

# **Project Report**

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#### **Abstract**

WikiSecurity is an online platform that teaches cyber security through short, real-world labs. We have content for both complete beginners, professional and seasoned hackers, incorporating guides and challenges to cater for different learning styles and for different mindsets. We provide knowledge in such a way it become easier to learn about tools and vulnerabilities related to cyber security. Our Platform is designed In such a way and if a non technical visits the site he find it very interesting and useful and will be guided in a proper way to learn cyber security.

## Introduction

The scope of this project is to provide a learning platform where you learn tools and with those tools you will learn how to exploit vulnerabilities. You will join a dynamically growing hacking community where you can take your cyber security skills to the next level through the most captivating, gamified, hands-on training experience. We have initialized a project which focuses on the learning of Cyber Security. In this website we have broken down major and large topics into small and understandable lessons to make it easier for you to learn cyber security, Bug Hunting and ethical hacking in a more easier and user friendly way. Here you will get complete path rooms hand on labs to learn more about security and improve your security skills.

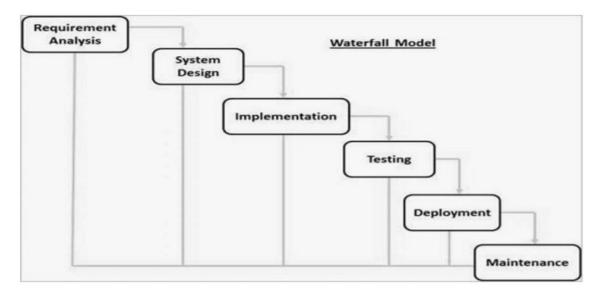
Learn by following a structured paths and reinforce your skills in a real-world environment by completing guided, objective-based tasks and challenges. We have two portions in our website the user portion which is accessible by users and the admin portion which is only accessible by admin.

#### Need of WikiSec

The need for qualified and professional cyber security professionals has never been greater. Cyber attacks are increasing, and so is the cyber security skills gap. Unfortunately, expensive courses and certifications makes it harder for individuals to get into the industry.

We created a platform to make learning cyber security more affordable, reasonable and more accessible, removing as many barriers to entry as possible.

# **Methodology Development Model**



The sequential phases in Waterfall model are

- Requirement Gathering and analysis All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.
- System Design The requirement specifications from first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.
- Implementation With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.
- Integration and Testing All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures. 4
- Deployment of system Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.
- Maintenance There are some issues which come up in the client environment. To fix those issues, patches are released. Also to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

# **Tools and Technique**

a)React JS

b)Node JS

c)MySQL

d)Xampp

e)VS Code

f)GitHub

## a) React JS:-

Respond (otherwise called React.js or ReactJS) is a free and open-source front-end JavaScript library for building UIs or UI segments.React can be utilized as a base in the development of single-page or versatile applications.However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

## b) NodeJs

Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.

## c) MySQL

MySQL is an open-source relational database management system (RDBMS). A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

## d) Xampp

XAMPP is a free and open source cross-platform web server solution stack package consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

## e) VS Code

Visual Studio Code is a source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

#### f) GitHub

GitHub is a web-based hosting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management (SCM) functionality of Git as well as adding its own features. It provides access control and several collaboration features such as bug tracking, feature requests, task management, and wikis for every project. GitHub offers plans for both private repositories and free accounts which are commonly used to host open source software projects.

#### WebE framework activities

#### Communication

## **Document Purpose:**

This document provides a complete description of all the functions and specifications of this website, named "WikiSecurity Academy". It will explain the purpose and features of this website, the interfaces of the website, some of the limitations under which it will function.

## Scope:

WikiSecurity Academy is an e-learning website that provides the complete and certified platform for learning multiple tools and vulnerabilities of Cyber security and ethical hacking where one can learn so much about hacking. This website provides hands-on labs for users to practice and enhance their skills. The users are provided with quizzes after each learning material so that their progress can be tracked. They are also provided with some resources and reference materials for further learning. This website also has a discord channel for queries and topics discussion. There is also a blog site in which people can write the walkthroughs and solutions of the hands-on labs.

