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Department of CSE

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Course Title: Computer Security Lab

3 Factor Authorization Using GOOGLE AUTHENTICATOR

The most secure computer is the computer
that's off :)



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01



Project Description

- Problem statement and Solution
- Understanding 3FA
- SWOT Analysis
- Advantages





Problem Statement & Solution

- Adding an extra layer of security to online accounts.
- Combines something the user knows, something the user has and something the user possesses
- If passwords are compromised, the additional authentication layer provided by Google Authenticator strengthens overall system security



Them

2-Factor



Us

3-Factor

3-Factor means??

- Password
- Security Question
- Google Authentication Code



SWOT Analysis

S

Strengths

Fortifies Security
user-friendly
interface ensures
high adoption rates

W

Weakness

- May pose challenges for users without smartphones.
- Device loss.

O

Opportunities

Exploring biometric
integration as the
third factor could
enhance security

T

Threats

Ongoing technological
advances in cyber
threats may challenge
the effectiveness of
3-factor
authentication.



Advantages

- Comprehensive Identity Verification
- Flexibility in Factor Types
- Advanced Access Control
- Auditing and Logging
- Stringent Security Systems
- Increased Security Layers
- Enhanced protection against unauthorized access
- Reduced risk of identity theft
- Increased user confidence in the security of their accounts



