Configuration Manual

MSc Research Project
MSc in Cyber Security

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Project Submission Sheet
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Configuration Manual

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1   Summary

The research paper proposed a solution to mitigate the risks of cyber threats and attacks, primarily through a Cyber Security Training and awareness platform, which will help people working from home learn about these topics involving cybersecurity. In addition, we have performed an extensive analysis of recently published academic papers to determine the root cause or gaps that need to be addressed, and we identified that remote working brings a new scenario in which employees and companies become more vulnerable. Hackers are exploiting this weakness for their benefit.

We conducted a survey, and we concluded that most of the respondents consider working from home has caused a significant and positive impact on their lives. They also considered that they would work from home permanently. On the other hand, things drastically changed with more employees working remotely. The downside is that working from home can elevate the IoT security risks and other threats.

Through the survey analysis, we recognized that most participants own IoT devices embedded in their homes, from household appliances to personal use, such as health and medical devices, etc. Unfortunately, owning these IoT devices in their home/home office environment is a growing attack vector.

The application intends to protect the organization and remote workers against cyber attacks by training users to recognize where they are promptly facing risk and report. In addition, the goal is to encourage conscious behavior.

Through this application, users can access training materials, watch classes, movies, responding quizzes and news about cybersecurity.

The steps indicated in the methodology and execution portions of the research study are outlined in this configuration handbook. It will give a brief overview of each action as well as the methods to take in order to obtain the same results.

2   Requirement/Tools

2.1   Softaware Requirements

Server:

- Operational System: Windows10

- Server: Apache

- MySQL

- XAMPP

- Operational System: Windows10

- Web Server: Apache

- Programming Language: PHP, HTML, CSS, JavaScript.

- Database: phpMyAdmin

- Mingw-264

Client:

- Operational System: Unix/Linux/Windows

- Software: Any kind of web browser, Google Chrome recommended.

2.2 Hardware Requirements

Server Side:

- Windows10,64-bit based PC, Processor Intel(R) Core(TM) i7-10510U CPU @ 1.80GHz, 2304 Mhz, 4 Core(s), 8 Logical Processor(s).

- IT external drive.

- Localhost development environment and Deployment on Heroku.

- Graphics: NVIDIA Ge Force MX230.

- Headphone, speaker Realtek.

Client Side: Computer with speaker and microphone facility.

2.3 Technologies

R is a language and environment for statistical computing and graphics. R presents a wide variety of statistical (linear and nonlinear modeling, classical statistical tests, time-series analysis, classification, clustering) and graphical techniques and is highly extensible. The user interface is contained in the presentation layer, which is the application's front end layer. HTML, CSS, JavaScript, React, and Ajax were the web technologies employed in the application. Because of its versatility and adaptability, PHP was chosen as the program. Because of its versatility and adaptability, PHP was chosen as the programming language for the back end.The database and data storage system, as well as the data access layer, are included in this tier. phpMyAdmin is a free PHP-based software utility for administering MySQL databases over the Internet. phpMyAdmin can perform a wide range of MySQL queries.

2.4 Installation of tools

This section will show how to install all of the tools needed for this project step by step.

2.4.1 Local server XAMPP

Installing a local server is the first step. A local server allows us to test our code without paying for hosting or putting it on a live server. The local server utilized is XAMPP, however the user has the option of using any local server for the purposes of running this project locally (1).

1. Log in to XAMPP website https://www.apachefriends.org/index.html.

2. Click on download button at the top of the page.

3. Select the operation system of your preference.

4. Once you download you run the installer.

5. Click ok on all the prompts.

6. When we run XAMPP you should get something similar to this. Please see the screenshot below.

7. Next, click the start button.

8. Start Apache.

9. Start MySQL which is our database system.

10. If you click in browse you will find all the website files.

Please note: The recommendation is to install in the C: driver.
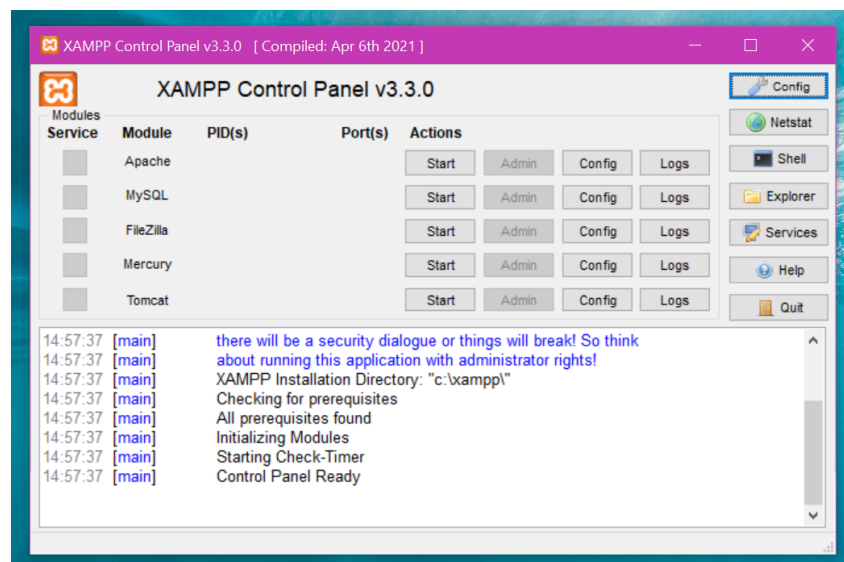
Figure 1: XAMPP control panel v3.3.0.