#### Modules:

- User Profile
- Hands-on Labs
- Tasks
- Learning Material
- Blog
- Discord Section
- Leaderboard

## **Functional Requirements:**

## • Admin panel:

Admin can add, delete or modify user.

## • Registration Page:

The user will enter their account details for example username, email, password, First name & Last name

## • Login page:

The registered user will enter their credentials to login in. The system will check the user's credentials and authenticate the user if the credentials are valid.

#### • Path details:

After selecting the path the user will be presented with all the learning materials of the selected path. Now the user will start his learning and after learning each material the user will be presented with some quizzes.

#### Rooms:

The user can open any room in which he first find the learning material and then complete the task to test their knowledge/skills. After completing the task the user will be awarded with some points.

#### • Update Profile:

The user will have the option to update or add more details in his/her profile. Each user will be able to view only the publicly available details of other users.

#### • User's Rank:

The user's rank will increase according to the points he gained from task and learning materials.

## • Leaderboard:

On the leaderboard each user's rank will be displayed and all users will be competing against each other.

#### • Hands-on labs:

Each user will have access to hands-on. These labs will be available to all users. And these labs will enhance their skill-set even more.

#### • Blog:

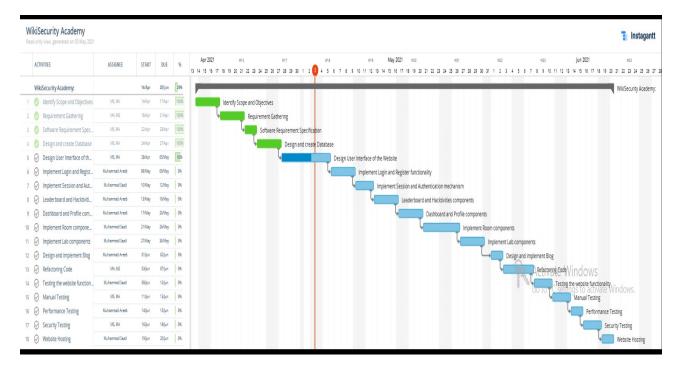
Now in this section the users can post write-ups of the labs including solution and walkthroughs. And other users can read their blogs for guidance if they're stuck at some point. The blog will also have updates and new features of the website and it will also have beginner friendly guides.

## • Logout:

When the user logs out, his/her account session will be terminated and he/she will be redirected to the login page.

## Planning:

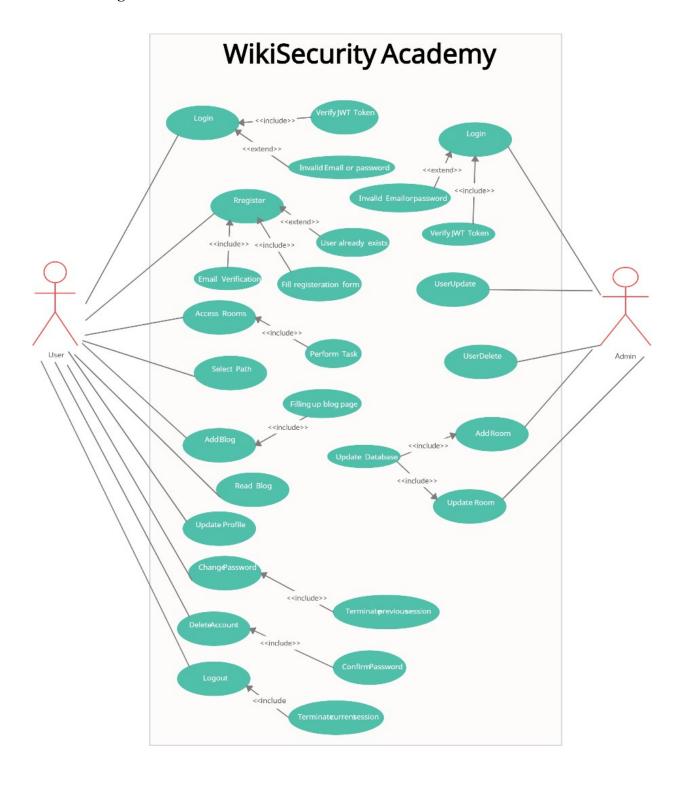
The plan of the semester project is scheduled in the gantt chart. The chart also represents the interdependence of one task on another. Tasks have been assigned to the members equally. The chart is attached at the end of this document.



