INTRODUCING AI
TO VOCATIONAL SCHOOLS
IN EUROPE

Attendance marking powered by Face Recognition

Co-funded by the
Erasmus+ Programme
of the European Union

KITM
KAUNO INFORMACINIŲ TECHNOLOGIJŲ MOKYKLA

Relevance of the topic

- Attendance marking is a tiresome task.
- Current systems are outated.
- Takes a lot of time.
- Theres a possibility of a human error.

Problems we try to solve

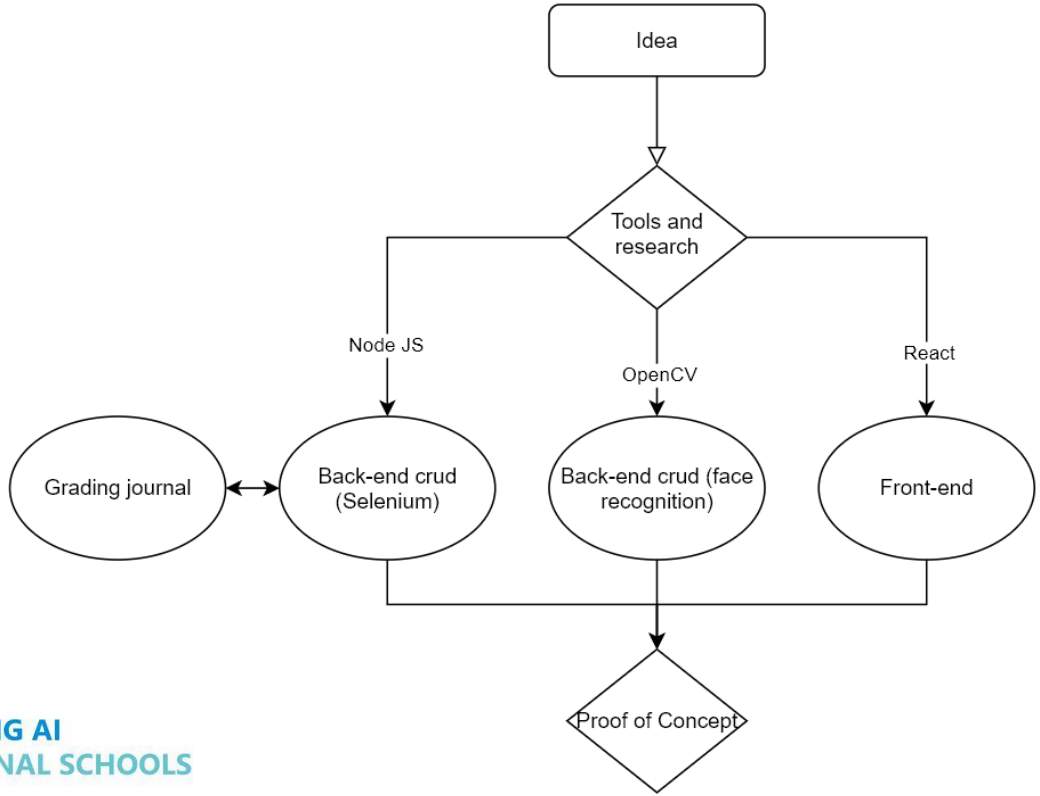
- Taking most of the tiresome tasks and automating them.
- Making the attendance journal easier to use.
- Decreasing the amount of human error.

Soliution we thought off

- Using the help of AI we will try to automatize the processes of marking the student's attendance.

Implementation of the idea

SCHEMA


Idea
Tools and research
Node JS
OpenCV
React
Grading journal
Back-end crud (Selenium)
Back-end crud (face recognition)
Front-end
Proof of Concept

Technologies we used

- OpenCV
- Node.JS
- React
- Selenium
- Express.js

OpenCV

- We tried other face recognition softwares, but this was the best fit for us becasue:

- It had compatibility with Node.JS

- It was better/simplier to implement than others.

- We had prior knowledge and recommendations.

Node.JS

- Since our preferred language is JavaScript it was natural for us to use Node.JS

- It is compatible with OpenCV.

- It's asynchronous and event driven.

React

- Our preferred JS library for front-end.

