



Developer Student Clubs

Vellore Institute of Technology, Bhopal

Introduction to Cybersecurity

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- Interest Domains :-
 - Malware Analysis
 - Android Security
 - Adaptive Cyber Defense Research.



Developer Student Clubs
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1. WHAT

What is cybersecurity?
What are available paths?

2. WHERE

Where are the resources?
Where to find inspiration?
Where to go for guidance?

3. WHEN

When to start?

4. HOW

How to prepare ourselves?
How to learn intimidating topics effectively?
How to find Internships?
 What to avoid?
 What to grab?
 No Internship! now what?

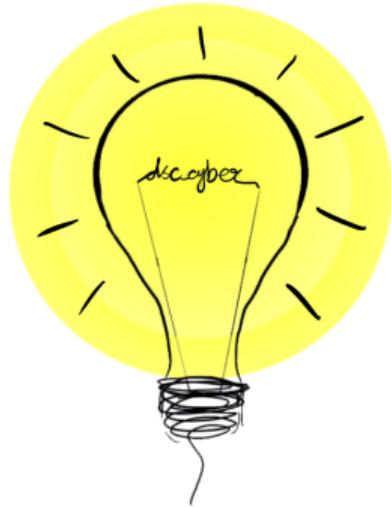
5. Summary

Who this is for?



- School students interested in cybersec.
- College undergrad starting in cybersec.
- Anyone thinking to migrate in cybersec. from scratch.
- Anyone who don't have much idea about this field.
- Or if you are just interested in the field.

Our Goal



- Understand potential of cybersecurity.
- See beyond cinematic representations and clichés.
- Approach Cybersecurity with confidence.

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All the information shared in this presentation is for educational purpose.

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Cybersecurity...
and the idea behind it.

Let's define “Cyber”



Let's define “Cyber”

Google search results for "cyber" showing various images and news links.

Search filters: All, Maps, News, Images (selected), Books, More, Settings, Tools, Collections, SafeSearch.

Image categories: wallpaper, security, logo, attack, anime, crime, technology, computer, safety, tumblr, icon, art, infographic, blue, military, threat.

Image thumbnails and titles:

- Using AI intelligently in cyber ... information-age.com
- Cyber Security—Advancing through AI ... innovationnetwork.ieee.org
- Cyber Security techmahindra.com
- Cyber-security threat guidance ... internationalairportreview.com
- What are the newest cyber attacks to ... information-age.com
- Why Is Cyber Security Important? - IT ... leapit.co.uk
- Cyber Crime Targeting Law & Education ... acquisition-international.com
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- Cyber-security breaches at 67 percent ... europeanpharmaceuticalreview.com
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- Cyber threats to national s... epni.gov.uk
- The evolution of cyber security | foundry4 foundry4.com
- Top 5 Countries Where Cyber Attacks ... securitytoday.com
- Cyber adAPT - Network Threat Detection ... cyberadapt.com
- highlights latest cyber-threats worldwide securitybrief.eu
- 2013 cyber security policy ... casonline.org
- Is cybercrime the greatest threat to ... casonline.com

CYBER?

- * Cybernetics derived from the Greek kubernetes which refers to a pilot or steersman.
- * Related is the Greek word kubernesis which means "the gift of governance" and applies to leadership
- * Relating to or characteristic of the culture of computers, information technology, and virtual reality.

CYBER = ANYTHING DIGITAL

Cyber term = CYBER-
Anything

eg:

Cyberage	Cyberattacks	Cybernated	Cyberculture
Cyberbullying	Cyberbully	Cybernation	Cybernetics
Cybercrime	Cybercafe	Cybernaut	Cyberpunk
Cyberpunk	Cybercitizen	Cybernetic	Cybersafety
Cybernetics	Cybercriminal	Cybernetical	Cybersecurity

What are the domains?