## **Modeling Activity:**

Use case modeling is done in order to understand the project clearly. The use case diagram along with the usage scenarios is given below:

# **Use Case Diagram:**



NAME: Login

**SUMMARY**: The admin login page.

**DEPENDENCIES**: None

**ACTOR**: Admin

## **PRE-CONDITION**:

The admin will be displayed with login page.

#### **FLOW OF EVENTS:**

- The admin will enter hiscredentials.
- The system will verify hisidentity.

#### **ALTERNATIVES:**

If the system does not recognize the entered username/password, a message will be displayed and the system will prompt the user to re-enter the username and password.

## **POST-CONDITION:**

After successful login the admin will be redirected to Admin dashboard.

NAME: User Update

**SUMMARY**: The admin can update the user details

**DEPENDENCIES**: Admin login

**ACTOR**: Admin

## PRE-CONDITION

The admin will select any of the user.

#### **FLOW OF EVENTS:**

- The admin will edit the userdetails.
- The admin will click the submitbutton.

#### **ALTERNATIVES:**

The admin cannot access the user update page if he is not logged in.

#### **POST-CONDITION:**

The database will be updated after admin clicks the submit button.

NAME: User Delete

**SUMMARY**: The admin can delete any user.

**DEPENDENCIES**: Admin login

**ACTOR**: Admin

#### **PRE-CONDITION**:

The admin will delete any of the selected user.

## **FLOW OF EVENTS:**

- The admin will select a user todelete.
- The admin will click on the delete userbutton.

#### **ALTERNATIVES**:

The admin cannot access the user delete page if he is not logged in.

## **POST-CONDITION:**

The database will be updated after admin clicks the delete button.

NAME: Add Room

**SUMMARY**: The admin can add new rooms.

**DEPENDENCIES**: Admin Login

**ACTOR**: Admin

#### **PRE-CONDITION**:

The admin will be displayed with add room page.

## FLOW OF EVENTS:

- The admin will fill the add room pageform.
- The admin will submit theform.

#### **ALTERNATIVES**:

The admin cannot access the add room page if he is not logged in.

#### **POST-CONDITION:**

After submitting the form the new room will be added in the database.

**NAME**: UPDATE ROOM

**SUMMARY**: The admin can update existing room details.

**DEPENDENCIES**: Admin Login

ACTOR: Admin

## **PRE-CONDITION**:

The admin will be displayed with update room page.

#### **FLOW OF EVENTS:**

- The admin will fill the update room pageform.
- The admin will submit theform.

#### **ALTERNATIVES:**

The admin cannot access the update room page if he is not logged in.

#### **POST-CONDITION:**

After submitting the form the room details will be updated in the database.

NAME: Login

**SUMMARY**: User/Admin log in to the system

**DEPENDENCIES**: Register

**ACTOR**: User

#### **PRE-CONDITION**:

A login page for users to login to their account.

## **FLOW OF EVENTS**:

- The user enters username and password to login to their account.
- The system validates the user and they're redirected to theirdashboard.

#### **ALTERNATIVES:**

If the system does not recognize the entered username/password, a message will be displayed and the system will prompt the user to re-enter the username and password.

#### **POST-CONDITION:**

The username & password has been validated and the user will be redirected to dashboard.