After completing the installation and start the server, please go to your browser and type localhost.Please see the screenshot below the page you will be able to see this page..
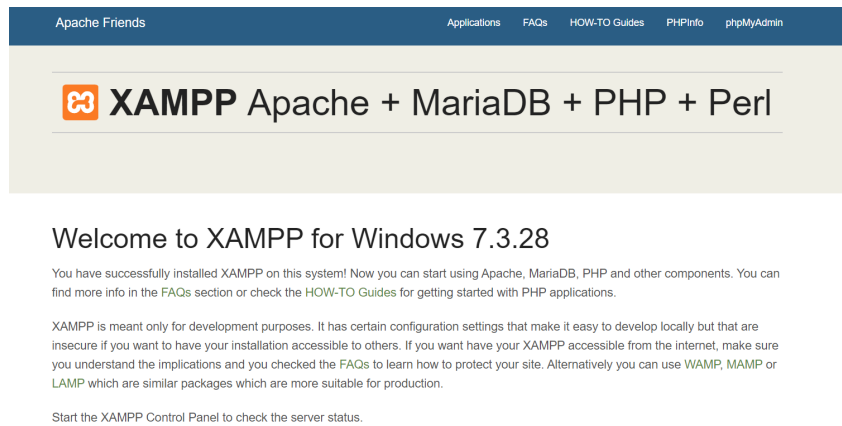
Figure 2: XAMPP control panel v3.3.0.

2.4.2 Text editor installation

Although any text editor can be used, the Visual Studio is the text editor of choice for this project(2).

1. Go to https://code.visualstudio.com/

2. Click download and select the operational system you want.

3. Install Visual Studio.

4. Double-click the.exe file to run it.

5. Begin the installation process.

6. Allow the installation to finish.

7. Select the software version you want to use.

8. Go to the desktop version of the app.

9. Sit back and wait for the files to download.

10. Restart your computer.
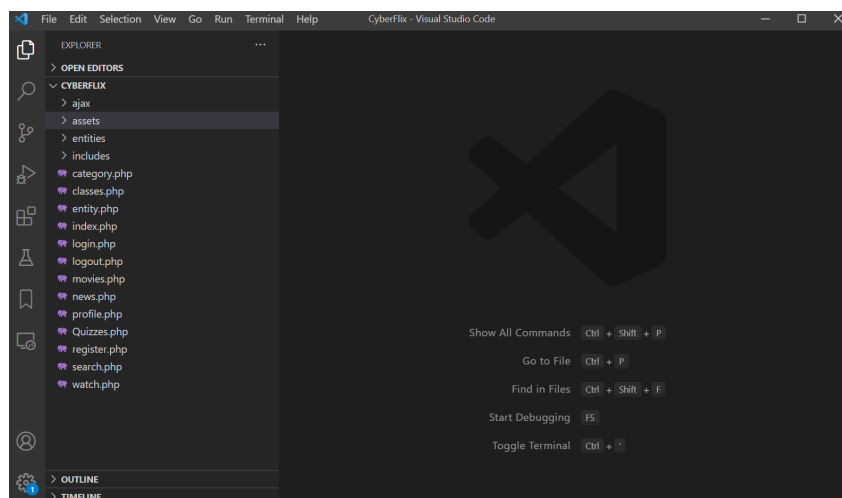
Figure 3: Visual studio code dashboard.

2.4.3   R studio installation

R studio installation for research analysis (3)

1. Go to www.rstudio.com and select

2. Download RStudio from the drop-down menu.

3. Select "Download RStudio Desktop" from the drop-down menu.

4. Save the executable file by selecting the recommended version for your system.

5. Run the.exe file and follow the on-screen directions to complete the installation.
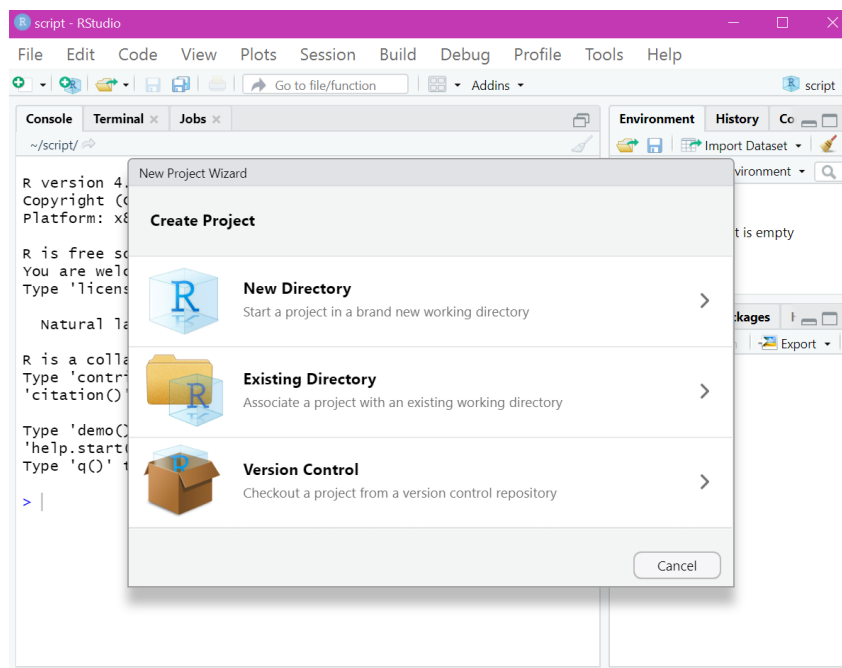
Figure 4: R studio code dashboard.

