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Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Advanced Security (Information Security Management) - Session 1: Introduction

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(Security and Embedded Systems Engineering)

What do you remember from the Security Lecture?

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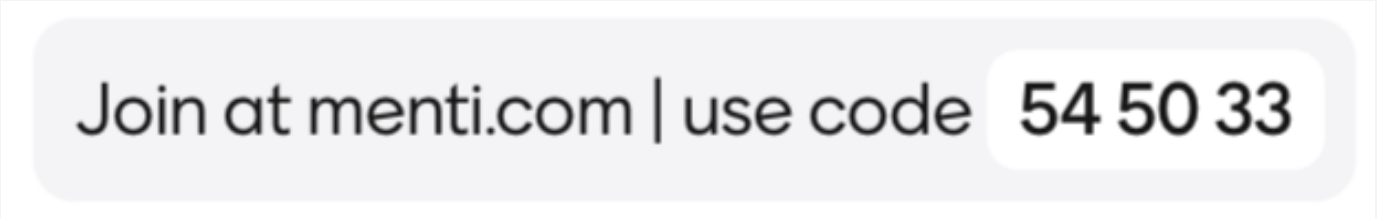
→ Mentimeter



Recapturing Some Concepts

- Cryptography
- Authentication
- Authorization
- Network Security
- Application Security
- Attacker’s approach

Topic 1: Security Frameworks, Trust and Assurance

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ISO 27001

NIST National Institutes of Standards and Technology SP 800-53

OWASP – Application Security Verification Standard v4.0

The OWASP Application Security Verification Standard (ASVS) Project provides a basis for testing web application technical security controls and also provides developers with a list of requirements for secure development.

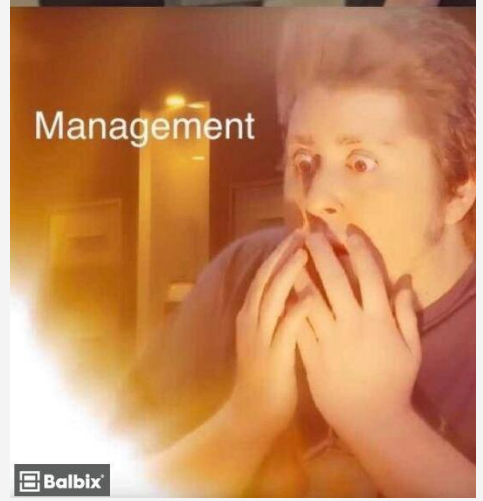
286 Controls and 14 Verification topics

Level 1
- 131 Controls
- low assurance levels

Level 2
- 267 Controls
- applications that contain sensitive data

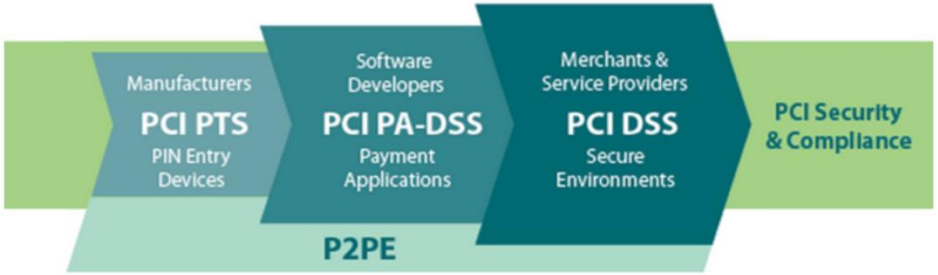
Level 3
- 286 Controls
- most critical applications

Security Risk



PAYMENT CARD INDUSTRY SECURITY STANDARDS

Protection of Cardholder Payment Data



Ecosystem of payment devices, applications, infrastructure and users

VISA · AMERICAN EXPRESS · MasterCard · DISCOVER · JCB

Governance Team

- Define Objectives
- Establish Roles and Responsibilities
- Develop Policies and Procedures
- Implement Controls
- Monitor and Report
- Define Metrics and KPIs

Top 2: Security Organizations in Companies

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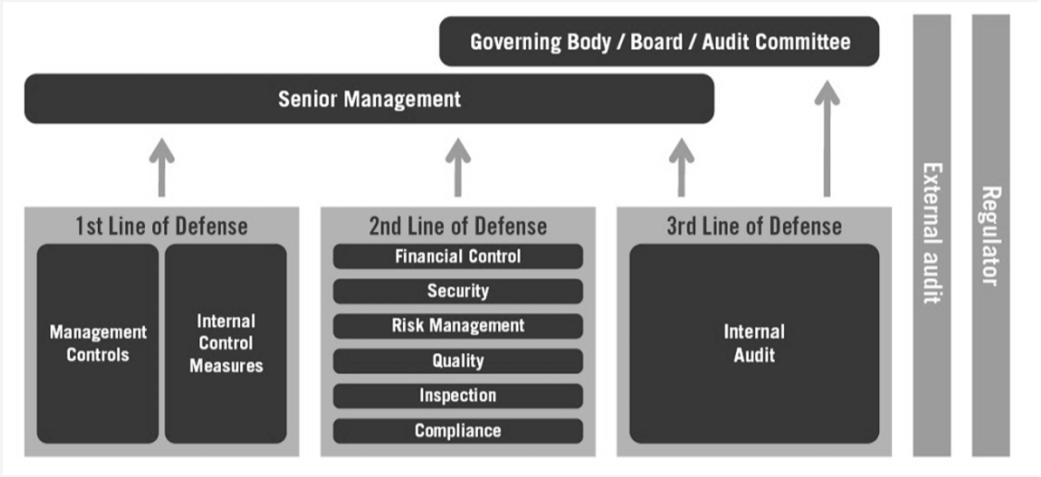