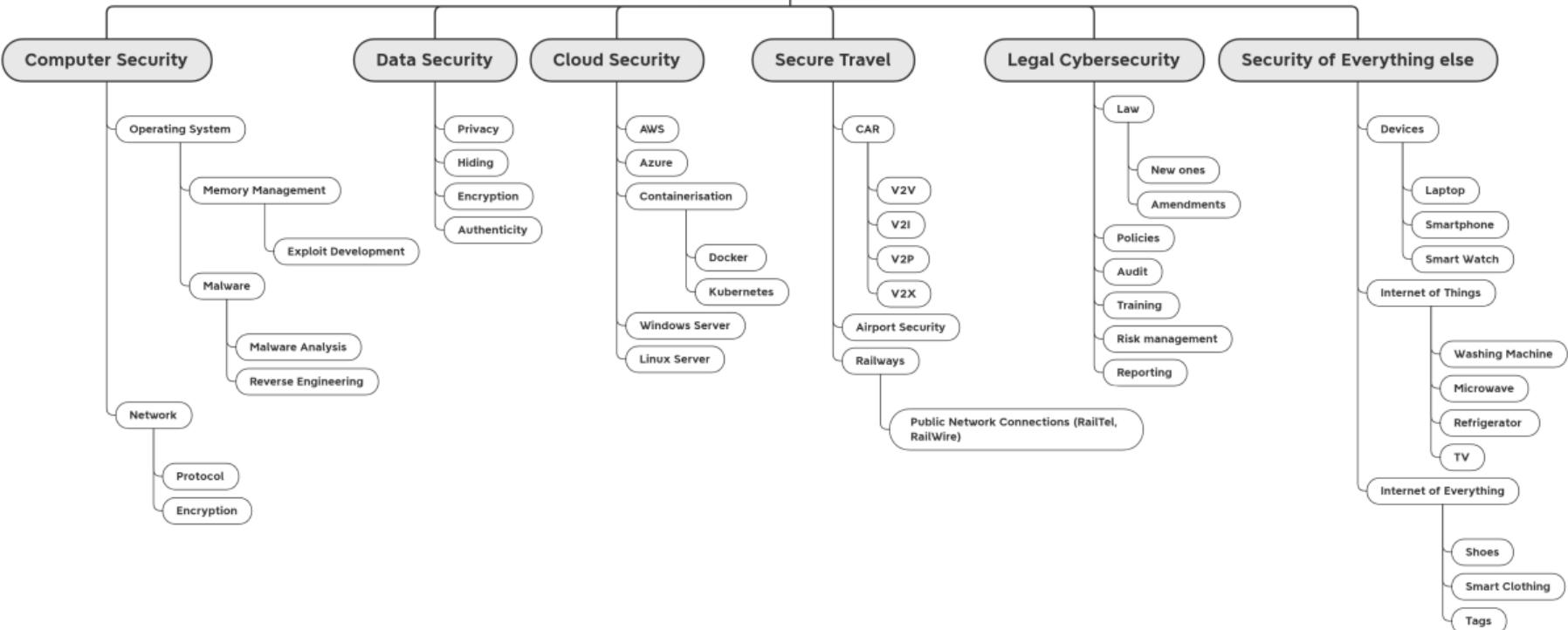
We will try to -

- 1 Gain a non-static reference
- 2 Recognize potential cybersec. domain
- 3 Understand impact of **security** on **cyber domains**

Understanding the impact
of a topic enables you
to create your own
domain.



Domains of Cybersecurity



What are available paths?

Thinking out of movies and clichés.

Usual pop culture roles and some cliché ones.

- CISO
- Pentester
- Bug Hunter
- Underground hacker in black hoodie

What are available paths?

Thinking out of movies and clichés.

1. Application Security Administrator
2. Artificial Intelligence Security Specialist
3. Automotive Security Engineer
4. Blockchain Developer / Engineer
5. Blue Team Member
6. Bug Bounty Hunter
7. Cybersecurity Scrum Master
8. Chief Information Security Officer (CISO)
9. Cryptanalyst
10. Counterespionage analyst
11. Chief Security Officer (CSO)
12. Cloud Security Architect
13. Cybersecurity Lawyer
14. Cybersecurity Software Developer
15. Cryptographer
16. Cyber Insurance Policy Specialist
17. Cyber Intelligence Specialist
18. Cyber Operations Specialist
19. Cybersecurity Hardware Engineer
20. Cybercrime Investigator

What are available paths?

