhaps, having a go a the template labs if you have time.

I didn't see any media, but I was able to verify a deployment

Overall I was pleased with the projects - in my categorisation there were 7 outstanding projects, 10 excellent, 6 very good, 4 good and 1 fair. The were graded more or less adhering to the published grading spectrum.

Notify students Save changes Save and show next Reset

Tutors

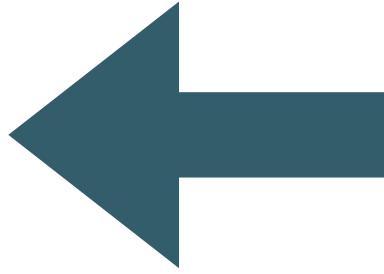
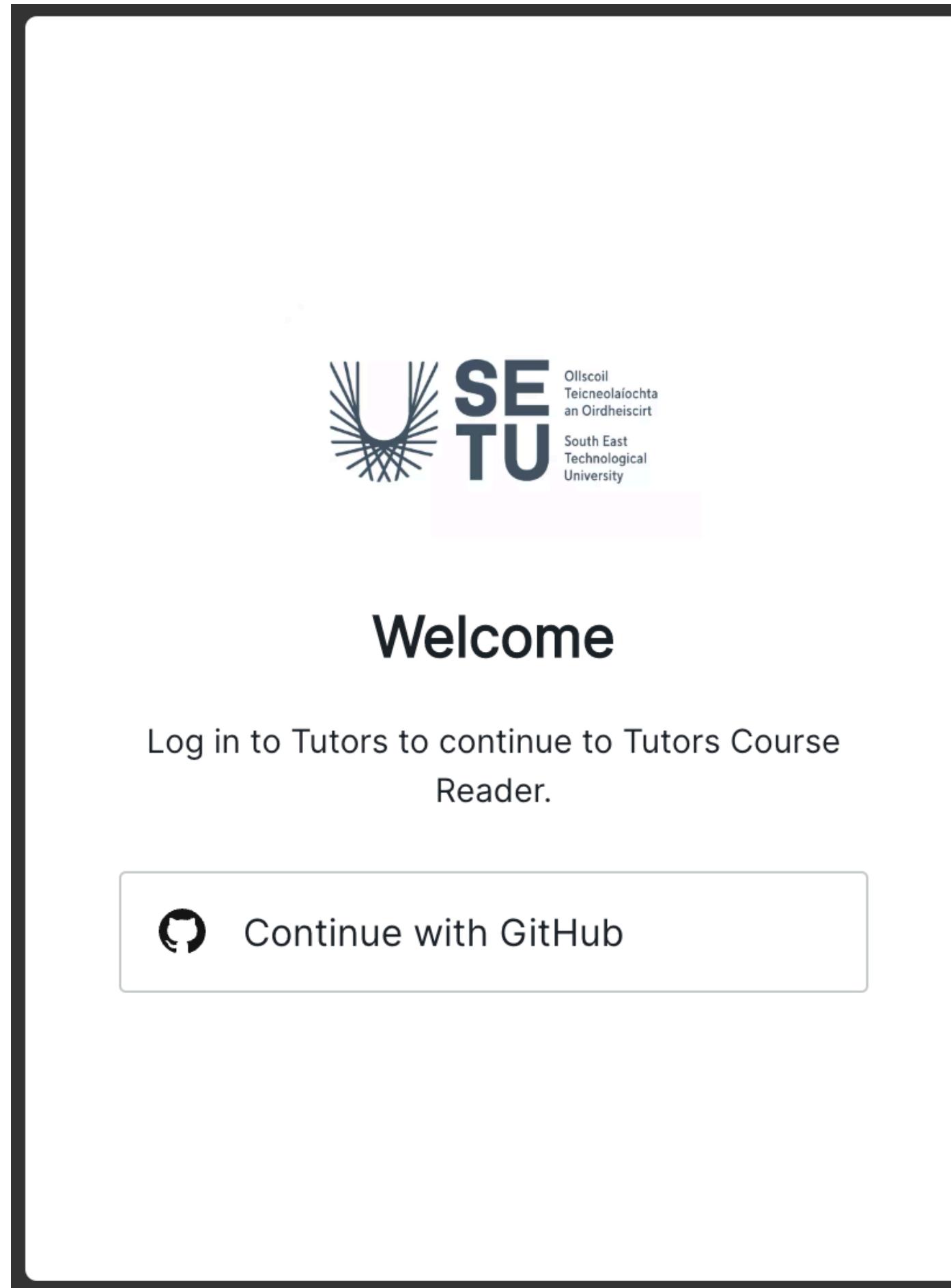