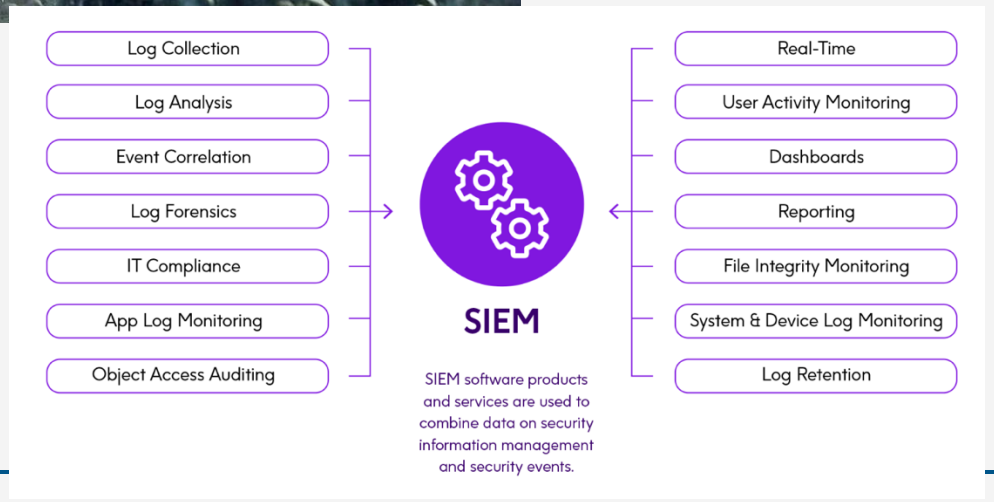

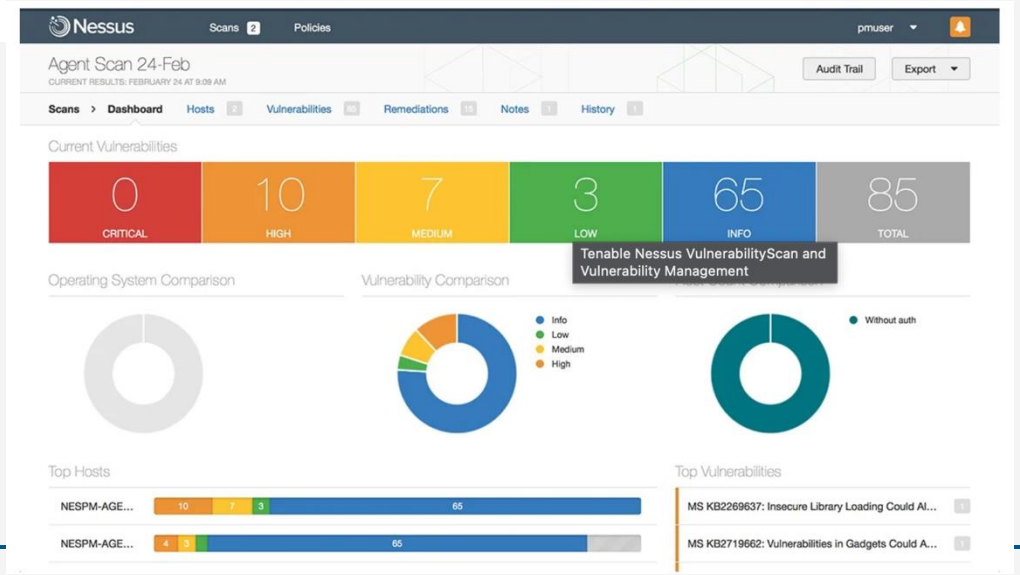

Topic 3: Fundamental Web Application and Network Attacks

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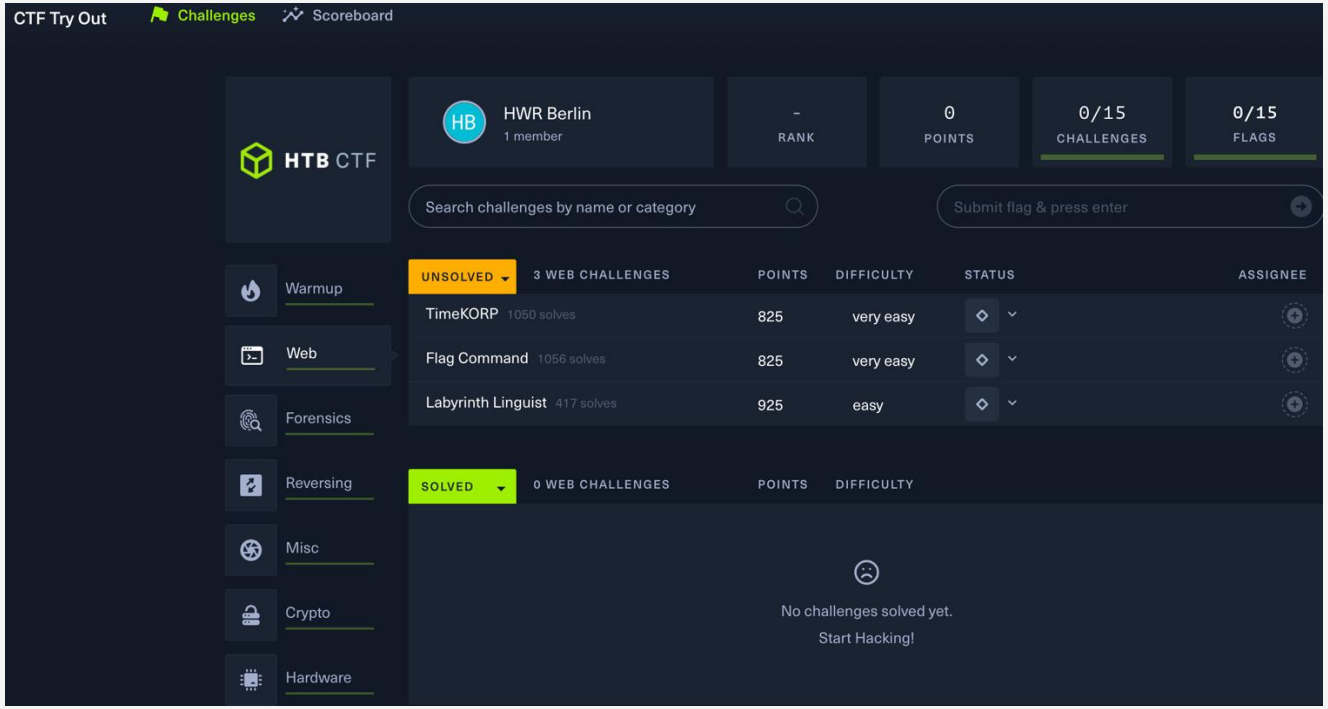