Thinking out of movies and clichés.

- 21. Digital Forensics Analyst
- 22. Data Security Analyst
- 23. Data Privacy Officer
- 24. Data Recovery Specialist
- 25. Disaster Recovery Specialist
- 26. Governance Compliance & Risk (GRC) Manager
- 27. Malware Analyst
- 28. IT Security Architect
- 29. IIoT (Industrial Internet of Things) Security Specialist
- 30. Incident Responder
- 31. Mobile Security Engineer
- 32. Network Security Administrator
- 33. Penetration Tester (Pen-Tester)
- 34. PKI (Public Key Infrastructure) Analyst
- 35. Red Team Member
- 36. SCADA Security Analyst
- 37. Security Operations Center (SOC) Analyst
- 38. Security Operations Center (SOC) Manager
- 39. Source Code Auditor
- 40. Security Awareness Training Specialist

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Where are the resources?

- Online
 - Twitter
 - Reddit
 - Information Security Exchange (child of Stack Exchange, sibling of StackOverflow)
 - Open Forums
 - Personal Blogs of people in the field (Mostly Academia)
- Offline
 - Books (Text / Reference)
 - Articles
 - Research Papers (Specific Topic)
 - Teachers / Professors
 - College / University Syllabus [most underrated]

Where to find inspiration?

Building your Feed

- Make a new Google, Twitter and Reddit account
- Record your academic activity in Google's suggestion algo.
 1. Log-in to your Google Account
 2. Continue your Studies / Search online
 3. Log-out when you are done
- Only watch academic videos from your Google account,

Where to go for guidance?

1. Professor (Use Topic Decomposition Approach)
2. Forums
 - Reddit
 - StackExchange
 - IRC
3. Discussion Panels
 - Open Conferences
 - Security Conferences (YouTube)
 - Conclaves & Panel Discussions
4. Open Talks from reputed professionals (eg. TED, TEDx, etc.)

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When to start?

Start

Now !!

Now !!

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How to prepare ourselves?

How to learn intimidating topics effectively?

How to find Internships?

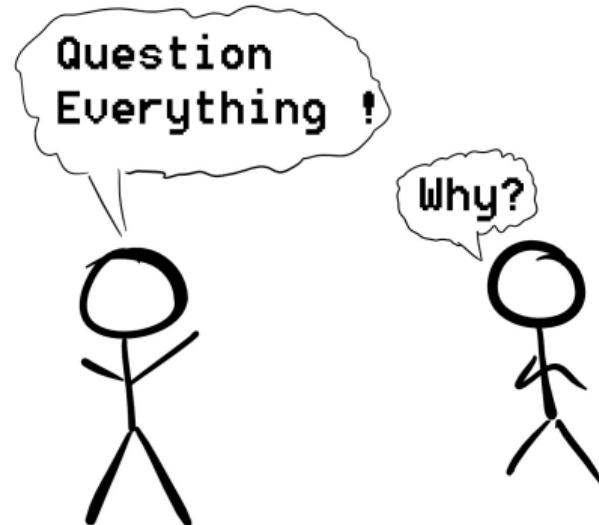
5. Summary

How to prepare ourselves?

The thought process of a cybersecurity student.

Ask right questions.

- 1 How it works?
- 2 Why we need it?
- 3 What if we remove it?
- 4 If not this then what?



What are the basic requirements?

These are needed for any IT Job -

- Computer Network
- Operating System
- Data Structures
- Computer Architecture
- Programming Language (Object Oriented) [C/C++/Python/Java]