TutorsTime

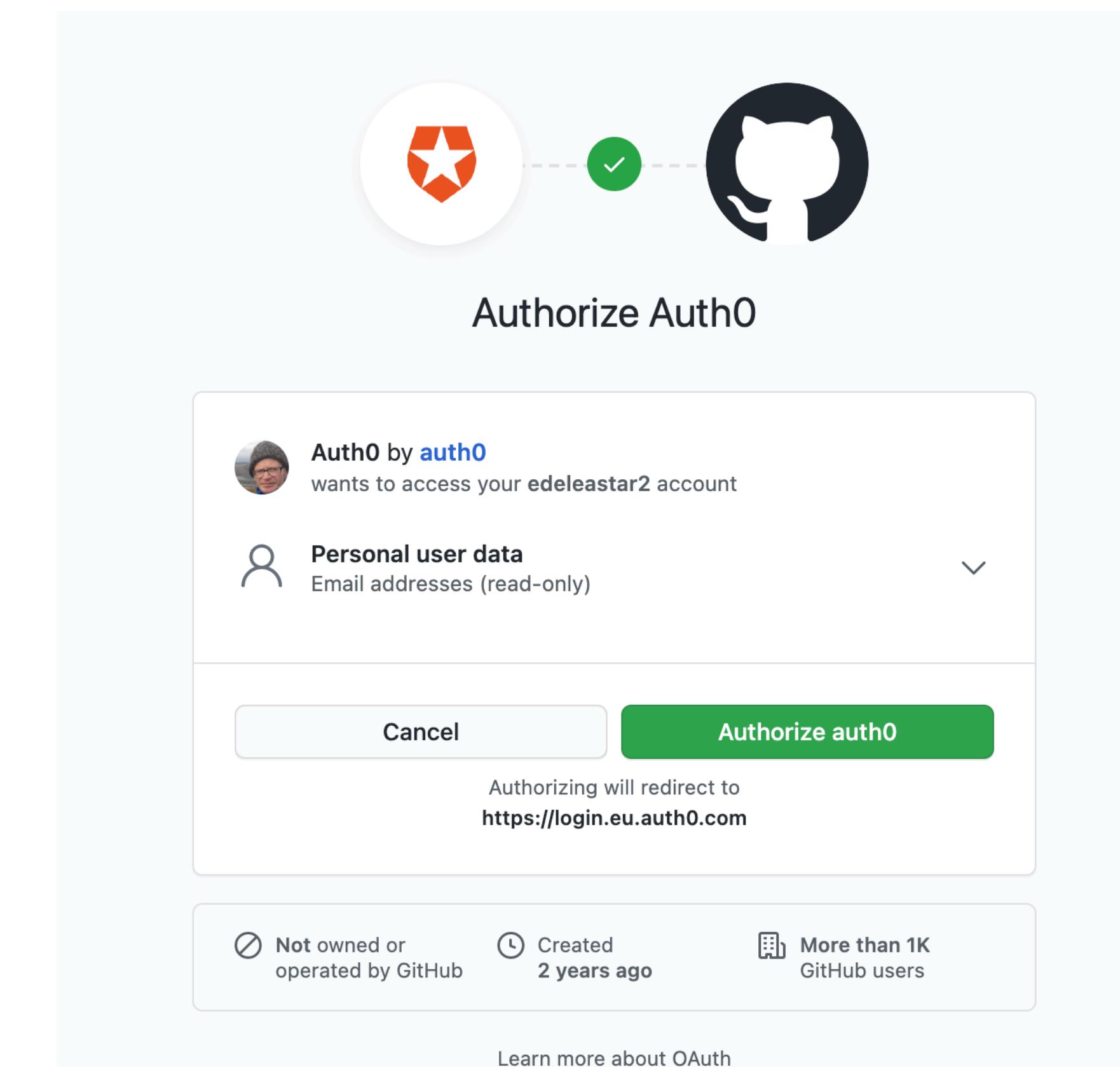


TutorsLive

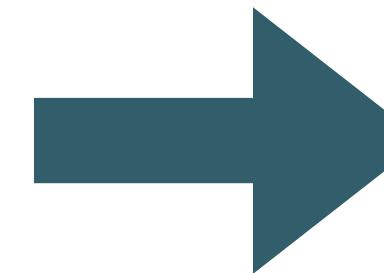




When accessing module, you will be asked to sign in with Github



... first time you will have to authorise ...