Topic 4: Security Architectures and Cloud Security

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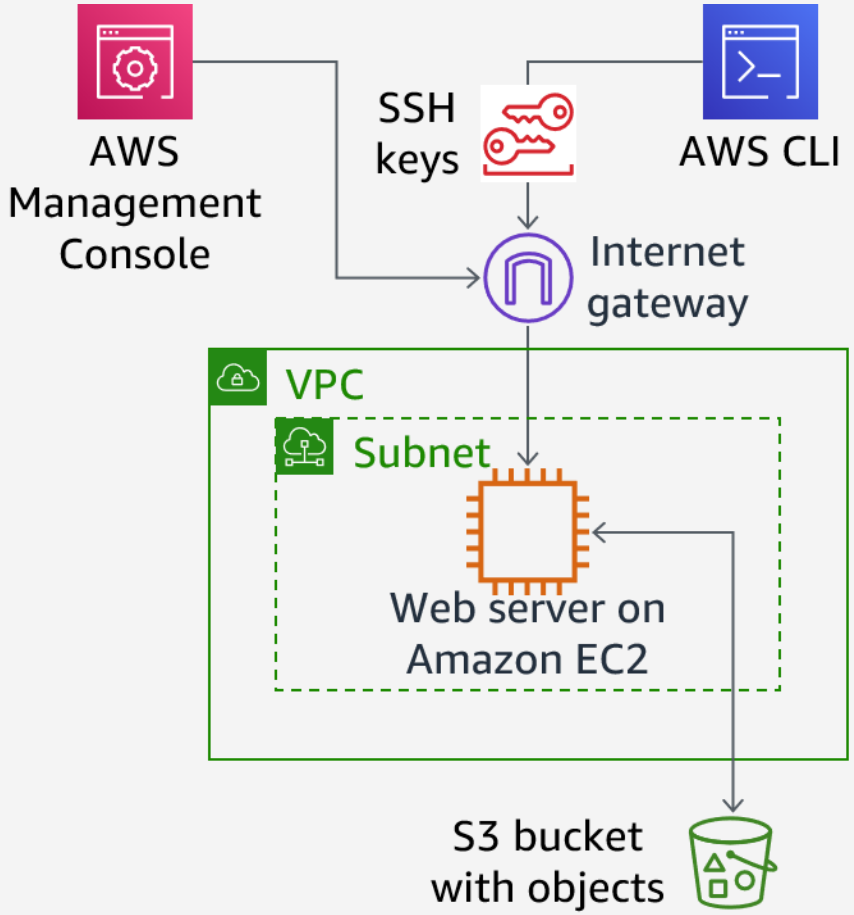