2.4.4   Github

For this project, it was used the Github desktop version(4)

1. Launch a web browser.

2. Go to desktop.github.com to learn more.

3. Click on the Download for Windows button (64bit).

4. Click Run when requested.

5. Allow the download and installation to complete.

2.4.5   Link to Github file

A link to GitHub or similar where the code is located
https://github.com/marciafritzen/cyberflix.git

2.4.6 User Acess to application for test

Login: admin@admin.com Password: 123456

3 Development

Video controls, sample videos, and entities, such as classes or movies, are all included in the cybersecurity training and website application. When the user clicks on the videos, a page will be constructed to display them.

We'll be able to see preview videos for entities, as well as all of the seasons and episodes in that season, as well as an indication of whether the user has seen the video or not. When they click on the video, they'll be taken to a video player with basic controls like up next controls and the ability to restart or go to the next.

If the user starts watching the video the next time they came back, it will start playing where they left off. We will keep track of their progress. We will also add features such as the search for entities where they can search and get a list of all the entities which match the search.

They will also be able to edit some basic account information, such as their name, email address, and passwords. The project also includes a quiz page and a news page.

3.1 Cyber Security Training and Awareness Application Development

The data structure and organization were the project's first steps.
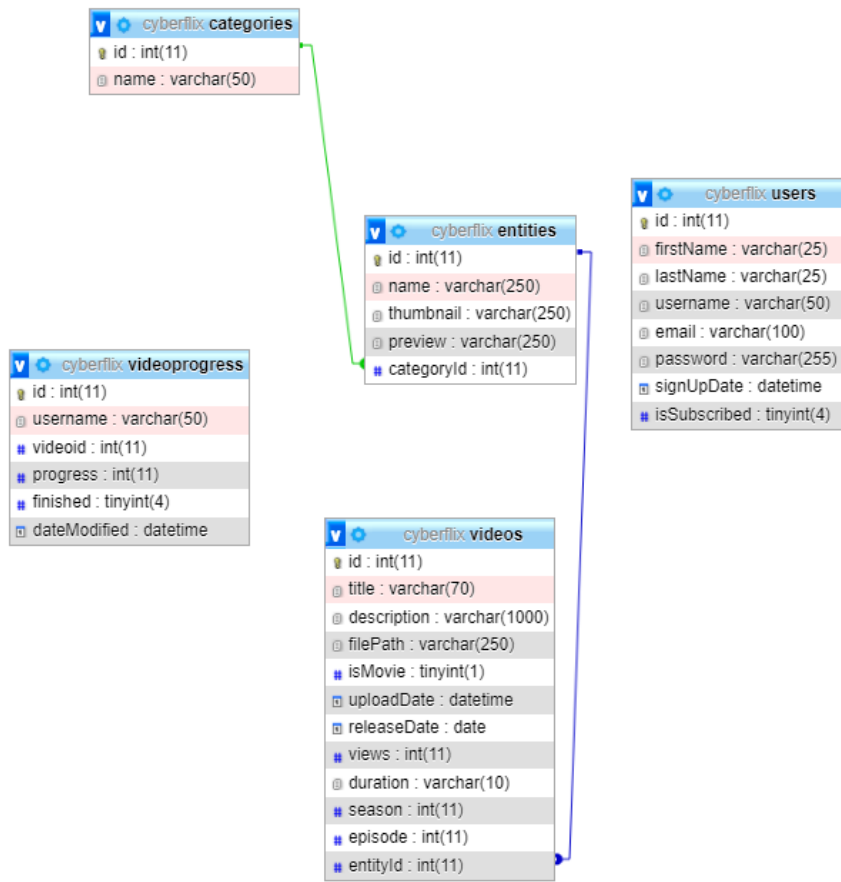
Figure 5:Database scheme

The database technology chosen for this project was phpMyAdmin.
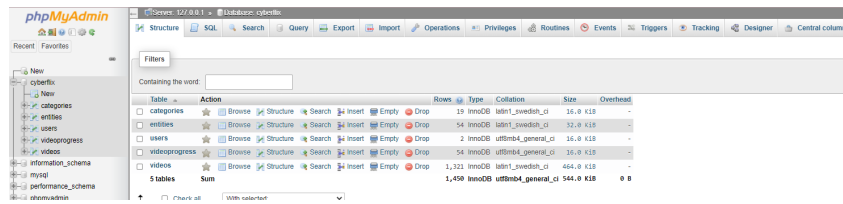
Figure 6: Database creation.

Categories table.

Figure 7: Categories table.

