DATA PRIVACY SYLLABUS

Module 1: Data Privacy and Importance

- Need for Sharing Data
- Methods of Protecting Data
- Importance of Balancing Data Privacy and Utility
- Disclosure
    - Tabular Data
    - Microdata
- Approaches to Statistical Disclosure Control
- Ethics
    - Principles
    - Guidelines
    - Regulations

Module 2: Microdata

- Disclosure
- Disclosure Risk
- Estimating Re-identification Risk
- Non-Perturbative Microdata Masking
- Perturbative Microdata Masking
- Information Loss in Microdata

Module 3: Static Data Anonymization on Multidimensional Data

- Privacy-Preserving Methods
- Classification of Data in a Multidimensional Dataset
- Group-Based Anonymization
    - k-Anonymity
    - l-Diversity
    - t-Closeness

Module 4: Anonymization on Complex Data Structures

- Privacy-Preserving Graph Data
- Privacy-Preserving Time Series Data
- Time Series Data Protection Methods
- Privacy Preservation of Longitudinal Data
- Privacy Preservation of Transaction Data

Module 5: Threats to Anonymized Data

- Threats to Anonymized Data
- Threats to Data Structures
- Threats by Anonymization Techniques
    - Randomization
    - k-Anonymity
    - l-Diversity
    - t-Closeness

Module 6: Dynamic Data Protection

- Dynamic Data Protection
    - Tokenization
    - Understanding Tokenization
    - Use Cases for Dynamic Data Protection
    - Benefits of Tokenization Compared to Other Methods
    - Components for Tokenization

Module 7: Privacy-Preserving Test Data Generation and Privacy Regulations

- Test Data Fundamentals
- Insufficiencies of Anonymized Test Data
- Privacy Regulations
    - UK Data Protection Act
    - Swiss Data Protection Act
    - HIPAA
    - General Data Protection Regulation (GDPR)