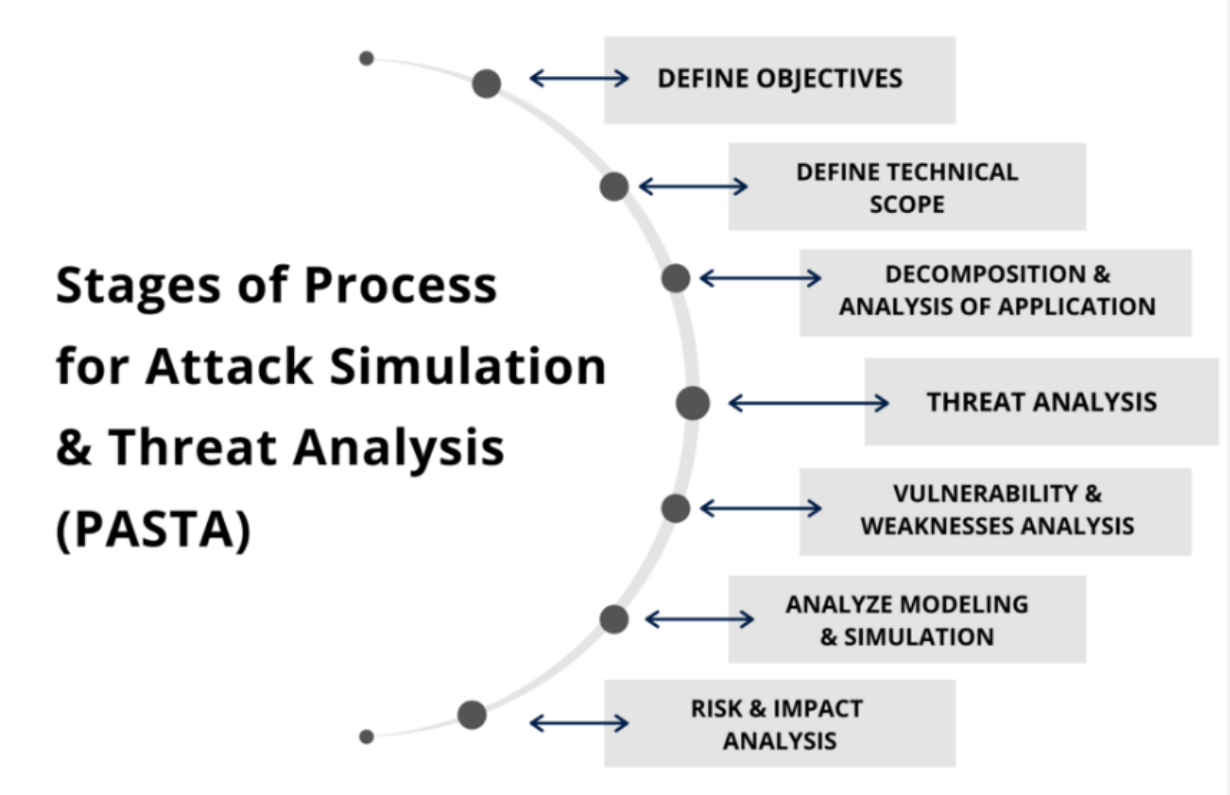

Topic 5: DevSecOps

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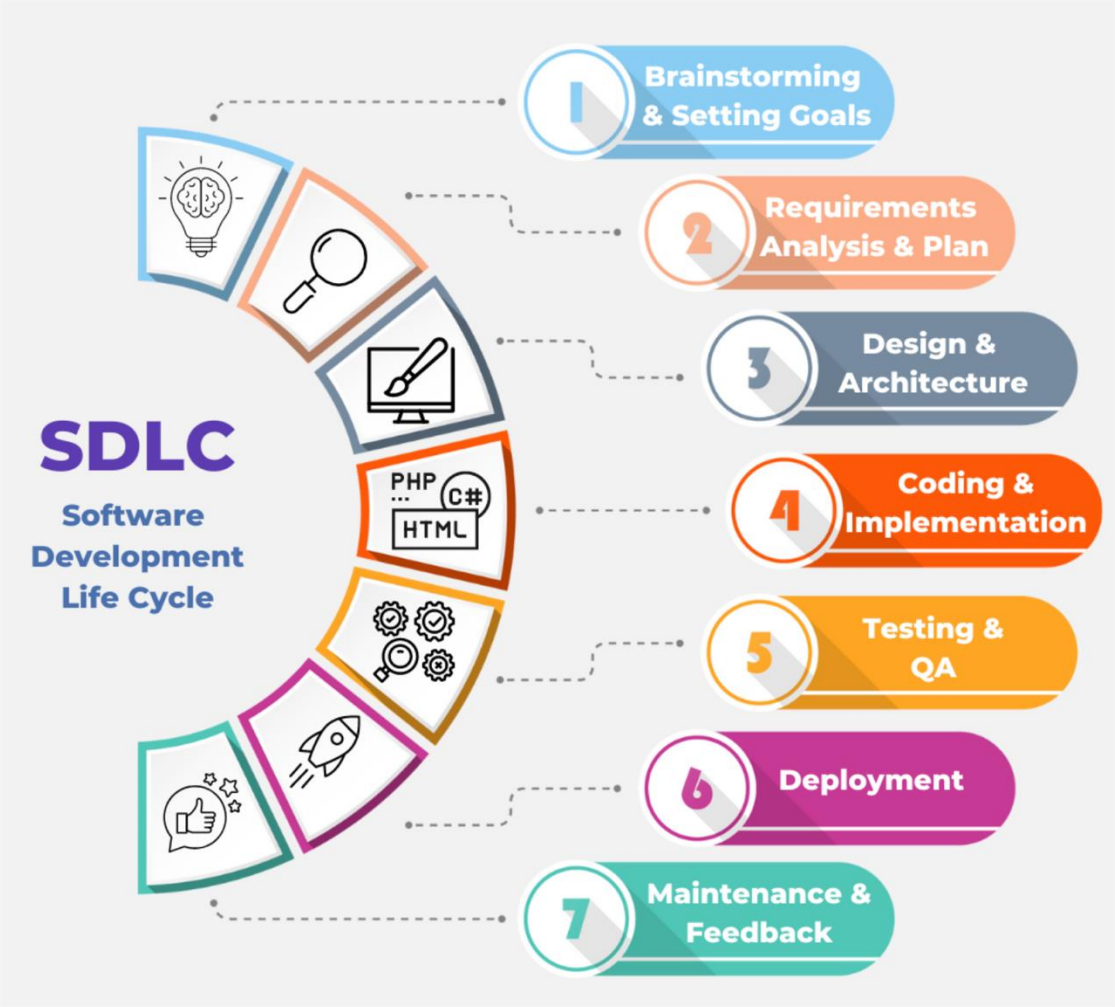