Entities table.

Figure 8: Entities table.

Users table.

Figure 9: Users table.

Entities table.

Figure 9:Entities

Video progress table.

Figure 10: Video Progress

Videos table.

Figure 11: Videos

Tables.

Figure 12: Tables.

Categories table.

Figure 13:Categories Table.

3.2 Scripts Examples

Category

Figure 14:Categories Table.

Classes

Figure 15:Classes page.

Entity

Figure 16:Entity page.

Index

The remaining scripts can be found on GitHub.

3.3 Survey Development

https://docs.google.com/forms/d/1IcL7pFYWJcFlW5zpVYAwyHsVuNUUQ95vInEU8-kcSvQ/edit

Table 1: Remote working questions

Table 2: Cyber Security related questions

Have you seen more Phishing emails, Spam emails and Fraudulent emails lately?

○ Yes

○ No

Are you concerned about Cyber and Data Security while working from home?

○ Yes

○ No

Table 3: Cyber Security related questions part 2

Did you participate in a Cyber Security Training and Awareness program specific for remote working environment?

○ Yes

○ No

On a scale of 1 -5 with 1 being the least positive and 5 being the most positive, how would you rate your company and IT department's response in relation to the technology infrastructure and security measures?

	1	2	3	4	5	
Poor	○	○	○	○	○	Excelent

Table 4: Cyber Security related questions part 3

Do you own any smart devices in your home / home office? i.e: Alexa, Amazon Echo Family, Google Nest, smart plugs, security cameras, smart locks, smart heating and cooling, Nest thermostat, smart lighting, smart kitchen appliances, robot vacuums cleaners and mops, smart health and fitness devices or any other IoT (internet of things) devices? If yes, please specify what device.

Texto de resposta curta

Has smart devices easily accessed from your home office?

○ Yes

○ No

Table 5: Cyber Security related questions part 3

For your personal use, do you own one or more of the following devices or any other?

☐ Fitness tracker

☐ Smartwatch

☐ Smart blood pressure monitor

☐ Game console

☐ Portable printer

☐ E-reader

☐ Smart coffee maker

☐ Smart assistant

☐ Smart table air purifier

☐ Other Device

Table 6: Cyber Security related questions part 3

Did your employer provided the equipment for working from home or you are using your own equipment?

○ Employer`s equipment

○ My own equipment

Has your employer conducted a security assessment in your work environment?

○ Yes

○ No

Table 7: Cyber Security related questions part 3

On a scale of 1 -5 with 1 being the least positive and 5 being the most positive, do you consider smart devices can help reduce distractions whilst making a positive impact on your work environment at home?

	1	2	3	4	5
	○	○	○	○	○

Do you use a VPN?

○ Yes

○ No

Table 8: Cyber Security related questions part 3

When security updates become available, do you often update your laptop and IoT devices?
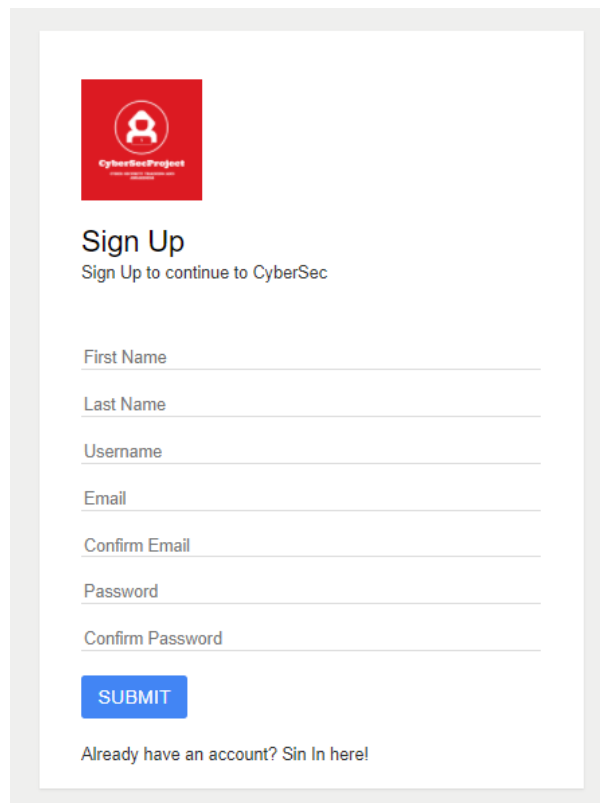
○ Yes

○ No

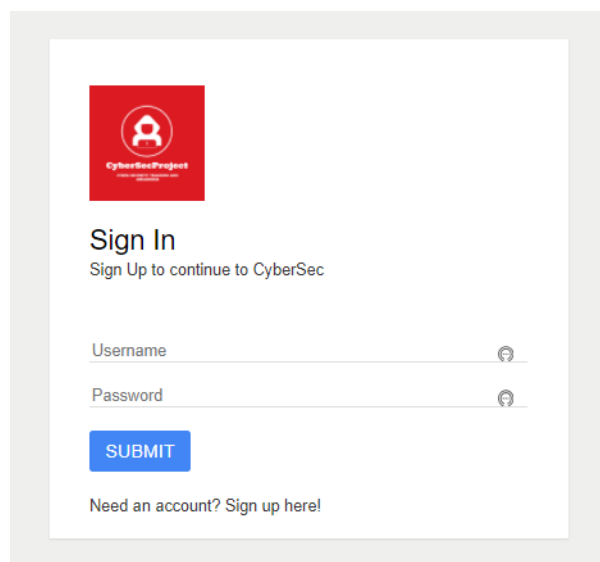Table 9: Cyber Security related questions part 3

4   Execution

Sign Up page.