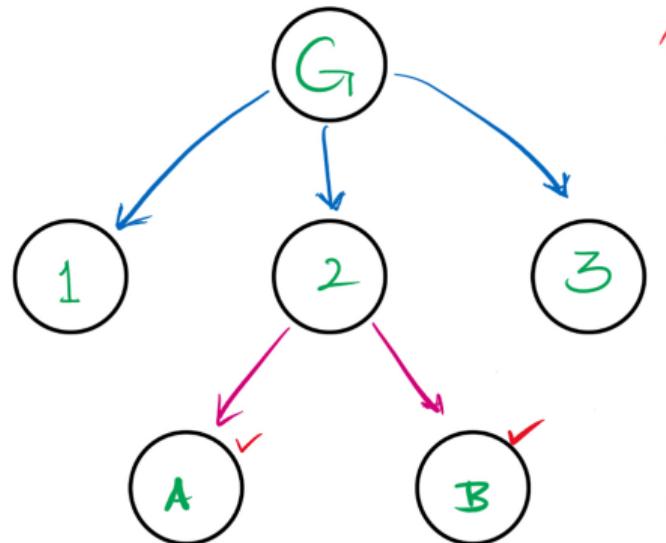
How to learn intimidating topics effectively?

- ✓ Topic Decomposition, Correlation & Planning.
- ✓ Your Own Weird Names (YOWN)

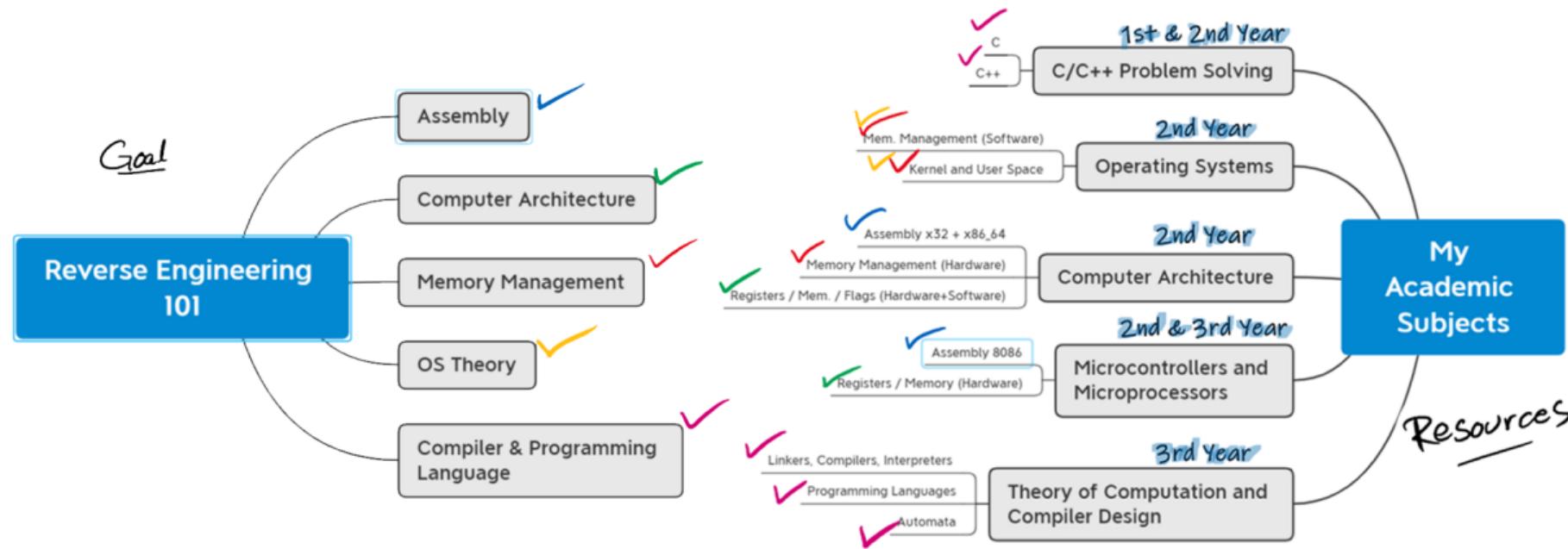
Topic Decomposition, Correlation & Planning.

Divide and Rule!

- 1 Identify small sub-topics under a major theme
- 2 Reduce to smaller sections
- 3 Find where you can read all these smaller topics, individually.
- 4 Finally stitch all together.