Selenium

- Powerfull, ease of use.
- Has the ability recreate human actions.

Express.JS

- Our preferred JS library for back-end.
- Responsible for API endpoints.

External technologies

- Nikon DSLR: used to take pictures.
- 4k WEB Camera: for real-time face recognition.

Workflow

Task allocation

- Arnoldas – research and presentation preparation.
- Edgaras – product owner.
- Ignas – OpenCV and research.
- Jolita – scrum master.
- Kazimieras – front-end styling.
- Lukas – fullstack, selenium.
- Martynas – styling.
- Modestas – fullstack.

Jira

Projects / hakatonas

HAK Sprint 1

Label

TO DO 8 ISSUES

Schema
HAK-5

Join back and front ends
backend frontend
HAK-3

Create teachers side front-end

IN PROGRESS 3 ISSUES

Make some pictures
backend
HAK-8

Look into Selenium controls /w NodeJs
backend
HAK-4

Create selenium connection w/ e grade book
backend
HAK-7

IN REVIEW 2 ISSUES

face-api.js Real time face recognition
backend
HAK-11

Create teachers side back-end
backend
HAK-9

DONE 3 ISSUES

Create GitHub organization
HAK-2

Fix up styling of a time table
frontend
HAK-10

Create time table
frontend
HAK-17

CAN

HackathonKITM

Follow

Overview | Repositories 4 | Projects | Packages | Teams | People 6 | Settings

Repositories

Find a repository... | Type | Language | Sort | New

HackathonOpenCv Private
JavaScript 0 0 0 0 Updated 5 hours ago

HackathonFrontend Private
JavaScript 0 0 0 0 Updated 5 hours ago

HackathonBackend Private
JavaScript 0 0 0 0 Updated 6 hours ago

View as: Public
You are viewing this page as a public user.

You can create a README file visible to anyone.

People

Invite someone

Languages

JavaScript 91.6% HTML 6.9%
CSS 1.5%

About

No description, website, or topics provided.

0 stars
0 watching
0 forks

Releases

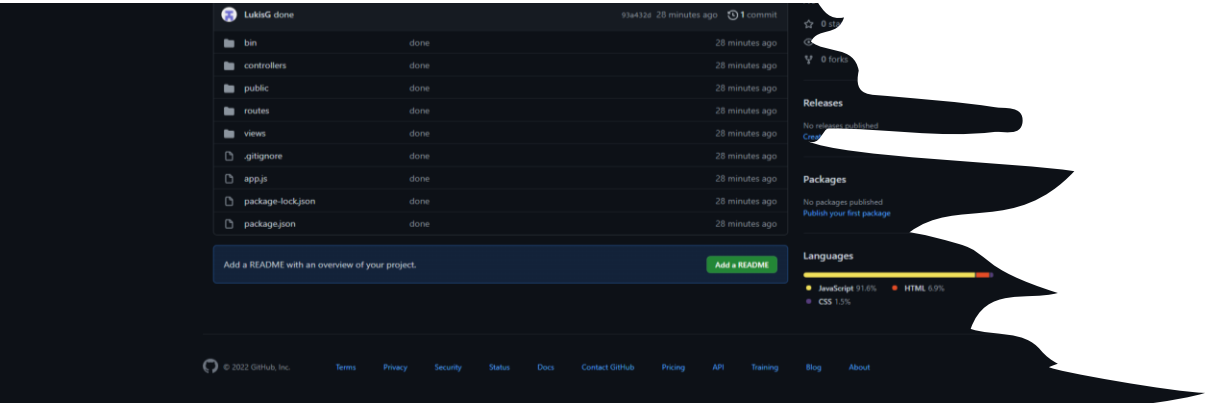
No releases published
Create a new release

