Title: Functional dependencies, cardinality constraints, and Armstrong tables

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Abstract: Database dependencies are rules used to ensure the consistency and integrity of data in databases. These rules restrict the data that can be inserted or modified, enforcing specific requirements that maintain high data quality. Clean and consistent data are important for feature engineering to prevent poor model performance. Algorithmic methods are in demand for managing dependencies effectively. Several research questions arise in this context: the implication problem (determining whether a dependency is implied by a given set of dependencies), the discovery problem (mining which dependencies hold in a given database instance), and the representation problem (constructing a database instance that precisely reflects a set of dependencies). In this talk, we focus on two types of dependencies: embedded functional dependencies and the interaction between cardinality constraints and functional dependencies, and survey some recent results.