02

Language, Software & Protocol



- Language used
- Software used
- Protocol used

Language Used



HTML5



CSS3

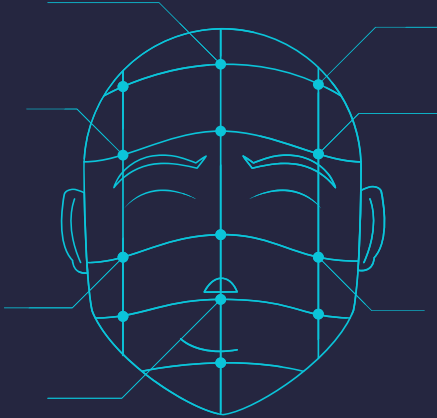


PHP



MYSQL

Software Used



- ❏ Docker
- ❏ XAMPP
- ❏ Visual Studio Code



Protocol Used

Password-Based Authentication

TOTP Algorithm

OWASP Guidelines



03

Working Process

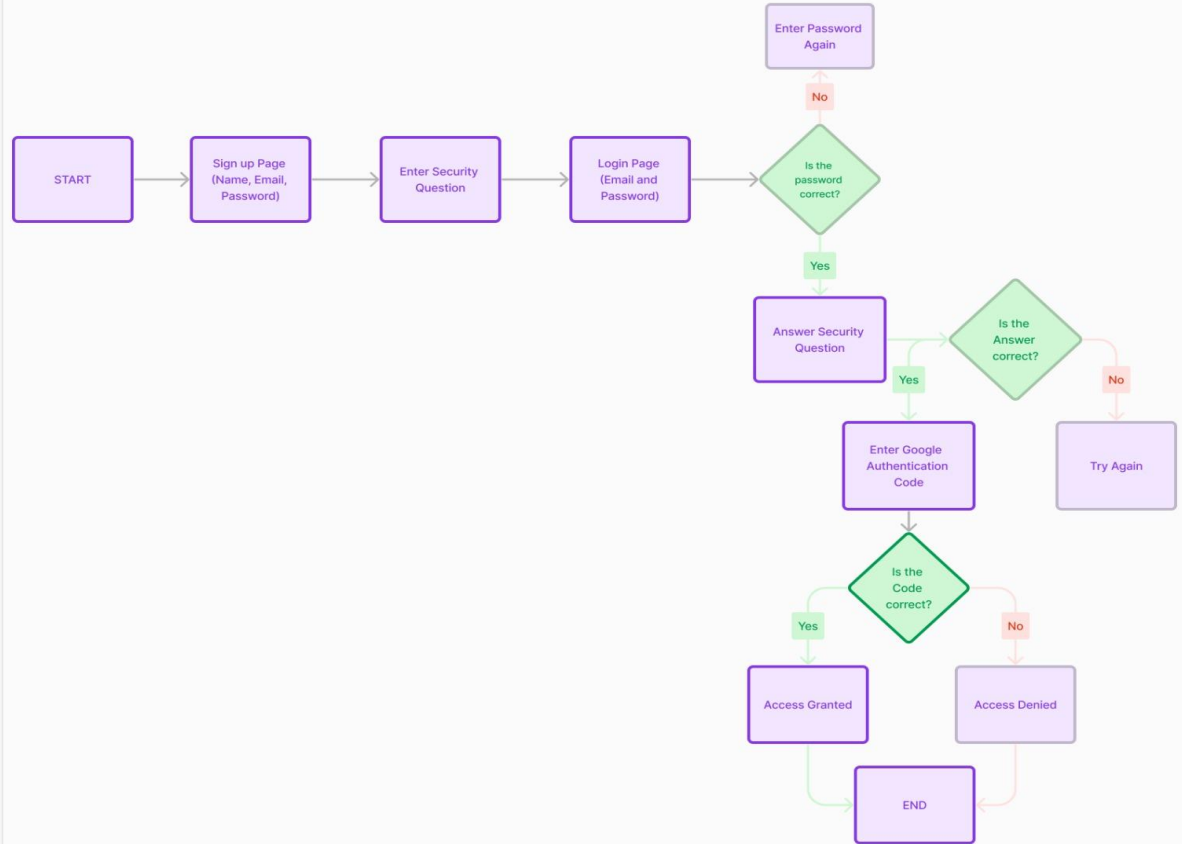


- Flowchart
- Procedure

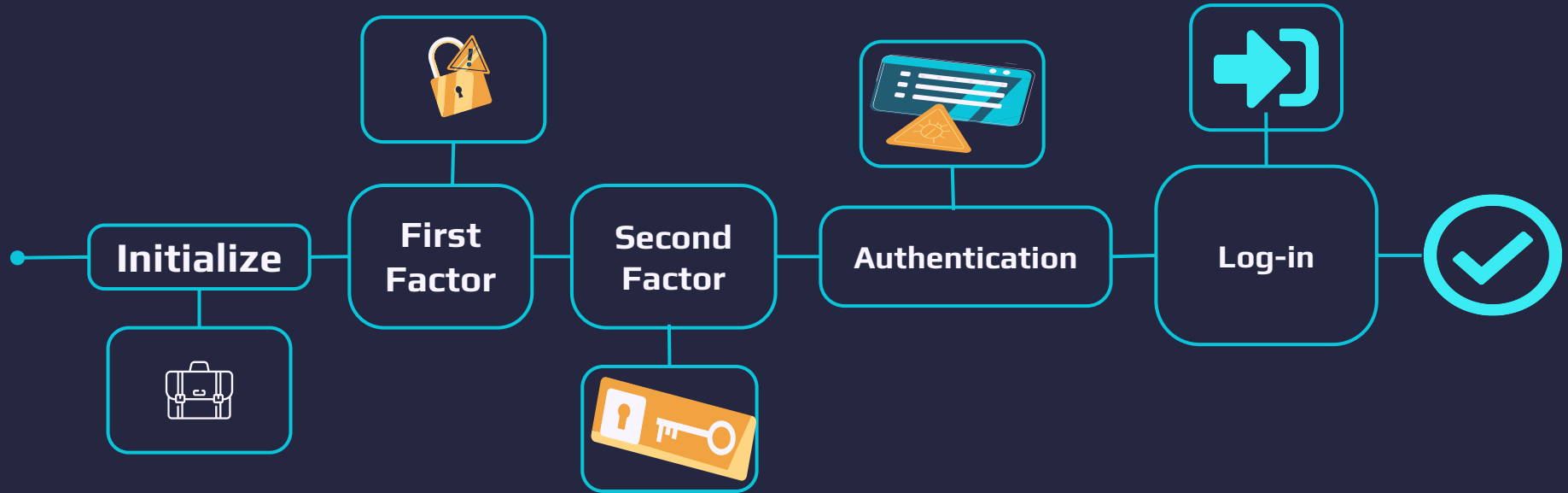


Flowchart

Flow chart



Procedure



04



Implementation



- Registration Page
- Password Validation
- Database
- Login Page
- Authentication Page
- 3FA Successful

Registration Page

The image shows a registration form titled "Register" centered on a teal background. The form is a light gray rectangle with rounded corners. It contains the following elements:

- Title:** "Register" in a teal font, centered at the top of the form.
- Name:** A label in teal text above a white text input field containing the text "afia".
- Email:** A label in teal text above a white text input field containing the text "afiaa@gmail.com". This field has a blue border.
- Password:** A label in teal text above a white text input field containing three dots "...".
- Security Question:** A label in teal text above a white text input field containing the text "What was the name of your first stuffed animal?".
- Security Answer:** A label in teal text above a white text input field containing the text "fifi".
- Register Button:** A teal button with the text "Register" in white, located at the bottom left of the form.