Figure 18: Sign Up page.

Sign in page.

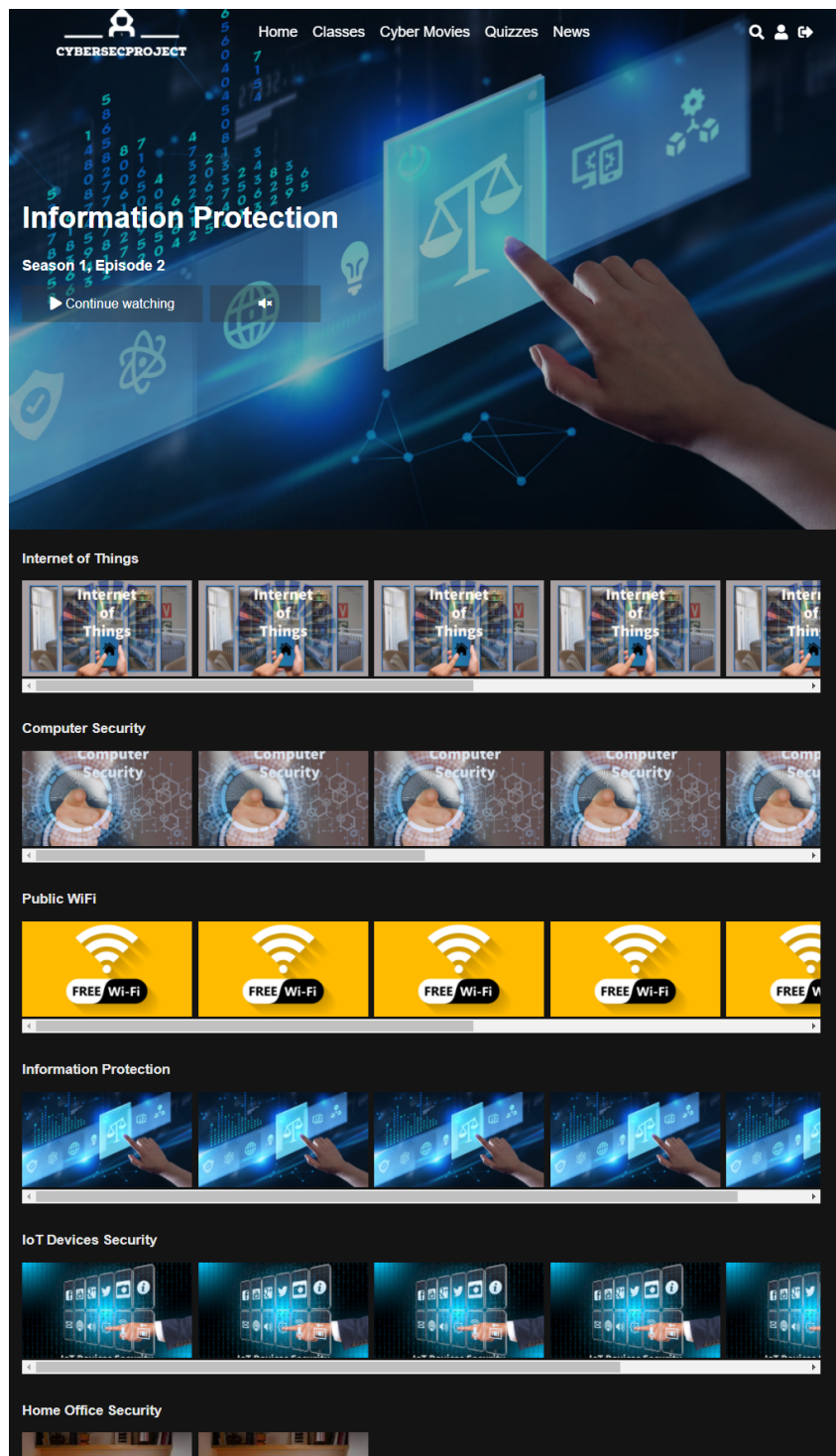Figure 19:Sign In page.

Website homepage.