TutorsTime

You have been authenticated via your GitHub credentials and are about to enter a Tutors course. Tutors will record how much time each view is active and send this to the TutorsTime data store. You can view this information via the TutorsTime feature on the course Navigator.

This data is available to you + the instructor of your course, but not to other students. No other data is gathered, nor is this data transmitted anywhere other than the TutorsTime data store.

TutorsLive also uses this data to display of panel of students currently online. You can opt out of this feature from the TutorsLive page.

To learn more about these features please consult:

- [Tutors Time FAQ](#)
- [Tutors Live FAQ](#)

Tutors is an open source application - the data collection component [is here](#).

You will be asked to authenticate again in seven days time.

[Proceed to Course](#)

Github Profile

Screenshot of a GitHub profile page for user `edeleastar2`.

The top navigation bar includes the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. On the far right are icons for notifications, a plus sign, and a user profile.

A message banner at the top states: "Your profile picture has been updated. It may take a few moments to update across the site." with a close button.

The main content area is titled "Public profile".

Name: Eamonn de Leastar

Profile picture: A circular photo of a man with glasses and a textured hat, set against a backdrop of hills and water.

Profile sidebar: Includes links for Profile, Account, Appearance (marked as New), Account security, Billing & plans, Security log, and Security & analysis.

Public email: A dropdown menu showing "Select a verified email to display" with an arrow icon. Below it, a note says: "You have set your email address to private. To toggle email privacy, go to [email settings](#) and uncheck 'Keep my email address private.'"

Bio: A blank input field with an "Edit" button containing a pencil icon.



TutorsTime - Labs

Web Development

Eamonn de Leastar

Labs Labs Chart Calendar

| User | Date Last Accessed | Total | Github |
|-------------------|------------------------------------|-------------------------------------|--------|
| Eamonn de Leastar | edeleastar 1337 2/01/2022, 10:12:3 | 50 8 11 2 16 28 22 22 6 41 2 128 47 | |

Lab-08 Playlist 1
Lab-07b Play Setup
Lab-07a Semantic-UI
Lab-06 Nav Params
Lab-05b Templates
Lab-05a Harp & Surge
Lab-04 Navigation
Lab-03b Multicolumn
Lab-03a Layout
Lab-02b CSS Paths & Links
Lab-02a CSS Fonts & Colours
Lab-01 HTML Structure
Lab-00 Editing HTML