Packages

No packages published
Publish your first package

Languages

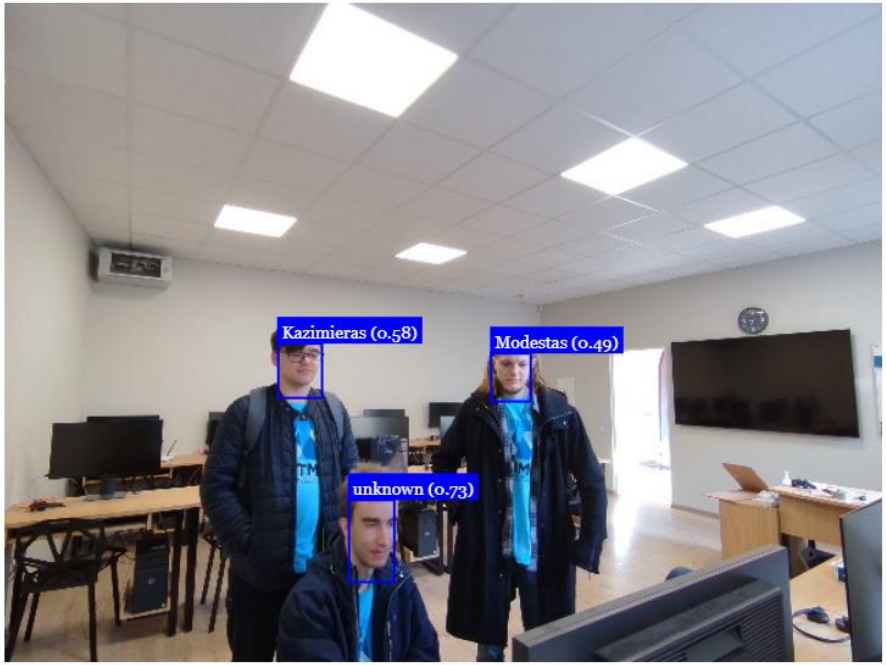
JavaScript 96.6% HTML 3.0%
CSS 0.4%



Github

Taking pictures

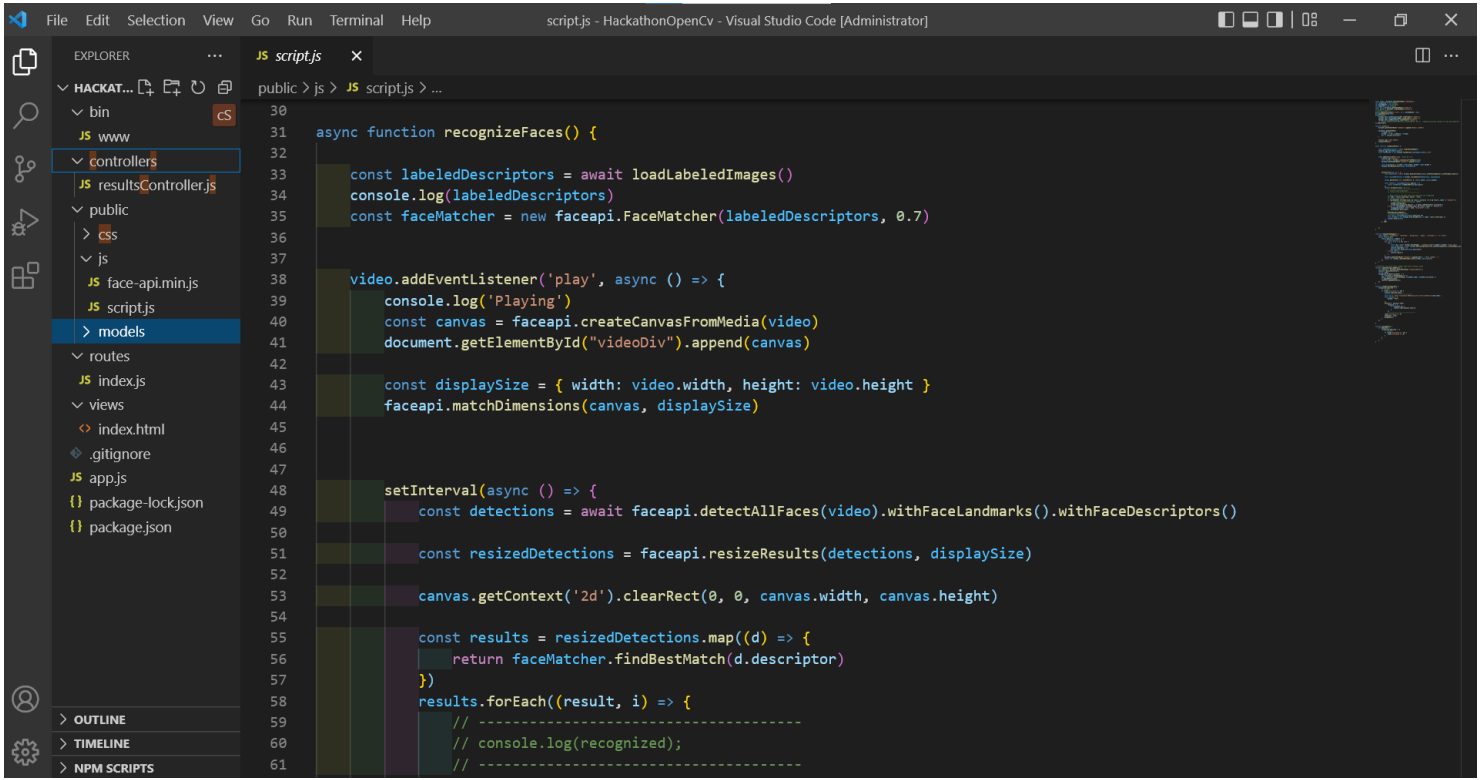