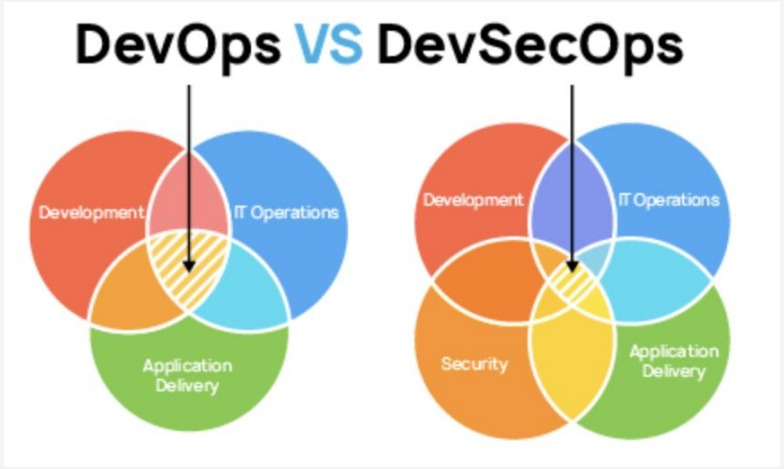

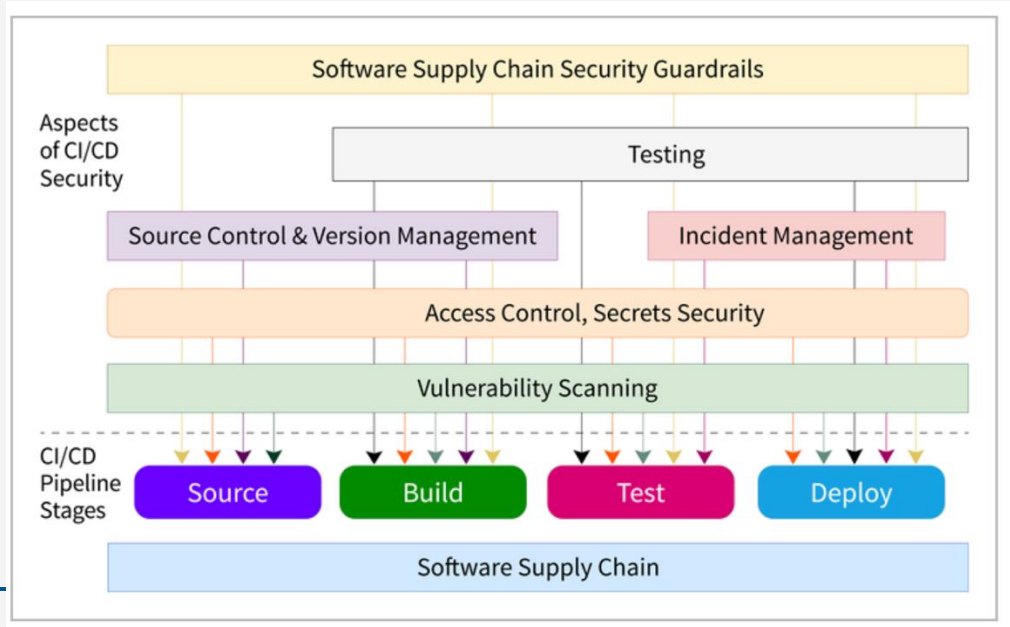

Topic 6: Static and Dynamic Analyses for Security (Static Application Security Testing, SAST)

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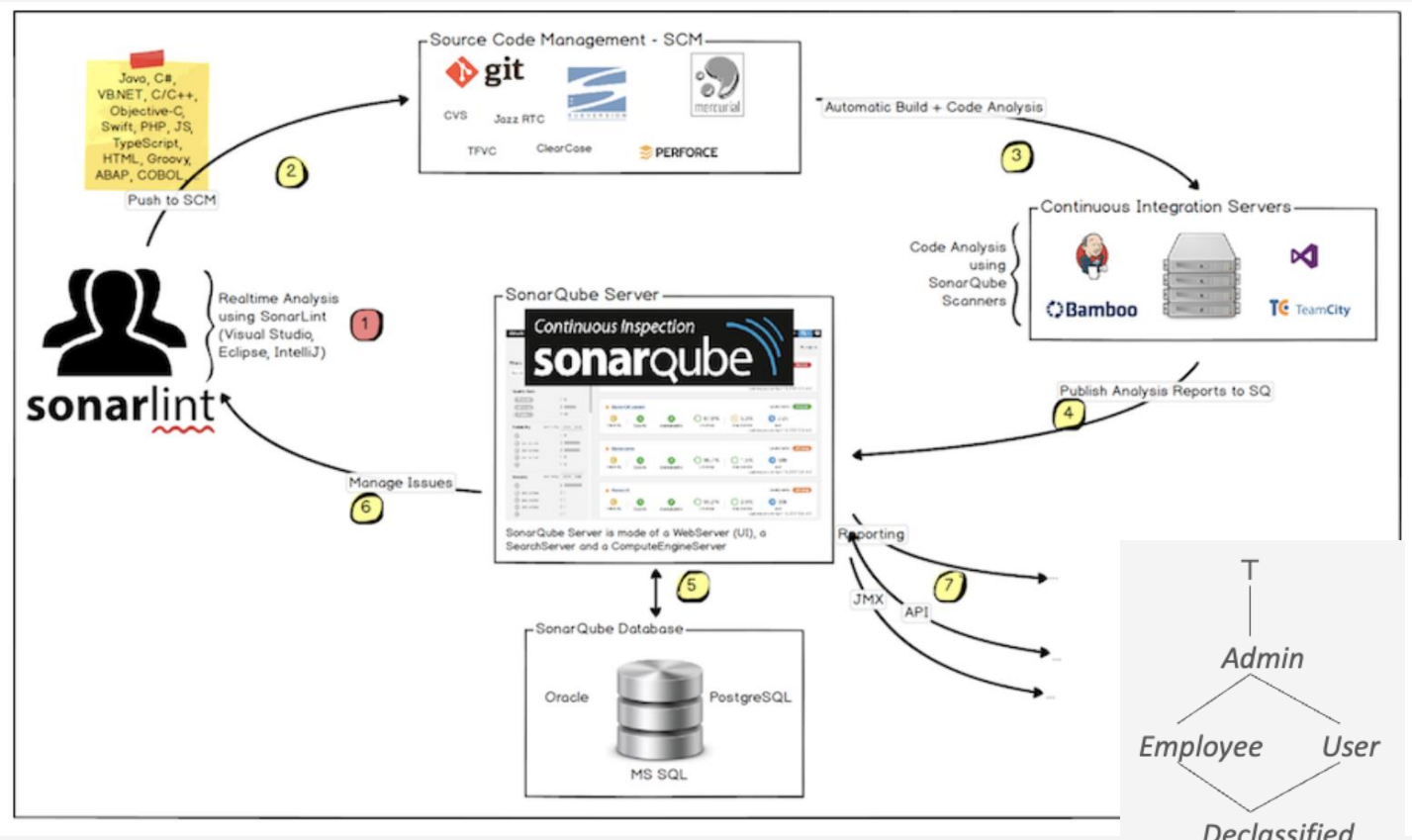