Layout



Logged in as:
Eamonn de Leastar

Share Presence

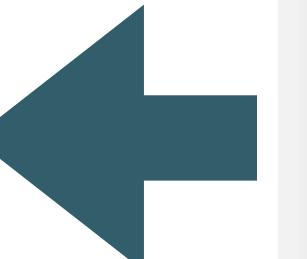
View 0 Online

Tutors Live

Tutors Time

Github Profile

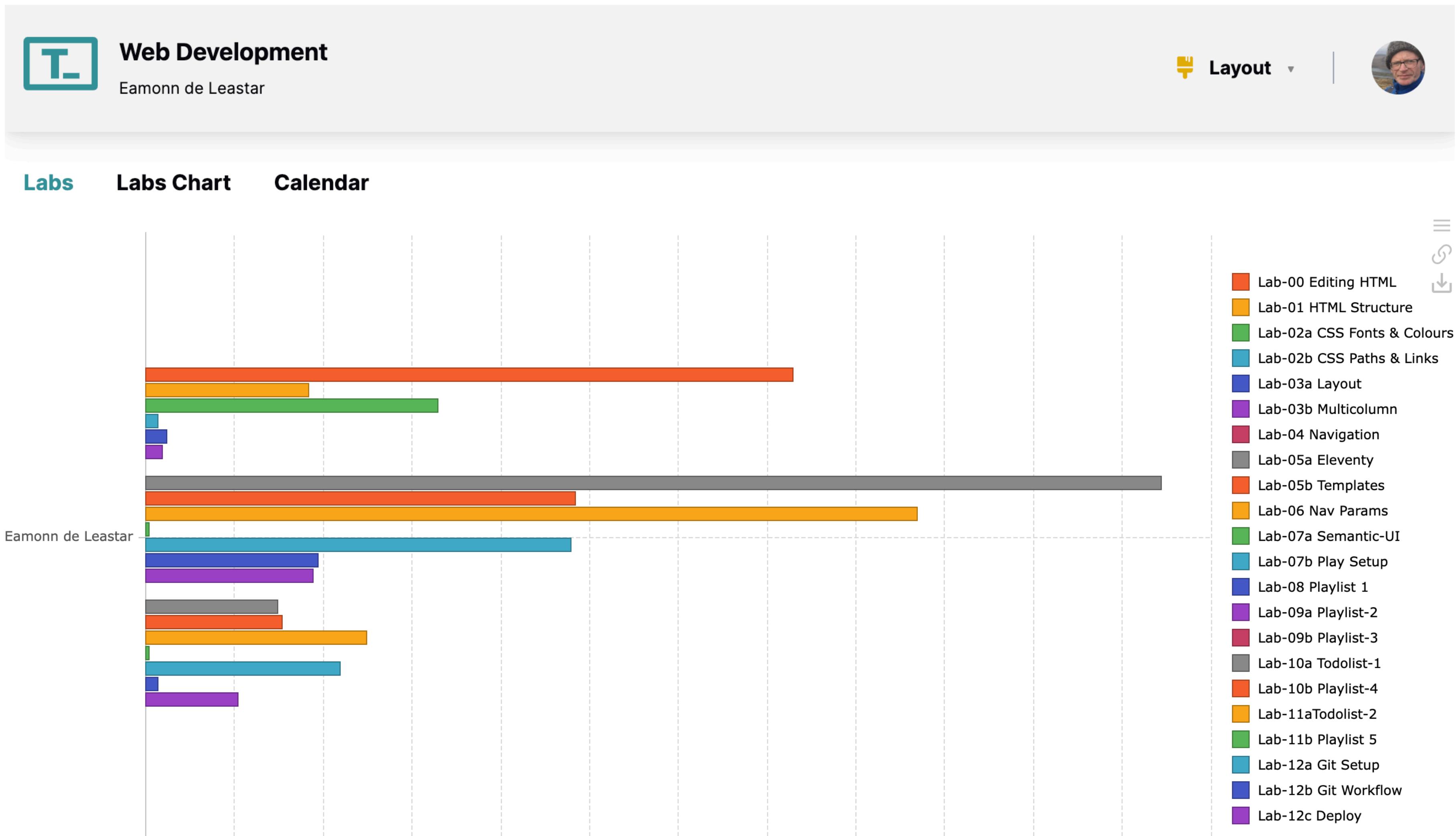
Logout



Number of minutes the Each lab has been active in your browser (estimate)



TutorsTime - Chart



Logged in as:

Eamonn de Leastar

Share Presence

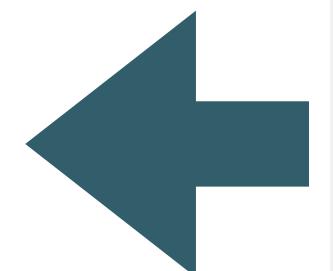
View 0 Online

Tutors Live

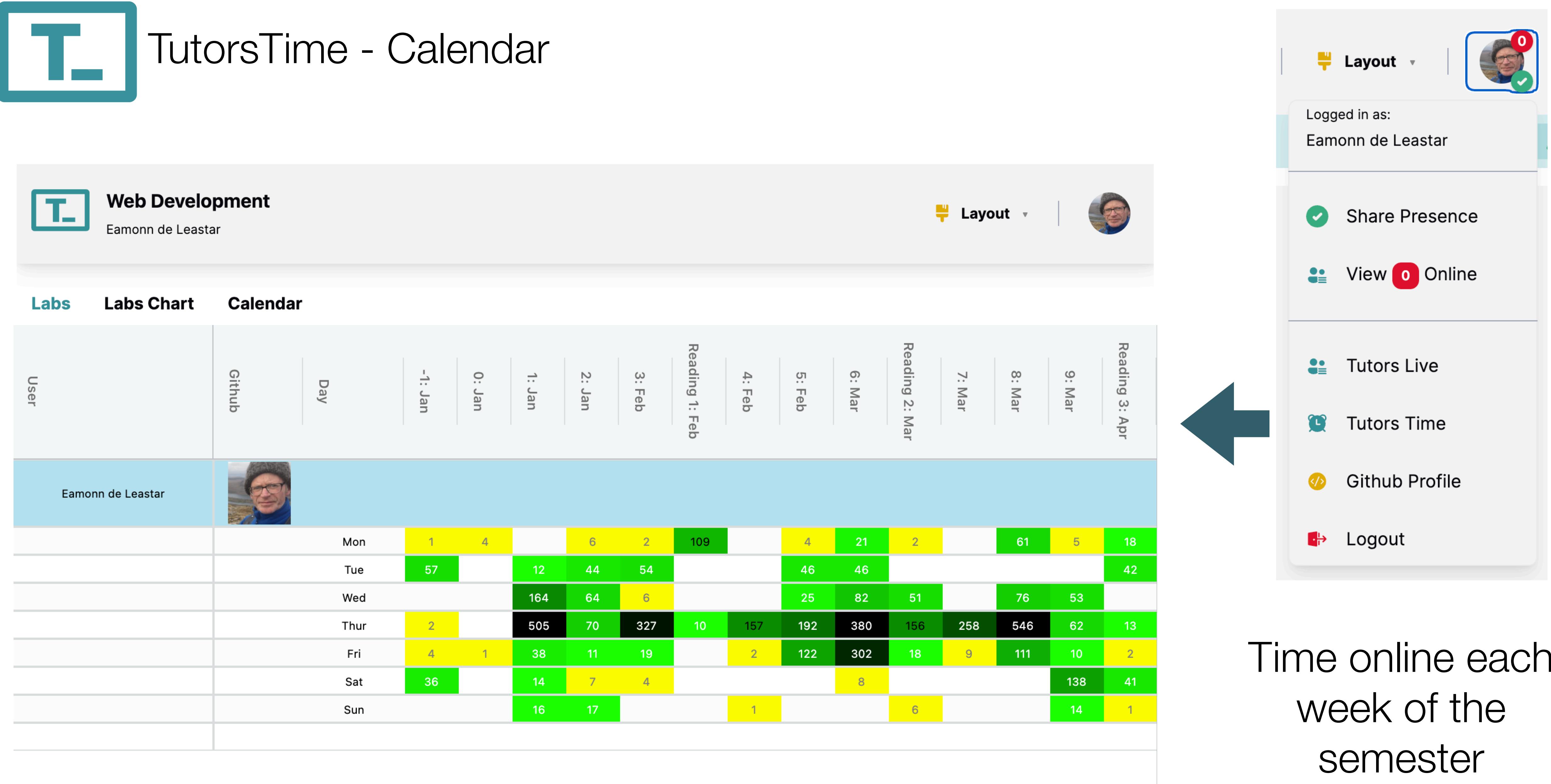
Tutors Time

Github Profile

Logout



At a glance
comparative time
spent on each
labs



Time online each week of the semester

Web Development
Pete Windle, WIT

Current Week
0

Search Layout Calendar

File Operations

Joe
12:38:55
05: Arrays Lab-05a

Mary
12:47:54
04: Classes Lab-04a

Mike
12:39:14
05: Arrays Lab-05a

Frank
12:47:54
05: Arrays Lab-05a

Elizabeth
12:38:57
05: Arrays

Sean

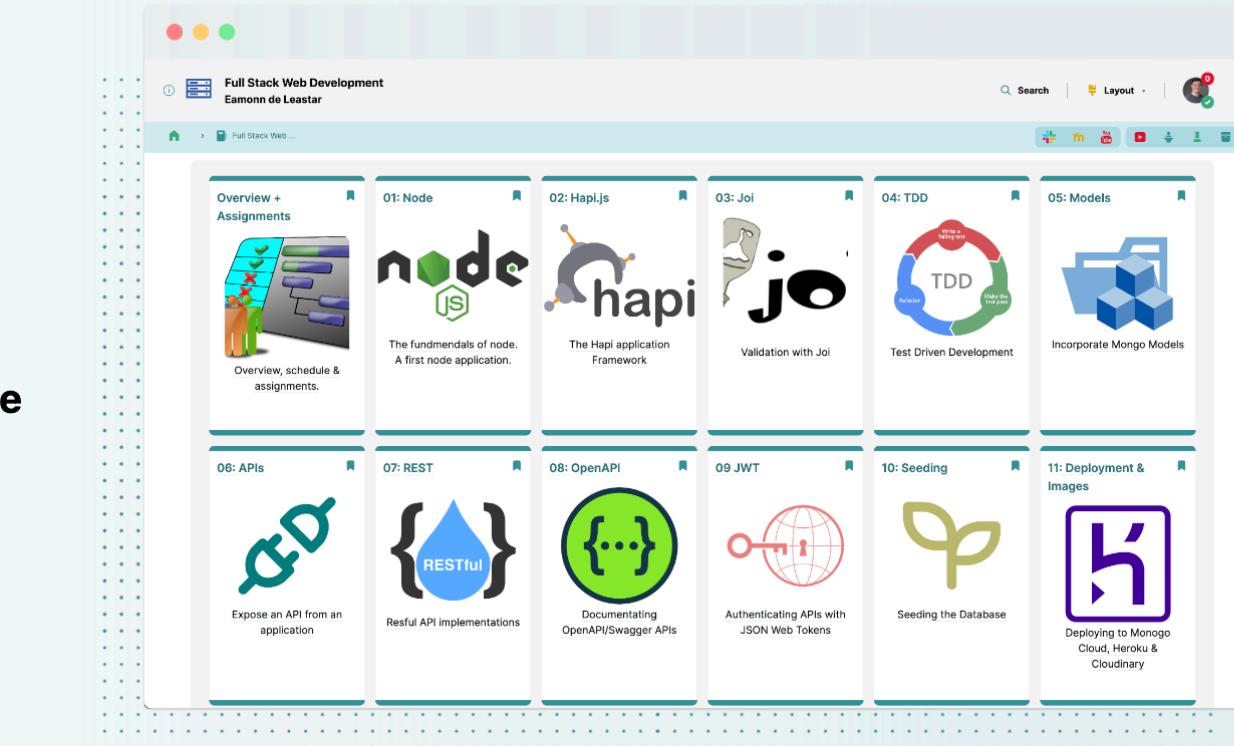
Any students currently online will appear here, indicating the topic/lab they may be working on

You may choose to not appear on this page if you prefer not *share your presence*



An Open Learning Web Toolkit

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

[View Demo](#)[Documentation](#)

<https://tutors.dev>

The Values of the project

Learner Experience



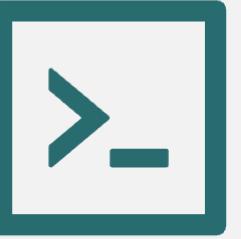
The **Learner Experience** prioritises web interactions that are **engaging, contextual, linkable, searchable, accessible and responsive**. In addition the experience should foster a sense of **community and connection** among fellow learners.

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**.

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**.