Training the AI



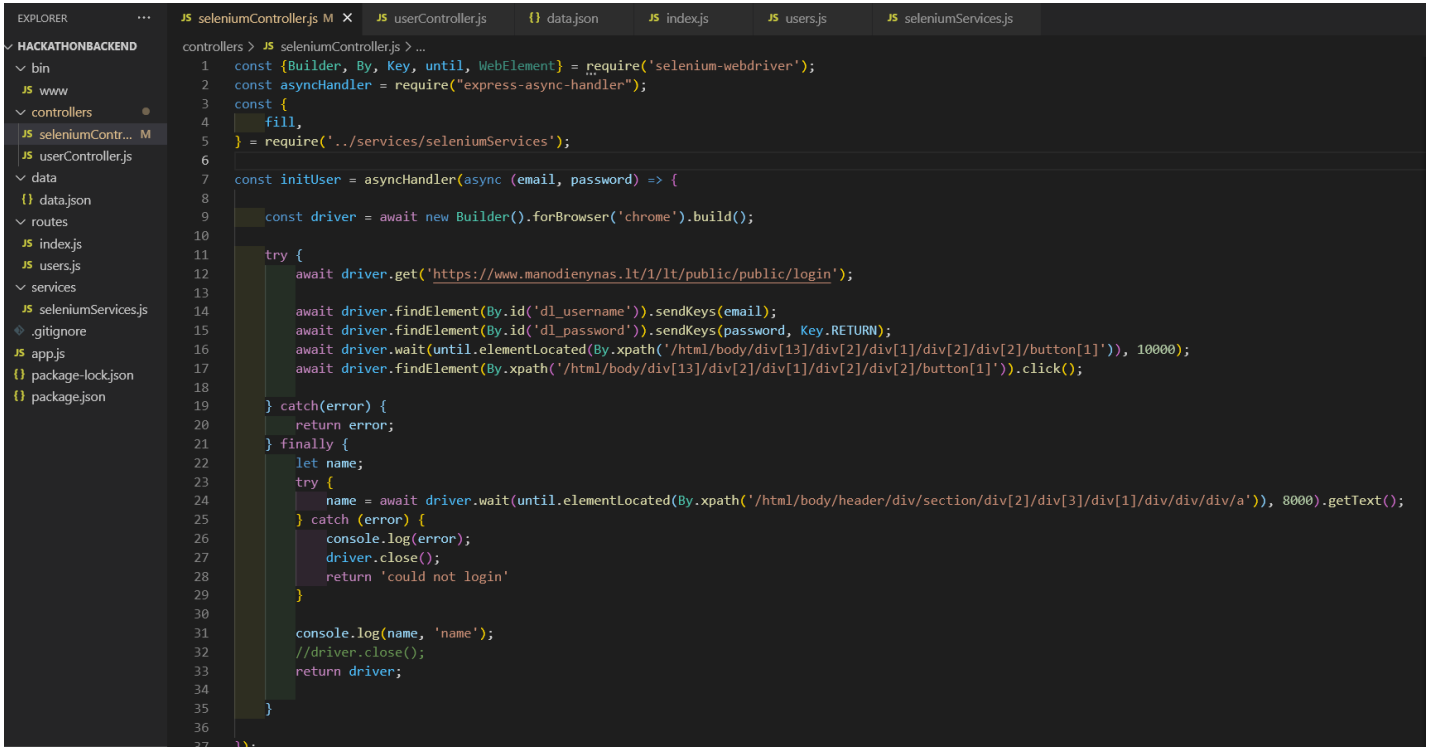
Models LoadedModestas Faces Loaded | Arnoldas Faces Loaded | Martynas Faces Loaded | Ignas Faces Loaded | Kazimieras Faces Loaded |