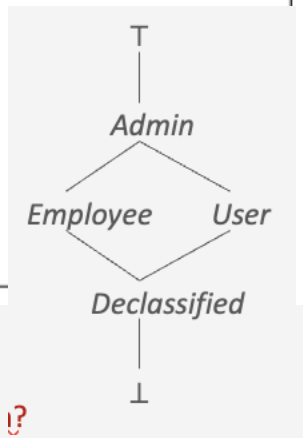

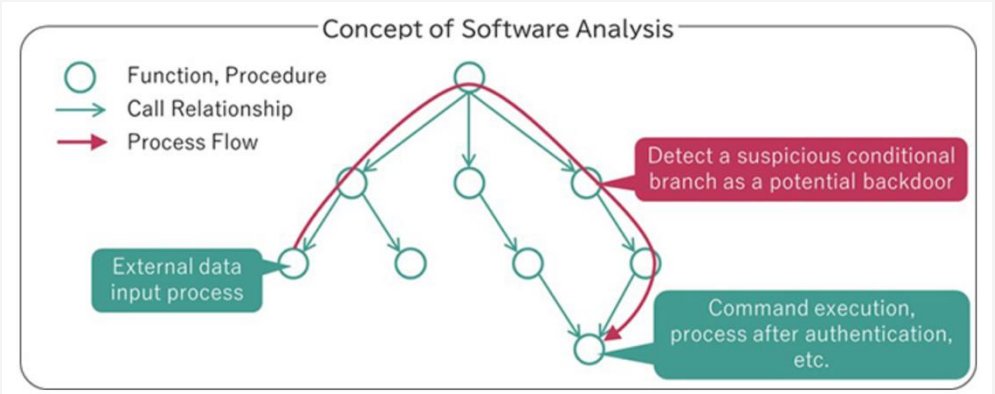


```
private static string
ParseRequest(HttpContext context)
{
  var buffer = new byte[context.Request
                                .InputStream
                                .Length];

  context.Request.InputStream.Position = 0;
  context.Request.InputStream.Read(
    buffer, 0, buffer.Length);

  return Encoding.UTF8.GetString(buffer);
}
```

```
public XMLRPCRequest(HttpContext input)
{
    var inputXml = ParseRequest(input);

    // LogMetaWeblogCall(inputXml);
    this.LoadXmlRequest(inputXml);
}

private void LoadXmlRequest(string xml)
{
  var request = new XmlDocument();
  try
  {
    if ( !(xml.StartsWith("<?xml")
        || xml.StartsWith("<method")))
    {
      xml = xml.Substring(xml.IndexOf("<?xml"));
    }
    request.LoadXml(xml);
  }
  ....
}
```

Topic 7: Embedded Security Aspects

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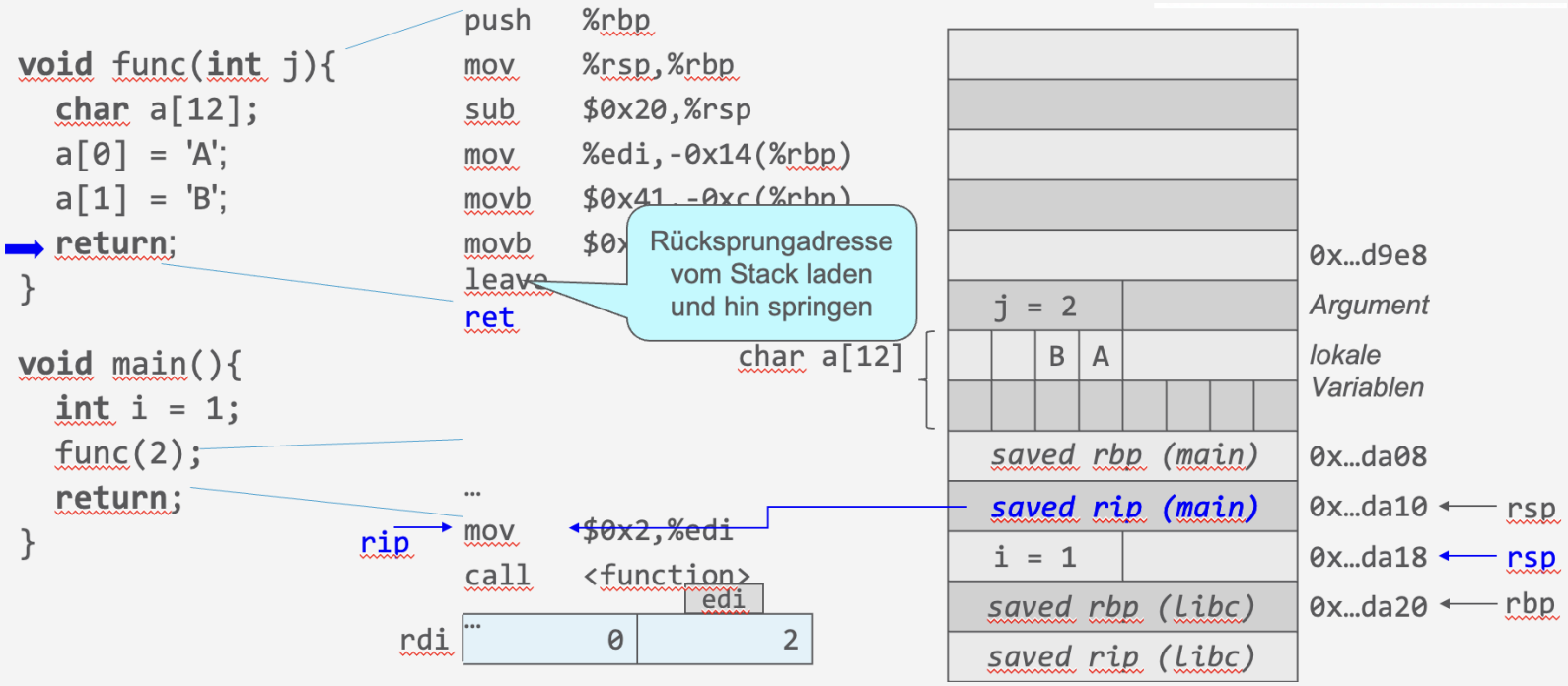
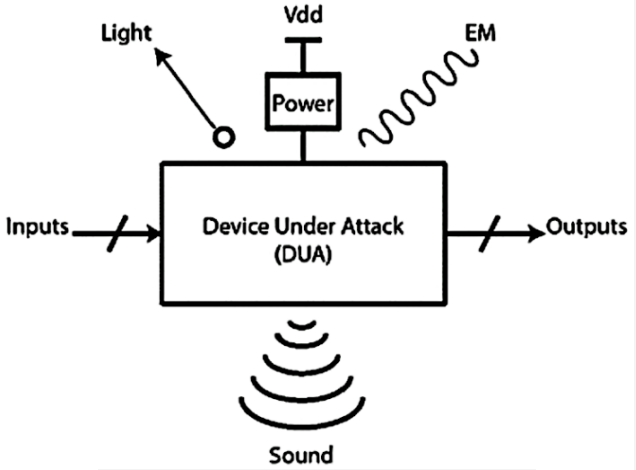
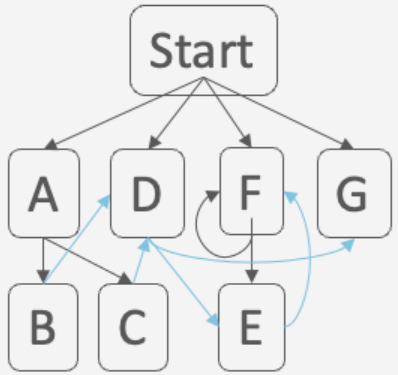