<https://reader.tutors.dev/course/tutors-project-site>



Tutors Documentation

An Open Learning Web Toolkit

Search

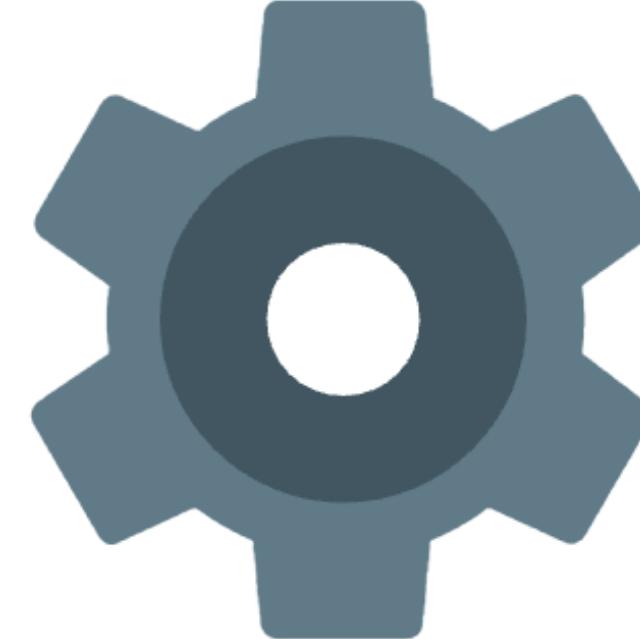
Layout



> Tutors Documen...



Tutors Workshop



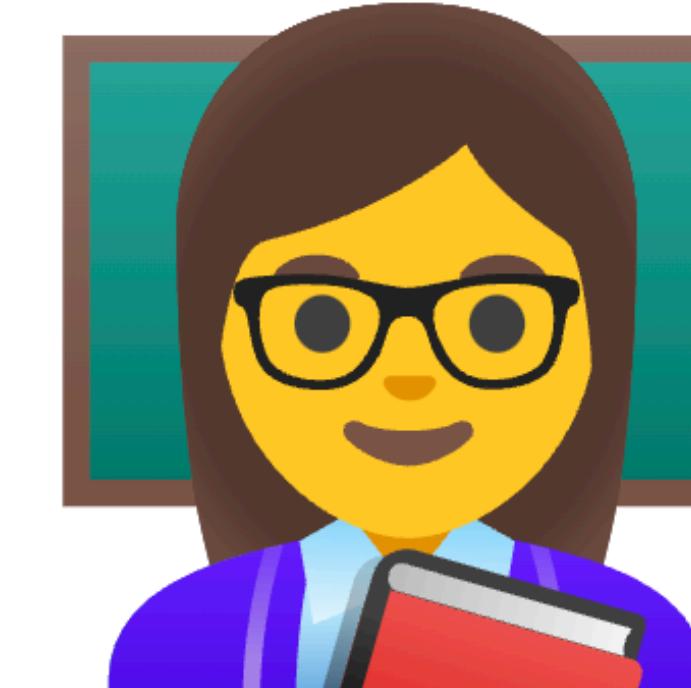
First contact with the
Tutors Tool Set

Learner Experience



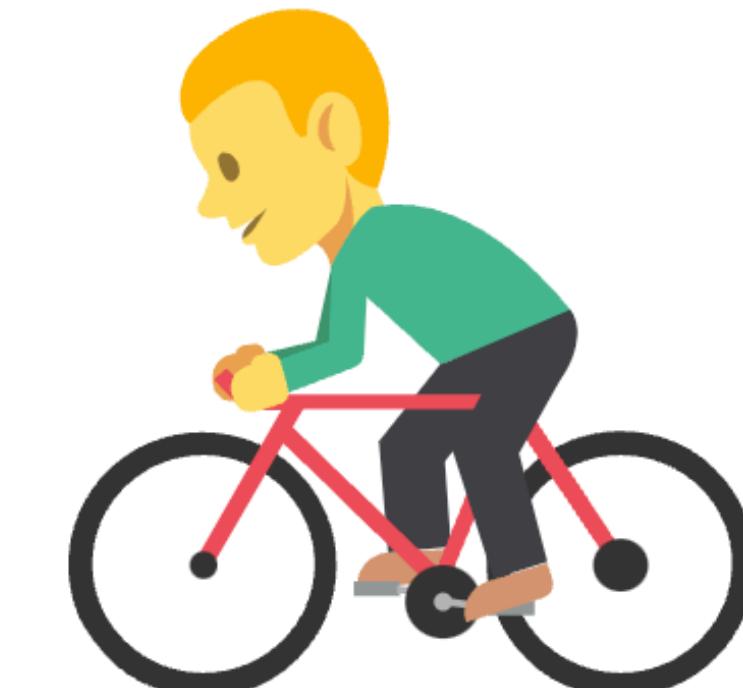
Consuming a Tutors
Course

Educator Experience



Creating tutors courses

Developer Experience



The Tutors Open Source
Components & Services