Figure 20:Website Homepage.
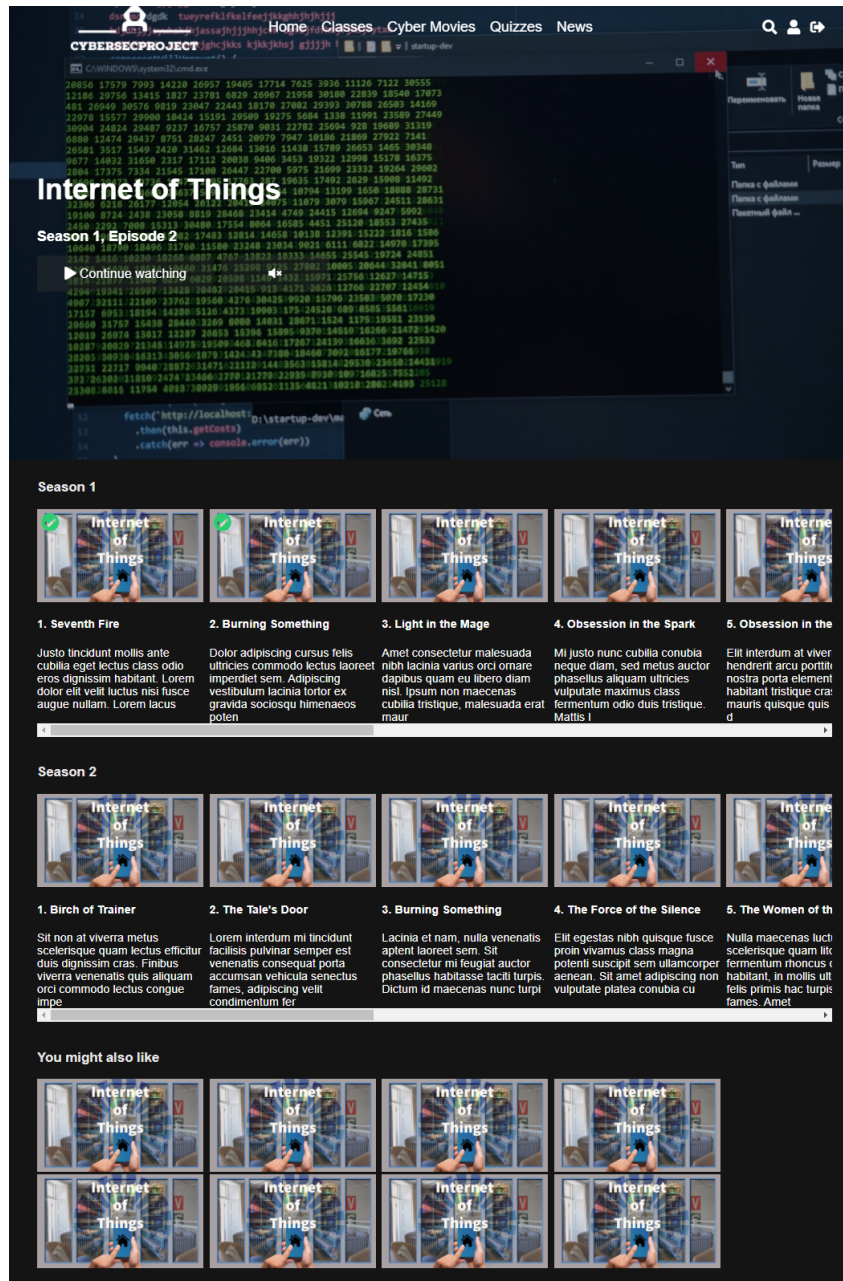
Entities page.
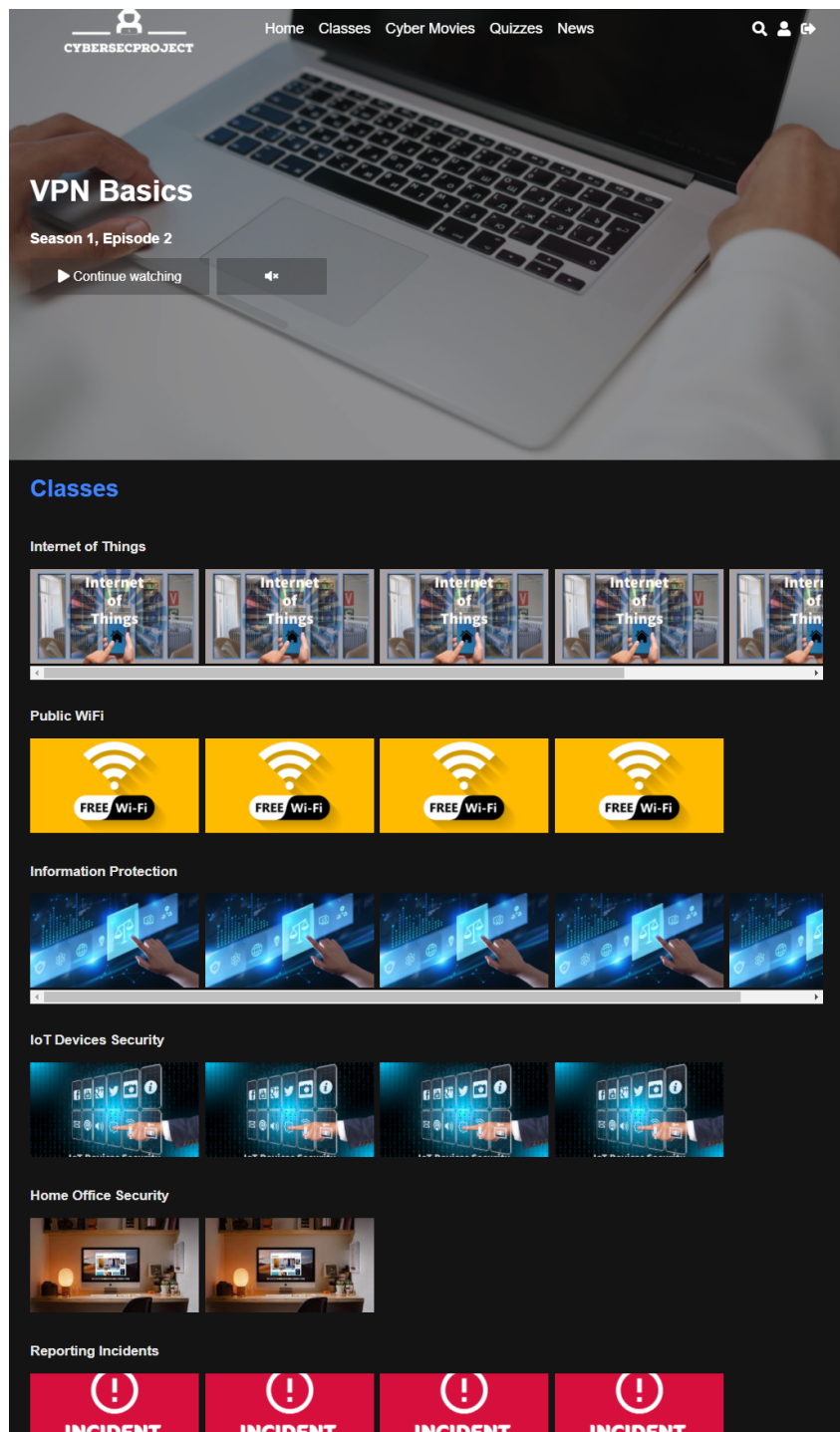