PDG



Topic 8: Machine Learning and Security

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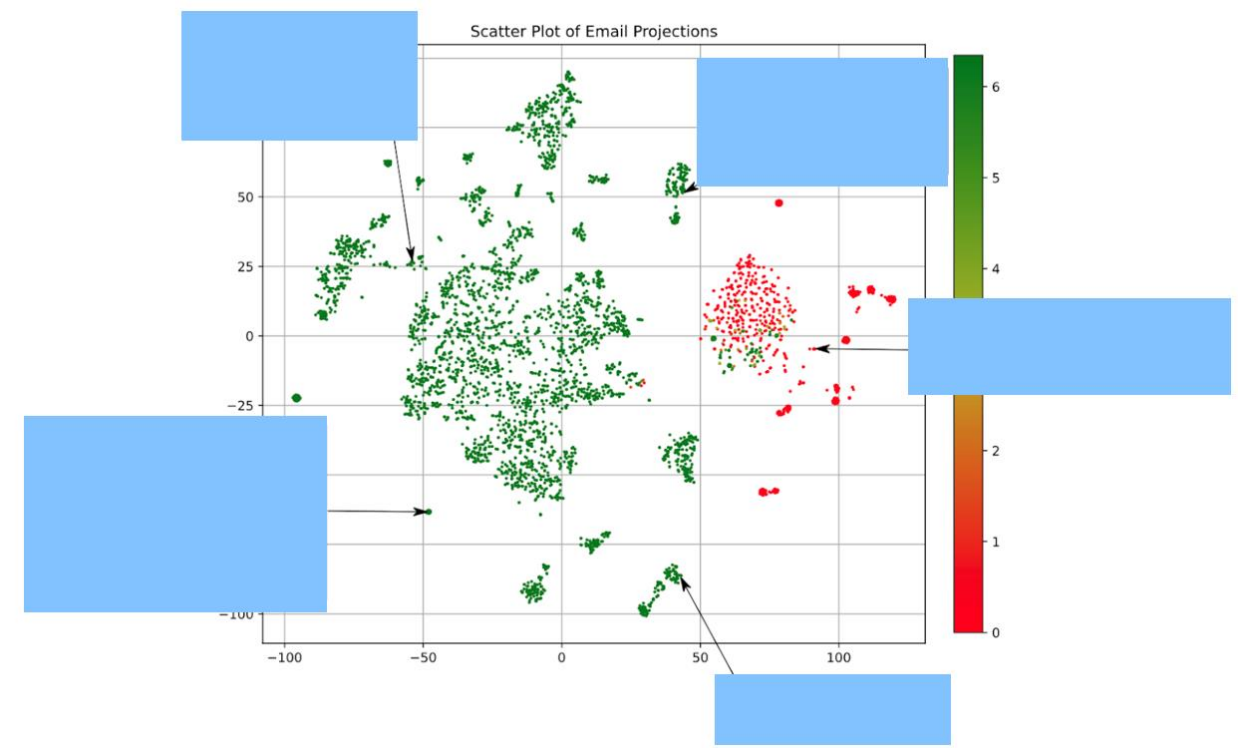
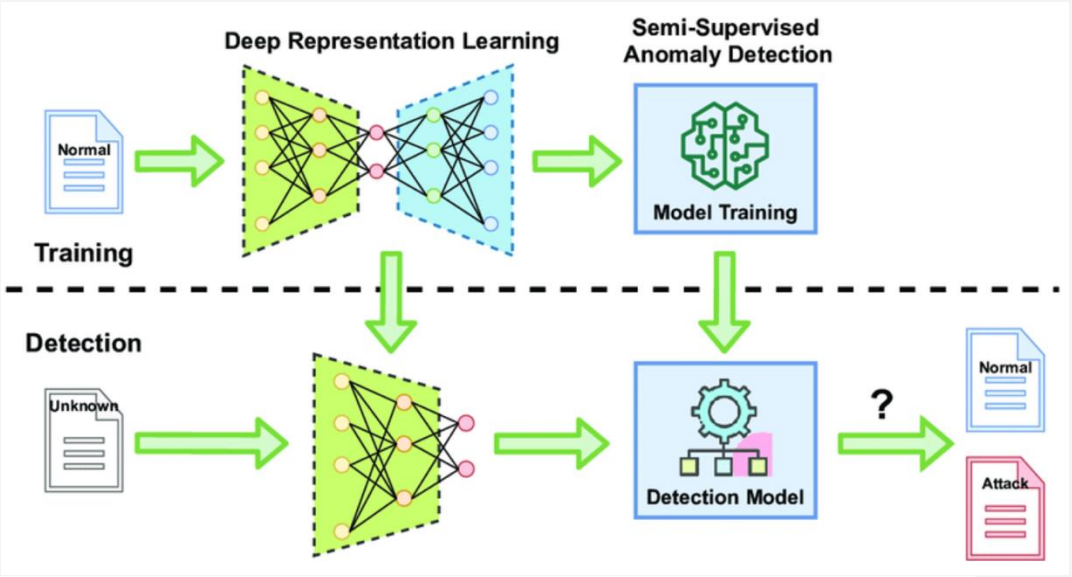