NAME: Register

SUMMARY: User makes his account

**DEPENDENCIES**: None

**ACTOR**: User

#### **PRE-CONDITION**:

A signup page is displayed for user to make his account.

#### FLOW OF EVENTS:

- The user enters first Name, last Name, username, email, andpassword.
- The system will store all the information in the database.

#### **ALTERNATIVES:**

If the username/email already exist then an error message will be displayed.

#### **POST-CONDITION:**

A success message will be displayed on account creation and the user can now login to the system.

**NAME:** Access Room

SUMMARY: User can join the room and perform room's tasks.

**DEPENDENCIES**: Login

ACTOR: User

## **PRE-CONDITION:**

The selected room page will be displayed consisting of theory and tasks related to room.

#### FLOW OF EVENTS:

- The user will first join theroom.
- Now the room's material will appear and the user can perform roomtasks.

## **ALTERNATIVES:**

If the user is not logged in, he cannot access the room.

#### **POST-CONDITION:**

On completing all the room tasks, a success message will be displayed.

NAME: Select Path

**SUMMARY**: User can select any path from the available paths.

**DEPENDENCIES**: Login

**ACTOR**: User

#### PRE-CONDITION:

All the available paths will be displayed on visiting the paths section in hacktivities.

#### FLOW OF EVENTS:

- The can select any of the available paths.
- Now the selected path page will be displayed.

## **ALTERNATIVES:**

If the user is not logged in, he cannot access the paths page.

#### **POST-CONDITION:**

On selecting a path the user will be displayed with a guide of the selected path to follow along. On completing a path a certificate of completion will be awarded to the user.

NAME: Add Blog

**SUMMARY**: User can add/post a new blog into the system on the topic of his choice.

**DEPENDENCIES**: Login

**ACTOR**: User

**PRE-CONDITION**: An add blog page will be displayed for the user where user can add/post new blog.

#### **FLOW OF EVENTS:**

- The user will fill out the blogform.
- The information will be saved indatabase.

#### **ALTERNATIVES:**

If the user is not logged in, he cannot access the add blog page.

#### **POST-CONDITION:**

After submitting the blog form the blog will be added to blogs page.

NAME: Read Blog

**SUMMARY**: Anyone can read the blog by visiting the blog page.

**DEPENDENCIES**: None

**ACTOR**: User

**PRE-CONDITION**: The blog page will be displayed for anyone to read the blogs.

#### FLOW OF EVENTS:

- The user will on any of the availableblog.
- The selected blog will bedisplayed.

**ALTERNATIVES**: None

#### **POST-CONDITION:**

The user can like/dislike the blog after reading the blog.

NAME: Update Profile

**SUMMARY**: The user can update his profile details

**DEPENDENCIES**: Login

**ACTOR**: User

PRE-CONDITION: The update profile page will be displayed for the user to change his details

## FLOW OF EVENTS:

- The user will edit hisdetails.
- The details will be updated indatabase.

#### **ALTERNATIVES:**

If the user is not logged in, he cannot access the profile page.

#### **POST-CONDITION:**

The user will click on submit button to change his details.

**NAME**: Change Password

**SUMMARY**: The user can change his password

**DEPENDENCIES**: Login

**ACTOR**: User

## **PRE-CONDITION**:

The change password section will be displayed on clicking the profile page.

## FLOW OF EVENTS:

• The user will enter his currentpassword.

• Then the user will enter his newpassword.

#### **ALTERNATIVES:**

If the user is not logged in, he cannot access the profile page.

#### **POST-CONDITION:**

The user will click on submit button to change his password.

**NAME**: Delete Account

**SUMMARY**: The user account will be deleted.

**DEPENDENCIES**: Login

**ACTOR**: User

#### **PRE-CONDITION**:

The delete account page will be displayed on clicking the other section in profile page.

## FLOW OF EVENTS:

- The user will be prompted with a warning to delete hisaccount
- The user will click on the delete accountbutton.
- The User will now be prompted to enter his currentpassword.