Security Questions

Register

Name:

Email:

Password:

Security Question:

---Choose Option---

---Choose Option---

Which university did your Dad graduate from?

What is your Grandpa's middle name?

What was the name of your first stuffed animal?

Register

Password Validation

The image shows a registration form titled "Register" with the following fields and content:

- Name:** afia
- Email:** afiaa@gmail.com
- Password:** ... (The field is highlighted with a blue border, and a validation error message is displayed below it.)
- Security Question:** What was the name of your first owned animal?
- Security Answer:** fifi

A validation error message is displayed below the Password field:

! Please match the requested format.
Password must be at least 8 characters long

At the bottom of the form is a blue button labeled "Register".

Database


(Current Data Stored)

<div><div></div><div>▼</div></div> id	name	email	password	question	answer	google_key	created_at	
<div><div></div><div>Delete</div></div>	1	manu	test@gmail.com	123		6OUVKUXTIXAX27JP	2023-11-27 17:44:58	
<div><div></div><div>Delete</div></div>	2	afia	afia@gmail.com	\$2y\$10\$XRoFC8jMpKhd1zbYaKYJBui11O/WWrXvqKc.i2DMbo...			2023-11-27 19:01:44	
<div><div></div><div>Delete</div></div>	3	piya	piya@gmail.com	\$2y\$10\$28zoC/08lvEa0740dDGdZeUjHcoN6Ktfm9CAz3h8tbh...		ZY3NNQ7AKNJZTLNA	2023-11-27 19:13:16	
<div><div></div><div>Delete</div></div>	5	afrina	afrina@gmail.com	\$2y\$10\$pxcOL82B4c04iCYFtrGe2en82QhSVHA8S4xKckVMuMk...	What was the name of your first stuffed animal?	fluff	LYQ7BMZSNJMHCFMF	2023-11-27 20:39:55
<div><div></div><div>Delete</div></div>	7	afroza	afroza@gmail.com	\$2y\$10\$2zuS0RLl2eqsohNFyP2vJeYprHRydOIAa/aM9sMk3RN...	What was the name of your first stuffed animal?	haru	N3JNTUCPZ66IVL37	2023-11-28 14:07:13
<div><div></div><div>Delete</div></div>	8	piya	piya23@gmail.com	\$2y\$10\$oOuUADjdOOdGMLFWN/rtVOq\$Si0.stmdfwZahZZwZdP...	Which university did your Dad graduate from?	harvard	AJ5NMTU6DLRFxi6Z	2023-11-28 14:19:37
<div><div></div><div>Delete</div></div>	11	eve	eve@gmail.com	\$2y\$10\$84OVyS9tNZMTSlab4RcH1/KVI/nIsV3E2FSkb0u/vL...	What was the name of your first stuffed animal?	eve	3GLVRBMF6R2ZFFXQ	2023-11-29 10:57:49
<div><div></div><div>Delete</div></div>	12	afia	afiaa@gmail.com	\$2y\$10\$NxBu/1Ha2CrIAK0gYdbjUOtdn4E3wWzqjjPt4AHCzgv...	What was the name of your first stuffed animal?	fifi		2023-11-29 11:08:26
With selected: <div><div></div><div>Edit</div></div> <div><div></div><div>Copy</div></div> <div><div></div><div>Delete</div></div> <div><div></div><div>Export</div></div>								

Login Page

Login

Email:
afiaa@gmail.com

Password:
hello123 

[Submit](#)

[Don't have an account? Sign up here.](#)

Authentication Page

App key: 5GAZ56M2CT643OHP

712141

Security Verification

Security Question:

What was the name of your first stuffed animal?

Security Answer:

fifi

Check Google Authenticator

Google code:

712141|

Submit

Logout

3FA Successful

3-Factor Authentication Completed Successfully!

05

Future Development & Innovation



- Future Work



Future Work



Enhancing more security by implementing Biometric and Face Recognition method Security.



Make the project more presentable with various css styles

06



Conclusion



- Conclusion

Conclusion

In conclusion, 3 Factor Authorization utilizing Google Authenticator represents a significant advancement in security measures, providing a multi-layered defense against unauthorized access. Its user-friendly interface and robust protection make it an indispensable tool in safeguarding sensitive data.

Github Link

- <https://github.com/blurryface14/3FA-.git>



Thanks!

Do you have any questions?