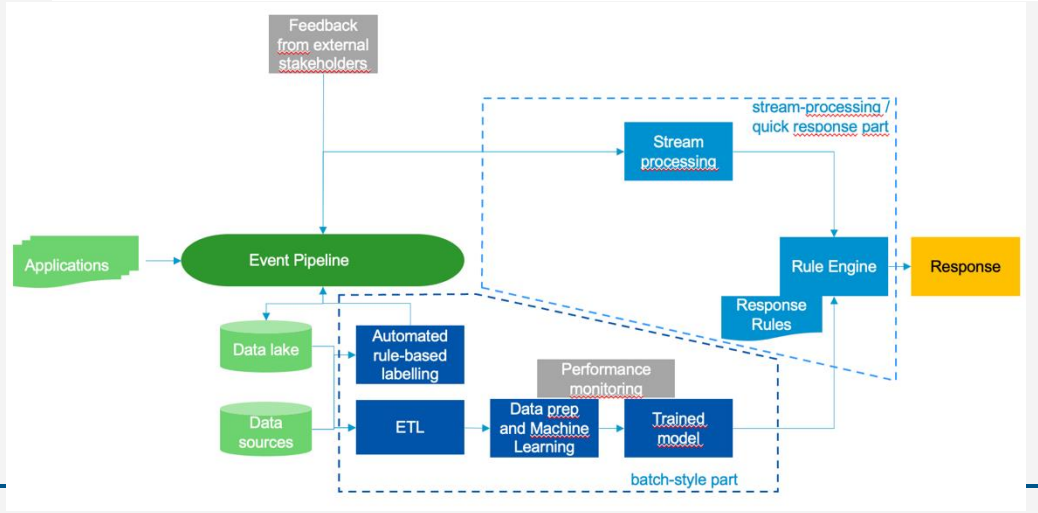
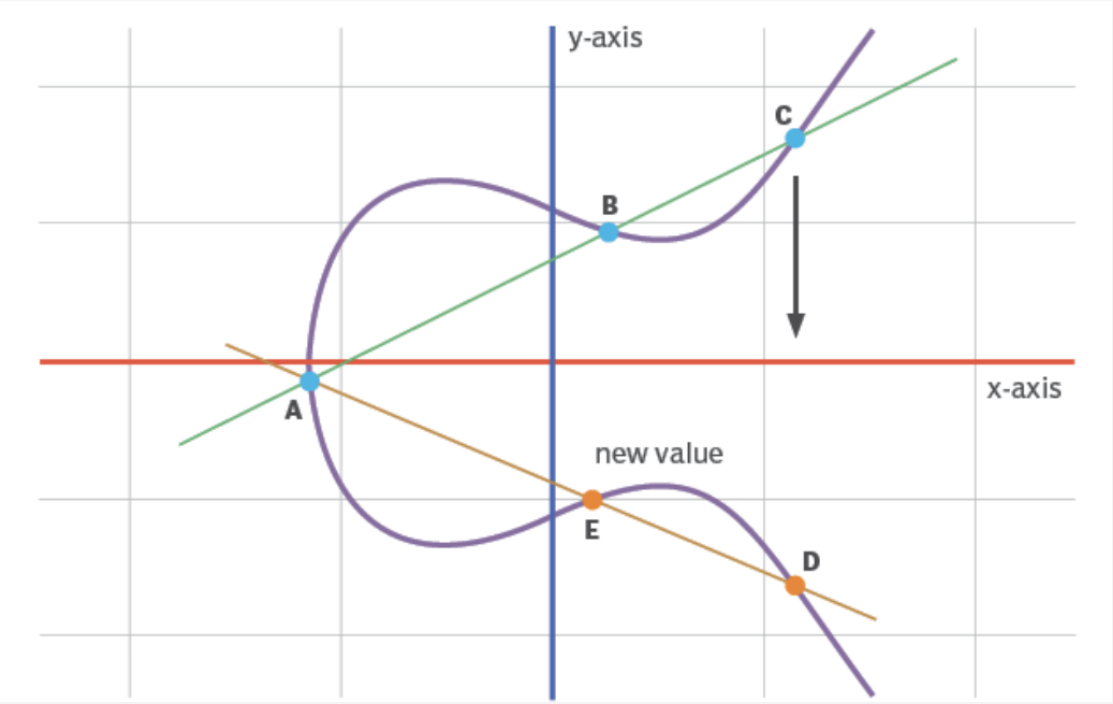






Topic 9: Advanced Aspects of Cryptography

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