Topic Planning



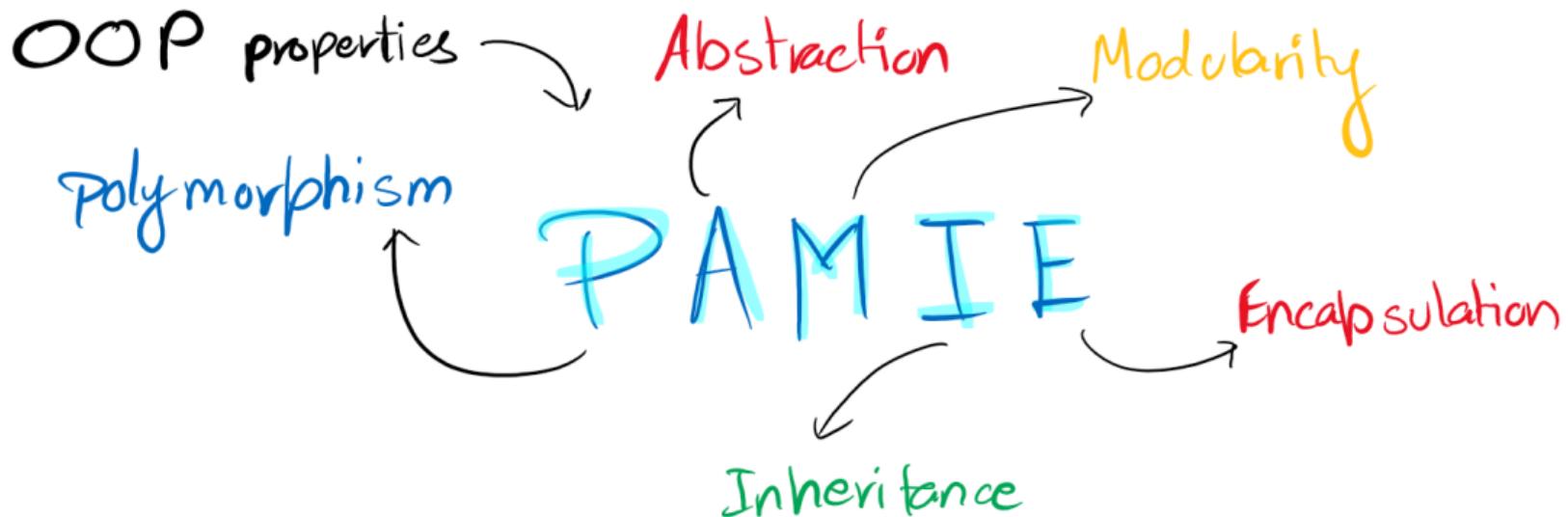
Your Own Weird Name

How to learn intimidating topics effectively?

-  Make it so weird that you can't get it out of your head.
-  Make so simple that you can't forget it

Your Own WEIRD NAME

X (Yown)



Your Own WEIRD NAME

(Yown)



How to find Internships?

What to expect from it?

Keep an eye on -

- Linked-IN.
- Glassdoor.
- Google Jobs.
- Government Note Boards (online).
- Company's Social Media.
- Among your connections and professional circle.

What to avoid?

Red Signals



- They demands money from YOU (you don't pay the person for whom you are working!)
- Affiliate Links
- They say - “Post this for us on your social media, and we will give you certificate”
- Pyramid Scheme
- Too good to be true.
- No clear plan of intake and job expectation.

