Software Security Measures

SOFTWARE ENGINEERING: ANALYSIS & DESIGN

Topic of Discussion:

3. Software Security Measures: With the increasing complexity of software systems, security remains a critical concern. Look at how the following can aid in software engineering:
·secure coding practice
·vulnerability detection
·threat modelling.

Definitions

Definitions

1

- **Software Security Measures** - protecting software applications, systems, and data from unauthorized access, vulnerabilities, and malicious activities.

2

- **Secure Coding** - is the practice of developing computer software in such a way that guards against the accidental introduction of security vulnerabilities.

3

- **Vulnerability Detection** – flaws in an application or computer system that causes it to act outside of its intended purpose.

4

- **Threat Modelling** - a systematic technique of recognizing and assessing potential threats in software or computer systems.

Secure Coding Practices

How can 'Secure Coding Practices' aid in Software Engineering?

1. Preventing Attacks by Malicious Users
2. Guideline for Web Application Development
3. Reducing Risk at the Deployment Stage
4. Cost-Effectiveness of Implementing Security Measures

Vulnerability Detection

How can 'Vulnerability Detection' aid in Software Engineering?

1. Using Machine Learning Algorithms to detect vulnerable code units
2. Using specialized tools and methods for efficient vulnerability detection activities
3. Employing static analysis techniques to reduce cost of vulnerability rectification

Vulnerability Detection tools

1 Network scanners

2 Code scanners

3 Web application scanners

4 Container scanners

Threat Modelling

How can 'Threat Modelling' aid in Software Engineering?

1. Helps in identifying business-logic flaws and other critical vulnerabilities that expose core business assets
2. Enriching assessments with new potential attack vectors
3. Prioritizing type of attack to address
4. Mitigating the risks more effectively
5. Fixing issues early in development process

Here's a real life application

The team

Conclusion

Secure coding practices, advocated by organizations like OWASP, play an important role in aiding software engineers by providing guidelines and examples to prevent malicious attacks on applications, thereby addressing vulnerabilities early in development. These practices also serve as cost-effective measures by emphasizing a preventive approach, reducing risks at the deployment stage and integrating security considerations throughout the development process.

The team

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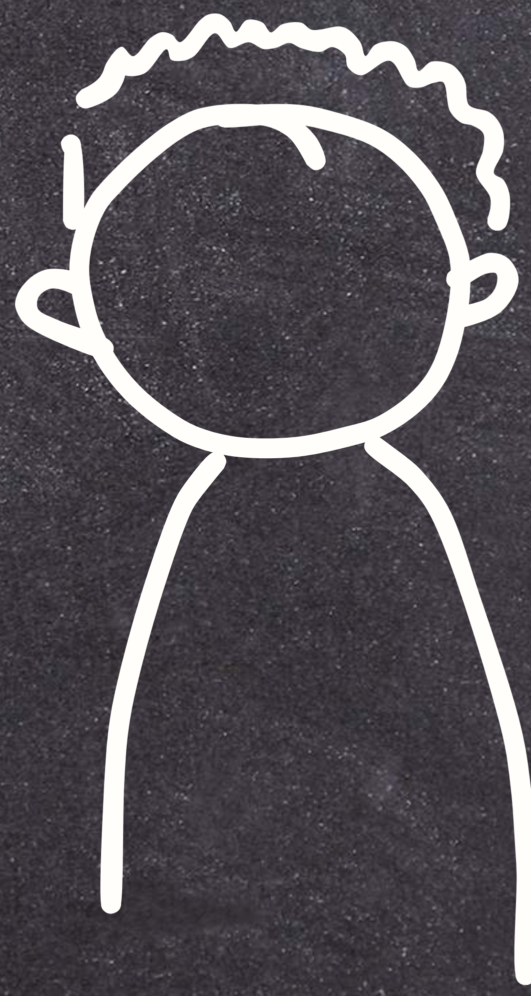

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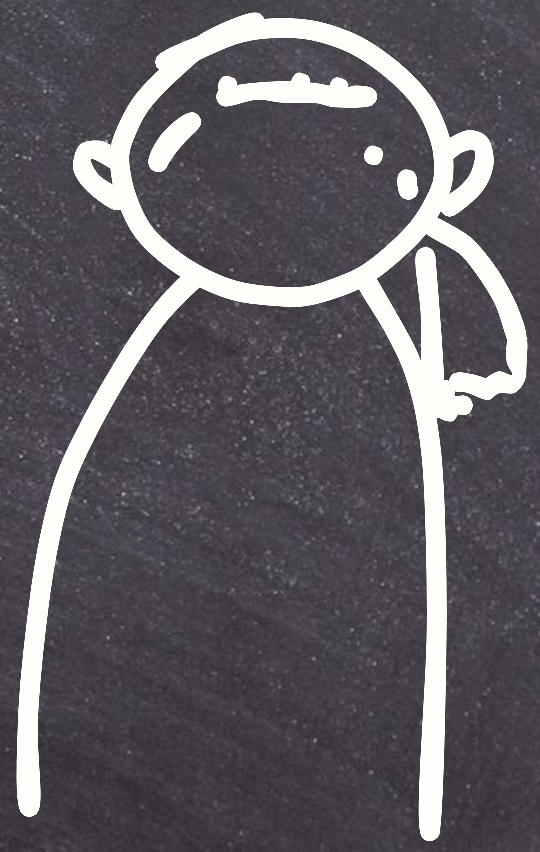

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THANK YOU