Figure 21:Entities page.

Classes page.
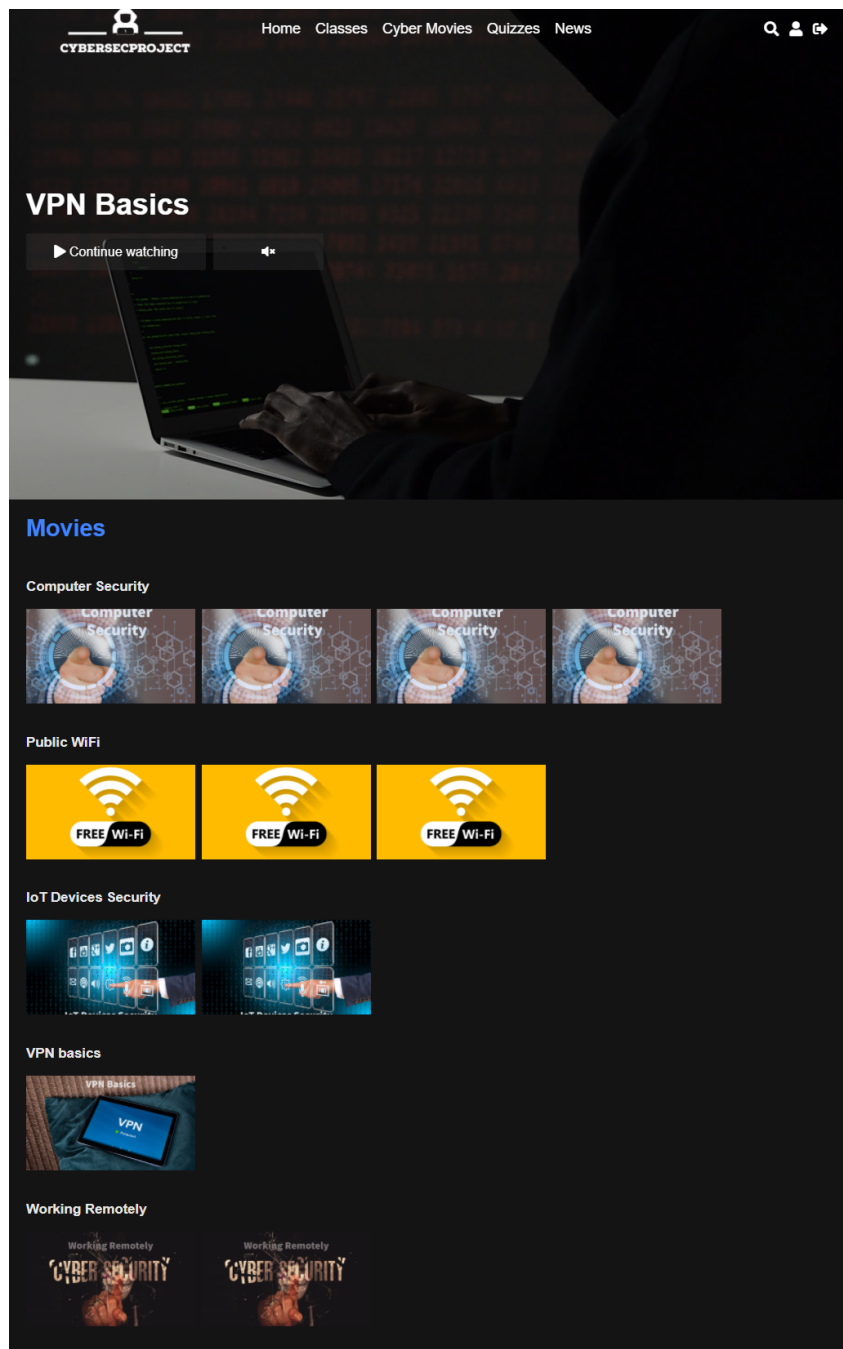

Figure 22:Classes page.