Signs of good internship

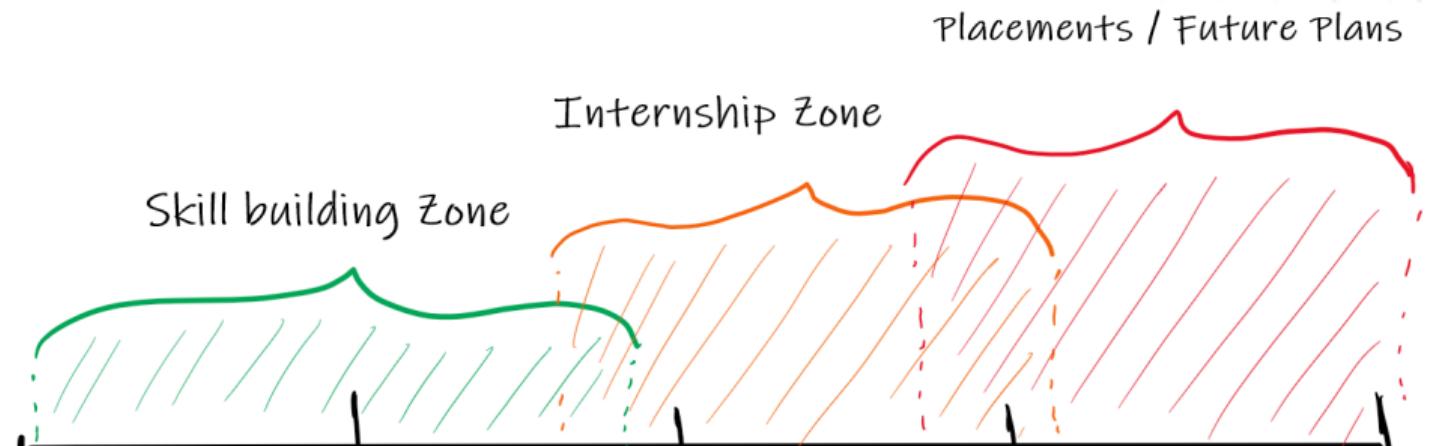
Good offer.



- Gives Experience (it can be unpaid)
- Your intended job role
- Reputed Entity.
- Verified and Detailed expectations
- Transparent intake policy

When to do internships?

1st year?, 2nd year?, 3rd year?...

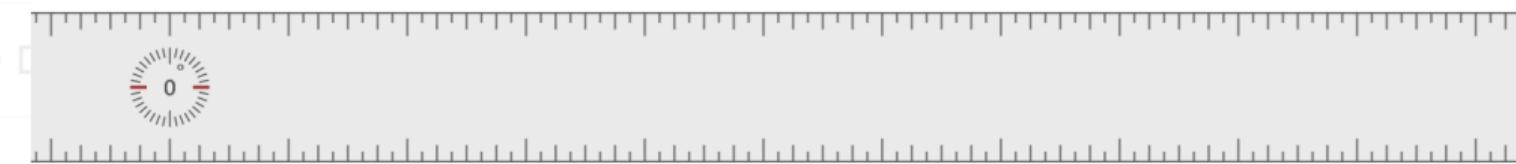


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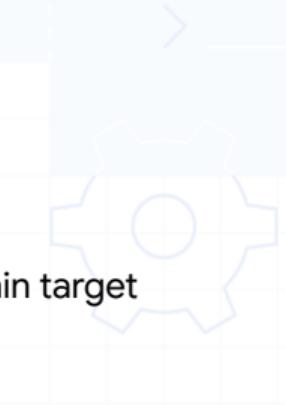
3

4



No Internship! now what?

Projects!



- Initiate a personal project and complete it with proper documentation and within target time line.
- What you did when there was no pressure and no incentive.
- What you did in your own time and out of your own interest in the topic.
- Try to do a Community Project.
- Try to contribute in Open-Sourced project.
- Prepare for well-respected certification.
- Or just learn more and gain skills needed for your target internship.
- **Don't give up**

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Summary

What

Security
of
EVERYTHING
digital.

Where

Resources
Guidance
Inspiration
.

How

Topic Decomposition
Topic Correlation
Topic Planning
YAWN



Peace of Mind & Patience

- ✓ Find time for mental health
- ✓ Don't compare with progress of others
- ✓ Learn from competition, don't get demotivated.
- ✓ It is as hard as any other subject / skill.

References

Websites, Articles, Posts, etc.



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- <https://www.stealthlabs.com/blog/top-10-cybersecurity-trends-in-2021-and-beyond/>
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- <https://securityboulevard.com/2020/11/top-10-cyber-security-trends-to-watch-out-for-in-2021/>

Sincere Thanks



Prof.

Dr.Shishir K. Shandilya*
Dr.Gaurav Pareek*
Dr.Ajeet Kumar#

#: Soongsil University, South Korea

*: Vellore Institute of Technology, India

Friends

For
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Everyone in DSC!



Thanks; धन्यवाद्; Спасибо;

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