#### **ALTERNATIVES:**

If the user is not logged in, he cannot access the profile page.

## **POST-CONDITION:**

The user will click on password submit button and after password verification his account will be deleted.

NAME: Logout

**SUMMARY**: The user will be logged out of his account.

**DEPENDENCIES**: Login

**ACTOR**: User

## **PRE-CONDITION:**

The logout out button will be present on the profile icon on the navbar.

## **FLOW OF EVENTS:**

- The user will click on the logoutbutton.
- The user's current session will be destroyed.

## **ALTERNATIVES:**

If the user is not logged in, he cannot click the logout button.

## **POST-CONDITION**:

The user will be redirected to the sign in page.

#### **Construction:**

We performed the following the Iterations:

**1st Iteration:** In the 1st iteration all the analysis and communication was done. All the requirements were defined and SRS was made. All the main functionalities of the product were highlighted.

**2nd Iteration:** All the scheduling for the project (Gantt chart) was done and the required models (EERD and Use Case models) were developed.

**3rd Iteration:** We developed the front end of the WikiSec Academy using client side technologies. The front end development was completed in three shifts for three different scenarios.

**4rd Iteration:** The database and tables required were developed and the back end was developed using appropriate server side technology.

5th Iteration: Once the website was developed and thoroughly tested, it was deployed

#### **Core Functionalities:**

Wikisec Academy was developed using client and server side technologies as mentioned later in 'Tools and Technologies'. The core functionalities constructed were according to different scenarios of Subscribed Client (Users who could Log in directly as they had already signed up), Unsubscribed Client (Users who could 'Continue without Sign In) and Admin (who would monitor the overall activities)

#### **Registered Users:**

Login/Sign Up: The User can login into the system with a valid user ID and password. If a new user login into the system, the user shall first sign up. Once a user login into the system, the dashboard should be displayed to the User.

## Dashboard page:

The dashboard page is the main page from where the user can access all the path rooms labs if he is logged in. On the dashboard page the user can see his rank ,level, total points, a progress bar according to the level and all the rooms in which he is enrolled. The user can also see the progress of the room that how much task he has completed in a room up till now. The user can access his own profile through a profile button page on the top of dashboard

#### **User Profile:**

The User can see their information details.

#### **Update Details:**

The User can change their ID and Password and the relevant information.

#### Leaderboard:

The user can see the leaderboard page by accessing it from the navbar. On the leaderboard the user can see the ranks, points, level of all the users and can also see the profile of user by clicking the username.

#### Hacktivities:

In the hactivities section you can start learning by joining a specific room of your choice or you can also enroll in the guided paths in order to get started.

#### Path details:

In the hacktivities page after selecting the path the user will be presented with all the learning materials of the selected path. Now the user will start his learning by accessing the room and after learning each material from the selected room the user will be presented with some task and in each task there will be 5 questions.

#### Labs:

The user will also be provided with hands on labs in the hacktivities section after logging in.

#### Blog:

Now in this section the users can post write-ups of the labs including solution and walkthroughs. And other users can read their blogs for guidance if they're stuck at some point. The blog will also have updates and new features of the website and it will also have beginner friendly guides.

## Logout:

When the user logs out, his/her account session will be terminated and he/she will be redirected to the login page.

## **Unregistered Users:**

## **Registration Page:**

The user will enter their account details for example username, email, password, First name & Last name.

## Homepage:

The unsubscribed user can see the homepage from where he can see the leaderboard page ,the profile of all the users , the blog and only the names of learning path and available rooms. He can access the learning path and available room by signing in. He can register by clicking the join now button in the navbar.

#### Admin:

Login:-Admin login route can be accessed only if a specific cookie is added. Then the admin can login by providing the valid username and password.

#### Dashboard:

On the admin dashboard the admin can see the total users total rooms and total questions; He will see a graph of username against total points. From here the admin can update user means he can delete any user, add any room. The admin will see all the pending blog and will approve it then it will be appeared to all the subscribed and unsubscribed users. He can also delete any blog

## Logout:

When the admin logs out, his/her account session will be terminated and he/she will be redirected to the

login page.