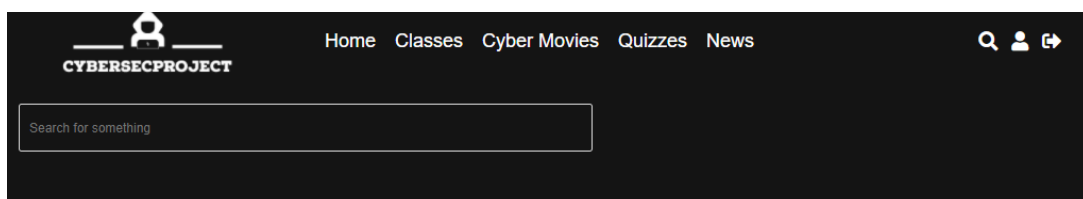Movies page.

Figure 23: Movies page.
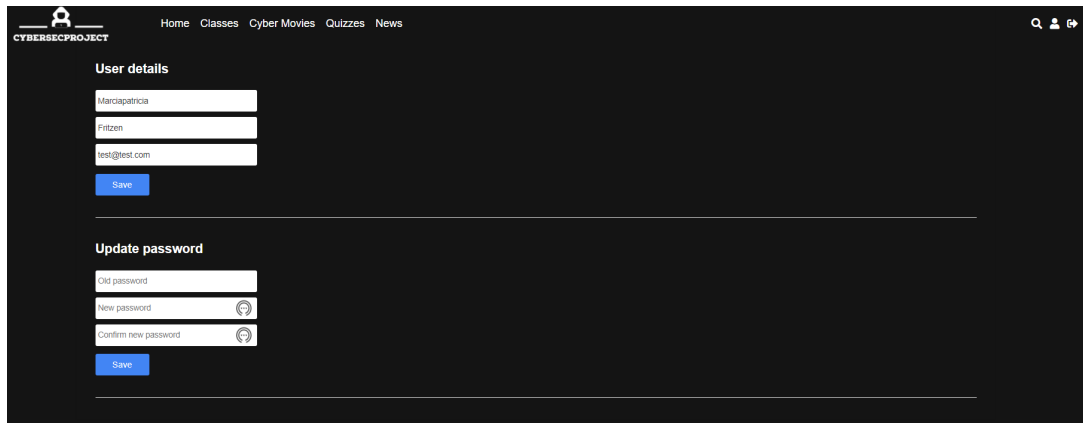
Search page.

Figure 24:Search page.

User page.

Figure 25:User page.

Restart feature.
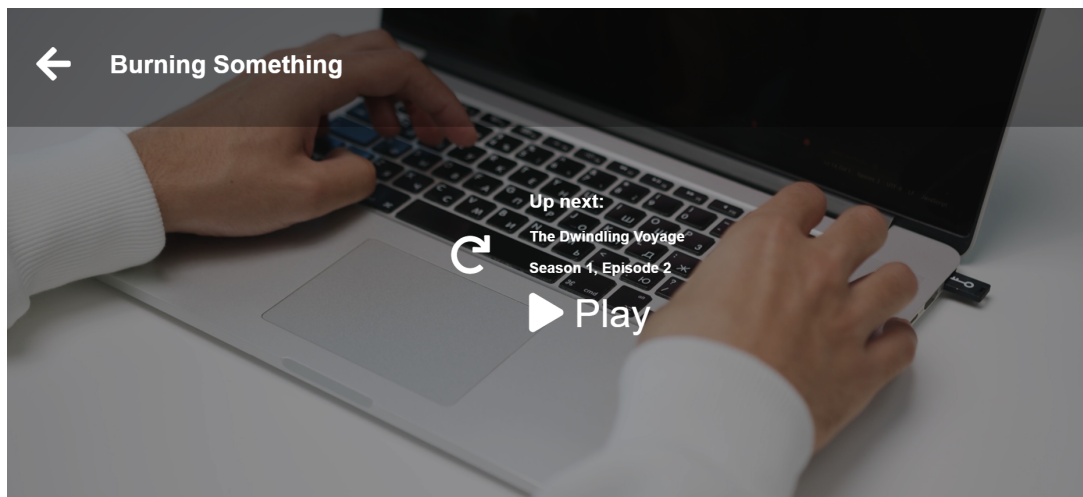

Figure 26: Restart feature.

References

[1] X. Apache, "Xampp apache," 2021, last accessed: 2021.08.15. [Online]. Available: https://www.apachefriends.org/index.html

[2] V. Studio, "Visual studio code," 2021, last accessed: 2021.08.15. [Online]. Available: https://code.visualstudio.com

[3] R. Studio, "R studio," 2021, last accessed: 2021.08.15. [Online]. Available: https://www.rstudio.com/

[4] Github, "Github," 2021, last accessed: 2021.08.15. [Online]. Available: https://github.com/