Functional Dependency Identification

2CS402

By- 21BCE509

GUIDED by - ANUJA NAIR

What are Functional Dependencies?

A functional dependency is a constraint that specifies the relationship between two sets of attributes where one set can accurately determine the value of other sets. It is denoted as $X \rightarrow Y$, where X is a set of attributes that is capable of determining the value of Y. The attribute set on the left side of the arrow, X is called Determinant, while on the right side, Y is called the Dependent. Functional dependencies are used to mathematically express relations among database entities

Types of Functional Dependencies:

Trivial functional dependency

Non-Trivial functional dependency

Multivalued functional dependency

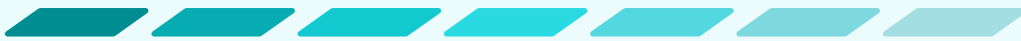*Transitive functional dependency*

Motivations

The topic of functional dependencies is a crucial one as they allow us to eliminate redundancies from the database making it faster and storage efficient at the same time.

There are two reasons to implement functional dependencies:

Maintain Consistency

Avoiding Insertion anomaly Problem

Implementing this as our project will give us insights on workings of these and challenge us to implement a logical concept in real-world by simulating it in a software environment.

Features and Project detailing

The Language of choice here is **PYTHON.**

We aim to develop **CLI (Command line Interface)** *program that will read User Input from a* **FILE (CSV)** *or through the* **PROVIDED INTERFACE** *where the user will enter a valid table.*
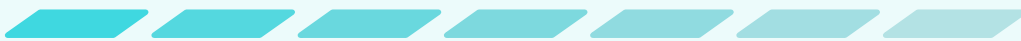
The program will Identify potential functional dependencies and display or write the output to console and file respectively.

Libraries/APIs Used

NUMpy

SCIpy

PANDAS

functional-dependencies

Additional/OPTIONAL features

❖ *Finding minimal functional dependencies from the given data*
❖ *Key Identification From the given data*
❖ *Web-based GUI*