- Modestas 34
- Kazimieras 11
- Martynas 0
- Ignas 0

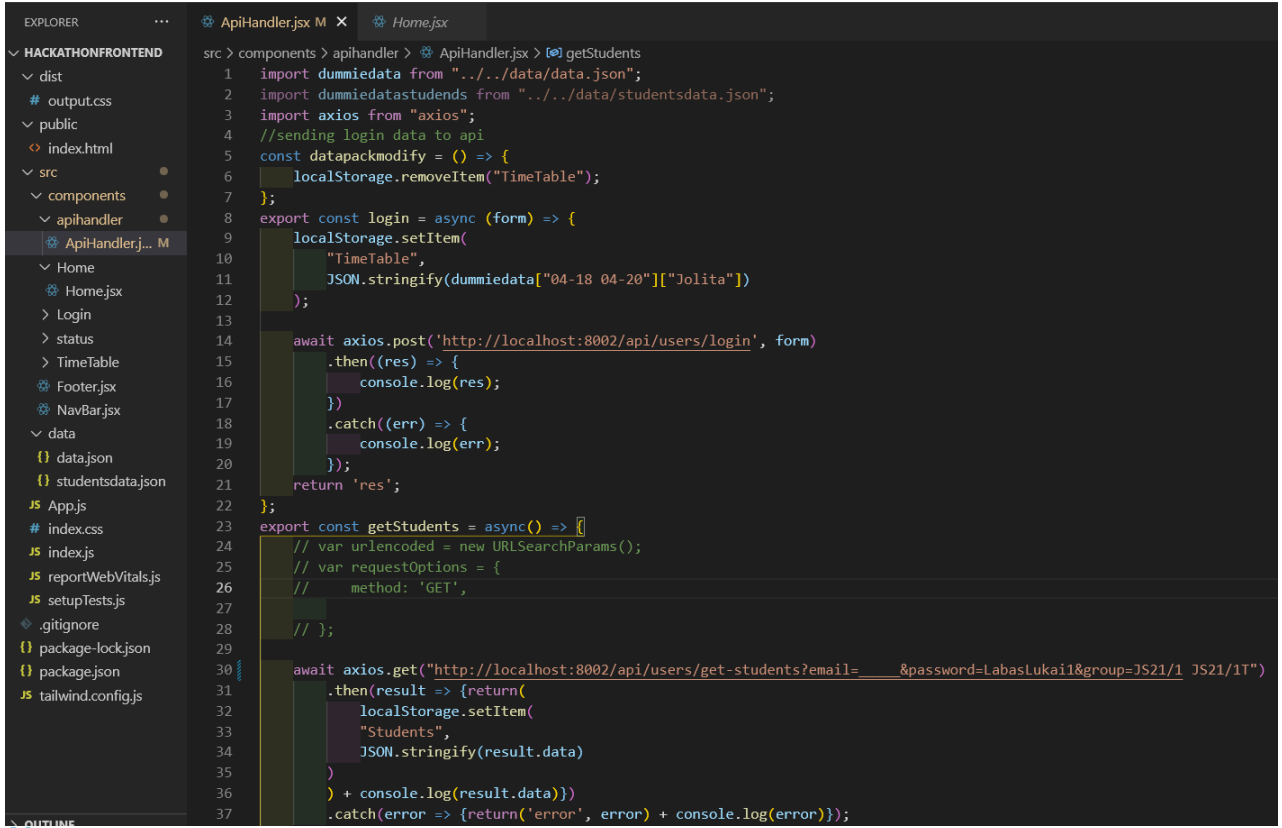
Back-end


File Edit Selection View Go Run Terminal Help
script.js - HackathonOpenCv - Visual Studio Code [Administrator]
EXPLORER
HACKAT...
bin
www
controllers
resultsController.js
public
css
js
face-api.min.js
script.js
models
routes
index.js
views
index.html
.gitignore
app.js
package-lock.json
package.json
OUTLINE
TIMELINE
NPM SCRIPTS
script.js
public > js > script.js > ...
async function recognizeFaces() {
const labeledDescriptors = await loadLabeledImages()
console.log(labeledDescriptors)
const faceMatcher = new faceapi.FaceMatcher(labeledDescriptors, 0.7)
video.addEventListener('play', async () => {
console.log('Playing')
const canvas = faceapi.createCanvasFromMedia(video)
document.getElementById("videoDiv").append(canvas)
const displaySize = { width: video.width, height: video.height }
faceapi.matchDimensions(canvas, displaySize)
setInterval(async () => {
const detections = await faceapi.detectAllFaces(video).withFaceLandmarks().withFaceDescriptors()
const resizedDetections = faceapi.resizeResults(detections, displaySize)
canvas.getContext('2d').clearRect(0, 0, canvas.width, canvas.height)
const results = resizedDetections.map((d) => {
return faceMatcher.findBestMatch(d.descriptor)
})
results.forEach((result, i) => {
// ----------
// console.log(recognized);
// ----------

Back-end

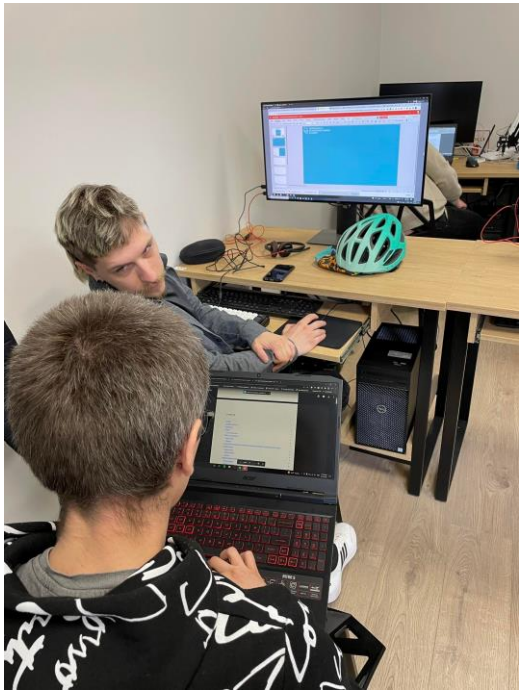

