

37. Privacy-First Analytics & Differential

Privacy Description:

Build analytics pipelines that apply differential privacy/masking before aggregating data; Django acts as analytics API and policy enforcer.

URLs: Differential Privacy, OpenDP, Google DP Library, Apache Airflow, Differential Privacy Wikipedia.

Stack / Tools:

- OpenDP / Google DP libraries, data pipelines (Airflow), anonymization libraries

- **Key topics:** epsilon budgets, noise mechanisms, utility vs privacy trade-offs

Application Ideas to Implement:

- Healthcare analytics with differential privacy for patient data aggregation
- Government statistics platform with privacy-preserving data analysis
- Social media analytics with differential privacy for user behavior insights
- Financial analytics with privacy-preserving transaction pattern analysis
- Note: One of these ideas or other interesting ones could be implemented.

Functions, Classes, and Concepts to detail in slides:

- Detail, describe, and explain the keywords and connect vocabularies of the subject title:

"Privacy-First", "Analytics", "&", "Differential", "Privacy".

- Make comparisons between related concepts and technologies, and provide syntax overview of key implementations and patterns.
- DP methodologies, policy enforcement, and auditing compliance