## **Deployment:**

We have deployed our front-end on Vercel back-end and Database on Azure

#### Vercel:-

Vercel provides an unmatched zero-config experience, following all of CRA's best hosting practices. The end-result is an aggressively cached, high-perf site that is globally available. With a single platform for HTTPS-enabled, CDN-backed, production grade sites, React developers can prototype, launch, and iterate faster than ever before.

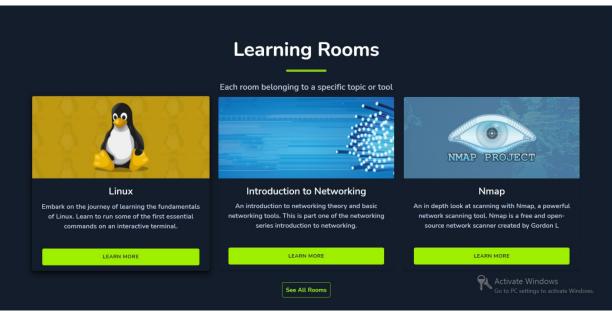
#### Azure:-

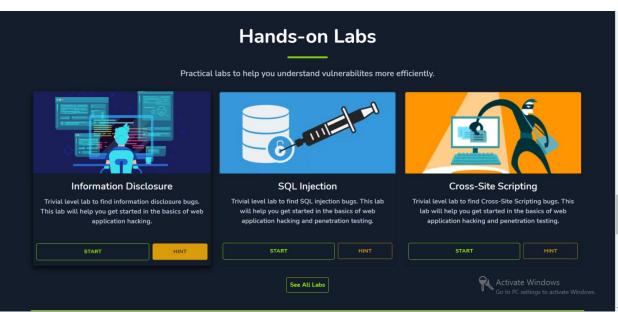
Microsoft Azure, commonly referred to as Azure is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through Microsoft-managed data centers. It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools, and frameworks, including both Microsoft-specific and third-party software and systems.

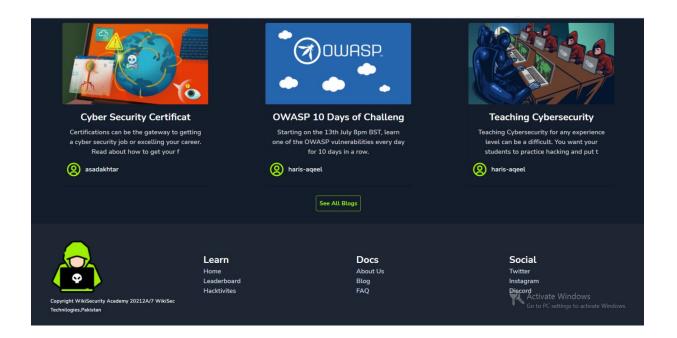
## Relevant Snapshots of the web application development:

## Homepage





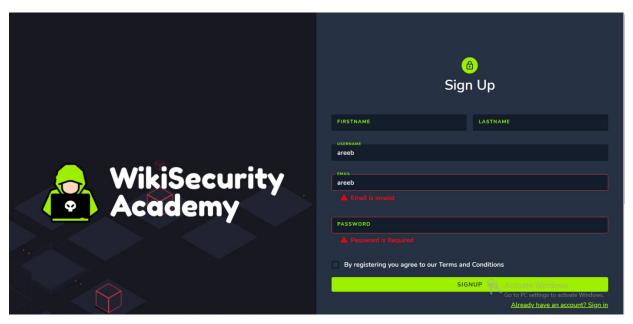




## Admin and User login

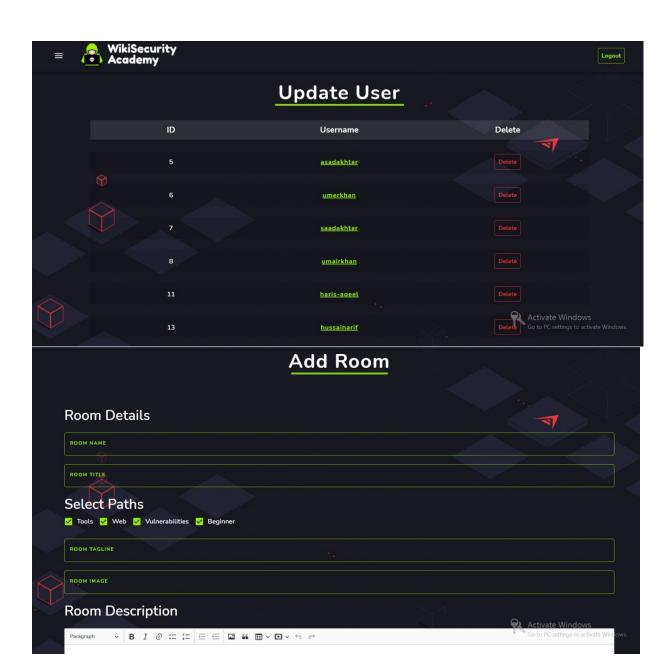


# Sign Up page



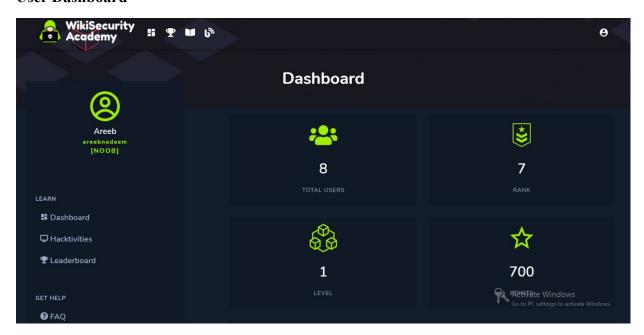
# **Admin Dashboard**

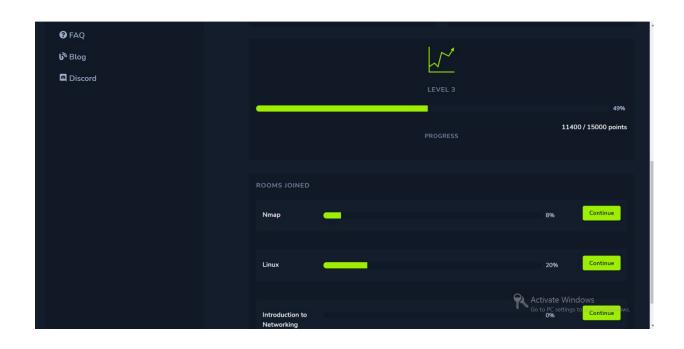


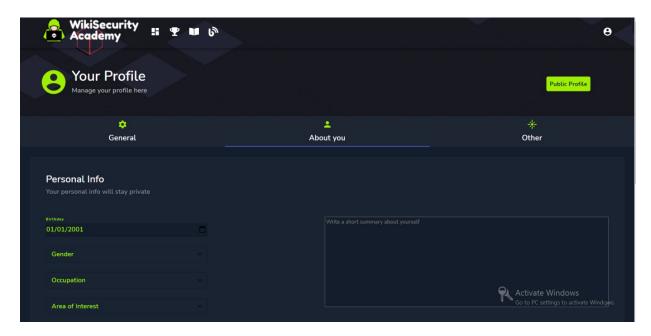


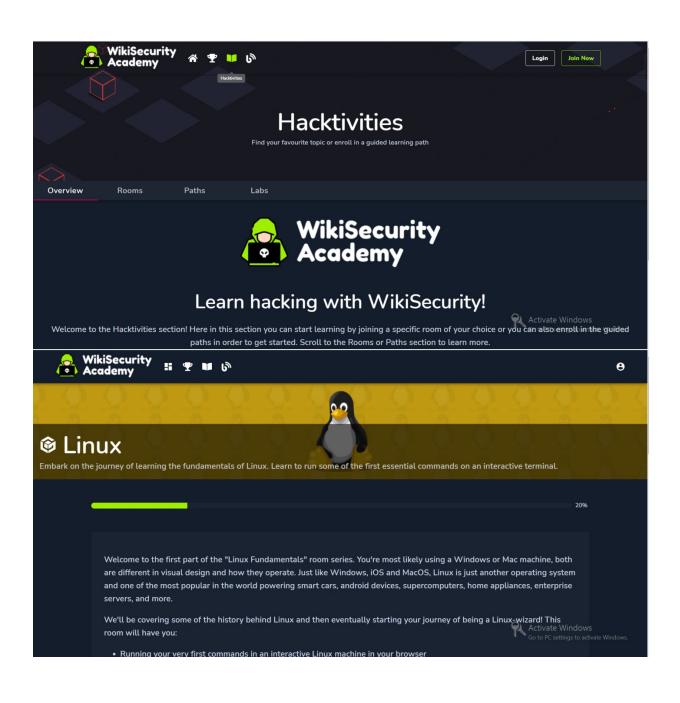


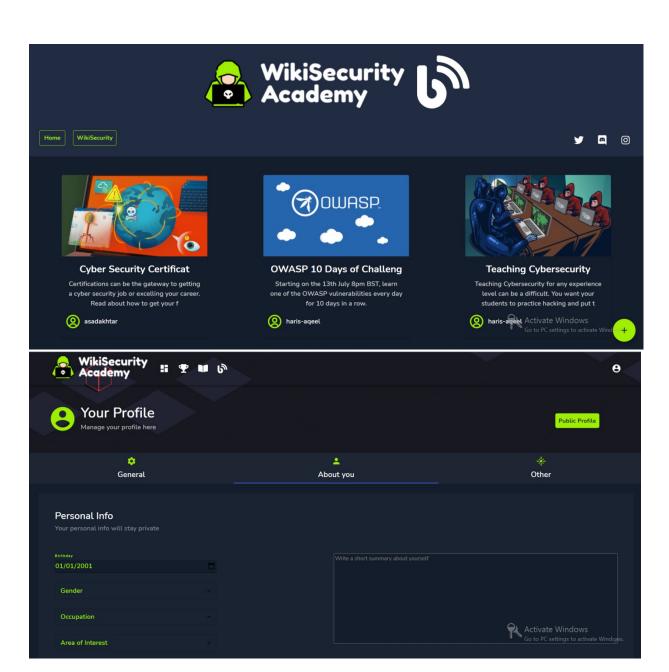
## **User Dashboard**

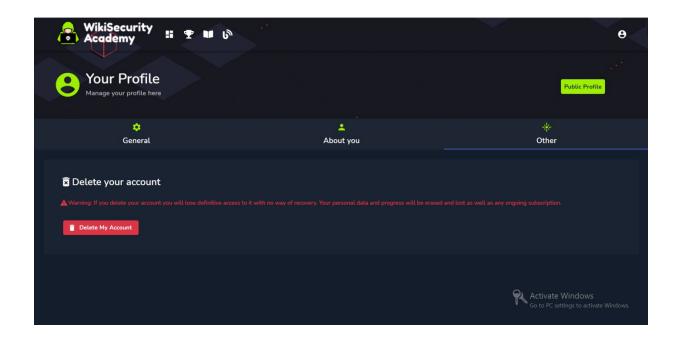












# **GitHub Repositories:**

Client-Side: https://github.com/ssaadakhtarr/wikiacademy\_client.git

Server-Side <a href="https://github.com/ssaadakhtarr/wikiacademy">https://github.com/ssaadakhtarr/wikiacademy</a> server.git

# **Hosted Website:**

https://wikiacademy-client-fwmepw2r6-ssaadakhtarr.vercel.app/