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Data Privacy & Security

Week 1: Introduction to Data Privacy and Security

- Understanding the importance of data privacy and security
- Key concepts and definitions in data privacy and security
- Legal and regulatory frameworks (e.g., GDPR, CCPA)
- Data breaches and their impact on individuals and organizations

Week 2: Threat Landscape and Cybersecurity Risks

- Overview of cybersecurity threats and attacks
- Common vulnerabilities in data systems and networks
- Risk assessment and threat modeling
- Cybersecurity best practices for safeguarding data

Week 3: Data Protection and Encryption

- Principles of data protection and encryption
- Techniques for data encryption at rest and in transit
- Managing encryption keys and certificates
- Data masking and tokenization for enhanced privacy

Week 4: Access Control and Identity Management

- Authentication and authorization mechanisms
- Role-based access control (RBAC) and attribute-based access control (ABAC)
- Single sign-on (SSO) and multi-factor authentication (MFA)
- Identity and access management (IAM) best practices



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Week 5: BREAK

Week 6: Securing Data in Cloud Environments

- Cloud computing security challenges
- Data privacy considerations in cloud services
- Cloud security models (IaaS, PaaS, SaaS)
- Cloud provider compliance and certifications

Week 7: Secure Software Development and Application Security

- Integrating security into the software development life cycle (SDLC)
- Common vulnerabilities in software applications
- Secure coding practices and code review
- Application security testing and vulnerability assessments

Week 8: Network Security and Firewalls

- Network security essentials and principles
- Firewalls, intrusion detection, and prevention systems
- Virtual private networks (VPNs) for secure remote access
- Securing wireless networks and BYOD (Bring Your Own Device) policies



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Week 9: Incident Response and Data Breach Management

- Developing an incident response plan
- Detecting and responding to data breaches
- Containment and mitigation strategies
- Legal and regulatory requirements for data breach notification

Week 10: Privacy by Design and Data Minimization

- Privacy by Design principles and practices
- Data minimization and anonymization techniques
- Impact assessments and privacy audits
- Balancing privacy with data-driven insights

Week 11: Data Privacy and Security Compliance

- Compliance frameworks and standards (e.g., ISO 27001, NIST)
- Conducting privacy assessments and compliance audits
- Ensuring compliance with data protection regulations
- Handling cross-border data transfers and international privacy laws

Week 12: Employee Awareness and Training

- Importance of employee awareness in data privacy and security
- Creating a culture of security and privacy awareness
- Training employees on security best practices
- Addressing social engineering and insider threats



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Week 13: Emerging Trends in Data Privacy and Security

- Exploring current and future trends in data privacy and security
- Privacy implications of emerging technologies (e.g., IoT, AI)
- Ethical considerations in data collection and usage
- Data privacy and security in the era of Big Data

Week 14: Data Privacy & Security Governance

- Establishing a data privacy and security governance framework
- Role of data protection officers and security teams
- Data privacy impact assessments (DPIAs)
- Final project presentations and course wrap-up