EXPLORER
HACKATHONBACKEND
bin
www
controllers
seleniumContr... M
userController.js
data
data.json
routes
index.js
users.js
services
seleniumServices.js
.gitignore
app.js
package-lock.json
package.json
seleniumController.js M
userController.js
data.json
index.js
users.js
seleniumServices.js
controllers > seleniumController.js > ...
const {Builder, By, Key, until, WebElement} = require('selenium-webdriver');
const asyncHandler = require("express-async-handler");
const {
fill,
} = require('../services/seleniumServices');
const initUser = asyncHandler(async (email, password) => {
const driver = await new Builder().forBrowser('chrome').build();
try {
await driver.get('https://www.manodienynas.lt/1/lt/public/public/login');
await driver.findElement(By.id('dl_username')).sendKeys(email);
await driver.findElement(By.id('dl_password')).sendKeys(password, Key.RETURN);
await driver.wait(until.elementLocated(By.xpath('/html/body/div[13]/div[2]/div[1]/div[2]/div[2]/button[1]')), 10000);
await driver.findElement(By.xpath('/html/body/div[13]/div[2]/div[1]/div[2]/div[2]/button[1]')).click();
} catch(error) {
return error;
} finally {
let name;
try {
name = await driver.wait(until.elementLocated(By.xpath('/html/body/header/div/section/div[2]/div[3]/div[1]/div/div/div/a')), 8000).getText();
} catch (error) {
console.log(error);
driver.close();
return 'could not login'
}
console.log(name, 'name');
//driver.close();
return driver;
}

