# Regional Championships 2022

## Web Technologies

ICT Berufsbildung
Formation professionnelle
Formazione professionale

# Frontend Development Module

| TASKS | POINTS |
|---|---|
| Timer | 20 POINTS |

## Task - Timer

The goal of the task is to create a JavaScript implementation of a *Timer*. The code structure and the user interface are already provided, and your goal is to implement the body of the methods in the files in the `work/frontend/src/` folder as specified.

To be more efficient, it is recommended to reuse your code in the given classes as much as possible, however, you are not technically required to do so.

### General Information

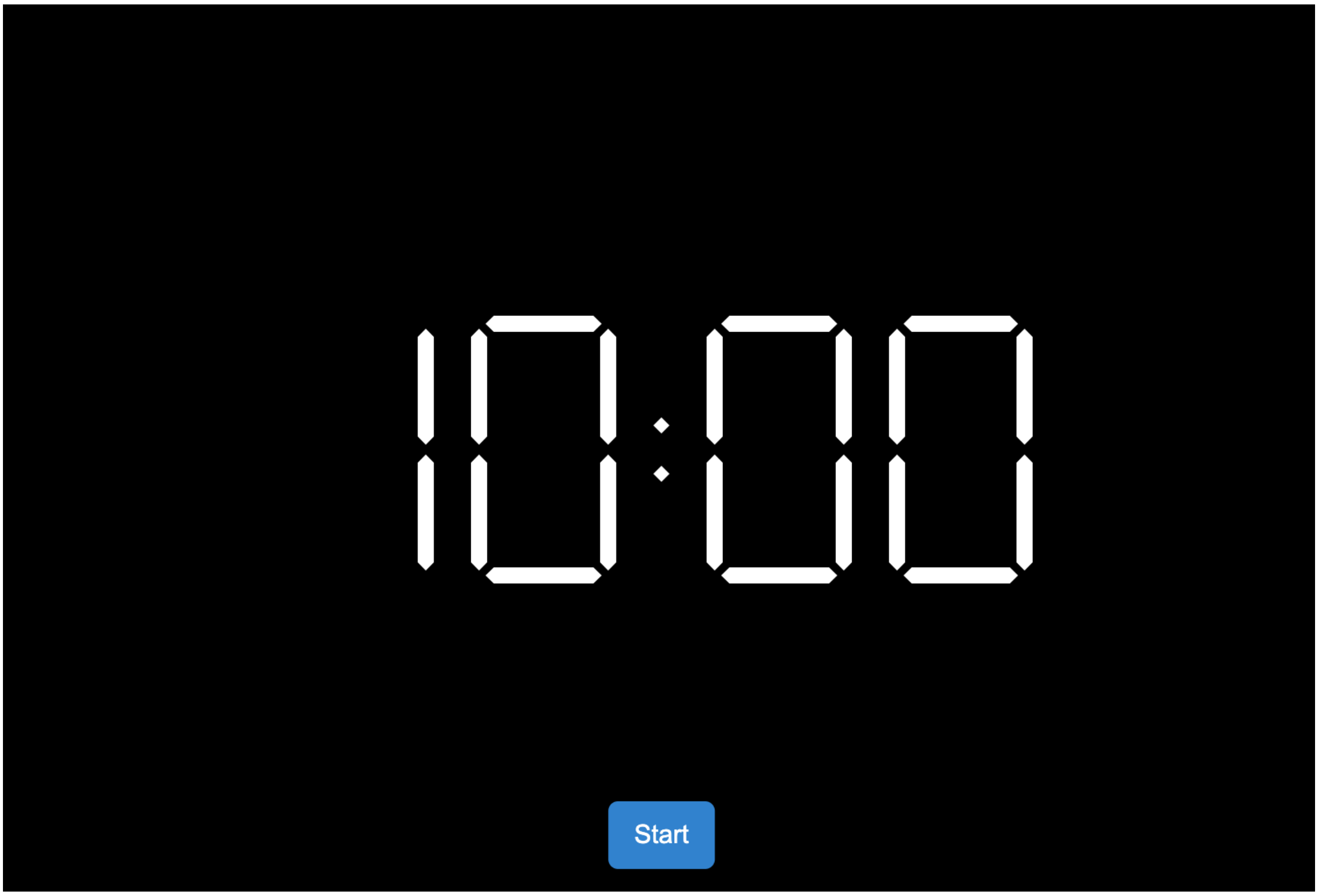
In this part, you will prove your JavaScript programming skills. Therefore, you will modify several prepared JavaScript files. Your working space is the folder `work/frontend/src/`.

> ! You can only change or create new files under `work/frontend/src/`. All other files will be reverted for the review process.

### Requirements

As a sub-feature of an application you are asked to implement a timer. On a digital clock consisting of HTML elements, the timer should display minutes and seconds in the format `mm:ss`.

After pressing "Start", the timer should count down to zero starting from the given time.



At any point of time, the user should be able to pause and resume the timer.

No matter whether the timer is paused or not, pressing "Reset" should pause it and reset it to the starting time.

### Modules

To keep the code reusable and expandable, it should be split into the following modules.

> ℹ It is suggested to implement the modules in this given order so it is possible to reuse code in other modules.

**Interval** - `work/frontend/src/interval.js`

- Can be used to call a function at a given interval. It includes pausing and resuming functionality.

**Digit** - `work/frontend/src/digit.js`

- Controls the HTML elements of a single digit.

**Clock** - `work/frontend/src/clock.js`

- Connects multiple digits to form a visual representation of a digital clock.

**Timer** - `work/frontend/src/timer.js`

- Connects all other modules to form a fully functional timer.

**Main** - `work/frontend/src/main.js`

- The main script is used to bring interactability to the timer. It hooks up buttons to their corresponding timer functions.

## Working Directory

> ℹ The working directory is located in `work/frontend/src/`.
>
> You may only change the files and add all the JavaScript functionality within in that folder.
>
> Also make sure to check the header of each file for notes on what you may or may not change.

> ❗ For reviewing your work, unit tests are used. So be sure that you are executing the unit tests at some point to verify your progress.
>
> Please note that these behaviors are considered as cheating and will give you 0 points for the whole frontend task:
>
> - It is forbidden to change the content of the test files.
> - It is forbidden to return static results (only make it work for the exact same situations that the one described in the tests).

## Expected Result

You have implemented all the methods marked with `@todo` in `work/frontend/src`, and all tests in the test suite are passing.

### Running the Tests

All tests are located in `work/frontend/cypress/integration`. You can look at them to see what is expected to happen but you are not allowed to change them in any way.

You may run the tests in two ways:

**Interactively** - `npm start`

- Starts an **interactive test runner** that let's you select which tests to run and gives you extensive feedback on the tests' results.
- Wait for cypress to start (it might take a bit of time initially)
- Select the testsuite for the module you want to test

- A chrome window will open and the tests will run
- Click the "Run all tests"-Button or reload the page to rerun the test
- Select or hover over a test or assertion in the left sidebar to see the website at that specific point in time

**In your Terminal** - `npm test`

- Runs all the tests in your terminal, gives you feedback on their results and let's you know **how many points you have earned**.
- `npm test -- --spec "cypress/integration/digit.spec.js"` allows you to only run the specified test file.