Front-end


EXPLORER
HACKATHONFRONTEND
dist
output.css
public
index.html
src
components
apihandler
ApiHandler.j... M
Home
Home.jsx
Login
status
TimeTable
Footer.jsx
NavBar.jsx
data
data.json
studentsdata.json
App.js
index.css
index.js
reportWebVitals.js
setupTests.js
.gitignore
package-lock.json
package.json
tailwind.config.js
ApiHandler.jsx M
Home.jsx
src > components > apihandler > ApiHandler.jsx > getStudents
import dummiedata from "../../data/data.json";
import dummiedatastudends from "../../data/studentsdata.json";
import axios from "axios";
//sending login data to api
const datapackmodify = () => {
localStorage.removeItem("TimeTable");
};
export const login = async (form) => {
localStorage.setItem(
"TimeTable",
JSON.stringify(dummiedata["04-18 04-20"]["Jolita"])
);
await axios.post('http://localhost:8002/api/users/login', form)
.then((res) => {
console.log(res);
})
.catch((err) => {
console.log(err);
});
return 'res';
};
export const getStudents = async() => {
// var urlencoded = new URLSearchParams();
// var requestOptions = {
// method: 'GET',
// };
await axios.get("http://localhost:8002/api/users/get-students?email=____&password=LabasLukai1&group=JS21/1 JS21/1T")
.then(result => {return(
localStorage.setItem(
"Students",
JSON.stringify(result.data)
)
) + console.log(result.data)})
.catch(error => {return('error', error) + console.log(error)});

Team spirit

Team spirit



Benefits and applicability

Benefits

- The AI is fast learning.
- Makes teachers job much faster.
- It could change the way you clock in to work.

Applicability

- This technology is applicable in these areas :
- Schools
- Workplaces
- Transportations

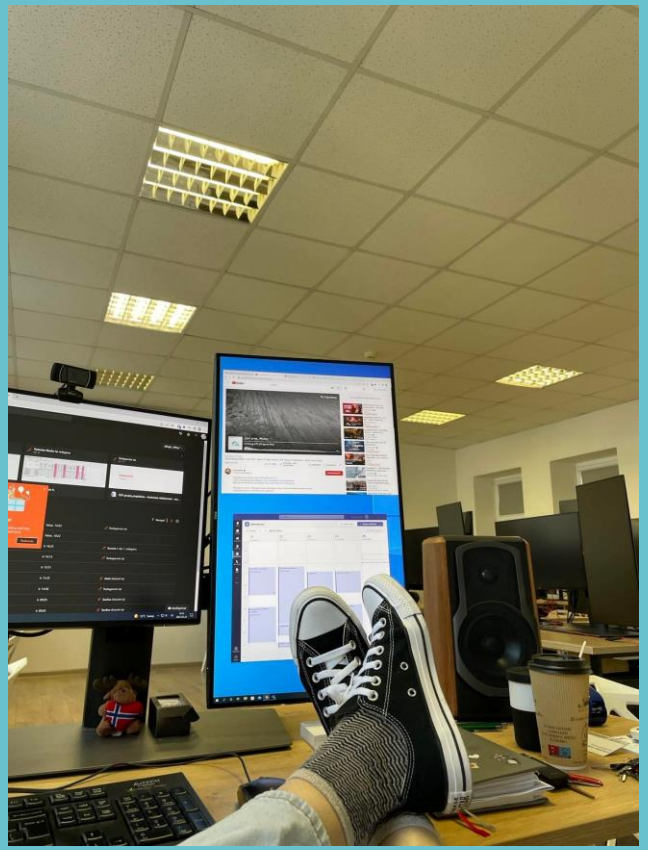
In conclusions

We got it!

We achieved a goal of having a working Demo.
And it is:

- Adaptable.
- Modifiable.
- Expandable.

WEEKEND
SAUSIS



<h1>Demo Time</h1>

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